

Data Study: **A Bus Project, A Heated Public, And a Safer Street**

TOP FINDINGS (POST-PROJECT IMPLEMENTATION)

Safer driving

behavior along
the corridor

36% reduction

in excessive speeding

30% reduction

in aggressive acceleration

21% reduction

in hard braking

Some say Mission Street is the most San Franciscan of streets. It's the longest street in the city, but not necessarily the safest. Designated a high injury corridor—with more pedestrian and auto collisions compared to other streets in San Francisco—it is also Muni's highest collision corridor, with an average of three Muni-related collisions a week.

In spring 2016, the SF Municipal Transportation Agency created the 14-Mission Rapid Project to make Muni more reliable; help ease traffic congestion; and make Mission Street safer for pedestrians, bicyclists, drivers and more than 65,000 Muni riders.

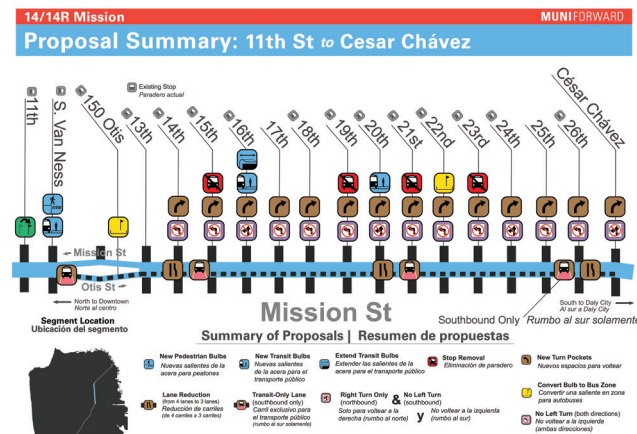
Like any dramatic change, feedback from residents and businesses was mixed, with some calling it a rage-provoking project.

But early findings from Zendrive have found that the project is making Mission Street safer. Zendrive recently conducted a study of the 14-Mission Rapid Project based on data collected before and after changes went into effect. Using our data and technology, we examined 7,500 professional drivers (full-time and part-time rideshare and new economy drivers), 100,000 trips and 1.1 million miles driven from January to October 2016.

PROJECT OVERVIEW

The 14-Mission Rapid Project made changes on Mission Street between 14th and 30th streets that included a red-transit only lane for the 14-Mission and 49-Van Ness/Mission bus routes, restricted left turns and forced right turns at some intersections. In addition, Mission Street between 11th and Cesar Chavez now consists of one southbound transit-only lane with a northbound-shared lane.

The main goals of the project were to improve driver and pedestrian safety on Mission Street; reliability and travel time of Mission Street bus routes for 67,000 daily riders; and access via Muni for local residents to get around.



BUMPY FEEDBACK FROM THE PUBLIC

Unfortunately, public feedback has been anything but a smooth ride. Locals have used phrases like “rage-provoking project,” “gentrification on steroids,” and even “ethnic cleansing of the Mission” to describe the project.

Local business groups like the Mission Economic Development Agency complained that shops closed and workers were laid off since the project went into effect. Merchants alleged that the forced turns made it impossible to find parking, and that the lanes created a hostile “psychological barrier” that scared off customers.

Protesters said the economic cost to the city was simply not worth the few extra minutes gained by transit riders.

ZENDRIVE METHODOLOGY

Using our data and technology, we examined a sample dataset of 7,500 drivers, 100,000 trips and 1.1 million miles driven from January 1, 2016 to October 31, 2016.

We divided the observed 10 months into three periods, including a period of six months after the project was fully implemented:

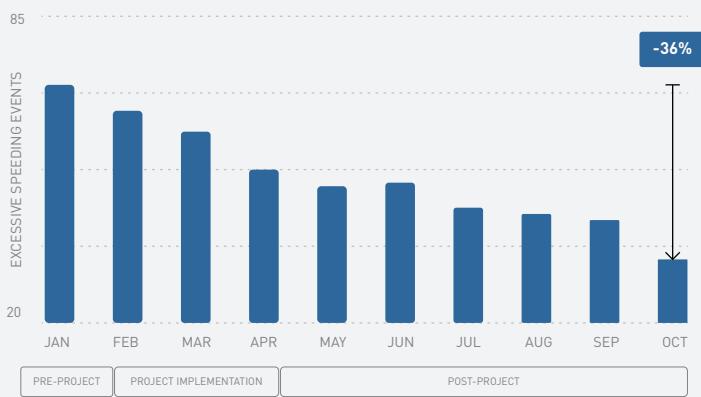
- Pre-Implementation: January
- Implementation: February - April
- Post-Implementation: May - October

Our findings are based on a comparison of pre-implementation data along the corridor (January) with post-implementation data (monthly average of May - October). We normalized corridor data using pre-implementation San Francisco traffic flow as a base case and calculated events per 1,000 trips.

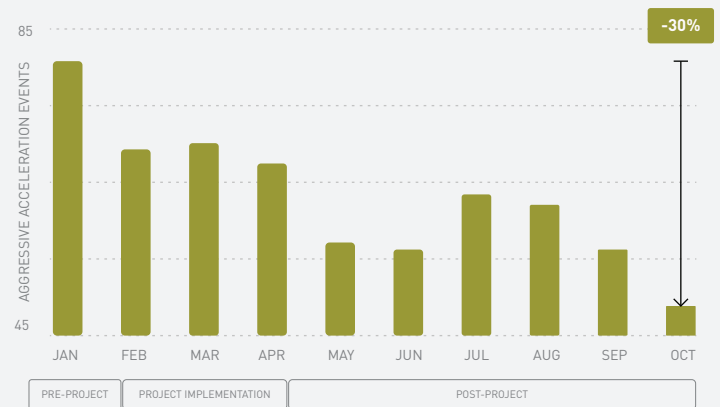
REDUCTION IN RISKY DRIVING: LESS SPEEDING, RAPID ACCELERATION AND HARD BRAKING

There was a 16% average reduction in risky events per 1,000 trips along the impacted corridor post-implementation vs pre-implementation. Zendrive measures “risky” driving by collecting data on excessive speeding, aggressive acceleration, hard braking, and phone use events.

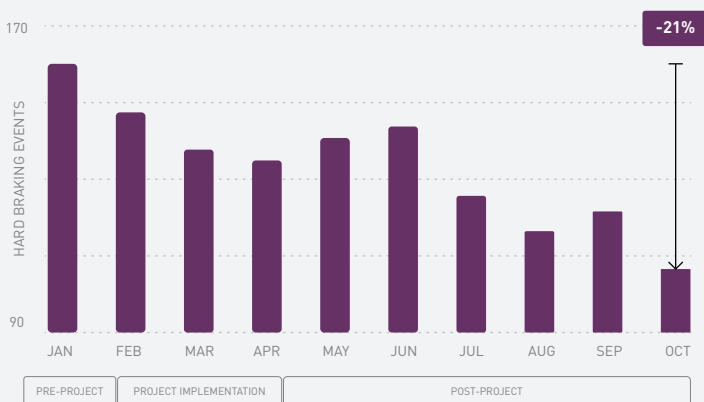
The decrease in risky driving is particularly striking for speeding, hard braking and fast acceleration, as distracted phone use is not directly impacted by the project. The below graphs of individual events show an overall reduction in these events post-implementation vs pre-implementation, and risky events continue to decrease.



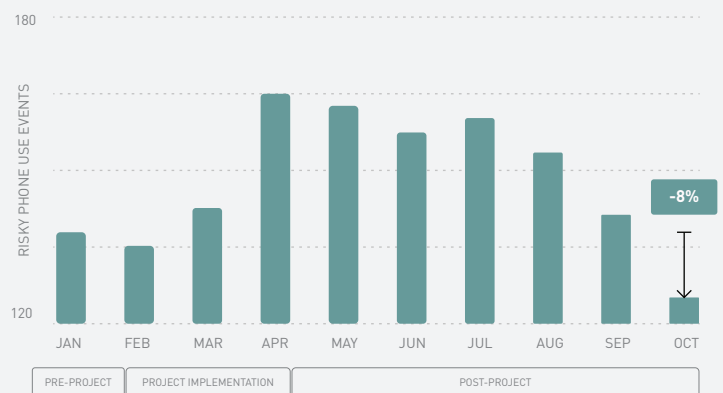
EXCESSIVE SPEEDING
36% REDUCTION



AGGRESSIVE ACCELERATION
30% REDUCTION



HARD BRAKING EVENTS
21% REDUCTION



RISKY PHONE USE
8% REDUCTION

Traffic volumes along the impacted Mission Street corridor were normalized to account for seasonality and fluctuations in overall city traffic volume. All percentage decreases in driving events, such as speeding, were normalized to account for the reduction in total traffic volume along the corridor. City collision data was provided by The San Francisco Department of Public Health (SFPDH) and the San Francisco Municipal Transportation Agency (SFMTA).

In transportation jargon, the 14-Mission project is a modified “road diet.” Road diets are safety projects that reconfigure lanes on a street with the goals of lowering vehicular speeds, calming reckless driving, and reducing crashes. The SFMTA’s 14-Mission Rapid Project converted four travel lanes and two parking lanes into two dedicated bus lanes and parking and travel lanes with turn pockets and restrictions, depending on the specific block. In essence, the SFMTA took a chaotic commercial corridor with poor bus service and transformed it into a bus priority route to improve the experience of the majority of people who travel and shop there—walkers and transit riders.

The 36% reduction in excessive speeding and 30% reduction in aggressive acceleration are a testament to the positive effects resulting from the 14 Mission Rapid Project. The 21% reduction in hard brakes—which is a leading indicator of collisions—may be a consequence of less speeding and acceleration, due to the prioritization of buses and pedestrians over private auto traffic. In addition, turn pockets and restrictions help mitigate delay for through traffic while keeping pedestrians safe as they cross the street.

Twenty-six percent of car crashes in the US involve the use of a cell phone. Research shows there is a relationship between phone use and risky driving behavior, especially when phone use events are followed by a dangerous action such as hard braking or aggressive acceleration. While smaller, the 8% reduction in risky phone use may play a role in contributing to the larger reductions in risky driving events measured in this analysis.

This means that safety has improved and continues to improve for pedestrians, bicyclists, drivers and transit riders on Mission Street.



A FUTURE WITH LESS COLLISIONS

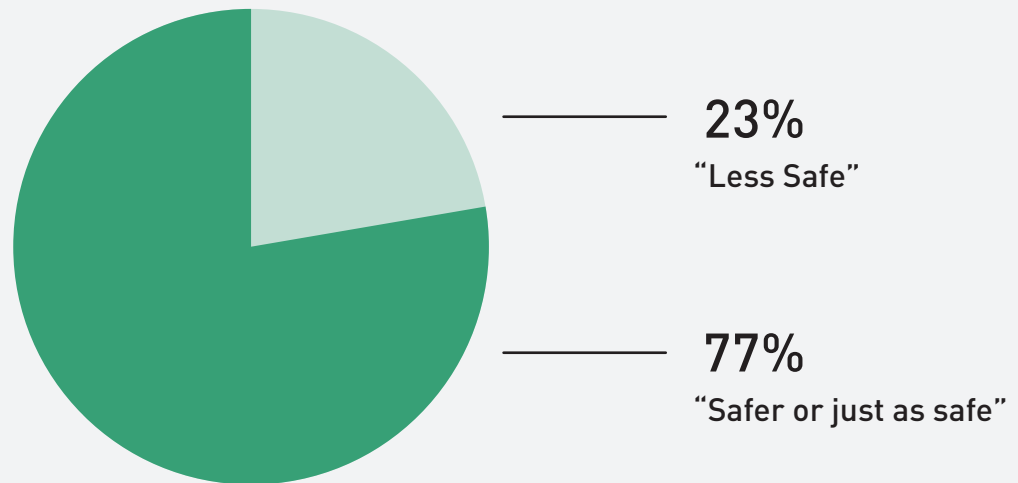
City officials note that bus collisions on Mission Street have decreased 85% compared to the previous year. Between 2007 and 2015, there were 23 traffic deaths on Mission Street. If the City of SF achieved its Vision Zero goal on that street, it would amount to a savings of at least \$750,000 a year, three times the project cost of \$250,000.

Our observed reduction in speeding, fast acceleration and hard braking on Mission Street, combined with fewer bus collisions, represent a promising sign for the continued decline of crashes.

According to a community survey conducted by the SFMTA, people already felt safer shortly after the improvements were made. The project has improved bus service and made Mission Street safer, taking San Francisco one step closer to its Vision Zero goal of no fatalities.

SURVEY RESULTS: PERCEPTIONS OF SAFETY IMPROVEMENTS ALONG MISSION STREET

As a pedestrian, do you feel safer than you did before the transit and roadway changes were made?



1320 valid responses

*2013-2015 - SFMTA-SFDPH/Crossroads; 2005-2012 - SWITRS; Data Source: TransBASESF.org

"On the days I take my daughter to school via Muni, the 14-R is flying. I'm covering 20 blocks in less than 10 minutes, which is dramatic in terms of times savings. The buses aren't encumbered by traffic, even during rush hours at 8 AM or 5:30 PM. I much prefer the 14-R over the J for getting across town, since you can get there faster than if you were in a car."

LOCAL COMMUTER MATTHEW ROTH

ABOUT ZENDRIVE

Zendrive's mission is to make the world's roads safer through data and analytics. It represents the next wave of safety innovation as the world rapidly moves toward the future of transportation that includes on-demand and autonomous vehicles. Zendrive provides insurers and fleets with direct line-of-sight into driving behavior and risk with the ability to meaningfully reduce that risk along with operational costs.

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