

# Pedestrian head starts downtown show promising early results

## Summary

Vision Zero has results from new analysis showing reductions in crashes involving pedestrians at locations where [ATD implemented leading pedestrian intervals \(LPIs\) downtown in late 2019](#). While the decrease in activity during the COVID-19 pandemic contributed to fewer overall crashes citywide, the new analysis shows that intersections that received LPIs saw an additional reduction in pedestrian crashes involving turning vehicles compared with intersections that did not receive LPIs. Although the pandemic has made before and after comparisons difficult, the early results suggest that these relatively low cost countermeasures have improved safety for people walking downtown. Vision Zero plans to conduct regular follow-up studies to better understand how the LPIs are impacting safety.

## Problem Statement

Traffic fatalities involving pedestrians are [on the rise nationally](#), with the number of people struck and killed by drivers while walking increasing 45% between 2010-2019. On average, over 90 people are seriously injured or killed while walking in Austin each year. In an effort to combat this rising epidemic, cities are seeking to implement proven safety countermeasures that can be implemented quickly and inexpensively to reduce risk for pedestrians. Vision Zero staff sought to evaluate how one such countermeasure—the leading pedestrian interval—might improve real and perceived safety for pedestrians in a focused geographic area to inform future expansion of LPIs as a strategy to improve systemwide safety.



Conflicts between pedestrians and turning vehicles are common downtown

## The Solution

A [leading pedestrian interval](#) is an adjustment to traffic signal timing that provides pedestrians a head-start to establish themselves in the crosswalk before vehicles are given a green signal. LPIs reduce conflicts between pedestrians and turning vehicles by increasing visibility between drivers and pedestrians and have been shown to reduce vehicle-pedestrian crashes by 13% at intersections, per [national studies](#).

While Austin Transportation Department has been implementing LPIs at individual locations for years, staff wanted to evaluate their safety performance when implemented over a focused geographic area. Downtown\* was a logical test bed given the high pedestrian activity and concentration of pedestrian-involved crashes relative to other parts of the city. **Over 12% of all pedestrian crashes in Austin occur downtown, despite making up less than 1% of the city's street network.** Similarly, downtown accounts for over 22% of pedestrian crashes involving left turning vehicles, which is a crash type that LPIs are especially effective at addressing.

Vision Zero worked closely with ATD signal engineers to define the downtown study area and develop a plan for implementing the LPIs. Staff identified 110 locations where LPIs could be installed at one or more legs of the intersection, while a handful of intersections were unable to receive them due to operational conflicts or infrastructure constraints. Three ATD engineers programmed the LPIs over 4 hours in December 2019. ATD maintains remote communication to nearly all of its traffic signal hardware, which significantly decreased the amount of time required to implement these changes across such a large number of intersections.

\*For this initiative “downtown” was defined as all intersections bounded within the area of 15th Street, North Lamar Boulevard, West Cesar Chavez Street and Interstate 35

## Results

The COVID-19 pandemic and subsequent lockdowns starting in March 2020 occurred just a few months following the implementation of the downtown LPIs. The overall decrease in travel activity—and thus, exposure to conflicts — made before-and-after safety comparisons difficult. For a sense of how much activity decreased, staff found that in the year following the first lockdowns in March 2020, crashes for all modes decreased downtown by 64% and bicycle and pedestrian volume counts on the South 1st Street bridge decreased 33%.

To evaluate the safety performance of the LPIs while controlling for the substantial decrease in activity, staff calculated the annualized number of crashes at each study location for the three years prior to LPI implementation (12/1/16 - 11/30/19) as well as the one year following implementation, starting in April 2020 (4/1/20 - 3/31/21). Staff then compared the before and after crash rates at these locations with annualized crash rates for a control group consisting of downtown intersections that did not receive LPIs. The difference in crash rates at the study locations compared with the control group was then used to quantify the relative safety performance of the LPIs.

**The data showed an additional 18 percentage point reduction in the annualized number of pedestrian crashes involving left turning vehicles at downtown intersections that received LPIs in the year following LPI implementation compared with those that did not.** There was also an additional 54 percentage point reduction in the annualized number of pedestrian KAB crashes (combined fatalities, serious injuries and non-incapacitating injuries) involving left turning vehicles at these locations. For pedestrian crashes involving right turning vehicles, there was an additional 36 percentage point reduction in the annualized number of pedestrian crashes intersections that received LPIs.

Vision Zero also conducted an intercept survey of pedestrians downtown in February 2020 to understand how the LPIs were impacting people's perceptions of comfort and safety. Of the 166 people surveyed, 87% agreed that they felt safer crossing at an intersection knowing they had a head-start due to the LPI, and 60% agreed that they were more likely to use a crosswalk knowing that it has an LPI. Roughly half of people surveyed noticed that the LPIs had been implemented.

## Future Work

Although changes in travel patterns during the COVID-19 pandemic have made apples-to-apples comparisons difficult and sample sizes are relatively small, early data show an additional reduction in vehicle-pedestrian crashes at downtown intersections that received LPIs compared with those that did not. As travel patterns and activity begin to approach pre-pandemic levels, Vision Zero will re-run the analysis to better understand the impacts of the LPIs on pedestrian safety to help inform future application of this countermeasure at other locations across the city.