

Austin Puts Pedestrians Out Front with Widespread Leading Pedestrian Intervals

Austin, Texas

KEY ELEMENTS:



Intra-agency Collaboration



Remote Traffic Signal Programming and Monitoring

In 2019 the City of Austin Transportation Department (ATD) implemented Leading Pedestrian Intervals (LPIs) at 110 intersections in the Austin central business district to improve pedestrian safety in the City's most active pedestrian environment. The effort required collaboration between ATD Vision Zero Program staff, traffic signal engineers, and public information personnel. The City received overwhelmingly positive feedback from the public following implementation and it is continuing to monitor pedestrian safety effects.

BACKGROUND

Austin's goal of Zero traffic-related fatalities and serious injuries coupled with the desire to use proven safety countermeasures motivated ATD to implement LPIs at downtown signalized intersections. LPIs are adjustments to traffic signal timing that provide pedestrians a head-start to establish themselves in the crosswalk before vehicles are given a green signal; they reduce conflicts between pedestrians and turning vehicles by increasing pedestrians' visibility to drivers.

Austin's downtown road network is a one square mile grid bounded by arterials to the north, south, west, and Interstate 35 to the east. ATD identified downtown as an opportunity to systemically implement a proven countermeasure in a small, defined area. Vision Zero staff performed data analysis that shows an overrepresentation of pedestrian crashes in the downtown area, and the top contributing factor for pedestrian crashes in downtown Austin is failure of the motor vehicle driver to yield the right of way to the pedestrian. LPIs can specifically address this crash type.



Figure 1. Photo. A turning vehicle yields to pedestrians in downtown Austin.

Case Study: Austin Puts Pedestrians Out Front with Widespread Leading Pedestrian Intervals

STEP: https://safety.fhwa.dot.gov/ped_bike/step/

TECHNICAL CONSIDERATIONS

ATD identified several signal operations and capacity considerations that could affect LPI implementation throughout downtown. For example, certain minor corridors had short green bands of around 12 seconds. A green band is the amount of time available for vehicles to pass through a roadway network at a determined speed. LPIs would decrease these green bands to 7 seconds, which could encourage red-light-running when drivers leave one intersection just as the downstream signal turns yellow. However, adjusting signal offsets can prevent this situation.

Staff also had to consider the fact that many downtown Austin intersections already operate at capacity. The LPI can increase intersection delay by holding up through traffic, even though through movements do not conflict with the pedestrian crossings. ATD engineers decided to reduce intersection delay for through movements by implementing flashing yellow arrows for the left turns to allow for the LPI.

IMPLEMENTATION

After considering operational factors, ATD determined that LPIs could be implemented at 110 of 135 downtown Austin signalized intersections. Three ATD engineers implemented the LPIs over 4 hours during December 2019. ATD maintains remote communication with nearly all of its traffic signals through its advanced traffic management system (ATMS). This significantly decreased the amount of time to implement LPIs. The ATD decided to set all LPIs to 5 seconds after reviewing operations.

"This is one of the most successful projects we've ever done. It required very little staff time, and we've received tons of positive feedback from the public."

– Robin Osborne, Traffic Engineer, City of Austin Transportation Department

RESULTS

ATD conducted an intercept survey of 166 pedestrians in downtown Austin following the LPI implementation. Eighty-seven percent of respondents agreed or strongly agreed that they felt safer crossing at an intersection knowing they had a head-start due to the LPI. Furthermore, 60 percent agreed or strongly agreed that they are more likely to use a crosswalk knowing that it has an LPI. ATD plans to continue to monitor the project through before-and-after video collection and crash data analysis.

Downtown street network is **1%** of Austin's overall network, but accounts for **12%** of all pedestrian crashes and **17%** of intersection-related pedestrian crashes.

LPIs implemented at **110** of **135** downtown signalized intersections.

Implementation took **12 person-hours**.

The LPIs were all set at **5 seconds**.

87% of survey respondents felt safer crossing at an intersection with an LPI.

60% of survey respondents are more likely to use a crosswalk knowing it has an LPI.

References

¹"Downtown Leading Pedestrian Interval Initiative." City of Austin Transportation Department. Presented at Pedestrian and Bicycle Focus Cities and States Quarterly Meeting. February 27, 2020.