SMART

GRANTS PROGRAM

Smarter Intersections Pilot Project

Texas Department of Transportation (TxDOT)

PROJECT PARTNERS

Texas A&M Transportation Institute (TTI)
City of College Station
Texas A&M University Transportation Services
Brazos Transit District
Beep

PROJECT CHALLENGE

According to the National Highway Traffic Safety Administration, traffic fatalities increased by 10.5% between 2020 and 2021, reaching levels not seen since 2005. In Texas, TxDOT records indicate that 1 in 6 traffic fatalities involve a pedestrian, and 1 in 5 involve a bicyclist. Nationwide, pedestrians died in 25% of the fatal crashes involving buses in 2020, and stories of bicyclists dying in bus crashes have been reported in local Texas news stories in Houston and Austin. The Smarter Intersection Pilot Project is deploying and testing smart infrastructure and communication technologies to improve intersection safety and mobility for pedestrians, bicyclist, and those using mobility devices, including people with mobility and visual disabilities.

IMPACT

The Stage 1 Smarter Intersections Pilot Project focuses on five intersections in College Station, TX. College Station is home to the Texas A&M University, the largest university in the state with nearly 73,000 students. With the large student population, College Station has a high volume of walkers, bikers, and people riding buses. The Smarter Intersection Pilot Project is deploying and testing smart infrastructure and communication technologies to improve intersection safety and mobility for pedestrians, bicyclist, and other vulnerable road users. The anticipated impact is that the deployed technologies will provide accurate and timely information on turning buses to pedestrians, bicyclist, and other vulnerable road users to improve safety at the intersections.

CURRENT STATE OF THE ISSUE

There has not been a deathless day on Texas roadways in 23 years. Although preliminary 2023 data for Texas shows a slight reduction of 2.8% in crashes resulting in a fatality, the number involving pedestrians and bicyclist remained relatively constant. Crashes involving buses and pedestrians, bicyclist, and other vulnerable roadways users continue to be a concern in large cities and smaller communities in Texas.

POLICY QUESTIONS

1) Are the C-V2X technologies and communication methods accurate, dependable, and useful enough that state and local agencies should encourage or promote more widespread use? 2) Are there other policies and programs state and local agencies should promote and implement in conjunction with the Smarter Intersections to further improve safety and reduce crashes involving all road users at intersections?

STAGE 1 OUTCOMES

A first outcome from the project is that the C-V2X roadside units at the intersections and the on-board units on the buses function properly. The evaluation will monitor and document that the technology detects the turning buses and activates the audio announcement and illuminates the supplemental bus signs. A second outcome from the project is that pedestrians, bicyclist, and other vulnerable roadways users find the audio announcement and illuminated bus signs of benefit in safely crossing the intersections. Intercept surveys will be used to obtain information from intersection users on their reactions to the system. A third outcome will be the reaction of B/LV people to the potential of a smartphone app to assist in navigating the intersections.

STAGE 2 VISION

The Stage 2 vision is to expand the deployment of the Smarter Intersection technology to Houston. Although the exact location of the Stage 2 deployment has not yet been finalized, one option is to build on the METRO University District Project – Automated Mobility District in the areas around Texas Southern University (TSU), the University of Houston, and the Third Ward. A pilot of an automated shuttle was conducted on the TSU campus. The METRO automated Houston Shuttle of the Future is operating between the two universities and destinations in the Third Ward. The Smarter Intersection technology would have wider effect on improving safety in this denser urban environment, which has high levels of buses, pedestrian, and bicyclists.