SMART GRANTS PROGRAM

Leveraging Advanced Data to Deliver Multimodal Safety (LAADMS)

Nashville Department of Transportation & Multimodal Infrastructure (NDOT)

PROJECT PARTNERS

Tennessee State University (TSU)
University of Tennessee (Chattanooga)
Jones Paideia Elementary School
Nashville Civic Design Center
Metro Nashville Police Department
Greater Nashville Regional Council (GNRC)
Tennessee Department of Health
Vanderbilt University
WalkBike Nashville
Bag Lady's Fry
Equity Alliance
Ouster, Inc.
AECOM
Kimley Horn
Stansell Electric Company

PROJECT CHALLENGE

The Nashville DOT is working to achieve Vision Zero goals by enhancing safety on its high injury network (HIN), where vulnerable users like pedestrians and cyclists are often affected by collisions. Current safety evaluations depend on limited crash reports, missing data on hit-and-runs and near-misses. The LAADMS project will install LiDAR sensors at key intersections and mid-block crossings in North Nashville to identify conflict points and enhance safety, particularly in low-light conditions.

IMPACT

LiDAR devices will be installed at five signalized intersections and three unsignalized mid-block crossings along a two-mile corridor to enhance safety. The project aims to detect conflict points, identify signal deficiencies, and improve lighting for residents, visitors to local businesses, and Paideia Elementary School students. No personal identification will be collected. The corridor is served by WeGo Transit and sees steady vehicular, pedestrian, and bicycle traffic.

CURRENT STATE OF THE ISSUE

There were 270 crashes along this segment of corridor from January 2018 to September 2023; 3 crashes were fatal.

POLICY QUESTIONS

1. Where are the conflict points for pedestrians and non-vehicular traffic?
2. How can data from LiDAR devices be used to increase data management practices for Metro IT and other agencies and universities?
3. How can we apply the successes of the LiDAR to more corridors along the high injury network to increase safety in other communities? What are those corridors and communities?

STAGE 1 OUTCOMES

1. Completed map/network plotting all points of conflict
2. Increase overall safety and efficiency of corridor for multimodal users
3. Decrease pedestrian serious injuries and fatalities
4. Increase data management and sharing among agencies and universities to continue implementing strategies that reduce safety using technology

STAGE 2 VISION

The SMART Grant team aims to assess the effectiveness of LiDAR technology to guide future projects on NDOT's priority list. Graduate students and community stakeholders will gain insights from their involvement, fostering deeper understanding and motivation for further initiatives. Phase 2 is expected to expand technology use and engage new academic and workforce participants. Enhanced LiDAR and safety measures will generate more data to inform decision-making and improve transportation safety.