Countermeasures to Improve Pedestrian Safety on Arterials

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22SAUNM18

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Principal Inverstigator(s):

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Lead Institution:

University of New Mexico

Funding Source(s):

Tran-SET

University of New Mexico

Total Project Cost:

$ 130000

Improving pedestrian safety on arterials

This project will explore the impacts of several traffic safety countermeasures and roadway design changes on pedestrian safety along the Central Avenue corridor of Albuquerque, New Mexico and extrapolate those results to other locations, allowing for results to not only improve traffic safety in Albuquerque, but in other municipalities across the state, region, and country. The research will have a specific focus on pedestrian safety, but we will also address traffic safety outcomes for motor vehicle users and bicyclists. Collaboration and matching will be provided by the New Mexico Department of Transportation (NMDOT) ($50,000 matching funds and equipment in the form of four MioVision Scout Units) and the City of Albuquerque (CABQ) (matching staff time). CABQ is invested in the project because of their commitment to eliminate traffic fatalities and severe injuries through Vision Zero and NMDOT supports that effort on the state level. The countermeasures that we will explore include corridor treatments (a bus rapid transit (BRT) system, a road diet, and lane narrowings) and crossing treatments (high-intensity activated crosswalk (HAWK) signals).

Problem Statement

The timing of this project is opportune as the U.S. finds itself in the midst of a pedestrian safety crisis. Between 2009 and 2019, pedestrian fatalities in the U.S. increased 51.0% while all other traffic fatalities increased 0.4%. Unfortunately, New Mexico has had especially poor outcomes. For the fifth year in a row in 2021, the Governors Highway Safety Association (GHSA) identified New Mexico as having the highest pedestrian fatality rate in the nation (GHSA, 2021).

Thanks to recent research by the proposed PI, we know that more than 81.8% of the additional pedestrian fatalities in the U.S. occurred on arterials and 99.7% occurred in urban areas, hence the focus on arterials for this proposed work (Ferenchak and Abadi, 2021). Similarly, despite the fact that New Mexico is the 5th largest state in the U.S., an astonishing 18.7% of all pedestrian-involved collisions in the state occur within a quarter mile of a single arterial corridor: Albuquerque's Central Avenue. About a dozen pedestrians are typically killed on the corridor each year and countless others injured. If we can understand how to improve safety on this 15-mile long east/west corridor, not only will we make significant progress at improving possibly one of the worst roads in the country, but we can extrapolate those results to improve other similar arterials across the state, region, and country.

CABQ has taken note of the traffic safety issues on Central Avenue and has implemented or is in the process of implementing several countermeasures to improve outcomes. The goal of this work is to perform a comprehensive safety analysis of those countermeasures.

Objectives

This project will explore the effectiveness of different design countermeasures (bus rapid transit, road diet, lane narrowing, and HAWK signals) at improving pedestrian and motor vehicle safety through crash, vehicle speed, and pedestrian behavior analyses.

Figure 1. Similar Arterial Roadways in Cities Across New Mexico (clockwise from top left: Central Avenue in Albuquerque; US 285 in Roswell; US 180 in Silver City; US 64 in Farmington)

Intended Implementation of Research

Workforce Development, Education, and Outreach: Implementation will include reports, peer-reviewed publication, presentations at conferences, integration into coursework, and sharing with other stakeholders.

Anticipated Impacts/Benefits of Implementation

More complete understanding of roadway design and safety; improved safety outcomes.

Web links

- Tran-SET's website https://transet.lsu.edu/research-in-progress/

Tran-SET

Tran-SET is Region 6's University Transportation Center. It is a collaborative partnership between 11 institutions (see below) across 5 states (AR, LA, NM, OK, and TX). Tran-SET is led by Louisiana State University. It was established in late November 2016 "to address the accelerated deterioration of transportation infrastructure through the development, evaluation, and implementation of cutting-edge technologies, novel materials, and innovative construction management processes".

Learn More

For more information about Tran-SET, please visit our website, LinkedIn, Twitter, Facebook, and YouTube pages. Also, please feel free to contact Dr. Momen Mousa (Tran-SET Program Manager) directly at transet@lsu.edu.