



RESEARCH PROJECT CAPSULE [22-3SA]

October 2022

TECHNOLOGY TRANSFER PROGRAM

Development of Statewide Design Guidelines for Improving Pedestrian Safety on High-Speed Arterials in Louisiana

JUST THE FACTS:

Start Date:

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18 months

End Date:

March 31, 2024

Funding:

SPR: TT-Fed/TT-Reg – 6

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POINTS OF INTEREST:

Problem Addressed / Objective of
Research / Methodology Used /
Implementation Potential

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PROBLEM

The alarming increase in pedestrian fatalities across the globe is concerning. According to the National Highway Traffic Safety Administration (NHTSA), 36,096 people were killed in transportation-related crashes in the United States in 2019, of which 6,205 were pedestrians. Louisiana's pedestrian deaths rose 35.2% from 2015 to 2020. In 2020, Louisiana had 146 pedestrian deaths (17.6% of all traffic deaths), a 19.7% rise compared to 2019. Furthermore, in the first half of 2021, pedestrian deaths increased by 21% in Louisiana compared to 2020. The analysis of this data also showed higher pedestrian-related collisions on Louisiana urban roads without shoulders and sidewalks and on urbanized roads with high ADT and no sidewalks. The land-use distribution of high-speed roadway crashes involving pedestrians reveals that about 71% of crashes occurred in metropolitan roadway facilities compared to 29% in rural roadways. Several existing national recommendations provide advice on putting pedestrian safety solutions along low-speed highways at midblock and uncontrolled sites. However, information on high-speed arterials is scarce.

OBJECTIVES

The objectives of this research are to develop a statewide guideline on the provision of pedestrian facilities on Louisiana's high-speed arterials, recommend which pedestrian facilities or countermeasures will be appropriate to improve pedestrian safety for various roadway characteristics, and make a proposal to modify, as necessary, DOTD's complete streets policy and relevant Engineering Directives and Standards Manuals (EDSMs).

METHODOLOGY

To achieve the objectives of this study, several tasks will be completed. First, the team will conduct a literature review to identify the most relevant and recent studies to the scope of the proposed research. Next, the research team will group and categorize the roadway network in Louisiana according to their average daily traffic, pedestrian volumes, functional classification, surrounding land use, number of lanes and total lengths, presence or absence of medians, driveway frequencies, buses/transit stops allowed, speed limit, and presence or absence of pedestrian facilities. The roadway segments with high pedestrian-related risk factors will be determined based on crash data analysis of the available last 5 years of crash data.

The team will then identify crossing design features based on the variety of needs/risk factors and conditions that when implemented reduce pedestrian crashes by providing for safe roads, safe road users, and safe speeds.

To supplement the literature review task and to obtain information from unpublished sources in addition to documenting lessons learned directly from affected agencies, the research team will document state-of-practices through a national survey among DOTs professionals in other states and a survey of DOTD and local agencies.

Next, a matrix of design features for the safe movement along and across roadways will be developed. The team will use the findings from the previous tasks to develop a separate matrix

for rural, urban, and urbanized arterials. The matrices will be the basis for developing the statewide guidance document and making recommendations for changes in state statutes.

The team will use the results of previous tasks as well as review DOTD policies and guidance, relative EDSMs, and state and local statutes regarding pedestrians and their legal use of roadways to examine conflicts with existing DOTD policies and/or guidance. A technical memorandum that identifies conflicts with existing policies and guidance and provides recommendations to modify or replace policies will be prepared.

Next, the research team will develop statewide guidelines on the provision of pedestrian facilities on Louisiana's high-speed arterials. Lastly, a final report will be prepared to document all findings of this research.

IMPLEMENTATION POTENTIAL

The research findings will enable transportation authorities to solve or at least minimize the conflicts with existing DOTD policies and/or guidance, balance needs of all road users, and make recommendations for priority of pedestrian facilities based on pedestrian volume and safety. Accordingly, it is expected that implementing the findings of this research can assist transportation authorities in Louisiana in improving traffic safety and minimizing pedestrian-related crashes.