Research Project Name: Analyzing Driver Yielding Behavior Toward Pedestrians in Small Tourist Towns Using Crash Data and Computer Vision	
Recipient/Grant (Contract) Number: University of Washington Tacoma	
Center Name: Rural Safe, Efficient, and Advanced Transportation (R-SEAT) Center	
Research Priority: Improving Mobility of People and Goods	
Principal Investigator(s): Angela Kitali, Thobias Sando, Sagar Keshari, Emmanuel Kidando, Ren Moses, Jeffrey Walters, and Heather Dillon	
Project Partners: North Florida Transportation Planning Organization (TPO)	
Research Project Funding: $98,258.19 (Federal request); $49,130 (Non-Federal cost share)	
Project Start and End Date: 03/01/2026 to 02/28/2027	

Project Description:

Small tourist towns in the United States face unique pedestrian safety challenges that are often overlooked in traditional transportation planning. These communities experience high seasonal foot traffic, limited pedestrian infrastructure, and a mix of local and unfamiliar drivers, creating conditions that increase the risk of pedestrian-vehicle conflicts, particularly at unsignalized or midblock crossings. Despite these challenges, data-driven insights into driver yielding behavior in such contexts remain limited, particularly compared with urban environments. This project aims to fill that gap by examining driver yielding behavior toward pedestrians in small tourist towns in Washington State and Florida through an integrated analysis of crash data and computer vision. The study pursues four main objectives: (1) analyze crash data to investigate the relationship between driver non-yielding behavior and pedestrian safety outcomes; (2) quantify real-world driver yielding behavior using video footage collected at midblock or unsignalized crossings; (3) identify environmental and infrastructural factors, such as crosswalk markings, signage, and lane configurations, associated with high or low compliance; and (4) generate design and policy recommendations tailored to small-town tourist settings.

The research approach will involve a comprehensive literature review to establish a foundational understanding of driver yielding behavior, pedestrian safety challenges, and the application of emerging technologies, such as computer vision, in transportation research. The team will collect field data using high-definition cameras at various locations within small tourist towns in Washington and Florida. The videos will be processed using advanced tools, such as YOLO, DeepSORT, or OpenCV, to analyze real-world driver yielding behavior toward pedestrians. The results obtained from the field evaluation will be further validated with local crash data. The research team will develop advanced statistical models to assess driver yielding behavior, vehicle-pedestrian interactions, yielding rates, and conflict patterns. By combining traditional safety data with emerging computer vision methods, the study aims to provide a nuanced understanding of pedestrian-driver dynamics in small-town tourist environments. The findings of this research will inform actionable recommendations and best practices to improve pedestrian safety and driver yielding in small tourist towns. These recommendations will inform local and state agencies, including the Washington State Department of Transportation (WSDOT) and the Florida Department of Transportation (FDOT), in improving crosswalk design, signage, and policy enforcement to enhance pedestrian safety.

US DOT Priorities*:

Outputs: This project will provide insights into real-world driving yielding behaviors towards pedestrians at various locations of small tourist towns in Washington and Florida, various factors contributing to the yielding rate, the relationship between crashes and non-yielding behavior, conflict patterns, and high pedestrian crash risk locations. Additionally, it will provide guidelines to help transportation agencies improve mobility and safety in small tourist towns.

Outcomes/Impacts: The successful implementation of this project is expected to yield the following outcomes: (1) identification of critical locations where pedestrians face heightened crash risk and low driver-yielding behavior; (2) in-depth profiles of driver yielding and pedestrian exposure across study locations, identifying infrastructure gaps, unsafe crossings, and risk-prone behaviors; (3) development of context-sensitive planning tools to support targeted infrastructure improvements and safety campaigns for seasonal tourism and local communities; (4) a replicable model for other small towns nationwide aiming to improve safe pedestrian environments.

Final Research Report:

* Section left blank until USDOT's new priorities and RD&T strategic goals are available in Spring 2026.