Developing a Prototype System for Measuring Intersection Sight Distances

CTIPS-033 – UTC Project Information

Recipient/Grant Number:	North Dakota State University, University of Wyoming Grant No. 69A3552348308
Center Name:	Center for Transformative Infrastructure Preservation and Sustainability
Research Priority:	Preserving the Existing Transportation System
Principal Investigator(s):	Ahmed Farid, Ph.D. Khaled Ksaibati, Ph.D., P.E. Suresh Muknahallipatna, Ph.D.
Project Partners:	USDOT, Office of the Assistant Secretary for Research and Technology – $90,569 Wyoming DOT – $186,047
Total Project Cost:	$276,616
Project Start and End Date:	9/15/2024 to 9/14/2026

Project Description

The objective of this research is to develop a vehicle-boardable prototype for the Wyoming Department of Transportation (WYDOT) that can measure intersection sight distances (ISDs) in real-time. With this prototype, WYDOT will be equipped to assess and reassess sight distances at both existing and new intersections, regardless of their type. The prototype aims to reduce the costs associated with ISD assessments by automating many of the tasks involved in the process. Additionally, it will contribute to reducing intersection-related crashes, particularly those caused by inadequate sight distances. By enhancing its ability to evaluate sight distances, WYDOT will also be better positioned to protect itself from liability in the event of crashes, especially severe incidents resulting from insufficient ISDs. Furthermore, the prototype will assist local jurisdictions in efficiently assessing sight distances for both existing and new intersections, improving overall road safety and infrastructure management.

USDOT Priorities

The primary goal of this proposed project is to improve the safety of intersection by developing a prototype to measure the intermediate sight distance (ISD).

Outputs

The results and products of this project, such as developed prototype for ISDs in real time will be disseminated through peer-reviewed journal articles and showcased at scientific research conferences like the annual Transportation Research Board (TRB). This will help in transferring methodologies, results, and products to the national and international pertinent research communities. Workshops, seminars, and webinars will be arranged to further disseminate the research findings and communicate its outcomes with professionals, practitioners, and highway agencies. The incremental results and progress of this project will be consolidated in a semi-annual progress report. Upon the completion of this project, it will be synthesized along with recommendations and guidelines in a technical report.

Outcomes/Impacts

The outcome of this project is a development of a two-vehicle protype that efficiently measures the ISD in the field. It will be utilized by WYDOT, other agencies, and local jurisdictions in Wyoming to assess and reassess sight distances at intersections. This prototype is critical for the daily operations of WYDOT's traffic program. This outcome will help the WYDOT engineer to improve the safety program.

Final Report

Upon completion, the final report link will be added to the project page on the CTIPS website.