HPP PROJECT DESCRIPTION

PROJECT NUMBER:
02112

PROJECT TITLE:
Red Light Running Prediction and Application

PRINCIPAL INVESTIGATOR:
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PROJECT OBJECTIVE:
The objective of this project is to create the nation’s first tool to quickly identify candidate intersections for red light running (RLR) remediation. The process will be based on predicting locations that are most likely to experience RLR crashes and violations. First, a comprehensive analysis of the causation of RLR will be performed based on geometric, driver, and traffic flow characteristics. Then, data from RLR demonstration projects will be used to develop an RLR prediction model. The model will be used to create a simple, computerized RLR remediation site selection guide.

PROJECT ABSTRACT:
Red light running (RLR) is a major public safety concern. In order to combat RLR, transportation officials and researchers must understand the causes of RLR, be able to predict where crashes and violations will occur, and determine the most appropriate remediation. This research seeks to construct a model to predict RLR violations and crashes based upon intersection geometry and traffic operational characteristics. RLR violation data from Iowa, Alabama, and Georgia will be used to determine which intersection geometries and traffic characteristics are more susceptible to RLR. The resulting model will then be used as the basis for the development of an RLR remediation intersection selection guide. This guide will rank intersections on an A to F scale (similar to Level-of-Service ratings) and allow transportation officials and researchers to quickly select candidate intersections for the implementation of RLR remediation (i.e. changes in signal timings, placement of automated enforcement, etc).

PROJECT TASK DESCRIPTIONS:
1) Literature Review
2) RLR Data Collection/Site Visits
3) Data Analysis
4) Development of RLR Prediction Model
5) Development of RLR Remediation Site Selection Technique
6) Final Report Writing

MILESTONES AND DATES:
Task 1: Jan 1 – Feb 28, 2002
Task 2: Mar 1 – April 30, 2002
Task 3: May 1 – July 30, 2002
Task 4: Feb 15 – Aug 1 – Sep 30, 2002
Task 5: Oct 1 – Nov 30, 2002
Task 6: Dec 1 – Dec 31, 2002

TOTAL BUDGET:
One-year project: UTCA $50,460.

STUDENT INVOLVEMENT:
Two graduate students will contribute to the research effort.

RELATIONSHIP TO OTHER RESEARCH PROJECTS:
This project is closely related to UTCA Project #00470 “Automated Enforcement Feasibility.” That ongoing project will provide Alabama RLR data, which will be critical to the development of this research. The two projects will partially overlap, and members of the two research teams will be able to coordinate and share ideas, experience, and information.

TECHNOLOGY TRANSFER ACTIVITIES:
The results of this research will be disseminated to parties within Alabama and in other regions that are investigating aspects of RLR through the UTCA final report and Mr. Hill’s M.S. thesis. The researchers will prepare conference presentations and refereed journal articles.

POTENTIAL BENEFITS OF THE PROJECT:
The project will benefit transportation officials and researchers who seek to understand the causation of RLR and must develop and/or deploy RLR countermeasures. The RLR prediction model and the guide to RLR remediation site selection will be the first tools of their kind to be produced. They will be valuable tools for those who seek a quick and efficient method to select candidate intersections for RLR remediation efforts. Additionally, intersection designers will be able to compare proposed intersection designs or proposed modifications to existing intersections to determine to what degree RLR will be a problem at the future intersection.

TRB KEYWORDS:
Safety, red light running, automated enforcement, intersections