Research Project Description Form

Project Number: 211041

Project Title: Morgantown Traffic System Improvement Project

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Project Objective: Improve traffic flow in the Morgantown area through improved detection, traffic control, and intersection configuration.

Abstract: This project seeks to improve the overall flow of traffic in the Morgantown area, specifically the downtown central business district and the 705 Corridor adjacent to the Coliseum and Stadium. Both of these systems experience inconsistent traffic patterns from day-to-day and month-to-month due to the University, industrial work schedules, and special events. These unique traffic patterns cannot be adequately handled with traditional time-of-day traffic signal control. This project will evaluate advanced signal control strategies including Traffic Responsive Control and ACS-Lite in a simulation environment and deploy the optimal control strategy or a hybrid of those strategies. This project will be the first known project in the United States to evaluate ACS-Lite in a simulation environment. The infrastructure for computing signalized intersection performance measures, including state-of-the-art vehicle detection and a central management system will allow the deployment to be evaluated, another first in the United States for ACS-Lite. This central management system will also be scaled in the future to monitor other systems around

West Virginia. A major benefit of this system is the ability to remotely fine-tune signal operations and continuously monitor detector operation and signal status to trigger technician site visits. Expected results of this project due to the optimization benefits would produce reduced delay, shorter vehicle queues, and improved air quality. This project is a collaborative effort with Purdue University, West Virginia University, and the University of Akron.

Task Descriptions:

A. Downtown Corridor Signal Design and Implementation
B. Downtown Corridor Signal Timing
C. Downtown Circulation Study
D. 705 Corridor Signal Design and Implementation
E. 705 Corridor Advanced Signal Control Evaluation and Timing Plan Development
F. 705 Intersection Alternatives Analysis (Van Voorhis Rd & Chestnut Ridge Rd Intersection)

Milestones, Dates, Schedule:

	Sep-10	Oct-10	Nov-10	Dec-10	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11	Oct-11	Nov-11	Dec-11	Jan-12	Feb-12
A																		
B																		
C																		
D																		
E																		
F																		
G																		

Yearly and Total Budget: Total: $1,892,366

Student Involvement: Approximately two undergraduate students and four graduate students will work on this project.

Relationship to Other Research Projects: None

Technology Transfer Activities: Roundabout Design Workshop

TRB Keywords: Adaptive control, traffic signals, performance measures, simulation