

**OHIO DEPARTMENT OF TRANSPORTATION  
OFFICE OF TRAFFIC ENGINEERING  
RESEARCH IMPLEMENTATION PLAN**



**Title:** Dilemma Zone Protection & Signal Coordination at Closely-Spaced High-Speed Intersection.

**State Job Number:** 14673  
**PID Number:** N/A  
**Research Agency:** University of Cincinnati  
**Researcher(s):** Prahlad Pant  
**Technical Liaison(s):** Satya Goyal  
**Research Manager:** Monique Evans  
**Sponsor(s):** Tony Vogel, Dave Holstein  
**Study Start Date:** 3/17/1997  
**Study Completion Date:** 7/31/2001  
**Study Duration:** 53 months  
**Study Cost:** \$122,971.00  
**Study Funding Type:** 80 Federal/20 State from ODOT SPR (2)

**STATEMENT OF NEED:** Assess the feasibility of reducing decision Zone (also call dilemma Zone) through adjustments of signal timing.

**RESEARCH OBJECTIVES:** Coordination of signal timing on closely-spaced (100-2000 ft.) high speed (>/<35mph) signalized - intersections. Also testing and implementation of this study may be useful.

**RESEARCH TASKS:** Intensive collection and analysis of traffic flow data by installing 6 Cameras and simulating recording of vehicular movements.

**RESEARCH DELIVERABLES:** Detection of the positions and speeds of all vehicles before green light changes to yellow, Prediction of number of vehicles caught in a dilemma zone and calculations of the optimal green extension.

**RESEARCH RECOMMENDATIONS:** The technique developed in this study can be implemented if the speeds and positions of all vehicles can be recorded at small intervals.

**PROJECT PANEL COMMENTS:** Excellent Study and will require further testing.

**IMPLEMENTATION STEPS & TIME FRAME:** This project has been continued as project # 14754 concluded in May, 2005.

**EXPECTED BENEFITS:** May review for possible implementation when project #14754 is completed

**EXPECTED RISKS, OBSTACLES, & STRATEGIES TO OVERCOME THEM:** Project # 14754 may show that field implementation of the dilemma zone protection system is not practical.

**OTHER ODOT OFFICES AFFECTED BY THE CHANGE:** All Districts if this study implemented.

**PROGRESS REPORTING & TIME FRAME:** Research is continued on for field implementation with Project # 14754, there is no need for progress reporting.

**TECHNOLOGY TRANSFER METHODS TO BE USED:** The final report has posted on the ODOT Office of Research & Development website and the hard copy of this report was distributed to other national libraries.

**IMPLEMENTATION COST & SOURCE OF FUNDING:** The cost for Project # 14754 is \$159,094.00 which comes from Research SPR II funds.

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**Approved By:** (attached additional sheets if necessary)

Office Administrator(s):

Signature:     Dave Holstein     Office: Traffic Engineering Date:     6/2/2006    

Division Deputy Director(s):

Signature:     Tony Vogel     Division: Highway Operations Date:     6/2/2006