

I. RESEARCH PROJECT TITLE

Increased Pedestrian Safety and Decreased Motorist Delay with a Hawk Pedestrian Signal

II. RESEARCH PROBLEM STATEMENT

A recent, major research study by the Texas Transportation Institute has shown that traffic signals at pedestrian crossings are by far the most effective - arguably the only effective-means of decreasing pedestrian risk of death or injury at pedestrian crossings. The US Access Board, in its role of developing and enforcing guidelines that will likely become enforceable ADA standards, will require pedestrian signals at all roundabouts with two or more lanes. Kansas is a leading state in promoting roundabouts and should be looking toward meeting this requirement.

Pedestrian signals, particularly at mid-block crossings and at roundabouts, cause motorist delay. It may be unnecessary, excessive delay. In many cases at a pedestrian signal, a pedestrian pushes the button and then runs or quickly crosses the street as soon as the walk appears (sometimes even before) and motorists are still facing several seconds of a solid red ball and by law must remain stopped. On a busy street a queue of vehicles waiting after a pedestrian has crossed can amount to hundreds of hours of unnecessary delay. However, there is an experimental pedestrian signal, the HAWK, which can significantly reduce this delay while still proving safety to pedestrians. It is used in Europe and in one experimental location in the USA. With the HAWK signal a driver gets the red ball as the pedestrian gets the walk indication as with a regular signal; however, after a few seconds into the pedestrian walk phase the red ball facing the driver goes to flashing red for the final seconds of the walk phase and the driver may proceed if the crosswalk is clear, i.e. the pedestrian(s) has(have) crossed. The HAWK appears to be the pedestrian signal "of the future" at mid-block pedestrian crossings and multi-lane roundabouts and needs more study. Is it a cost-effective and desirable alternative in Kansas?

III. RESEARCH OBJECTIVES

The objective of this research is to study and document the safety benefits to pedestrians and reduction of delay to motorists. The City of Lawrence is interested in exploring the benefits of the HAWK signal and will install a HAWK signal at a mid-block pedestrian crossing at their expense. This installation has been approved by the city council. The city staff desires the research to evaluate the benefits of the signal. This proposed project has been discussed with the city traffic engineer, David Woosley, and their cooperation is assured.

IV. APPROACH

The researchers will conduct all necessary documents to get FHWA/MUTCD approval for the signal, then use video cameras to collect and analyze before and after data on

pedestrian usage and motorist delay at the signal. A survey of a sample of pedestrians and a sample of motorists will evaluate their understanding and acceptance of the HAWK signal and recommendations will be made regarding educational materials that may be necessary.

V. ESTIMATES OF FUNDING AND RESEARCH PERIOD

Period: 15 months, Funding: \$35,000 UTC; \$35,000 City of Lawrence; \$70,000 Total

VI. URGENCY AND POTENTIAL PAYOFF

The safety of pedestrians is a high priority. Approximately 6000 pedestrians are killed annually in the USA. Extensive research has shown that in general, drivers' compliance in stopping for pedestrians waiting to cross or starting to cross a street is poor. It can be as low as 10%; however, recent national research has shown signals increase compliance- and pedestrian safety- to compliance percentages in the 90s. The "downside" is motorist delay. To reduce delay while increasing pedestrian safety is a great leap forward. The HAWK signal offers this possibility. In the future it is expected to provide added benefits at multi-lane roundabouts when signals are required. Kansas is a leading state in promoting roundabouts and the HAWK should be a great advantage.

VII. IMPLEMENTATION STRATEGY

The results will be widely distributed in a report that will document safety and delay benefits and guidelines for the use of this innovative signal.

VIII. PROJECT PERSONNEL

Dr Gene Russell will be P.I. on this project, assisted by a graduate student. Dr Russell has developed and taught several courses on pedestrian safety and has done considerable research on pedestrian issues related to mid-block and roundabout locations. He has several years of collecting and analyzing data from video cameras, as will be done in this study. He will be assisted by a competent graduate student.

IX. CONTACT INFORMATION

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