

I. RESEARCH PROJECT TITLE

Speed Management in Rural Communities: Innovative Low Cost Approaches

II. RESEARCH PROBLEM STATEMENT

There are a number of rural communities and small cities in Kansas through which a major highway passes. In such instances, there has been a growing concern about the speed of entering traffic since most highways pass through rural communities on the main street. Typically main streets carry large amount of other road users such as bikers and walkers in addition to local traffic. In some instances, there are also services such as



hospitals and fire

departments that are located on these types of streets. With limited budgets available in rural communities it is important to identify low cost techniques with promising results to slow down traffic through the rural communities.



Use of optical speed bars appears to be one such approach with potential benefits. These optical illusions consist of small pavement markings that will make the user feel as if they are approaching the rural community at a higher rate of speed than acceptable. The small pavement markings will be perpendicular to the existing markings and will be spaced at a large distance initially but will decrease in spacing to give a visual perception of moving at a high rate of speed. Virginia DOT installed optical speed bars recently on a two-lane road in Fairfax County and is currently evaluating the effects. Kansas also tried this approach in a single test section in a work zone but applications in rural communities as a low cost traffic calming measure are not available. Kansas would be a pioneer in the use of optical speed bars if field testing could be conducted in several rural communities.



(Source: The Washington Post and Virginia Department of Transportation)

III. RESEARCH OBJECTIVES

The main objective of this study is to evaluate the effectiveness of using optical speed bars in reducing the speeds of cross-through traffic in rural communities. Following are the major tasks that will be completed in accomplishing this objective.

- Conduct a detailed literature review regarding the use of optical speed bars in various applications both in US and other countries where they seem to have been successful.
- Identify several (at least 3-4) rural communities through which speeding has been an issue due to the fact that a major highway is passing right across. One potential test site will be U.S. Highway 36 entering Atwood, Kansas where speeding has been an issue. (Source: Michael Terry, KDOT- Atwood Construction Office). Initial posted speed limit of 65 mph on Highway 36 is reduced to 35 mph when it passes through Atwood.
- Collect speed data for the “Before” condition using a methodology that is not visible to the drivers to recognize the existing high rates of speed through the communities.
- Work with the Kansas Department of Transportation to install optical speed bars to give the visual perception that the drivers are going too fast. Variation in spacing will be decided based upon current practices, and if necessary several different patterns will be utilized.
- Collect speed data under the “After” condition, again using an approach that is not obvious to the drivers.
- Analyze the data to see whether there are significant differences in speeds between before and after conditions. If possible, control for other variables among the communities to make a more accurate comparison.
- Make recommendations regarding the effectiveness of using optical speed bars as a low cost traffic calming measure suitable for rural communities.
- Document the study in a final report.

IV. ESTIMATE OF FUNDING AND RESEARCH PERIOD

Research Period: 18 months from the beginning of the project.

Funding: Estimated project cost is \$ 82,000.

V. URGENCY AND POTENTIAL PAYOFF

As highway agencies are seriously looking at new ways of improving highway safety with tighter budgets, application of optical speed bars seems to be a perfect fit since they are super low tech and low cost. This method could yield very promising results in reducing speeding through rural communities since it is difficult to maintain high levels of enforcement. Therefore this project is expected to have a very high payoff potential.

VI. IMPLEMENTATION STRATEGY

Based on the findings of the project, recommendations/guidelines will be developed regarding the use of optical speed bars as a measure to reduce speeding through small

rural communities. KDOT will be able use the results of this project to decide whether, when or where optical speed bars are helpful to be kept in place.

VII. PROJECT PERSONNEL

The principal investigator of this project will be Dr. Sunanda Dissanayake (Assistant Professor in Civil Engineering) who has many years of experience in the areas of traffic engineering, highway safety, crash data analysis and access management related issues. One Graduate Research Assistant will work on this project whose master thesis will be based on this study. Additionally one more graduate student will be partially supported through the project.

VIII. SUBMISSION INFORMATION

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