RESEARCH PROBLEM STATEMENT SUBMITTED SEPTEMBER 2005 TO NCHRP
PROGRAM FOR CONSIDERATION

10/11/05

PROBLEM TITLE

Engineering Countermeasures to Reduce Red-Light Violations and Related Crashes

RESEARCH PROBLEM STATEMENT SUMMARY

Red-light-running continues to be a concern at busy signalized intersections in spite of recent national efforts to educate drivers of the safety issues. A recent report produced by ITE and FHWA titled Making Intersections Safer: A Toolbox of Engineering Countermeasures to Reduce Red-Light Running indicates that engineering, education, and enforcement (i.e., the three E=s) each play an important role in efforts to reduce red-light-running. This Toolbox provides an excellent overview of three E activities, with a focus on engineering countermeasures that have been found to discourage red-light-running. But the content of the Toolbox is based entirely on a review of the literature and on the opinions of an expert panel. It does not provide quantitative guidance about the effectiveness of countermeasures and does not provide guidance for identifying intersections that are most in need of treatment. Engineers need guidance to determine when treatment is needed, where it is needed, and what combination of actions yields the most cost-effective solution.

The objective of this research is to develop a Handbook of Engineering Countermeasures to Red-Light Running. The Handbook should be comprehensive in its coverage of the solution process and include discussion of the role of engineering, driver education, and enforcement as well as guidelines as to when efforts in any area should be considered. However, the focus of this research should be the engineering study process and engineering countermeasures.

Analysis of national crash databases indicates that drivers who disregard traffic signals are responsible for an estimated 260,000 red-light-running crashes each year in the U.S., of which about 750 are fatal. If red-light-related crashes are reduced even 1 percent nationwide as a result of this research, the return to the motoring public will be $100 million each year. The payoff potential for this research therefore is very high.