

Technical Memorandum Implementation of Research Findings and Products

NCHRP Project 05-24/*NCHRP Research Report 1085*

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Technical Memorandum: Implementation of Research Findings and Products

Introduction

The final report for NCHRP Project 05-24, *Guidelines for Vehicle and Equipment Marking and Lighting*, documents the results of a review of literature and an assessment of marking, warning light, and external factors to be incorporated into the overall study design. Static closed-course studies were then designed to evaluate driver abilities to detect workers on foot next to a vehicle outfitted with alternative marking and warning light treatments during both daytime and nighttime periods. Static studies performed at night also evaluated the effect of marking presence and alternative warning light treatments on driver abilities to recognize truck-mounted arrow board indications. Following the static studies, dynamic closed-course studies were performed to assess the effect of treatment alternatives upon driver abilities to judge movement of a work vehicle as the subject drove toward it and their preferences of the treatments tested. Treatments performing adequately in the closed-course studies were taken to the field and evaluated in terms of driver speeds and lane choices as they passed by the work vehicle with the different treatments being displayed.

This technical memorandum presents the research team's proposals for how to best put the research findings into practice, identifies issues affecting the potential implementation of the findings and suggests possible actions to address those issues, and proposes methods of identifying and measuring the impacts associated with implementation of the findings.

Putting the Research Findings into Practice

The proposed guidelines resulting from this research have applicability on a wide range of vehicles and equipment used during roadway operations activities. These vehicles and equipment are owned by both public-sector agencies (state departments of transportation (DOTs), toll authorities, municipalities, etc.) and by private-sector companies (contractors/subcontractors, private-sector utility companies, etc.). It is envisioned that the American Association of State Highway and Transportation Officials (AASHTO) would replace the existing *Guidelines for the Selection and Application of Warning Lights on Roadway Operations Equipment* (AASHTO WL-1). Several state DOTs reference the guidelines as part of policies they have established for their fleet vehicles and equipment. Fortunately, most contractors who perform work for those agencies adopt and follow those agency policies as well. In many cases, municipalities also strive to conform with the state DOT policies as well. Thus, ensuring that state DOTs are aware of the new guidelines will be critical to getting the research findings put into practice nationally. Ways of increasing awareness of the guidelines include:

- Notifying state vehicle and equipment fleet managers as well as maintenance and construction directors about the new guidelines. This could be accomplished by AASHTO disseminating the report and guidelines through its Committee on Maintenance, Committee on Construction, Committee on Traffic Engineering, and perhaps the Committee of Right-of-Way and Utilities.
- Work with staff of the International Bridge, Tunnel, and Turnpike Association (IBTTA) about disseminating information about the research findings and availability of the report to its members.
- Work with the National Association of City Transportation Officials (NACTO) about disseminating information about the research findings and availability of the report to its members.

Institutions Taking Leadership in Applying the Research Findings

As noted above, the primary institutions that will lead the implementation of the research findings in practice will be state DOTs as they modify their own policies and procurement specifications for their fleet vehicles and equipment. Agencies may also choose to modify their construction and maintenance contract specifications to include language that better defines minimum and maximum requirements for visibility markings and warning lights used by their contractors as described in the proposed guidelines. The proposed guidelines (and the research report that supports the guidelines) may also be used by standards organizations that focus on marking materials such as ASTM International and/or on flashing warning lights such as the Society of Automotive Engineers (SAE) as part of their regular review and updating of their published standards. Finally, manufacturers of marking materials and of warning light systems themselves may adjust their marketing strategies to agencies and contractors based on the proposed guidelines.

Issues Affecting Potential Implementation of the Research Findings

The research performed under this project focused on answering several high-priority questions regarding the selection and operation of visibility markings and warning lights for roadway operations vehicles and equipment. Emphasis was also placed on developing guidelines that were compatible with how markings and lights are tested and certified by manufacturers so that the agencies themselves do not have to perform their own testing of equipment or computations to calculate compliance (something that was required in the previous set of guidelines). However, not all of the possible questions that existed regarding the use of visibility markings and warning lights could be answered under this project. Agencies who have interest in specific marking and warning light options that were not included in the study design may be less inclined to accept and implement the proposed guidelines in their entirety if their specific interests are incompatible with information in the guidelines.

Methods of Identifying and Measuring the Impacts of Implementing the Research Findings

The most direct measure of research finding implementation from this project will be the number of entities (public agencies and private contractors) that adopt the vehicle marking and warning light guidelines provided. Determination of adoption could be accomplished through an AASHTO survey of agency fleet management specifications pertaining to vehicle and equipment marking and lighting once the research report has been published and enough time has elapsed to allow agencies to implement the guidelines. Such a survey should identify 1) which guidelines have been implemented, and 2) the number of fleet vehicles and equipment to which the guidelines have been applied.