



SYNTHESIS OF STATE HIGHWAY WORKER SAFETY PRACTICE AND PROGRAMS IN THE UNITED STATES

Zachary W. Barlow
Oregon State University
101 Kearney Hall, Corvallis, Oregon, United States
Phone: +1 541-737-4934 E-mail: barlowz@oregonstate.edu

Co-authors(s); Dr. David S. Hurwitz, Oregon State University; Dr. John A. Gambatese, Oregon State University

1. ABSTRACT

Highway work sites pose a significant risk to the workers tasked with constructing and maintaining that infrastructure. In the United States, each state has a transportation department that, in some capacity, manages or conducts the work on highways within that state. Employees of these transportation departments are exposed to the risks of highway work sites within their states. Therefore, states have adopted safety programs and policies to encourage safety and reduce risk to their employees.

1.1. Objectives

The objective of this project is to synthesize and describe the current state of safety practice at state transportation departments. State transportation departments are diverse agencies that are formed based on the geographical, institutional, and political constraints of each state. The purpose of this research synthesis is to explore this diversity and more accurately describe it.

1.2. Method

To complete a synthesis that explored the various aspects of highway worker safety of state employees in the United States, the following four research tasks were implemented:

1. Literature Review – A comprehensive literature review relating to current issues in highway worker safety was conducted. Topics of focus included: prevalence and causality of highway worker incidents, the availability of highway worker safety data, the general framework of national legal standards and policy related to highway workers, maintenance worker issues, stakeholders in worker safety, and methods of evaluation for safety programs.
2. Injury Data Analysis – Several publicly available data sources related to worker safety were explored and analyzed for their potential to be applicable to highway workers at state transportation departments. The data sources analyzed included the following: Bureau of Labor Statistics (BLS), Occupational Safety and Health Administration (OSHA), National Institute for Occupational Safety and Health (NIOSH), Fatality Analysis Reporting System (FARS), Strategic Highway Research Program 2 (SHRP2).
3. Survey – A questionnaire was developed to explore state policies and practices. The questions were divided into four categories to evaluate agency demographics, incident reporting practices, data collection practices, and data utilization practices relating to their safety programs. This questionnaire was sent to safety officials at each of the 50 state transportation departments in the United States.



4. Case Studies – Based on the data collected from the survey, the researchers identified several states that had potentially innovative safety programs. The case study subject were selected based on exploring innovative safety programs from diverse states. An effort was made to represent various regions and state sizes. Six case studies were conducted and included: California, Maine, North Dakota, Oregon, South Carolina, and Washington. The case studies were compiled using interviews with state safety officials, publicly available information, and documentation provided by the state safety officers.

1.3. Results

The literature review revealed that while research related to the construction industry is abundant, there is little research related specifically to issues faced by highway workers who are employed by state transportation departments. Similarly, the injury data analysis revealed that while there are data sets that relate to worker safety, the data is more generally applicable to the construction industry. While in some cases there is the ability to filter by roadway construction of work zones, the data is too generalized to apply to state employees working on highway work sites.

The survey was sent to safety officers at each of the 50 state transportation departments around the United States. Responses to the survey were collected from 41 states (82% response rate). The results from the survey demonstrate the diversity of state transportation departments. Across state transportation departments incidents are recorded and categorized in different ways, including being archived at various departments. Most states collect some form of data that they use to inform their safety programs, but often this data is incomplete, minimizing its usefulness. The variability between state transportation departments results in limited sharing of data between agencies.

The case studies provided specific characteristics of programs that have been implemented by state transportation departments. The diverse programs included making institutional changes, such as California’s design for safety program, South Carolina’s work zone safety enforcement campaign, and Oregon’s Work Zone Executive Strategy Steering Committee. Other programs sought to engage workers to consider safety improvements such as North Dakota’s leading indicator initiative, Maine’s safety idea incentive program, and Washington’s near miss reporting program.

1.4. Conclusions

The synthesis of highway worker safety programs reinforced that the state transportation departments are very diverse. In general, the survey results show that data usage in development of safety programs is not ubiquitous across state transportation departments. The case studies highlighted several innovative safety programs from around the United States. These programs show how safety officers are working to promote safe behavior and improve the safety culture at the agencies while still adhering to tight budget constraints. The data analysis demonstrated that while national data is available regarding worker incidents in the United States, this data is not well categorized to search specifically for highway worker incidents. There are numerous opportunities for future research related to highway worker safety, particularly in the integration of existing data.