



# SPR RESEARCH PROGRAM SECOND-STAGE PROBLEM STATEMENT FY 2009-10

ODOT Research Unit  
200 Hawthorne Ave. SE  
Suite B-240  
Salem OR 97301-5192

Phone (503) 986-2700  
Fax (503) 986-2844

## I. PROBLEM NUMBER -- RDDS-10-07

## II. PROBLEM TITLE -- Quantifying Safety Performance of Driveways on State Highways

## III. RESEARCH PROBLEM STATEMENT

ODOT access management rules and procedures incorporate crash risk considerations in development review and highway approach permit decisions. Driveways create conflict points and locations with speed differentials between vehicles that can adversely affect the safety of highway facilities.

The research on crash potential at driveways is limited. While some research has been done, several gaps exist in terms of quantifying the safety performance of driveways as it relates to design, volume, functional class, roadway geometry, the land use it serves, and proximity to intersections and other access points.

The need for this fundamental knowledge is driven by a Department of Justice (DOJ) opinion that ODOT should have consistent proactive process to manage safety risks associated with unpermitted highway approaches.

Recent efforts to build a statewide inventory of existing highway approaches revealed that there is a large number of existing approaches for which the Department has no permit record. A policy directive is currently being developed by ODOT to establish a process to assess when an un-permitted approach is a significant safety concern and what action is appropriate to address the concern. A better understanding of the relationship between highway access, conflict patterns and types of crashes will help staff to recognize and prioritize safety concerns and take appropriate action under the directive.

This information will help the Department make more consistent, better informed decisions while maintaining an appropriate balance between crash risk and economic issues as ODOT staff administers the ODOT Access Management Program. It will provide support for the decisions made regarding specific cases and help the Department communicate with the public and elected officials about trade-offs and benefits of managing highway access. This research can help the Department evaluate the strengths and weaknesses of current Department access management rules, procedures and practices and consider changes to improve the program that are consistent with the research results.

## IV. RESEARCH OBJECTIVES

The objective of this research is two-fold. The first objective is to analyze and assess the key issues related to ODOT access management decisions for driveways and second to provide factual support for changes to existing ODOT policies, statues and rules to support reduce crash risk on the state road network.

## V. WORK TASKS, COST ESTIMATE AND DURATION

Successful completion of this proposed research effort will include the following tasks:

1. **Literature Review:** The research team will conduct a comprehensive literature review of research related to the safety performance of driveways. Relevant ODOT policies, statues and rules will then be reviewed and ODOT staff administering the ODOT Access Management Program will be interviewed. The purpose of the review and interviews is to identify key critical issues related to crash risk at driveways that would support improved decision making as it relates to access management decisions. Based on the review and interviews the team will recommend and present the key issues that warrant further investigation to the ODOT Technical Advisory Committee (TAC). The final selection of key issues will occur in consultation with the TAC. An interim report will be prepared to summarize the findings of the review and to present the key issues.

2. **Data Collection:** The research team will select a number of corridors on the ODOT state highway system that are suitable to support analysis of the key critical issues identified in Task 1. The sample will be selected with careful consideration of needs and related cost and will be limited to major arterials on the state network. The TAC will review the selection and suggest changes where needed. More detailed data will then be collected for these sites, using existing data sources (such as the inventory of existing driveways, the crash database, ODOT traffic investigation reports for SPIS sites etc.) and manual extraction from the ODOT photo logs.
3. **Data Analysis:** The research team will analyze the data assembled in Task 2. An interim report will be prepared to summarize the results from Task 1 and 3.
4. **Recommendations and Report:** The research team will use the results from Tasks 1 and 3 to recommend changes or additions to existing ODOT access management policies and procedures in support of safety. These recommendations will be prepared with careful consideration of other relevant and related issues. The recommendations will be discussed with the ODOT staff administers the ODOT Access Management Program to ensure that these recommendations are relevant and applicable. The recommendations will also be submitted to the relevant legal staff within ODOT for review and input. The research team will prepare an interim report that summarizes the recommendations along with supporting evidence for review by the TAC. The research team will then prepare draft and final reports. These reports will summarize findings from Tasks 1 and 3 and detail discussions of the recommendations developed in the project.

The cost estimate for this research is **\$110,000** with duration of **24 months**.

## VI. IMPLEMENTATION

The results of this research would easily be implemented in the form of changes and adjustments to existing ODOT policies. It will provide input and factual support for recommended changes to statues and rules related to access management decisions. The research team’s expectation is that the necessary ODOT persons (including a representative of ODOT staff that administers the ODOT Access Management Program) will be involved with the TAC to increase the likelihood that the recommendations are adopted. It is likely that the findings will not only impact policies within Oregon but also those of local and other transportation agencies.

## VII. POTENTIAL BENEFITS

It is expected that the project will have the following benefits:

- The research will help the Department to quantify, balance and explain the crash risk involved in driveway related access management decisions.
- The research results will help improve understanding and support the development of practices to advance strategic integration of access inventory data and access management concepts into traffic safety analysis, policy and programs.
- This research will assist the Departmental staff to analyze and solve crash risk issues in a more consistent manner. It will help ODOT prioritize and direct resources more effectively toward mitigating the legal risks and safety concerns related to unpermitted approaches.
- This research will support the Department in communication with the public and elected officials about the trade-offs between highway access and public safety so ODOT can make informed decisions while maintaining an acceptable balance between safety and economic issues.

## VIII. SUBMITTED BY:

### *Stage 2 Submitters*

Ida van Schalkwyk  
 Assistant Professor – Senior Research  
 Oregon State University: School of  
 Civil and Construction Engineering  
 220 Owen Hall,  
 Corvallis, Oregon 97331  
 541-737-8874  
 idavan@enr.oregonstate.edu

Tracy White  
 Access Management Planner  
 ODOT Technical Services  
 355 Capitol St NE Rm. 218  
 Salem, OR 97301-3871  
 503.986.4372  
 Tracy.WHITE@odot.state.or.us

### *ODOT champion*

Doug Bish, P.E.  
 Traffic Services Engineer  
 355 Capitol St NE, Room 504  
 Salem, OR 97301  
 (503) 986-3594  
 douglas.w.bish@state.or.us