

Pooled Fund Proposal Deer-Vehicle Crash Information and Research Center

Introduction

Collisions between deer and vehicles are a significant problem throughout the United States. It has been estimated that there could be as many as 1.5 million deer-vehicle crashes (DVCs) nationally each year and that the cost to the traveling public is over a billion dollars. DVCs can represent a significant percentage (e.g., 15 percent in Wisconsin) of the crashes reported annually in some states, and it is generally accepted that only about half of those that occur are actually reported.

A wide range of factors is believed to impact the number of DVCs that occur at a particular location. Some of these factors include increased vehicular travel and deer populations, land cover and land uses, and vehicle operating speed. A wide range of potential DVC countermeasures have also been suggested and implemented. New countermeasures also continue to be invented.

A significant amount of money has been spent on the implementation and study of DVC countermeasures in the last several decades, but their expected crash reduction effectiveness is still largely unknown. The complexity and interdisciplinary requirements of implementing and long-term study of the correct potential DVC countermeasure(s) in the appropriate locations has limited the usefulness and transferability of past studies. The funding available for DVC-related studies from individual jurisdictions or agencies often limits the project scope, experimental and analysis design, and team member backgrounds to such extent that the validity of their results are questionable and can not be generally applied. This fragmented approach to DVC-related research has resulted in

- DVC countermeasure reviews that have (often dramatically) overstated our knowledge of their crash reduction capabilities,
- The implementation of countermeasures based on partial, conflicting, and/or no knowledge about their actual effectiveness,
- The installation of countermeasures with a limited knowledge of how and where they should be implemented, and
- Studies with similar objectives repeated by different individual jurisdictions and/or agencies throughout the United States (and the world) that have very limited usefulness, transferability, and/or comparability.

This approach to the evaluation of DVC-related subjects is inefficient, and has resulted in a significant waste of resources and effort (e.g., staff time, and construction/research funding). It is unlikely to produce reductions in the DVC problem.

A need exists to create a focal point for the definition and implementation of DVC-related research. This document proposes the creation of a DVC Information and Research Center (DVCIR Center) to more properly address issues related to the DVC problem. This center would continue and expand upon the ongoing data and information-sharing activities of the Wisconsin Department of Transportation (WisDOT) funded Deer-Vehicle Crash Information Clearinghouse

(DVCIC) (www.deercrash.com) at the University of Wisconsin-Madison Midwest Regional University Transportation Center (MRUTC). The Departments of Transportation (DOTs) and Departments of Natural Resources (DNRs) from five states guide the DVCIC activities, but it has provided unbiased information to DOTs, DNRs, insurance company representatives, the news media, and local safety officials throughout the United States and Canada. The widespread significance of the DVC problem, its complexities, and the need for a well-defined, interdisciplinary, and multi-jurisdictional research strategy were quickly recognized by the DVCIC advisory groups. The DVCIR Center proposed is mechanism to address these issues and the very limited safety-focused state-of-the-knowledge in the area of DVCs and their potential countermeasures.

The tasks described for the DVCIR Center proposed in this document will be completed by University of Wisconsin faculty, staff, and undergraduate and/or graduate students, and through subcontracts with other researchers. The project sponsors, including additional sponsors through this pooled fund, will guide the DVCIR Center toward its stated vision/mission and help it accomplish its objectives and goals (see below).

Definition of Pooled Fund

The pooled fund project proposed would be entitled the Deer Vehicle Crash Information and Research (DVCIR) Center Pooled Fund. This pooled fund will create a focal point (and/or location of first consideration) for the collection of DVC-related data/information (e.g., deer populations, vehicle travel, reported DVCs, and roadside carcasses). It will also guide, define, and fund an organized strategy of well-designed and properly staffed DVC-related research. The focus of this pooled fund does not overlap with any other existing projects (e.g., the Animal-Vehicle Crash Mitigation pooled-fund), and should assist with the dissemination of the result from ongoing projects. This center created by this pooled fund is expected to become the primary resource for well-defined DVC-related data/information and research results, and an entity where only those projects that meet minimum scope, experimental design, staffing, and documentation requirements are funded.

Problem Statement & Center Vision/Mission

The University of Wisconsin-Madison DVCIC is currently the only center solely focused on the DVC problem in the United States. It is a primary resource for data and information about DVCs and their countermeasures. The DVCIC was started because of the significance of the DVC problem in the Upper Midwest, and the lack of a focused location for reliable, unbiased, and detailed information about this problem and its potential solutions. The DVCIC staff have critically reviewed, summarized, and provided (through a number of modes) DVC data and educational information and materials to agencies throughout North America. These activities during the last three years have shown that they are needed on a much more widespread basis than the Upper Midwest, and the consistent inability to specifically define the size of this problem regionally or nationally. In addition, it was also clear that the complexity the DVC problem, its origins, and the evaluation of its potential countermeasures, unlike many other transportation safety problems, required an interdisciplinary, multi-jurisdictional, and long-term strategy to produce useful study results. Significant gaps in the current state-of-the-knowledge exist.

It has been proposed that the safety-focused application-oriented structure of the existing DVCIC could easily be expanded to a DVCIR Center. During the last three years it has become a known entity and it can quickly begin to address the issues discussed above. The DVCIR Center will continue and expand upon the DVCIC activities of DVC-related data collection and information dissemination activities of the current Clearinghouse, but also define and support a properly designed DVC countermeasure research strategy.

The general vision or mission of the DVCIR Center will be to assist agencies with the numerous requests for information they may receive about their DVC problem, improve the general ability to define the DVC problem and its location, and more efficiently and effectively identify potential DVC countermeasures and evaluated their actual expected crash reduction impacts. The results of the research supported by the DVCIR Center would be based on the most current safety and ecological evaluation analysis techniques (or have a clear definition the study strengths and weaknesses), and this would provide a high level of confidence in their potential transferability. The existence of the DVCIR Center will eliminate the previously discussed problems with the current approach to addressing the DVC problem and its potential solutions. It should also increase the likelihood that the most appropriate countermeasures will be implemented in the correct locations, and ultimately lead to a reduction in the frequency and/or severity of DVCs in the most cost effective manner.

RESEARCH CENTER OBJECTIVES/GOALS

- Continue and expand upon the critical evaluation of past and current research in the DVC problem area, and become the repository for safety-focused summaries of this work. Critically evaluate the validity of past and current DVC-related research, and summarize the relevant study details, implementation issues, and safety results. Disseminate this information through DVCIR Center website, annual symposia, reports, papers, presentations, and other extension activities. Update information on webpage as new information is created.
- Continue and expand upon the existing DVCIC activities as a repository for deer population estimates, vehicle-travel amounts, reported DVC or animal-vehicle crash data, and roadside carcass (if available) information from participating states. This information should more properly define the DVC problem from location to location and within the United States. The origins and criteria that define the data collected by the DVCIR Center will be properly defined and documented. Summarize data by state and region, as appropriate, define relevant trends, and disseminate.
- Identify and prioritize gaps in DVC-related research, define a strategy, and create request for proposals (RFPs) for projects to evaluate the DVC questions identified by participating states. Provide funding for properly designed DVC-related research. Require minimum levels of research quality and documentation of project teams and provide appropriate levels of funding. Potential requirements might include the use of multi-disciplinary project teams and the use of the most currently acceptable evaluation methodologies in the transportation safety and ecological impact analysis areas. Potential areas of supportable DVC-related research include

- Identification and definition of DVC-related data sources, collection, estimation, and management techniques;
 - Definition and/or prediction of the magnitude and locations of DVC problem segments;
 - Evaluation of existing and potential DVC countermeasure crash reduction capabilities and their implementation issues; and
 - Investigation of and options to DVC-related roadway development programming, planning, design, operations, and maintenance decision-making approaches and policies.
- Disseminate the data and information summarized, and the results of the projects funded by the DVCIR Center. This will be done through the DVCIR Center webpage, reports, presentations, and papers at annual meetings and in national peer-reviewed journals. In addition, a DVCIR Center sponsored annual multi-disciplinary meeting that focuses on DVC-related problems and ongoing work should be held. This annual meeting would include a discussion of the DVCIR Center activities, multi-disciplinary analysis workshops, ongoing work presentations, and information sharing sessions. These activities will encourage the continuous discussion of the DVC problem and its potential solution.

Proposed Process

The pooled fund approach will enable participating states to leverage limited resources in an on-going program of synthesis, research, and analysis to facilitate knowledge sharing to reduce conflicts between deer and vehicles in the United States.

Letters of support from each initial participating state are attached to this proposal. Interested states should complete and return the attached commitment form. Participating states will renew their commitment and funding on an annual basis. Additional states can commit to participate and contribute funding at any time.

Memoranda of Understanding will be signed by each state participating in the pooled fund study. A sample memorandum is attached to this proposal.

A project advisory committee will be created to advise the DVCIR Center team with respect to its activities, the projects it completes, and the research funded through it and its participating agencies. Membership on this committee will consist of representatives from each participating state and their respective Federal Highway Administration Division offices. Similar representation will also be provided to the non-state agencies that may participate. The research projects sponsored by the center will be determined by the funding available, project needs, and the advice of the advisory committee. It is expected that this committee will meet no more than twice a year.

The Wisconsin Department of Transportation (WisDOT) will contract with the MRUTC to coordinate all administrative work for the pooled fund. It and the DVCIR Center will suggest potential research ideas to the project advisory committee, document responses, and define and post RFPs as necessary. It will also coordinate the review of the RFP responses and disperse the

agreed upon funding. Reviews of draft and final reports will be done by the pooled fund staff and others identified by DVCIC Center staff. WisDOT remains the lead state for fiscal purposes.

Each participant will contribute an annual dollar amount of at least \$25,000 per year to the fund, and a minimum two-year commitment is requested. It is anticipated that these contributions may leverage additional federal funds through the University Transportation Centers program. Other potential state contributions may include staff time for committee meetings and contract administration. Travel costs may be covered from project funds. Unexpended funds will be carried over to subsequent program years.

Participants

Midwest Regional University Transportation Center (MRUTC)

The MRUTC will take the leadership role in the organization, direction and implementation of the pooled fund program through a contract with WisDOT. Its responsibilities will include:

1. Day to day administration of pooled fund research projects and committee meeting materials under contract with the Wisconsin Department of Transportation.
2. Maintaining of the Deer Vehicle Crash Information and Research Center (DVCIR Center), including its website.
3. Coordinating meetings of the project advisory committee, and other workshops, short courses, and symposia as appropriate.
4. Providing leadership in the definition of a DVC-related research strategy and potential research projects from participant states. Coordination and dissemination of materials for decision-making purposes.
5. Distribution of DVC-related requests for proposals and collection and review of research proposal submissions and project results as appropriate.
6. Marketing of the pooled fund to various states and solicitation of membership in conjunction with WisDOT.
7. Provide ex-officio members to sit on the project advisory committee.

Wisconsin Department of Transportation (WisDOT)

WisDOT will be the lead state in the pooled fund. Its responsibilities as lead agency will be:

1. Administration of the agreements with the Midwest Regional University Transportation Center.
2. Review and submit quarterly vouchers through the FHWA Wisconsin Division Office to the FHWA Washington Office for payment
3. Marketing of the pooled fund to various states and solicitation of membership in conjunction with the MRUTC.

Participating States

Upon signing the Letter of Commitment and contributing funds, the member states will contribute to the research identification, selection, and award process by appointing a representative to the project advisory committee.

Contacts

WisDOT

10/04/04

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MRUTC

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**POOLED FUND
DEER-VEHICLE CRASH INFORMATION
AND RESEARCH CENTER (DVCIR CENTER)**

**Memorandum of Understanding
OCTOBER 2004**

**Federal Highway Administration
Wisconsin Department of Transportation
Midwest Regional University Transportation Center
Participating Agencies**

Memorandum of Understanding

INTRODUCTION/BACKGROUND

There is a need to create a focal point for the definition and implementation of DVC-related research. This fund supports the creation of a DVC Information and Research Center (DVCIR Center) to more properly address issues related to the DVC problem. The DVCIR Center will address the widespread significance of the DVC problem, its complexities, and the need for a well-defined, interdisciplinary, and multi-jurisdictional research strategy. It will more efficiently and effectively respond to the very limited safety-focused state-of-the-knowledge in the area of DVCs and their potential countermeasures. The general vision or mission of the DVCIR Center is to assist agencies with the numerous requests for information they may receive about their DVC problem, improve the general ability to define the DVC problem and its location, and more efficiently and effectively identify potential DVC countermeasures and evaluated their actual expected crash reduction impacts. These activities should ultimately lead to the reduction in DVC frequencies and/or severity.

INFORMATION AND RESEARCH CENTER OBJECTIVES/GOALS

- Continue and expand upon the critical evaluation of past and current research in the DVC problem area, and become the repository for safety-focused summaries of this work. Critically evaluate the validity of past and current DVC-related research, and summarize the relevant study details, implementation issues, and safety results. Disseminate this information through DVCIR Center website, annual symposia, reports, papers, presentations, and other extension activities. Update information on webpage as new information is created.
- Continue and expand upon the existing DVCIC activities as a repository for deer population estimates, vehicle-travel amounts, reported DVC or animal-vehicle crash data, and roadside carcass (if available) information from participating states. This information should more properly define the DVC problem from location to location and within the United States. The origins and criteria that define the data collected by the DVCIR Center will be properly defined and documented. Summarize data by state and region, as appropriate, define relevant trends, and disseminate.
- Identify and prioritize gaps in DVC-related research, define a strategy, and create request for proposals (RFPs) for projects to evaluate the DVC questions identified by participating states. Provide funding for properly designed DVC-related research. Require minimum levels of research quality and documentation of project teams and provide appropriate levels of funding. Potential requirements might include the use of multi-disciplinary project teams and the use of the most currently acceptable evaluation methodologies in the transportation safety and ecological impact analysis areas. Potential areas of supportable DVC-related research include
 - Identification and definition of DVC-related data sources, collection, estimation, and management techniques;
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 - Investigation of and options to DVC-related roadway development programming, planning, design, operations, and maintenance decision-making approaches and policies.
- Disseminate the data and information summarized, and the results of the projects funded by the DVCIR Center. This will be done through the DVCIR Center webpage, reports, presentations, and papers at annual meetings and in national peer-reviewed journals. In addition, a DVCIR Center sponsored annual multi-disciplinary meeting that focuses on DVC-related problems and ongoing work should be held. This annual meeting would include a discussion of the DVCIR Center activities, multi-disciplinary analysis workshops, ongoing work presentations, and information sharing sessions. These activities will encourage the continuous discussion of the DVC problem and its potential solution.

NAME AND PURPOSE OF THE PROGRAM

This program shall be known as the “Deer Vehicle Crash Information and Research Center.” Hereinafter referred to as the “program.”

PURPOSE OF THE MEMORANDUM OF UNDERSTANDING (MOU)

The MOU formally describes administrative, financial and organizational procedures to implement the program and establishes roles and responsibilities for the contracting parties in carrying out the contract requirements.

LEAD AGENCY

The Wisconsin Department of Transportation shall be the lead agency. Responsibilities of the lead agency shall include:

1. Administration of an agreement with the Midwest Regional University Transportation Center.
2. Through an administrative contract, initiate the potential research project contracts and scopes of services with the University of Wisconsin-Madison Office of Research and Sponsored Programs.
3. Review and submit quarterly vouchers through the FHWA Wisconsin Division Office to the FHWA Washington Office for payment and transmit a copy to the Technical Committee member from each participating state.
4. Through an administrative contract, operate the Deer Vehicle Crash Information and Research Center (DVCIR Center) and solicit program proposals from participating states and the Midwest Regional University Transportation Center at the University of Wisconsin-Madison.
5. Obtain Financial Commitment forms from each individual state for each specific fiscal year’s program of project (see attached form).

PARTICIPATING STATES/AGENCIES

Participating states/agencies must sign this Memorandum of Understanding. Other states/agencies may request to join the pooled fund program by contacting the Midwest Regional University Transportation Center. With concurrence of the Committee, state(s)/agencies will become member(s) upon signing this Memorandum of Understanding.

PROJECT ADVISORY COMMITTEE

The Project Advisory Committee has the following membership:

1. At least one person from each participating state/agency who is knowledgeable of the field of practice related to deer-vehicle conflicts.
2. A representative from the FHWA Division Offices of participating states, Ex-Officio member.
3. A representative from the Midwest Regional University Transportation Center, Ex-Officio member.

The Midwest Regional University Transportation Center will, through the Wisconsin Department of Transportation and the FHWA Wisconsin Division, coordinate reviews of the following:

1. Overall program contract and the annual budget for the program.
2. Contract administration charges.
3. Coordinate review of individual studies and check for possible duplication of other deer-vehicle crash research.

PROJECT MANAGERS

The MRUTC Director and the Director of the Deer-Vehicle Crash Information and Research Center (DVCIR Center) will serve as co-project managers for research projects. The MRUTC will also administer and maintain the Deer-Vehicle Crash Information and Research Center (DVCIR Center) and its website. The project managers will be the first line of contact for technical issues related to a particular research project. The project managers will coordinate decision making with the project advisory committee members from participating states and will lead the information exchange on each particular project.

FUNDING OF POOLED FUND STUDY

The Project Advisory Committee, with center staff assistance, will establish an overall program of DVC-related projects. An annual budget shall be prepared and each participating state will sign a Financial Commitment Form.

States can use 100% State Planning and Research funds for this program. FHWA has established project TPF-X (XXX) for this program.

THE FLOW OF FUNDS

The flow of funds will take place as follows:

1. When Federal-aid SPR funds are used and states wish to pool their annual funds in FHWA Washington Headquarters, states will provide FHWA the state matching funds for their share of the costs, at the beginning of the year. One hundred percent federal or state funds may also be pooled in this manner for draw-down. Each state must develop the necessary documentation (e.g. PR-2A) and approvals for their SPR Part II Work Program.
2. When other fund sources are used, the program should be referenced in the SPR Part II Work Program.
3. On a quarterly basis, the lead agency will directly bill the FHWA. FHWA Washington Headquarters will draw-down from each participating state's account.
4. Contracts will be executed between the lead agency and the Midwest Regional University Transportation Center for documentation and accounting of financial activities under this Memorandum of Understanding. Each State understands that funds may be used as the non-federal matching funds under the USDOT University Transportation Center Program.
5. Financial Commitment Forms will be signed by each participating state for each specific fiscal year's program of projects.

PROCEDURES TO WITHDRAW FROM THE STUDY

If a signatory to this Memorandum of Understanding desires to terminate participation in the program, the appropriate official should notify the Midwest Regional University Transportation Center at least thirty days in advance. Signatory(s) requesting termination will retain responsibility for all existing commitments.

AUDITS

The Midwest Regional University Transportation Center and Wisconsin Department of Transportation will comply with Federal audit requirements and their records will be available for review by the participating states and FHWA. All records relating to the performance of any work accomplished under this program shall be retained for a period of three years after the final payment.

EXECUTION OF MEMORANDUM OF UNDERSTANDING

The _____ and the Federal Highway
(State Department of Transportation)

Administration agree to this Memorandum of Understanding and authorize their officers to sign it.

State Highway Agency

Federal Highway Administration

(Agency Name)

(Division Office)

(Signature)

(Signature)

Name: _____

Name: _____

Title: _____

Title: _____

Date: _____

Date: _____