

SPR RESEARCH PROGRAM

SECOND-STAGE PROPOSAL SUMMARY

PROBLEM NUMBER AND TITLE

22-27 Linking Oregon driver records and crash data to evaluate interventions and mitigate driver risk

PROBLEM SUMMARY

Risky behaviors are recognized by the Oregon Department of Transportation's (ODOT) Transportation Safety Action Plan as a contributor to fatal and severe traffic injury. Beyond information collected in citations and crash reports by police, little information exists in Oregon about driver's risk profiles and how those risk profiles differ by age, gender, educational attainment, income, and geography. Additionally, it is not known how driver intervention strategies such as driver education programs, ODOT's Driver Improvement and At-Risk programs impact those risk profiles for Oregon drivers.

ODOT OBJECTIVES

This research would combine driver records and crash outcomes data to understand key inputs to variations in driver risk profiles in Oregon. Driver records include the history of the drivers traffic offense convictions, court ordered driver education participation, and DMV improvement programs among other pieces of information useful for understanding Oregon driver risk profiles.

These linked data will be used to evaluate intervention programs like the driver improvement program and driver's education. Based on this evaluation recommended changes will be documented that increase effectiveness to these programs. The development of risky driver profiles in Oregon will help to define those drivers that are most at risk for the purpose of directing resources and programs to contribute to crash reduction.

BENEFITS

The product of this research will be used to develop new strategies for intervention in relation to the highest risk drivers in Oregon thereby increasing the effectiveness of those interventions. Drivers and driver behavior represent an important element to the inputs to crash outcomes and our ongoing understanding of Oregon drivers is limited and this research project would help establish the methods to evaluate driver behavior and its relationship to crash injury outcomes on an ongoing basis.

SCHEDULE, BUDGET AND AGENCY SUPPORT

Estimated Project Length: 22 months.

Estimated Project Budget: \$185,000

ODOT Support: Stephanie Milton – DMV – Driver Control Analyst.

FOR MORE INFORMATION

For additional detail, please see the complete STAGE 2 RESEARCH PROBLEM STATEMENT online at:
<https://www.oregon.gov/odot/Programs/ResearchDocuments/24-27.pdf>

SPR RESEARCH PROGRAM

SECOND-STAGE PROBLEM STATEMENT

FY 2024

PROBLEM NUMBER AND TITLE

22-27 Linking Oregon driver records and crash data to evaluate interventions and mitigate driver risk

RESEARCH PROBLEM STATEMENT

Traffic deaths in Oregon are now at their highest level in 20 years with 599 traffic deaths in 2021 and 507 in 2020. This reversal in traffic fatalities is concerning and is taking place on a national scale. Safety is a key value in ODOT's mission, and the Strategic Action Plan aims to continuously improve safety of the transportation system. Better understanding the most at-risk drivers would give ODOT and DMV important information that could help inform tactics for reducing fatal and severe injury crashes.

Risky behaviors are recognized by the Oregon Department of Transportation's (ODOT) Transportation Safety Action Plan as a contributor to fatal and severe traffic injury. Beyond information collected in citations and crash reports by police, little information exists in Oregon about driver risk profiles and how those risk profiles differ by age, gender, educational attainment, income, and geography. Additionally, it is not known how driver intervention strategies such as driver education programs and ODOT's Driver Improvement program impact those risk profiles for Oregon drivers. This research would combine driver records and crash outcomes data to understand key inputs to variations in driver risk profiles in Oregon. Driver records include the history of the drivers traffic offense convictions, court ordered driver education participation, and DMV improvement programs among other pieces of information useful for understanding Oregon driver risk profiles. This information could be used to develop new strategies for intervention in relation to the highest risk drivers in Oregon.

RESEARCH OBJECTIVES

This research would combine driver records and crash outcomes data to understand key inputs to variations in driver risk profiles in Oregon. Driver records include the history of the drivers traffic offense convictions, court ordered driver education participation, and DMV improvement programs among other pieces of information useful for understanding Oregon driver risk profiles.

WORK TASKS, COST ESTIMATE AND DURATION

The following four tasks describe the primary research activities required for the success of the proposed project.

Task 1: Develop a data archive that allows for the robust analysis of driver risk profiles. At a minimum, the ability to deterministically link driver records against citation and crash data would be required. If hospital records could also be incorporated, that would provide significant additional value, but would likely require probabilistic linkage. One example of a crash data warehouse leveraging both deterministic and probabilistic data linkage with 14 data sources housed at the University of Massachusetts Amherst can be seen here: <https://www.umasstransportationcenter.org/News/87/Data-Warehouse>.

Task 2: The data archive produced in Task 1 would be used to develop risk profiles of the existing driving population in Oregon.

Task 3: The data archive produced in Task 1 would be used to evaluate interventions that are currently in use in Oregon such as the DUII diversions program. This analysis could provide evidence of the degree of

alignment of safety programs currently delivered by ODOT and the risk profile of drivers in Oregon. Identified gaps could guide future investment.

Task 4: Propose existing interventions with a demonstrated track record for mitigating the driver risk profiles we are seeing in Oregon that are not currently addressed by existing interventions.

Key Deliverables:

Two critical products will be delivered to the agency: 1) A quantitative evaluation of the Oregon DMV driver improvement program which has not been recently reviewed (Jones, 1986), and 2) A quantitative representation of risky driver profiles in Oregon. The evaluation of the driver improvement program will determine the effectiveness of the existing program and will help to suggest modifications to increase effectiveness. The development of risky driver profiles in Oregon will help to define those drivers that are most at risk for the purpose of directing resources and programs to contribute to crash reduction.

Estimated Project Length: 20 months.

Estimated Project Budget: \$185,000

IMPLEMENTATION

This research would deterministically link Oregon driver records and crash data to determine the most at-risk drivers. From these risk profiles an assessment of existing driver intervention programs like driver education, driving improvement programs, and DUI diversion can be performed to help better target those interventions.

POTENTIAL BENEFITS

The product of this research will be used to refine existing interventions and to develop new strategies for intervention in relation to the highest risk drivers in Oregon thereby increasing the effectiveness of those interventions.

PEOPLE

ODOT champion(s): Amy Joyce, Administrator, Driver and Motor Vehicle Services, Oregon Department of Transportation

Problem Statement Contributors:

David Hurwitz, Professor, School of Civil and Construction Engineering, OSU

Josh Roll, Research Coordinator, Research Office, Oregon DOT

Stephanie Milton, Driver Control Analyst, Driver and Motor Vehicle Services, Oregon DOT

David Martin, Legal Team Analyst, Driver and Motor Vehicle Services, Oregon DOT

REFERENCES

Jones, B. (1986). "The Effectiveness of Habitual Traffic Offender License Revocation in Oregon." Oregon Department of Transportation.

STAFF REVIEW PAGE

Literature Check

TRID&RIP

A review of TRID & RIP databases found no existing research that answers the research question

This research is updating an 30 year old research project that ODOT completed for DMV

Technology & Data assessment

No Identified T&D output

At the end of this project, the implementing unit(s) within ODOT will need to coordinate the adoption of new technology or data in order to realize the full potential of this research.

Cross-agency stakeholders

- List stakeholders or impacted units
- Identify any issues of concern raised by an ODOT stakeholder. Note expected mitigation