



Research Problem Statement Guidance

ODOT Research Section
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GENERAL GUIDANCE:

Because the research budget is limited relatively few of the problem statements submitted will receive funding to become research projects. Developing a problem statement that contains all the requested information will help improve the chances of it being selected.

The form is written so that anyone in ODOT may fill it out and is intended to be a means for our workforce to identify research needs. The focus of this form is question 1 and 2 where the person identifying the research needs provides details of what they need. We will accept any topic and will ask proposers to review our current [Oregon Research Advisory Committee Priorities](#)

The following section includes tips for writing a successful problem statement. There is no guarantee that the problem statement you submit will be selected but following these tips may improve its chances.

In your development of a problem statement, the Research Section highly encourages that you do the following:

Work with a Research Section Staff Member – Research Coordinators will assist you in the preparation of a problem statement. Contact information for our research coordinators is available online at: <https://www.oregon.gov/ODOT/Programs/Pages/Research-Contacts.aspx>

Start Early – problem statements that are well thought-out and put together have a better chance of being selected. That being said, we are aware that agency staff are busy and expect that gathering information for submittal to take around 2 hours and should not need to exceed 5 hours.

Collaborate – discuss your research idea with colleagues who have experienced similar issues or who might be involved in implementing the research findings. Work together on the problem statement, however extensive editing is not expected.

1. Concisely describe the transportation issue (including problems, improvements, or untested solutions) that Oregon needs to research.

In this space please focus only on the topic of this proposed research. Explain only **what** needs to be studied.

Please consider:

- a. "Transportation Research" means any study or other analytical undertaking that facilitates any mode of transportation within this state. The term includes, but is not limited to, the research of highway, transit, rail and aviation capital infrastructure, bicycle and pedestrian paths, bridges and ways, and other projects that facilitate the transportation of materials, animals, or people.
- b. Please try to make sure the problem lends itself to a research solution. The issue should have a significant connection to providing for the transportation of people or goods in Oregon. We are looking for transportation research that is novel, creates useful solutions, and resolves uncertainty. The following table may help you test your problem statement to see if the idea is research.

What makes it Research	When it is ODOT Research (Examples)	When it is NOT ODOT Research (Examples)
Research is novel. <input type="checkbox"/> It increases our knowledge of the subject. <input type="checkbox"/> It hasn't been done before.	No one has ever done it before. You are testing pavement samples as part of a research project to find out the effects of a new maintenance process. You are testing a new method of including the public in the transportation planning process.	You would like to do something that 49 other states do. You are using an established practice to test pavement samples to identify if they meet industry standards. You are developing a transportation plan using established methods in a community that has never had a plan.
Research creates solutions useful to others. <input type="checkbox"/> Others might benefit from the findings. <input type="checkbox"/> The findings can be generalized to other situations and locations.	You are measuring trends in human behavior and proving that these trends have an effect on driver safety. You are testing a pavement on your highways that is currently used only at airports. Other states will want the results.	You are developing your internal communications plan. You are exploring a highly theoretical nuance of a concept or idea. (this may be research however our program is focused on applied research)
The outcome of Research is uncertain. <input type="checkbox"/> The solution isn't obvious to an expert in that field.	Finding out the answer may change how you do your work. Your research involves monitoring streams to determine whether a new culvert design is affecting the population of a particular type of fish.	You know the answer you need to get from the research You are monitoring streams as part of plan or EIS to implement long-term monitoring for a particular type of fish. (The monitoring plan has already been tested and you are certain of the quality of the plan.)

ODOT focus on selecting transportation research projects that are timely, intellectually robust, and relevant to the ongoing delivery of transportation infrastructure and services in Oregon.

To make sure the Research is novel. Please verify that you have checked key words of your problem statement in the [Transport Research International Documentation \(TRID\)](#) and [Research in Progress](#) databases. You may find the solution to your problem has already been documented in existing research.

2. What final product or information needs to be produced to enable this research to be implemented?

ODOT Research exists to conduct applied research that, if successful, can be used by our professional transportation staff, field crews, contractors, or other transportation providers. Explain **how** we could apply the results of the proposed research to the work of ODOT or another transportation agency.

The Implementations of research findings vary from project-to-project. Once ODOT Research has complete a research project, the integration of the findings into the day-to-day work of transportation professionals becomes the responsibility of others. In this section of the problem statement discuss who will use the research results, and identify the best way to share the research results with them.

The most successful research needs address the direct concerns of someone working in the field of transportation. Research may lead to changes to agency documents, processes, equipment, or ideas and

understanding. Some examples of the types of information that may be needed to implement the results of research:

Documents	ODOT has many documents that guide how we complete our work. These include laws, rules, policy, procedures, specifications, and standards. These may be both published or internal agency documents. The Stage 1 needs statement should identify any existing document (closely related to the transportation issue identified in question 1) that may need to be updated. Note that the research process does not directly produce or approve changes to these documents but provides evidence-based analysis of possible changes and may produce proposed text for later agency adoption. Tell us what the research needs to show for us to change our existing documents or develop a new one.
Processes	Is this research expected to improve how we do our work or will it provide a whole new way of accomplishing a task? This may include new processes for our workers. It may also include new algorithms or computing systems. Identify the type of process that is needed and describe who will follow the new process or what system will use the new algorithm or system. What amount of validation is needed to prove that this proposed process is better than our current processes.
Equipment	Do we expect that this research will design new equipment, change how we use existing equipment, or support the use of new or innovative equipment? Provide a description of who will use this equipment, and what will likely be needed to prove that ODOT should build or buy this equipment.
Ideas and understanding	Will successful research change the way we interact with people (the public, partner agencies, contractors or agency employees? Over time, our understanding of human needs changes. Research may help identify needs and establish relationships and causes of human actions. Provide a description of how resolving the identified transportation issue will improve the services that ODOT provides. If known, identify which persons or groups will need to be consulted during this research; identify what might be needed to convince these people the research is valid?

Examples of implementation may include training videos; revisions to agency guidelines, policies, or specifications; web pages, or other communications. If the implementation will include a revision to existing guidelines, policies, or specifications, please identify who has authority to change the document.

3. (Optional) Are there any individuals in Oregon who will be instrumental to the success of implementing any solution that is identified by this research? If so, please list them below.

Please consider:

- Discuss the Project with the Person who has the Authority to Implement the Results - ODOT's research program is designed to find solutions to real transportation problems. It is expected that the results of a research project will be used. Gain the support of the person who has the authority to implement the results by discussing the project with them.
- Our form only has space for one submitter. This provides us with a single point of contact for continued development. You may use this space for individuals who contributed to the writing of the problem statement
- Selected research will be conducted in consultation with a Technical Advisory Committee of practicing professionals. Use this space to list potential TAC members.

4. Other comments:

Please add any additional information regarding the proposed project not covered in other questions.

Please consider:

- a. Documentation proposed scope of work tasks for this research project. These may be updated as we develop this concept.
- b. Indicate any known ODOT policies, procedures, specifications or standards that are related to this problem statement.
- c. Our resources are limited. Please indicate if additional funding is available from outside the ODOT Research program.
- d. Our reviewers have limited time. You do not need to use this space if you were able to clearly document the project using the space provided in other questions.

5. Decision making lenses

At the last research advisory committee meeting the committee requested a revision to our selection process to help ensure a review of climate, equity, and safety. The attached form is an update of our research stage 1 problem statement.

Decision lenses are becoming a routine part of ODOT decision making. These lenses are rooted in the policies of the Oregon Transportation Plan and the ODOT strategic action plan.

Question 5 asks several simple questions about climate, equity, and safety to help reviewers assess the project against strategic action plan goals. For research project selection these lenses are sufficiently open ended to allow for the application to a variety of research fields while still providing a basis for agency decision making. Please answer each question. If you answer yes to any of the questions or need to provide additional related detail, please provide an explanation in the space provided under questions **5l**, **5e**, and **5r**.

It is important that you use the space in questions **5l**, **5e**, and **5r** as appropriate to provide verification to the other lenses questions. Keep in mind we are not looking for research that answers yes to all questions. Strong and focused research statement may answer only one with a clear explanation questions **5l**, **5e**, or **5r** will be a better fit for our program than one that answers yes to all questions but cannot provide an explanation.

We are looking for an overall program balance and no one project is expected to balance all categories. Generally, a research problem statement is expected to be able to answer yes with clear and verifiable information in only one of the three categories below, some projects may be able to answer yes in two or even three categories. Some projects (i.e. needs focused on specific elements of infrastructure design), may have no yes answers but may still be high value research need.

6. Single Submitter's Contact Information:

Our form only has space for one submitter. This provides us with a single point of contact for continued development. You may use Question 5 to add individuals who contributed to the writing of the problem statement

Please consider:

- a. When a research problem statement is selected and is funded, selection of a principal investigator is an open question. Within the scope of budget considerations and state contracting rules, the ODOT Research Section is responsible for selecting a principal investigator and, if necessary, developing a contract. Whenever a project sponsor is interested in contracting for work related to the project, that individual or organization will be considered, but will not necessarily be awarded a contract.
- b. In no case can a contract be awarded to a private individual or firm without going through the appropriate selection and contract procurement processes governed by statute and agency policy.

- c. Individuals who submit problem statements but do not participate as paid investigators have the option to explore voluntary participation in the research by lending their expertise as a member of the Technical Advisory Committee.

7. ODOT Sponsor Contact Information (Required if Submitter is not an ODOT employee)

ODOT sponsored research is primarily focused on applied research that is directly relevant to the work of the agency. Successful post-research implementation of research findings and recommendations will be dependent on the research addressing the needs of the agency. To help establish that the problem statement has internal support for the results of research each problem statement must identify an agency sponsor.

Problem statement submitters who are not ODOT employees need to coordinate with a current ODOT employee. ODOT employees have high workloads and need time to review and respond to any requests to be involved in a research proposal. Please contact them early and make sure the problem statement addresses the context of the agency and the agency needs. Please do not contact ODOT the week before problem statements are due expecting sponsorship of the problem statement.

The ODOT sponsor should work in a field related to the problem statement (e.g. transit related projects should have a sponsor from the public transportation division, bridge design from the ODOT Bridge Section, etc.) If you need help identifying a sponsor please reach out to the ODOT Research Office at odotnewresearch@odot.state.or.us