

## Guidance for Researchers

The guidance below is designed to help ensure the success of researchers participating in Montana Department of Transportation’s (MDT’s) Research Program. Other resources that complement this guidance are referenced throughout this document and also appear in **Additional Resources for Researchers** on page 5. Researchers are encouraged to contact MDT’s [Research Program office](#) with any questions that are not addressed in these documents.

Implementation—the goal of all research projects—is a process that is not limited to a final deliverable and must be considered from the beginning of each research project. MDT acknowledges that research projects can result in no new changes or verify that the processes or products used are the best available. However, researchers should always be thinking about the end products—what MDT will use or put into practice that will save time and money.

Usable innovative ideas or solutions are the ideal products resulting from all MDT research projects. The implementation of ideas and solutions is documented in all project products from beginning to end and can be put into action at any time during the research process. Examples of the documents or activities that consider implementation include:

- [Stage 2: Research Topic Statement form](#)
- Project proposal that describes how research results can be implemented
- All Technical Panel meetings, including the project kickoff meeting
- Task reports, monthly or quarterly monitoring reports, and as research results are available

## Submitting Research Ideas

While research ideas are accepted anytime during the year, MDT posts a formal annual request for research ideas in the spring via GovDelivery, a digital subscription service.

Researchers are encouraged to submit research ideas using the [Stage 1: Research Idea form](#). An MDT champion must be listed on the Stage 1 form for the research idea to move forward in the research cycle. [MDT Research Program staff](#) can help identify a champion, if needed.

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**IMPORTANT!** Before preparing or submitting the Stage 1 form, researchers should work directly with MDT subject matter experts to identify and address MDT-specific issues and how a research project can provide solutions.

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## Private Consulting Firms and Out-of-State University Researchers

Before submitting a research idea, researchers employed by private consulting firms or public colleges or universities outside Montana are encouraged to review the appropriate MDT research contract template to ensure that clauses not subject to negotiation are acceptable to the researcher's organization. Contact MDT's [Research Program office](#) to learn more about research contract templates.

## Evaluating Research Ideas

The MDT champion associated with the Stage 1: Research Idea form oversees a preliminary internal assessment of the research idea. If the idea is likely to address an issue unique to Montana, the MDT champion prepares a [Stage 2: Research Topic Statement form](#) to move the research idea to the next phase of the research process—convening a Technical Panel (TP) to meet and further evaluate the research idea.

A TP begins its work in the early stages of the research process by convening an initial meeting to discuss how to proceed with the research topic statement. If the TP decides to move the project forward, panel members also consider whether a scope of work (SOW) is needed to solicit proposals for the possible new research project.

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***For More Information:** Learn more about [Technical Panels](#) and the critical role they play in MDT's research.*

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## Preparing a Scope of Work

MDT may use a SOW to describe the scope, objectives, tasks, budget and schedule for the proposed research. The researcher selected for a project may use the SOW as a guide for developing a proposal, which then serves as the basis for the project contract. A well-developed SOW provides a yardstick against which progress on a research project can be measured. Most SOWs are developed in-house by the MDT TP while considering a potential research project.

A researcher who has worked closely with an MDT champion to develop a research idea rarely creates a SOW. If a researcher chooses or is directed to develop a SOW, it is typically because the researcher is new to the MDT research process or the research idea is particularly complex.

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***For More Information:** A [scope of work template](#) provides a sample form and instructions for completing it.*

*While researchers are rarely asked to prepare a SOW, familiarity with the type of information included in one will help the research team develop an effective proposal.*

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## **Preparing a Project Proposal**

When a research topic statement is approved by MDT's [Research Review Committee \(RRC\)](#), MDT may send a direct request for a proposal to selected public college or university researchers or issue a request for proposal (RFP) to a wider audience of potential researchers.

Researchers responding to MDT's proposal requests use the [research project proposal template](#) (also available as a [Word](#) document) to prepare their proposals. The proposal template includes instructions for completing it.

## **Preparing to Conduct the Research**

Contracting with a research team begins after a researcher's proposal is approved for funding. A research team is advised not to begin any project work or spend any funds until a fully executed contract is in place. MDT will issue a notice to proceed to the research team signaling that work can commence.

As researchers prepare to begin their work, they can:

- Ensure the terms of the contract are understood.
- Obtain an [ORCID](#) iD (a persistent digital identifier) and plan to use it for all communication products developed during the research effort.

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***For More Information:*** *The National Transportation Library [describes ORCID](#) as “a registry of persistent unique identifiers for researchers and scholars and automating linkages to research objects such as publications, grants and patents.”*

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- Prepare to take TP meeting notes after the project kicks off. These notes are submitted to the MDT Research Project Manager for review, revision and distribution.

## **Conducting the Research**

MDT's Research Project Manager is the point person for all research projects. The MDT Research Project Manager will coordinate a project kickoff meeting after a contract is fully executed and the notice to proceed has been issued. This meeting ensures the TP and research team understand the research process and the contractual obligations, which includes a review of the research proposal, deliverables, project milestones, timetable and project administration. This meeting also provides an opportunity to clarify technical issues, address concerns, and review and align project work toward implementation goals.

Some of the critical tasks the research team will undertake during the life of the research project are highlighted below.

## **Preparing Reports and Other Communication Products**

Most researchers will create a range of communication products over the life of a research project—monthly or quarterly progress reports, task and interim reports, a final report and project summary, implementation and performance measures reports, and other deliverables that are identified in the project contract. These publications are posted on MDT's public website.

MDT's [Report Writing Requirements](#) outline the key things researchers must know to ensure that these communication products meet MDT requirements. Understanding these requirements early in the research effort—and preparing each deliverable to meet them—saves time and helps the research team stay on time and within budget.

Most project final products must meet federal accessibility requirements identified in [Section 508](#) of the U.S. Rehabilitation Act of 1973 and as updated in 2017 and amended in 2018. *Accessibility* is the ability of all persons to independently obtain information and use products, services and facilities. Publications must comply with Section 508 to be included in the National Transportation Library's [Repository & Open Science Access Portal \(ROSA P\)](#) digital library. MDT's [Report Writing Requirements](#) describe how researchers can meet these accessibility requirements.

### **Tracking Project Deliverables**

Maintaining a calendar of key milestones and target dates for deliverables ensures that the researcher submits project deliverables according to the schedule outlined in the project contract. For most researchers, these project deliverables include monthly or quarterly reports, task reports and final products that are described in detail in MDT's [Report Writing Requirements](#). As a project kicks off, the MDT Research Project Manager will recommend specific timelines for producing the set of deliverables specified in the contract to ensure researchers allow adequate time for review and revision.

All deliverables are provided to the MDT Research Project Manager to coordinate the TP's review. Comments are gathered and forwarded to the research team for development of a revised draft that responds to and addresses each TP comment.

### **Assessing the Research Effort**

MDT surveys its researchers three times during the life of a project: as the project begins, midway through the research effort and as part of the project closeout process. Each survey assesses the researcher's experience with MDT's Research Program and may include questions about the MDT Research Project Manager's performance and implementation of research results. Survey results are shared with the research team and TP members and may be used during TP meetings to explore understanding of the project and/or implementation development. The MDT Research Program Section Manager will also review comments to assess how processes are working.

### **Contractual Considerations**

Changes in scope, budget or the term of the contract may not be implemented until a contract amendment is in place. Researchers anticipating such changes alert the MDT Research Project Manager as soon as possible that a contract amendment must be initiated. Time delays that affect specific tasks or deliverables but do not affect the project end date may proceed without a formal contract amendment.

While a contract is in effect, researchers must request prior MDT approval to present or prepare a poster or conference paper that reveals research results.

No work can be conducted and no funds can be expended after the contract's end date.

## **After the Research is Complete**

Researchers provide a final presentation to the TP that addresses implementation recommendations in detail. A researcher may be asked to present at or attend an RRC meeting to discuss implementation steps.

Final products prepared by researchers, except for posters and presentations, will be publicly posted to the [Transportation Research International Documentation \(TRID\) database](#) and the [ROSA P](#) digital library, in addition to appearing on the MDT public website.

After the research concludes, researchers are free to publish and/or present posters, papers, presentations and other publications associated with the research they conduct for MDT. However, researchers must acknowledge MDT and other sponsors, if any, of the research and include a statement regarding MDT's acceptance of the final report. All publications prepared after the research has concluded must be provided to the MDT Research Project Manager for posting on the project website.

## **Additional Resources for Researchers**

Researchers may find the following resources helpful:

- [Report Writing Requirements](#)
- [Research Process](#)
- Research Proposal Template ([Word](#), [PDF](#))
- [Research Review Committee Roles and Responsibilities](#)
- [Scope of Work Template](#)
- [Technical Panel Roles and Responsibilities](#)