

Use this Proposal Instruction Form as a guide to complete the Project Proposal Form. The research review team will not review incomplete proposals. Proposals may not exceed fourteen pages in length (excluding references and letters of support), must be in Calibri, font size 11, with 1" margins, and 1.15 line spacing. Answer all questions 1 through 17.

1. PROJECT INFORMATION AND TEAM

1.1 PROJECT INFORMATION

1.1.B & 1.2.C Write N/A if you are not responding to a posted research need or knowledge building priority AND attach a letter or email of support from a public agency champion. The letter must identify the technical liaison (TL) for the project, if different from the champion, and confirm that the TL will participate on the Technical Advisory Panel (TAP) for the project. More information about the role of the TL and the TAP, please visit MnDOT Research Services website.

1.1.F & G **This person must be from a public agency (i.e. township, city, county, or state agency).** Identify Name and affiliated Public Agency.

1.1.J Justification for project duration longer than 24 months. It is permissible for projects to extend beyond 24 months. If this is the case, provide a brief (one to two sentences) justification.

1.3.A. Add (or delete) Co-Investigators as appropriate. If more than one co-investigator list as 1.3.B, 1.3.C, etc.

1.4.A. Add (or delete) Sub-contractor as appropriate. Sub-contractors must be responsible for less than 50% of the total contracted amount. If more than one subcontractor list as 1.4.B, 1.4.C, etc.

2. PROJECT ABSTRACT AND OBJECTIVE(S)

Use this space to concisely (Approximately 250 Words):

- Summarize the problem
- Identify the proposed research approach
- Identify anticipated impacts, including financial, of the research

If funded, MnDOT Research and Innovation uses this abstract in the [MnDOT research project search engine](#) and the [TRB RiP Database](#).

3. STRATEGIC PRIORITIES AND BENEFIT MINNESOTA TAXPAYERS?

Transportation funding comes from fees and taxes. In order to ensure efficient and effective use of those resources, citizen stakeholders insist on sound fiscal management. Additionally, MnDOT has identified five Research Strategic Priorities. Research projects should map up to these strategic priorities.

3.1. STRATEGIC PRIORITIES FROM NEEDS STATEMENT (NEW INSTRUCTIONS)

This section only applies to MnDOT and Joint (MnDOT/LRRB) Research Need Statements.

- Briefly discuss how your proposal addresses the Strategic Priorities identified in the Research Need Statement as well as any of the other priorities.
- Do not delete boxes.

For reference, below are MnDOT's Research Strategic Priorities.

The Research Strategic Priorities do not explicitly direct the topics of research; instead, the Research Strategic Priorities show ways that research at MnDOT garner progress toward MnDOT's Strategic Operating Goals and Mission. Single projects could include multiple Research Strategic Priorities.

Innovation & Future Needs

In order to better understand and meet the transportation needs of the future, MnDOT must remain involved with future looking research. MnDOT's CAV-X and ITS offices are well positioned to lead some of that research. Additionally, participation in national research programs, pooled fund programs, and other regional research programs provide an additional opportunity for MnDOT to engage in future looking and innovative research. Such programs also offer an opportunity for MnDOT to leverage innovative and future need research in partnership of peer transportation departments.

Advancing Equity

The aim of this Research Strategic Priority is to recognize the role research plays in the assurance of equitable access to safe and efficient transportation systems. While research may not necessarily focus only on equity, MnDOT should prioritize research projects that advance equitable access to safe and efficient transportation systems.

Asset Management

The Asset Management, Research Strategic Priority may include research projects that focus on data collection processes and data management of asset management data. Additionally, projects may include measurement of asset life cycle and life cycle costs that inform preservation of assets and the measurement of Return on Investment.

Safety

Safety is part of MnDOT's Mission. The aim of this Research Strategic Priority is to ensure all road users have access to a safe roadway system, work zones are safe for the public and workers, and the MnDOT employees are able to do their work in the safest way possible.

Climate Change & the Environment

As a Research Strategic Research Priority, Climate Change & Environment may manifest as research projects specific to endangered & threatened species, wetland protections, salt use and incursion, congestion impacts on air quality, and the impacts of MnDOT work on the environment.

3.2. BENEFITS DESCRIPTION

This section applies to ALL proposals.

Discuss the benefits to Minnesota taxpayers. Please include benefits identified in the research needs statement and any additional, expected benefits the State of Minnesota could garner from research findings.

Benefits might include some of the categories listed in the “Matrix Template for Proposal Presentation” below.

Note. The proposal must include two benefit quantification tasks as described in Section 5.

- If selected for presentation, please complete and include the Benefits Matrix below
- The Matrix Template is for the presentation to the MnDOT Governing Board only
- Do not include this in your proposal
- Complete all applicable rows and delete any rows that do not apply to this project

Benefits Matrix (For presentation only, do not include in proposal)

Benefit Category	Using an “X”, indicate 1-2 categories applicable to your project	Are the benefits quantifiable? (yes/no)	How will you quantify these benefits?
Decrease Engineering/ Administrative Costs			
Reduce Road User Costs			
Construction Savings			
Improved Lifecycle Costs			
Environmental Aspects			
Safety			
Operation + Maintenance Saving			
Reduce Risk			
Technology			
Other			

3.3 EXPECTED BENEFITS FROM THE NEED STATEMENT

- This section only applies to MnDOT and Joint (MnDOT/LRRB) Research Needs Statements
- Copy and paste any benefits identified in the Research Needs Statement
- Do not delete unchecked boxes

4. PROJECT SUMMARY

4.1 SUMMARY OF RESEARCH METHODOLOGY (SCOPE)

Briefly describe the range or scope of work encompassed by this project.

4.2 POTENTIAL IMPACTS DUE TO COVID-19 (NEW)

Please briefly explain the potential restrictions associated with COVID-19 could impact the project scope, budget, and schedule. Please consider including additional time in your proposed schedule to provide flexibility. It is allowed for a project to extend beyond 24 months.

5. TASK DESCRIPTIONS, DURATIONS, AND SCHEDULED DATES (*NEW INFORMATION*)

Use the following guidelines to describe the major tasks needed to complete this proposed project.

- From the time a work plan is submitted to MnDOT, the contract execution process takes 10 to 12 weeks.
- Allow three months from the pre-contract TAP meeting to the desired start date for contract processing.
- **Set a realistic project schedule.**
- On-time submissions are more desirable than aggressive schedules or amendments.
- List the task durations in whole months.
- *Some research projects have knowledge transfer or implementation opportunities. If appropriate, please identify scope and budget for any work to be conducted as part of your proposed work to support implementation or knowledge transfer of the results of this research.*
- Anticipated start and end dates are subject to contract execution.
- Anticipated start dates shall occur the first of the month (e.g., July 1).
- Anticipated end dates shall occur the last day of the month (e.g., July 31).
- All tasks require a summary report or memo as a deliverable.
 - PowerPoint presentations are not acceptable deliverables.
 - PowerPoint presentations may support a summary report.
- If utilizing a subcontractor, refer to Section 9.
- Out of State Conference Travel requires preapproval using a [Travel Authorization Form](#).
- MnDOT pays Out of State Conference Travel costs after travel occurs. Preapproval of the authorization form from MnDOT is required.
- Research Travel from the PI's home state to Minnesota, as part of a research activity, does not require pre-authorization.
- Equipment in excess of \$500, or the amount defined in the proposer's University Master Academic Contract, must list the equipment purchase as a separate task.

5.1 INITIAL MEMORANDUM ON EXPECTED RESEARCH BENEFITS AND POTENTIAL IMPLEMENTATION STEPS

The Initial Memo Task builds on the information to develop documentation as to how you would model and/or calculate benefits for the taxpayers, and describe implementation opportunities and the steps required to implement the research.

Task 1 Title: Initial Memorandum on Expected Research Benefits and Potential Implementation Steps **Do not change Task 1 title.**

Description: During the proposal phase and the development of the work plan, key benefits were selected to clearly define the benefits the state will receive from the results and conclusions of this research. This task will provide an initial assessment of research benefits, a proposed methodology, and potential implementation steps. **Do not change Task 1 description.**

Anticipated Start Date: **Use the same start date as Task 2.**

Scheduled Date to Submit Draft Deliverable: **Choose a date no more than three months after the start date of Task 2.** If more time is needed, then negotiate with the TAP to establish a reasonable timeframe for the deliverable.

Scheduled Date for Task Final Approval: **Allow two months** for TAP review and revisions after “Draft Deliverable” date.

Duration: x months **Count from start date to final task approval**

Deliverable: A memorandum providing initial estimates of expected research benefits, documentation of the methodology, and potential implementation steps. **Do not change Task 1 deliverable.**

5.2 PROJECT SPECIFIC TASKS 2 TO TASK X

Beginning with Task 2, sequentially number all tasks specific to this project. The proposal form includes up to six project specific tasks (proposal form sections 5.2 through 5.7); add or delete project specific tasks as needed. For all project specific tasks, use the following format:

Task #: Title

Description:

Anticipated Start Date:

Scheduled Date to Submit Draft Deliverable:

Scheduled Date for Task Final Approval: Must be two months after “Draft Deliverable” date.

Duration: x months (count from start date to final task approval)

Deliverable:

There are 6 blank general tasks included in the proposal form. To add another general task copy the entire section (including the task heading) and paste. Make sure the heading number is sequential and also consistent within the same task.

5.8 FINAL MEMO TASK X (3RD TO LAST)

Task #: Final Memorandum on Research Benefits and Implementation Steps **Do not change task title.**

Description: During earlier phases of the project, key benefits were selected to clearly define the benefits the State of Minnesota will receive from the results and conclusions of this research. This task will produce a final memorandum that clarifies and documents the methodology used to calculate benefits, including any assumptions and steps required. In addition to quantitative calculations (when feasible), this task should also include a qualitative discussion of the estimated

benefits. The memorandum should also include key steps that agencies could take to implement the research.

Anticipated Start Date: Use Anticipated Start Date of the second-to-last task (typically the draft final report task).

Scheduled Date to Submit Draft Deliverable: Use Draft Deliverable date of the second-to-last task.

Scheduled Date for Final Task Approval: Must be two months after Draft Deliverable date.

Duration: x months (count from start date to final task approval)

Deliverable: A final technical memorandum at the end of the project that provide details of the methodology, steps and approach for evaluating benefits, benefits quantification results, and discussion of next steps for implementation.

5.9 DRAFT FINAL REPORT TASK Y (2ND TO LAST)

Most projects include a final report as the final deliverable. If this is not applicable, confer with MnDOT Research and Innovation; otherwise, include the following two tasks as the last tasks in the project.

[Published reports must follow MnDOT's Research Report Guidelines](#) and use the Report Template. Refer to the [MnDOT Research & Innovation Process for Publishing Research Reports](#) for additional information.

Task #: Draft Final Report **Do not change task title.**

Description: Compile Report, Technical Advisory Panel Review, and Revisions. The PI will prepare a draft final report, following MnDOT publication guidelines, to document project activities, findings and recommendations. This report will be reviewed by the Technical Advisory Panel (TAP), updated by the PI to incorporate technical comments, and then approved by the Technical Liaison before this task is considered complete. If possible, a TAP meeting will be scheduled to facilitate the discussion of the draft report.

Anticipated Start Date:

Scheduled Date to Submit Draft Final Report for TAP review:

Scheduled Date for Final Report Approval: Must be two months after Draft Report date, for TAP review and revisions.

Duration: X months including TAP review, discussion, and PI revisions

Deliverables: A draft final report for TAP review, and a revised report that is technically complete and approved by the TL for publication.

5.10 EDITORIAL REVIEW TASK Z (LAST TASK) (NEW INSTRUCTIONS)

Task #: Editorial Review and Publication of Final Deliverables **Do not change task title**

Description: During this task, the PI will work directly with MnDOT’s contract editors to address editorial comments and finalize all final deliverables in a timely manner. The contract editors will publish the report and ensure it meets publication standards. Final deliverables include the Final Report. *Please describe any other publishable deliverables (guidebook, spreadsheet, slide presentation, etc...).*

Scheduled Start Date:

Scheduled End Date:

Duration: two months (required)

Deliverables: Final Publishable Report that meets MnDOT’s Editorial Guidelines.

<http://www.dot.state.mn.us/research/finalreport.html> *Please also include any other final deliverables.*

5.11: OUT OF STATE CONFERENCE TRAVEL (IF APPLICABLE)

If applicable, include the following out-of-state travel task after Task Z.

- Out of State Conference Travel requires pre-approval
- Out of State Conference Travel is limited to one traveler in order to provide presentations on research findings. +

Task #: Out-of-State Conference Travel

Description: Preapproval of the “Travel Authorization Form” required from MnDOT before travel occurs.

Potential Attendees:

Scheduled Start Date:

Scheduled End Date:

Duration: x months

Deliverables:

Date to Submit the Travel Authorization Form for each trip, which must be approved by MnDOT before travel occurs (allow one month for approval).

Date to Submit Trip Summary: Completing the trip, provide a brief summary to the TL and PC to initiate payment for the Out-of-State Conference Travel task.

5.12: EQUIPMENT PROCUREMENT (IF APPLICABLE)

If applicable, include the equipment task after Task Z.

Task #: Equipment Procurement

Procurement of equipment for any item purchase price exceeding the threshold University Master Academic Contract

- \$3,000 for University of Minnesota, Michigan Tech, North Dakota State, New Hampshire
- \$500 for Iowa State, Montana State, Texas A&M, Pittsburgh, UW-Madison)

Description: (List any item with a purchase price exceeding the threshold. Provide the budget in Section 6. Budget details and additional information in Section 7: Budget Justification.)

Scheduled Start Date: Use the same start date as Task 1.

Scheduled End Date: Use Draft Deliverable date of the second-to-last task, typically the draft final report.

Duration: x months

Deliverable: Details on the equipment’s price, make, and model, and a means of comparison to demonstrate it was purchased at a fair price or in accordance with your institution’s purchasing protocol. This information should be submitted to MnDOT for approval as soon as available.

6. KEY MILESTONES

- List key milestones not provided in Section 5
- This table should include tasks that impact the project schedule, such as target dates for a project kickoff meeting and TAP meetings, workshops conducted as part of the project, beginning or end of field work, due dates for information to be provided by the Technical Liaison, and decisions or approvals needed from the sponsoring organization (MnDOT or LRRB)
- Key milestones will be reviewed, discussed and modified, as necessary, at the first project TAP meeting and incorporated into the contract work order

Table 1: Key Milestones

Key Milestone	Target Date	Description
1.		
2.		
Add rows if necessary		

7. PROJECT BUDGET DETAILS AND JUSTIFICATION

7.1 BUDGET DETAILS

- Total cost for academic and/or non-academic subcontractors shall not exceed 50% of the total proposal budget
- If necessary, add rows to sections A, B, and C
- **Section F. Research Travel**
 - Limited to travel associated with research activities
 - Includes travel to Minnesota from PI’s home state OR travel from Minnesota to another state
 - If funded, additional details may be required during the contracting phase and Pre-approval for travel may be required
- **Section G. Out of State Conference Travel**
 - Limited to the purpose of presenting research findings
 - Limited to one trip and one attendee
 - If funded, additional details may be required during the contracting phase and Pre-approval for travel may be required

Table 2: Budget Details

Budget Line Items	Description	Budget Amount (Round to nearest dollar)
A. Salaries	Total Salaries	\$ Provide total Salary
<i>Name or Position for each person devoted to this project.</i>	<i>Provide salary and staff resource devoted to this project.</i>	<i>Provide cost associated with this person</i>
		\$
		\$
		\$
B. Fringe Benefits		\$ Provide total cost of Fringe Benefits
<i>Provide position devoted to this project. i.e. PI, Co-PI, Faculty, Student, Intern, etc. One per line.</i>	<i>Provide fringe rate for each position devoted to this project</i>	<i>\$ Provide Fringe Benefits cost associated with this position</i>
		\$
		\$
		\$
C. Non-Salary	C=D+E+F+G+H	\$ Total Non-Salary Cost
	<i>Provide detail below for each line item, e.g., anticipated # of units with price.</i>	\$
D. Equipment:		\$ Total Equipment Cost
E. Supplies:		\$ Total Supplies Cost

Budget Line Items	Description	Budget Amount <i>(Round to nearest dollar)</i>
F. Research Travel:	<i>Travel for the purpose of research activities, including travel to Minnesota from PI's home state OR travel from Minnesota to another state.</i>	<i>\$ Total Travel Cost</i>
G. Out of State Conference Travel:	<i>Present findings This is for out of state travel for <u>one</u> conference attendee.</i>	<i>\$ Total Out of State Travel Costs</i>
H. Other: (describe)		<i>\$ Total Other Costs</i>
I. Subcontractors	<i>Total cost for academic and/or non-academic subcontractors shall not exceed 50% of the total proposal budget.</i>	<i>\$ Total Subcontractor Costs</i>
J. Total Direct Costs	<i>J=A+B+C+I</i>	<i>\$</i>
K. Indirect Costs	Indirect Cost Rate:	<i>\$ Total Indirect Costs</i>
Project Total	Sum total of lines A, B, C, I, J, and K	<i>\$</i>

7.2 BUDGET JUSTIFICATION

Use this section to explain the budget and provide justification for the following items:

- Research Travel
 - Mileage rates, approx. flight and accommodations cost, per diem, and number of trips
- Out of State Conference Travel
 - Explain how the conference benefits the project and purpose of the trip
 - Mileage rates, approx. flight and accommodations cost, per diem, and number of trips
- Any equipment purchases
 - Disposition of the equipment at the end of the project
 - Include who will own the equipment, the location of the equipment, training associated with the equipment, and the transfer protocol
 - This information needs to be determined prior to contract execution
 - Please identify your University Master Academic Contract equipment threshold. Explain the need for equipment purchases that exceed your University Master Academic Contracts threshold
- Indirect cost rates typically apply to Modified Total Direct Costs and including sub-awards under \$25,000 (excluding equipment, capital expenditures, charges for patient care, rental costs, tuition remission, scholarships and fellowships, as well as the portion of each sub-award in excess of \$25,000).

8. OVERVIEW OF PROJECT SCHEDULE AND BUDGET

- Minnesota state law requires a brief justification for contracts exceeding two years/24 months (see [section 1.A.](#)).
- Contracts **may extend longer than two years** (24 months).

- A realistic schedule is desired.
 - Proposed projects that exceed two years will not lose points in the evaluation process.
- By Minnesota Statute, **contracts shall not exceed five years** (60 months)
 - Plot the dates of each task.
 - There should be one table per fiscal year.
 - Delete/Duplicate Figure 2 as needed.
 - Keep Figure 1 as the beginning and Figure 3 as the end.
 - Add rows for tasks as needed.
 - If a task spans two fiscal years, allocate the task cost to the fiscal year in which it ends.
 - Tasks are paid upon completion.
 - Update the fiscal year in the table header and total as needed for your project schedule.
 - All projects shall include four mandatory tasks.
 - Task 1: Initial Memorandum on Expected Research Benefits and Potential Implementation Steps
 - Last three tasks include
 - Task X: Final Memo on Research Benefits and Implementation Steps
 - This should be submitted at the same time as the Draft Final Report
 - Task Y: Draft Final Report
 - The cost of the Draft Final Report Task and the Final Publishable Report Task must each total at minimum 5% of the Total Project Cost minus the Final Memo on Benefits Task cost
 - Task Z: Final Publishable Report
 - The cost of the Draft Final Report Task and the Final Publishable Report Task must each total at minimum 5% of the Total Project Cost minus the Final Memo on Benefits Task cost
 - Indicate the months in which the corresponding task will take place with an “X”.
 - Indicates the review/revision period within the given task with an “R”.
 - Task 1 is plotted on the chart as a suggested timeline for Task 1 and example for other tasks.

9. SUBCONTRACTOR INFORMATION

If no subcontractors – enter N/A in this section. In order to use subcontractor, the proposer must supply the following information:

- The subcontractor must provide a letter of project commitment
 - This letter is not counted as part of the proposal page limitation
- Include an organizational chart showing the relationship and communication methods between the prime team and subcontractor team
 - The organizational chart is not counted as part of the proposal page limitation)
- Identify the subcontractor’s roles and responsibilities within relevant project tasks (Section 5)
- If the Primary Investigation Team and Subcontractor share activities within a task, identify which team is responsible for delivery of the task.

Please Note: The cost for academic and/or non-academic subcontractors cannot exceed 50% of the total proposal budget.

10. ADMINISTRATIVE REQUIREMENTS

Do not delete boilerplate language in the form.

11. MATCHING FUNDS, IN-KIND, OR OTHER CONTRIBUTIONS (IF APPLICABLE)

- If this section does not apply, check the box and delete table 3
- Identify matching funds, in-kind or other contribution made in support of this research
- Provide a list of sources and estimated amounts

Table 3: Matching Funds/In-kind Contributions

Contribution Source	Contribution Description	Quantity or value
<i>Identify the source of the contribution</i>	<i>For in-kind contributions describe the contribution i.e. data collection. For financial contributions identify as ‘financial contribution’.</i>	<i>For in-kind contributions, identify the estimated amount/quantity. For financial contributions, identify the dollar amount that contributed.</i>
<i>Add or delete rows as needed</i>		

12. INTELLECTUAL PROPERTY/TRADE SECRET INFORMATION

Identify any part of this project that may involve intellectual property, trade secrets, lead to a patent, and/or require special handling under public records laws.

13. MNDOT OR OTHER AGENCY ASSISTANCE MNDOT

- If this section does not apply, check the box and delete Table 4
- If the project requires specialized help or input including data, materials, equipment, facilities, traffic control, etc., list the agency, type of assistance requested, including timeline and contact person
- Attach a letter/email of commitment from the contact person

- As appropriate include as Contract Milestone in Section 6.

Table 4: External Support

Task Associated With the Support	Contact Person Providing Support	Agency of the Contact	Support Description
<i>Identify the task number associated with the assistance/support</i>	<i>Provide the contact person who will provide or facilitate receipt of the assistance/support</i>	<i>Provide the agency of the contact person who will provide or facilitate receipt of the assistance/support</i>	<i>Briefly describe the type of support required i.e. an existing dataset, surveys, department documents etc.</i>
<i>Add or delete rows as needed</i>			

14. INFORMATION TECHNOLOGY NEEDS

Check boxes in the form to allow MnDOT to assess potential IT needs, impacts and costs, select all that apply.

15. RESUMES FOR PI AND CO-INVESTIGATOR(S)

Please provide a link to the resume/CV for each PI and Co-Investigator included in your proposal.

- **University of Minnesota Researchers:** Resume sent to CTS.
- **Non-UMN Researchers:** Website Link(s): _____

16. LITERATURE REVIEW AND SUMMARY OF RELEVANT RESEARCH

Provide an overview of relevant literature and describe how this project relates to prior research. If applicable, include a summary of the research team’s relevant research.

17. REFERENCES

References do not count against the proposal page limit.

List all publications and/or presentations cited in [Section 16](#) that informed your proposal.

18. ATTACHMENTS

Add as needed

18.A. LETTERS OF SUPPORT

18.B. SUBCONTRACTOR DOCUMENTS

Last revised 7/15/2019
 ### End of Document ####