

**Office of Research & Best Practices SPR, Part II, Program  
RESEARCH PROPOSAL FORMATTING AND SUBMISSION GUIDELINES**

Proposals become the property of the Michigan Department of Transportation (MDOT) and are treated as privileged documents and will be disposed of by the Department. MDOT retains the right to reject any proposal. The proposals will be reviewed by the department with particular emphasis on technical merit and budget.

Electronic submission of proposals is not accepted. Printed proposals shall contain the signature of the person with contracting authority on the cover page of the proposal. Submit six (6) comb- or spiral-bound, double-sided and color (if applicable) copies to:

Office of Research & Best Practices  
425 West Ottawa Street  
P.O. Box 30050  
Lansing, Michigan 48909

Proposals shall be submitted by the deadline noted in the solicitation. Proposals submitted after the posted deadline will not be considered.

The proposal shall follow the format listed herein. Non-compliance is cause for rejection. All questions regarding requests for proposals should be directed to the Office of Research & Best Practices (ORBP) at [mdot-research@michigan.gov](mailto:mdot-research@michigan.gov) or 517-241-2780. All responses to questions will be posted in the same location as the RFP for viewing by all.

A research proposal should be a well-organized document which addresses the need for the research as identified in the MDOT RFP and follows the objectives of the RFP. The proposal should provide a detailed description of the work required to achieve those objectives, itemize all costs, and recommend how the results of the research should be implemented.

Proposals are limited to twenty (20) pages in length, excluding the cover page, title page, table of contents, and appendices. All required forms are to be submitted as appendices. Text should be no less than 10-point font size with 1.5 line spacing and 1-inch margins on all sides. All pages, including appendices, must be consecutively numbered. All proposals must contain the following sections:

**Cover Page** - the first sheet of the proposal which lists the following:

- The project title as stated in the request for proposals
- ORBP Reference Number
- Name of proposing research agency
- Name of principal investigator(s)
- Printed name and signature of person(s) with contracting authority

(NOTE: The research is considered to be under the technical direction of the principal investigator (PI) identified in the proposal. If multiple investigators are participating in a project the *principal* investigator shall be listed first on the proposal and on all reports. Because the PI is expected to have the primary responsibility for the work, the PI is also expected to be available and actively involved in the research efforts for the full contract period.)

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**Title Sheet** - the second page of the proposal which lists the following information:

- The title for the study - Project titles are determined by the proposer and should be descriptive, but brief (10 words or less)
- The name and business address of the proposing organization
- The name, title, address, phone number, and email address of the PI(s) or co-PI(s)
- The name, title, address, phone number, and fax number of the person(s) who are authorized to bind the agency contractually
- The date submitted

A new title sheet shall be furnished with each revision to the proposal and shall include the date of the revision, the original submission date, and the dates of all previous revisions.

**Table of Contents** - should include a list of figures, tables, and appendices.

**Statement of the Problem** - a clear and concise description of the problem to be solved. This section should explain the need for the research and demonstrate the researcher's knowledge of the topic. The submissions should explicitly state how the intended research product will be used and by whom.

**Objectives of the Study** - the technical objectives upon which the research team is expected to focus. The goals of the research should be clearly identified. The submissions should define the objectives in terms of the final expected product.

**Background and Significance of Work** - a brief summary of preliminary literature findings and additional information that demonstrates the project is not a duplication of other ongoing or completed work. The proposal should provide enough detail to adequately document the state of the current practice, but should not be overburdened by a lengthy treatment of this topic. A TRIS online literature search <<http://ntl.bts.gov/tris>> is encouraged. A bibliography and general comments on the results should be provided in an appendix.

**Benefits** - a summary of the benefits anticipated from the research findings. This discussion should indicate how the research findings are expected to save money, improve quality, efficiency or safety, and advance the state of technology. The submissions should include a discussion on the urgency of the proposed research in relation to highway transportation needs in general and the potential for payoff (in terms of benefits/cost, if possible) from achievement of the research objectives.

**Anticipated Research Results & Deliverables – Appendix A and A2** - all expected products, devices, procedures and other items that will be provided to the department during and at the conclusion of the research, including all reports as specified below. The deliverables shall also include items identified in the implementation plan.

**Quarterly Reports** - The principal investigator must submit quarterly progress reports within the time schedule and format specified in the Research & Implementation Manual, Chapter 4.3.4.1 and use Form 5305. Electronic submission of the quarterly reports must be included in the work plan, depicted on the work time cost schedule form, and acknowledged in the deliverables section.

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**Annual Interim Report for two-year projects** – due on October 30. To be submitted in the format specified in the Research & Implementation Manual, Section 4.3.4.2.

**Final Reports and Executive Summary** - Unless specified otherwise, reports are required for all projects, as follows:

- One (1) original and five (5) copies of a draft final report and draft executive summary are due no later than 90 days prior to the project completion date.
- Twenty-One (21) printed copies, double-sided and bound of an approved final report, and twenty-one (21) color copies of an approved two- to four-page dated executive summary are due by the contract completion date. A CD storage media format, in pdf format with searchable text.
- Two electronic versions of the approved final report and approved executive summary in the following formats are also required: (1) Adobe Acrobat (.pdf), and (2) Microsoft Word (.doc).

Formats for these documents are available in the Research & Implementation Manual and on the ORBP web site at [www.michigan.gov/mdotresearch](http://www.michigan.gov/mdotresearch).

**Article for ORBP Newsletter** - All research projects are required to produce one article for inclusion in the ORBP newsletter. The text for the article should not exceed two pages. At least one graphic must be provided in JPEG format. ORBP will coordinate the due date of the article and will contact the Principal Investigator as appropriate. Submission of articles should occur electronically. Any other news release or publication will be in compliance with the provisions of the Contract.

**Participation in Project Kick-Off Meeting** - In an effort to ensure everyone involved in a research project is informed of the contractual obligations, scope of work, deliverables, project milestones, time table, and appropriate office policies and procedures, a start-up meeting will be scheduled for each new project. This meeting will also provide an opportunity to clarify technical issues or concerns with the project. Invitees to this meeting include the researcher(s), technical liaisons, sponsoring Office Administrator, FHWA, and ORBP staff. The meeting should last for approximately one hour and is scheduled by the Office of Research & Best Practices.

**Participation in Project Review Session** - Project reviews are a mechanism for updating sponsors and other interested parties on the status of a research project and are conducted by the Research Advisory Panel (RAP). Principal Investigators will provide a presentation on project's progress. A PowerPoint file should be provided to ORBP at least one week prior to the scheduled review session. Technical issues or problems may be resolved at this time, or subsequent meetings may be scheduled for that purpose. ORBP will work with the Project Manager (PM) to coordinate the scheduling of review sessions. Principal Investigators can expect to participate in at least one formal review session for every 12-month duration of a project.

**Participation in Project Wrap-Up Meeting** - Project wrap-up meetings are a platform for providing a final presentation on a research project. An overview of the project will be provided

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with detailed discussions on the findings and recommendations. These presentations will possess strong technical components and in-depth discussions that focus primarily on the research and implementation. The research team will provide a PowerPoint presentation in advance of the wrap-up meeting.

**Work Plan** - the work plan shall completely detail the progression of the research including the submission of quarterly reports, a draft final report, and an acceptable final report. It should describe how the study will be structured to meet each objective. To the extent possible, it should identify major operational phases, relate the phases to manpower requirements, time schedules, and cost estimates, and describe how the activities will be carried out. Research methodology shall be described in sufficient detail to permit evaluation of the probability of success in achieving the objectives.

Attach Appendix B to the narrative to note the tasks necessary to complete the work plan. If assistance from the department is necessary in accomplishing specific tasks (e.g.: traffic control, data collection, use of equipment/vehicles, etc.), the work plan must include a section that details such events.

A start date should not be specified in the proposal, unless the project is dependent on something, such as a construction schedule. The proposal must clearly indicate the reason for noting a specific start date. The work time cost schedule may be included as an appendix to the proposal.

The submissions must clearly describe the role of the partnering agency in the work plan. All tasks to be completed by the partnering agency must be detailed in the proposal. Partnership agreements must be established before the proposal is submitted. Signed documents that acknowledge the role(s) of the partner(s) and financial contributions (either cash or in-kind) must accompany the proposal in an appendix.

The development or purchase of software for other than a single user or a local application is not allowed.

**Recommended Implementation Plan – Appendix C** - a plan that describes the activities anticipated to promote application of the results of this research. While actual implementation of the research results is the responsibility of MDOT, each research proposal must include recommendations for how to facilitate this. It is expected that the implementation plan will evolve during the project; however, proposals must address at least the following:

- A list of the “products” expected from the research and suggested methods of implementation; e.g., a proposed specification, a design manual or guide, field or laboratory procedures, a training manual, hardware for demonstration, equipment, etc.
- A description of the audience or “market” for this product and a statement of how the research results may be used to solve the problem.
- A realistic assessment of impediments and barriers to successful implementation.
- The activities necessary for successful implementation such as training, demonstration of projects, revision of standards.
- The criteria for judging the progress and consequences of implementation.
- A detailed estimate of the costs of implementation.

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Further, a final implementation plan shall be turned in and approved with the final project. If the findings of a study are not suitable for immediate application in practice, the proposal should specify additional steps that are needed before application can occur (e.g., additional research, field testing, changes in policy, etc).

**Itemized Budget** - Costs must be justified by including copies of information used to prepare the budget (i.e., release time contracts, price quotes for all equipment, catalog sheets, etc.). For projects that will be performed in distinct phases, a budget for each phase is required. The budget must be established within the guidelines of the budget worksheets established for identified entities. See below to establish budget worksheet to be used and link to the worksheet.

For educational institutions, follow the guidelines in the ORBP Research and Implementation Manual and use the budget form listed as Appendix D.

All other entities, refer to the Priced Proposal Guidelines, dated December 2008. The budget pages for all other entities can be found in these guidelines. All required forms found in the guidelines must be completed and attached to the proposal.

Access to the Priced Proposal Guidelines can be obtained by following this link:  
[http://www.michigan.gov/mdot/0,1607,7-151-9625\\_21540---,00.html](http://www.michigan.gov/mdot/0,1607,7-151-9625_21540---,00.html)

For the development of travel costs, refer to the State of Michigan travel policy found at: [http://michigan.gov/documents/DMB\\_StandardizedTravelRegulations\\_23541\\_7.pdf](http://michigan.gov/documents/DMB_StandardizedTravelRegulations_23541_7.pdf). In addition, all proposals must include provisions for a project start-up meeting and annual visits by the PI(s) for consultation with the Office of Research and Best Practices. The budget and schedule shall reflect this requirement. Check this policy for each submission, as changes may occur in the allowable costs.

**Appendices** - In addition to the items mentioned above, the following information **must** be submitted as an appendix to the proposal. Appendices are excluded in the page count of the 20 page limit of the narrative.

**Facilities** - a description or list of the general facilities at the researcher's disposal that are necessary to conduct the work.

**Qualifications of Research Team** - a brief description of the academic, industrial, professional, and/or research experiences of the team in the same, or closely related, problem area of the project. This information must be provided for the PI(s) and all other research team members (including consultants and subcontractors) participating to a significant degree. Resumes and publication lists may be included, but should be limited to **no more than two (2) pages** per individual.

**Other Commitments of the Research Team** - proposals shall demonstrate that the organization and all members of the research team, including subcontractors identified in

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the proposal, will be able to meet the commitments of the proposal. A comprehensive listing of commitments to other work shall be provided. This shall include staff-hour commitments and/or percentage of time committed to other work for each member of the proposed research team. The following example illustrates one method for demonstrating these commitments:

PI:

- Teaching 2 classes per quarter (specify quarters) that occupy 45% of his time
  - Participating in 1 research project (provide project name, sponsoring entity, the start date and current completion date of the project) as PI that occupies 10% of his time
  - Participating in 3 other projects as co-PI (provide project names, sponsoring entities, the start dates and current completion dates of each project) that occupy a total of 15% of his time
  - Participating in professional organizations and community activities (list names of organizations and specific community involvements) that occupy 15% of his time
- Therefore 15% of his time is available for other endeavors such as this proposed project.

Student #1:

- Taking approximately 15 credit hours of class/lab occupying 60% of his/her time
  - Assisting professor in lab that occupies 25% of his/her time
- Therefore, 15% of her time is available for other endeavors such as this proposed project.

Technician #1:

- Approximately 75% of his/her time is dedicated to overseeing and maintaining labs and pre-existing specialized projects in the organization
  - At least 20% of his/her time must remain for troubleshooting and problem-solving for the organization
- Therefore, 5% of his/her time will be available for this proposed project.

Additional information may be supplied as an appendix at the discretion of the proposer.

**Proposal Submission** - Submit six (6) comb- or spiral-bound, double-sided and color (if applicable) copies to:

Office of Research & Best Practices  
425 West Ottawa Street  
P.O. Box 30050  
Lansing, Michigan 48909

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Appendices

Deliverables Table .....Appendix A  
Deliverables Table Example .....Appendix A2  
Schedule of Research Activities .....Appendix B  
Implementation Plan ..... Appendix C  
Implementation Plan Instructions..... Appendix C2  
Proposed Budget ..... Appendix D

NOTE: The Appendices listed as A-D must be submitted with the narrative of the portion of the required submission document headings. For example, for the deliverables narrative, Appendix A must be attached along with the narrative.

All Appendix documents attached to this document are the property of the MDOT Office of Research and Best Practices and are not to be used, manipulated, changed, or copied for uses other than the submission of a proposal under the terms of this RFP. Any enhancements, format changes, textual changes of pre-determined text fields, or other changes to the document that do not fill the requirements of this RFP shall be cause for elimination of consideration of the submitted proposal. These forms can be found in a fillable Excel format at <http://www.michigan.gov/mdotresearch>.

Questions or problems with the appendices attached herein are to be submitted to the ORBP research e-mail at [mdot-research@michigan.gov](mailto:mdot-research@michigan.gov).

ORBP Number: \_\_\_\_\_

**Note:** Deliverables on this table are not considered received by MDOT until submitted to the Office of Research and Best Practices. See chapter 5 of MDOT's Research and Implementation Manual for standards for the final report.

**Products:** Minimum stand-alone products will be as specified on the **Problem Statement** (Research Project) or **IPR** (Implementation Project). Examples of products typically most appropriate as stand-alone items include guidebooks, training materials, devices

No.	Stand-Alone Product Description	Due Date (due at or before project termination)	Responsible Party for Joint Project (if blank, PI is assumed)	Comments
P1				
P2				
P3				

**Reports:** Minimum reports will be as specified on the **Problem Statement** (Research Project) or **IPR** (Implementation Project).

No.	Report Description (Succinctly describe intended contents of each report.)	Due Date (due at or before project termination)	Responsible Party for Joint Project (if blank, PI is assumed)	Comments
R1	Quarterly Reports - Comprehensive and detailed documentation of all work tasks and results	01/15/20__ 4/15/20__ 7/15/20__ 10/15/20__  01/15/20__ 4/15/20__ 7/15/20__ __/__/20__	PI	Must be submitted to ORBP on the MDOT/ORBP quarterly report form.
R2	Annual Reports - Cumulative reports based on the quarterly reports received from the PIs	10/31/20__ 10/31/20__	PM	Submitted to ORBP on MDOT form number 5305-10.
R3				
R4				
Final Report	Summary of work performed, findings and conclusions		PI	See chapter 5 of MDOT's Research and Implementation Manual for standards and submittal requirements for the final report (approximately 800 words).

Date updated: \_\_\_\_\_



### EXAMPLE

(Representing a single year project starting 10/1/09, ending 09/30/10)

ORBP Number: \_\_\_\_\_

**Note:** Deliverables on this table are not considered received by MDOT until submitted to the Office of Research and Best Practices. See chapter 5 of MDOT's Research and Implementation Manual for standards for the final report.

**Products:** Minimum stand-alone products will be as specified on the **Problem Statement** (Research Project) or **IPR** (Implementation Project). Examples of products typically most appropriate as stand-alone items include guidebooks, training materials, devices

No.	Stand-Alone Product Description	Due Date (due at or before project termination)	Responsible Party for Joint Project (if blank, PI is assumed)	Comments
P1	Field Loop Detector Installation Guide	6/30/2010	PI	Submit directly to PM for approval with a copy of documentation to the Engineer of ORBP
P2	Field Loop Detector Tester with metal case	8/31/2010	PI	Submit directly to PM for approval with a copy of documentation to the Engineer of ORBP
P3	Electronics to improve the performance of installed inductive loops	8/31/2010	PI	Submit directly to PM for approval with a copy of documentation to the Engineer of ORBP

**Reports:** Minimum reports will be as specified on the **Problem Statement** (Research Project) or **IPR** (Implementation Project).

No.	Report Description (Succinctly describe intended contents of each report.)	Due Date (due at or before project termination)	Responsible Party for Joint Project (if blank, PI is assumed)	Comments
R1	Quarterly Reports - Comprehensive and detailed documentation of all work tasks and results	01/15/2010 4/15/2010 7/15/2010 9/30/2010	PI	Includes design of new electronic systems, with description of new loop geometry and electronics for optimum performance. Must be submitted to ORBP on the MDOT/ORBP quarterly report form.
R2	Annual Reports - Cumulative reports based on the quarterly reports received from the PIs	10/31/2010	PM	Submitted to ORBP on MDOT form number 5305-10.
Final Report	Summary of work performed, findings and conclusions	9/15/2010	PI	See chapter 5 of MDOT's Research and Implementation Manual for standards and submittal requirements for the final report (approximately 800 words).

Date updated: \_\_\_\_\_



Office of Research & Best Practices  
 SPR, Part II, Program  
 Schedule of Research Activities - Appendix B



or "O" = Original Schedule		Revision Date: _____																																				
or "X" = Work Completed		<b>Note: A Technical Memo will be submitted to the PM &amp; RM at the end of each non-deliverable task.</b>																																				
or "R" = Revised Schedule		FY 20__									FY 20__									FY 20__																		
Research Activity	Estimated % of Total Project Budget	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	
Task 1																																						
Task 2																																						
Task 3																																						
Task 4																																						
Task 5																																						
Task 6																																						
Task 7																																						
Task 8																																						
Task 9																																						
Task 10																																						
<b>Total (should = 100%)</b>		<b>0.0%</b>																																				



**Office of Research & Best Practices  
 SPR, Part II, Program  
 Implementation Plan - Appendix C**



**Initiation**

<b>ORBP#:</b>		<b>Date Developed:</b>		<b>Focus Area:</b>	
<b>Title:</b>					
<b>Brief Description:</b>					
<b>Product source or partial list of relevant documentation:</b>					

**Planning**

<b>Office of Primary Responsibility (OPR) for implementation:</b>	
<b>Implementation Director (ID):</b>	Calvin Roberts, P.E., Engineer of Research and Best Practices P.O. Box 30050, Lansing, MI 48909, 517-241-2780, robertsc@michigan.gov
<b>Implementation level proposed (may choose more than one, provide details)</b>	
Use in test sections on projects	
Use in trail project	
Region-wide use	
Statewide use or statewide impact	
Other	

**Work plan - MDOT portion**

<b>Tasks:</b>	1	
	2	
	3	
<b>Deliverables:</b>	1	Technical Report of 10 pages or less
	2	
	3	
<b>Termination Date:</b>		

**Work plan - Investigator portion, if needed:**

<b>Sole Source Investigator Name or Competitive RFP?</b>		
<b>Tasks:</b>	1	
	2	
	3	
<b>Deliverables:</b>	1	Technical Report of 10 pages or less
	2	
	3	
<b>Termination Date:</b>		

<b>IPR budget. Provided breakdown by fiscal year.</b>		FY __ __	FY __ __	FY __ __
MDOT Budget Items (describe)				
Items to be purchased				
Work to be contracted: (e.g., change order)				
Other - MDOT salaries and travel excluded				
Total budget for MDOT portion (fixed figure)				
Total budget for investigator portion (estimate)				
<b>Total IPR budget</b>				

**Initiation:**

**ORBP #:** These are assigned by the Office of Research and Best Practices. The first two letters, OR, stand for the Office of Research. ORE indicates an external submission. The letter prefix is followed by a two digit fiscal year designation indicating when the original research idea entered our system. After the year designation, submissions are roughly numbered in the order they are received by this office (001-999). Summarized research statements developed during MDOT's research summit are issued with the SPR, Part II, Program biennial call. Each statement is issued an ORBP number. The resulting problem statement will retain the ORBP number from the summarized statements. If we received more than one problem statement for the same summarized statement during a call, the ORBP numbers will be followed by alphabetical letter designations (e.g., ORE09001A).

**Date Developed:** The date that this implementation plan was originally submitted to ORBP.

**Focus Area:** The specialty area within MDOT that best fits this project. If you are unsure, please leave blank at this time.

**Title:** Limit to ten (10) words or less.

**Brief description:** List products from deliverables table.

**Product source or partial list of relevant documentation:** Research project numbers, titles, and originating university.

**Planning:**

**Implementation level proposed (may choose more than one, provide details:**

- Use in trial project (Indicate whether construction project, maintenance, etc. Provide existing project descriptions as examples if known.).
- Region-wide use (list Regions).

**Work plan for the Implementation, MDOT portion:**

- Tasks: List tasks and provide anticipated details with durations/timeline.
- Deliverables: Reports, guides, specifications, training materials, etc. Include a brief final report by the Implementation Director.

**Work plan for the Implementation, Investigator portion, if needed:**

List tasks and details as necessary, budget and timeline.

- Investigator: List name and justification/qualification if applicable.
- Tasks: List tasks, provide details as necessary and target dates.
- Deliverables: Reports, guides, specifications, training materials, etc. Quarterly reports will be required. A brief final report by the Principal Investigator of 10 pages or less will be required. If information resources are to be delivered, it will be included in the final report. If training will be developed, note the need to coordinate with MDOT and what you feel it would entail.

**Termination date:** Desired end date, less than or equal to MDOT's termination of authorization.



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