

# Maryland Department of Transportation

## State Highway Administration

### Guidelines for Preparing Research Proposals

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# 1 About this Document

This document provides the following information to researchers interested in responding to requests for proposals for Maryland Department of Transportation State Highway Administration (MDOT SHA) research projects:

- [Overview of MDOT SHA's research program](#)
- [Annual research program development](#)
- [Research Administration](#)
- [Instructions for preparing and submitting proposals](#)
- [Important Dates](#)
- [Key Points for Proposers](#)

Any questions related to the guidelines should be sent to [research@mdot.maryland.gov](mailto:research@mdot.maryland.gov).

## 2 MDOT SHA's Research Program

MDOT SHA's research program is managed and administered by the Research Division located in the Office of Policy and Research. It is the goal of the Research Division to develop an annual program of projects that support MDOT SHA's top research priorities, to share research results and best practices, and to support technology transfer activities. The program is funded through the State Planning and Research (SPR) federal-aid program. Federal regulations mandate that 25% of the SPR program be dedicated to research each year. It is important to note that the program is a contract research program; it is not a grant program.

The Research Division also manages MDOT SHA's participation in national research programs including the Transportation Research Board's (TRB) National Cooperative Highway Research Program (NCHRP) activities and manages research and technical assistance agreements with MDOT SHA's university partners.

## 3 Annual Research Program Development Schedule

### 3.1 Identification of Research Needs

Each January the Research Division sends out a request for research needs to all MDOT SHA offices. Research needs are submitted to the Research Division in the Spring. The needs are reviewed by Division staff and discussed with the submitting offices. Once finalized, the list of research needs is presented to MDOT SHA's Leadership (Administrator and Deputy Administrators) with a recommended approach for how to solve each need.

Following acceptance of the proposed research needs, the Research Division works with the submitting offices to prepare the research project requests for proposals (RFPs) that describe the problem and the specific objectives directed toward problem solution. Some research needs can be addressed through a literature search or survey to the states and do not require a full research study. For these types of projects, the Research Division may be able to take care of the need for the requesting office rather than issuing an RFP for it.

## 3.2 Request for Proposals

The Research RFP is distributed electronically to the state Institutions of Higher Education (i.e. universities) that partner with MDOT SHA on transportation research and technical assistance activities. MDOT SHA is open to working with all state universities as the Administration's research needs align with educational programs and faculty research interests.

### Important Points:

- *MDOT SHA's RFP does not constitute an award commitment nor does it obligate the Administration to pay for costs incurred in the preparation and submission of a proposal.*

## 3.3 Proposal Submissions

MDOT SHA only accepts proposals with **one** principal investigator (PI) and intends to award projects to the university whose proposal is determined to be the most advantageous to the Administration. It is expected that proposers will possess extensive knowledge and research capabilities and will be able to document their experience with the topic in the "Research Team" section of the proposal. Should a proposing university elect to include a subcontract on the proposal, the university must complete at least 50% of the work (i.e. direct labor).

During the period of proposal preparation all technical and administrative questions must be forwarded, in writing to [research@mdot.maryland.gov](mailto:research@mdot.maryland.gov). Questions related to the RFP and research topics shall not be directed to employees outside of the Research Division or another office. Noncompliance will result in immediate disqualification of the proposal. The deadline for technical questions is two weeks prior to the proposal due date; no exceptions will be made. There is no deadline for administrative questions. All questions and answers will be posted on-line on MDOT SHA's [Research Projects Page](#) under "Program Information." It is the responsibility of all potential proposers to monitor this site for any changing information prior to submitting their proposal.

After receipt of the proposals, all responsive submissions are forwarded to the appropriate selection panel for review and evaluation. The following criteria will be used to evaluate the proposals:

1. The proposer's demonstrated understanding of the scope of work
2. The proposer's research work plan and technical objectives
3. Research Deliverables
4. The plan for ensuring application of research results (i.e. implementation by MDOT SHA)
5. Project schedule and Itemized budget
6. Adequacy and availability of equipment and facilities
7. The experience, qualifications, and availability of the research team
8. Past performance on MDOT SHA research projects. *Proposers who have not worked with MDOT SHA will receive a neutral rating in this category.*

Once the evaluation is complete, the selected proposer is notified and provided with review comments. MDOT SHA reserves the right to request minor modifications to the selected proposal's scope, tasks, duration, and budget. Once the proposal is finalized, a notice-to-proceed will be issued assigning the project as a task under the university's existing agreement for research and technical assistance with SHA. If the university does not have an existing agreement with MDOT SHA, one will be established. Depending on the type of research needs, multiple selections for a topic is possible. All other proposals are designated as unsuccessful and the proposers are notified. The Research Division will provide feedback related to non-selection upon request from the proposer.

**Important Points:**

- *MDOT SHA only accepts proposals with one principal investigator (PI).*
- *Proposals will not be considered if not received by the Research Division on or before the date and time specified as the due date for submission.*
- *Proposals become the property of MDOT SHA and will be disposed of in accordance with internal policies.*
- *MDOT SHA reserves the right to reject all proposals.*
- *Instructions for preparing proposals are located in Section 5 starting on page 8. Proposers are encouraged to read and follow this section very carefully. **Compliance with the instructions is mandatory. Incomplete and nonresponsive proposals will be disqualified.***

## 4 Research Administration

Once the notice-to-proceed is issued the University is expected to aggressively pursue the research with regard for the project timeline.

### 4.1 Quarterly Progress Reports and Meetings

Quarterly progress reports are due on or before **April 5<sup>th</sup>, July 5<sup>th</sup>, October 5<sup>th</sup>, and January 5<sup>th</sup>** for all active research studies. The reports should be submitted electronically to the Research Division's project manager and should provide sufficient detail (i.e. 2-3 sentences related to quarterly progress and work planned for the upcoming quarter is not considered to be acceptable). The Research Division's project manager will schedule a quarterly progress meeting or conference call immediately after the quarterly report is submitted. These are progress meetings so lengthy presentations are not necessary. The goal is to discuss the progress and direction of the project as well as any challenges or unexpected issues. This report will be used for discussion at the quarterly progress meetings and for authorization of invoice payments. The quarterly report template is provided to the Principal Investigator at the beginning of a research study.

### 4.2 Scope-of-Work and Budget Changes

The Principal Investigator is expected to manage the project tasks and budget in accordance with the approved scope-of-work. However, should changes be necessary (e.g. tasks change or funding needs to be shifted between budget categories), they must be documented in a written request and receive approval in writing from the Research Division before proceeding. Given budget constraints, MDOT SHA is not able to entertain requests to increase a project budget.

### 4.3 Principal Investigator

The research is under the technical direction of a single Principal Investigator (PI) identified in the proposal. As a result, it is expected that the PI will be available for the full project period and will have significant involvement in successfully fulfilling the research objectives. This includes closely monitoring and reviewing all deliverables such as quarterly progress reports and the final report and two-page summary. Replacement of a PI for any reason must be discussed with the Research Division's project manager and is subject to prior written approval.

### 4.4 Invoices

Payment will be made by MDOT SHA upon submission of monthly or quarterly invoices by the University. Payment approval is based upon receipt of supporting documentation for the costs incurred, an acceptable quarterly report, and concurrence of MDOT SHA's technical lead and project manager in the Research Division.

## 4.5 Subcontracting

An itemized budget and justification of the proposed subcontractor must be included with the project proposal. Should a subcontract be included, the PI must complete at least 50% of the work (i.e. direct labor). MDOT SHA reserves the right to request additional information related to the subcontractor prior to issuing a notice-to-proceed for the project.

## 4.6 Final Reports

Final reports and two-page summaries are required for all projects. An electronic **Microsoft Word copy of the draft final report and two-page summary** is due to MDOT SHA no later than 90 days prior to the project completion date. The draft final report should include MDOT SHA's cover page and technical documentation page. The draft documents are reviewed by the Research Division and technical office for style and content. Review comments are transmitted to the PI no less than 45 days prior to the project completion date. The PI then prepares a final report that incorporates the reviewers' comments and reflects editing by a competent technical editor to ensure compliance with MDOT SHA's "[Guidelines for Preparing State Highway Administration Research Reports](#)" The template for the cover page, technical documentation page, and two-page summary can be found in the report guidelines.

The Research Division and MDOT SHA technical office make the decision to publish the final report and two-page summary. Both are posted on the [Research Projects Page](#) on MDOT SHA's website.

### Important Points:

- *Acceptance of the final report is based on the following criteria:*
  1. *Fulfillment of the project objectives*
  2. *Adequacy of documentation*
  3. *Clarity of presentation*
  4. *Confirmation that MDOT SHA's comments have been sufficiently addressed*
  5. *Adherence to MDOT SHA's "Guidelines for Preparing State Highway Administration Research Reports"*

## 5 Instructions for Preparing and Submitting Proposals

### 5.1 General

Proposals are invited only in response to MDOT SHA's annual research RFP. This is an applied research program that does not operate on a grant basis. MDOT SHA research projects seek solutions to current problems and challenges. Therefore, proposals may only come from universities that have demonstrated capability and experience in the subject area. Proposals become the property of MDOT SHA and are disposed of in accordance with internal policies. MDOT SHA reserves the right to reject all proposals.

### 5.2 Deadlines

The proposal deadline is listed on each project RFP. Only officially signed, responsive proposals received by the Research Division on or before the date and time specified as the due date for submission will be accepted. All proposals arriving after the deadline on the RFP will be rejected. Proposals may be withdrawn at any time.

### 5.3 Presentation

Proposals are limited to 10 pages so proposers should be concise and straightforward. If a transmittal letter is included with the proposal, it must not include any information vital to the proposal. All information that is to be considered a part of the proposal must be in a single volume that will constitute the proposal in its entirety. All pages of the proposal must be numbered. Flash drives, DVDs, or CD-ROMs are not acceptable for inclusion in the proposal, unless specifically called for in the RFP.

### 5.4 Organization

All proposal information must be presented in one (1) unbound hard copy that has been checked for completeness and accuracy of detail using the [research proposal template](#) located on MDOT SHA's [Research Projects Page](#). The following information must be included in all proposals in the following order.

1. **Research Problem Statement and Background** - This section summarizes the proposers understanding of the problem and provides background information, causes, and possible solutions. Proposers should not simply repeat the wording in the RFP.
2. **Objectives** - Proposers are expected to summarize the key items that need to be accomplished for the research to be successful and result in information/products that can be put into practice.



3. **Research Plan** – This section should describe how the objectives will be achieved through a complete and detailed plan. Specifically, this should include a literature search and the other tasks to be performed, a detailed research approach, and anticipated results. The research plan should also include a description of how the research team will ensure regular communication with MDOT SHA’s Research Division and technical office and describe any assistance that may be required from MDOT SHA and the timeframes in which this assistance is required. This includes items such as traffic control, drilling and sampling, access to MDOT SHA facilities and field sites, data requests, and meeting with MDOT SHA Divisions.
4. **Implementation and Training Plan** – MDOT SHA research projects are intended to produce results that will be applied in practice. This section must include an implementation plan for moving the results into practice. To the extent possible, this should include following:
  - Identify which MDOT SHA office/Division would be responsible for applying the research results
  - Identify standards or practices that might be affected by the research findings such as AASHTO specifications, MDOT SHA policies and procedures, legislation, or fiscal requirements
  - Describe activities necessary for successful implementation
  - Identify the long-term implementation activities and costs
  - Identify implementation barriers and how these barriers might be reduced or eliminated
  - If the findings are not suitable for immediate application in practice, the proposal should specify additional steps needed before application can occur (e.g. additional research, field testing, changes in policy, etc)

It is expected that the implementation plan will evolve during the project, making changes necessary and acceptable. However, proposal selection will be influenced by the practicality and direction of the implementation plan presented in the proposal. These items should be included in more detail in the implementation section of the final report.

5. **Deliverables** – Using the table provided in the RFP, develop a list of deliverables that MDOT SHA will receive during the research project. At a minimum this must include quarterly reports, a final report, and a two-page summary. Other deliverables might include manuals, photographs, video or other audio/visual materials, training materials, presentations, specifications, and detailed drawings. The format for the deliverables table can also be found in [Appendix A](#).
6. **Project Schedule** – Using the table provided in the RFP, provide a graphical representation of the scheduling of all tasks (including assistance needed from MDOT SHA), quarterly meetings, and deliverables on a monthly basis. Proposers should include achievable targets and keep in mind that the draft final report and two-page summary are due to MDOT SHA no later than 90 days prior to the project completion date. The format for the project schedule can be found in [Appendix B](#).

7. **Itemized Budget** – Include the detailed and fully itemized project costs by task. This should include pay rates and benefits for all personnel involved on the project. Proposers should not include any items that are not reimbursable by MDOT SHA (i.e. computer equipment, publication costs and travel to conferences) unless specified in the RFP. An example of an acceptable budget format can be found in [Appendix C](#).
8. **Equipment and Facilities** – This section should include a brief description of the facilities available to undertake the research and a list of the equipment on hand considered necessary to complete the research. Proposers must also specify any facilities or equipment considered necessary for completing the research but are not currently on hand. It is preferred that the equipment is borrowed, rented, or the work contracted to someone who has the equipment and expertise to obtain valid results. Arrangements for borrowing, renting, or subcontracting work using necessary equipment must be identified. Letters of commitment should be included to indicate the availability of borrowed equipment and rental rates or subcontract costs should be included in the budget for borrowed or contracted work. In cases where it is deemed necessary to purchase equipment using project funds, proposers must be certain that the itemized cost information is included in the budget and that a justification is provided. Items of special equipment (any individual item costing \$500 or more) purchased with MDOT SHA funding are MDOT SHA property and will be delivered to MDOT SHA when the project is complete.
9. **Research Team** – This section should include a brief introduction of each member of the research team, explain their role on the project, and how their experience will benefit the research. It is understood that graduate and undergraduate students may not be identified at the time of proposal submission. However, the number of graduate and undergraduate students that will work on this project should be acknowledged in this section with a general description of their role (e.g. what tasks they will work on).

**Important Points:**

- *Failure of the proposer to comply with section 5 – “Instructions for Preparing and Submitting Proposals” may result in the rejection of the proposal.*
- *Proposers should not include computer equipment, publication costs, and travel to conferences in proposal budgets. These items are not reimbursable by MDOT SHA unless specified in the RFP.*
- *Proposers should be familiar with MDOT SHA’s agreement terms related to equipment. Title to all major items of special equipment purchased (defined as any item costing \$500 or more) shall rest with MDOT SHA. Disposition of the equipment at the conclusion of the project will be as agreed to at a conference between MDOT SHA and the university. In most cases it is expected that the equipment will be delivered to MDOT SHA when the project is complete. However, if it is agreed that the university shall retain the equipment, then the university shall reimburse MDOT SHA in an amount to be agreed upon.*

## 6 Important Dates

Below is a list of important dates. It is the responsibility of the proposer to be aware of these dates. No extensions will be granted.

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<b>MDOT SHA Research RFP Announcement</b> .....	<b>May 3<sup>rd</sup>, 2022</b>
This is an e-mail announcement.	
<b>Deadline for Technical Questions</b> .....	<b>May 10<sup>th</sup>, 2022</b>
There is no deadline for administrative questions. Questions must be sent to <a href="mailto:research@mdot.maryland.gov">research@mdot.maryland.gov</a> . Discussing proposal submissions with other MDOT SHA employees is strictly prohibited.	
<b>Response to Technical Questions</b> .....	<b>All responses posted by May 10<sup>th</sup> at 3:00PM</b>
Responses will be posted on-line on MDOT SHA's <a href="#">Research Projects Page</a> .	
<b>Proposals Due, On or Before</b> .....	<b>May 17<sup>th</sup> at 12:00PM (Noon) –</b>
One (1) unbound copy sent to: Maryland Department of Transportation State Highway Administration Office of Policy and Research 707 N. Calvert Street, C-412 Baltimore MD 21202 Or, email one PDF file to <a href="mailto:research@mdot.research.gov">research@mdot.research.gov</a>	
<b>Proposals cannot be hand delivered. Please use of a reliable delivery service.</b>	
<b>Project Awards</b> .....	<b>TBD</b>
Proposers will be notified by e-mail.	
<b>Project Start Date</b> .....	<b>After May 27<sup>th</sup>, 2022</b>
This is the date of MDOT SHA's official notice-to-proceed authorizing the work to begin. It is based on the following:	
<ol style="list-style-type: none"><li>1. Federal Highway Administration authorization to spend program funding.</li><li>2. A logical start date for the specific project.</li></ol>	

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## 7 Key Points for Proposers

The following is a summary of some of the “Important Points” highlighted in this document. The summary focuses on key points specifically related to the RFP.

- MDOT SHA’s RFP does not constitute an award commitment nor does it obligate the Administration to pay for costs incurred in the preparation and submission of a proposal.
- MDOT SHA only accepts proposals with one principal investigator (PI).
- Proposals will not be considered if not received by the Research Division on or before the date and time specified as the due date for submission.
- Proposals become the property of MDOT SHA and will be disposed of in accordance with internal policies.
- MDOT SHA reserves the right to reject all proposals.
- Technical and administrative questions related to the RFP must be directed in writing to [research@mdot.maryland.gov](mailto:research@mdot.maryland.gov). Questions may not be directed to other MDOT SHA employees/offices. Failure to comply will result with the proposal being disqualified.
- Instructions for preparing proposals are in [Section 5](#) starting on page 8. Proposers are encouraged to read and follow this section very carefully as compliance is mandatory. Incomplete and nonresponsive proposals will be disqualified.
- Proposers should not include computer equipment, publication costs, and travel to conferences in proposal budgets. These items are not reimbursable by MDOT SHA unless specified in the RFP.
- If a subcontract is included in the proposal, the submitting university must complete at least 50% of the work (i.e. direct labor).
- Proposers should be familiar with MDOT SHA’s agreement terms related to equipment. Title to all major items of special equipment purchased (defined as any item costing \$500 or more) shall rest with MDOT SHA. Disposition of the equipment at the conclusion of the project will be as agreed to at a conference between MDOT SHA and the university. In most cases it is expected that the equipment will be delivered to MDOT SHA when the project is complete. However, if it is agreed that the university shall retain the equipment, then the university shall reimburse MDOT SHA in an amount to be agreed upon.
- Proposers are responsible for knowing the important dates listed on page 11.

## Appendices

# Appendix A – Deliverables Table

## Research Deliverables Table

Proposers should list the deliverables necessary to complete the project, including delivery of the MDOT SHA required reports described below. Deliverables are not considered received by MDOT SHA until they are submitted to the Research Division.

<b>Products:</b> Examples of products typically most appropriate as stand-alone items include guidebooks, training materials, devices, instruction manuals, and brochures.			
<b>No.</b>	<b>Stand-Alone Product Description</b>	<b>Due Date</b> (due at or before project termination)	<b>Comments</b>
Product 1			
Product 2			
<b>Report Type</b>	<b>Report Description</b> (Succinctly describe intended contents of each report)	<b>Due Date</b>	<b>Comments</b>
Quarterly Reports	<b>Comprehensive</b> and <b>Detailed</b> documentation of all work tasks and results	The 15 <sup>th</sup> of January, April, July, and October while the project is active.	Must be submitted to the Research Division on the provided template. <i>Information is expected to be complete. One to two sentences on progress, anticipated work, and results are not acceptable.</i>
Report on Literature Review	Summary of literature review findings and updated research approach.		The report should be reviewed and accepted by MDOT SHA before the next step of work plan starts. <i>The PI has the option of incorporating this report into one of the quarterly reports.</i>
Draft Report and Two-Page Summary	Draft summary of work performed, findings, and conclusions.		A draft final report is due 90 days prior to the project completion date. <i>The PI has the option of incorporating this report into one of the quarterly reports.</i>
Final Report	Detailed description of work performed, findings, and conclusions.		See <a href="#">MDOT SHA's Report Guidelines</a> for standards and submittal requirements for the final report. Please make sure the report is fully edited and ready for publication.

## **Appendix B – Project Schedule**



## Research Project Schedule

Proposers are expected to include a graphical representation of the scheduling of all tasks on a monthly basis. The schedule should reflect achievable targets and include all tasks, assistance needed from MDOT SHA, required meetings, and deliverables presented in a logical order. Quarterly meetings should take place immediately following the submission of the quarterly report. Proposers should also keep in mind that the draft final report and two-page summary are due to MDOT SHA no later than 90 days prior to the project completion date.

### Project Schedule Example:

January – December project

Task	Month											
	1	2	3	4	5	6	7	8	9	10	11	12
Kick-Off Meeting												
Task 1 – Literature Review												
Report on Literature Research		By 2/28										
Data Needed from SHA (specify the type of data)			By 3/15									
Task 2 – be specific												
First Quarter Report and Meeting												
Task 3 – be specific												
Field visit 1 (include location and any needs from MDOT SHA such as maintenance of traffic)												
Field visit 2 (include details like above)												
Task 5 – be specific												
Draft Final Report and Two-Page Summary												
Draft Report review and comments from MDOT SHA												
Final Presentation												
Final Report and Two-Page Summary												By 12/31

## Appendix C – Project Budget

### Project Budget

Proposers are expected to include a detailed budget that provides as many details as possible. All costs should be itemized and include sufficient justification. Proposers should not include computer equipment, publication costs, and travel to conferences. These items are not reimbursable by MDOT SHA unless specified in the RFP. Proposers are also responsible for using the correct indirect cost rate and applying it in the proposed budget. This varies between universities and may be different from the example provided below.

### Budget Example:

Name	Role in Study	Time (%) Over Contract Period <sup>1</sup>	Hours <sup>2</sup>							Total Hours <sup>2</sup>
			Task 1	Task 2	Task 3	Task 4	Task 5	Task 6	Task 7	
Jane Y. Smith	PI	8%	35	15	60	15	45	15	60	245
John Q. Doe	Co-PI	6%	10	15	30	35	20	15	60	185
Graduate Student	GRA	50%		100	300	120	240	160	120	1040
Undergraduate Student			160	40						200
Total Hours			205	170	390	170	305	190	240	1670
Effort (%)			12.3%	10.2%	23.4%	10.2%	18.3%	11.4%	14.4%	100%
		Hourly Rate <sup>2</sup>	Costs							Total Costs
Direct Salary										
Jane Y. Smith	PI	\$60.00	\$2,100	\$900	\$3,600	\$900	\$2,700	\$900	\$3,600	\$14,700
John Q. Doe	Co-PI	\$46.00	\$460	\$690	\$1,380	\$1,610	\$920	\$690	\$2,760	\$8,510
Graduate Student <sup>3</sup>	GRA <sup>3</sup>	\$20.00	\$0	\$2,000	\$6,000	\$2,400	\$4,800	\$1,600	\$0	\$16,800
Undergraduate Student		\$16.00	\$2,560	\$640	\$0	\$0	\$0	\$0	\$0	\$3,200
Fringe Benefits <sup>4</sup>										
Jane Y. Smith	PI	9%	\$189	\$81	\$324	\$81	\$243	\$81	\$324	\$1,323
John Q. Doe	Co-PI	9%	\$41	\$62	\$124	\$145	\$83	\$62	\$248	\$766
Graduate Student	GRA	25%	\$0	\$500	\$1,500	\$600	\$1,200	\$400	\$0	\$4,200
Undergraduate Student		0%	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total Labor Cost			\$5,350	\$4,873	\$12,928	\$5,736	\$9,946	\$3,733	\$6,932	\$49,499
Other Direct Costs										
Graduate student tuition remission <sup>5</sup>										\$10,000
Travel <sup>6</sup>										\$0
LD telephone, FedEx, other communication <sup>7</sup>										\$120
Materials & supplies										\$0
Total Other Direct Costs										\$10,120
Total Direct Costs										\$59,619
Indirect Costs (26% TDC)										\$15,501
Total Project Cost										\$75,120
Notes:										
1. Based on 12 month project duration and 2080 hours per year (1040 hours per year for GRA).										
2. The university accounting system tracks labor on a percent-of-effort basis by academic/sur session Hourly rates and hours of effort are estimates only.										
3. The Graduate Research Assistant working on this project will be supported by project funds for the Fall 2020, Spring 2021, and Summer 2021 terms. The GRA will be supported by other funds during the Fall 2020 semester. This is the explanation for the apparent discrepancies between GRA hours and labor costs for Tasks 6 and 7.										
4. Fringe benefits for the PI, Co-PI, and undergraduate student labor are based on actual fringe benefit rates. Fringe benefits for the GRA are based on estimated health insurance costs.										
5. GRA tuition remission is based on 10 credits each in the Fall 2020 and Spring 2021 terms at an estimated cost of \$500/credit										
6. Travel expenses are for in-state mileage reimbursement for personal vehicle travel to MDOT SHA offices and field sites.										
7. Estimated at \$10 per month.										