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Guidelines for Preparing State Highway Administration Research Reports

Revised
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INTRODUCTION

This document provides guidance to universities and consultants who provide research services to the Maryland State Highway Administration (SHA). It is SHA's goal to maintain consistency in the organization and presentation of all research reports and to ensure that all publications meet high standards for both content and presentation. SHA staff review draft reports to ensure that they are clearly written, well organized, and properly edited. Any report that is determined to be unacceptable will be promptly returned to the Principal Investigator. Therefore, researchers are encouraged to contact the Research Division for clarification of the guidelines prior to submitting the draft report.

RESEARCH REPORT OVERVIEW

All SHA Research Reports should include the following items in this order. Please note that the total report (not including the appendices and two-page summary) should not exceed **50 pages**.

- Report cover (provided by SHA, sample attached in Appendix A)
- Disclaimer Notice (provided by SHA)
- Technical Report Documentation Page (sample attached in Appendix B)
- Table of contents (including list of figures and tables if applicable)
- Acknowledgements (as appropriate)
- Executive Summary
- Body of the Report
- Glossary (as appropriate)
- References (as appropriate)
- Appendices (as appropriate)
- Two-page summary (included as a separate file, sample attached in Appendix C)

REPORT COVER

The SHA provides the template for the cover page. A sample is located in Appendix A.

DISCLAIMER NOTICE

The SHA requires a standard disclaimer notice. The disclaimer is located on the back side of the cover page and is included in the template.

TECHNICAL REPORT DOCUMENTATION PAGE

The author completes the Technical Report Documentation Page. The document is used to help enter information about the project into research databases such as the Transportation Research Board's (TRB) Transportation Research Information Database (TRID). The Technical Report Documentation Page and instructions for completing it are in Appendix B.

TABLE OF CONTENTS

The table of contents should include the executive summary, chapter or section titles, acknowledgements, a list of tables and figures, references, and appendix titles.

ACKNOWLEDGEMENTS

The acknowledgements section should include the names, titles, and affiliations of the individuals involved in the project and state how they contributed to the research.

EXECUTIVE SUMMARY

Each report begins with an executive summary which provides a brief (or bulleted) overview of the report, focusing on the scope of work, principal findings, and recommendations. The executive summary should be no more than three pages.

BODY OF THE REPORT

The body of the report should be written for the transportation professional whose primary concern is to put research results into practice. As a result, the following format should be followed:

- Introduction – background information on the subject and the research objective.
- Literature Review – review of previous research related to the subject.
- Methodology – method of collecting data, analysis of data, equipment used, procedures
- Research Findings/Discussion – presentation of results, validity of the research objective, factors affecting results, implications.
- Conclusions and Recommendations for implementation – opinions based on the results, suggestions for future work, and recommendations on how the research can be implemented by SHA.

GLOSSARY

If appropriate, a glossary should be included to define technical terms used in the report that may not be familiar to the reader.

REFERENCES

All references cited in the report should be listed in this section. Any style may be used as long as it is consistent and all reference elements are included (author(s), title, publication number, publisher's name and city, publication date).

APPENDICES

The appendices should include any supplementary material that is directly or indirectly related to the report and additional information for those interested in more technical detail. Appendices can include the following information:

- Forms
- Manuals and guidelines
- Documentation and further elaboration of research findings
- Formulas and mathematical analyses

TWO-PAGE SUMMARY

The author completes the Two-Page Summary. Use of pictures and/or illustrations is encouraged which would enhance readers' appreciation of the findings. The document is used to announce the research results to other state DOTs, the AASHTO Research Advisory Committee (RAC), TRB, and other transportation organizations. The Two-Page Summary template is provided in Appendix C.

GENERAL REQUIREMENTS

TYPE ARRANGMENT AND TYPE FACES

- The font for main text is 12 point Times New Roman and no larger than 18 point Times New Roman for headings. Cursive, italic, or ornamental faces are appropriate only for emphasis of specific words or for headings.
- Margins must be at least one inch on all sides, including pages with graphics.
- Spacing should be uniform throughout the report. Single line spacing is preferred in most cases, with double spacing between paragraphs.
- Right margins should not be justified. Type with ragged margins is easier to read and edit.
- The heading or first or last line of a paragraph should not be alone at the top or bottom of a page.

PAGE NUMBERING

Page numbers should be vertically centered or right justified, ½ inch above the bottom of the page in at least 10 point Times New Roman font. Page numbering begins with the Executive Summary and continues to the final page, including appendices. Table of Contents pages can be numbered with Roman numerals starting at "ii" (technical documentation page is counted as Page i).

TENSE

As the report writes about events which have already happened, the tense should be mainly past tense. However, in some parts of the document, it may be appropriate to use present or future tense. For instance, if the author is covering facts that were, are, and forever shall be true, the facts may be referred to in present tense. If the author is writing about experiments or activities yet to come, future tense is appropriate.

POINT OF VIEW

The third-person point of view (he, she, it, one, they) is the standard for professional writing and as such, should be used for all SHA research reports. For example, words such as "I" or "we" should not be used; instead, use "the principal investigator" or "the research team." This ensures that the emphasis is put on the subject rather than the writer or the reader.

ACRONYMS

Acronyms are always spelled out the first time they are used in the report. When using an acronym to refer to the Maryland State Highway Administration, always use "SHA." Do not use "MSHA" or "MDSHA."

MEASUREMENT

Measurement in SHA reports are in standard English units (inch-pound). Authors may provide equivalent metric units in parentheses if so desired.

GRAPHICS

Graphics include maps, tables, figures, and photographs. They may be color but where possible, should be designed so that they will be clear and legible when reproduced in black and white. They should also be placed on the page so they can be viewed without turning the page sideways. If the graphic must be placed sideways, the page number location should be consistent with the other pages, i.e., at the bottom of the short side of the page.

All graphics are numbered in a single sequence (Table 1, Table 2) from the beginning through the end of the report and have a caption which identifies it. These captions are brief and are centered on the page. A brief description of the information presented is provided directly below the graphic to ensure that the report can be read using assisted reading devices.

In order to keep the report file size as small as possible the following guidelines should be used:

After you copy the graphics, use the “Paste Special” command in the “Edit” menu.

- If the original graphics is a bitmap image, paste it as a "Device Independent Bitmap" (DIB) which is best viewed under different machines and video modes.
- If the original graphics is a drawing, i.e. vector image, paste it as a “Picture” or “Enhanced Metafile Picture” for best quality and compatibility.

❖ Please note that exceptions to the guidelines for graphics must be approved by SHA. Please contact the Research Division to discuss alternative options.

COPYRIGHTED MATERIAL

Authors are responsible for obtaining permissions for the use of copyrighted materials. Copyright release statements should be included in the text. Legal liability for failure to do so falls on the author.

DELIVERABLE REQUIREMENTS

Researchers are required to prepare a final report that incorporates all reviewers’ comments and reflects editing by a competent technical editor to ensure compliance with these guidelines. The following standard requirements apply:

- Provide an electronic Microsoft Word file of the final report. The file should be emailed to the administrative lead, or, if the file size is too large to be emailed (i.e. over 8MB), the Principal Investigator should upload it to a secure file sharing website.
- Provide a separate electronic file of the two-page summary in Microsoft Word. The two-page summary should also be emailed to the administrative lead or uploaded to a secure file sharing website.

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 SHA’s comments have been sufficiently addressed
5. Adherence to the guidelines in this document.

The Research Division and SHA technical office make the decision to accept and publish the final report and two-page summary using the criteria. Both are posted on the Research Projects Page on SHA’s website.

BEST PRACTICES FOR SHA REPORTS

- Remember the audience for the report. The report should not read like a thesis or dissertation. It should be written for a transportation professional, be concise, well-organized, and easy to read.
- Do not use terms that the reader would not understand.
- Avoid redundancies. Do not repeat the same information over and over.
- Length matters. The report should be long enough to achieve its purpose but not a word longer.
- Appearance matters. Remember, the report is for practitioners who want to benefit from and use the information provided. Make it visually appealing and include only useful and easy to view graphics.
- Do not include mathematical equations in the body of the report. If the researcher feels that it is important to include that information, place it in the appendix and refer to it in the report.
- Review the report thoroughly before it is sent to SHA. Too often reports have to be returned to the researcher because there are significant errors in spelling, punctuation, and grammar.

APPENDIX A

REPORT COVER

MD-YR-Contract&Task#

Larry Hogan, *Governor*
Boyd Rutherford, *Lt. Governor*

State Highway Administration
Maryland Department of Transportation

Pete K. Rahn, *Secretary*
Melinda B. Peters, *Administrator*

STATE HIGHWAY ADMINISTRATION

RESEARCH REPORT

TITLE

University or consultant name

SPXXXXXX
FINAL REPORT

Month Year

The contents of this report reflect the views of the author who is responsible for the facts and the accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of the Maryland State Highway Administration. This report does not constitute a standard, specification, or regulation.

APPENDIX B

TECHNICAL REPORT DOCUMENTATION PAGE

1.1.1.1.1.1 Technical Report Documentation Page

1. Report No. MD-YR-Contract&Task#	2. Government Accession No. LEAVE BLANK	3. Recipient's Catalog No. LEAVE BLANK
4. Title and Subtitle Report title		5. Report Date Month, Year 6. Performing Organization Code LEAVE BLANK
7. Author/s Names listed in alphabetical order		8. Performing Organization Report No. UTILIZE WHEN POSSIBLE
9. Performing Organization Name and Address Name Street Address City, State, Zip Code		10. Work Unit No. LEAVE BLANK 11. Contract or Grant No. SPXXXXXX
12. Sponsoring Organization Name and Address Maryland State Highway Administration Office of Policy & Research 707 North Calvert Street Baltimore MD 21202		13. Type of Report and Period Covered Final Report 14. Sponsoring Agency Code
15. Supplementary Notes		
16. Abstract The abstract should provide a brief summary of the report including the objective, methods, and conclusions of the study.		
17. Key Words List terms or phrases that identify main subjects covered in the report.	18. Distribution Statement: No restrictions This document is available from the Research Division upon request.	

19. Security Classification (of this report) None	20. Security Classification (of this page) None	21. No. Of Pages All pages including the cover	22. Price

Form DOT F 1700.7 (8-72) Reproduction of form and completed page is authorized.

APPENDIX C

TWO-PAGE SUMMARY

Research Project: SPXXXXXX
Month, Year

RESEARCH SUMMARY

A two-page summary should accompany the final report for all research projects. The summary is used to announce the availability of the final report to professionals in the transportation industry. As such, it should include the following information:

TITLE

Problem

Describe in two to three sentences the problem examined and why it was an important problem for study at this time.

Objectives

State the primary objective of the study, the expected outcomes, and deliverables in 50 words or less.

Description

Briefly highlight the study process or how the study was conducted. Include basic assumptions, data gathering methodology, data analysis strategy and tools or instruments used in the study. This section should be limited to one or two paragraphs and if possible, should include a photo, diagram, drawing, or illustration which shows a primary focus of the study.

Results

Identify the major findings, recommendations, and benefits from this research, as well as how the results will be applied by SHA.

Report Information

Include the name, email and telephone number of the person to contact for technical information about this study.

Link to Final Report

This will be added by SHA's Research Division

Maryland State Highway Administration • Research Division
Street Address: 707 North Calvert Street • Baltimore, MD 21202 • *E-mail:* research@sha.state.md.us