**REPORT TITLE
SUBTITLE**

**Final Report**

**NITC-RR-###**

by

Principal Investigator Name(s)

University Name(s)

for

National Institute for Transportation and Communities (NITC)

P.O. Box 751

Portland, OR 97207



**December 2018**

­­­­­

|  |
| --- |
| **Technical Report Documentation Page** |
| 1. Report No.NITC-RR-### | 2. Government Accession No. | 3. Recipient’s Catalog No. |
| 4. Title and Subtitle | 5. Report DateDecember 2018 |
|  | 6. Performing Organization Code |
| 7. Author(s) | 8. Performing Organization Report No. |
| 9. Performing Organization Name and Address | 10. Work Unit No. (trais) |
| 11. Contract or Grant No. |
| 12. Sponsoring Agency Name and AddressNational Institute for Transportation and Communities (NITC)P.O. Box 751 Portland, Oregon 97207 | 13. Type of Report and Period Covered |
| 14. Sponsoring Agency Code |
| 15. Supplementary Notes |
| 16. AbstractPlease enter an updated Abstract in this section. |
| 17. Key Words | 18. Distribution StatementNo restrictions. Copies available from NITC:www.nitc-utc.net |
| 19. Security Classification (of this report)Unclassified | 20. Security Classification (of this page)Unclassified | 21. No. of Pages | 22. Price |

**ACKNOWLEDGEMENTS**

PIs should make proper attribution to NITC in presentations, papers, submitted articles, websites, final reports, and other project dissemination with the following statement, or similar: *“This project was funded by the National Institute for Transportation and Communities (NITC; grant number ####), a U.S. DOT University Transportation Center.”* **Please be sure to include your NITC PPMS report number**. All dissemination should include the NITC logo and reference as a sponsoring agency. Other acknowledgements may also be included here.

**Example text:** “Jane Doe would like to acknowledge partial support from the National Institute for Transportation and Communities (NITC; grant number ####), a U.S. DOT University Transportation Center, and the National Science Foundation (NSF; Grant number BCS-123456).”

**DISCLAIMER**

Please use the NITC Disclaimer:

The contents of this report reflect the views of the authors, who are solely responsible for the facts and the accuracy of the material and information presented herein. This document is disseminated under the sponsorship of the U.S. Department of Transportation University Transportation Centers Program [and other SPONSOR/PARTNER] in the interest of information exchange. The U.S. Government [and other SPONSOR/PARTNER] assumes no liability for the contents or use thereof. The contents do not necessarily reflect the official views of the U.S. Government [and other SPONSOR/PARTNER]. This report does not constitute a standard, specification, or regulation.

**RECOMMENDED CITATION**

Last Name, First Name. *Report Title*. NITC-RR-###. Portland, OR: Transportation Research and Education Center (TREC), 2018.

**table of contents**

excutive Summary 1

1.0 general format 2

1.1 paper size 2

1.2 margins 2

1.2.1 Left/Right/Bottom Margins 2

1.2.2 Top Margins 2

1.2.2.1 Cover Pages 2

1.2.2.2 Chapter Headings 2

1.2.2.3 Other Pages 2

1.3 heading and body text format 2

2.0 paragraphs and page numbering 4

2.1 paragraph format 4

2.2 page numbering 4

2.2.1 Position 4

2.2.2 Numbering, Sequence and Style 4

2.2.2.1 Blank Pages 4

2.2.2.2 Title Pages 4

2.2.2.3 Chapters 4

2.2.2.4 Main Body and References 4

2.2.2.5 Appendices 5

3.0 title pages 6

3.1 front cover 6

3.2 INner cover 6

3.3 technical report documentation page 6

3.3.1 Technical Report Documentation Page 6

3.4 ACKNOWLEDGMENTS 6

3.5 disclaimer 7

3.6 table of contents 7

3.6.1 Format 7

3.6.2 References 7

3.6.3 Appendices 7

3.7 list of tables 7

3.7.1 Title 7

3.7.2 Format 8

3.8 list of figures/photos 8

3.8.1 Title 8

3.8.2 Format 8

3.9 EXECUTIVE SUMMARY 8

3.10 REPORT CONTENT 8

4.0 tables 9

4.1 font 9

4.2 ALT TEXT 9

4.3 format 9

4.4 numbering 9

4.5 LOCATION 9

5.0 figures and photos 10

5.1 caption 10

5.2 ALT TEXT 10

5.3 SETUP 10

5.4 numbering 11

6.0 EQUATIONS 12

6.1 FORMAT 12

6.2 DIRECTIONS 12

7.0 references 12

7.1 format 12

7.1.1 Title 12

7.1.2 Ordering 12

7.2 font 12

7.3 citation format 13

8.0 appendices 14

8.1 title page 14

8.1.1 Format 14

8.1.2 Numbering 14

8.2 format 14

**APPENDICES**

APPENDIX A: INSTRUCTIONS AND TIPS FOR USING REPORT TEMPLATE

List of tables

Table 1.1: Style and heading index 2

Table 1.2: Heading and text formatting rules 3

Table 4.1: Steps for Inserting a Table 9

List of figures

Figure 5.1: Sample figure 10

# excutive Summary

An executive summary is required and should preview the main points of the report, while being no more than a page or two in length. The summary should contain enough information for a reader to get familiarized with what is discussed in the full report. Summary points should be listed in the same order they appear in the main report, including any conclusions or recommendations. Graphics, photos and other illustrations may be used.

Numbered sections following the Executive Summary should include a complete description of the project’s problem/background, approach, methodology, findings, conclusions, recommendations, etc. The report should completely document all data gathered, analyses performed and results achieved. References must be correctly cited (see Section 6.0). Photos, tables and figures that help illustrate report points are encouraged.

PIs may also include a technology transfer plan for the research results. PIs are encouraged to discuss the project in regard to how it relates to USDOT objectives, priorities and/or critical issues.

# general format

## paper size

Reports will be on 8.5 x 11 inch paper and will be printed double sided.

## margins

### Left/Right/Bottom Margins

Left, right, and bottom margins should always be set at 1 inch. Use Page Setup to change the default margins if necessary.

### Top Margins

#### Cover Pages

The cover pages will have a top margin of 2.5 inches.

#### Chapter Headings

The top margin will be 1.5 inches on pages with chapter headings. If an electronic version of this document is used as a template, the style “Heading 1” will automatically place the chapter heading at 1.5” from the top of the page, provided the margin is set at 1.” Otherwise, in order to change the margin size from one page to another, a section break must be inserted between the two pages. For example, at the bottom of a chapter heading page, choose Break from the Insert menu, then select Next Page under Section Break. This will allow a different top margin size on the next page without interrupting the flow of the report.

#### Other Pages

The top margin will be 1 inch on all other pages.

## heading and body text format

If this document is used as a template, the heading and text formats are already set up in Style. See Table 1.1 for a list of styles to apply to various levels of the report.

Table 1.1: Style and heading index

| **Style** |  | **Level** | **Numbering** |
| --- | --- | --- | --- |
| TITLE  |  | Report title, Appendix title(s) | None |
| Heading 1 |  | Chapter Headings (Level 1) | 1.0 – X.0 |
| Heading 2 |  | Level 2 | X.1 – X.X |
| Heading 3 |  | Level 3 | X.X.1 – X.X.X |
| Heading 4 |  | Level 4 | X.X.X.1 – X.X.X.X |
| Heading 5 |  | Level 5 | X.X.X.X.1 – X.X.X.X.X |
| Body Text (1,2,3) |  | Text immediately after Headings 1, 2, and 3  | None |
| Body Text 2 |  | Text immediately after Heading 4 | None |
| Body Text 3 |  | Text immediately after Heading 5 | None |

All text is Times New Roman font. If this document is used as a printed style manual, the following outlines the formatting and numbering to be applied to different heading levels of the report.

Table 1.2: Heading and text formatting rules

| **Style** | **Level** | **Numbering** |
| --- | --- | --- |
| **Report title, Appendix title(s)** | 16 pt. Bold, centered, all caps, 1/2 inch tab, 24 pts. of space before and after. | None |
| **Chapter headings** | 16 pt. Bold, centered, all caps, 1/2 inch tab, 36 pts. of space before, 24 pts. of after. | 1.0 – X.0 |
| **Level 2 subtitles** | 14 pt. Bold, all caps, 1/2 inch tab, 12 pts. of space before and after. | X.1 – X.X |
| **Level 3 Subtitles** | 14 pt. Bold, Title Case, 1/2 inch tab, 12 pts. of space after. | X.X.1 – X.X.X |
| ***Level 4 Subtitles*** | 12 pt. Bold italic, title case, 3/4 inch tab, ½ inch indent, 12 pts. of space after. | X.X.X.1 – X.X.X.X |
| *Level 5 Subtitles* | 12 pt. italic, Title Case, 1 inch tab, 1 inch indent, 12 pts. of space after. | X.X.X.X.1 – X.X.X.X.X |
| Body text after Chapter Headings and Levels 2 and 3 | 12 pt., left justification, 12 pts. of space after. | None |
| Body text after Level 4 | 12 pt., ½ inch indent, left justification, 12 pts. of space after | None |
| Body text after Level 5 | 12 pt., 1 inch indent, left justification, 12 pts. of space after | None |
| **Table Title** | 10 pt. Bold, Title case, left justified | chapter.1 – X.X |
| Figure heading | 10 pt., Title case, centered, 12 pts. of space before, 36 pts. of space after | chapter.1 – X.X |

The following pages show how the formats and numbering should appear.

# paragraphs and page numbering

## paragraph format

All paragraphs shall be left justified, single spaced, and indented the same as the appropriate heading. For example, paragraphs under a Level 4 heading will be indented 0.5” from left margin.

## page numbering

### Position

Page numbers will be centered within the footer, ½ inch from the bottom of the page. All page numbers will be in 12 pt. Times New Roman font.

### Numbering, Sequence and Style

#### Blank Pages

**New:** No blank pages are allowed.

#### Title Pages

The front cover pages will not be numbered. Subsequent title pages shall be numbered sequentially, using lower case roman numerals (i.e. i, ii, iii, iv...), starting with the Technical Documentation Report page through to the first page of the body of the report.

#### Chapters

Chapters shall begin on odd numbered pages on the right-facing page.

#### Main Body and References

The main body of the report, including References, shall be numbered sequentially, using Arabic numerals (i.e. 1,2,3...), starting with the first page of the body of the report (the Executive Summary).

**New**: No footnotes are allowed.

#### Appendices

Appendices are to be numbered sequentially using the format “A-1”. The appendix title page is not numbered. Page numbering begins with the body of the Appendix on the right-facing page and is continuous throughout, including tables, graphs, figures, etc.

\

# title pages

Title pages are all pages from the front cover up to the first page of the main body.

## front cover

This cover will be added by NITC staff prior to publication. Conforms to NITC research report cover; see sample cover pages for specifications. The front cover page is not numbered. Begin the title of the report 2.5 inches from top. Title should be right justified and in 22-36 point or larger, all caps, 1-2 lines. Report type (interim, final, etc.) should also be included (18-28 point, title case).

## INner cover

Conforms to NITC research report inner cover; see sample cover pages for specifications. The inner cover page is not numbered. Begin the title of the report 2.5 inches from top. Title and all lines on this page should be centered. Title is 18 point, bold, all caps. Subtitle is 16 point, bold, all caps. Report type is 16 point, bold, title case. NITC report number (to be assigned by NITC) is 16 point, bold, title case. Author(s) and remaining text on this page is 12 point, title case.

## technical report documentation page

### Technical Report Documentation Page

See sample cover pages for specifications.

## ACKNOWLEDGMENTS

If possible the ‘ACKNOWLEDGMENTS’ should share the same page as the Disclaimer. The word ‘ACKNOWLEDGMENTS’ should be 16 point, bold, all caps and centered. The text shall be flush with the left margin, using the same style as the main body text (12 point, Times New Roman).

PIs should make proper attribution to NITC with the following statement, or similar: *“This project was funded by the National Institute for Transportation and Communities (NITC; grant number ####), a U.S. DOT University Transportation Center.”*

Other acknowledgements may also be included here, for example:

*“Jane Doe would like to acknowledge partial support from the National Institute for Transportation and Communities (NITC; grant number ####), a U.S. DOT University Transportation Center, and the National Science Foundation (NSF; Grant number BCS-123456).”*

## disclaimer

The word ‘DISCLAIMER’ should be 16 point, bold, all caps and centered. The text shall be flush with the left margin, using the same style as the main body text (12 point, Times New Roman).

*Please use the NITC Disclaimer:*

The contents of this report reflect the views of the authors, who are solely responsible for the facts and the accuracy of the material and information presented herein. This document is disseminated under the sponsorship of the U.S. Department of Transportation University Transportation Centers Program [and other SPONSOR/PARTNER] in the interest of information exchange. The U.S. Government [and other SPONSOR/PARTNER] assumes no liability for the contents or use thereof. The contents do not necessarily reflect the official views of the U.S. Government [and other SPONSOR/PARTNER]. This report does not constitute a standard, specification, or regulation.

## table of contents

### Format

Do not attempt to generate the Table of Contents until all of the chapter headings and subheadings have the correct “Heading” styles applied to them.

If this document is used as a template, creating a Table of Contents is very simple. Just position the pointer anywhere within the existing Table of Contents, right click the mouse, and select “Update field”. Then choose “Update entire table”. This should automatically generate a Table of Contents with the correct formatting.

### References

The reference section is usually the last item in the Table of Contents and formatted the same as chapter headings (Heading 1).

### Appendices

A list of Appendices follows the Table of Contents. Show as simple list or use same format as the Table of Contents (with unnumbered headings and dot leaders).

## list of tables

### Title

The words ‘list of tables’ is 14 point, bold, all caps, centered and follows the Appendices in the Table of Contents.

### Format

The words ‘Table 1’ are to be flush left, the page numbers are to be flush right, and there should be a dotted line leader between the table titles and page numbers. Font is 12 point.

If this document is used as a template, creating a List of Tables is very simple. After all table titles have the correct style applied, position the pointer anywhere within the existing List of Tables, right click the mouse, and select “Update field”. Then choose “Update entire table”. This should automatically generate a List of Tables with the correct formatting.

## list of figures/photos

### Title

The words ‘list of figures (photos)’ in 14 point, bold, are centered following the List of Tables.

### Format

The words ‘Figure 1’ are to be flush left, the page numbers are to be flush right, and there should be a dotted line leader between the figure titles and page numbers. Font is 12 point.

## EXECUTIVE SUMMARY

An executive summary is required and should follow the general format of the report. Begin on the first odd, right-facing page after the Table of Contents. Page numbers will be Arabic numerals. The executive summary should preview the main points of the report, while being no more than a page or two in length. The summary should contain enough information for a reader to get familiarized with what is discussed in the full report. Summary points should be listed in the same order they appear in the main report, including any conclusions or recommendations. Graphics, photos and other illustrations may be used.

## REPORT CONTENT

For research grants, numbered sections following the Executive Summary should include a complete description of the project’s problem/background, approach, methodology, findings, conclusions, recommendations, etc. For education and technology transfer grants, the content may be modified to better fit the project. If you have questions, please contact us at asktrec@pdx.edu. The report should completely document all data gathered, analyses performed and results achieved. Researchers may also include a technology transfer plan for the research results, and are encouraged to discuss the project in regard to how it relates to U.S.DOT objectives, priorities and/or critical issues. References must be correctly cited (see Section 6.0). Photos, tables and figures that help illustrate report points are encouraged.

# tables

## font

The title of the table will be in Times New Roman, 10 point, bold, title case. The contents of the table will be in Times New Roman 10 point (not bold).

1.5 Pt

## ALT TEXT

Add alt text to tables. The text should short be concise but describe the content of the table in adequate detail to convey the information.

## format

Refer to The Chicago Manual of Style. See below for general format.

0.75 Pt

Table 4.1: Steps for Inserting a Table

| **Step#** | **Choose/Select** | **From** | **To Get** |
| --- | --- | --- | --- |
| 1 | “Insert Table” | “Table” Menu  | Table size |
| 2 | # of columns and rows desired | Popup window | Correct # of columns and rows |
| 3 | “Borders and Shading…” | “Format” Menu | “Borders” tab |
| 4 | “Borders” tab | Popup window | Border/grid design tools |
| 5 | “Grid” | “Setting” | Correct top/bottom border and gridline weights |
| 6 | Left and right sides  | Preview picture | No grid or border lines on sides of table |

## numbering

0.75 Pt

Tables shall be sequentially numbered throughout the report. The format shall be “Table (Chapter#).(# of table within Chapter): Description or Title.” See sample above, Table 4.1.

## LOCATION

Tables should be on the same page as the text reference whenever possib

# figures and photos

## caption

The caption font for figures and photos is Times New Roman 10 point, sentence case, centered below the figure/photo. Do not bold. An example of a figure caption is shown below in Figure 5.1.

## ALT TEXT

**New**: Add alt text to images. The text should short be concise but describe the images in adequate detail to capture its content. See the following link for some guidelines: <https://digitalservices.georgia.gov/book-page/2-adding-alt-text-images-tables>

For a data graph, describe the take home message of the graph (What are the observed patterns; its main points?).

Avoid inserting text as image. This text will be lost as it cannot be read by a screen reader.

## SETUP

Authors should make every effort to produce graphic illustrations which do **not** rely on color printing to be understood. Due to the expense of color printing, research reports will not printed with color pages unless the use of color is essential to the presentation of the information in the report. Thus, charts and graphs should employ the necessary shading and/or texture to distinguish one data series from another. Photos and drawings should be clearly comprehensible in black and white, employing labels if necessary to identify elements the reader should notice.



Figure 5.1: Sample figure

## numbering

Figures and photos shall be sequentially numbered throughout the document. The format shall be as follows:

Figure [Chapter#].[# of figure within Chapter]: Description or Title

Figures and photos should be located as close to the text reference as possible

# EQUATIONS

## FORMAT

The equation is centered with bold font. The equations are numbered sequentially within each Chapter (i.e. “(6-1)”) and the equation number is flush right. The discussion of the equation follows the equation. See below for example.

## DIRECTIONS

Equations are created by selecting “Insert” and then “Object”. Select “Equation 1.0/2.0/3.0”. A tool bar will appear with equation symbols. Select the appropriate symbol and create the equation. See example below.

  (6-1)

The text discussing the equation is placed here.

# references

References shall include only published works.

## format

### Title

‘references’ in 16 point, bold, centered horizontally on an odd numbered page, insert a blank page if needed. Leave two blank lines between the title and the first entry. Double space between entries.

### Ordering

References shall be alphabetized by last name of author.

## font

Times New Roman, 12 point.

## citation format

When a reference is cited in the text, it shall be in parentheses in the text only, using the following format: (lastname, year).

Refer to The Chicago Manual of Style for formatting of each type of publication reference.

The following are examples of acceptable formats:

T. Matsui, K.C. Son, T. Amano, Y. Otani, and K. Hayashi. “Case Histories on Reinforced Cut Slopes Due to Root Piles in Osaka.” International Symposium on Soil Reinforcements: Full Scale Experiments of the 80’s. Paris, France. November 1993.

H. Schnable, Jr. *Tiebacks in Foundation Engineering and Construction*. McGraw-Hill, Inc. 1982.

T.D. Wentworth. “Distribution of Axial Forces in Soil Nails Based on Interpretation of Measured Strains.” Masters Thesis. University of Washington at Seattle, Washington. 1994

# appendices

## title page

### Format

‘appendix a’ in 16 point, bold, centered vertically and horizontally on the title page which must be a right facing page. Insert section breaks if needed. See example below. Appendix title pages will have top margins of 4 inches.

**Appendix a**

**example of appendix title page**

### Numbering

Appendices are to be individually numbered sequentially using the format “A-1”. The title page is unnumbered. Page numbering begins with the body of the Appendix on a right facing page and is continuous throughout including tables, graphs, figures, etc.

## format

The body of the appendix shall follow the same format as the main body of the document and shall begin on an odd page number (the right hand page of a pair). Insert a section break as appropriate. Any tables or figures in the appendices may be individually numbered (not required).