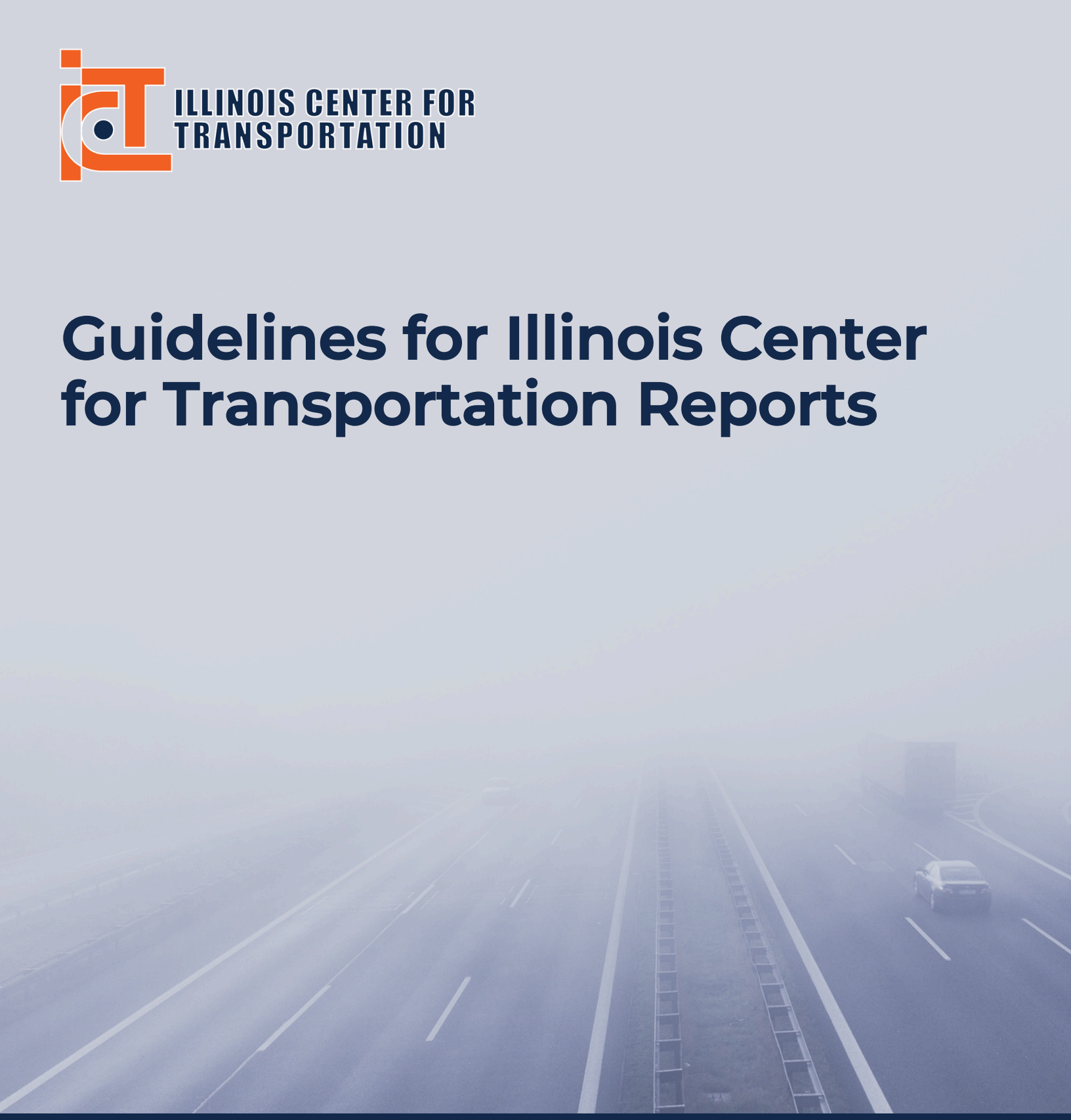
ILLINOIS CENTER FOR TRANSPORTATION

Guidelines for Illinois Center for Transportation Reports



Illinois Center for Transportation

ICTProjectManagement@illinois.edu

Last modified March 2025

Reports should fulfill project objectives set forth in the workplan, show adequate documentation and clearly present the research. **Beginning July 2020, all Illinois Center for Transportation and Illinois Department of Transportation technical reports must comply with Section 508 standards**. Section 508, an amendment to the 1973 Rehabilitation Act, requires federal agencies to make their electronic materials accessible to people with disabilities. While our IDOT reports are not yet required to meet this standard, we are excited to take this important step forward in making our research available to all users.

To assist principal investigators in preparing ICT reports, specific instructions are summarized below. Complying with these formatting guidelines will minimize publication delays. Please utilize the Section 508 Author Checklist before submitting your final report.

TABLE OF CONTENTS

REVIEW PROCESS, CRITERIA AND SUBMISSION

The following are the report review and publication phases. This process will take three months, beginning with report submission and ending with report publication.

Note that poor sentence structure and grammar can lead to delays in ICT's technical editing process and final publication. Reports containing excessive errors in grammar, syntax, spelling and punctuation will be returned to the PI. The PI is responsible for ensuring that the report conforms to standards of good writing. Therefore, if someone else writes a report (such as a coauthor or student), the PI should review the report before submitting it to ICT for editing.

- PRELIMINARY EDIT PHASE (Month One – 30 days): The PI submits the completed report, formatted using the ICT report template, to ICT Project Management (ICTProjectManagement@illinois.edu). ***Reports that are not properly formatted or Section 508 compliant will be returned to the PI for reformatting and resubmission.*** Note that extensions will not be provided if the report is returned solely for formatting issues.

  A comprehensive technical edit of the report will be performed and then returned to the PI for review and revision.

- PI/TRP EDIT PHASE (Month Two – 30 days): The PI reviews the technical edits, accepts/rejects changes, addresses all comments and forwards the edited report to the project's TRP Chair for review. **The TRP reviews and provides comments to the PI within 21 days of receipt**. The PI incorporates the feedback and returns the report to the TRP Chair for approval before sending the final version to ICT Project Management for final editing. ***All discussion and updating of the report between the PI and TRP Chair should be complete at this time***.

- FINAL EDIT PHASE (Month Three – 30 days): When the PI sends the final version of the report to ICT Project Management, ICT will obtain the final approval form from the TRP Chair. Upon receipt of the approval form, ICT Project Management performs a final editorial review and publishes the report. ***The TRP Chair must sign the approval form prior to report publication***.

- PUBLISHING PHASE: ICT Project Management assigns an ICT report number and publishes the report to several sources, including the ICT website, the Transportation Research Board database and various transportation libraries. ICT Project Management also prints hard copies.

Report Submission

To submit reports for editorial review or for additional assistance, contact:

ICT Project Management
ICTProjectManagement@illinois.edu

Clearances and Copyrighted Materials

It is the authors' collective responsibility to obtain all copyright permissions before submitting the report for TRP review.

Other Requirements

View the ICT-IDOT report style guide for a full list of guidelines related to style.

- Measurements: Measurements generally should be provided in SI (metric) measurements with equivalent US measurements in parentheses.
- Abbreviations, Acronyms and Symbols: Abbreviations, acronyms and symbols must be fully defined at first use in the report. The definition should be given first, followed by the abbreviated term in parentheses.
- Footnotes: Do not use footnotes in the text. Incorporate the information into the text or delete the notes.
- In-text Citations: Smith (2006) (for one author); Smith and Patterson (2006) (for two authors); Smith et al. (2006) (for more than two authors; "et al." is not italicized).

Report Organization

Submit the report in a single electronic file (using the ICT report template) organized in the following sequence. Start each section on a new page.

Cover Page
Technical Report Documentation Page
Front Matter
    Acknowledgment, Disclaimer, Manufacturers' Names
    Executive Summary
    Table of Contents [optional: List of Acronyms, List of Figures, List of Tables]
Body of Report
Back Matter
    References
    Appendices (if applicable)

REPORT COMPONENTS

The maximum length for reports is 75 pages (not including covers, front matter or appendices). The page count starts on the first page of Chapter 1 and ends on the final page of the References section. Any exceptions should be approved by ICT and IDOT prior to submission.

Executive Summary

The executive summary must be no longer than three pages. It should present the study's primary objectives and scope or the reasons for writing the report. The techniques or approaches should be described only to the extent necessary for comprehension. Findings and conclusions should be presented concisely and informatively. The executive summary should not contain unfamiliar terms that are not defined, undefined acronyms, reference citations, or displayed equations or lists.

Body of Report

In each chapter, you will introduce the research, document the tasks that were completed and make conclusions and recommendations for future research.

Headings and Subheadings

Do not number headings/subheadings (e.g., 1.1 Introduction, 1.2 Research Objectives, etc.).

Figures

Each figure should be separate and should have its own figure number and caption. The basic requirements to create Section 508 compliant figures are listed below:

- Do not use sub-numbers (1-1, 1.2, etc.) with figures.
- Number figures consecutively throughout the report and appendices, not per chapter.
- Provide alternative text that describes the information conveyed in the figure. To add alternative text, right click on the figure and select "Edit Alt Text." Right click on the figures below to view their alternative text.
- Include a description of the image type (i.e., photo, graph, equation, chart, diagram, illustration) in the figure caption.
- Avoid composite figures with multiple captions. (See Figure 4).
- All images, tables and objects must be in line with the text. To position each figure in line with text, right click on the image, select Wrap Text and then select In Line with Text.

Figure 1. Photo. After grouting large-scale beam specimen 4F1.

Source: Provines et al. (2019)

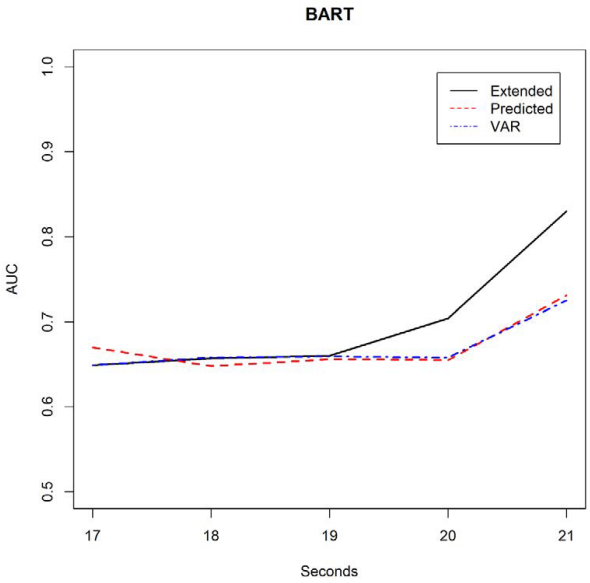


Figure 2. Graph. AUC profile of reference (original data), predicted (ARMA) method, and VAR method.

Source: Flannagan et al. (2019)

A. Transverse cracking in a concrete bridge

B. Transverse cracking in a steel girder bridge

Figure 3. Photo. Transverse cracking in a concrete bridge and steel girder bridge.

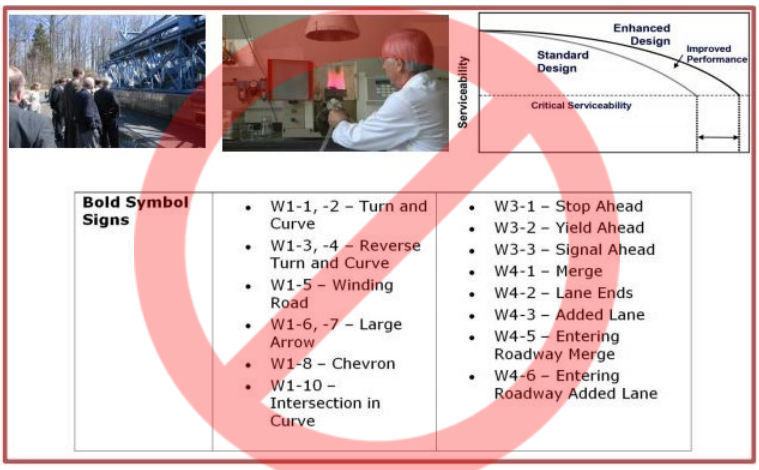


Figure 4. Multiple elements. Example of a Section 508 noncompliant composite figure.

Source: FHWA (2017)

Tables

The basic requirements to create Section 508 compliant tables are listed below:

- Create tables using the built-in feature in Microsoft Word. Do not include pictures of tables.
- Do not use sub-numbers (1-1, 1.2, etc.) with tables.
- Consecutively number tables throughout the report and appendices, not per chapter.
- Avoid using complex tables with merged and/or split cells (see Table 2).
- Only use tables to display data. Do not use tables to organize and arrange images or text on a page or to format the layout of a page in any way.

Table 1. Mix Designs

	Control Mix	Type K Mix
Water*	267	286
Type I Cement*	608	455
Type K	—	90
Fine Aggregate*	1129	1069
Coarse Aggregate*	1825	1831
W/C Ratio	0.44	0.52

* Quantities are in lb/yd^3 (1 lb/yd^3 = 0.59 kg/m^3)

Table 2. 508 Noncompliant Complex Table Using Merged Cells

Assigned Projects						Future Projects	
Division A			Division B			Funded	Pending
Initiated Pending / Ongoing		Completed	Initiated Pending / Ongoing		Completed		
1	3	8	2	2	8	8	2

Equations

The basic requirements to create Section 508 compliant equations are listed below:

- Label equations as figures (see Figure 5).
- Format equations as .jpg files. Note that not all computers and operating systems can interpret special math and scientific fonts.
- Provide alternative text with equations. For example, the alternative text for Figure 5 is as follows: Open parenthesis y minus mu subscript 2 divided by 3 sigma subscript 2 close parenthesis squared plus open parenthesis z minus mu subscript 3 divided by 3 sigma subscript 3 close parenthesis equals 1.
- Use Math ML—rather than LaTeX—to generate equations, as it is screen-reader friendly.

$$\left(\frac{y-\mu_2}{3\sigma_2}\right)^2+\left(\frac{z-\mu_3}{3\sigma_3}\right)^2=1$$

Figure 5. Equation. Simplified equation for two-dimensional ellipsoid to represent the second and third PCs.

Source: Flannagan et al. (2019)

Sensory Characteristics (Color, Size, Shape)

Information represented by color or another sensory characteristic (color, size, shape) must not be the only way to convey that meaning. For example, supplement colors in figures and tables with textures, patterns, or text to convey meaning.

Use WebAim's Color Contrast Checker to determine the color contrast between foreground and background colors. The contrast ratio should be greater than or equal to 4.5:1.

- The following color combinations are recommended:
  - Blue and orange
  - Blue and red
- Avoid using the following color combinations:
  - Red and green
  - Red and black
  - Blue and yellow

Figures 6 through 10 demonstrate ways to supplement color in various types of graphs.

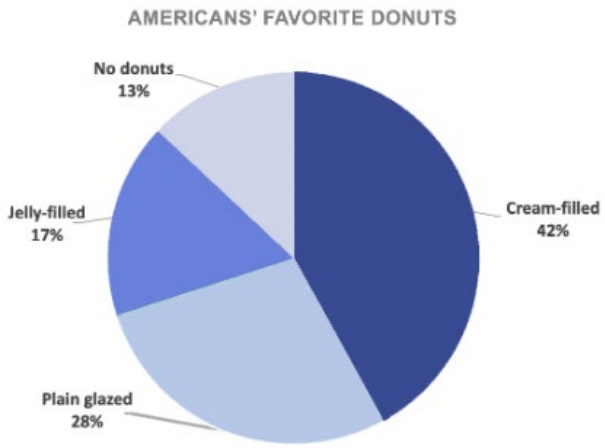


Figure 6. Chart. Accessible pie chart with adequate color contrast.

Source: Arizona State University

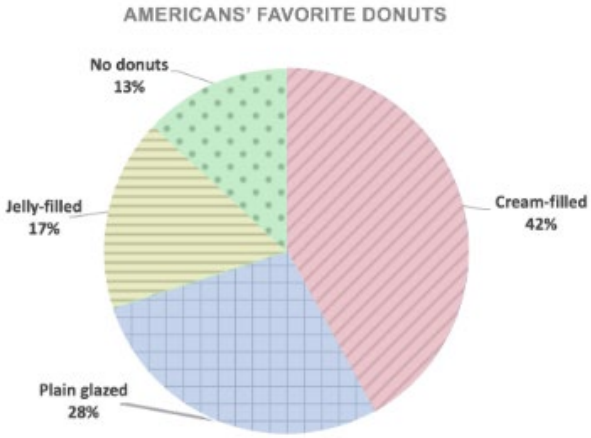


Figure 7. Chart. Accessible pie chart using patterns and color.

Source: Arizona State University

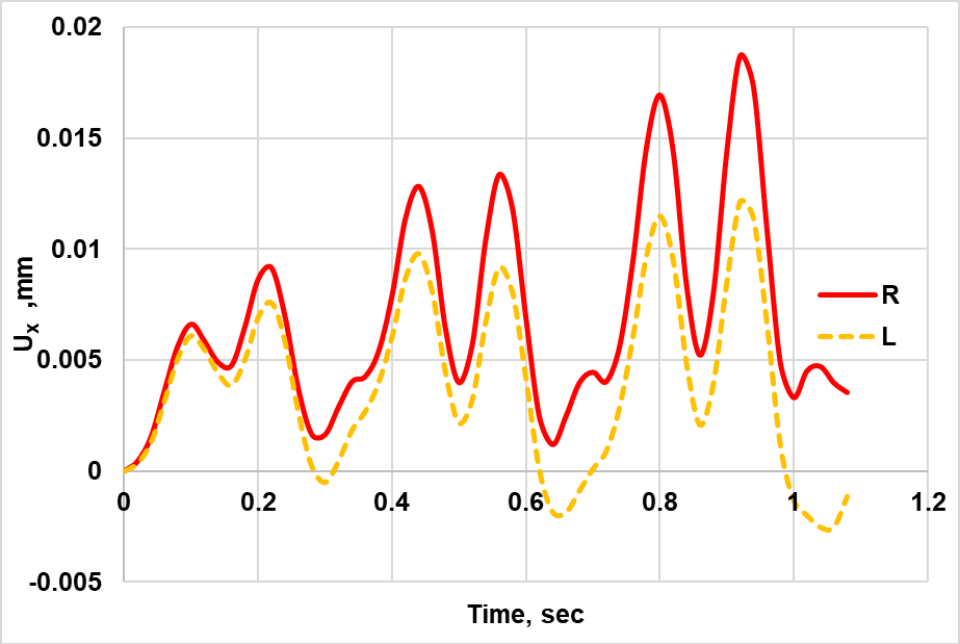


Figure 8. Graph. Displacement mode II cracking.

Source: Al-Qadi et al. (2023)

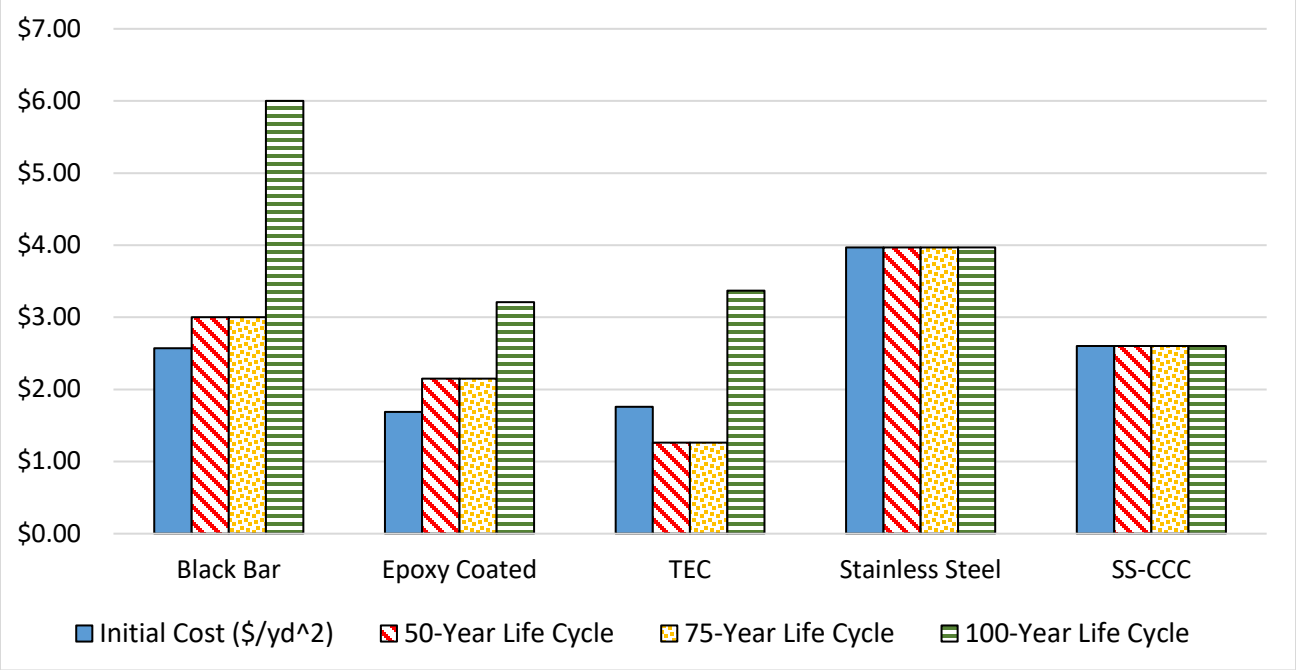


Figure 9. Chart. Graphical representation of summarized life-cycle costs.

Source: Gombeda et al. (2023)

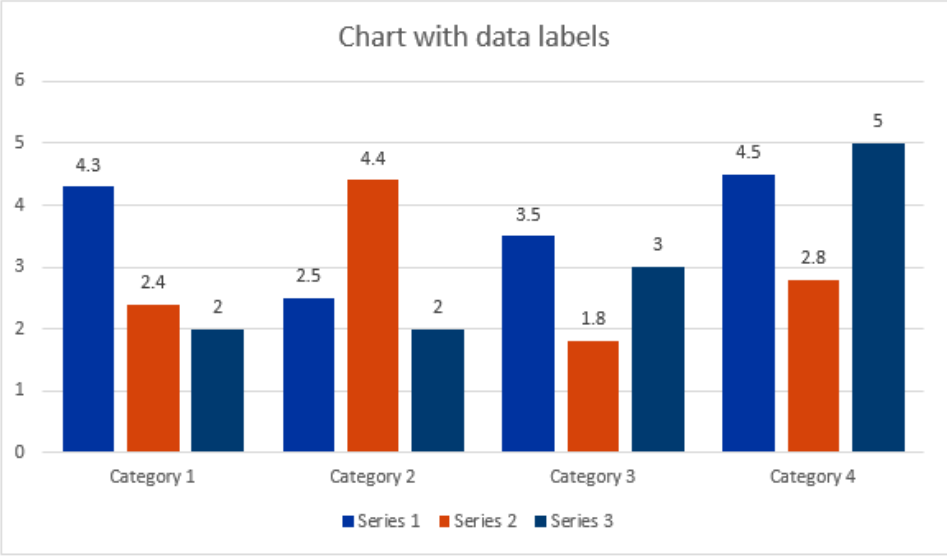


Figure 10. Chart. A chart with data labels.

Source: Boise State University

References

In the reference section, please list all references in alphabetical order. Below are examples of references following the APA citation style. If possible, please include the DOI. **You are not required to follow this exact formatting style for references**. However, you must be consistent in how you format each type of reference in terms of author names, year, date of publication, title, city of publication, etc.

Book

Scholz, M. (2019). *Sustainable water treatment: Engineering solutions for a variable climate*. Elsevier. https://doi.org/10.1016/C2017-0-04643-8

Chapter in an Edited Book

Amirkhanian, S. (2020). Utilization of scrap plastics in asphalt binders. In F. S. Pacheco-Torgal, S. Amirkhanian, H. Wang, & E. Schlangen (Eds.), *Eco-efficient pavement construction materials* (pp. 13–32). Woodhead Publishing. https://doi.org/10.1016/B978-0-12-818981-8.00002-3

Conference Proceedings

Al-Qadi, I. L., & Elseifi, M. (2002). Analytical modeling and field performance testing of geocomposite membrane in flexible pavement systems. In P. Delmas (Ed.), *Proceedings of the 7th International Conference on Geosynthetics* (pp. 907–912).

Doctoral Dissertation

Sussmann, T. R. (1999). Application of ground penetrating radar to railway track substructure maintenance management (Doctoral dissertation). Retrieved from ProQuest (AAI9932349).

Government Reports

Al-Qadi, I. L., Ramakrishnan, A., Zhu, Z. Said, I., Renshaw, G., Ozer, H., & Salim, R. (2023). *Optimized hot-mix asphalt lift configuration for performance* (Report No. FHWA-ICT-23-005). Illinois Center for Transportation. https://doi.org/10.36501/0197-9191/23-006

Federal Highway Administration. (2017). *Turner-Fairbank Highway Research Center R&D communication reference guide* (Report No. FHWA-HRT-15-058). Federal Highway Administration Research and Technology. https://www.fhwa.dot.gov/publications/research/general/15058/005.cfm?#_Toc474772847

Flannagan, C. A., Selpi, Boyraz Baykas, P., Leslie, A., Kovaceva, J., & Thomson, R. (2019). *Analysis of SHRP2 data to understand normal and abnormal driving behavior in work zones* (Report No. FHWA-HRT-20-010). FHWA. https://www.fhwa.dot.gov/publications/research/safety/20010/index.cfm

Gombeda, M. J., Lallas, Z. N., & Rivera Jr, E. (2023). *Optimal approach for addressing reinforcement corrosion for concrete bridge decks in Illinois—Phase II* (Report No. FHWA-ICT-23-004). Illinois Center for Transportation. https://doi.org/10.36501/0197-9191/23-005

Provines, J. T., Ocel, J. M., & Zmetra, K. (2019). *Strength and fatigue resistance of clustered shear stud connectors in composite steel girders* (Report No. FHWA-HRT-20-005). FHWA. https://www.fhwa.dot.gov/publications/research/infrastructure/structures/bridge/20005/

Periodical

Hernandez, J. A., Gamez, A., Al-Qadi, I. L., & De Beer, M. (2014). Analytical approach for predicting three-dimensional tire-pavement contact load. *Transportation Research Board: Journal of the Transportation*

Research Board, *2456*(1), 75–84. https://doi.org/10.3141/2456-08

Kim, R. E., Kang, S., Spencer, B. F., & Al-Qadi, I. L. (2019). Impact of pavement roughness and deflection on fuel consumption using energy dissipation. *Journal of Engineering Mechanics*, *145*(10). https://doi.org/10.1061/(ASCE)EM.1943-7889.0001653

Schaefer, N. K., & Shapiro, B. (2019, September 6). New middle chapter in the story of human evolution. *Science*, *365*(6457), 981–982. https://doi.org/10.1126/science.aay3550

Zhao, S., & Al-Qadi, I. L. (2019). Algorithm development for real-time thin asphalt concrete overlay compaction monitoring using ground-penetrating radar. *NDT & E International*, *104*, 114–123. https://doi.org/10.1016/j.ndteint.2019.04.008

Website

American Psychological Association. (2020). *Reference examples*. Retrieved January 30, 2020, from, https://apastyle.apa.org/style-grammar-guidelines/references/examples

Appendices

The appendix number and title should follow the same style as chapter titles.

Appendix pages should be numbered as part of the report. For example, if the last page of the report is 75, then the first page of the appendix would be 76.

If there are multiple appendices, name the appendices as Appendix A, Appendix B, and so on.