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(Title)

(Subtitle {If Necessary})

Research Final Report from (University) | (Authors) | January 19, 2021

Sponsored by Tennessee Department of Transportation Long Range Planning

Research Office & Federal Highway Administration

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# Technical Report Documentation Page

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| 1. Report No.  RES | 2. Government Accession No. | | | 3. Recipient's Catalog No. | | |
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| 16. Abstract  The abstract should not make the TRDP longer than one-page. Times New Roman 10-pt font required (200-300 words) | | | | | | |
| 17. Key Words  **TIMES NEW ROMAN 12 PT, ALL CAPS, BOLD** | | | 18. Distribution Statement  No restriction. This document is available to the public from the sponsoring agency at the website <http://www.tn.gov/>. | | | |
| 19. Security Classif. (of this report)  Unclassified | | 20. Security Classif. (of this page)  Unclassified | | | 21. No. of Pages  xxx | 22. Price |

# Acknowledgement

**(Optional)**

Please include a formal acknowledgement in any presentations made on TDOT sponsored projects and notify TDOT of any publications, papers, or media attention related to a TDOT sponsored project. The acknowledgement should state the research project has been done in conjunction with TDOT. When an article or a story appears in the media, TDOT’s Office of Customer Relations and Information often receives inquiries. It helps to let them know in advance so that they are not caught off guard and are prepared to respond.

# Executive Summary

The Executive Summary should be no more than 5 pages. It should state the purpose and major points. Each major point should be briefly covered in its own paragraph.

## Key Findings

Provide a short summary with how the findings were informed by the research.

* Use bullet points
* Keep to 4-5 points total

## Key Recommendations

Provide a short summary with potential benefits of the recommended course of action.

* Use bullet points
* Keep to 4-5 points
* Provide justifications for each point

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# List of Tables

*Instructions:* To Insert the Tables and Figures, go to the ‘References’ tab, then select ‘Insert Table or Figures’.Ensure your Tables are labeled correctly for the citation style being used in the report. Figures should be numbered by which chapter they appear in (see example on next page for figures). For tables, use the ‘Insert Caption’ function to add numbers and titles to figures and tables. To find the ‘Insert Caption’ option, right click anywhere in a figure or right click on the all-direction arrows in the top left corner on a table, then select ‘Insert Caption’.

# List of Figures

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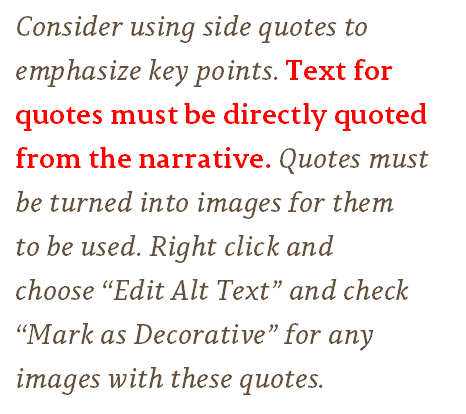
[Figure 3‑2 IEEE Style Figure. 4](#_Toc76469377)

# Glossary of Key Terms and Acronyms

**(Optional)**

When applicable, define terms and acronyms used in the document that are defined specifically for the means of this report or that the reader may be unfamiliar with.

# Introduction

**In this section, establish the scope, context, and significance of the research. State the research problem, the purpose of the work, briefly explain the methodological approach, and highlight what outcomes could be developed. Maintain TDOT’s required formatting and refrain from strictly copy-pasting from the project’s proposal. Lastly, outline the structure/organization of the report.

*Make sure to emphasize what you want the reader to think about or react to throughout the report.*

## 1.1 Example Subheading

Additional text should be indented for each subheading.

# Literature Review

Provide an overview of topics and sources that contribute to understanding the research need and any gaps that may currently exist in the topic area. Demonstrate to the reader how each topic category fits into the larger narrative and describe relationships between categories. Should be 3-5 pages. For more information on recommendations for lit review organization, use ‘Ctrl + click’ to visit this website: <https://libguides.usc.edu/writingguide/literaturereview>.

## 2.1 Example Subheading

Additional text should be indented for each subheading.

# Methodology

This section should fully discuss the underlying reasoning for why particular methods were used. The methodology should answer two main questions: How was the data collected or generated? And, how was it analyzed? The writing should be direct and precise and always written in the past tense. Ultimately, we should understand the extent to which the methods used were valid, reliable, and replicable from the narrative regarding the data collected and its further analysis.

## 3.1 Example Equation

Here is an example of an equation:

For all equations, use the equation capabilities of Word, or use the exact symbol in in-line sentence notation (no approximations). Please include a comment next to the equation with the equation written out as if it were read aloud to a peer (For example, “Open parenthesis, one plus x, closed parenthesis, to the n equals one plus n times x over one factorial plus n times open parenthesis, n minus one, close parenthesis, times x squared over two factorial plus the continued sequence”). The description provided will be added to the PDF that the Research Office creates from the approved final report.

## 3.2 Example Picture



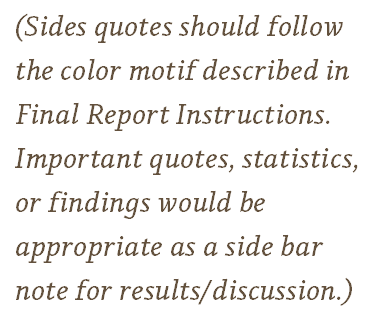
Figure 3‑1 IEEE Example Photo. Notes about photo. All figures should be in-line with text.

**Tips: Using Larger/Wider Figures and Tables (Also an Example List):**

1. Landscape Orientation: To improve readability of large graphs and tables, insert section breaks on the page before and page of the graphic by clicking “Next Page” break in the ‘Layout’ tab under ‘Breaks’. Then, in the Layout tab, select ‘Orientation’, then select ‘Landscape’.
2. To remove the Page Border from the Footer, select inside the footer where the graphic is. Select the ‘Designer’ tab in the ribbon above. Select “Different First Page”, then delete the page border to prevent the border from overlapping the table or figure.
3. Keep tables to one page where possible. If not, re-use the table’s headings for each new page as recommended for 508 compliance.

Figure 3‑2 IEEE Style Figure. Additional notes go after the title. These notes can suffice as the description of the graph that might otherwise go in the alt-text box for 508 compliance. If so, mark the figure as decorative in the ‘Edit Alt Text’ section. The text for captions should be aligned left for this citation method.

# Results and Discussion

**THE DISCUSSION MUST INCLUDE THE FINAL UPDATES ON THE DELIVERABLES, MENTION THE BENEFITS TO TDOT, AND THE POTENTIAL FOR IMPLEMENTATION.**

Restate the research problem underpinning the study. State the findings of the research in a logical sequence. It is important to remember that the results do not necessarily have to prove anything but should be reported, nonetheless. Avoid providing data that is not critical to answering the research question.

We recommend providing a finding and explaining it before presenting another finding. The narrative can be tied together in the concluding section of the results before moving into the discussion. Strategically use non-textual elements to illustrate findings.

The Discussion can be in this section or a section on its own. What is important is that the Discussion clearly explains how the study advanced the reader’s understanding of the research problem starting from the end of the review of prior research. It should also help develop solutions to the problem presented. Here, we should extrapolate meaning, possible implications, and explore improvements. Provide, as best as possible, the evidence-based interpretation of the findings. Any conjectured interpretation should be used with clear identification as a possible explanation and must be supported by previous work.

For the Discussion, use the present tense unless referring to prior works or studies, then use past tense. This section should also cover the limitations and weaknesses of the project as they are important to the next steps for TDOT.

Table I

IEEE Style Example Table Title: Use Small Caps & Roman Numerals, Align to Center

|  |  |  |
| --- | --- | --- |
| Row Title | Column (measurement) | Column (measurement) |
| Row 1 | 123 | 123 |
| Row 2 | 456 | 456 |
| Row 3 | 789\* | 789 |

Note: IEEE Style Tables Notes.

\*Reason for asterisk (i.e. p < .05, two-tailed)

# Conclusion

This section should review the purpose and main points covered as well as provide final thoughts on the research project’s issues, larger significance to the study area, the impact, and provide a sentence or two on insights into thinking on this particular area of research.

**IT IS REQUIRED TO DISCUSS RECOMMENDATIONS FROM THE PROJECT VIA FEDERAL REGULATIONS FOR FINAL REPORTS.**

# References

1. The USC Libraries Guide on Writing Reports was used for our guidance. More information can be found here: <https://libguides.usc.edu/writingguide/purpose>. (Note: This is not intended to be an example of a proper citation but for report guidance.)

# Appendices

Appendices should be separated by category and may include correspondences, interview transcripts, non-textual elements, questionnaires or surveys, research instruments, sample calculations, or raw statistical data. Include raw data used in the making of the report. If the raw data is extensive and would be cumbersome to include, provide the documentation to TDOT Lead Staff and the Research Office in a separate, readable file. Deliverables that are separate from the research project should be provided separately in this manner as well.