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# Acknowledgments

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# Executive Summary

This report starter document provides style and formatting instructions to help researchers working on MTC project reports. To use this document as a template, make a copy of the file and compose your report by replacing the text in that document. Be sure to read the instructions in the text and comments of the original starter document to understand the conventions, review helpful examples, and learn some tricks.

# Using Text/Paragraph Styles in Microsoft Word

A “style” is a set of definitions for how a heading or paragraph will look, including the font and spacing. Understanding how to use these styles will help you to create an uncluttered and consistently formatted report.

In Microsoft Word’s styles menu, choose styles such as “Heading 1” and “Body text1” to help you create a consistently formatted report. Styles also enable you to generate and update the Table of Contents, List of Figures, and List of Tables automatically.

Here are the guidelines for formatting documents using styles:

* Do as little manual formatting as possible when you type the text. Instead, apply the appropriate style to each paragraph (a “paragraph” is defined by a hard carriage return at its end; it may not actually be a paragraph of text).
* Don’t use extra carriage returns at the ends of paragraphs! Applying the styles will take care of the vertical spacing for you.
* Be sure to use the Body Text1 style (and not the Body Text or Normal style) in your report document.
* Don’t type first-level headings in all caps; use title case/capitalization and let the Heading 1 style convert the heading to all caps and boldface type. (You can use the Navigation pane, an option available on the View tab in Word, to navigate within your document and to proofread your headings for consistency.)

This report “template” or starter document was created with most of the styles you will need built into it. These styles should appear in the Styles bar (or “Quick Style Gallery”) at the top right of your Home tab when you open this Word starter document. You might want to peruse what is there for your use in reports now. Note which style is applied to the various parts of this starter document. The style will appear as highlighted in the Styles bar on the Home tab when you click on a different part of this document.

For example, Body Text1 is highlighted when you click on this paragraph. Now, click on FRONT MATTER below and Heading 1 becomes highlighted. When you click on Technical Report Documentation Page below, Heading 2 becomes highlighted. When you click in the bulleted list above, and then click on the down arrow on the scroll list for the Styles gallery, you will see that List Bullet is highlighted.

# Front Matter

## Technical Report Documentation Page

All InTrans reports should have a technical report documentation page (first page of this template), with identifying information and an abstract. The technical report documentation page follows the front cover for the convenience of the sponsor and readers. The abstract will also be used to communicate the project results on the web.

Abstracts should be no longer than three paragraphs. Because the abstract will appear separate from the report, it should not contain reference citations. The use of abbreviations, acronyms, figures, tables, and display equations should be avoided.

## Executive Summary

An executive summary should be included when requested by the sponsor.

Because the executive summary may appear separate from the report, it should not contain reference citations unless absolutely necessary. If references are necessary, please use footnotes. Abbreviations and acronyms should be defined at their first use both in the executive summary and again in the body of the report. Figures, tables, and display equations may be used with discretion.

# Parts of the Report Body

## Lists

### List Types

To list items within a sentence, simply list them as one item, followed by the next item, and the next item. To emphasize the number of items, use (1) the first item, (2) for the next item, and (3) the next item.

Use a bulleted list to present items vertically when the items do not represent a specific sequence or scale of importance:

* Pencils
* Paper
* Erasers

To emphasize the number of items or sequence of items, use a numbered list:

1. First, open the door.
2. Then step through.
3. Finally, close the door.

Do not use a numbered list when the items do not represent a specific sequence or scale of importance/ranking.

### Common List Errors

Do not introduce a list with a phrase ending “including:” or “such as:” Either eliminate the colon or add “the following” or “as follows” before the colon.

Do not end list items with punctuation unless they are complete sentences. If they are complete sentences, use periods.

## Figures

See Figure 1 for how to format a figure and its figure caption. Use the Figure style for proper alignment and set the Format Position of your figures to Inline with Text. Use the Figure Caption style for your captions. Capitalize and punctuate your figure captions as shown here.



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Figure 1. Location of bridge with expansion joints

## Tables

See Table 1 for the recommended formatting and borders on tables. Use the Table Title style for your table titles. Capitalize and punctuate your table titles as shown here.

Table 1. Road length by pavement serviceability

| **County** | **Pavement Serviceability** | | |
| --- | --- | --- | --- |
| **Gravel (mi)** | **Secondary (mi)** | **Interstate (mi)** |
| Cherokee County | 42 | 42 | 70 |
| O’Brien County | 24 | 24 | 6 |
| Polk County\* | 36 | 35 | 35 |

\*Use the Table Note style

## Equations

In equation (1), we show how to format equations using the Equation text/paragraph style:

A = 14 (q – 1) **(1)**

where *A* is the variable of automation and *q* is the length of twine used in the measurements.

# References

The author-date system is the preferred documentation method for references, particularly in transportation-related research reports. We prefer it over the Notes system because it provides readers with the author and date of the information being cited right in the body of your report, in context.

Cite the source in the report text by the author name(s) and year of publication at the end in parentheses as follows:

* Single author: (Jones 2005)
* Two authors: (Jones and Smith 2005)
* Three or more authors: (Jones et al. 2005)

Note that the author-date citations in parentheses in your body text do not include commas before the years. This convention is consistent with Transportation Research Board’s Cooperative Research Program (TRB’s CRP) standards.

If you are citing multiple sources in parentheses, you can just separate them with commas rather than with semi-colons. Here is an example:

* (Phares and Greimann 2012, Taylor et al. 2015)

The author-date reference list should be in alphabetical order and include everything cited in your report text (and nothing extra or not cited). The formatting of the list should be consistent and each reference should provide the pertinent information needed for the reader to find the source information if desired.

Following suit from Second Highway Research Program (SHRP 2) standards/guidelines, the following documents are not considered references, should stand on their own in the text, and do *not* need to be included in the References:

* Specifications
* Standards of standard-setting organizations (e.g., AASHTO, ASTM International, and ANSI)
* Legislative acts

Likewise, personal communications do not need to be included in your references list. For those, include the person’s name, title, and organization in the report body text, noting the information was from personal communication with that person.

## Reference List Examples

Reference list examples using our preferred format are provided below, along with some additional information.

### Books/Guides/Manuals/Reports/Tech Briefs

Dahlberg, J., B. Phares, and W. Klaiber. 2015. *Cost-Effective Timber Bridge Repairs: Manual for Repairs of Timber Bridges in Minnesota*. Minnesota Department of Transportation, St. Paul, MN.

Edara, P, C. Sun, and S. Breslow. 2013. *Evaluation of J-turn Intersection Design Performance in Missouri.* Missouri Department of Transportation, Jefferson City, MO.

Hallmark, S. L., A. Goswamy, and M. Pawlovich. 2016. *Safety Edge Crash Modification Factors Tech Brief*. Center for Transportation Research and Education and Midwest Transportation Center, Institute for Transportation, Iowa State University, Ames, IA

Hallmark, S. L., N. Hawkins, and O. Smadi. 2015. *Evaluation of Dynamic Speed Feedback Signs on Curves: A National Demonstration Project*. Federal Highway Administration, Turner-Fairbank Highway Research Center, McLean, VA.

Hawkins, N., O. Smadi, and S. Knickerbocker. 2016. *Evaluation of Pavement Markings on Challenging Surfaces*. Minnesota Department of Transportation, St. Paul, MN.

Kosmatka, S. and M. L. Wilson. 2016. *Design and Control of Concrete Mixtures: The Guide to Applications, Methods, and Materials*. 16th Edition. Portland Cement Association, Skokie, IL.

Maze, T., J. Hochstein, R. Souleyrette, H. Preston, and R. Storm. 2010. *NCHRP Report 650:* *Median Intersection Design for Rural High-Speed Divided Highways*. National Cooperative Highway Research Program, Washington, DC.

Shane, J. S. 2016a. *Iowa DOT Project Management Peer Exchange*. Construction Management and Technology Program, Institute for Transportation, Iowa State University, Ames, IA.

Shane, J. S. 2016b. *Iowa DOT Project Management Peer Exchange Tech Transfer Summary*. Construction Management and Technology, Institute for Transportation, Iowa State University, Ames, IA.

Shane, J. S., K. Strong, D. Gransberg, and D. Jeong. 2015. *Guide to Project Management Strategies for Complex Projects*. SHRP 2 S2-R10-RW-2. Second Strategic Highway Research Program, Washington, DC.

Taylor, P., P. Tikalsky, K. Wang, G. Fick, and X. Wang. 2012. *Development of Performance Properties of Ternary Mixtures: Field Demonstrations and Project Summary*. National Concrete Pavement Technology Center, Iowa State University, Ames, IA.

Taylor, P. and X. Wang. 2015. *Best Practices for Jointed Concrete Pavements /* *Materials Related Distress: Aggregates* *Tech Brief*. Federal Highway Administration, Washington, DC. www.fhwa.dot.gov/pavement/concrete/pubs/hif15013.pdf.

### Parts of a Book or Manual

Harrington, D. and G. Fick. 2014. Chapter 2. Evaluating Pavements and Selecting Solutions. In *Guide to Concrete Overlays: Sustainable Solutions for Resurfacing and Rehabilitating Existing Pavements.* Third Edition. National Concrete Pavement Technology Center, Iowa State University, Ames, IA. www.cptechcenter.org/technical-library/documents/Overlays\_3rd\_edition.pdf.

### Periodicals/Journals/Magazines

Peterson, K. W., R. A. Swartz, L. L. Sutter, and T. J. Van Dam. 2001. Air Void Analysis of Hardened Concrete with a Flatbed Scanner. *Transportation Research Record: Journal of the Transportation Research Board*, No. 1775, pp. 36–43.

Taylor, P. C., W. Morrison, W., and V.A. Jennings. 2004. The Effect of Finishing Practices on Performance of Concrete Containing Slag and Fly Ash as Measured by ASTM C 672 Resistance to Deicer Scaling Tests. *Cement, Concrete, and Aggregates*, Vol. 26, No. 2, pp.155–159.

Wang, X., P. Taylor, K. Wang, and M. Lim. 2016. Monitoring of setting time of self-consolidating concrete using ultrasonic wave propagation method and other tools. *Magazine of Concrete Research*, Vol. 68, No. 3, pp. 151–162.

Wang, X., K. Wang, F. Bektas, and P. Taylor. 2012. Drying Shrinkage of Ternary Blend Concrete in Transportation Structures. *Journal of Sustainable Cement-Based Materials*, Vol. 1, Nos. 1–2, pp. 56–66.

### Papers Presented at Meetings/Conferences

From CRP guidelines on references: Avoid unpublished references if papers/reports have been published. Do not use expressions such as “Paper prepared for presentation…,” or “Paper presented at…” when publication has occurred.

MnDOT has used a standard that these references should include the presentation date or conference dates and location/city and state.

Guo, F., C. T. Jahren, and Y. Turkan. 2015. Electronic Document Management Systems for Transportation Construction Industry. 5th International/11th Construction Specialty Conference, Vancouver, BC, June 8-10, 2015.

Heikkilä, R., and M. Jaakkola. 2006. Automation of road construction-the state of the art in Europe. 23th International Symposium on Automation and Robotics in Construction. ISARC, Tokyo, Japan, October 3-5, 2006.

### Proceedings

From CRP guidelines on references: Print the names of journals, proceedings, bulletins, and so forth in italics…

Carlson, J., L. Sutter, K. Peterson, T. and Van Dam. 2005. An Update on Application of a Flat-Bed Scanner for Performing ASTM C 457, *Proceedings of the 27th International Conference on Cement Microscopy*, Victoria, BC, pp. 304–316.

Chatterji, S. and A. D. Jensen. 1992. Formation and Development of Interfacial Zones Between Aggregates and Portland Cement Pastes in Cement-Based Materials. *Interfaces in Cementitious Composites*, Proceedings of the RILEM International Conference, October, 1992, pp. 3–12.

Diamond, S. 1976. The composition of the gel phase in Portland cement paste. *Hydraulic Cement Pastes: Their Structure and Properties*, pp. 2–30. Proceedings, Session I: Cement Paste Microstructure – An Overview at Several Levels, Cement and Concrete Association, University of Sheffield, April 8–9, 1976.

Helmuth, R. A. 1961. Dimensional Changes of Hardened Portland Cement Pastes Caused by Temperature Changes. *Proceedings of the Fortieth Annual Meeting of the Highway Research Board*, Vol. 40, pp. 315–336. Washington, DC, January 9–13, 1961.

Ley, M. T. and B. Tabb. 2014. A Test Method to Measure the Freeze Thaw Durability of Fresh Concrete Using Overpressure. *Proceedings of the Transportation & Development Institute (T&DI) Congress*, pp. 79–87.

Mitchell, P. W. 1980. The Concepts Defining the Rate of Swell of Expansive Soils. *Proceedings of the 4th International Conference on Expansive Soils,* Denver, CO, Vol. 1, pp. 106–116.

Peterson, K., L. Sutter, and T. VanDam. 2002. Air Void Analysis of Hardened Concrete with a High-Resolution Flatbed Scanner. *Proceedings of the 24th International Conference on Cement Microscopy,* San Diego, CA, pp 304–316.

### Theses and Dissertations

Bigelow, J. J. 2004. Dynamic field performance of glued-laminated timber bridges. MS thesis. Iowa State University, Ames, IA.

Sen, S. 2015. Impact of Pavements on the Urban Heat Island. MS thesis. University of Illinois at Urbana-Champaign, IL.

Yurdakul, E. Proportioning for Performance-Based Concrete Pavement Mixtures. PhD dissertation. Iowa State University, Ames, IA.

### Online Sources

ARRB Group.2010. *Sprayed Seal Information Centre, Seal types – South Africa*. [www.arrb.com.au/sealing/SAsealtype.html](http://www.arrb.com.au/sealing/SAsealtype.html). Last accessed January 2015.

MnDOT. 2013. *State Aid for Local Transportation*. State Aid ESAL Calculator retrieved June 19, 2014 from Minnesota Department of Transportation website: [www.dot.state.mn.us/stateaid/esal.html](http://www.dot.state.mn.us/stateaid/esal.html).

MnDOT. 2012. *Traffic Forecasting & Analysis*. Information and data retrieved June 19, 2014 from Minnesota Department of Transportation website: [www.dot.state.mn.us/traffic/data/](http://www.dot.state.mn.us/traffic/data/).

MnDOT. 1999. *Effectiveness of Law Enforcement in Reducing Vehicle Speeds in Work Zones.* Minnesota Department of Transportation, Office of Construction, Construction Programs Section, St. Paul, MN. [www.senate.gov/statement.html](http://www.senate.gov/statement.html). Last accessed February 2015.

# Appendix: Additional Help

## Appendix Numbering

When you have two or more appendices, designate them Appendix A, Appendix B, etc. In such cases, you may want to number tables, figures, and equations A.1, A.2… B.1, B.2, etc.

## Additional Resources

Be sure to check and try to follow the latest guidelines and/or instructions from your publisher. (Note that sometimes the publisher is the sponsor, but not always.)

For custom template/starter documents, information/document design services, and/or graphic design services, submit a Communications Request ([www.intrans.iastate.edu/commrequest/](http://www.intrans.iastate.edu/commrequest/)), which is also available from the Comm. Project Request link at the bottom of the InTrans homepage ([www.intrans.iastate.edu](http://www.intrans.iastate.edu) ), or contact the InTrans publications/communications group via email at [intranspubs@iastate.edu](mailto:intranspubs@iastate.edu) If you have any questions or would like to schedule InTrans reports Word training, you can also contact Sue Stokke at [sstokke@iastate.edu](mailto:sstokke@iastate.edu) or 515-294-0289.

## Brief Stylesheet

InTrans report editors use the following style sheet, based largely on *The* *Chicago Manual of Style* ([www.chicagomanualofstyle.org/16/contents.html](http://www.chicagomanualofstyle.org/16/contents.html)), as a quick reference during the copyediting process.

|  | **Usage Guideline** |
| --- | --- |
| abbreviations for state DOTs | * Spell out and define at first occurrence in text and abbreviate for additional occurrences after that in the Abstract, as a separate section, Acknowledgments, as a separate section, Executive Summary, as a separate section and first chapter of the body of the report for the remainder * Each DOT mentioned must be defined before using abbreviation * Use the name and abbreviation listed on each DOT’s website; e.g.,   Iowa Department of Transportation (Iowa DOT)  Minnesota Department of Transportation (MnDOT)  Nebraska Department of Roads (NDOR)  Wisconsin Department of Transportation (WisDOT)  Kentucky Transportation Cabinet (KYTC) |
| author-date citations | * Includes author’s last name followed by year of publication, with no punctuation between author and date (e.g., Pacini 1997) * For more than three authors, use the first author’s name followed by “et al.” Do not italicize “et al.” in in-text citations (e.g., Smith et al. 1997) |
|
| standards or  specifications | * AASHTO references have a space between the letter and the number, in this format: AASHTO T 152, AASHTO TP 75 * ASTM International references do *not* have a space between the letter and the number, in this format: ASTM C231, ASTM C103 |
| commas | * Items in a series are normally separated by commas * When a conjunction joins the last two elements in a series, place a comma before the conjunction (serial comma) * If the last element consists of a pair joined by *and*, the pair should still be preceded by a serial comma and the first *and* * An adverbial or participial phrase at the beginning of a sentence is usually followed by a comma * When independent clauses are joined by *and*, *but*, *or*, *so*, *yet*, or any other conjunction, a comma usually precedes the conjunction * Place a comma after a dependent clause that precedes a main clause |
| data | *Data* is the plural of *datum* and should be treated as a plural noun (“These data are…”) |
| e.g., and i.e., | Always use a comma after either of them |
| em dash (—) | * Sets off an amplifying or explanatory element * May be used to separate a subject, or a series of subjects, from a pronoun that introduces the main clause |
| en dash (–) | * Principally used to connect numbers (replacing the word *to*) and, less often, to connect words * If the word *from* precedes the first element, the word *to*, should be used, never a hyphen or en dash * If the word *between* precedes the first element, the word *and* should be used, never a hyphen or en dash |
| et al., i.e., | Common Latin words and abbreviations should not be italicized |
| etc. | Never use *etc.* at the end of a list that begins with *e.g.,* |
| hyphen (-) | * Number + abbreviation = no hyphen (a 3 ft high wall) * Number + percentage = no hyphen (10 percent raise) * Number (ordinal) + noun = hyphenated (third-floor apartment) * Number (spelled out) + noun = hyphenated before a noun, otherwise open (three-foot-high statuette versus 3 ft. high) * Age terms are hyphenated in both noun and adjective forms (a three-year-old pavement) * Retain the hyphen when the second part of a hyphenated expression is omitted, followed by a space (five- to ten-day curing period) |
| in situ, in vitro, a priori | Foreign words and phrases familiar to readers and listed in Webster’s are not italicized if used in an English context, and in situ is not hyphenated! |
| its and it’s | *Its* is the possessive form of *it*; *it’s* is the contraction for *it is*. |
| lists | * Numerals that order the items in a run-in (not bulleted) list should be enclosed in parentheses (and only use numerals for a list when it denotes either sequence or rank priority) * No punctuation precedes the first list item if the last word of the introductory material is a verb or a preposition * If the introductory material is an independent clause, a colon should precede the first parenthesis * Separate list items by commas unless any items require internal commas, in which case all items should be separated by semicolons * When each list item in a consists of a complete sentence or several sentences, the list is best set vertically (bulleted or numbered) |
| numbers | * In scientific/technical publications, spell out only single-digit numbers (one through nine) and use numerals for whole numbers 10 and above * Make an exception in cases where writing two numbers in close proximity would seem awkward (e.g., “nine or 10 miles”) * Always spell out a number that begins a sentence * Use a numeral when specifying a name (e.g., project Phase I or Site 1) |
| ordinals | * Usually spell out (e.g., first, second, third…); general rule for cardinal numbers applies for ordinals * If using ordinal numerals, use 1st, 2nd, etc., and no superscript |
| percent | Either spelled out (10 to 20 percent) or using the symbol (%) in text, as long as consistent throughout, and use the symbol in table headings and figures |
| time | Use numerals (with zeros for even hours) to emphasize exact times (e.g., 8:00 a.m.) and a.m. and p.m. (with periods) in body text |
| *state* or *county* | * Capitalize the word *State* or *County* after a name and when used as a part of the name * When preceding the name, usually capitalize in names of countries but leave lowercase in entities below the national level * Almost always lowercase when used alone |
| symbols, units | * If an abbreviation or a symbol is used for the unit of measure, the quantity is always expressed by a numeral (55 mph) * For two or more quantities, the abbreviation or symbol is repeated if it is closed up to the number but not if it is separated (35 to 50 percent) * Either spell out (e.g., inches, feet, square feet, yards, cubic yards) in text or abbreviate consistently throughout (e.g., 3 in., 1 ft, 7 ft2, 4 yd3) |
| *that* versus *which* | * *That* is used restrictively to narrow a category or identify a particular item being discussed (“any tree that is taller must be outside”) * *Which* is used non-restrictively, or to add information about an already-identified item (“the officer had a toy poodle, which is not a police dog”); which is always preceded by a comma |