



Preparing Papers for Peer Review and Presentation at the TRB Annual Meeting

(Updated June 2, 2015)

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ABOUT THIS GUIDE

To submit a paper to the Transportation Research Board (TRB) for peer review and presentation at the TRB Annual Meeting, follow the instructions in this guide. All authors are required to submit papers to TRB via the TRB paper submittal website (<https://www.mytrb.org/?PressAmpTarget=/Paper/Instructions>).

Papers submitted for presentation at the Annual Meeting are also peer reviewed for publication in the *Transportation Research Record: Journal of the Transportation Research Board*; an author may choose not to have a paper considered for publication.

This guide is updated periodically; authors should review all information in this guide before submitting papers for consideration. This guide covers the organization and formatting of manuscripts for peer review and for publication, as well as instructions for submission. Papers that do not follow the guidelines will be rejected without review.

Note: A separate document, *Preparing Papers Accepted for Publication in the Transportation Research Record*, contains guidelines for the reformatting and resubmittal of papers accepted for publication. For publication in the *Transportation Research Record*, a paper must first complete the peer review process as specified here; if accepted for publication, the paper must be resubmitted according to the guidelines posted at <http://trrjournalonline.trb.org>.

PLEASE NOTE FOR 2016

Papers must be submitted no later than August 1, 2015. The paper submission website will close when it is no longer August 1 anywhere in the world.

Editorial quality has increased in importance for peer-review decisions. This year, the peer review is placing increased emphasis on the editorial quality of submitted papers. A paper's editorial quality now accounts for 25% of the final weighted rating; peer reviewers will consider the paper's clarity, readability, organization, and other editorial factors in this portion of the final rating.

The time from paper submission to electronic publication in the journal will be reduced for early-acceptance papers. Every year, the initial peer review identifies papers that are ready for publication without changes—that is, the reviewers do not request substantive revisions and do not require a rereview before making a final decision about the paper's publication. TRB will ask the authors of these early-acceptance papers to submit their final manuscripts no later than November 15; these papers will immediately enter the publication process and will be published in the online edition of TRB's journal before being collected into a print edition. Because of this deadline for early publication in the journal, authors will not be able to submit a revised paper for the online Annual Meeting Compendium of Papers; instead, a note in the compendium will indicate that the paper is scheduled for publication in TRB's journal and that the final published version may contain additional edits. TRB will publish these early-acceptance papers electronically in the first part of 2016, before their appearance in a printed volume. The established timeline for the submittal of papers recommended for rereview remains unchanged—see the deadlines in the critical dates section below.

The electronic edition of the *Transportation Research Record* will become the journal of record as of 2016. TRB will continue to collect and release in printed volumes all papers accepted for publication. Each paper is assigned a unique digital object identifier, or DOI, indicating its online release and permanent web address.

CRITICAL DATES

June 1

TRB paper submission website opens. Authors who enter at least their abstract into the TRB paper submission website will have online access to the more than 14,800 papers that have been published in the *Transportation Research Record* since 1996 for background and references.

August 1

This is the hard deadline for submitting complete papers for possible presentation at the next Annual Meeting and for possible publication in the next *Transportation Research Record* journal series. Papers must be in PDF format and must be submitted no later than August 1, 2015. The paper submission website will close when it is no longer August 1 anywhere in the world. Papers for the next Annual Meeting or Record series are not accepted after this date.

November 15

- Deadline for submission of revised papers approved for presentation at the TRB Annual Meeting for inclusion in the Compendium of Papers and for rereview.
- Deadline for submission of final manuscripts of papers accepted for publication without revision; these papers will immediately enter editorial production for early publication in the electronic edition of the *Transportation Research Record*.

GENERAL GUIDELINES

All papers must be submitted in English. To assist authors in preparing papers, the review criteria for the peer review of papers are summarized below. Compliance with the manuscript formatting guidelines presented in the following sections will minimize delays for authors, peer reviewers, and staff and will facilitate subsequent revision of papers for publication.

TRB provides two tools to assist authors in conducting literature reviews and in identifying *Transportation Research Record* references for papers: **TRR for Authors** and **TRR Online**. See the section on references, [page 9](#), for more details.

PAPER REVIEW CRITERIA

Each paper is evaluated by a minimum of three reviewers selected by TRB in accordance with procedures approved by the Governing Board of the National Research Council of the National Academies. Authors should be mindful of the TRB review criteria, which apply to all papers.

The review criteria and thresholds for acceptance are the same whether the paper is assigned for presentation at a lectern or a poster session. Approximately 60% of the papers accepted for the Annual Meeting are presented in poster sessions. Approximately 20% of all submitted papers are chosen for publication in the *Transportation Research Record*.

- The abstract should concisely convey the content of the paper.
- The text should be written in simple, concise, and effective English.
- The content of the paper should be new or original, deal with issues that are timely, and have lasting value.
- Coverage of the subject should be complete, well organized, and supported by understandable and useful tables, figures, and references.
- Data presented must be valid, and the research methods described should be appropriate for the studies reported.
- Conclusions should be valid, appropriate, and properly supported.
- If the paper addresses government policies, programs, or procedures, the author should offer conclusions and recommendations in a way that recognizes sensitivities and alternative approaches.
- The paper must be useful to practitioners or researchers or both.
- Papers in which special interests are advocated, papers that are of a commercial nature, and papers that deal with subject matter outside the general area of interest of TRB will not be considered. A paper also may be rejected if it describes the properties of a product without disclosing its composition or manufacture. Generic names of products and equipment should be used unless the author considers the trade names or manufacturers' names essential to the purpose of the paper.
- The content must not have been published elsewhere. In some cases, however, TRB may accept papers that have been submitted to or published by other organizations, provided that the publication has had limited distribution and that the author has secured the necessary clearances and permissions. Such cases are handled individually; the author should contact the TRB Technical Activities Division Director.

PAPER SPECIFICATIONS

Clearances and Copyrighted Material

Authors must secure necessary clearances and written permissions for presentation or publication from any contracting or supervisory agencies involved in the research or from holders of copyrights on material used in the paper. Authors must have concurrence from coauthors or coworkers before submitting papers for presentation or publication by TRB, and all contributions to the work must be properly acknowledged. If a paper accepted for publication contains previously copyrighted material, **authors must obtain written permission from the copyright holder(s)**. TRB will assume the authors have obtained this permission before submission of the manuscript for inclusion in the TRB Annual Meeting Compendium of Papers. TRB will retain unrestricted rights to the material.

To obtain copyright permissions for papers submitted for presentation at the TRB Annual Meeting or published or accepted for publication in the *Transportation Research Record*, contact Phyllis Barber-Gray at pbarber@nas.edu or 202-334-2972.

Length of Manuscripts

The length of each paper, including the abstract, text, references, figures, and tables, must not exceed 7,500 words. Each table, figure, or photograph counts as 250 words. For example, if two figures and three tables are submitted, the abstract, text, and references may total no more than 6,250 words.

Note that 7,500 words is the maximum length; authors are encouraged to keep papers to the minimum length possible and to limit the number of figures and tables, providing only essential information of interest to the reader.

Alternatively, authors may choose to exclude references from the word count; under this option, a paper may include up to 35 references but must hold to a total word limit of 7,000 for the title, authors, abstract, headings and text, and tables and figures.

The title page of the paper should clearly note the following:

- **The total number of words in the abstract, text, and references (or the number of references if not included in the word count), and**
- **The number of figures (including photographs) and tables.**

Overlong papers will be rejected without review at the discretion of the peer review committee.

Titles

The wording of titles should be clear and concise; avoid lengthy clusters of nouns. Acronyms—except those of a few major transportation organizations (see list, page 13)—are not permitted in the titles of papers submitted for peer review or publication in the *Transportation Research Record*.

Length and Content of Abstracts

Each paper must have an abstract. The abstract must be no longer than 250 words, it must be self-contained, and it must not require reference to the paper to be understood. The abstract should present the primary objectives and scope of the study or the reasons for writing the paper; the techniques or approaches should be described only to the extent necessary for comprehension; and findings and conclusions should be presented concisely and informatively. The abstract should not contain unfamiliar terms that are not defined, undefined acronyms, reference citations, or displayed equations or lists.

Author Names and Affiliations

The name, affiliation, complete mailing address—an accurate and functional mail delivery location—telephone number, fax number, and e-mail address for each author must be listed on the title page. The list should be a single column. One corresponding author must be designated for papers with multiple authors. TRB will communicate only with the corresponding author, who is responsible for informing the coauthors of the paper's submission and disposition. An author should list his or her affiliation and address at the time of the research for the paper; if the affiliation has changed, the current affiliation and address also should be included. (Corresponding authors are responsible for notifying TRB of any change in address for themselves or coauthors by following the instructions in the submission confirmation letter.)

Style

The TRB publications office staff uses certain standard reference works for guidance. In matters of spelling, definition, and compounding of words, *Merriam-Webster's Collegiate Dictionary*, 11th edition, is generally followed. Published standards of scholarly organizations are accepted in questions involving usage of technical terms. Other matters of style and usage are based on documents widely accepted as authoritative (e.g., *Chicago Manual of Style*, 16th edition). Authors should avoid jargon, undefined acronyms, use of personal pronouns—particularly first-person singular and plural—and sexist language in their papers.

Organization of Manuscript

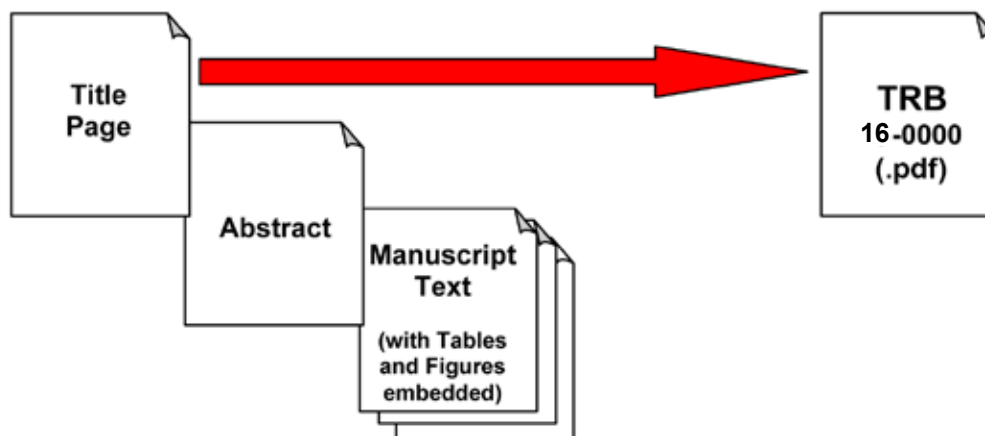
Submit the manuscript in a single electronic file organized in the following sequence (see [Figure 1](#)):

- Title page, including submission date, word count, and author names, affiliations, addresses, phone numbers, fax numbers, and e-mails (please indicate corresponding author);
- Abstract;
- Body of paper, with figures and tables embedded in the text, as close as possible to the related text;
- Acknowledgment (if any); and
- References.

Electronic File Formats

The paper must be submitted in PDF with the text line-numbered in the left margin, to facilitate the review process.

FIGURE 1 Anatomy of a paper submitted for TRB peer review and for the Compendium of Papers; the submitted file must be a PDF.



Manuscript Page Setup

For a sample paper showing model formatting, see <http://onlinepubs.trb.org/onlinepubs/dva/PaperFormatModel.doc>.

- Margins: 25.4 mm (1 in.) top; 25.4 mm (1 in.) left; adjust settings for bottom and right margins so that the text area is not more than 165.1 mm by 228.6 mm (6.5 in. by 9 in.).
- Font (typeface): Times New Roman, no smaller than 10 points.
- Numbering: Insert page numbers at upper right of each page; insert name(s) of author(s) at upper left of each page.
- Text: Single-spaced.
- **Line-number all text within the document.**
- Paragraphs: Indent first line 12.7 mm (0.5 in.); do not use an extra line space between paragraphs; do not indent first line after a subhead.
- Subheads: All subheads should be flush with the left margin, with one line space above.

FIRST-LEVEL SUBHEAD

(all capitals, boldface, on separate line)

Second-Level Subhead

(initial capitals, boldface, on separate line)

Third-Level Subhead

(initial capitals, italic, on separate line)

Fourth-Level Subhead (initial capitals, boldface, on same line as text, with extra letter space between the subhead and text)

Fifth-Level Subhead (initial capitals, italic, on same line as text, with extra letter space between the subhead and text)

- Bulleted and numbered lists: Indent first line 12.7 mm (0.5 in.); do not indent text runovers.
- Table titles and figure captions:

TABLE 5 Effects of All Factors

(Insert title above the table; “Table” is all capitals; title is initial capitals; all type is boldface; extra space but no punctuation after number; no punctuation at end of title.)

FIGURE 3 Example of results.

(Insert caption below the figure; “Figure” is all capitals; caption is sentence case; all type is boldface; extra space but no punctuation after number; period at end of caption.)

References

Searching and Citing Transportation Research Record Papers

TRB provides two tools to assist authors in conducting a literature review and identifying references for papers: TRR for Authors and TRR Online. The two tools are available to different audiences and have different features, but both provide access to the extensive information on research published in past volumes of the *Transportation Research Record*.

Citing *Transportation Research Record* papers raises the impact factor of the journal, which enhances the prestige of the journal and of the papers published. TRB hopes that authors will use one or both of these tools in preparing papers to be considered for presentation at Annual Meetings and publication in the *Transportation Research Record*.

In 2013, according to the Thomson Reuters Institute for Scientific Information (ISI), the *Transportation Research Record* recorded an ISI citation impact factor of 0.556, slightly higher than the 2012 impact factor of 0.441. This continues an upward trend in recent years, reflecting the efforts of the TRR Publication Board, established in 2006, and of authors and TRB staff to increase the journal's citation impact factor.

TRR for Authors Individual papers published in the *Transportation Research Record: Journal of the Transportation Research Board* are accessible online to authors preparing papers to be considered for presentation and for publication by TRB. Authors who enter abstracts into the TRB paper submission website will have access to the more than 14,800 papers published in the *Transportation Research Record* since 1996, including papers recommended for publication from the most recent Annual Meeting.

Authors may access this tool by logging into the TRB paper submission website and clicking on the “TRR” tab. Authors may search for previously published *Transportation Research Record* papers by using keyword, topic area, author, Record number, or publication year. Authors have until the August 1 paper submission deadline to submit their full papers and other required information.

Access to this database will be available to authors only during the following times:

- June 1 to August 1: Open to all authors who have entered at least an abstract of their paper on the TRB paper submission website; and
- October 15 to November 15: Open to authors whose papers have been accepted for presentation or publication.

TRR Online This search tool provides valuable information to the general public. It provides access to abstracts and references for all papers published in the *Transportation Research Record* since 1996 (it does not include papers from the previous Annual Meeting until they have been published in a hard-copy *Transportation Research Record*). Each paper has links to other *Transportation Research Record* publications by the same author, other papers within that volume, and to publications in other journals and literature databases. Authors who are employees of a TRB sponsor or who subscribe to or have access to a library that subscribes to TRR Online will have access to the full text of the published papers.

The link and more information about TRR Online can be found at www.TRB.org/TRROnline.

Guidelines for References

1. The reference list should contain only references that are cited in the text, numbered in the order in which they are first cited. Bibliographic lists will not be published. Papers that do not conform to the numbered reference style will be returned to the authors for correction.

2. Denote a reference at the appropriate place in the text with an italicized Arabic numeral in parentheses, e.g., (2). Do not denote text references with superscripts.

3. Do not include in the reference list personal communications, telephone conversations, or similar material that would not be available to readers electronically or in printed form in a library or from the originating agency. Instead, cite the unpublished work in the text and enclose the author's name along with the term "unpublished data" in parentheses.

4. Do not repeat a reference in the list, and do not use *ibid.*, *idem*, *op. cit.*, or *loc. cit.* If a reference is cited more than once in the text, repeat the number first assigned to the reference.

5. Use the following content guidelines and samples in preparing reference lists:

- **Printed sources.** Be sure that references to printed sources are complete. Include names of corporate or personal authors or editors, or both; title of article, chapter, book, or report; publisher or issuing agency; volume and issue or report number; page numbers; location of publisher; and year of publication.

TRB Publications

Dewan, S. A., and R. E. Smith. Creating Asset Management Reports from a Local Agency Pavement Management System. In *Transportation Research Record: Journal of the Transportation Research Board*, No. 1853, Transportation Research Board of the National Academies, Washington, D.C., 2003, pp. 13–20.

Book

Newland, D. E. *Random Vibrations: Spectral and Wavelet Analysis*. John Wiley & Sons, Inc., New York, 1998.

Periodical

Dawley, C. B., B. L. Hogenwiede, and K. O. Anderson. Mitigation of Instability Rutting of Asphalt Concrete Pavements in Lethbridge, Alberta, Canada. *Journal of Association of Asphalt Paving Technologists*, Vol. 59, 1990, pp. 481–508.

Sansalone, M., J. M. Lin, and W. B. Streett. Determining the Depths of Surface-Opening Cracks Using Impact-Generated Stress Waves and Time-of-Flight Techniques. *ACI Materials Journal*, Vol. 95, No. 2, 1998, pp. 168–177.

Government Report

Von Quintus, H. L., and A. L. Simpson. *Documentation of the Backcalculation of Layer Parameters for LTPP Test Sections*. Publication FHWA-RD-01-113. FHWA, U.S. Department of Transportation, 2002.

- **CD-ROMs.** References to CD-ROMs should include the same information as references to printed sources and have “CD-ROM” after the title.

Solaimanian, M., J. Harvey, M. Tahmoressi, and V. Tandon. Test Methods to Predict Moisture Sensitivity of Hot-Mix Asphalt Pavements. In *Moisture Sensitivity of Asphalt Pavements*. CD-ROM. Transportation Research Board of the National Academies, Washington, D.C., 2004, pp. 77–110.

- **Websites and electronic sources.** References to websites should include corporate or personal authors, title of document, date of document (if available), web address (complete URL), and date accessed by the author.

State and Local Policy Program. *Value Pricing*. Hubert H. Humphrey Institute of Public Affairs, University of Minnesota, Minneapolis. www.hhh.umn.edu/centers/slp/vp/vp_org. Accessed Feb. 5, 2008.

Guide to Developing Performance-Related Specifications. FHWA-RD-98-155, FHWA-RD-98-156, FHWA-RD-98-171, Vol. III, Appendix C. www.tfhr.gov/pavement/pccp/pavespec. Accessed March 5, 2003.

Nemmers, C. Transportation Asset Management. *Public Roads Magazine*, July 1997. www.tfhr.gov/pubrds/july97/tam.htm. Accessed Jan. 13, 2002.

- **Unpublished papers.** References to unpublished papers presented at meetings should include name(s) of author(s); title of paper; and title, sponsor(s), location, and dates or year of meeting.

Corbett, J. J. Toward Environmental Stewardship: Charting the Course for Marine Transportation. Presented at 83rd Annual Meeting of the Transportation Research Board, Washington, D.C., 2004.

- **Program manuals, tapes, or other documentation for models.** References to these items should cite the specific edition, the department responsible, and the year of release.

MINITAB User's Guide 2: Data Analysis and Quality Tools. Minitab, State College, Pa., 2000, pp. 27–52.

If a reference has no date, use “undated.” Detailed reference style instructions are available on request from the Publications Office.

Metrication

Authors are encouraged to provide measurements in both SI (metric) and U.S. customary units. The measurement unit of the original research should be followed by the equivalent conversion in parentheses. Papers accepted for publication without unit conversions will be published with the measurement units as submitted. TRB will not supply specific conversions for the papers; a general conversion chart appears in the front pages of each volume of the *Transportation Research Record*. [Table 1](#) supplies some frequently used unit conversion factors.

Note: When converting U.S. customary measures of weight (force) and mass into SI units, express weight (force) in newtons and mass in kilograms; express poundforce per square inch (psi or lbf/in.²) of pressure or stress in kilopascals (kPa). For SI units, use prefixes instead of powers of 10.

For tables and figures, provide only the units of the original research and show the base unit conversion in a footnote; for example, NOTE: 1 mi = 1.61 km. Alternatively, in figures, equivalent units may be shown on the top and right axes of data plots.

TABLE 1 Measurement Conversions

When You Know	Multiply by	To Find
Length		
inches (in.)	25.4	millimeters (mm)
feet (ft)	0.305	meters (m)
yards (yd)	0.914	meters (m)
miles (mi)	1.61	kilometers (km)
Area		
square inches (in. ²)	645.1	millimeters squared (mm ²)
square feet (ft ²)	0.093	meters squared (m ²)
square yards (yd ²)	0.836	meters squared (m ²)
acres	0.405	hectares (ha)
square miles (mi ²)	2.59	kilometers squared (km ²)
Volume		
fluid ounces (fluid oz)	29.57	milliliters (mL)
gallons (gal)	3.785	liters (L)
cubic feet (ft ³)	0.028	meters cubed (m ³)
cubic yards (yd ³)	0.765	meters cubed (m ³)
Mass		
ounces (oz)	28.35	grams (g)
pounds (lb)	0.454	kilograms (kg)
short tons (2,000 lb)(T)	0.907	megagrams (Mg)
Temperature (exact)		
Fahrenheit temperature (°F)	(F – 32)/1.8	Celsius temperature (°C)
Illumination		
footcandles (fc)	10.76	lux (lx)
footlamberts (fl)	3.426	candela/m ² (cd/m ²)
Force and Pressure or Stress		
poundforce (lbf)	4.45	newtons (N)
poundforce per square inch (psi)	6.89	kilopascals (kPa)

Equations

All variables should be defined at first use, either in the text or in the where list for the equation.

1. Fractions in displayed equations should be stacked, in accordance with preferred mathematical practice.
2. If a displayed equation is numbered, use an Arabic numeral in parentheses, placed flush right.
3. Carefully distinguish the following:
 - All capital and lowercase letters;
 - Capital O (“oh”), lowercase o (“oh”), and 0 (zero);
 - Lowercase l (“el”) and number 1 (one);
 - Letter X, Greek chi (χ), and multiplication sign \times ;
 - Prime ‘, apostrophe ’, and superscript one ¹; and
 - English and Greek letters such as
 - B and beta (β), upper- or lowercase k and kappa (κ),
 - n and eta (η), v and nu (ν),
 - u and upsilon (υ), u and mu (μ), and
 - Upper- or lowercase p and rho (ρ), and w and lowercase omega (ω).

Footnotes

Do not use footnotes to the text. Incorporate the information into the text or delete the notes.

Abbreviations, Acronyms, and Symbols

Abbreviations, acronyms, and symbols must be fully defined at first use in both the abstract and the paper; the full term should be spelled out first, followed by the abbreviated term in parentheses. The following acronyms may be used without definition:

AASHO	American Association of State Highway Officials
AASHTO	American Association of State Highway and Transportation Officials
ACRP	Airport Cooperative Research Program
APTA	American Public Transportation Association
ASCE	American Society of Civil Engineers
ASTM	American Society for Testing and Materials (known by abbreviation only)
FAA	Federal Aviation Administration
FHWA	Federal Highway Administration
FMCSA	Federal Motor Carrier Safety Administration
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
IEEE	Institute of Electrical and Electronics Engineers
ISO	International Organization for Standardization
ITE	Institute of Transportation Engineers
NASA	National Aeronautics and Space Administration
NCHRP	National Cooperative Highway Research Program
NHTSA	National Highway Traffic Safety Administration
RITA	Research and Innovative Technology Administration
SAE	Society of Automotive Engineers
SHRP	Strategic Highway Research Program
TCRP	Transit Cooperative Research Program
TRB	Transportation Research Board

Acknowledgments

Authors of papers that report results of research sponsored directly or indirectly by federal programs should indicate this sponsorship in an Acknowledgment section at the end of the text, above References. Contract, award, or project codes or numbers are not published in the *Transportation Research Record*.

Appendixes

Do not use appendixes. Include pertinent material in the paper itself or, where necessary, include a note that background material—such as derivation of formulas, specifications, or survey forms—is available from the author or in another report, which should be cited in the reference list.

Tables and Figures

For peer review and for the Compendium of Papers, figures and tables should be embedded in the text, as close as possible to the related text. Color is permissible.

Tables

Tables should supplement, not duplicate, the text.

1. Tables must conform to TRB style for tables as closely as possible.
 - All tabular material should be single-spaced in a font (typeface) no smaller than 10 points. Use the same font for all tables.
 - Place titles flush left to align with the left margin of the table; use boldface. The word “TABLE” should be in all-capital letters; use initial capitals for the remaining words in the title.
 - Do not submit a table in separate parts or sections that introduce new columns.
 - A table must be structured so that the data in each column pertain to the column heading.
 - New columns and column headings with new data rows may not be introduced farther down within the established format of a table. New columns and column headings properly define a distinct table and should be presented separately with an appropriate title and table number.
 - Tables should not incorporate photographs, illustrations, or other material that cannot be typeset. Graphic materials should be presented as separate figures.
 - Give each column in the table a heading. Place abbreviated measurement terms in parentheses under the column heading. All headings should be aligned in flush left format.
 - To adhere to Accessibility Guidelines for the vision-impaired reader, avoid the use of spanner heads. For example, “Production per Year” and “Production per Day” should appear as

Production
per Year

Production
per Day

- Insert a rule that extends across the full width of the table under the column heads.
- Insert a full-width rule at the end of the table (and above the footnotes, if any).
- Use lowercase italic superscript letters for footnotes.

- Do not leave empty cells in a table. Insert a placeholder that indicates why the cells contain no data. Define the meaning of the placeholder in a general note to the table: for example, “NA = not available; na = not applicable; — = missing data.”
 - When a dash (—) is used in a table, indicate its meaning in a footnote (for example, missing data, incomplete research, data not applicable or unavailable, or problem investigated but no results).
2. Check the accuracy of all totals included in tables before submitting the paper.
 3. For use of measurements, see section on metrication.
 4. Do not use dots or screens.
 5. Do not place a box or ruled frame around a finished table.

Figures

Use the following guidelines for figures:

1. Photographs should be high resolution (at least 300 dpi at a size of 4 in. × 5 in.).
2. Give each figure a caption. Place a figure caption single-spaced below each figure. If a figure contains several parts, label each part with a letter in parentheses—(a), (b), (c), etc.—use the same size type as that in the rest of the figure, and cite each labeled part in the caption.
3. Define in the caption all abbreviations, acronyms, and variables used in the figure.
4. Number figures consecutively in the order first cited in the text, using Arabic numerals. Reference must be made to each figure by number at the appropriate place in the text.
5. **Avoid the use of dots or screens in figures and spreadsheet charts, especially in areas that include type.**
 - If dots or screens are used in text areas, they should be no more than 30% black.
 - If more than one dot or screen weight is used, there should be a difference of at least 20% between dot or screen values.
 - Legends identifying the significance of dotted, screened, or crosshatched elements must be included in the figure.
6. Do not place a box or ruled frame around a finished figure.
7. Figures should be clear and legible:
 - The font (typeface) must be easily readable, not too small.
 - Use the same font for all figures.
 - Letters and symbols must be uniform and the same size throughout the figure (e.g., if wording on the ordinate and abscissa is in 10-point type, the symbols used to identify the data points also should be in 10-point type).
 - Line weights (except for lines indicating different data series in a graph) also must be uniform.
8. For use of measurements, see section on metrication.

PAPER SUBMISSION

Authors must convert their papers for peer review to PDF format before submission to the TRB website. Authors are reminded that the best way to avoid last-minute complications is to submit their paper well before the deadline. Authors are required to line-number the text of their papers before converting the files to PDF. Line numbering will facilitate the review process.

Tips for line numbering:

1. Check word processing Help for instructions on document line-numbering—starting at 1, counting by 1, and restarting each page.
2. For example, in Microsoft Word 2010, insert line numbers as follows:
 - Click on the Page Layout tab of the menu bar; then click on Page Setup, which will bring up the Page Setup box.
 - Click on the Layout tab in the Page Setup box; click on the Line Numbers button at the bottom left; click on Add Line Numbering; select the options to Start at 1, Auto, and Count by 1; and select the option to Restart each page.

Tips for converting files to PDF:

1. Line numbering—Turn on document line numbering before converting to PDF.
2. Fonts—Use Times New Roman, no smaller than 10 points, as described in the section on manuscript page setup. Any nonstandard fonts must be embedded into the PDF file.
3. Charts—Click on Paste to insert charts or images from other applications into the Word document. Do not use Paste Link.
4. Equations—Check the equations to make sure that symbol substitution has not occurred in the conversion to PDF.
5. Images—Whenever possible, use the JPEG image format (.jpg) instead of the bitmap format (.bmp), because JPEG images are compressed.
6. Track changes—Make sure that all changes are accepted before converting to PDF. If changes have not been accepted, the markup will appear in the converted document.
7. Check the converted PDF for accuracy and for font and formatting problems before submitting the file to TRB.

OTHER INFORMATION

Contacting TRB

Visit the TRB website to find the appropriate TRB staff representative:
www.TRB.org/AboutTRB/technicalactivitiesdivisionstaff.aspx.

Annual Meeting Registration Fees

All presenters of papers qualify for reduced registration fees at the Annual Meeting. TRB is unable to reimburse travel and other expenses of participants.

**TRANSPORTATION RESEARCH RECORD:
JOURNAL OF THE TRANSPORTATION RESEARCH BOARD**

Peer Review Process

The *Transportation Research Record: Journal of the Transportation Research Board* publishes approximately 20% of the more than 5,000 papers that are peer reviewed each year. The mission of the Transportation Research Board (TRB) is to disseminate research results to the transportation community. The Record series contains applied and theoretical research results as well as papers on research implementation.

The TRB peer review process for the publication of papers allows a minimum of 30 days for initial review and 60 days for rereview, if needed, to ensure that only the highest-quality papers are published. A minimum of three reviews are required for a publication recommendation. The process also allows for scholarly discussion of any paper scheduled for publication, along with an author-prepared closure.

The basic elements of the rigorous peer review of papers submitted to TRB for publication are described below.

Paper Submittal: June 1–August 1

Papers may be submitted to TRB at any time. However, most authors use the TRB web-based electronic submission process available between June 1 and August 1, for publication in the following year's Record series.

Initial Review: August 15–November 15

TRB staff assigns each paper by technical content to a committee that administers the peer review. The committee chair assigns at least three knowledgeable reviewers to each paper. The initial review is completed by mid-September.

By October 1, committee chairs make a preliminary recommendation, placing each paper in one of the following categories:

1. Publish as submitted or with minor revisions;
2. Reconsider for publication, pending author changes and re-review; or
3. Reject for publication.

By late October, TRB communicates the results of the initial review to the corresponding author. Corresponding authors communicate the information to coauthors.

- Authors in Category 1 (above) must submit their manuscripts for TRB editorial production by November 15, in accordance with the instructions for final manuscript submittal for publication. These early-acceptance papers will be published online in the electronic edition of the journal, months before their appearance in a printed volume.

- Authors of papers in Category 2 (above) must submit a revised version by November 15 addressing all reviewer comments, along with an explanation of how the comments have been addressed.

Rereview: November 20–January 25

The committee chair sends the Category 2 revised papers to the initial reviewers for rereview. After rereview, the chair makes the final recommendation on papers in Category 2. If the paper has been

revised to the committee's satisfaction and ranks among the best papers, the chair may recommend publication. The chair communicates the results of the rereview to the authors.

Discussions and Closures: February 1–May 15

Discussions may be submitted for papers that will be published. TRB policy is to publish the paper, the discussion, and the author's closure in the same Record.

Many papers considered for publication in the *Transportation Research Record* are also considered for presentation at TRB meetings. Individuals interested in submitting a discussion of any paper presented at a TRB meeting must notify TRB no later than February 1. If the paper has been recommended for publication in the *Transportation Research Record*, the discussion must be submitted to TRB no later than April 15. A copy of this communication is sent to the author and the committee chair.

The committee chair reviews the discussion for appropriateness and asks the author to prepare a closure to be submitted to TRB by May 15. The committee chair reviews the closure for appropriateness. After the committee chair approves both discussion and closure, the paper, the discussion, and the closure are included for publication together in the same Record.

Final Submittal of Revised Manuscripts: March 15

In early February, TRB requests a final manuscript for the Category 2, revised papers that have been accepted for publication; the final manuscripts must be submitted by March 15. TRB also notifies authors whose papers were not accepted for publication. TRB makes a concerted effort to publish all papers by December 31; some volumes, however, are released in January and February.

Paper Awards: April to January

The TRB Executive Committee has authorized annual awards sponsored by Groups in the Technical Activities Division for outstanding published papers:

- Charley V. Wootan Award (Policy and Organization Group);
- Pyke Johnson Award (Planning and Environment Group);
- K. B. Woods Award (Design and Construction Group);
- D. Grant Mickle Award (Operations and Preservation Group);
- John C. Vance Award (Legal Resources Group);
- Patricia F. Waller Award (Safety and System Users Group); and
- William W. Millar Award (Public Transportation Group).

Other Groups also may nominate published papers for any of the awards above. In addition, each Group may present a Fred Burggraf Award to authors 35 years of age or younger.

Peer reviewers are asked to identify papers worthy of award consideration. Each Group reviews all papers nominated for awards and makes a recommendation to TRB by September 1. TRB notifies winners of the awards, which are presented at the following TRB Annual Meeting.

THE NATIONAL ACADEMIES

Advisers to the Nation on Science, Engineering, and Medicine

The **National Academy of Sciences** is a private, nonprofit, self-perpetuating society of distinguished scholars engaged in scientific and engineering research, dedicated to the furtherance of science and technology and to their use for the general welfare. On the authority of the charter granted to it by the Congress in 1863, the Academy has a mandate that requires it to advise the federal government on scientific and technical matters. Dr. Ralph J. Cicerone is president of the National Academy of Sciences.

The **National Academy of Engineering** was established in 1964, under the charter of the National Academy of Sciences, as a parallel organization of outstanding engineers. It is autonomous in its administration and in the selection of its members, sharing with the National Academy of Sciences the responsibility for advising the federal government. The National Academy of Engineering also sponsors engineering programs aimed at meeting national needs, encourages education and research, and recognizes the superior achievements of engineers. Dr. C. D. (Dan) Mote, Jr., is president of the National Academy of Engineering.

The **Institute of Medicine** was established in 1970 by the National Academy of Sciences to secure the services of eminent members of appropriate professions in the examination of policy matters pertaining to the health of the public. The Institute acts under the responsibility given to the National Academy of Sciences by its congressional charter to be an adviser to the federal government and, on its own initiative, to identify issues of medical care, research, and education. Dr. Victor J. Dzau is president of the Institute of Medicine.

The **National Research Council** was organized by the National Academy of Sciences in 1916 to associate the broad community of science and technology with the Academy's purposes of furthering knowledge and advising the federal government. Functioning in accordance with general policies determined by the Academy, the Council has become the principal operating agency of both the National Academy of Sciences and the National Academy of Engineering in providing services to the government, the public, and the scientific and engineering communities. The Council is administered jointly by both Academies and the Institute of Medicine. Dr. Ralph J. Cicerone and Dr. C. D. (Dan) Mote, Jr., are chair and vice chair, respectively, of the National Research Council.

The **Transportation Research Board** is one of six major divisions of the National Research Council. The mission of the Transportation Research Board is to provide leadership in transportation innovation and progress through research and information exchange, conducted within a setting that is objective, interdisciplinary, and multimodal. The Board's varied activities annually engage about 7,000 engineers, scientists, and other transportation researchers and practitioners from the public and private sectors and academia, all of whom contribute their expertise in the public interest. The program is supported by state transportation departments, federal agencies including the component administrations of the U.S. Department of Transportation, and other organizations and individuals interested in the development of transportation.
www.TRB.org

www.national-academies.org



TRANSPORTATION RESEARCH BOARD
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