Writing a Paper for the *Transportation Research Record*
The Creative Part of the Project

Writing a technical paper is a difficult task, whether it's your first paper or twentieth. Each journal's publisher and reviewers have unique expectations, goals, and concerns. The following instructions will help you decide if you should write a paper for the *Transportation Research Record* (TRR). The guidance describes what TRR reviewers look for, suggestions about the paper's content, advice on style, and reviews the writing process. Written by Transportation Research Board (TRB) staff, volunteers, TRR authors, and members of the TRR Publication Board, this guide is intended to improve the dissemination of transportation research by improving the quality of transportation research papers.

Major Points

- Carefully consider whether you should write a paper.
- Understand the TRB review process and what the reviewers are looking for.
- Observe all of the ethical rules for technical papers.
- Submit a clear, well-written paper that follows all of the TRR specifications.

As an author, your main goal in a technical paper is to tell a good story. Crafting a good paper not only improves the odds of publication but also improves the chances of making an impact on the transportation profession and practice. The quality of technical papers is not measured by the number of equations or the amount of jargon—a high-quality paper tells a compelling story.

Should You Write a TRB Paper?

You may be eager to write a paper for TRB, but first consider the requirements carefully. Before investing time in writing a technical paper, ask what previously was known about the topic, what is known now that you have completed your work, and what is the difference? If the difference is not substantial and does not advance the state of knowledge, the state of the practice, or the state of the art, then the paper topic is not worthwhile. Tweaking an equation, for example, is not an advance. TRR reviewers look for papers that present a substantive advance and a good reason that future readers will care. If the reviewers do not find both, your paper will not proceed.

If the project or the research you are writing about is not complete, the story is not complete—only a few chapters or scenes are available. Demand is limited for a literature review of an upcoming project or for a description of what you will be working on next year. Progress reports do not merit publication in a TRR.

Because TRB papers run the gamut from materials testing to policy evaluation, providing specific criteria for the content of a paper is difficult. But whatever the type of paper you are writing, reporting on a set of facts is not sufficient—you must apply critical thinking to your work and provide readers with a clear statement of what was learned and why they should care. Again, the goal should be to tell an important story.

Top 10 Ways to Get Your Paper Rejected
(drawn from *1*)

1. Ignore the word limit.
2. Ignore the formatting rules.
3. Include spelling and grammar mistakes.
4. Do not provide relevant references.
5. Submit nearly identical papers to several committees or even one committee.
6. Do not revise your paper—think of it as a work of art.
7. Insert random tables and graphics.
8. Never explain the main findings—your readers should be able to figure that out.
9. Do not respond to reviewer comments.
10. Miss deadlines.

Before Beginning Your Paper

After determining that your topic warrants publication, how should you proceed? First, learn the TRR's rules for submission deadlines, maximum length, and copyright requirements (see the TRR-specific references at the end of this document). Even if you have submitted papers to the TRR before, it is good to review the rules. Experienced authors often violate the rules and then are shocked when their papers are rejected. The rules apply to all papers submitted to TRB and reviewed by TRR reviewers, including those for presentation only.

Warning: TRR papers cannot include explicit or implicit advocacy of commercial software or products.

Understand the Process

Understanding the process for TRR review and publication is critical.

- ***Speed*.** The TRR review and publication process moves quickly. Initial review is completed in one month. After the first review, only about 30% of the papers remain under consideration for publication. The authors of those papers have one month to respond to reviewer comments and to submit a revised paper. The second review takes place during the next two months.
- ***Committee Review*.** TRB standing technical committees conduct the reviews of papers. Authors should be familiar with the TRB committees. Review the committees and their scopes at http://trb.org/AboutTRB/StandingCommitteesMT.aspx. Papers outside the scope of any TRB committee will not be reviewed. Authors of papers with topics that cut across the scopes of several committees should communicate with TRB staff officers to ensure that the paper is handled correctly; papers with crosscutting topics will be reviewed.
- ***Quantity*.** Each year, TRB processes approximately 5,000 papers in a range of topics. Because of the large number of papers, adherence to procedures is essential for efficiency—the system and reviewers are not forgiving. Authors must comply with the rules and submit well-thought-out papers.
- ***Reviewer constraints*.** TRR reviewers often read through many papers in a short period; they are volunteers and contribute their time and expertise while fulfilling the responsibilities of their paying jobs and personal lives. They do not have the time to figure out a paper that is difficult to read. In addition, the reviewer assignment may not be perfect—every reviewer assigned to your paper may not be well-versed in all aspects of your topic; this is a common occurrence in any technical review. Therefore make sure that your paper is understandable to someone who may be less than a perfect expert (*2*).
- ***Quality*.** After the re-review of revised papers, another 5-10% is rejected. Only 20% of the papers submitted each year are accepted for publication. This is a low acceptance rate in the field of transportation. Your paper must be very good to make the cut.
- ***Electronic processing***. TRR papers are distributed to reviewers electronically, and most of them conduct the reviews online. Paper and electronic media require different reading styles and evaluation approaches. The structure and important points of a paper, therefore, should stand out naturally.

The TRR's fast process has many benefits—for example, getting the research results out quickly. The main drawback is that there are no do-overs. Each paper stands on its own merits; once a paper is rejected, no opportunities are given for another try that year.

Understand the Reviewers' Perspective
An author should consider and understand what the TRR reviewers are looking for. The Paper Reviewer Instructions is an excellent reference for authors.

The most frequent criticisms of papers submitted for TRR review are the following:

- The point of the paper is not clear.
- The writing is so bad that it takes away from the research.
- The findings are not supported in a logical manner.
- The literature review is inadequate.
- Data are inconsistent or of poor quality.
- The statistical analysis is poor.
- The measures are not scientifically valid.

TRR reviewers reject papers that report on dead-end research and accept those that can lead to new and interesting advances. They also look for papers that will generate broad interest and lasting value.

Writing a technical paper is difficult, and authors should educate themselves about the process. The references and additional resources at the end of this document are a good starting point.

Paper Categories: Presentation Only, Publication Only, or Both

A paper may be submitted in one of three categories: presentation only, publication only, or both. All papers must conform to the word limit and formatting rules; all papers go through the same initial review and are evaluated under the same criteria. All papers accepted for presentation, and all papers accepted for publication, or papers still under consideration for publication, may be revised and resubmitted by November 15. They will be included on the online Annual Meeting Compendium of Papers, unless the author opts out.

Many papers undergo a re-review between November 15 and the end of January. Final publication decisions are typically sent to authors in mid-February.

Ethical and Other Considerations
Every journal deals with the same basic ethical issues—the list below is not specific to the TRR. Authors must avoid violations of the basic rules.

***Plagiarism*:** Plagiarism is the use of information or concepts from another article, website, or report without clearly attributing the source. Plagiarism is not acceptable. Phrases, sentences, or sections taken from another document must appear within quotation marks. TRR reviewers are well-read—they often review papers for other journals, and they know the transportation literature; they will detect plagiarism.

Submittal to Other Journals: 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.

***Fragmented Publication*:** Breaking a single piece of work into many papers dilutes the information, makes it difficult for reviewers or readers to assess the advances that may have been made, and irritates reviewers who must evaluate several papers derived from the same project. Reporting on many small aspects of a single project in multiple papers may result in all of the papers being rejected because none of the papers presents a good story (*3*). **If an author does so, each paper must be a stand-alone paper; i.e., papers with a Part I and II will not be accepted for review.**

Authorship Disputes: Identifying the authors of a paper can be a cause of contention and should be addressed early in the research process and before the writing begins (*4*). The generally accepted

rules for authorship credit are as follows: “1) substantial contributions to conception and design, or acquisition of data, or analysis and interpretation of data; 2) drafting the article or revising it critically for important intellectual content; and 3) final approval of version to be published. All three of these conditions should be met for authorship, (*4*) Anyone credited as an author should have played a significant role in the research and in the writing of the paper.” Honorary credit for authorship is dishonest.

Paper Structure and Outline

TRB papers vary widely, from technical evaluations of material or of analytical processes to policy topics that explore the impacts of governmental actions or projects. Each TRB paper therefore may not include all of the sections below.

***Title*:** The title is the first place an author can lose reviewers and potential readers. A good title clearly describes the content of the paper in an interesting and succinct manner. A good title takes work. The title should not contain jargon, acronyms, or terminology not well known to the general public.

***Abstract*:** The abstract must tell readers quickly and succinctly what they can learn from the paper and how it applies to them. An abstract outlines the story and includes the end of the story. A well-written abstract provides the context for readers new to the topic area and summarizes the results in enough detail for a topic expert. If you want readers to invest the time to read your paper, capture their interest with your abstract. The abstract should be able to stand alone—later on it often will be the only part of your paper that is read. In addition, many indexing services are authorized to publish TRR paper abstracts separately.

***Introduction*:** An introduction consists of three major components: the literature review and background; an outline of the principal findings and why they matter; and a description of the framework of the paper. The literature review may be covered in its own section, particularly in academic papers. The introduction provides a context for the research or activity and should make clear why a reader should care. The introduction also should make clear where the background stops and where the author’s contribution starts (*5*). Your principal finding should be reduced to the most critical points; the introduction should focus the material for your reader (*6*). A surprise ending may be appropriate in a work of fiction but is not effective in a technical paper. By the end of the introduction, the reader should know what you learned and should be motivated to read more. An introduction that closes with a boring and formulaic statement “the next section will describe…, the section after that will cover…, and the final section discusses…” is deadly and will guarantee that a reader will not want to continue. Instead, give the highlights of the story or proceed directly to the next section.

***Literature Reviews*:** The literature review is part of the story you are crafting—it sets the stage for your research, establishes why the research is important, and how you were led to your work. A list of papers with summaries will not suffice. Deciding what material to include in the literature review is critical—what breadth of research to cover, how far back to go, and how much analysis to provide will depend on the topic. Describe how your paper builds on the earlier work and advances the practice. Developing a literature review is a balancing act—too much material can lose your reader, but too little can leave the impression that your work is not on solid ground. Claerbout’s *Scrutiny of the Introduction* is excellent resource on introductions and literature reviews (*8*).

***Materials, Methods, and Data*:** The section presenting materials, methods, and data will vary by the type of paper but should provide enough detail that a reader can “repeat your study and reproduce the results” (*9*). For example, a policy paper might describe the case study process or the interview process. The discussion in this section should be clear, chronological, and precise.

***Tables, Figures, and Graphics*:** Do not include tables, figures, or graphics if the information can be expressed in one sentence. A table or figure counts as 250 words against the TRR word limit and can break up the flow of the story you are trying to tell. All tables and figures should be cited in the text—the reader needs to know when the information is important in the story. A reader should also be able to understand the information in a table or figure without referring to the text. Include clear titles and labels, units, and significant digits; align columns and text appropriately; spell out variables; and use consistent styles, fonts, and sizes (*6*).

Discussion of Results: This portion of your paper highlights the most critical findings, compares your results with those of earlier efforts, and provides policy or real-world implications. Describe the findings that can be drawn—do not expect readers to deduce critical trends on their own. Identify the principles that your results establish or reinforce. Clearly state the main points you want the reader to remember.

***Conclusion*:** TRR papers are limited in length—therefore each section should contribute something new to the paper. A conclusion should not recap the preceding text. If you have something new and important to say in a conclusion, present it; otherwise, save your words for the main body of the paper. "A good conclusion says things that become significant after the paper has been read (*10*)." In some cases, a "no finding" conclusion is important and makes the paper worthy of publication; however, telling that type of story can be more difficult.

***Acknowledgment*:** An acknowledgment recognizes funding sources for the research and identifies individuals who contributed to the work but did not meet the criteria for authorship.

***References*:** The TRR reviewers will expect the references to include seminal works that have preceded your efforts. Authors should strive for a mix of foundational research and new research, with a limited amount of unpublished research or reports that have not been through peer review (*11*). Authors of papers about policy or projects often make the mistake of not including references. This is a critical oversight, because policies and projects typically are based on or draw from previous, documented attempts. TRR authors receive free access to the full text of papers published in the TRR since 1996; see www.TRB.org/TRRforAuthors.

Writing Style

The best general advice on writing is to read *The Elements of Style* (*12*) and then to reread it. All of the advice in this excellent 100-page book applies to TRR papers—for example,

- "Make the paragraph the unit of composition: one **paragraph to each topic."**
- **"As a rule, begin each paragraph with a topic sentence; end** it in conformity with the beginning."
- "Use the active voice."
- "Put statements in positive form."
- "Omit needless words."
- "Avoid a succession of loose sentences."

Remember that the reviewers will be reading through many papers in a short time. Making their job easy by writing clearly will be to your advantage. Text that is confusing and that lacks clarity may cause reviewers to give up on a paper. If your paper makes it through the review process, it still will have to compete for readers' time—therefore provide a structure and employ a style that guide the reader through the document. Readers should always know where they are in the story and where you are going. The best findings cannot overcome poor writing.

The Writing Process

Writing, editing, and initial review are separate but critical steps. Each step takes time—start early. TRB's August 1 paper deadline catches everyone by surprise, although it does not change from year to year. Remember that no do-overs are permitted after August 1. Your paper is judged on its own merits—the typographical errors you did not catch because you ran out of time will stand out.

Writing should begin with an outline—a logical step that many authors skip. If you plan on writing a paper about a research effort or project, start thinking about the paper's content at the beginning of the project. Outlining the paper early on can sharpen your thinking during the project and facilitate the writing process.

Editing begins after you have completed the draft. Set the draft aside for a while and then start editing. Go through the document several times. At least three editorial iterations are good practice. One review should focus on eliminating unnecessary words and phrases. Reading the document out loud can highlight missing transitions and content.

Reviews by an editor and by peers are invaluable. A review before you have made some editing iterations is less useful. Have your paper reviewed by an editor or by a peer who is a good writer. In addition, seeking out at least one peer reviewer who is an expert in your field and one who is not can yield valuable insights to improve your paper—both should be able to follow your paper, but each will offer different suggestions.

After Submitting Your Paper

You will hear from the paper review coordinator and TRB staff about your paper's status in mid-to-late October. The e-mail from the paper review coordinator will include the TRR reviewer comments. These comments are valuable, whether or not the paper is being considered for publication. If your paper is rejected for publication in the TRR, you are free to use the reviewer's comments to improve your paper and to submit it elsewhere. If your paper is still being considered for publication, or has been accepted for publication in the TRR, use the reviewer comments to update and improve your paper before the next step in the review process.

TRB-Specific References –

- Paper Submission - The paper submission link will lead the user through MyTRB to the "tab" for paper submissions. They will have to login to MyTRB to access the Paper Submission tab.
- Paper Author Resource Page
- Guide for Submitting Papers for Peer Review and AM Presentation
- Submitting your Paper to TRB and What Happens Afterward Paper Submittal Instructions
- Paper Reviewer Instructions
- Paper Review Coordinator Instructions
- Paper Triage Process
- Paper Clearances and Copyrighted Material

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6. Gail Kaiser, Craig Partridge, Sumit Roy, Eric Siegel, Sal Stolfo, Luca Trevisan, Yechiam Yemini, and Erez Zadok. *Writing Technical Articles*. www.cs.columbia.edu/~hgs/etc/writing-style.html.
6. Chandra Bhat, Abdul Pinjari, Naveen Eluru, Ipek Sener, Rachael Copperman, and Jeff LaMondia.. *Suggestions and Guidelines for Good Writing*. Unpublished.
8. Jon Claerbout. *Scrutiny of the Introduction*. GNU General Public License, 1995. http://sepwww.stanford.edu/sep/prof/Intro.html.
9. How Do I Write a Scientific Paper? *SciDev.Net*, Feb. 6, 2008. http://www.scidev.net/en/practical-guides/how-do-i-write-a-scientific-paper-.html.
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12. William Strunk, Jr., and E. B. White. *The Elements of Style*. 4th ed., Longman, New York, 1999.

Additional Resources

Bimal K. Bose. *How to Get a Paper Accepted in TRANSACTIONS?* http://ieee-ies.org/tii/HowToTransactionsPaper.pdf.
Michael Ernst. *Writing a Technical Paper.* April 2005 (Updated April 21, 2010). www.sc.washington.edu/homes/mernst/advice/write-technical-paper.html.
Glenn R. Schmidt, Joe Harris, Shanna Boleman, and John Roans. How to Get Your Paper Published. *50th Annual Reciprocal Meat Conference*, American Meat Science Association, pp. 151 –152.
Jonathan Shewchuk. *Three Sins of Authors in Computer Science and Math.* http://www.cs.cmu.edu/~jrs/sins.html.
Tao Xie and Yuan Xie. *Advice Collection*. people.engr.ncsu.edu/txie/advice.htm.

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