

Call For Papers
TRB 102nd Annual Meeting
January 8–12, 2023

1. Call Title

Towards Reproducible Transportation Research

2. Sponsoring Committee

ACP50: Traffic Flow Theory and Characteristics (primary sponsoring committee)

AEP40: Transportation Network Modeling Committee

3. Call Description

Transparency and reproducibility are critical for validating a scientific study, by enabling a third party to easily and conveniently obtain the identical results reported in a scientific paper. Simply speaking, reproducible research is an extra (but very important) effort from the authors of a publication to share their data, codes, and instructions on how to piece them together for this purpose. We are at a crossroads where we need to rethink how academic work should be conducted, documented and disseminated, with a belief that reproducible research is an unstoppable and inevitable future. Such a belief is not new and has been gaining a massive following in many disciplines (e.g., biostatistics, artificial intelligence/machine learning, signal processing, statistical analysis, etc.), catalyzed by powerful, user-friendly, and freely available tools. Unfortunately, to date the Transportation Research community has not paid much attention to this reproducible research movement.

This call for papers aims to attract more attention from researchers in the Transportation Research community on the importance of making their work reproducible, stimulate more discussions in our community on how to promote and reward reproducible research, and ultimately initiate the development of an actionable strategy for setting up a guideline on how to make reproducibility an essential step of the paper review process in the Transportation Research community. We believe now it is a good timing to promote reproducible research in our community primarily for three reasons.

- 1) the number of shared datasets, and open-source software packages has been significantly increasing over recent years,
- 2) Transportation Research is becoming even more interdisciplinary as researchers with various backgrounds are avidly conducting research to solve challenges related to connected, cooperative and automated mobility,
- 3) and we believe that making our research reproducible is crucial for increasing the impact of our community when we interact with researchers from other disciplines, engineers, policy makers, etc.

While more and more researchers in our field are either using open data sets (e.g., NGSIM, Transportation Network Test Problems/TNTP, HighD, pNEUMA, Waymo Open Dataset, the OpenACC database, etc.), open data specifications (e.g., GTFS, GMNS), or publishing their data together with their papers, very few researchers share codes related to the methodologies proposed and models developed. This makes their research findings not only hard to be reproduced by other researchers, but also less likely to be used in the industry. Such practices ultimately diminish the value and impact of the research work.

Although reproducible research involves many issues, as this is the first call for papers on reproducible research in our community, we will focus on two things most researchers in Transportation Research are already familiar with: data sharing, and codes sharing. We welcome papers that meet simultaneously the four criteria below:

- 1) The topic of the paper is related to transportation and traffic modelling, observation and / or control;
- 2) All the data used in the paper are openly accessible;
- 3) Codes for every part of the data analysis and / or model development (e.g., calibration, validation, etc.) reported in the paper are openly accessible; and
- 4) There is a companion README file to provide clear instructions on how to run the codes using the openly-accessible data.

We invite submission of papers that meet the aforementioned criteria for presentation at the TRB Annual Meeting in January 2023 and potential publication in Transportation Research Record.

4. How to Submit

Authors interested in submitting papers are advised to visit www.TRB.org/AnnualMeeting and review the Information for Authors. Authors submitting papers in response to this Call for Papers should submit full papers for peer review to the Transportation Research Board online at www.TRB.org/AnnualMeeting. This paper submission is open from June 1 to August 1. Please **show the sponsoring committee name and the Call for Papers title on the paper submission form**. **Please contact the coordinator of the Call for Papers organizers if you are submitting a paper** or need additional information.

5. Paper Submission Requirements

TRB has a single paper submittal deadline for the Annual Meeting. Papers must be in PDF format and submitted by August 1, 2022. The paper submission website will close when it is no longer August 1 anywhere in the world. Also, authors are asked to add line numbering to their papers in their word processing program (starting with number one on each page) prior to converting to PDF to facilitate the review process. TRB recommends that authors submit their papers well before the deadline to avoid last minute complications and delays.

6. Call organizers (alphabetical order)

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7. Subject areas

Operations and Traffic Management;
Planning and Forecasting