

TRANSPORTATION ASSET MANAGEMENT COMPETITION GUIDELINES

“Innovative Approaches to Current Challenges in Transportation Asset Management”

Background

The Transportation Research Board (TRB) Standing Committee on Transportation Asset Management (AJE30) is organizing in 2021 the 1st edition of the “Transportation Asset Management (TAM) competition”. This competition is supported by the technical committee on Infrastructure Systems (ASCE-ISC) from the American Society of Civil Engineers (ASCE).

Transportation Asset Management (AJE30) Committee Overview and Objectives

The AJE30 Committee seeks to advance the state of the art and state of the practice in asset management. Asset management is a process to strategically manage the transportation system in a cost-effective and efficient manner. Asset management by its nature is a collaborative process, and the Asset Management Committee works with other TRB Committees across all modes, with the AASHTO Asset Management Subcommittee, and other partners. More information about the AJE30 committee can be found [here](#) and [here](#).

Infrastructure Systems Committee (ISC) Overview and Objectives

The purpose of the ASCE ISC is to study, evaluate, and report on current practices and promote new developments in the science of infrastructure management. The committee's focus is on broad infrastructure related practices such as, Planning & Development, Operations & Maintenance, and improving Infrastructure Management Strategies as they relate to transportation, public works, and parks and recreation infrastructure systems. More information about the ASCE ISC committee can be found [here](#).

Competition Details

This competition provides a venue for young professionals and students to get involved in the committee's activities. The TAM competition offers a unique opportunity for contestants to work individually or in a team to provide innovative solutions to current challenges in Transportation. Contestants must document their findings in a short video and abstract.

The general theme of the competition is to showcase “Innovative Approaches to Current Challenges in TAM”. In 2021, we seek participants to propose innovative approaches on the following challenge: “Social Equity and TAM.”

2021 Topic: “Social Equity and TAM”

An important consideration in social equity is ensuring equitable access to goods and infrastructure, environmental amenities, services, and economic opportunities¹. Others further expand the definition to include acknowledgement and respect of different groups as well as equitable participation in decision-making processes. Topics to explore in this competition include

¹ The International Journal of Justice and Sustainability, Vol. 24, Issue 9: Social Equity in Urban Resilience Planning <https://www.tandfonline.com/doi/full/10.1080/13549839.2019.1645103>

what data informs social equity consideration in asset management analysis, and the lessons these resources provide in terms of how this issue can be better incorporated into asset management decisions (such as collaboration and coordination across agencies and the development of quantitative and qualitative performance metrics).

Measures, such as the Social Vulnerability Index, provide insights into the stressors a community is faced with. These measures include natural and human-caused disasters, human health, and economic indicators. While most TAM decisions are based on asset condition and usage, social equity seeks to add in a community value towards maintaining an asset in a state of good repair. By exploring social equity and TAM, the desire would be to include decision supporting factors that enhance investment decisions and account for the importance of an asset to a community.

Data

Participants are provided data of the pavement network of Robeson County, North Carolina. Pavement condition and historical maintenance information are available [here](#). The dataset also includes information of social vulnerability, measured in terms of the Social Vulnerability Index (SoVI) developed by the Hazards & Vulnerability Research Institute at the University of South Carolina². SoVI synthesizes 29 socioeconomic variables and is often used to measure differences in communities' social vulnerability.

Additional references related to TAM and social equity are provided as complementary materials for participants.

Eligible Participants

This competition is targeted to young professionals and students. All participants (individual or team) have to be 35 years old or younger by the submission deadline. Participation is open to interested individuals meeting these criteria.

Membership to the AJE 30 committee is not a requirement, although we encourage participants to become friends of the committee through [‘MyTRB’](#). General information about standing TRB committees can be found [here](#).

A faculty advisor may review and provide suggestions to the author(s) on the TAM competition, and they may be included as advisors, but not as authors.

Categories

The two categories for the TAM Competition are:

- Undergraduate Students Category: A team will consist of one to four undergraduate students. The principal author(s) must be the undergraduate student(s) who conducts the analysis. The analysis is restricted to using only the data provided.
- Graduate Students and Young Professionals Category: A team will consist of one to four young professionals and/or graduate students. In this category, the data may be

² <http://artsandsciences.sc.edu/geog/hvri/sovi>

supplemented with additional highway agency data if desired. Participants in this category may also choose to analyze a different network of their choice.

The review committee reserves the right to move a paper into a different category if the committee thinks the paper is a better fit in that category.

Submission Requirements

Submissions consist of a recorded video of a maximum length of 10 minutes and a short description of the project including:

- Title
- Authors
- Advisor(s) (if applicable).
- Abstract (max. 500 words).

The video and abstract should, at least, cover the following topics:

- What is the problem and why is it a challenge? (Introduction/motivation)
- Which are the efforts done so far? (Review of the current state of the art and practice)
- What is the innovative approach you propose to tackle this problem? Can you show us how your proposal may help alleviate the problem? (Proposed innovation and results)
- What needs to happen to make your proposed innovation a reality? (Next steps).

Timeline

Final videos and abstracts must be submitted by September 1, 2021 [here](#).

Award

It is anticipated that a group of submissions (individual or team) will be selected for each of the categories to present a poster during the Transportation Research Board Annual Meeting 2022. Awardees will be notified by email of their selection by October 1, 2021. Among the posters presented during the Transportation Research Board Annual Meeting 2022, a final award will be selected. This final award consists of an invitation to attend the National Conference on Transportation Asset Management organized by TRB (dates and location to be defined). The awardee will receive complimentary registration to the conference, and assistance with travel and lodging expenses.

Additional References

NCHRP Report 866, Return on Investment in Transportation Asset Management Systems and Practices <https://trid.trb.org/view/1501956>

TCRP Report 214, Equity Analysis in Regional Transportation Planning Processes <http://www.trb.org/Publications/Blurbs/180936.aspx>

The International Journal of Justice and Sustainability, Vol. 24, Issue 9: Social Equity in Urban Resilience Planning <https://www.tandfonline.com/doi/full/10.1080/13549839.2019.1645103>

University of Minnesota Report 19-08, Advancing Transportation Equity: Research and Practice
<https://www.dot.state.mn.us/planning/program/advancing-transportation-equity/pdf/CTS%2019-08.pdf>

Evaluating Transportation Equity: Guidance for Incorporating Distributional Impacts in Transportation Planning
https://nacto.org/wp-content/uploads/2015/07/2014_Litman_Evaluating-Transportation-Equity.pdf

Social Equity in Transit Service: Toward Social and Environmental Justice in Transportation
https://pdxscholar.library.pdx.edu/cgi/viewcontent.cgi?article=1001&context=trec_etds

Integration Social Equity into Urban Transportation Planning: A Critical Evaluation of Equity Objectives and Measures in Transportation Plans in North America
https://www.researchgate.net/publication/268749910_Integrating_social_equity_into_urban_transportation_planning_A_critical_evaluation_of_equity_objectives_and_measures_in_transportation_plans_in_North_America

All Aboard! Making Equity and Inclusion Central to Federal Transportation Policy
https://equitycaucus.org/sites/default/files/AllAboard_final_web.pdf