

# Transport Research Forum 2024



Proceedings from the 17<sup>th</sup> Transport Research Forum  
2024

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University of Moratuwa, Sri Lanka

Transportation Engineering Group  
Department of Civil Engineering  
University of Moratuwa

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## Introduction

Transport Research Forum (TRF) is an annual conference organized by the Transportation Engineering Division of the Department of Civil Engineering, University of Moratuwa. The prime objective of this conference is to create a platform for researchers in the transportation field to build up their research careers and to share their research findings with other colleagues and the industry, researchers and academics, including several international experts in Highway Engineering, Transportation Engineering and Planning, are the participants in this event. In addition, representatives from the industry and related government institutions are also invited every year.

Department of Civil Engineering conducted the first-ever Sri Lanka Transportation Forum in 1983, and since the late 90's, the Transportation Engineering Group has organized many Transport Research Conferences at local and international levels. Later, the Transport Research Forum (TRF) was established; two conferences were held initially, and since 2010, TRF has been held consecutively every year., TRF 2024 is the 17<sup>th</sup> Transportation Research Forum conducted by the Transportation Engineering Division. Many of the research findings presented in Transport Research Forums have been put into practice, and one of the main objectives of the Transport Research Forum is to come up with solutions to address transport-related problems in the country and disseminate them to the industry. In 2020, TRF achieved a significant milestone by publishing its selected proceedings (full papers from

selected studies presented at TRF 2020) in the IESL 'The Engineer' journal as a special edition.

# Message from the Conference Chair

**Prof. H.R. Pasindu**

**University of Moratuwa**



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Dear Participants and Esteemed Colleagues

Welcome Address for the 17<sup>th</sup> Transport Research Forum 2024.

I extend a warm welcome to the 17<sup>th</sup> Transport Research Forum 2024, organized by the Transportation Engineering Division of the Department of Civil Engineering at the University of Moratuwa. This annual forum continues to be a key platform for knowledge sharing, discussion, and collaboration among academics, researchers, and professionals in Sri Lanka's transportation sector.

This year's conference features keynote speakers from TU Dresden and IIT Indore, two leading universities in transportation engineering research, along with technical paper presentations addressing critical issues in transportation, including sustainable mobility, advanced transport infrastructure solutions, and pavement technologies. We are also delighted to include presentations from members of the Location-Based Services to Intelligent Transport Systems Project, funded by the Erasmus+ grant scheme.

I wish to thank the Vice-Chancellor, Prof. Niranjan Gunawardana; the Dean of the Faculty of Engineering, Prof. Jagath Manatunge; the Dean of the Faculty of Graduate Studies, Prof. Ruwan Gopura; and Prof. Udeni Nawagamuwa, Acting Head of the Department of Civil Engineering, for their steadfast support for the conference. Their commitment has been instrumental in advancing our efforts.

I am also grateful to the organizing committee for their dedication in planning this forum and to our academic and industry reviewers for their careful evaluation of the submissions. To our keynote speakers, presenters, and participants, thank you for your contributions, which make this event a vibrant and meaningful exchange of ideas.

As we commence the discussions, I encourage you to actively participate, engage with your peers, and share your insights. This is an opportunity to explore solutions to current challenges and contribute to shaping the future of transportation in Sri Lanka.

On behalf of the organizing committee, I look forward to a productive and engaging forum. Let us make the most of this opportunity to learn, collaborate, and advance our shared goals in transportation research.

Thank you.



## Message from the Chief Guest

**Prof. J.M.S.J. Bandara**  
**University of Moratuwa**



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Dear Participants and Esteemed Colleagues,

It is a great pleasure and honor to be part of the 17<sup>th</sup> Transport Research Forum (TRF 2024), organized by the Transportation Engineering Division of the Department of Civil Engineering, University of Moratuwa.

In recent years, Sri Lanka has faced significant challenges in maintaining and developing transport-related infrastructure, highlighting the critical need to maximize the efficiency and sustainability of our existing systems. With constrained resources, it is important that we prioritize innovative strategies to optimize the use of existing infrastructure while transitioning towards more sustainable transport systems. The integration of sustainable practices, efficient traffic management, and modern technologies is no longer a choice but a necessity.

This conference comes at a critical moment, providing an opportunity to explore solutions that can strengthen the resilience and sustainability of our transport systems. Discussions on sustainable mobility, smart infrastructure, and innovative planning methods will play a crucial role in

shaping the future of transportation in Sri Lanka and the region. It is through knowledge sharing and collaborative efforts that we can address the challenges of today while building systems that cater to the needs of future generations.

I congratulate the organizing committee for creating this platform, which brings together leading experts and researchers from around the world. I am confident that TRF 2024 will stimulate impactful discussions, foster valuable collaborations, and generate actionable insights to guide our path forward. I wish the conference great success and hope you leave inspired to drive change in your respective fields.

# **TRF 2024 Organising Committee**

## **Conference Chair**

Prof. H.R. Pasindu

## **Conference Secretary**

Dr. Varuna Adikariwattage

## **Committee Members**

Dr. Chamod Hettiarachchi

Dr. Nalaka Jayantha

Mr. Janith Premarathne

## **Organizing Committee**

T. Thilakshan

Sudarshi Jayasinghe

Sankha Jayawardhana

Kushan Dilruk Aponsu

Sandali Dilsara

Methmini Kulathunga

Osanda Rathnayake

## **Supporting Staff**

Mrs. G.A.N. Gurusingha

Mrs. Melani Jayakody

Mr. Sampath Hettiarachchi

Mr. Indika Perera

Mr. Uditha Padmaperuma

# Reviewers

## External

Dr. Anuja Fernando	Department of Transport Management and Logistic Engineering, University of Moratuwa
Dr. Chamali Hewawasam	Department of Town & Country Planning, University of Moratuwa
Dr. Chameera De Silva	University of Moratuwa
Mrs. Chamila Danthanarayana	Department of Economics, University of Colombo
Mr. Chamitha Punchihewa	Senior Engineer, Planning Division, Road Development Authority
Dr. Danushika Gunathilake	University of South Florida, USA
Dr. Ishani Dias	Faculty of Engineering, General Sir John Kotelawala Defence University
Dr. Isuru Gamlath	Sri Lanka Institute of Information Technology
Dr. Kaushan Wimalasiri Devasurendra	Victoria, British Colombia

Dr. Loshaka Perera	Traffic Engineer, City of Rockingham, Australia
Mr. Madhawa Premasiri	Sri Lanka Technological Campus
Dr. Mahinda Bandara	Edinburgh Napier University, UK
Mr. Nalin Jayaratne	Centre for Future Transport and Cities at Coventry University, UK
Dr. Namali Sirisoma	General Sir John Kotelawala Defence University
Dr. Nishantha Bandara	Lawrence Tech Transportation Institute, Michigan
Dr. Prageeth Gunarathne	Department of Transport and Planning, Melbourne
Dr. Ravindra Thilakarathne	University of Calgary
Mr. Vajeeran Arunakirinathan	Dalhousie University, Canada
Dr. Dimantha De Silva	University of Calgary

## **Internal**

Prof. Hadunneththi Pasindu	Department of Civil Engineering, University of Moratuwa
Prof. Saman Bandara	Department of Civil Engineering, University of Moratuwa
Prof. Wasantha Mampearachchi	Department of Civil Engineering, University of Moratuwa
Dr. Chamod Hettiarachchi	Department of Civil Engineering, University of Moratuwa
Dr. Varuna Adikariwattage	Department of Civil Engineering, University of Moratuwa
Dr. Nalaka Jayantha	Department of Civil Engineering, University of Moratuwa

## Keynote Speech 01:

# How strategic mobility systems planning can benefit from location-based travel surveys



**Dipl.-Ing. Jonas Krombach**  
Research Associate  
TUD Dresden University of  
Technology, Germany

Jonas Krombach is a research associate at the Chair of Mobility System Planning at TUD Dresden University of Technology (TUD) (Germany). Before joining TUD in 2022, he worked as a traffic engineer at the consultancy Rosinak & Partner ZT GmbH in Vienna (Austria) and studied transportation engineering at TUD. His research interests focus on strategic mobility planning with a special focus on sustainable urban mobility. Based on empirical data collection, insights on cities' understanding and priorities in terms of sustainable mobility are generated as the basis for developing evidence-based strategies to promote environmentally friendly travel behavior.



**Dipl.-Ing. Johannes Weber**  
Research Associate  
TUD Dresden University of  
Technology, Germany

Johannes Weber is a research associate at the Chair of Mobility System Planning at TUD Dresden University of Technology (TUD) (Germany). He is a member of the Chair since 2020 and dedicates his PhD project to both opportunities and challenges of smartphone GPS-based travel surveys. This relates to testing new ways of sampling and recruitment strategies, assessing user experience and motivational concepts, and analyzing data quality and its potentials for different use cases.



## **Keynote Speech 02: Investigation of Horizontal Alignment Data Extraction Methodologies in Terms of Cost and Time**



**Dr. Gourab Sil**  
Assistant Professor  
IIT Indore, India

Dr. Gourab Sil, an expert in Transportation Systems Engineering, specializes in road safety, driver behavior, and intelligent transportation systems. With a Ph.D. from IIT Bombay, he leads groundbreaking research on road design and safety supported by prestigious grants. An active contributor to academic journals and conferences, Dr. Sil's work drives innovation in creating safer and smarter transportation systems globally.