



Sustainable Transportation Infrastructure Materials

Online Training
December 7-17, 2020



Online Training



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December 7 – December 17, 2020
Online Workshop

Background

In the past several years, most highway agencies and transportation infrastructure decision-makers have started to consider sustainability and environmental factors in the design, construction, and maintenance of their infrastructure systems. The move towards a sustainable development to address the current infrastructure needs that are not compromising access to the limited resources for future generations is the most crucial priority of highway agencies around the world.

The main goal of this online training is to introduce the fundamentals of sustainability relevant to the transportation infrastructure materials. Various aspects, such as the use of recycled materials, the environmental impacts during the life cycle of the infrastructure, and the life cycle cost analysis methods and tools will be introduced. Moreover, the state of the art and state of the practice for sustainability considerations during the design, construction, and maintenance of the transportation infrastructure will be covered.

Participants will be guided through various interactive course modules to develop skills and knowledge to employ standard guidelines and specifications related to the sustainability considerations in different local and network-level projects. Highway practitioners and local highway agency engineers will learn and benefit from the various aspects of the sustainability concepts that can be employed and implemented in their planning operations.

Format

Lectures will be taught over a two-week period with live 2-hour online sessions held Monday - Thursday of each week. Upon completion of the training program, the IRF will administer an online knowledge test. Participants with a score of 80% at the exam will be awarded a certificate verifying the successful completion of the course.

Learning Objectives

- ✓ Understand the fundamental concepts and properties of sustainable materials
- ✓ Understand the sustainability considerations for transportation infrastructure materials
- ✓ Learn about the Life Cycle Assessment (LCA) and Life Cycle Cost Analysis (LCCA) for highway materials
- ✓ Become familiar with sustainability rating systems for infrastructure and materials
- ✓ Learn about the emerging topics in sustainable and recycled infrastructure materials
- ✓ Become familiar with the tools to evaluate the sustainability performance measures

Target Audience

- Local and Rural Road Authorities
- Executive Highway and Transportation Engineers
- Road/Highway Design Engineers and Consultants
- Transportation Infrastructure Contractors
- Road/Highway Authorities & Operators
- Materials and QC/QA Engineers
- Transportation Infrastructure Practitioners

Course Schedule

Monday - Thursday

(9:00 PM – 11:00 PM US PST / 9:00 AM – 11:00 AM Dubai Time)

Monday, December 7, 2020

- Introduction and Background
- Fundamental Concepts of Sustainability
- Sustainable Infrastructure Material types

Tuesday, December 8, 2020

- Sustainability Performance Measures
- Estimating the Sustainability Measures
- Tools to Evaluate Sustainable Materials

Wednesday, December 09, 2020

- Introduction to Life Cycle Cost Analysis (LCCA)
- Application of LCCA for Sustainable Infrastructure Materials
- Tools to Evaluate and Perform LCCA

Thursday, December 10, 2020

- Introduction to Life Cycle Assessment (LCA)
- Environmental Parameters for LCA
- Tools to Perform LCA for Sustainable Infrastructure Materials

Monday, December 14, 2020

- Sustainable Design Considerations
- Review of Case Studies for Sustainable Design of Infrastructure
- Materials Tools to Incorporate Sustainability in Design

Tuesday, December 15, 2020

- Innovations and Advances in Sustainable Construction
- Performance Monitoring and Evaluation
- Sustainable Maintenance and Rehabilitation

Wednesday, December 16, 2020

- Special Topics in Sustainable Materials
- Use-Phase Criteria in LCA
- Innovations and Emerging Topics in Sustainability Research

Thursday, December 17, 2020

- Advances in Sustainable Design and Construction Recycled Materials
- Sustainability Rating for Infrastructure and Materials

Speakers



Mehran Mazari, Ph.D.

Assistant Professor, California State University Los Angeles

Dr. Mehran Mazari is an Assistant Professor in the Department of Civil Engineering at Cal State LA, specializing in Transportation Infrastructure and Materials. He is the director of Sikand Center for Sustainable and Intelligent Infrastructures (SITI-Center) and founder of Sustainable Infrastructure Materials Research Lab (SIM-Lab) at Cal State LA. His research interests include sustainable and resilient transportation infrastructure, transportation infrastructure materials, and non-destructive evaluation of transportation infrastructure. He is a member of technical committees at the Transportation Research Board of National Academies of Science and Engineering and co-chair of the LTPP subcommittee of the Highway Pavement Committee of the American Society of Civil Engineers (ASCE). Dr. Mazari has published more than 60 peer-reviewed journal and conference papers. He has been actively involved in a number of national and state research projects, including the National Highway Cooperative Research Program (NCHRP) and Federal Highway Administration (FHWA), among others.

Registration

- 1,700 USD IRF Members
- 2,000 USD Non-IRF Members
- 1,400 USD (Groups of 3 or more)
- 1,000 USD IFIs, US State DOTs & City Officials

Registration: <https://www.irf.global/event/sti20-ws-online-training>

For any support, please contact melabyad@irf.global

System Requirements

Computer Requirements

Operating System

Windows 7 - Windows 10, Mac OS X 10.9 (Mavericks), macOS Catalina (10.15), Linux, Google Chrome OS, Android OS 5 (Lollipop) - Android 9 (Pie), iOS 10 - iOS 12, Windows Phone 8+, Windows 8RT+

Web browser

Google Chrome (most recent 2 versions)

Mozilla Firefox (most recent 2 versions)

Internet Explorer v11 (with Adobe Flash if running Windows 7)

Apple Safari (most recent 2 versions)

Microsoft Edge (most recent 2 versions)

Internet connection

1 Mbps or better (broadband recommended)

Hardware

2GB of RAM (minimum), 4GB or more of RAM (recommended)

Microphone and speakers (USB headset recommended)

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