

Transportation Research Congress 2016

Innovations in Transportation
Research Infrastructure

Beijing, China
June 6–8, 2016



EDITED BY

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TRANSPORTATION RESEARCH CONGRESS 2016

*INNOVATIONS IN TRANSPORTATION RESEARCH
INFRASTRUCTURE*

PROCEEDINGS OF THE TRANSPORTATION
RESEARCH CONGRESS 2016

June 6–8, 2016
Beijing, China

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Preface

Transportation infrastructure plays a critical role in the economic development of a country and the daily life of everybody. Transportation researchers and engineers have always been making efforts towards the ambition of sustainable, smart and resilient transportation. The recent years have seen numerous innovations in transportation materials, design, testing and characterization, construction, operation, maintenance and rehabilitation.

This ASCE Special Technical Publication contains sixty-eight fully-reviewed papers, covering the topics of pavement materials, pavement structures, geotechnical engineering, and bridge engineering. These papers were presented at the inaugural meeting of the Transportation Research Congress (TRC) held at the National Convention Center, Beijing, China, June 6-8, 2016.

The TRC is jointly organized by universities, research institutes, industries, and China Highway and Transportation Society. TRC is intended to serve as an international platform for researchers, educators, practicing engineers, investors, entrepreneurs, and government officials in transportation infrastructure from all over the world. At TRC, experts will present the latest research findings, exchange research ideas, share experiences and lessons learned, showcase successful innovations and practice, identify research and educational needs and provide consultations to transportation community on a regular basis.

Section 1 *Materials*

Twenty-seven papers are included in this section, covering mix design, testing, characterization and modeling of asphalt, cementitious, and base pavement materials. Various sustainable materials, novel testing and modeling methods, and different material properties and performance characteristics are involved.

Section 2 *Pavement Structure*

Seventeen papers cover the response and long-term performance of asphalt and concrete pavements under traffic and different climatic conditions. Different preventive maintenance and rehabilitation strategies are also provided.

Section 3 *Geotechnical Engineering*

Twenty-three papers offer the latest research on the construction and behavior of tunnels, deep foundations, deep excavations, special foundations and geologies.

Section 4 *Bridge Engineering*

Two papers provides the advances in the technologies of energy harvest from bridges and health monitoring system of bridges.

All papers published in this ASCE Special Technical Publication were evaluated by at least two reviewers as well as the editors. All comments were adequately addressed by the authors of these accepted papers. In addition, all published papers are eligible for discussion in the Journal of Materials in Civil Engineering or Journal of Transportation Engineering and can also be considered and recommended for ASCE paper awards.

The editors would like to thank all the authors who have submitted their papers to the inaugural meeting of TRC. Thanks also go to many reviewers for their time and efforts. The editors are appreciative to Laura Ciampa and Katerina Lachinova from the ASCE Construction Institute (CI), and Donna Dickert from the ASCE Publications for their great support in approving and scheduling the publication of this proceeding.

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