

# CHALLENGES AND ADVANCES IN SUSTAINABLE TRANSPORTATION SYSTEMS: PLAN, DESIGN, BUILD, MANAGE, AND MAINTAIN

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PROCEEDINGS OF THE 10<sup>TH</sup> ASIA PACIFIC TRANSPORTATION  
DEVELOPMENT CONFERENCE

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# Preface

Welcome to the 10<sup>th</sup> Asia Pacific Transportation Development Conference, organized by the International Chinese Transportation Professionals Association (ICTPA) and the Beijing Collaborative Innovation Center for Metropolitan Transportation. The conference is hosted by the Beijing University of Technology, Beijing Jiaotong University, Tsinghua University, and the Beijing University of Civil Engineering & Architecture. The ICTPA, the Beijing University of Technology, and the Transportation & Development Institute of the American Society of Civil Engineers (ASCE) are sponsors of the conference. The theme of the conference is “Challenges and Advances in Sustainable Transportation Systems: Plan, Design, Build, Manage, and Maintain.”

Transportation professionals are facing continuous challenges, including endless traffic congestion, ever-worsening environmental impacts, rising energy costs, and deteriorating quality of life. To meet these challenges requires new innovations to develop sustainable transportation systems through planning, design, construction, management, and maintenance. This special publication, produced by ASCE, is one of several official proceedings of the conference. This publication includes 86 peer-reviewed papers addressing 12 major areas: 1) Sustainable Multi-Modal Transportation Systems, 2) Strategies for Sustainable Development, 3) Efficient City and Regional Transportation Planning and Land Use, 4) Low Carbon Emissions and Energy Savings in Transportation, 5) Transportation Infrastructure Design Criteria, 6) Highway Infrastructure, 7) Subway and Rail Transit Infrastructure Planning and Design, 8) Intelligent Transportation Systems, 9) Bridge and Tunnel Planning, Design, and Construction Technologies, 10) Bridge Durability, 11) Bridge Health Monitoring and Evaluation, and 12) Geotechnical Design and Construction. Recent advances in new strategies, new methods, and new technologies are presented to address topics relating to funding, planning, design, construction, maintenance, and management of transportation facilities, including aviation, ports, harbors, highways, bridges, tunnels, rapid transit, and railroads.

One of the conference organizers is the ICTPA, a 27-year-old professional organization that has conducted conferences throughout North America and Asia to examine local and global transportation development issues. With the rapid growth in the recent years, China has become one of the largest transportation infrastructure markets in the world. In this publication, many authors who studied transportation development in China showcase new ideas and approaches that have emerged from some of the world’s largest transportation projects in that country. In addition, practitioners and scholars from the United States and other developed countries and regions present latest advances in transportation system management and maintenance. This unique combination presented by a distinguished group of internationally recognized practitioners and scholars provides a wide range of stimulation and inspiration in solving global transportation problems.

We believe that these proceedings will be invaluable to transportation professionals in advancing their careers. We hope that you enjoy the conference and the City of Beijing, catch up with old friends and colleagues, and make new ones.

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