INFRASTRUCTURE

U.S. Participation in PIARC | 2016-2019 Cycle Benefits and Accomplishments

U.S. Department of Transportation
Federal Highway Administration

PIARC
WORLD ROAD ASSOCIATION

Transportation-industry professionals and organizations around the world are focused on implementation-related practices and tools for infrastructure. The World Road Association, known globally as PIARC, aims to foster collaboration across the globe to develop solutions for transportation challenges.

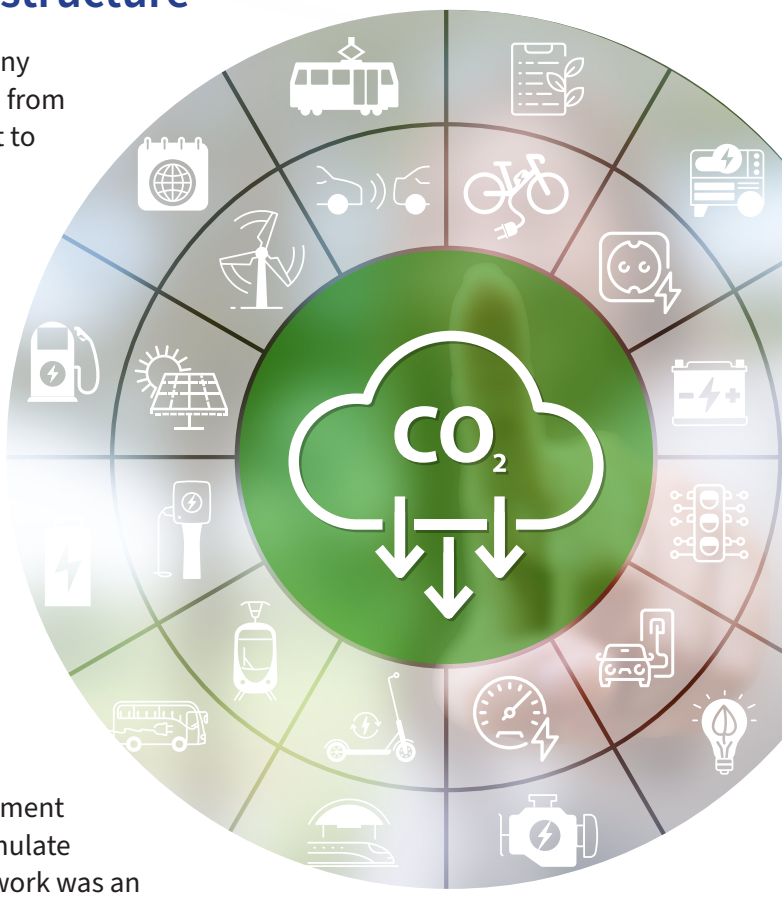
FHWA has established national performance goals in infrastructure conditions and system performance. Consistent with this transition, FHWA continues to raise awareness of proven strategies to ensure a safer, effective, and sustainable infrastructure. In addition, infrastructure is a focus of several PIARC technical committees and task forces.

Transport administrations must adapt to a rapidly changing environment. Users are requiring that road transport investments are made to meet their needs and to improve their quality of life. In the United States, transportation infrastructure is called to play a central role in America's economic recovery. Road agencies continue to prioritize safety and to insert climate considerations as they continue to rebuild the country's road infrastructure. As they do this, road agencies are asked to make sure that transportation is used as a driver for equity.

COMMITTEE	DELEGATE / POSITION	ROLE IN PIARC	TECHNICAL REPORTS
SUSTAINABLE MULTIMODALITY IN URBAN AREAS			
By evaluating highly populated areas in terms of traffic congestion and more broad mobility and accessibility needs, the Sustainable Multimodality in Urban Areas Committee focused on quality of life in an urban area, which directly correlates to the safety of its transportation system.	**Harlan Miller,** *FHWA, Planning Engineer*	Member/Secretary, Sustainable Multimodality in Urban Regions	Sustainable Multimodality in Urban Regions
FREIGHT			
As a common factor in traffic-related crashes, specifically regarding fatalities, the safe operation of the freight industry within a transportation system was paramount to the Freight Committee.	**Tiffany Julien,** *FHWA, Office of Freight Management & Operations, Transportation Specialist*	Member, Freight	National Policies for Multi-Modal Freight Transport and Logistics Truck-Traffic on Highways for Sustainable, Safer and Higher Energy Efficient Freight Transport
	Lori Porreca, *FHWA Idaho (HDA-ID), Community Planner*	Corresponding Member, Freight	Good Practices on Multi-Modal Freight Transport Policies and Truck Management on Highways
ASSET MANAGEMENT			
Exploration of recent technological advancements and methodologies by the Asset Management Committee identified wide-ranging innovations to improve Transportation Asset Management practice.	**Gerardo Flintsch,** *Virginia Tech Transportation Institute, Director, Center for Sustainable Transportation Infrastructure*	Member/Secretary, Asset Management	Innovative Approaches to Asset Management
	Derek Constable, *FHWA, Senior Bridge Management Engineer*	Corresponding Member, Asset Management	
ROAD PAVEMENTS			
The Road Pavements Committee reviewed solutions and tools for reducing carbon footprint, and research green technologies across the roadway life cycle phases.	**Gina Ahlstrom,** *FHWA, Pavement Design & Analysis, Team Leader*	Member, Road Pavements	Reducing the Life Cycle Carbon Footprint of Pavements Green Paving Solutions and Sustainable Pavement Materials
	Nadarajah Sivaneswaran, *FHWA, Turner Fairbank Highway Research Center Highway*	Corresponding Member, Road Pavements	State of the Art in Monitoring Road Condition and Road / Vehicle Interaction – Update
BRIDGES			
By prioritizing the strategies for timely inspection and maintenance of bridges, the Bridges Committee work had direct safety outcomes within infrastructure.	**Joseph Hartmann,** *FHWA, Director, Office of Bridges and Structures*	Member, Bridges	Damage and Deterioration Assessment Decision-Making for Highway Bridge Safety
	Scot Becker, *Wisconsin Department of Transportation, Director of Bureau of Structures/State Bridge Engineer*	Member/Secretary, Bridges	
ROAD TUNNEL OPERATIONS			
The Road Tunnel Operations Committee provided research and information in support of tunnel ventilation systems.	**William Bergeson,** *FHWA, Senior Tunnel Engineer*	Corresponding Member, Road Tunnel Operations	Introduction to the RAMS Concept for Road Tunnel Operations Road Tunnels: Vehicle Emissions and Air Demand for Ventilation
	Bijan Khaleghi, *Washington Department of Transportation, Bridge Design Engineer*	Member, Road Tunnel Operations	Prevention and Mitigation of Tunnel-Related Collisions

COMMITTEE	DELEGATE / POSITION	ROLE IN PIARC	TECHNICAL REPORTS
ADAPTATION STRATEGIES AND RESILIENCY			
Developing a comprehensive all-hazard approach for road network owners and operators, who must manage a broad spectrum of threats in the future, was the focus of the Adaptation Strategies and Resiliency Committee.	**April Marchese,** *FHWA, Director, Office of Natural and Human Environment*	Member/Secretary, Adaptation Strategies and Resiliency	Adaptation Methodologies and Strategies to Increase the Resilience of Roads to Climate Change - Revised Resilience: Refinement of PIARC's International Climate Change Adaptation Framework for Road Infrastructure
DISASTER MANAGEMENT (PIARC Technical Committee E3)			
Prompt and coordinated disaster response from road administrators, which was strategized by the Disaster Management Committee, helps ensure heightened safety in the aftermath of an emergency event.	**Herby Lissade,** *California Department of Transportation (Caltrans), Chief, Office of Emergency Management*	Member, Disaster Management	Disaster Information Management for Road Administrators

Sustainable, Resilient, and Safe Infrastructure



Transportation infrastructure was the underlying theme of many 2016-2019 cycle task forces and various technical committees, from bridges, pavements, tunnels, earthworks and freight transport to road network operations, asset management and sustainable multimodality. The technical committees delivered several interim and final products focused on implementation-related practices and tools, covering different aspects of the infrastructure life cycle. Many new methodologies and technologies were introduced during the 2016-2019 cycle.

Spearheading data-driven approaches for sustainable infrastructure was prevalent in several committees. Activities included (i) extensive research, analysis, and case study compilation on innovations; (ii) approaches, tools, and best practices for risk and disaster management; (iii) new and emerging techniques to collect and update network and project level data; and (iv) use of performance aspects in making road management and improvement decisions.

Infrastructure-focused committees also recognized the value of raising awareness of proven strategies supporting safer, effective, longer-lasting infrastructure and emphasizing investment in infrastructure to improve mobility and accessibility and stimulate economic growth and productivity. A major outcome of their work was an understanding that agencies need to become more customer-focused rather than just infrastructure-focused, emphasizing equitable transportation.

Notable accomplishments by the Infrastructure Technical Committees included delivery of several flagship publications.

- Innovative Approaches to Asset Management
- Disaster Information Management for Road Administrators
- Sustainable Multimodality in Urban Regions

KEY TAKEAWAYS

Transportation Asset Management

Leveraging the ISO 55000 framework and digital infrastructure through technological advancements and methodologies is important to identifying innovative practices.

Reliability, Availability, Maintainability, and Safety (RAMS) Framework

Proposed approach supports service, structural, and safety objectives of highway agencies across the life cycle management of tunnels while reducing their life cycle costs.

Green Pavement Practices

Applying state-of-the-practice applications of sustainable techniques and mainstreaming green solutions for roadway construction will support reduction of transportation's share of the carbon footprint.

Benefits

The U.S. transportation community directly benefits from committee participation in areas such as:

Applying both 'business as usual' and 'state-of-the-art' road-related data collection and analysis technologies.

Expanding global professional networks with participants often involved in day-to-day transportation operations.

Supporting the international road transportation community through knowledge transfer of U.S. technical expertise.

Next Steps

- *Continue dissemination of infrastructure innovations and solutions.*
- *Continue to communicate with the global transportation infrastructure community for sharing best practices and innovations.*

U.S. Department of Transportation
Federal Highway Administration

MOMENTUM
A GLOBAL ENGAGEMENT PROGRAM OF THE UNITED STATES DEPARTMENT OF TRANSPORTATION

PIARC
WORLD ROAD ASSOCIATION