



2–6 October 2023

PRAGUE 2023 – TOGETHER
ON THE ROAD AGAIN

XXVIITH WORLD ROAD CONGRESS 2023

PRAGUE CONGRESS CENTRE
PRAGUE, CZECH REPUBLIC

TECHNICAL PROGRAM OF THE XXVIITH WORLD ROAD CONGRESS (2.–6. 10. 2023)



EXECUTIVE SUMMARY OF THE TECHNICAL DIRECTOR MIGUEL CASO FLOREZ

The program for the 27th World Road Congress will provide global insights on the current practices and future trends in the road infrastructure and road mobility sector, and will include key opportunities for international networking and social activities.

The **Ministers Session** will bring together the highest national representatives of infrastructure and transport from 40 to 60 countries around the world to discuss roads and their role, opportunities and challenges globally. The core topics of this session will be road safety and cycling infrastructure, which are both key topics in multiple countries. This session will also include a Ministerial declaration for the Congress.

The **Keynote Sessions** will kick off the program each day by setting the tone with a top-notch speaker who will inspire delegates and offer new perspectives on the road sector. The keynote speakers will be high-level individuals from both the international community and the Czech and Slovak environments.

The **Technical Sessions** will present the results of the work of PIARC Technical Committees and Task Forces over the 2020–2023 cycle, which brought together over 1,200 experts from more than 80 countries over four years. These sessions will be complemented by the results of the international call for papers, which received over 750 responses from more than 80 countries on 49 different topics.

The four **Strategic Direction Sessions** will analyze current trends to identify future challenges and opportunities in the road sector. These sessions will be based on the national reports that the 125 PIARC member countries were invited to draft on 4 different topics.

Partner organizations will also contribute to the Congress program through the **Foresight Sessions**. These international partner organizations bring a complementary approach to the PIARC field of expertise.

All accepted authors will be available in interactive and high-level **Poster Sessions**, where delegates will be able to exchange individually with each author, learn more about their work, and interact directly. The 6 Poster Sessions will be organized based on the 49 topics of the international call for papers.

PIARC **Special Projects Sessions** will present the work of PIARC on emerging issues, which were identified as an emerging priority by PIARC member countries in 2022 and 2023.

A wide range of **Workshops** organized by PIARC Technical Committees and partner organizations will offer a hands-on approach to key aspects of the road sector.

Several **Side Events** from partner organizations will enhance the role of the Congress as the major global meeting point of the road sector.

A significant **Exhibition** area, including National Pavilions from more than 30 countries, as well as private sector stands, will showcase accomplishments, future projects, and new services from around the world.

Numerous **Technical Visits** organized by the Czech Ministry of Transport will be offered to delegates during the Congress to explore road infrastructure and road mobility in the Czech Republic.

The **Opening and Closing Sessions** will conclude the program by featuring international and Czech highlights of the road sector, presented by major authorities and showcasing Czech and Slovak culture to entertain the Congress delegates. Additionally, this session will also provide the occasion to recognize the best papers, best sessions, best speakers, and best national reports of the Congress.

STRATEGIC DIRECTION SESSIONS

The four Strategic Direction Sessions are high-level sessions presenting future-oriented approaches to key issues in the road sector. These sessions will be based on national reports prepared by PIARC Member Countries, which capture national experiences and best practices, and will be shared with all Congress participants. They will also be the basis for PIARC Strategic Theme Coordinators to design the Strategic Direction Sessions.

Strategic Direction Session 1 Road and road transport in a changed world

This session will be chaired by Mr. Ernesto Barrera, PIARC Strategic Theme 1 Coordinator.

This Foresight Session will address:

1. Sustainable development of roads and road transport.
2. Understanding, steering, and adapting to changing user needs.
3. Disaster management.



Strategic Direction Session 2 Mobility and Equity

This session will be chaired by Mr. André Broto, PIARC Strategic Theme 2 Coordinator.

This session will explore how road transport can meet people's needs while promoting equity:

1. Transport decarbonization equity impact.
2. Improving air quality in megacities.
3. Impact of digital transformation and long-term effects of COVID.



Strategic Direction Session 3 New challenges and initiatives for improving safety and sustainability

This session will be chaired by Mr. Keiichi Tamura, PIARC Strategic Theme 3 Coordinator.

This session will address the following two key issues:

1. Creating safer road space and vibrant communities.
2. Realizing a greener society through road infrastructure and transport.



Strategic Direction Session 4

From cradle to Grave – Improved Life Cycle Management of Road Infrastructure in the Course of Digital Transformation



This session will be chaired by Mr. Jürgen Krieger, PIARC Strategic Theme 1 Coordinator.

The following topics will be addressed within the context of this session:

- Innovative methods for data acquisition (UAV, drones, LIDAR, Radar, C2I, ...), data storage, data management.
- IoT (internet of things), intelligent/cognitive sensor technologies.
- Big Data/Smart Data solutions.
- Methods and procedures of data analysis (deep learning, AI, ...).
- Life cycle oriented BIM applications.
- AR (augmented reality) and VR (virtual reality) (mixed reality) applications.
- Digital twin for road infrastructure.
- Digital asset management.
- Costs and benefits of digital transformation for road infrastructure.

TECHNICAL SESSIONS

These technical sessions will present the results of the 22 PIARC international Technical Committees and Workshops over the 2020–2023 cycle. These committees and workshops gathered more than 1,200 experts nominated by over 80 countries. In addition, the sessions will also feature the international call for papers on 49 different topics, which attracted over 750 responses from more than 80 countries.

Technical Session 1.1

Performance of Transport Administrations

This session will be chaired by PIARC Technical Committee 1.1 Chair, Mr. Christos Xenophonos.

This session will present the work accomplished by the PIARC Committee during 2020–2023 on the following issues:

- 1.1.1 Understanding how Road and Transport Administrations are measuring the efficiency and effectiveness of Customer Experience and Public Value Creation.
- 1.1.2 The Role of Transport Agencies in Shaping Disruptive Technology and Service Models.
- 1.1.3 Organization of Staff and Human Resources.

The session will be complemented by the outcomes of the call for papers on the following topics:

1. Understanding the journey of your customers' experience.
2. Concepts, roadmaps and practical challenges of developing the transport agency of the future.
3. How transport administrations manage the transition to a more diverse workforce and the need for new skills and competencies in a changing transport sector.

Technical Session 1.2

Road and Transport Planning for Economic and Social Development

This session will be chaired by PIARC Technical Committee 1. Chair, Mr. Fabio Pasquali.

This session will present the work accomplished by the PIARC Committee during 2020–2023 on the following issues:

- 1.2.1 Transport modeling and forecasting for preparing econometric analyses.
- 1.2.2 Implementation of sustainable mobility plans.
- 1.2.3 Economic and social contribution of road transport system.

The session will be complemented by the outcomes of the call for papers on the following topics:

1. Innovation and new approaches for the study of mobility of people and goods.
2. Sustainable mobility planning.
3. Economic and social effects of investment and operation in the road sector.

Technical Session 1.3

Finance and Procurement

This session will be chaired by PIARC Technical Committee 1.3 Chair, Mr. Francesco Sciaudone.

This session will present the work accomplished by the PIARC Committee during 2020–2023 on the following issues:



- 1.3.1 Best practices in funding and financing of road infrastructure.
- 1.3.2 Impact of new propulsion techniques on funding.
- 1.3.3 Harmonization of procurement.

The session will be complemented by the outcomes of the call for papers on the following topics:

- 1. New possible forms of public-private partnership to boost the road infrastructure sector.
- 2. Allocation of post-Covid recovery funds to the development of road infrastructures.
- 3. Integration of sustainability requirements in road infrastructure procurement.

Technical Session 1.4 Climate Change and Resilience of Road Networks

This session will be chaired by PIARC Technical Committee 1.4 Chair, Ms. Caroline Evans.



This session will present the work accomplished by the PIARC Committee during 2020–2023 on the following issues:

- 1.4.1 Uniform and holistic methodological approaches to resilience against Climate Change and other hazards.
- 1.4.2 Update of the PIARC International Climate Change Adaptation Framework for Road Infrastructure.

The session will be complemented by the results of the call for papers on the following topics:

- 1. Practical studies to increase the resilience of the road network.
- 2. Climate change adaptation actions for road infrastructure.
- 3. Cross-cutting issues of resilience and climate change.

Technical Session 1.5 Disaster Management

This session will be chaired by PIARC Technical Committee 1.5 Chair, Mr. Yukio Adachi.



This session will present the work accomplished by the PIARC Committee during 2020–2023 on the following issues:

- 1.5.1 Information and communication in disaster management.
- 1.5.2 Financial aspects of disaster management.
- 1.5.3 Update the Disaster Management Manual.

The session will be complemented by the outcomes of the call for papers on the following topics:

- 1. Societal resilience in the face of disasters.
- 2. Lessons learned from extreme natural events and their contribution to improving resilience.
- 3. The role of information technology in enhancing socio economic resilience.

Technical Session TF 1.1 & TF 1.3 Well-Prepared Projects including LMIC

This session will be co-chaired by PIARC Task Forces 1.1 & 1.3 Chairs, Ms. Monique Aubry & Mr. Michel Demarre.



This session will present the work accomplished by the PIARC Committee during 2020–2023 on the following issue:

- 1.1.1 Well-prepared projects.
- 1.3.2 Well-prepared projects in LMIC.

The session will be complemented by the outcomes of the call for papers on the following topic:

- 1. Well-prepared projects as a strategy to face uncertainty and to deliver better transportation solutions.



Technical Session 2.1 Mobility in Urban Areas



This session will be chaired by PIARC Technical Committee 2.1 Chair, Mr. Andrea Simone.

This session will present the work accomplished by the PIARC Committee during 2020–2023 on the following issues:

- 2.1.1 Accessibility and mobility facing land use in urban and peri-urban development.
- 2.1.2 Integrated transportation systems, multimodality.
- 2.1.3 Evaluating impacts of new mobility in urban and peri-urban areas.

The session will be complemented by the outcomes of the call for papers on the following topics:

1. Urban mobility for a better urban environment.
2. Multimodal transit centers and Mobility hubs – better integration between different mode of transport.
3. Evaluating impacts and challenges of new mobility in urban and peri-urban areas.

Technical Session 2.2 Accessibility and Mobility in Rural Areas



This session will be chaired by PIARC Technical Committee 2.2 Chair, Mr. Souleman Oussiman.

This session will present the work accomplished by the PIARC Committee during 2020–2023 on the following issues:

- 2.2.1 Accessibility and mobility in rural areas.
- 2.2.2 Improving road safety in rural areas.
- 2.2.3 Technical solutions for unpaved roads.

The session will be complemented by the outcomes of the call for papers on the following topic:

1. Challenges and solutions for rural roads.

Technical Session 2.3 Freight



This session will be chaired by PIARC Technical Committee 2.3 Chair, Mr. Martin Ruesch.

This session will present the work accomplished by the PIARC Committee during 2020–2023 on the following issues:

- 2.3.1 Best practices for monitoring and regulating to reduce overloading and associated infrastructure damage on road networks.
- 2.3.2 Greening of freight transport.
- 2.3.3 Application of new technologies on freight transport and logistics.

The session will be complemented by the outcomes of the call for papers on the following topics:

1. Monitoring and regulation to reduce overloading and associated road network damage.
2. Greening of Freight Transport.
3. Application of emerging technologies in freight transport and logistics.

Technical Session 2.4 Road Network Operation / Intelligent Transportation Systems



This session will be chaired by PIARC Technical Committee 2.4 Chair, Ms. Valentina Galasso.

This session will present the work accomplished by the PIARC Committee during 2020–2023 on the following issues:

- 2.4.1 Opportunities of new mobility forms for road network operation.
- 2.4.2 Optimizing road network operation decision-making through new technologies and digitalization.
- 2.4.3 Sharing RNO & ITS knowledge through PIARC dedicated online resource. 3.1 Best practices in funding and financing of road infrastructure.

The session will be complemented by the outcomes of the call for papers on the following topics:

1. The role of road operators for MaaS development.
2. C-ITS across the globe: How cooperative intelligent transport system are shaping the future of road mobility.
3. Data as an enabler for road operators and C-ITS: The journey to better decision making and road network management.

Technical Session TF 2.1 New Mobility and its Impact on Road infrastructure and Transport



This session will be chaired by PIARC Task Force 2.1 Chair, Ms. Ana Luz Jimenez.

This session will present the work accomplished by the PIARC Committee during 2020–2023 on the following issue:

2.1.1 New Mobility and its Impact on Road infrastructure and Transport.

The session will be complemented by the outcomes of the call for papers on the following topic:

1. New Mobility and its impact on infrastructure.

Technical Session TF 2.2 Electric Road Systems (ERS)



This session will be chaired by PIARC Task Forces 2.2 Chair, Mr. Jan Pettersson.

This session will present the work accomplished by the PIARC Committee during 2020–2023 on the following issue:

2.2.1. Electric Road Systems (ERS).

The session will be complemented by the outcomes of the call for papers on the following topic:

1. Electric Road Systems, a contribution to free the transport system from the use of fossil fuels.

Technical Session 3.1 Road Safety



This session will be chaired by PIARC Technical Committee 3.1 Chair, Mr. John Milton.

This session will present the work accomplished by the PIARC Committee during 2020–2023 on the following issues:

- 3.1.1 Specific road safety issues for LMICs.
- 3.1.2 Implementation of proven countermeasures.
- 3.1.3 Update Road Safety Audit Guidelines.
- 3.1.4 Implications of connected and automated vehicles.
- 3.1.5 Update of the Road Safety Manual.

The session will be complemented by the outcomes of the call for papers on the following topics:

1. Road Safety Management Practices and Processes.
2. Knowledge Sharing on Road Safety.

Technical Session 3.2 Winter Service



This session will be chaired by PIARC Technical Committee 3.2 Chair, Mr. Peter Nutz.

This session will present the work accomplished by the PIARC Committee during 2020–2023 on the following issues:

- 3.2.1 Integration of new technologies in winter services.
- 3.2.2 Winter maintenance in urban areas.
- 3.2.3 Implications of connected and automated vehicles on winter services.
- 3.2.4 Update of the Snow and Ice Data Book.

The session will be complemented by the outcomes of the call for papers on the following topics:

1. New technologies in winter service.
2. Winter maintenance in urban areas.
3. Implications of connected and automated vehicles on winter services.

Technical Session 3.3 Asset Management



This session will be chaired by PIARC Technical Committee 3.3 Chair, Mr. Gerardo Flintsch.

This session will present the work accomplished by the PIARC Committee during 2020–2023 on the following issues:

- 3.3.1 Innovative approaches for asset management systems.
- 3.3.2 Measures for improving resilience of road network.
- 3.3.3 Renewal and rejuvenation of aging infrastructure.
- 3.3.4 Update of the Asset Management Manual.

The session will be complemented by the outcomes of the call for papers on the following topic:

1. Road infrastructure asset management: Case studies, research results, practical experiences.

Technical Session 3.4

Environmental Sustainability in Road Infrastructure and Transport



This session will be chaired by PIARC Technical Committee 3.4 Chair, Mr. Eric Dimnet.

This session will present the work accomplished by the PIARC Committee during 2020–2023 on the following issues:

- 3.4.1 Real-time evaluation of pollution and mitigation measures.
- 3.4.2 Noise mitigation.
- 3.4.3 Road and road transport impact on wildlife habitats and their interconnections.

The session will be complemented by the outcomes of the call for papers on the following topics:

1. Air pollution and noise measurement, assessment and mitigation measures.
2. Real-time evaluation of pollution and mitigation measures.
3. Road transport sustainability and resilience in the context of climate change and energy transition.

Technical Session TF 3.1

Road Infrastructure and Transport Security



This session will be chaired by PIARC Task Force 3.1, Mr. Saverio Palchetti.

This session will present the work accomplished by the PIARC Committee during 2020–2023 on the following issue:

- 3.1.1 Embedding security into other infrastructure and transport-related topics.

The session will be complemented by the outcomes of the call for papers on the following topic:

1. Digital and physical security for infrastructure and transport resilience.

Technical Session 4.1

Pavements



This session will be chaired by PIARC Technical Committee 4.1 Chair, Mr. Margo Briessinck.

This session will present the work accomplished by the PIARC Committee during 2020–2023 on the following issues:

- 4.1.1 Use of Recycled Materials in Pavements.
- 4.1.2 Innovative pavement maintenance and repair strategies.
- 4.1.3 Road monitoring and management based on Big Data and Data Analytics.
- 4.1.4 Measures for improving resilience of pavements.
- 4.1.5 Carbon footprint.

The session will be complemented by the outcomes of the call for papers on the following topics:

1. Reducing the carbon footprint of road pavements.
2. Innovative maintenance methods and strategies.
3. New or innovative pavement materials.

Technical Session 4.2

Bridges



This session will be chaired by PIARC Technical Committee 4.2 Chair, Mr. Kiyohiro Imai.

This session will present the work accomplished by the PIARC Committee during 2020–2023 on the following issues:

- 4.2.1 Measures for increasing adaptability to Climate Change.
- 4.2.2 Forensic engineering for structural failures.
- 4.2.3 Advancement of inspection techniques / technologies and bridge management systems.
- 4.2.4 New rehabilitation materials and technologies.
- 4.2.5 Bridges damage-resilient in seismic areas.

The session will be complemented by the outcomes of the call for papers on the following topics:

1. Bridge resilience considering natural hazards.
2. Advancement of inspection, repair and rehabilitation techniques / technologies.
3. Forensic engineering for structural failures.

Technical Session 4.3 Earthworks



This session will be chaired by PIARC Technical Committee 4.3 Chair, Mr. Patrick Boisson.

This session will present the work accomplished by the PIARC Committee during 2020–2023 on the following issues:

- 4.3.1 Measures for increasing resilience of earthworks.
- 4.3.2 Techniques and innovation for construction and maintenance of earthworks.
- 4.3.3 Update Earthworks Manual “Design and Construction of earth-structures”.

The session will be complemented by the outcomes of the call for papers on the following topics:

- 1. Resilience and innovation of Earth Structures to natural hazards.
- 2. Earthworks for the Environment.

Technical Session 4.4 Tunnels



This session will be chaired by PIARC Technical Committee 4.4 Chair, Mr. Ingo Kaundinya.

This session will present the work accomplished by the PIARC Committee during 2020–2023 on the following issues:

- 4.4.1 Measures for increasing resilience of tunnels.
- 4.4.2 Best practices in management (maintenance and traffic operation) particularly of urban and heavily trafficked tunnels traffic tunnels.
- 4.4.3 Impact of new propulsion technologies on road tunnel operations and safety.
- 4.4.4 Intelligent Transportation Systems in tunnels.
- 4.4.5 Update of the Tunnels Manual.
- 4.4.7 Support for updating and improving of DG-QRAM.

The session will be complemented by the outcomes of the call for papers on the following topics:

- 1. Digitalization of Road Tunnel Design and Management.
- 2. Road Tunnel Operation and Safety Issues related to the Usage of New Energy Carriers in Road Vehicles.

Technical Session TF 4.1 Road Design Standards



This session will be chaired by PIARC Task Force 4.1 Chair, Mr. Mariusz Kiec.

This session will present the work accomplished by the PIARC Committee during 2020–2023 on the following issue:

- 4.4.1 Road Design Standards.

The session will be complemented by the outcomes of the call for papers on the following topic:

- 1. New trends in road design.

Technical Session PIARC Road Statistics



This session will be chaired by PIARC Road Statistics Committee, Mr. Hirofumi Ohnishi.

This session will present an international comparison of road statistics among countries, with the same definition and requirements, thereby allowing us to accurately gauge maturity of road and road transport of each country. It will also provide statistical data as well as the outcome of the analysis for road administrations of member countries. Countries will be able to make an objective assessment of actions based on such data analysis when formulating the road policies and measures.

FORESIGHT SESSIONS

These sessions are organized jointly by PIARC and partner international organizations, to address key topics in the road and transport sector. Partner organizations bring valuable inputs complementing PIARC's field of expertise with partners' views and approaches.

Foresight Session 1

Sustainable finance & international policies for the SDGs 2030 – Decarbonizing road infrastructure and developing carbon-neutral mobility in line with comprehensive sustainability of the road sector at the international level

This session will discuss and analyse the latest international policies, including innovative procurement/Public-Private Partnerships' mechanisms, and in particular the application of sustainable finance's schemes and instruments, including alternative sources of funding, for road infrastructure and mobility at international level.

The foresight session is co-organized by PIARC and the International Transport Forum at the OECD.

Foresight Session 2

Harnessing Artificial Intelligence & Big Data for Safer & Optimized Road Mobility

This session is organized by IRF Global, iRAP, and PIARC together with other stakeholders.

Foresight Session 3

Enhancing transportation equity globally: Outlook, challenges, and future issues

This session is organized by TRB, PIARC, AASTHO, and ECTRI with some other stakeholders.

Foresight Session 4

RoadTech: Game-changing trends in road project delivery

This foresight session will be a stakeholder roundtable that reviews some of the most promising trends in the industry, and discusses their implications for the way road agencies and contractors work together. The session is led by IRF Global with multiple stakeholders.

Foresight Session 5

Safe designs and speeds for active mobility and multimodal transport

In this session participants from iRAP, POLIS, and other organizations will discuss recent experience in the application of safe system approaches to creating environments that promote active mobility and multimodal transport, and share updates on tools that help planners, designers, and managers create safe roads and streets.

Foresight Session 6

Joining forces between engineering and environment towards sustainability and biodiversity preservation in 21st-century transport and mobility

This session is based on two PIARC work streams carried out within the period 2020–2023:

- Sustainability of transport and mobility for societies and economies.
- Interaction of transport with wildlife habitats and corridors.

This PIARC – IENE (Infrastructure and Ecology Network Europe) session will bring together both engineering and environment aspects.

Foresight Session 7

Envisioning scenarios for global supply chains and what they mean for national road authorities

This session will first consider the scenarios envisioned by key actors in the global logistics sector and subsequently the consequences for road network operators. It will be interactive with all audience participants and establish a basis on which interaction will continue in future PIARC and other stakeholder activities, such as CEDR COMPASS, TRB/AASHTO Moonshot, ALICE, CLECAT, and ECTRI. Participants are invited to submit written questions and topics here (TBA).

Foresight Session 8

Mobilising investments and partnerships to deliver impact on road safety

The session will address the following questions:

- What's the business case for investments in safer roads and how does it translate in different regions of the world?
- How to create a conducive environment for private sector to engage?
- How can private investments be mobilised to close the funding gap?

This session is organized by IRF, iRAP, and PIARC with the participation of SuM4All, World Bank, and EIB.

Foresight Session 9

Physical and digital infrastructure to facilitate large-scale CCAM adoption for all

What's the role that road infrastructure plays in supporting and enhancing the capabilities of Cooperative, Connected and Automated Mobility (CCAM) solutions in large scale deployment?

This session's goal is to critically examine the 'business case' for road authorities to invest in supporting CCAM and Physical and Digital Infrastructure (PDI) initiatives.

This session is organized by IRF, CEDR, and PIARC together with other stakeholders.

Foresight Session 10

LATAM rural roads: low volume but high impact

Rural road programs generate very high social returns with a limited investment, contributing to national territorial cohesion, a more balanced development, while promoting traditional productive activities such as farming, and new ones such as tourism. Even though investment in improving rural access helps to overcome poverty thanks to greater economic activity, countries have difficulties prioritizing investment in this infrastructure.

The session will include speakers from CAF, PIARC, the national road administration, other development banks, and UN agencies.

Foresight Session 11

Gender Inclusive Transport

This session will explore the question *What is gender inclusive transport?* with speakers focusing on gender balance and equity in the transportation workforce, and gender inclusivity in the planning, design, construction and maintenance of transportation infrastructure. The session will provide a variety of perspectives from around the world.

This session is organized by PIARC with multiple stakeholders.

Foresight Session 12

Managing the energy transition: scaling up deployment of charging Electric Vehicles Infrastructure

A new World Bank report *The Economics of Electric Vehicles for Passenger Transportation* found that investing in electric vehicle charging infrastructure can be up to six times more effective at encouraging EV purchases than subsidies. Speakers from AASTHO, IRF, and World Bank will join PIARC for this session.

Foresight Session 13

Stress tests tool to assess the resilience of road assets to climate change hazards

This session, in partnership with UNECE and national administrations, will present a stress test as a tool for assessing resilience of a selected road asset to climate change hazards.

SPECIAL PROJECTS SESSIONS

PIARC has established a Special Project mechanism that responds to emerging topics identified as a priority by member countries. The Special Project Sessions will present some of the 2022 and 2023 Special Projects.

Special Project Session 1 **Equity and Accessibility**

This session will explore issues related to equity and accessibility, specifically addressing the question whether all segments of the population are served fairly and whether all geographic areas are accessible to those who need it. The specifics of these issues will vary from country to country.

Special Project Session 2 **Carbon neutrality**

This session aims to identify the actions being undertaken and potential new options to progress toward carbon neutrality in the road transportation sector.

Special Project Session 3 **Interurban cycling infrastructure**

Given the challenge of climate change, cycling has become a viable alternative to motorized transportation. As a result, cycling is experiencing a renaissance as a viable alternative or supplement for urban transport and longer-distance travel. To support this trend, it is crucial to invest in the necessary cycling infrastructure, both for short and long-distance cycle journeys.

This session will present the results of the research project on the interurban cycling infrastructure.

Special Project Session 4 **Innovation policies in the road sector**

It can be argued that the transportation field has been on a continuous journey of innovations since historical times. The sector as a whole generates and requires innovation: cold-mix asphalt, and intelligent transport systems, to name just two. Recent innovations in transportation, such as electric vehicles and ride-hailing services, demonstrate how roads can facilitate the integration of new technologies.

This topic is relevant because the pace of innovation is growing and road administrations and authorities, and all road-related companies, have to adapt.

WORKSHOPS

PIARC Technical Committees and partner organizations will offer a hands-on approach to key aspects of the road sector through interactive workshops available to all Congress delegates. More workshops are under definition and will be added to the Congress program after March 2023.

Workshop

Optimised and sustainable concrete pavement concepts for the future

Major global trends and challenges, in particular climate change, energy issues, and demographic trends, are having a significant impact on the mobility of goods and people. As a result, there is a need to adapt the way transport infrastructure is designed, built, and operated to meet these challenges. This workshop, organized by EUPAVE with other stakeholders, will showcase examples of innovative concepts in concrete road construction that address these changes.

Workshop

HDM-4 – The Past, The Present, and The Future

The Highways Development and Management tool (HDM-4) has been essential for almost 20 years. This workshop, organized by PIARC and HDM-4Global, will showcase the wide number of studies where HDM-4 has been applied, as well as highlight current applications of the software which show how to integrate the tool with Asset Management systems to leverage data for analysis as well as evaluation of new pavement materials.

Workshop

Decarbonisation, Recycling, Reuse and Circular Economy of Roads

Regardless of new motorizations and the evolution of mobility, road infrastructures will remain the primary social and economic link. That is why decarbonization, as well as Circular Economy of Road Construction, Road Maintenance & Road Equipment, are at the top of the list of concerns for the road community's private or public actors and decision-makers.

Routes de France and the European Union Road Federation, together with their partners all over the world, will address these topics.

Workshop

Research and innovation for the benefit of greener and more sustainable airfield pavements

There are several ways to reduce carbon footprint in airfield pavements, such as material optimization through advanced design methods and pavement assessment strategies, recycling and reuse (R&R), low embodied carbon materials or processes, and enhanced durability.

Co-organized by the French Civil Aviation Technical Center (STAC) and the Federal Aviation Administration (FAA) Airport Technology R&D Branch, this workshop includes international experts from the STAC, the FAA, Airbus, University Gustave Eiffel (France), US National Asphalt Pavement Association (NAPA) and Pavexpert.

Workshop

ZERO MEANS A LOT: do urban mobility organizations have what it takes?

Ambitious targets are being set at international, national, and local levels for road safety. Many public authorities and private corporations have committed to achieving at least a 50% reduction in traffic fatalities before the end of this decade, with many cities going even further to strive for zero deaths on their roads.

This workshop is led by POLIS.

Workshop

on Weigh in Motion (WIM)

This workshop will focus on regulation compliance using WIM and direct enforcement, including overload control, speeding control, and vehicle fitness control. It will also examine the best WIM practices for monitoring and regulation to reduce overloading and associated pavement damage on road networks.

The workshops will present case studies on good practices and current developments using traditional and advanced approaches in different countries.

Workshop **on Transport Administrations for the future**

The combination of the new sharing economy model and disruptive and innovative technologies such as connected and autonomous vehicles (CAV), on-demand ride-sharing services, Mobility as a Service (MaaS), continue to drastically reshape how people view mobility, how they travel, how freight moves, and their overall travel behavior and expectations. As new technologies connect us and sharing platforms emerge, the transport industry must re-evaluate its current business models.

This workshop will examine the necessary transport administration to seize these opportunities and tackle those challenges.

Disaster Management Manual

This workshop will showcase the Disaster Management Manual prepared by PIARC, which offers guidance on effective and efficient strategies and methods for PIARC member countries and regions to manage various disasters. The manual covers basic concepts and case studies, including lessons learned and best practices to apply these basic concepts in practice. These ideas and examples are categorized and cover each stage of the disaster management cycle.

Workshop **on Building Information Modelling (BIM)**

This workshop will present the application of BIM (Building Information Modelling), in conjunction with current AMSs used by road owners and operators, utilising a standard format.

Given that the use of BIM is not limited to the design phases, but encompasses the execution of the project and extends throughout the life cycle of the asset, enabling efficient asset management and reducing operating costs, there is a growing need to explore its application in the road sector.

Workshop **on Road Safety proven countermeasures**

In order to effectively reduce the occurrence of crashes, road safety programs must have a process for identifying and addressing high-crash-risk locations. This involves carefully identifying the contributing factors of these crash sites, which in turn allows the safety professionals to select and implement countermeasures that are most likely to reduce the likelihood and severity of crashes at those specific locations.

New inspection and rehabilitation techniques

Bridge inspections are crucial for the maintenance management of bridges and engineering structures. New technologies, such as remote sensing and the use of various sensors, have the potential to significantly improve the quality of structural inspections. However, due to a lack of experience on the part of owners and operators, these technologies are not yet being used comprehensively.

In addition to the development of new high-performance materials, there is a growing focus on using new technologies and construction methods, with a particular emphasis on "Construction under Traffic".

Program at Glance

	Plenary Kongresovy sal 1-4 2,766 seats (plus) 1 st & 2 nd floor	Parallel 1 Jizni 2AB 448 seats 2 nd floor	Parallel 2 Jizni 1AB 448 seats 1 st floor	Parallel 3 Jizni 3AB 400 seats 3 rd floor	Parallel 4 Panorama sal 400 seats 1 st floor	Parallel 5 Jizni 3C 300 seats 3 rd floor	Parallel 6 Maly 286 seats Ground floor	Posters Severni Sal North Hall 2 nd floor	Workshop A Klub A 170 seats 1 st floor	Workshop B Klub E 170 seats 1 st floor	Workshop C Klub H 170 seats 1 st floor	Side events Komorni Sal 200 seats 3 rd floor	
2 Oct AM 09:00-13:00	Opening Session								All poster sessions are scheduled in the following time slot to the relevant Technical Session, except for those marked in red				
13:00-14:30	Lunch												
2 Oct PM 14:30-18:00	Ministers' Session												
18:00-18:30	Opening of the Exhibition												
18:30-20:30	Welcome cocktail												
3 Oct AM 08:30-09:15	Keynote 1 or Regions & Cities Session												
3 Oct AM 09:30-13:00		Strategic Direction Session 4 – Resilient Infrastructure	Foresight Session 1 – Sustainable finance for 2030 SDG	Technical Session TF2.2 – Electric Road Systems	Technical Session 1.5 – Disaster Management	Foresight Session 2 – Artificial Intelligence and road operations & safety	Foresight Session 3 – Equity in transportation				Decarbonization & circular economy of road construction & maintenance equipment		
13:00-14:30	Lunch												
3 Oct PM 14:30-18:00		Technical Session 4.1 – Pavements	Strategic Direction Session 3 – Safety and Sustainability	Technical Session TF2.1 – New mobility and infrastructure	Technical Session TF1.1+1.3 – Well-Prepared Projects	Foresight Session 4 – LATAM rural roads	Foresight Session 5 – Safe active mobility / FS6 – Engineering&biodiversity	Poster Sessions TC1.5, TF2.2	WIM – Weigh in Motion	Transport administrations of the future			
4 Oct AM 08:30-09:15	Keynote 2												
4 Oct AM 09:30-13:00		Technical Session 4.2 – Bridges	Technical Session 3.1 – Road Safety	Strategic Direction Session 2 – Mobility	Technical Session 1.4 – Climate Change and Resilience	Foresight Session 7 – Global supply chains and road administrations	Special Project Session 1 – Equity and Accessibility	Poster Sessions TF1.3, TF2.1, TC4.1,					
13:00-14:30	Lunch												
4 Oct PM 14:30-18:00		Technical Session 4.3 – Earthworks	Technical Session 3.2 – Winter Service	Technical Session 2.1 – Mobility in urban areas	Strategic Direction Session 1 – Road Administration	Foresight Session 8 – Financing for road safety	Special Project Session 2 – Carbon neutrality	Poster Sessions TC1.4, TC3.1, TC4.2	Concrete pavements (90 min) / Disaster Management Manual (90 min)	HDM – 4			
5 Oct AM 08:30-09:15	Keynote 3												
5 Oct AM 09:30-13:00		Technical Session 4.4 – Tunnels	Technical Session 3.3 – Asset Management	Technical Session 2.2 – Accessibility and mobility in rural areas	Technical Session 1.1 – Performance of Transport Administrations	FS9 – CCAM for all / Technical Session PIARC Road Statistics	Special Project Session 3 – Cycling infrastructure	Poster Sessions TC2.1, TC3.2, TC4.3	Airfield pavements	Urban road safety (90 min)			
13:00-14:30	Lunch												
5 Oct PM 14:30-18:00		Technical Session TF4.1 – Road Design Standards	Technical Session 3.4 – Environmental Sustainability	Technical Session 2.3 – Freight	Technical Session 1.2 – Planning for social & economical development	Foresight Session 10 – Project delivery /	Foresight Session 11 – Promotion of Gender Inclusion and Diversity	Poster Sessions TC1.1, TC2.2, TC3.3, TC4.4, TF3.1, TC1.3, TC2.4	BIM Part 1	Road Safety proven countermeasures (TBC)	New inspection and rehabilitation techniques for bridges	iRAP innovation workshop	
5 Oct Evening	Gala Dinner												
6 Oct AM 8:30-9:15	Keynote 4												
6 Oct AM 9:30-13:00		Foresight Session 12 – Electric Vehicles and charging infrastructure	Technical Session TF3.1 – Security	Technical Session 2.4 – Red Networks Operation & ITS	Technical Session 1.3 – Finance and procurement	Foresight Session 13 – Testing infrastructure for climate change	Special Project Session 4 – Innovation policies	Poster Sessions TC1.2, TC2.3, TC3.4, TF4.1	BIM Part 2	Climate change adaptation framework		iRAP innovation workshop	
13:00-14:30	Lunch												
6 Oct PM	Closing Session												