

Strategic Theme 4: Resilient Infrastructure

Goal

The goal of Strategic Theme 4 is to improve the quality and efficiency of road infrastructure through the effective management of assets in accordance with user expectations and government requirements. TC 4.4 has been formed to focus on road tunnels within Theme 4.

Overview

The purpose of the TC 4.4 meeting in Paris was to introduce the main topics of work for the new cycle, 2020-2023, discuss the scope of work and refine the topics to ensure a strong focus with the strategic goal. We established Work Groups, commenced planning of tasks and developed programs of works to deliver outputs within the set timelines.

12 February 2020

Introduction to PIARC in a plenary session lead by Patrick Mallejacq, (PIARC Secretary General) and Claude Van Rooten (PIARC President).

PIARC would like to have more products delivered progressively through the cycle rather than delivery of all products at the next World Road Congress in 2023. This approach will enable PIARC to deliver products to key stakeholders more often and progressively which should enhance PIARC's reputation.

The three key issues that PIARC is focusing on in this cycle are climate change, resilience and road safety.

TCs are required to conduct two seminars in Low and Middle-Income countries.

13 February 2020

Mr Ingo Kaundinya (Chair of TC 4.4) opened the meeting which was held at Marne la Valee, France.

TC 4.4 currently has 64 members and 13 associate members. 37 members attended this meeting.

The English, French and Spanish speaking secretaries were appointed.

Work Groups

Work Group 1 – Best Practices in Tunnel

This Group will work on best practices in management (maintenance and traffic operations) in urban and heavily trafficked tunnels. It will collect information on tunnel operations from across the world to examine various tunnel equipment, safety performance, effectiveness and efficiency of maintenance operations. The main outputs will be collection of case studies and a full report. The report will include case studies, common tunnel maintenance practices and also identify innovative maintenance techniques and approaches.

Work Group 2 – Tunnel Resilience

Determine means of increasing resilience of tunnels that increase the availability of tunnels for users. Criteria will be established for the design and construction of more resilient tunnels. The main outputs are a literature review by January 2021, a briefing note including collection of case studies by January 2022 and a full report by March 2023.

I am a member of this Work Group.

Work Group 3 – Intelligent Transport Systems in Tunnels

Examine ITS developments for road network management and what could be applied in tunnels to improve safety and traffic flow efficiency. The main output will be a full report by October 2021.

The report will cover the main expectations of the tunnel community for ITS applications and it will take into account Big Data and Data Analytics.

Work Group 4 – Impact of New Propulsion Technologies

This Group will study the impact of new propulsion technologies on road tunnel operations and safety and how to prevent and mitigate the potential consequences of incidents involving alternative fuel vehicles. The Group will also consider tunnel ventilation systems and fire-fighting systems. The main outputs will be a joint workshop with ITA-COSUF, collection of case studies and a full report.

Task Force – Knowledge Management

This Task Force will continue to prepare new pages and review of existing pages in order update the Tunnels Manual and will also incorporate the outputs from the current cycle.

Task Force – International Conference

A Task Force is to be established to prepare and run the 2nd international road tunnels conference. The aim is to have in the order of 1,000 participants at this conference and to attract people from as many countries as possible.

Spain nominated to host this conference which was accepted.

I am a member of this Task Force.

Task Force- DGQRAM

DG-QRAM is software that is used to classify tunnels for use by particular dangerous goods vehicles. Software update of DG-QRAM so that it can run on modern platforms and correction of some bugs in the software were completed in the previous cycle. In the current cycle, the software will be further upgraded to better meet user's needs. Awaiting funding from PIARC to commence this work.

Leaders and co-leaders were appointed for each of the Work Groups and Task Forces.

Each Work Group identified other TCs which they need to collaborate with in the process of developing their outputs.

14 February 2020

As instructed in the plenary session, we need to arrange two seminars in Low and Middle-Income countries. PIARC secretariat has been requested to hold a tunnels seminar in Colombia in 2020. As significant work is involved to prepare for this seminar, the committee decided to hold this seminar in March/April 2021. Further investigations are required to ensure the safety and security of our committee members. This would be the first international seminar to be held in Colombia.

The Committee discussed the opportunity to be involved in the international Winter Road Congress in Calgary in February 2022. As the congress agenda will not be limited to winter issues and there is a strong desire to include topics on resilience, our committee decided that we would participate. We plan to hold a TC meeting in Calgary either just before or just after the congress.

We discussed proposals for dates and venues for future committee meetings. In advance of this meeting, I met with Austroads senior officers, including Nick Koukoulas, CE, to discuss making an offer to host a meeting of our committee in either Sydney or Melbourne. The plan is to hold a tunnels workshop as well as the meeting, so that we can take the opportunity to interact with highly experienced TC members about key tunnels issues that would be identified by people from Australia and New Zealand. Austroads was pleased to be able to make this offer which our committee accepted. Committee members are excited about meeting in Australia.

At this time, we have planned the following for future meetings.

- October 2020: Sydney or Melbourne, Australia - TC meeting and Workshop
- March/April 2021: Colombia – TC meeting and Seminar
- Late 2021: Tokyo, Japan – TC meeting and Workshop
- February 2022: Calgary, Canada – TC meeting and Winter Road Congress

- Late 2022: Spain – TC meeting and 2nd International Tunnels Conference
- Early 2023 - TBC
- Late 2023: Prague, Czech Republic – World Road Congress

Our committee has several members that also participate in meetings of other organisations that deal with various tunnel issues. We will allow time at each of our meetings for brief presentations on the outcomes of these liaisons. The organisations of interest include, ITA (International Tunneling Association), ITA-COSUF (Committee on Operational Safety of Underground Facilities), European Commission Committee on Road Tunnel Safety, NFPA, AASHTO (American Association of State Highway and Transportation Officials), IES (Illumination Engineering Society) and CENELEC New Tunnel Atmosphere Measurement Standard.

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