

PIARC (World Road Association) Strategic Plan - 2024-2027

TECHNICAL COMMITTEE 4.1 – PAVEMENTS

Overview

During the 2024-2027 cycle TC 4.1 will focus on pavements and road surface characteristics.

The four-yearly SURF symposium will celebrate its 10th symposium in 2026. The monitoring of surface characteristics has been a topic in former cycles. Previous reports focused mainly on condition survey measurements. This cycle a technical report will describe how surface measurements (and possibly other measurements) can be used in the quality assessment of new pavements. The wearing course, including surface treatments, are being designed more for their functional properties such as low noise, high friction, drainability or even for their aesthetic properties. A report will discuss these solutions.

A cross-cutting theme for ST4 is the reduction of carbon footprint. TC 4.1 will contribute to this task with a report on carbon calculators for pavements and case studies on how to reduce the carbon footprint during the construction of the pavement and/or its use. Pavements in urban areas get more and more attention, albeit for fighting heat island effects or for providing a surface for “new” types of vehicles and other road users. A collection of case studies will illustrate this topic. Finally, a report on low-cost pavements, which was started two cycles ago, will be finalized.

4.1.1 Road monitoring for quality control of new pavements: technical report

Purpose: The purpose of this work is to give an overview of how the quality of newly constructed pavements is monitored. The main focus will be on surface characteristics (evenness, skid resistance, noise, texture, bearing capacity, ...), but other destructive and non-destructive techniques can be included. There can be made a distinction between traditional contracts and long-term contracts (PPP or concessions).

It could also include approval limits for the new pavement, divided into requirements for new pavements and for maintenance treatments. Innovative evaluation techniques can be covered in some case studies.

Importance to roads agencies: This work is important to road agencies/road industry because it will give a state of the art on how to evaluate the quality of road construction.

Audience: Road agencies and/or road owners involved in building or rehabilitating pavements. Knowledge of the starting condition of a pavement can give an indication of future maintenance needs, and can be a valuable input for the asset management process.

Deliverables: Technical report.

Background to TC’s work on this topic: In former cycles, different reports were published to monitor the road: in the PIARC cycles 2012-2015 and 2016-2019 two reports were published on road monitoring with traditional means, followed in the cycle 2020-2023 by a report on road monitoring using Big Data. These reports mainly focus on network survey, but some of these techniques can also be used for quality acceptance.

Low and lower-middle income countries: This report is valuable for all countries, including LMIC.

Gender inclusion & diversity: Not relevant.

Potential duration: 3 years.

4.1.2 Functional wearing courses and surface treatments

Purpose: The purpose of this work is to give an overview of different techniques to improve the functional properties (evenness, noise, ...) of the wearing course of both asphalt and concrete pavements. These techniques can be surface treatments (grinding, grooving, milling, ...) or (thin) overlays. Special attention should go to techniques to reduce the road/tyre noise of different pavements (concrete, asphalt, mastic asphalt, ...).

Importance to roads agencies: This work is important to road agencies/road industry because these techniques can be a cost-effective way to improve the functional properties of a pavement.

Audience: Road agencies who want to know more about surface treatments.

Deliverables: Technical report.

Background to TC's work on this topic: A Collection of Case Studies on innovative maintenance was published during the 2020-2023 cycle which contained several surface treatments.

Low and lower-middle income countries: Relevant for all countries using asphalt or concrete pavements.

Gender inclusion & diversity: Not relevant.

Potential duration: 2 years.

4.1.3 Reducing carbon footprint for pavements

Purpose: The purpose of this work is to update the report on Carbon Footprint which was published two cycles ago. Since then, new tools, new techniques or strategies have appeared. The report can also include measures to reduce emissions during paving, from a health point of view.

A collection of case studies could collect case studies on techniques to reduce the carbon footprint, e.g. different ways of producing warm asphalt, use of alternative binders for asphalt or concrete mixes, ...

Importance to roads agencies: This work is important to road agencies/road industry because the older report needs updating, and because sustainability aspects related to pavements become more and more important.

Audience: Road agencies who want to have an overview of which tools and techniques are available and how to use them in their tendering and construction process.

Deliverables: Literature review, case studies.

Background to TC's work on this topic: Report on Carbon Footprint (cycle 2016-2019) and High Impact Summary based on this report (cycle 2020-2023).

Low and lower-middle income countries: Relevant to all countries, although it's probably mostly used in HIC at the moment.

Gender inclusion & diversity: Not relevant.

Potential duration: 2 years.

4.1.4 Pavements for urban areas

Purpose: The purpose of this work is to give examples of urban pavements. These days, pavements in urban areas require new/other requirements. E.g. the use of new vehicles (incl. different (electrical) personal transportation such as steps, segway, ...), taking into account water buffering or fighting heat island effects for resilience reasons, constructions to charge electrical vehicles while driving, etc.

Importance to roads agencies: This work is important to road agencies/road industry because it's an aspect which so far has not been addressed by PIARC and which becomes more important.

Audience: Mainly for road owners who want to get some possible ideas on different aspects of new pavement uses.

Deliverables: Case studies.

Low and lower-middle income countries: Relevant for all countries.

Gender inclusion & diversity: The safety aspect of road use can be an aspect.

Potential duration: 2 years.

4.1.5 Low-cost pavements

Purpose: The purpose of this work is to evaluate available technologies and practices for better sustainability and management of pavements.

Audience: Road owners.

Deliverables: Technical report

Background to TC's work on this topic: This work was started during the 2019-2022 cycle, but wasn't finished. However, the report is about 90% ready.

Low and lower-middle income countries: This report on best practices can be applied in all countries, with special consideration of low and middle income countries.

Gender inclusion & diversity: Not relevant.

Potential duration: 1 year.

4.1.6 10th Symposium on Pavement Surface Characteristics (SURF 2026)

Purpose: The purpose of this work is to organise the 10th SURF symposium. A host country has to be found, the TC functions as the scientific committee. SURF will be organised in 2026, the host country chooses the period (usually in the period April-May or September-October).

Importance to roads agencies: This work is important to road agencies/road industry because it gives a state of the art on surface characteristics, including academic and ongoing research information.

Audience: Road agencies, road researchers, universities.

Deliverables: Symposium.

Background to TC's work on this topic: Every four years a SURF symposium has been organised. The 9th SURF was in 2022 in Milano, Italy.

Low and lower-middle income countries: Less relevant.

Gender inclusion & diversity: Not relevant.

Potential duration: 2 years.