



**XXIVth World
Road Congress
Mexico 2011**
Mexico City 2011.

Report of the 2008-2011 Activities of the Technical Committee D2 on Road Pavements

Michel BOULET

- IFSTTAR (formerly LCPC) - France
- Chairman of PIARC Committee D2
- Michel.Boulet@ifsttar.fr



IFSTTAR

INSTITUT FRANÇAIS
DES SCIENCES
ET TECHNOLOGIES
DES TRANSPORTS,
DE L'AMÉNAGEMENT
ET DES RÉSEAUX

PIARC Committee D2 “Road Pavements”

Strategic Issues Assigned to Committee D2 by the PIARC Strategic Plan

- issue #1 Reducing Construction Time and Cost
 - issue #2 Improved Maintenance Methods
 - issue #3 Road Noise Mitigation
 - issue #4 Monitoring of Innovations
 - issue #5 Adaptation to Climate Change
-
- Organisation of the PIARC International Symposium on Surface Characteristics SURF (2008 & 2012)



PIARC Committee D2 “Road Pavements”

Structure of the Committee D2

- # 130 experts from # 42 countries in all the continents
- Umbrella
 - Chair : Michel Boulet (IFSTTAR, France)
 - FR- Secretary : Guy Tremblay (MTQ, Canada-Québec)
 - EN-Secretary : Suneel Vanikar (FHWA, USA)
- Three Formal Sub-Committees
 - D2a : Road Surface Characteristics
 - D2b : Flexible and Semi-rigid pavements
 - D2c : Concrete Pavements



PIARC Committee D2 “Road Pavements”

Sub-Committee D2a « Road Surface Characteristics »

- Chair : Ms. Francesca La Torre (Firenze University, Italy)
- FR-Secretary : Luc-Amaury George (Vectra, France)
- EN-Secretary : Peter Bryant (Queensland Roads, Australia)
- SP-Secretary : Rodolfo Tellez Guttierrez (IMT, Mexico)



PIARC Committee D2 “Road Pavements”

Sub-Committee D2b

« Flexible and Semi-Rigid Pavements »

- Chair : David Hein (ARA, Canada)
- FR-Secretary : Marie-Thérèse Goux (DIR IF, France)
- SP-Secretary : Rafael Limon Limon (PACC SA, Mexico)



PIARC Committee D2 “Road Pavements”

Sub-Committee D2c « Concrete Pavements »

- Chair : Raymond Debroux (MET, Belgium)
- FR-Secretary : Thierry Sedran (IFSTTAR, France)
- EN-Secretary : Anne-Lise Poupeleer (MOW, Belgium)
- SP-Secretary : Juan-José Orozco y Orozco (Orva ing., Mexico)



PIARC Committee D2 “Road Pavements”

Structure of the work programme:

One transverse working group for each strategic issue

- issue #1 Reducing Construction Time and Cost (conv: Luc Rens, Belgium, D2c)
- issue #2 Improved Maintenance Methods (conv: Johan Lang, Sweden, D2a)
- issue #3 Road Noise Mitigation (conv: Filippo Pratico, Italy, D2a)
- issue #4 Monitoring of Innovations (conv: François Chaignon, Canada, D2b)
- issue #5 Adaptation to Climate Change (conv: Benoit Verhaeghe, South Africa, D2b)



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International Symposium on Surface Characteristics SURF

- June 1988 (State College, USA), June 1992 (Berlin, DE), Sept 1996 (Christchurch, NZ), May 2000 (Nantes, FR), June 2004 (Toronto, CA)
- 6th : SURF 2008 on 20-22 October 2008 (Portoroz, Slovenia)
Spon. : PIARC, ZAG
Organ. : Bojan Leben (ZAG, SLO)
www.surf2008.si
- 7th : SURF 2012 on 19-22 September 2012 (Norfolk, Virginia, USA)
Spon. : PIARC, FHWA, TRB
Organ. : Gerardo Flintsch (Virginia Tech Transp. Inst., USA)
www.surf2012.org



PIARC Committee D2 “Road Pavements”

Regional Seminars and Workshops

- 24-26 August 2009 : Cancun, Mexico
Maintenance techniques to improve pavement performances
jointly with the Congreso Mexicano del Asfalto (spon.: AMAAC)
- 9 October 2009: Seoul, South Korea
Construction and maintenance of concrete roads
- 9-11 May 2011 (Buenos Aires, Argentina)
Recent progress in the field of design and construction of concrete pavements (spon. : ICPA)



PIARC Committee D2 “Road Pavements”

Liaisons

- Transportation Research Board (TRB-USA)
- Australian Road Research Board (ARRB-AUS)
- Forum of European Highway Research Laboratories (FEHRL-Europe)
- Standardization Bodies
 - ISO/TC53/SC1: Acoustics and Texture
 - CEN/TC227: Road materials
 - ASTM E17 : Vehicle-pavement systems
 - ASTM D04 : Road Materials



PIARC Committee D2 “Road Pavements”

Meetings during the 2008-2011 period (1/2)

- April 2008 – Paris (France): D2a+D2b+D2c
- October 2008 – Portoroz (Slovenia): D2a+D2b+D2c in conjunction with PIARC/SURF 2008 Symposium
- March 2009 – Vienna (Austria) : D2c
- May 2009 – Rhodos (Greece) : D2a+D2b, in conjunction with 7th RILEM/ATCMB Conference
- August 2009 – Cancun (Mexico) : D2a+D2b, in conjunction with AMAAC Congress + PIARC Seminar



PIARC Committee D2 “Road Pavements”

Meetings during the 2008-2011 period (2/2)

- October 2009 – Seoul (South Korea) : D2c + PIARC Seminar
- April 2010 – Irvine (USA): D2a+D2b+D2c
- October 2010 – Sevilla (Spain) : D2c, in conjunction with the 11th International Conference on concrete roads
- October 2010 – Paris (France) : D2a+D2b
- April 2011 – Roma (Italy) : D2a+D2b
- May 2011 – Buenos Aires (Argentina) : D2c + PIARC Seminar



PIARC Committee D2 “Road Pavements”

D2 Products

- Introductory and Summary reports for the World Congress
- Technical reports (state-of-the-art, case studies,..) to be published after the Congress: one for each strategic issue
 - Article for Routes/Roads: Cancun Seminar (published), Mitigation of rolling noise (intended)
- Quality (technical and editorial) control by an editorial sub-committee (Brian Ferne, United kingdom)
- Proceedings of SURF 2008, of the Regional Seminars



PIARC Committee D2 “Road Pavements”

Programme of the D2 session of the World Road Congress in Mexico – Part 1

- General Introduction (Michel Boulet, France)
- Symposia SURF
 - SURF 2008 (Bojan Leben, Slovenia)
 - SURF 2012 (Gerardo Flintsch, USA)
- Reporting issue #1 Reducing Construction Time and Cost (Luc Rens, Belgium)

Coffee Break

- Reporting Regional Seminars (Rodolfo Tellez, Mexico –Suneel Vanikar, USA – Diego Calo, Argentina)
- Reporting issue #2 Improved Maintenance Methods (Benoît Petitclerc, Canada-Québec)



PIARC Committee D2 “Road Pavements”

Programme of the D2 session of the World Road Congress in Mexico – Part2

- Reporting issue #3 Road Noise Mitigation
(Mrs. Fabienne Anfosso-Lédée, France)
- Reporting issue #4 Monitoring of Innovations
(David Hein, Canada)

Coffee Break

- Reporting issue #5 Adaptation to climate changes
(Benoît Verhaeghe, South Africa)
- General conclusions (Michel Boulet, France)



PIARC Committee D2 “Road Pavements”

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PIARC Committee D2 “Road Pavements”

Programme of the D2 session of the World Road Congress in Mexico – Part 1

- Issue #1 Reducing Construction Time and Cost

Presentation of the technical report prepared by the working group:
Luc Rens (Belgium)

Reconstruction of pavement of the Mexico-Queretaro highway:
Juan José Orozco (Mexico)

Rapid reconstruction of an intersection in the Washington State:
Suneel Vanikar (USA)

Case Study: *Keizo Kamiya (Japan)*

Discussion



PIARC Committee D2 “Road Pavements”

Programme of the D2 session of the World Road Congress in Mexico – Part 1

- Issue #2 Improved Maintenance Methods

Presentation of the technical report prepared by the working group:
Benoît Petitclerc (Canada-Québec) on behalf Johan Lang

Ten years of concrete pavement maintenance innovation to extend service life: *David Hein (Canada)*

Methodology to determining strategies for pavement preservation:
Francisco Javier Moreno (Mexico)

Presentation of the German guidelines for repair of concrete pavements: *Stefan Holler (Germany)*

Discussion



PIARC Committee D2 “Road Pavements”

Programme of the D2 session of the World Road Congress in Mexico – Part 2

- Issue # 3 Mitigation of road noise

Presentation of the technical report prepared by the working group:
Fabienne Anfosso-Lédée (France) on behalf Filippo Pratico

Long lasting durable mix asphalt as alternative of porous asphalt :
Keizo Kamiya (Japan)

3D characterization of asphalt pavement macrotexture for skid resistance evaluation: *Yinghao Miao (China)*

The poro-elastic road surface (PERS): a powerful weapon against traffic noise: *Luc Goubert(Belgium)*

Discussion



PIARC Committee D2 “Road Pavements”

Programme of the D2 session of the World Road Congress in Mexico – Part 2

- Issue # 4 Monitoring of innovation

Presentation of the technical report prepared by the working group:
David Hein (Canada) on behalf François Chaignon

Road foundation construction using tyre bales: a lightweight, low-energy alternative: *Mike Winter (United Kingdom)*

Photocatalytic applications in Belgium, purifying the air through the pavement: *Anne Beeldens (Belgium)*

Seismic retrofit of asphalt pavements using confined-reinforced earth : *Tsutomu Ishigaki (Belgium)*

Discussion



PIARC Committee D2 “Road Pavements”

Programme of the D2 session of the World Road Congress in Mexico – Part 2

- Issue # 5 Adaptation to climate change

Presentation of the technical report prepared by the working group:
Benoit Verhaeghe (South Africa)

Adapting road infrastructure to climate change: innovative approach and tools: *Yves Ennesser (France)*

Impact of climate change on the development of rutting : *Alexander Zeissler (Germany)*

Use of solar heat-blocking pavement technology for mitigation urban heat: *Masahiko Iwama (Japan)*

Pavement preservation processes in Latin America, energy use and GHG emissions: *Patricia Irrgang (USA)*

Discussion

