

## International Workshop « Automated detection of pavement surface distresses (cracking) »

Québec, 13 August 2006

### *Organisation*

- Working Group D of PIARC Technical Committee 4.2  
« Road/Vehicle Interactions »
- encouraged by Technical Committee AFD 20, sub-committee n°1, of TRB

## Objectives

- to provide experts, researchers, suppliers, and end users (road managers) with latest information, and to give them the opportunity to exchange knowledge and experience regarding the development and the evaluation of automated or semi-automated crack (and other distresses?) detection systems
- to initiate permanent international concertation and co-operation on this topic ( « users group or network »?)
- to allow PIARC /TC 4.2 and TRB/TC AFD20-1, and all other interested organizations, to identify needs and to determine the means of increasing R&D efforts and improving harmonization procedures

## Programme

- **Introduction**
  - Workshop objectives (Michel Boulet, LCPC, France)
  - Objectives of PIARC/TC 4.2 Working Group D (Mathieu Grondin, MTQ, Québec)
- **Methods for detecting and quantifying cracks (and other distresses)**
  - The AASHTO method (Paul Harbin, Roadware, Canada )
  - The LCPC test method (Michel Boulet, LCPC, France)
- **Current developments in processing and analysis technologies and methods - from the researcher's and designer's perspective**
  - Developing an automated crack measurement system: challenges and solutions (John Laurent, INO, Canada)
  - The Roadware experience (Paul Harbin, Roadware, Canada)
  - The TRL experience (Brian Ferne, TRL, UK)

## Programme (Ctd.)

### ➤ Evaluation and qualification procedures for measuring systems

- The British experience (Ramesh Sinhal, HA, UK, presented by Brian Ferne)
- The Swedish experience (Leif Sjögren, VTI, Sweden)
- The Japanese experience (Keizo Kamiya, Nippon Expressway Company Ltd, Japan)
- The Australian experience (Steve Brown, Australia, presented by Brian Ferne)
- The Dutch experience (Jeannot Fafié, DWW, The Netherlands)
- Harmonized method for qualifying and validating automated measurement systems: PIARC Working Group D progress report (Pietro BUMMA, MET, Belgium)

### ➤ Discussion, recommendations for upcoming works, conclusions

## Discussion

## Discussion

### ➤ Methods for detecting and quantifying cracks (and other distresses)

- Any other experience or practices to be reported ?
- Suitable requirements (strictly necessary, sufficient, desirable), in terms of
  - types of distresses to be detected and recorded
  - minimal resolution (or size of defects) : for instance width of cracking
  - means for characterizing and quantifying distresses : from binary detection to full description
  - requirements adapted according to the types of uses of the data
- Interest and feasibility for future harmonization
  - previous works conducted by PIARC
  - actions at European Level (EC/COST actions)
  - actions at North America level
  - other?
- ...

## Discussion (contd.)

### ➤ Current developments in processing and analysis technologies and methods - from the researcher's and designer's views

- Any other experiences to be reported ?
- Fully automated or semi-automated systems (post-processing of data/images) ?  
Advantages, disadvantages ?
- Actual performances of fully automated or semi-automated systems for detecting and characterizing or quantifying other distresses than cracks : potholes, bleeding, ravelling, repairs,...
- Main factors limiting the performances of the systems (for instance in terms of resolution: width of cracks), possible evolutions in the near future
  - limits of the technologies
  - influence of surface texture and other surface conditions
  - influence of measurement operation conditions
- ....

### *Discussion (contd.)*

#### ➤ Evaluation and qualification procedures for measuring systems

- Any other experiences ??
- Satisfaction / Criticism of the clients of the data ( ie: road managers, engineering offices) while using data provided by automated systems
- Satisfaction / Criticism of the companies or institutes while using automated systems
- Main problems or difficulties while performing comparison tests (benchmarking) or evaluation/qualification
- Discussion of qualification and validation methodology proposed by PIARC/WGD? What modifications or restrictions would you make to the methodology?
- Do you think this method could be applicable at a world scale? Would you (as a user or designer) agree to participate in such a test?
- Priorities for future research and development in this field?
- .....

### *Discussion (contd.)*

#### ➤ Worldwide concertation and co-operation

- Interest and needs for pursuing exchanges of information/knowledge/experience
- Means to organizing such exchanges : discussion forum on web site, formal or unformal users group
- Liaisons with any existing organization : TRB/AFD20-1, EC/COST actions,....
- Would you agree to participate or continue to participate in PIARC's works in this field? (Please leave your name and contact information with the organizers before leaving)
- Interest and suggestion for any future workshops of this nature?
- .....