TC3.3 Tunnel Operations Committee
Overview of activities in the 2011-2015 cycle

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Overview

- WG1 : Sustainable road tunnel operations
- WG2 : Feedback from experience
- WG3 : Human factors
- WG4 : Fixed fire-fighting systems
- WG5 : Complex underground road networks
- WG6 : Knowledge management
- DG-QRAM upgrade project
- Lay-bys & PIARC recommendation

WG1 : Sustainable road tunnel operations (1)

- Recommendations for sustainable road tunnel operation
- Best practice for life cycle analysis for tunnel equipment

WG1 : Sustainable road tunnel operations (2)

Recommendations for sustainable road tunnel operation:

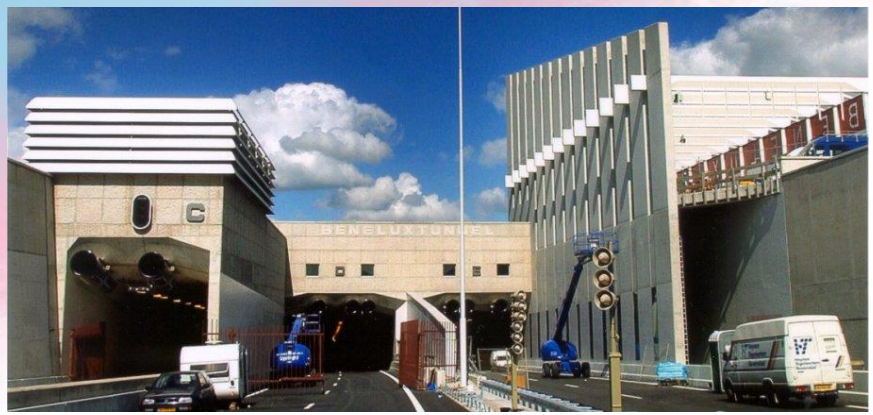
- Life cycle aspects
- Reduction of operational costs
- Innovative technology
- Methodologies to assess innovations
- Overview of current best practices and recommendations in sustainability

WG1 : Sustainable road tunnel operations (3)

Best practice for life cycle analysis for tunnel equipment:

- Condition analysis
- System criteria
- Aggregation of different criteria
- Risk-based methods for system analysis

WG2 : Feedback from experience



- Data collection and evaluation of collisions and fires
- Influencing factors for tunnel incidents
- Incident rates for various countries
- Conclusions drawn from real incidents
- Performance-based approach

WG3 : Human factors (1)

- Best practice on measures to support persons with reduced mobility
- Improving safety in road tunnels through real time communication with users

WG3 : Human factors (2)

Best practice on measures to support persons with reduced mobility:

- Summary of the general rules
- Design for persons with reduced mobility
- Examples of current practices

WG3 : Human factors (3)

Improving safety in road tunnels through real time communication with users:

- Human behavioural aspects when driving
- Communication with tunnel users in normal, congested and critical situations.
- Systems to optimise real-time communication with users

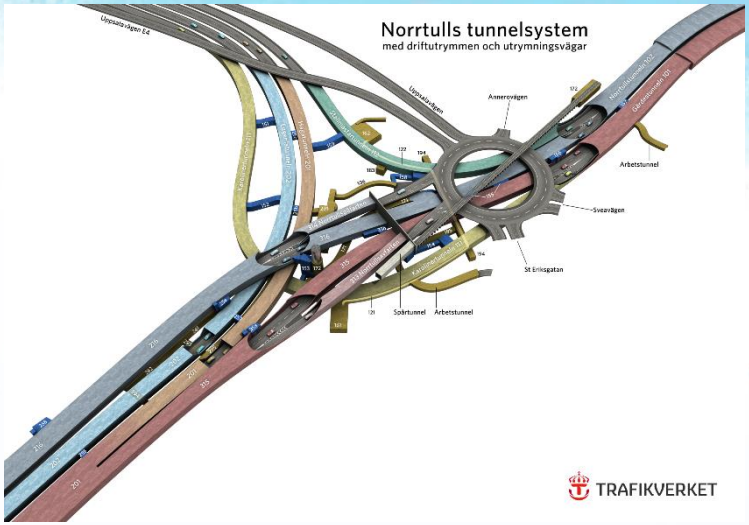
WG4 : Fixed fire-fighting systems

Development in PIARC's approach to fixed fire-fighting systems in tunnels:

- Functional impact of FFFS
- Types of systems available
- Design and selection of an appropriate FFFS
- FFFS procurement, installation and operation

WG5 : Complex road underground networks

- Survey of existing underground road networks
- Main issues regarding comfort and safety
- Good practices around the world
- Monographs describing each surveyed tunnel
- Recommendations (to be developed further in next cycle)



WG6 : Knowledge management

- Update of Road Tunnel Manual
- Road Tunnel Dictionary
- Training courses

Cross-functional projects monitored by the Technical Committee

- DG-QRAM upgrade project
- Lay-bys & PIARC recommendation

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- DG-QRAM upgrade project
- Lay bys & PIARC recommendation

DG-QRAM UPGRADE PROJECT

Context:

- 1990s: OECD + PIARC developed methodology to evaluate risks associated with transport of dangerous goods through road tunnels.
- Output of this research project: software called DG-QRAM (Dangerous Goods - Quantitative Risk Assessment Model)
- Compatibility problems with current software (Windows, Excel, …) ➡ DG-QRAM needs to be updated.

DG-QRAM UPGRADE PROJECT

Context:

- September 2011: proposal to upgrade the software
- Lack of funding: no follow up
- 2014: 8 countries confirmed their agreement to fund the project
- October 2014: a specific task group was created under the leadership of PIARC TC 3.3
- 2014-2015: the task group organized 4 meetings (Amsterdam, Paris, Madrid, Athens)

DG-QRAM UPGRADE PROJECT

Proposals made by the Task group (project organisation):

- Phase 1 “compatibility updating of the tool in order to make it compatible with existing software” (including correction of bugs)
- Phase 2 “improving the tool”

DG-QRAM UPGRADE PROJECT

Proposals made by the Task group (project organisation):

PIARC general secretariat
- financial aspects
- administrative aspects

Task Group (TG): (technical aspects)
- 8 countries (AT BE CH ES FI FR GR IS)
- 8 experts (AT CH ES FR GB GR NL)

Consultant:
- Assistance to the Task Group
- External control for the contractor's mission
- Tests, validation and acceptance

Contractor:
- Updates to the software

DG-QRAM UPGRADE PROJECT

Short term objective:

- Launch phase 1 of the project as soon as possible (to make DG-QRAM compatible with existing software)
- Terms of references for a consultant have been defined by the task group

- DG-QRAM upgrade project
- Lay-bys & PIARC recommendation

LAY-BYS AND PIARC RECOMMENDATION

Context:

- Lay-bys are a means of providing drivers with a relatively safe place to stop and to request and wait for assistance in the event of an emergency, such as a breakdown.

LAY-BYS AND PIARC RECOMMENDATION

Context:

- Tragic accident: on March 2012 in the Sierre Tunnel in the Swiss canton of Valais.
- A coach crashed into the end-wall of one of the tunnel's lay-bys side of the tunnel (28 people were killed, including 22 children).
- Danger to vehicles presented by perpendicular end-wall of such lay-bys

LAY-BYS AND PIARC RECOMMENDATION

Follow up:

- The PIARC TC 3.3 representatives of the various countries concerned by the matter started discussions on this topic.
- French experts (CETU) organised a workshop on lay-bys and other lateral obstacles in tunnels on October 2013.
- Participating countries: Belgium, The Netherlands, Spain, Switzerland, Italy, France, Slovenia and Norway.
- Technical paper published by TC 3.3 on this issue.

LAY-BYS AND PIARC RECOMMENDATION

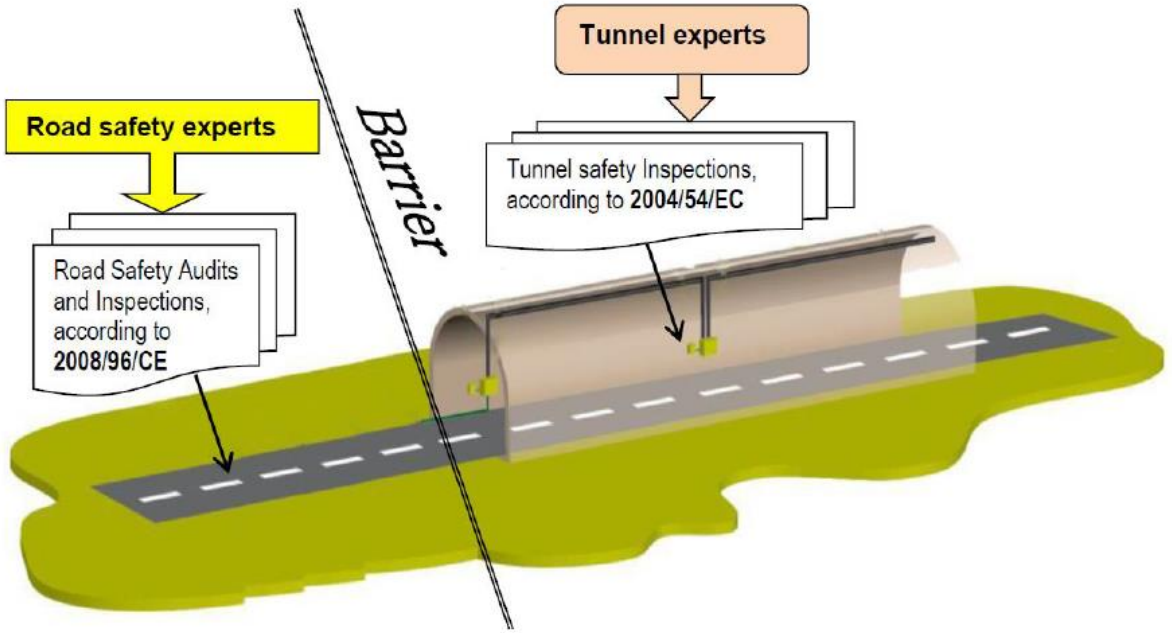
PIARC Recommendation:

- EU members states should encourage tunnel managers to specifically consider the aspects linked to road safety in the framework of the procedures applied for road tunnels in accordance with Directive 2004/54/EC.
- These procedures are widely based on the safety documentation, which should give proper consideration to road infrastructure safety from the design to the operation stage.

LAY-BYS AND PIARC RECOMMENDATION

ECOROADS project (initiated by TC 3.2 - road safety - experts):

- Main objective: to overcome the barrier established by the formal interpretation of the two Directives, that “in practice do not allow the same Road Safety Audits/Inspections to be performed inside tunnels”



LAY-BYS AND PIARC RECOMMENDATION

PIARC TC 3.3 contribution to the ECOROADS project:

- To contribute to joint safety operations
- To strongly encourage the contributors to remain in line with the PIARC recommendation

Thank you for your attention