

NEW RELEASE

TOOLS FOR TUNNEL SAFETY MANAGEMENT

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Although history shows that the frequency of accidents in tunnels is generally lower than on open roads, the consequences have the potential to be particularly severe in terms of human injuries or death, damage to infrastructure and economic impact. This has been particularly reinforced by tunnel catastrophes in recent times, emphasising the need for improving prevention and mitigation of tunnel accidents. This includes detection systems, procedures and preparedness of operation staff and emergency services.

This report is dedicated to the basic tools needed for management and decision support on road tunnel safety issues.

It defines the general demands on tunnel safety documentation, referring to each of the three different stages of a tunnel project: design-construction, commissioning, operation. An overview table provides a general description of the content of safety documentation in a structured layout. A checklist is also provided, providing more detailed information about specific subjects within each topic including comments and practical recommendations.

Incident data collection and analysis is essential for tunnel risk assessment and improvement of safety measures. The report defines 'significant incidents and accidents' and standards for the minimum level of detail to be recorded as well as the quality of input for risk analysis. The distinction between minimum datasets for statistics and reporting in contrast to detailed datasets to perform specialised analysis and improvement of safety measures is made. Requirements and recommendations for collection and analysis of incident data are presented along with practical feedback from different countries and research projects.

Safety inspections are presented as a tool to assess current tunnel safety levels and define acceptable risk levels within a legal framework. It presents an organisational scheme based on the EU Directive 2004/54/EC. The contents of a safety inspection are given along with a comprehensive program outlining the necessary steps and preparation needed to carry out a safety inspection. Scope and execution of inspections of existing infrastructure and systems, safety documentation and procedures, tunnel operation and finally deliverables of an inspection report are discussed and defined.

To ensure safety in road tunnels, the necessary structural, technical and organisational measures need to be put in place to minimise the occurrence of incidents and their impact in the event thereof. This report adopts a holistic approach with emphasis on the need to combine the necessary safety measures in an effective deployment of tunnel safety management.

This report can be accessed through PIARC's Virtual Library at:
http://publications.piarc.org/ressources/publications_files/5/6169,2009R08.pdf