



# CT 4.4 - Gallerie

24 febbraio 2022

Salvatore Giua, Leader

Romano Borchellini, Co-Leader

Ciro Caliendo, Co-Leader

**SICUREZZA NELLE GALLERIE STRADALI**

**SAVE THE DATE**  
24 FEBBRAIO 2022  
DALLE 9,30 ALLE 13,10  
*Crediti formativi per ingegneri, architetti, geologi che si iscrivono al webinar.*

---

# TC 4.4 Tunnel - Work Plan

## WORKING GROUPS

- WG 4.4.1 - Measures for increasing resilience of tunnels (*R. Mante*)
- WG 4.4.2 - Best practices in management (maintenance and traffic operation) particularly of urban and heavily trafficked tunnels (*A. Kabuya*)
- WG 4.4.3 - Impact of new propulsion technologies on road tunnel operations and safety (*G. Clark*)
- WG 4.4.4 - Intelligent Transportation Systems in tunnels (*H. Modig*)
- WG 4.4.5 - Update of the Road Tunnels Manual (*S. Giua*)

---

# TC 4.4 Tunnel - Work Plan

## OTHER TOPICS

- Topic 4.4.6 - Preparation of the 2<sup>nd</sup> International Conference on Tunnels (*R. López Guarga*)
- Topic 4.4.7 - Updating and improving of DG-QRAM (*C. Willmann*)



# Work Plan

## WG 4.4.1 - Measures for increasing resilience of tunnels

### Issue 4.4.1: Measures for increasing resilience of tunnels

Strategies / Objectives	Outputs
<ul style="list-style-type: none"><li>• Use current experiences on management of tunnels in order to develop best practices on design and construction for road tunnel operations.</li></ul>	4.4.1a: Literature Review; Expected deadline December 2020
<ul style="list-style-type: none"><li>• Establish criteria for the design and construction of more resilient tunnels for road tunnel operations.</li></ul>	4.4.1b: Briefing Note including Collection of Case Studies; Expected deadline December 2021
<ul style="list-style-type: none"><li>• Identify resilience measures with regard to risk reduction measures and associated risk management methods.</li></ul>	4.4.1c: Full Technical Report; Expected deadline December 2022
<ul style="list-style-type: none"><li>• Encourage coordination with other TCs and TFs</li></ul>	



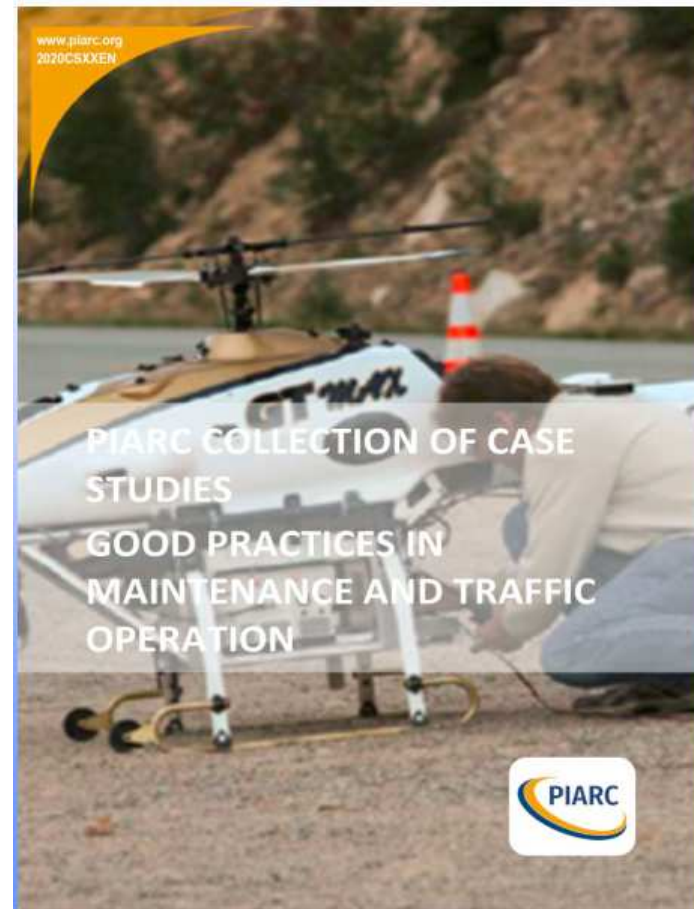
- The report was **published** on the PIARC website on March 17<sup>th</sup>, 2021.
- Delay in publication because of definition discussions; TC 1.4 is working on a briefing note to coordinate resilience activities between TC's, using slightly different definitions.
- In the end, it was decided to save the discussion for a later stage and publish the report with a "definition disclaimer"; the PIARC GS considers it a high quality output.



# Work Plan

## WG 4.4.2 - Best practices in management (maintenance and traffic operation) particularly of urban and heavily trafficked tunnels

Collection of case studies (output 4.4.2a)  
full technical report (output 4.4.2b)



---

# Work Plan

## WG 4.4.3 - Impact of new propulsion technologies on road tunnel operations and safety

- A review of worldwide trends in new propulsion technologies
- Evaluation of incident consequences from collation & review of incident records, case studies and from high level review of current research (including fire characteristics, toxic emissions) – with a focus on batteries
- Evaluation of impacts on intervention strategies (emergency services)
- Evaluation of considerations for tunnel ventilation and FFFS

---

# Work Plan

## WG 4.4.4 - Intelligent Transportation Systems in tunnels

### WORKING THEMES

- Connectivity
- Autonomous vehicles
- Electrification
- Data analysis
- Testing and feed back from existing systems in tunnels





---

# Work Plan

## WG 4.4.5 - Update of the Road Tunnels Manual

### Objectives

- Update the FR and ES versions of the Tunnel Manual.
- Update Tunnels Manual incorporating the results of the topics mentioned below.
- Take into account works carried out by T.C.D.5 – Road Tunnel Operations within Cycle 2016-2019.

