Seconds Matter

Automating Fire Detection and Suppression in Road Tunnels

Thank you for joining us...the webinar will begin shortly…

Bandweaver

RAFT

Seconds Matter

Automating Fire Detection and Suppression in Road Tunnels

Welcome
Introduction to the team

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RAET

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Electrical design consultant
Viscomi

Bandweaver RAET

What are we going to cover?

- Introduction – aims of the webinar
- Technical Guidelines Road Tunnel Safety
- Poggio Secco and Dell Colle Tunnels
- RAET tour of tunnel
- Details about Bandweaver-RAET
- Q&A session

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Introduction

Introduction
Aims of Webinar

- Give historical context of fire detection in tunnels
  - What have been the issues in the past?
- Demonstrate the principle of tunnel safety design
- Real world example of tunnel system commissioned by RAET
  - With on site video walk through

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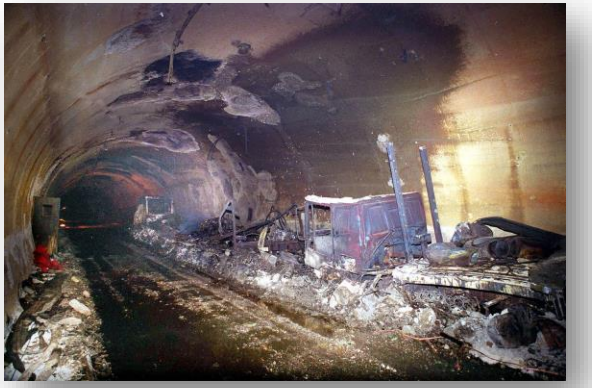
Mont Blanc Tunnel Fire –1999

- Mont Blanc road tunnel fire 24 March 1999
- 39 fatalities and damage estimate of > € 500mn
  - Tunnel closed for 3 years
- Fire caused by truck carrying margarine & flour
- Fire burned for 53 hours
  - Flames reached 1000°C
- No suppression system, fire services had restricted access
- Led to new European legislation EU 2204/54/EC



Burnley Tunnel-2007*

- Date: 23 March 2007
- Location: Burnley Tunnel, Melbourne, Australia
- 3 way collision. 1 car burst into flames
- Fire extinguished within 1 hour
- Damage estimate: $3mn EUR
- Tunnel Closure: open fully in 4 days
- Suppression and detection system (LHD)

*ARUP – "Burnly Tunnel Fire – The Arup View"

Indian road tunnel

- FireLaser system installed in road tunnel
- Fire detected within 10 seconds (2025)
- FireLaser also connected to suppression & ventilation system
  - Fire extinguished and all smoke cleared from tunnel within 180 seconds
- No significant damage to report.
  - Very limited downtime
  - No reporting in the media, no reputational damage

Technical Guidelines for Road Tunnel Safety

Technical Guidelines for Road Tunnel Safety

- Overview
  - 5 primary objectives
  - Roadmap for upgrading existing tunnels
  - The 3 pillars of tunnel safety
  - The Activation chain
  - Dual Purpose of Ventilation: Management vs safety
  - Fire prevention code vs International standards

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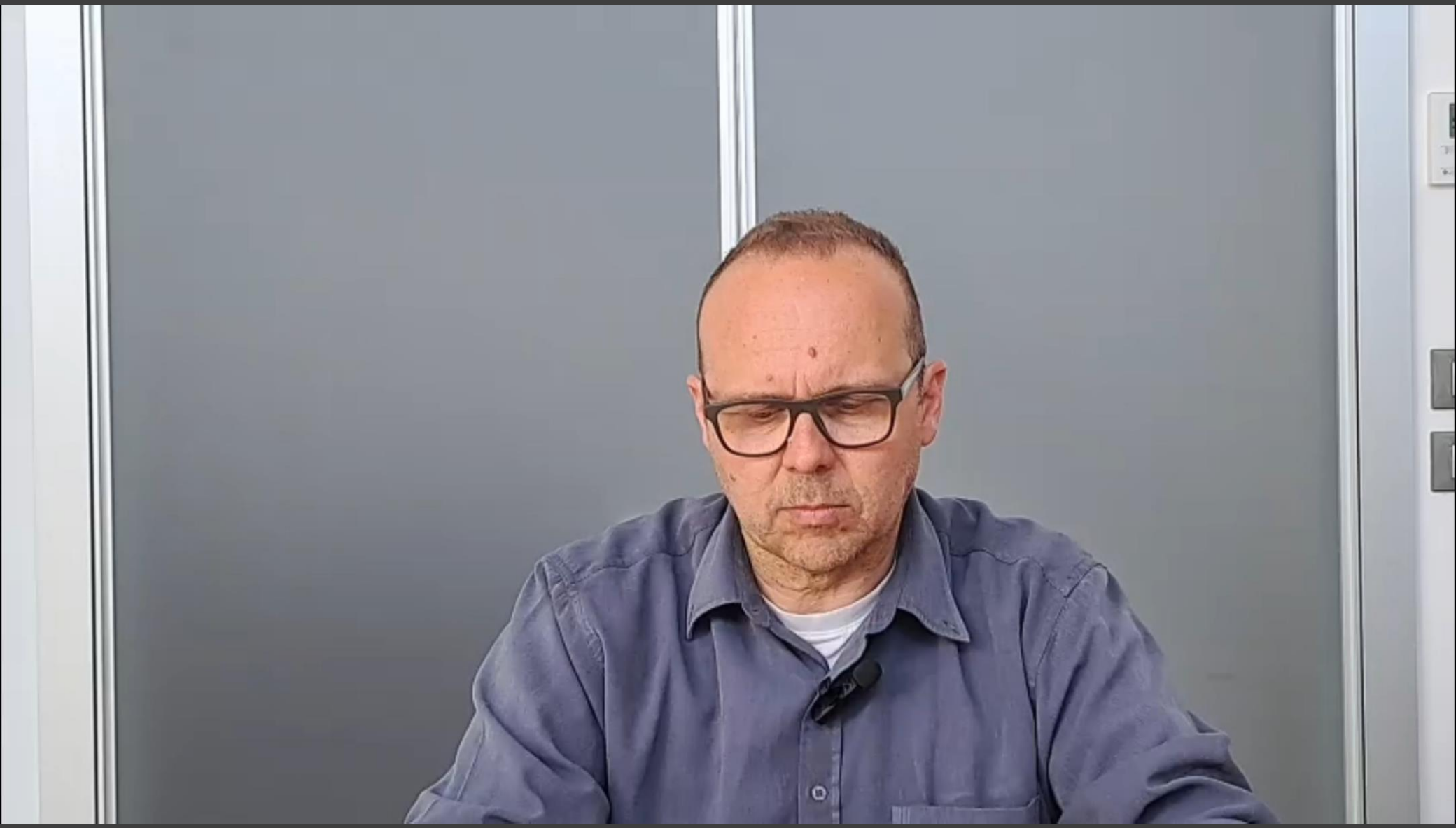

Just a quick reminder to submit any questions you may have by clicking on the Q&A button

Thank You

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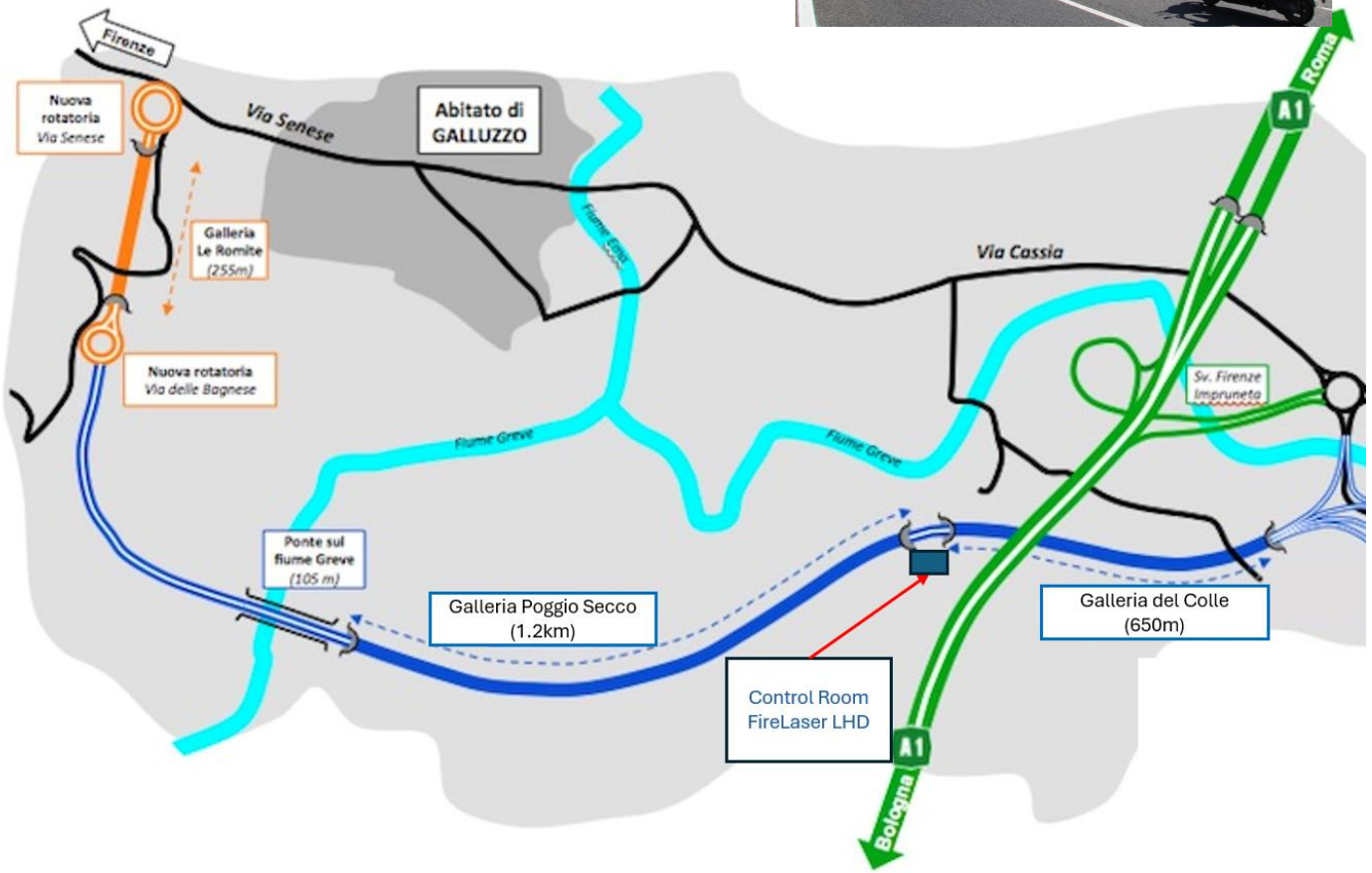
20 YEARS

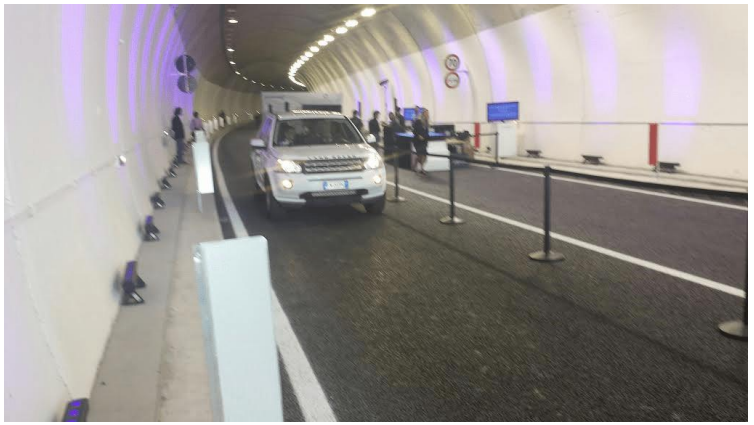
Poggio Secco and Dell Colle Tunnels

Tunnel Layout



Key Technical Details

- Fire Detection System
  - Bandweaver FireLaser LHD
  - 34 programmable zones
  - Smart Alarms: Max temperature & Dynamic Rate of Rise
- Suppression System
  - Linked to SCADA system
  - Fixed water based sprinkler heads
  - 5-7m between heads
  - Activity focussed on zones detected by DTS



RA 3 SIENA
IMPRUNETA
TAVARNUZZE
A1 A11 autostrade
750 m
ANAS SPA
800.841.148
Del Colle
700 m

Bandweaver & RAET key facts

Bandweaver key facts

Year of foundation: 2002

20 YEARS

More than 9,000 systems installed

More than 80,000km of fibre optics installed

Key Technologies

Distributed Fiber Optic Sensing

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RAET key facts

Year of foundation: 1980

Road/rail tunnel safety specialists

Part of VN group

Industrial automation specialists

Bandweaver

Established international customer base

Bandweaver

Fully Approved

- Systems approved to international standards applicable to fire, security and other industrial applications

Conclusion

Design of integrated & automated tunnel safety system is critical

FO-LHD is robust and reliable – low cost of ownership

Integration with suppression system is critical

Fiber optic LHD is one of the quickest methods of detection

Extensive experience in Road & Rail tunnel applications

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Other Resources

Please visit www.bandweaver.com

Head to Resources/Webinars:

https://www.bandweaver.com/downloads_and_resources/webinars/

and Resources/Videos

https://www.bandweaver.com/downloads_and_resources/video/

Here you can access a number of other webinars and videos demonstrating the range of Bandweaver products both for perimeter security but also for fire detection, powerline monitoring and pipeline monitoring applications.

Thank You

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Questions