

## D32.3 – Generic solutions for protection of line of route infrastructure (tracks, tunnels and bridges), depot and stabling area

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# 1 Public Summary

This deliverable proposes generic solutions for protection of line of route infrastructure (including tracks, tunnels and bridges), depot and stabling area.

Here are defined the standard generic capacities required for the security systems designed and developed for the protection of the assets. In particular the focus is on:

- the line of route,
- a particular part of the line of route considered critical (bridges, tunnels, etc.),
- depot and stabling area.

This work includes a number of tangential research areas. When integrated among themselves, they will enable enhancing the level of security against threats of criminal activity, terrorism and disasters. These conclusions will, in parallel, also enable dual use of the systems to meet safety and operational needs. Consequently, the added value of these elements, which are planned to be developed, will not be limited to security; it will be expanded to include additional areas that provide benefits to the PTO's.

In order to improve the overall protection of line route infrastructure, best practices suggested in deliverable D32.1 will be included:

- **Improving the line of route's resilience to blasts of IEDs and VBIEDs:** protecting the whole tracks, against (1) blast that could cause their collapse (2) planting of an IED, (3) sabotage and (4) placing of a heavy object that will cause a derailment.
- **Development of solutions to mitigate the effects of the dissemination of PIH** (poisonous by inhalation): chemicals in tunnels, including reducing the amount of time required to decontaminate a tunnel.
- **Development of integrative video solutions**, including the use of content analysis, in order to detect and investigate terror and crime threats and enhance the visualisation and the situational picture obtained by combining the outputs of the video systems, for the purpose of on-going video surveillance both like passive security solution and for a real time monitoring.
- **Protecting a section of the tracks:** it is important to consider that in some cases only limited and specific parts of the track can be particularly weak (e.g.: a bridge, but not only).
- **Protecting the tunnel's portal and the space of a tunnel:** for the purpose of preventing hostile elements from entering it and automatic tracking of suspicious persons / objects. The protection of the tunnel's portal and space of the tunnel (for example, ventilation rooms, emergency exits, grids, and so on) is obtained through the integration of a set of devices (for example, CCTV – ordinary and thermal cameras, and others) able to warrant the complete coverage of the areas of interest.
- **Perimeter protection of the depot and stabling area: this document studies and proposes solutions** against threats of crime, including vandalism and graffiti, as well as against terror threats.

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