WP6 Report
Demonstration and Validation

The following report summarizes the results of Work Package 6 –
*Application of the Guide on selected examples in different countries to give feedback to the developed Guide* of the EU CIPS Project *AllTrain*.
Project Information

Project Duration:
01/07/2013 – 31/06/2015

Project Partners:

**Federal Highway Research Institute**
Brüderstraße 53
D-51427 Bergisch-Gladbach
Germany
[www.bast.de](http://www.bast.de)

**CENOR Consultores, S.A.**
Rua das Vigias, No.2, Piso 1, Parc das Nações
P-1990-506 Lisboa
Portugal
[www.cenor.pt](http://www.cenor.pt)

**ILF Consulting Engineers**
Harrachstraße 26
A-4020 Linz
Austria
[www.ilf.com](http://www.ilf.com)

**Centrum dopravního výzkumu, v.v.i.**
Lišeňská 33a
CZ-636 00 Brno
Czech Republic
[www.cdv.cz](http://www.cdv.cz)

Project Coordinator:

Federal Highway Research Institute
Brüderstraße 53
D-51427 Bergisch Gladbach
Germany
[alltrain@bast.de](mailto:alltrain@bast.de)
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1. Introduction

The AllTraIn project is funded by the European Commission – DG General Home Affairs under the Prevention, Preparedness and Consequence Management of Terrorism and other Security-related Risks Program (CIPS). During the two-year course of the project, several work package reports will be issued, including the present report on WP4 – Approach for Assessment.

Background & work-package structure

The project AllTraIn is divided into 7 work packages:

- WP1 – State of the Art
- WP2 – Threats
- WP3 – Important Infrastructure
- WP4 – Approach for Assessment
- WP5 – All-Hazard Guide for Transport Infrastructure
- **WP6 – Demonstration & Validation**
- WP7 – Monitoring & Dissemination

Figure 1 illustrates the work-package structure of the AllTraIn project.

![Figure 1 – Work-package structure AllTraIn](image-url)
Work Package 1 identifies the state of the art regarding security research. Focus is given to already existing methodologies and approaches which could potentially be used or adapted within the AllTrain project. Work Package 2 deals with the identification of all possible hazards to transport infrastructures. These include (but are not limited to) man-made hazards (intentional and unintentional) as well as natural hazards. The outcome is a substantial list of possible hazards which are potentially relevant for transport infrastructure. Work Package 3 aims to identify and develop criteria for the identification of relevant infrastructure types and sub-types that can play a role in terms of susceptibility to different hazards. Work Package 4 develops a methodological approach for the assessment of hazards and assets, combining the information of the previous work packages. Work Package 5 aims to develop a practicable and user-friendly all-hazard guide for transport infrastructure, which is demonstrated and validated in Work Package 6. Work Package 7 deals with the dissemination and management activities within the project.
2. Validation Sheets
### Description/ Technical Details:
- (Highway-) Bridge across the Elbe marshland located in Hamburg, Germany
- Crossing roads and river
- T-beam bridge, concrete
- Construction year 1974, will be restructured 2016
- 4258 m length
- Longest span 35m

### Structural factors:
- Neither cable-stayed nor suspension bridge
- Alignment crosses Valley/Gully
- Ballasted track
- Explosion can reach pillars/super-structure or catenary
- Poor structural condition
- Long span (longer than 10 m)
- Steel or composite materials used

### Environmental Factors:
**Disposition criteria**
- Flood-endangered area
- High groundwater level
- Trees in the nearby area
- Snow or ice coverage

**Triggering events**
- Extreme snowfalls
- Frost-thaw cycles
- Icing

**Resulting hazard list:**
**Meteorological Hazards:**
- Extreme Snowfall
- Icing
- Fog
- Hail
- Extreme high temperatures
- Extreme low temperatures

**Geophysical Hazards:**
- Soil liquefaction

**Man-Made**
- Blockade
- Explosion
- Fire
- Sabotage
- Ramming
### Validation Sheet No. 02

<table>
<thead>
<tr>
<th><strong>Asset type:</strong> Cut</th>
<th><strong>Section type:</strong> Road</th>
</tr>
</thead>
</table>

### Picture/scratch:

![Image of a construction site with excavation work and machinery]

### Description/ Technical Details:
- Cut in an important highway of the external ring of Lisbon

### Structural factors:
- Drainage system non-existent
- Slope height superior to 50 m
- Slope face degree: 45°

### Environmental Factors:

#### Disposition criteria
- Difficult geotechnical conditions (soft soil)
- Seismic zone
- Superficial water level
- Intense rain period

#### Triggering events
- Intense rain period
- Human misusage of land

### Resulting hazard list:
- Extreme rainfall
- Ground deformation;
- Soil liquefaction;
- Rock fall
- Rock collapse
- Cliff fall
- Explosion
- Sabotage