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Deliverable D6.7

Online Toolbox

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Document details

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Revision	Date	Description
01	28/02/2020	Final version

Consortium - List of partners

Partner No	Short name	Name	Country
1	UIC	International Union of Railways	France
2	VTT	Teknologian tutkimuskeskus VTT Oy	Finland
3	NTNU	Norwegian University of Science and Technology	Norway
4	IFSTTAR	French institute of science and technology for transport, development and networks	France
5	FFE	Fundación Ferrocarriles Españoles	Spain
6	CERTH-HIT	Centre for Research and Technology Hellas - Hellenic Institute of Transport	Greece
7	TRAI NOSE	Trainose Transport – Passenger and Freight Transportation Services SA	Greece
8	INTADER	Intermodal Transportation and Logistics Research Association	Turkey
9	CEREMA	Centre for Studies and Expertise on Risks, Environment, Mobility, and Urban and Country planning	France
10	GLS	NeoGLS	France
11	RWTH	Rheinisch-Westfaelische Technische Hochschule Aachen University	Germany
12	UNIROMA3	University of Roma Tre	Italy
13	COMM	Commsignia Ltd	Hungary
14	IRU	International Road Transport Union - Projects ASBL	Belgium
15	SNCF	SNCF	France
16	DLR	German Aerospace Center	Germany
17	UTBM	University of Technology of Belfort-Montbéliard	France

Executive summary

The SAFER-LC toolbox is a free online tool with both practical and scientific aims. On the one hand it is a guide to best practice designed to integrate (in a user-friendly and accessible way) the recommendations, promising interventions, and specifications developed during the project. On the other hand, it is based on empirical evidence collected from the scientific literature, practical case studies, and from the project lab and field tests results and evaluation.

The toolbox summarises the most relevant and practical information collected and produced during the project. It provides an integrated overview of the road and rail safety requirements for the relevant actors of the LC safety community (e.g. road and rail infrastructure managers, train operators, engineers, designers, scientists, decision-makers, policy makers and standards developing organizations (SDOs)) and detailed guidance on the implementation of integrated socio-technical solutions to increase safety at LCs.

The SAFER-LC toolbox is available online at <http://toolbox.safer-lc.eu/>

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1. INTRODUCTION

The purpose of the Deliverable 6.7 is the provision of the SAFER-LC online toolbox at <http://toolbox.safer-lc.eu/>

2. DESCRIPTION

The SAFER-LC Toolbox is a decision-support tool to increase safety at level crossings (LCs) developed by UIC within the SAFER-LC project.

It is a free online tool with both practical and scientific aims. On the one hand it is a guide to best practice designed to integrate (in a user-friendly and accessible way) the recommendations, promising interventions, and specifications developed during the project. On the other hand, it is based on empirical evidence collected from the scientific literature, practical case studies, and from the project lab and field tests results and evaluation.

The toolbox summarises the most relevant and practical information collected and produced during the project. It provides an integrated overview of the road and rail safety requirements for the relevant actors of the LC safety community (e.g. road and rail infrastructure managers, train operators, engineers, designers, scientists, decision-makers, policy makers and standards developing organizations (SDOs)) and detailed guidance on the implementation of integrated socio-technical solutions to increase safety at LCs.

3. DEVELOPMENT PROCESS

The toolbox was designed and developed by UIC. A first version of the toolbox was presented in April 2019 (M24) to the members of consortium to get feedback and then adapt it accordingly.

During the third SAFER-LC workshop held on Wednesday 5 February 2020 in Madrid, around 40 road and rail safety experts from 10 countries evaluated the toolbox. This workshop was the opportunity to get new expert inputs and ideas to improve the existing content of the tool, and to collect expert feedback about the user interface. A new version is now under revision, taking into account the comments.

The SAFER-LC toolbox is available online at <http://toolbox.safer-lc.eu/>

The updating process is still on-going, and the toolbox will continue until the end of the project.

During the SAFER-LC final conference which will be held on 22 April 2020 in Paris, a training session on the toolbox will be organised.

The toolbox will be updated and improved by UIC even after the end of the project for the benefit of the entire road and railway safety communities.

4. SCREENSHOTS

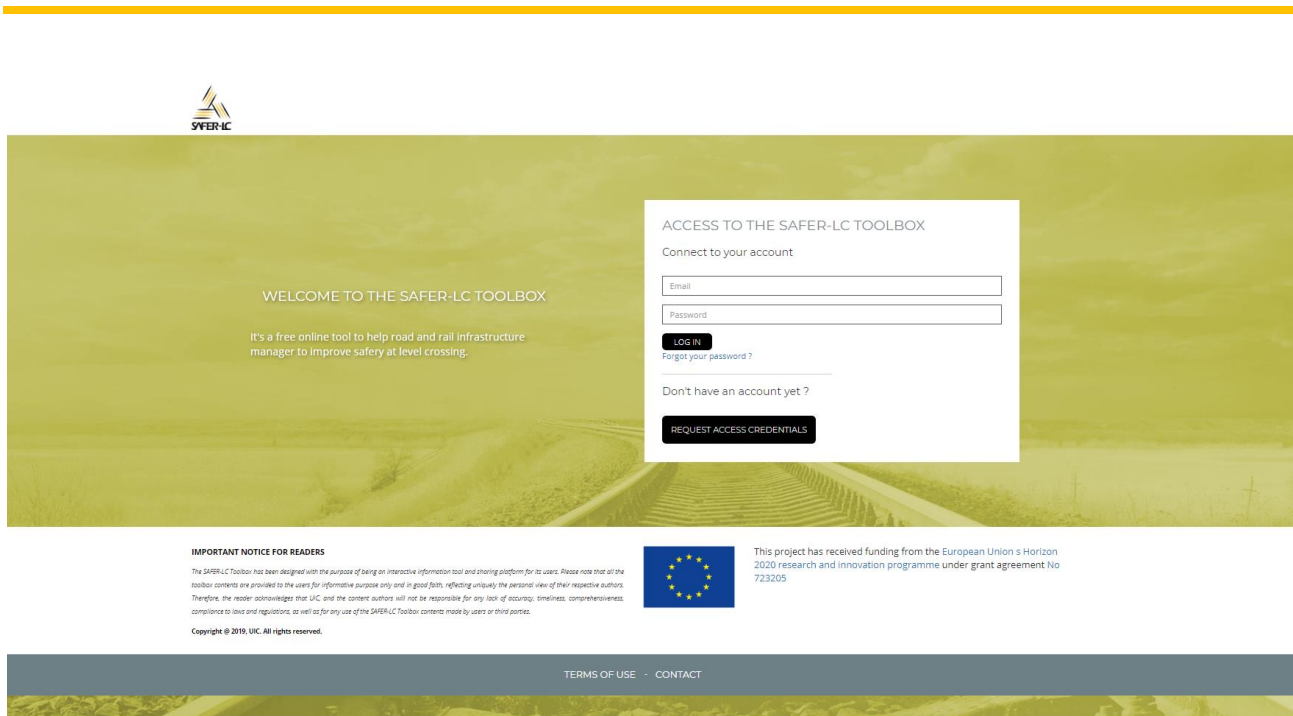


Figure 1 : SAFER-LC Toolbox – Registration page




SAFETY MEASURES

LAST SAFETY MEASURES

- Warning sign to avoid blocking back
- LED enhanced traffic signs
- Digital train arrival countdown timer display
- Satellite navigation (Satnav) intelligence

HIGHLIGHTS

- Risk Assessment methodology for Level crossings
- How to improve safety of Level crossings?

NEWS

- CRITIS 2019: 14th International Conference on Critical Infor...
- Human Factors working group meeting on 13 March 2019 in Mosc...

EVENTS

- 22** Apr 2020 SAFER-LC Final conference
Paris, UIC HQ


TWITTER

Shared SAFER-LC Newsletter

Grigore Havreanu @grighav
Today we are in #Algeria at the #EU_MedRail seminar organised by @ERA_railways and #SNTP. We presented the #EU funded research projects @SAFERLC & #RESTRAIL as well as #UICrail safety recommendations from @icad and #ELCF



QUICK ACCESS

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IMPORTANT NOTICE FOR READERS

The SAFER-LC Toolbox has been designed with the purpose of being an interactive information tool and sharing platform for its users. Please note that all the toolbox contents are provided to the users for informative purpose only and in good faith, reflecting uniquely the personal view of their respective authors. Therefore, the reader acknowledges that UIC, and the content authors will not be responsible for any lack of accuracy, timeliness, comprehensiveness, compliance to laws and regulations, as well as for any use of the SAFER-LC toolbox contents made by users or third parties.





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Figure 2: SAFER-LC Toolbox – Home page



Search

Home / List Safety Measure

SAFETY MEASURES

Sort by Changed (newest first)

Search criteria
(To select multiple items in a list, hold the CTRL key and click the items)

Search by title, by alias or by description :

Targeted users :

- Any -

Type of implementation

- Road User
- Road Infrastructure
- Rolling Stock
- Railway Infrastructure

Type of level crossing :

- Passive
- Half barriers and lights
- Full barriers

Effect mechanism :

- Any -

Reset search criteria
Search

COLOURED MARKING TO MARK THE DANGER ZONE ☆☆☆☆☆ 0/5 (0 vote)

Type of implementation : Railway Infrastructure

Targeted users : Vulnerable Road User (VRLU)

Type of level crossing : Passive Half barriers and lights Full barriers

Effect mechanism : Increases awareness of correct behaviour Improve access for vulnerable user

Last updated : 21/02/2020

INTRUSION DETECTION SYSTEMS ☆☆☆☆☆ 2/5 (1 vote)

Type of implementation : Rolling Stock Railway Infrastructure

Type of level crossing : Passive Half barriers and lights Full barriers

Effect mechanism : Support LC safety action

Last updated : 05/02/2020

ROAD SWIVELLING ☆☆☆☆☆ 0/5 (0 vote)

Type of implementation : Road Infrastructure

Targeted users : Motorized Road User (MRLU)

Type of level crossing : Passive

Effect mechanism : Improves the detection of LC Reduces the approach speeds of vehicles

Last updated : 04/02/2020

ADDITIONAL DISPLAY "TWO TRAINS" ☆☆☆☆☆ 0/5 (0 vote)

Type of implementation : Railway Infrastructure

Type of level crossing : Half barriers and lights Full barriers

Effect mechanism : Improves train detection Provides up-to-date information about the status of LC

Last updated : 20/01/2020

SMARTPHONE/WATCH MESSAGE WARNING OF APPROACHING TRAIN ☆☆☆☆☆ 0/5 (0 vote)

Type of implementation : Road User

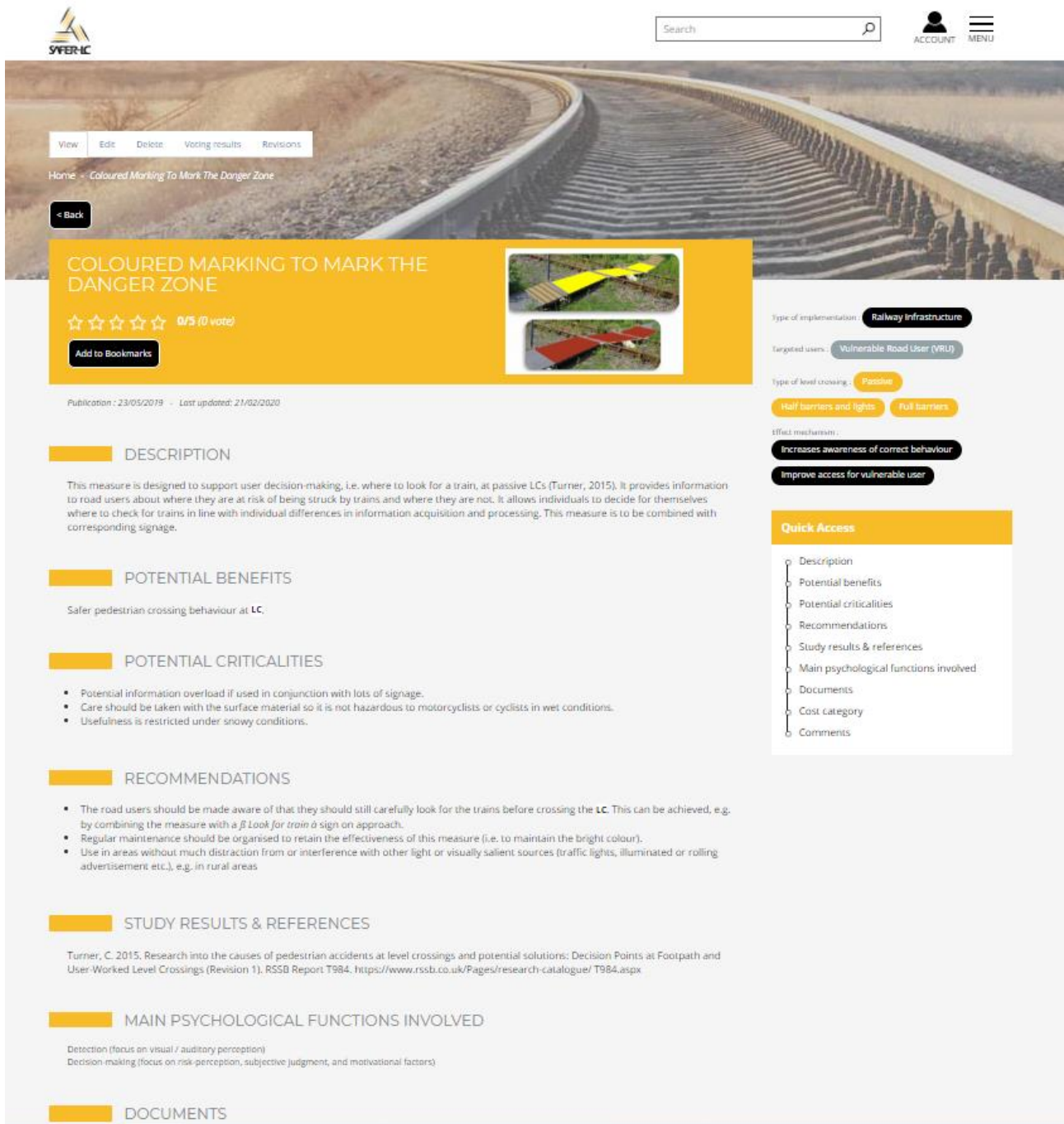
Targeted users : Vulnerable Road User (VRLU)

Type of level crossing : Passive Half barriers and lights Full barriers

Effect mechanism : Provides up-to-date information about the status of LC

Last updated : 15/01/2020

Figure 3 : SAFER-LC Toolbox – Safety measures list and search page



The screenshot displays the SAFER-LC Toolbox interface. At the top, there is a search bar and navigation links for 'ACCOUNT' and 'MENU'. The main content area features a large background image of a railway track with a yellow and red painted danger zone. Below this, a yellow banner contains the title 'COLOURED MARKING TO MARK THE DANGER ZONE', a star rating of 0/5 (0 votes), and an 'Add to Bookmarks' button. To the right of the banner are two small images showing the marking in use. Below the banner, the publication date is '23/05/2019' and the last updated date is '21/02/2020'.

The 'DESCRIPTION' section states: 'This measure is designed to support user decision-making, i.e. where to look for a train, at passive LCs (Turner, 2015). It provides information to road users about where they are at risk of being struck by trains and where they are not. It allows individuals to decide for themselves where to check for trains in line with individual differences in information acquisition and processing. This measure is to be combined with corresponding signage.'

The 'POTENTIAL BENEFITS' section lists: 'Safer pedestrian crossing behaviour at LC.'

The 'POTENTIAL CRITICALITIES' section lists:

- Potential information overload if used in conjunction with lots of signage.
- Care should be taken with the surface material so it is not hazardous to motorcyclists or cyclists in wet conditions.
- Usefulness is restricted under snowy conditions.

The 'RECOMMENDATIONS' section lists:

- The road users should be made aware of that they should still carefully look for the trains before crossing the LC. This can be achieved, e.g. by combining the measure with a *β* Look for train *α* sign on approach.
- Regular maintenance should be organised to retain the effectiveness of this measure (i.e. to maintain the bright colour).
- Use in areas without much distraction from or interference with other light or visually salient sources (traffic lights, illuminated or rolling advertisement etc.), e.g. in rural areas

The 'STUDY RESULTS & REFERENCES' section cites: 'Turner, C. 2015. Research into the causes of pedestrian accidents at level crossings and potential solutions: Decision Points at Footpath and User-Worked Level Crossings (Revision 1). RSSB Report T984. <https://www.rssb.co.uk/Pages/research-catalogue/T984.aspx>

The 'MAIN PSYCHOLOGICAL FUNCTIONS INVOLVED' section lists:

- Detection (focus on visual / auditory perception)
- Decision-making (focus on risk-perception, subjective judgment, and motivational factors)

The 'DOCUMENTS' section is currently empty.

On the right side of the interface, there are filters for 'Type of implementation: Railway Infrastructure', 'Targeted users: Vulnerable Road User (VRU)', and 'Type of level crossing: Passive'. Below these are buttons for 'Half barriers and lights' and 'Full barriers'. A 'Effect mechanism' section lists 'Increases awareness of correct behaviour' and 'Improve access for vulnerable user'. A 'Quick Access' sidebar on the right contains a list of links: Description, Potential benefits, Potential criticalities, Recommendations, Study results & references, Main psychological functions involved, Documents, Cost category, and Comments.

Figure 4 : SAFER-LC Toolbox – Example of a measure description

5. CONCLUSIONS

The toolbox will be regularly updated until the end of the project and beyond.