SAFER-LC Toolbox: A decision-support tool to increase safety at level crossings

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Objectives

**Improve safety** and minimize risks at and around LCs

Focus on **technical solutions** (early detection, communication between vehicles)

Focus on **human processes** (adapt the infrastructure to end-users, human centred measures, VRUs)

**Develop a toolbox** which will integrate all the project results and solutions
TOOLBOX ?
Support in selecting the most appropriate measures
Detailed guidance on measure implementation
Framework for structuring documented resources

Systematic process
Keyword index
Tips & examples
Evaluation studies
Attached resources
User feedback
Before we start...

▲ Toolbox development is still work in progress

▲ Workshop objectives:
   1. Get new expert input, ideas to improve the existing content
   2. Get expert feedback about the user interface

▲ Short tutorial on how to use the toolbox

▲ Evaluation exercise

▲ Evaluation and feedback collection (Inputs and feedback will be used to improve the tool)
GLOSSARY

Index

3 4 A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

3G

4G

A

ABP
ACD
ADS
AFNCR
AJAX
API
APM
Asset
ATM
AV

Access Control
ACS
AEO
AGC
AMD
API-FNA
AS3
ATA
ATOM
AVC
Human Factors working group meeting on 13 March 2019 in Moscow.

Quick Access
- Glossary
- Contact Us
- Bookmarks

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FOR MORE INFORMATION ABOUT THE SAFER-LC TOOLBOX, PLEASE CONTACT US USING THE FORM BELOW. WE WILL GET BACK TO YOU WITHIN THE SHORTEST DELAY.

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DESCRIPTION

Message to smartphone/watch warning road users of an approaching train. Message can be seen on all other applications (such as email or social media) or notifications (such as WM/ Bluesky) and avoid an alarm (either join the conversation) when it detects an "approaching train". Measure given is valid in rural areas.

POTENTIAL BENEFITS

- Warn road users of nearby trains via personal smartphone device. Immediate nature of warning could affect road users' concentration on their devices instead of traffic.

POTENTIAL CRITICALITIES

- The application could serve as an additional source of distraction to road users who are not actively looking at the mobile device.
- Potential over-reliance on this type of measure could take the road user's attention away from watching the road and level crossing.
- Users would have to download an application.

RECOMMENDATIONS

- To avoid negative side effects, the technology should contain a warning detection and issue a warning only if the road user is currently being handicapped by the use.
- Moreover, the output should optimally not stress visual processing resources (Williams & McCarley, 2009), but should facilitate a quick overview and visual attention to the warning (e.g., by means of audio output).
- Users should be reminded that the system is not fool-proof (e.g., when starting the application).

MAIN PSYCHOLOGICAL FUNCTIONS INVOLVED

- Attention to details (e.g., road condition and weather)

DOCUMENTS

- Safer-LC Guide to Smartphones for Road Users

COMMENTS

[Blank field for comments]
PHYSICAL LANE SEPARATION IN FRONT OF HALF BARRIERS

DESCRIPTION

Installation of elements (delineator posts, rods, traffic islands, etc.) to physically separate lanes immediately in front of half-barriers to prevent road users from driving around closed or closing half-barriers (prevention of zig-zagging).

POTENTIAL BENEFITS

Reduces violations at LCs by increasing difficulty of passing barriers.

POTENTIAL CRITICALITIES

- Possible problems with winter maintenance (i.e. possible challenges in snow clearance).

RECOMMENDATIONS

- The elements used should be designed such as not to disrupt normal traffic flow or introduce a new danger.

Quick Access

- Description
- Potential benefits
- Potential criticalities
- Recommendations
- Study results & references
- Main psychological functions involved
- Documents
- Comments
Thank you for your kind attention
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Evaluation group exercise (10.15 – 11.15)

Organisation
▲ Participants are organised in 6 small groups (about 7 persons / group)
▲ Each group moderated by one consortium partner (with one computer)
  ▲ Group 1 – Aida
  ▲ Group 2 – Anne
  ▲ Group 3 – Annika
  ▲ Group 4 – Francisco
  ▲ Group 5 – Marie-Helene
  ▲ Group 6 – Grigore
▲ Each group receives a generic description of a problem (unsafe LC) to be solved (scenario composed of an image and a short text).
▲ Each scenario is different (LC vary by type, environment, and user behaviour type)

Tasks
▲ The moderator presents the scenario (2 min)
▲ Each group discusses the problem and possible solutions to solve it (and documents 3 recommended measures) (15 min)
▲ The moderator asks the participants to discuss the same problem again – but now with the SAFER-LC toolbox, and participants are asked to propose against 3 solutions (35 min)
▲ Participants decide if they hold on their original solution(s) or whether they changed their mind after using SAFER-LC toolbox. (5 min)

Coffee break (11.15 – 11.45)
Individual evaluation session (11.45 - 12.15)

▲ Each participant fills in a feedback questionnaire (closed and open questions)

▲ Each group moderator distributes and collects the questionnaires making sure they are complete
Interactive session (12.15 - 13.00)

▲Debriefing and reporting from each group regarding the toolbox

▲Each moderator or a member of the group gives an overview of the group exercise (5 min per group):
  ▲Scenario
  ▲3 solutions without the toolbox
  ▲3 solutions with the toolbox (and if the toolbox gave new ideas)