# B category: HLN - FEC
# For approval SCOM 02-07-2019

C-Roads Platform

Working Group 2 Technical Aspects

Taskforce 2 Service Harmonisation

## Publication History

| Version | Date | Description, updates and changes | Status |
|---|---|---|---|
| 1.0 | 26.06.2019 | This document contains the agreed upon description for the Use Case HLN-FEC, Hazardous Location Notifications – Form Emergency Corridor. This Use Case was reviewed for the 2019-06-18 WG2 meeting at Prague and all comments were consolidated. It was decided to put it in the B category (not part of 1.5 release). This due to the issue of the necessary improvement of the IVIM standard to deal with the inclusion of a specific pictogram. (Link to the TF3 document) | Final |
| | | | |

## Index

www.c-roads.eu

## 1.1 HLN: Service Introduction

| Service introduction – Hazardous Location Notifications | |
|---|---|
| **Summary** | NA, already specified |
| **Background** | NA, already specified |
| **Objective** | NA, already specified |
| **Expected benefits** | NA, already specified |
| **Use Cases** | NA, already specified |

## 1.2 Use Case Form Emergency Corridor description (HLN-FEC)

| Use case introduction Form Emergency Corridor | |
|---|---|
| **Summary** | The road operator detects an event on its network where a traffic queue is forming up and broadcasts this information via all available information channels to the road users approaching it that they shall form an emergency corridor for emergency vehicles to be able to reach the traffic event in the fastest possible way. |
| **Background** | This Use Case is about forming the emergency corridor when a traffic jam builds up, during the phase when the vehicles are still moving via exchanging information between infrastructure and vehicles and describes the following situation: |
| | 1. Sending traffic information from the TCC to the vehicles |
| | This scenario (TCC → Vehicles) deals with the available infrastructure content (mainly the kind of events which are available in the TCC) and how this content / these events can be mapped into coded traffic queue information. |
| **Objective** | Warn road users of traffic events on their way and make them drive in the form of "an emergency corridor" in order to enhance overall road safety. |
| **Desired behaviour** | Precisely and correctly informed drivers adapt their driving behavior (i.e. drivers driving on the most left lane should drive on the left border of their current lane, drivers driving on the other lanes should drive on the right border of their current lane and reduce the speed according to the vehicle in front, drive more cautiously and/or concentrated...) |
| |  |
| | (The pictogramm is for illustration purposes only!) |
| | Hereby between the inner most lane and the one next to it (see picture above) an emergency corridor should remain, where police, ambulance or fire brigades can rapidly advance to the place of the traffic event and intervene swiftly. |
| **Expected benefits** | • Enhanced road safety for the society and lower numbers of persons killed or injured by traffic accidents and incidents, which are cleared faster. |
| | • Lighter injuries and lower numbers of secondary damages following a dangerous situation on the road for road operators and drivers. |
| | • Higher quality of traffic information services for service providers. |
| | • Faster formation of an emergency lane and therefore helping the emergency vehicles to pass queuing vehicles more rapidly. |
| | • More relaxed/comfortable driving for drivers. |
| **Use case description** | |
| **Situation** | A traffic event creating a dangerous situation on a road network, driving direction dependent – and only downstream of the event with impact on the traffic flow on |

| | |
|---|---|
| **Logic of transmission** | dual carriage way . |
| | I2V broadcast |
| **Actors and relations** | **Road operator:** provides information about the traffic event detected on its network mentioned in the use cases specifications and distributes respective warnings as C-ITS messages to all upstream drivers approaching the event in a lower than average driving speed. |
| | **Service provider:** distributes C-ITS messages actively and dynamically to the subscribers (end users) approaching the event. |
| | **Emergency responders:** are informed about the HL with high quality of information and can better approach the vehicles involved in the accident/ incident. Because of the fast approach and clearance, the support to all persons involved is more efficient. |
| | **Road user**: The road user is informed about the traffic event ahead and the traffic queue area on his way by his selected channel of information. He adjust´s his driving speed and position on the road in order to let the public service vehicles pass and access the hazardous location or accident. |
| **Scenario** | Sending traffic event information and traffic queuing area from the TCC to the vehicles - I2V broadcast |
| | The "traffic event" and the related queuing areas are detected and confirmed in the TCC, correct warning messages are coded according to the specified definition and send via the defined channels to R-ITS-S and web interface. The road user is informed ahead of the traffic event and the traffic queue. |
| **Display / alert principle** | Sending event information and traffic queuing areas from the TCC to the vehicles - I2V broadcast |
| | When the road user arrives near to the traffic event and queing area, he receives information to allow him to adjust his driving speed and position on the road to prevent dangerous situations. The information needs to be displayed on the HMI early enough, and is moderately intrusive (at the manufacturer's decision). |
| **Functional Constraints / dependencies** | For service providers the transmission speed and targeting accuracy for the road users is a major dependency to implement this use case successfully. |
| | Various sensors/procedures and their measurements/traffic detection are needed in the backend system of the road operators in order to generate the information about all the traffic events/hazardous locations for this use case. Therefore, restrictions of the service-availability could apply. |
| | The Information quality of this use case form emergency corridor depends mainly from the detection of the event location and "detailed network disturbances" and the confirmation / maturity of this information. |
| **Relation to C-Roads C-ITS Infrastructure Functions and Specifications** | This element is under review and needs to be updated after the standard IVIM has been updated. The necessary change of the IVI is already agreed upon in ISO, but is expected to be released in early 2020. |
| | Executed through IVI message, because "form emergency corridor" is a traffic management measure, therefore IVI – merge to left, merge to right and for the emergency vehicle a message needs to be added as explanatory text "Form emergency corridor" (Also because no explicit pictogram, or traffic sign exists. |
| | Remark: There is a link of the HLN message to the Use Case Emergency vehicle approaching. |