Enhanced Situational Awareness and Airport Safety Nets for the vehicle drivers should be used by those vehicle drivers who are allowed to operate in the manoeuvring area of an aerodrome. The system consists of the following improvements for the vehicle drivers:

1. Provision of an Airport Moving Map in the vehicle, together with the display of the surrounding traffic, to enhance the driver’s situation awareness: The Airport Moving Map function indicates the position of the vehicle on the airfield and the Ground Traffic Display function displays other traffic operating on the movement area of the airport. The other traffic to be displayed includes both aircraft and vehicles.

2. Provision of alerts to vehicle drivers to warn them of situations that if not corrected could end up in hazardous situations. Two types of alerts are considered:
   a) Traffic alerts to warn the vehicle driver of a potential or actual conflict with an aircraft. Traffic alerts are not triggered with another vehicle but only with an aircraft.
   b) Area infringement alerts to warn the vehicle driver when the vehicle is in a closed or restricted area while the vehicle is operating on the manoeuvring area.

The alerts are provided to the vehicle drivers in the form of an aural and/or visual alert with two levels of alert severity depending on the severity of situations:
- Caution alert for the less critical situations; and
- Warning alert for the most critical situations.

Two implementations have been considered for the generation of alerts:
1. Alerts may be generated by an on-board system; or
2. Alerts may be generated by a centralised server (connected to the A-SMGCS) with an uplink to the vehicle.

In implementation of this functionality, the frequency load of 1030/1090 MHz should be considered.

Increased situational awareness is essential for operations at airports especially in adverse weather conditions or other similar operating situations. Situational Awareness is important for vehicle drivers as they need to operate within the manoeuvring area regardless of weather conditions.

**NOTE FOR MILITARY AUTHORITIES:** It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

### Applicability Area(s) & Timescale(s)

<table>
<thead>
<tr>
<th>Applicability Area</th>
<th>Subject to local needs</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Timescales</th>
<th>From</th>
<th>By</th>
<th>Applicable to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial operational capability</td>
<td>N/A</td>
<td>N/A</td>
<td>subject to local needs</td>
</tr>
<tr>
<td>Full operational capability</td>
<td>N/A</td>
<td>N/A</td>
<td>subject to local needs</td>
</tr>
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</table>

### References

**European ATM Master Plan**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Enablers</td>
<td>AIRPORT-45 AIRPORT-46 AIRPORT-47 AIRPORT-30 CTE-S03</td>
<td></td>
</tr>
</tbody>
</table>

**Legend:**
- **Wxyz-001**: Covered by SLoA(s) in this objective
- **Wxyz-002 zzz**: Covered by SLoA(s) in another objective Objective covering the enabler
- **Wxyz-003**: Not covered in the Implementation Plan

### Applicable legislation

- **none**

### ICAO GANP – ASBUs

- **B2-SURF**: Optimized Surface Routing and Safety Benefits (A-SMGCS Level 3-4 and SVS)

### SESAR Solution
AOP15 | Enhanced traffic situational awareness and airport SNET for the vehicle drivers

Deployment Program

- none -

Operating Environment

Airport

### Stakeholder Lines of Action (SLoAs)

<table>
<thead>
<tr>
<th>SloA ref.</th>
<th>Title</th>
<th>From</th>
<th>By</th>
</tr>
</thead>
<tbody>
<tr>
<td>AOP15-REG01</td>
<td>Promulgate the procedures for use of “Onboard Ground Vehicle System” and SNET</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>AOP15-INT01</td>
<td>Develop standard for interface between A-SMGCS and On Board Vehicle System</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>AOP15-APO01</td>
<td>Install “Onboard Ground Vehicle System” to process and display the own position and surrounding traffic</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>AOP15-APO02</td>
<td>Install function in “Onboard Ground Vehicle System”, to provide SNET alerts to vehicle drivers</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>AOP15-APO03</td>
<td>Develop the procedures for use of “Onboard Ground Vehicle System” and SNET</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>AOP15-APO04</td>
<td>Develop safety assessment of the changes imposed by “Onboard Ground Vehicle System” and SNET</td>
<td>N/A</td>
<td>N/A</td>
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<tr>
<td>AOP15-APO05</td>
<td>Train all relevant staff in the use of “Onboard Ground Vehicle System” and SNET</td>
<td>N/A</td>
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</tbody>
</table>

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

### Expected Performance Benefits

**Safety:**
This improved situational awareness combined with an alerting/warning system in case potential hazardous situations are detected, will not only improve safety for the vehicles operating in the manoeuvring area but also provide a safety enhancement for the aircraft operations, both on taxiways and runways, at the airport..

**Capacity:**
No.

**Operational Efficiency:**
No.

**Cost Efficiency:**
No.

**Environment:**
No.

**Security:**
No.

### Detailed SLoA Descriptions

**AOP15-REG01**
Promulgate the procedures for use of Enhanced Situational Awareness and Airport Safety Nets for vehicle drivers

Action by: Regulatory Authorities

Description & purpose: Establish and promulgate the procedures for use Enhanced Situational Awareness and Airport Safety Nets for the vehicle drivers at an aerodrome.

Supporting material(s): SJU - SESAR Solution 04: Data pack for Enhanced traffic situational awareness and airport safety nets for the vehicle drivers.


Finalisation criteria: 1 - The procedures for use Enhanced Situational Awareness and Airport Safety Nets for the vehicle drivers, have been promulgated.

**AOP15-INT01**
Develop standard for interface between A-SMGCS and On Board Ground Vehicle System

Action by: European Standardisation Organisations

Implementation Plan Edition 2019
### AOP15 Enhanced traffic situational awareness and airport SNET for the vehicle drivers

**Description & purpose:** Develop and publish the standard for interface between A-SMGCS and On Board Vehicle System.

**Supporting material(s):** SJU - SESAR Solution 04: Data pack for Enhanced traffic situational awareness and airport safety nets for the vehicle drivers. 


**Finalisation criteria:** 1 - The standard for interface between A-SMGCS and On Board Vehicle System, have been published.

<table>
<thead>
<tr>
<th>AOP15-APO01</th>
<th>Install &quot;Onboard Ground Vehicle System&quot; to process and display the own position and surrounding traffic</th>
<th>From:</th>
<th>By:</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Action by: Airport Operator</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**Description & purpose:** Install the system for Surface Traffic Situational Awareness to process and display in an "On-board Vehicle System" the own position and surrounding traffic.

The processing and display in an "On-board Vehicle System" of the own position and surrounding traffic may be provided by the central server making use A-SMGCS system or autonomously by Onboard Ground Vehicle system.

The system should be used by those vehicle drivers who are allowed to operate in the manoeuvring area of an aerodrome.

In implementation of this functionality, the frequency load of 1030/1090 MHz should be considered.

**Supporting material(s):** SJU - SESAR Solution 04: Data pack for Enhanced traffic situational awareness and airport safety nets for the vehicle drivers. 


**Finalisation criteria:** 1 - "On-board Vehicle System" displaying the own position and surrounding traffic has been installed and functioning at the vehicles operating on the manoeuvring area.

**ATM Master Plan relationship:** [AIRPORT-47] Surface Traffic Situational Awareness to process and display in an "On-board Vehicle System" the own position and surrounding traffic

[AIRPORT-30] Use of airport wireless communication infrastructure for mobile data.

<table>
<thead>
<tr>
<th>AOP15-APO02</th>
<th>Install SNET function in &quot;Onboard Ground Vehicle System&quot;, to provide alerts to vehicle drivers</th>
<th>From:</th>
<th>By:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Action by: Airport Operator</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**Description & purpose:** Install the function for SNET alerts generation and display to the vehicle drivers in Onboard Ground Vehicle System. SNET alerts may be generated and displayed by the central server making use A-ASMGCS system or autonomously by Onboard Ground Vehicle system.

The system should be used by those vehicle drivers who are allowed to operate in the manoeuvring area of an aerodrome.

**Supporting material(s):** SJU - SESAR Solution 04: Data pack for Enhanced traffic situational awareness and airport safety nets for the vehicle drivers. 


**Finalisation criteria:** 1 - "On-board Vehicle System" generating SNET alerts to the drivers has been installed and functioning at the vehicles operating on the manoeuvring area.

**ATM Master Plan relationship:** [AIRPORT-47] Surface Traffic Situational Awareness to process and display in an "On-board Vehicle System" the own position and surrounding traffic

[AIRPORT-45] On-board vehicle system to provide safety net alerts to vehicle drivers

[AIRPORT-46] On-board vehicle safety net alerts generation

[AIRPORT-30] Use of airport wireless communication infrastructure for mobile data.

<table>
<thead>
<tr>
<th>AOP15-APO03</th>
<th>Develop the procedures for use of &quot;Onboard Ground Vehicle System&quot; and SNET</th>
<th>From:</th>
<th>By:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Action by: Airport Operator</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**Description & purpose:** Develop the procedures for the vehicle drivers which specify roles, tasks and responsibilities for use of Enhanced Situational Awareness System and SNET alerts at an aerodrome.

**Supporting material(s):** SJU - SESAR Solution 04: Data pack for Enhanced traffic situational awareness and airport safety nets for the vehicle drivers. 


**Finalisation criteria:** 1 – Operations Manual applicable to the vehicle drivers has been updated to contain the procedures concerned.

<table>
<thead>
<tr>
<th>AOP15-APO04</th>
<th>Develop safety assessment of the changes imposed by &quot;Onboard Ground Vehicle System&quot; and SNET</th>
<th>From:</th>
<th>By:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Action by: Airport Operator</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**Description & purpose:** Develop the safety assessment of the changes imposed by "Onboard Ground Vehicle System" and SNET.

**Supporting material(s):** SJU - SESAR Solution 04: Data pack for Enhanced traffic situational awareness and airport safety nets for the vehicle drivers. 


**Finalisation criteria:**
### AOP15 | Enhanced traffic situational awareness and airport SNET for the vehicle drivers

<table>
<thead>
<tr>
<th>Action by:</th>
<th>Airport Operator</th>
</tr>
</thead>
</table>
| Description & purpose: | Develop safety assessment of the changes, notably installation of "On-board Vehicle System" displaying the own position, surrounding traffic and SNET alerts to the vehicle drivers. The tasks to be done are as follows:  
- Conduct hazard identification, risk assessment in order to define safety objectives and safety requirements mitigating the risks;  
- Develop safety assessment;  
- Deliver safety assessment to the NSA, if new standards are applicable or if the severity class of identified risks is 1 or 2.  
This safety assessment shall be based on fully validated/recognised method.  
In implementation of this functionality, the frequency load of 1030/1090 MHz should be considered. |
| Supporting material(s): | SJU - SESAR Solution 04: Data pack for Enhanced traffic situational awareness and airport safety nets for the vehicle drivers.  
| Finalisation criteria: | 1 – The safety argument for all changes, generated by the deployment of this functionality, has been delivered by the Airport Operator to the NSA. |

<table>
<thead>
<tr>
<th>AOP15-APO05</th>
<th>Train all relevant staff in the use of &quot;Onboard Ground Vehicle System&quot; and SNET</th>
<th>From: N/A</th>
<th>By: N/A</th>
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</thead>
<tbody>
<tr>
<td>Action by:</td>
<td>Airport Operator</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Description &amp; purpose:</td>
<td>Train airport vehicle drivers operating at the manoeuvring area, in the responsibilities and actions that should be taken in relation to use of &quot;On-board Vehicle System&quot; displaying the own position, surrounding traffic and SNET alerts to the driver.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Supporting material(s): | SJU - SESAR Solution 04: Data pack for Enhanced traffic situational awareness and airport safety nets for the vehicle drivers.  
| Finalisation criteria: | 1 – Vehicle drivers training in accordance with agreed training requirements and programme has been completed. |