

Introduction

Highways England plans to procure a Stopped Vehicle Detection (SVD) solution that will mitigate the risks associated with vehicles stopped in live lanes on Smart Motorway All Lane Running (SM-ALR) schemes.

The purpose of this Pre-Procurement Questionnaire is to establish what solutions are available which can meet the requirements of Highways England, and establish which aspects of the provision and operation of an SVD solution that suppliers are interested in being involved with.

Background

The absence of a hard shoulder on SM-ALR schemes will cause an increase in the number of vehicles stopping in live lanes compared with standard motorways where a hard shoulder is present. During off-peak periods when the traffic flows are lower, the risk posed by stopped vehicles is greater as traffic speeds are higher and stopped vehicles are harder to detect as congestion is unlikely to form around the blockage.

This risk can be mitigated by facilitating earlier intervention, for example through the setting of signs and signals to notify motorists of the presence of the stopped vehicle, and through the early deployment of on-road support services (e.g. Traffic Officers).

Highways England has recently conducted trials of an SVD solution using radar technology to evaluate the feasibility of deploying SVD on SM-ALR schemes and the extent that such solutions can mitigate the above risks. Following these trials, Highways England is now refining the requirements for an SVD solution and will deploy it on all SM-ALR sections of the Strategic Road Network in England (currently planned to be around 300 miles of motorway).

Outline requirements for SVD

Type of SVD solutions

The trials undertaken to date have used a radar-based solution, but we will accept responses to this questionnaire which use alternative technologies.

Outline architecture

The SVD supplier's solution will capture data relating to stopped vehicles on the motorway. This data will be transmitted to the local Regional Control Centre (RCC) where it is processed by Highways England's instation system and displayed on the operator user interface. The outputs from the SVD supplier's solution will be alerts relating to each stopped vehicle.

Where the SVD solution requires hardware to be installed at the roadside, the data will be transmitted over the National Roads Telecommunications Service (NRTS) network to the local Regional Control Centre (RCC).

Outline key performance requirements

The SVD supplier's solution shall be capable of detecting vehicles which have stopped in a live lane on the motorway.

For each stopped vehicle detected on the motorway the SVD solution shall output an SVD alert message using open standards, detailing the time and location of the stopped vehicle.

The solution shall achieve a minimum detection rate of 80% of all stopped vehicles, raising an SVD alert within 20 seconds of each vehicle stopping on the carriageway. These requirements shall be delivered under all weather and lighting conditions reasonably expected in the UK.

When the detected stopped vehicle moves off, the solution shall raise an SVD alert message to clear the original alert, transmitting this alert message within 60 seconds of the vehicle moving off.

Outline procurement strategy

Highways England has undertaken some initial thinking regarding multiple options for procuring an SVD solution, which are outlined in the diagram below. Option 4 is the current preferred solution. In the diagram below:

- **Detection equipment** refers to the physical hardware required to detect vehicles (e.g. cameras, radars etc.);
- **Compliance engine** refers to the software which takes the data from the detection equipment and converts this into a system record or an alert which identifies a stationary vehicle;
- **Application hosting** refers to the hosting of the compliance engine or any other software;
- **Equipment installation** refers to the on-road installation of the detection equipment;
- **Equipment maintenance** refers to the routine and reactive first line, on-road maintenance of the detection equipment. This strategy assumes that a warranty and third line maintenance is included in the SVD contract(s);
- **TMT2** refers to the [Crown Commercial Service Traffic Management Technology 2](#) framework agreement.

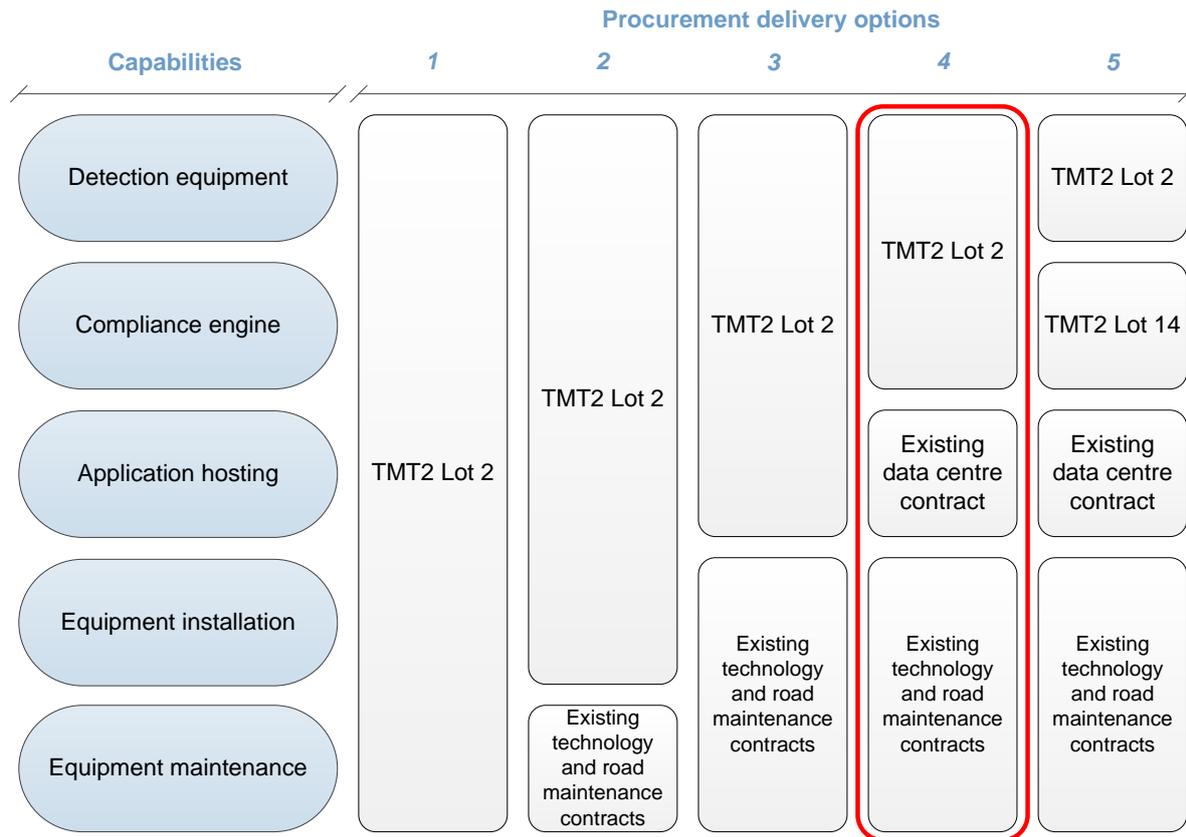


FIGURE 1: OUTLINE PROCUREMENT STRATEGY

The current thinking is that Highways England will periodically bulk purchase the roadside detection equipment, which will be held in our stores (National Technology and Logistics Centre (NTLC)) and then deployed to schemes, as per demand. Highways England anticipate that each bulk purchase will be a single procurement which allows for more than one vendor to win a share of the work. Other options being considered is whether we should procure SVD via a single national contract, 7 regional contracts (based on RCC/traffic management boundaries), 21 regional contracts (based on road maintenance regions), or on a scheme-by-scheme basis.

Whilst support and hosting of the compliance engine may reside with the SVD supplier in the first instance, It is expected that the compliance engine will be virtualised and hosted in Highways England’s data centre, with system administration and configuration undertaken by Highways England’s Technology Operations Centre.

Questionnaire

To achieve the desired clarity on the scope of SVD, potential suppliers are kindly asked to compile responses to each of the questions below and email it to TechnologyProcurement@highwaysengland.co.uk by the **26th May 17:00 BST**.

1. What solutions do you offer which could meet Highways England’s requirements for an SVD solution? Please highlight any innovative aspects of your solution, how it supports a standards based approach (as to minimise vendor lock in), and the future roadmap for your product.
2. What hardware, software or infrastructure does your solution require? Would your solution require a centrally located server and/or application to generate SVD alerts or

can all data processing and generation of SVD alerts be undertaken at the roadside? If a central server and/or application is required, is it proprietary? Please highlight any constraints regarding where any enabling hardware, software or infrastructure is required to be located.

3. If applicable, what are your bandwidth requirements for the data which would need to be transmitted over the NRTS network?
4. What size of object is your SVD solution capable of detecting and what is the classification capability?
5. What detection rate would you expect to achieve for SVD? What factors would affect this detection rate and to what extent (e.g. length coverage, blind spots)?
6. What level of false alerts would you expect for this application?
7. To what level of accuracy can your solution determine the location of a vehicle?
8. Would your solution be capable of identifying congestion and suppressing SVD alerts during this time so as to avoid multiple alerts being generated for queuing traffic?
9. Are there any value added features which your solution could provide, relevant to Highways England?
10. Please provide your comments on the outline procurement strategy, including:
 - a. Route to market;
 - b. Split of responsibilities between the relevant parties;
 - c. Contract sizing (e.g. periodic bulk purchase(s), regional contract(s), national contract(s));
 - d. Any specific commercial principles (e.g. performance management, warranties, pricing mechanism, contract term) which Highways England should be paying specific attention to;
 - e. What information and context you would require to submit a diligent and robust tender;
 - f. Any other comments, thoughts or concerns.
11. Please outline the capacity and capability of your organisation to support SVD at the scale and complexity of Highways England, and please outline which aspects of the service (as detailed in Figure 1) you are interested in supplying.