

HOS/12/020 - Literature Review of London Underground and National Rail (LUNR) High Throughput Passenger Screening

Background

The Home Office Centre for Applied Science & Technology (CAST) is currently engaged in a project to investigate the potential for high throughput screening in the London Underground and National Rail (LUNR) environment.

Given the high volumes of passengers on London Underground and National Rail, it is not possible to undertake traditional checkpoint screening. Whilst land transport locations can be defined as crowded places, there are locations where crowd movement is 'semi-controlled', such as at ticket barriers, queues, escalators, platforms etc. which could assist with screening. The Department for Transport and CAST would like to understand what options exist for utilising these crowd flow mechanisms and current or emerging technologies to provide screening capability for high volumes of people in the LUNR station environment. This project will start by conducting a comprehensive literature review of security screening technologies and methodologies, which may be deployed in the LUNR environment, for the detection of hazardous threats. The main focus is on the detection of explosives and weapons on people and in bags, although some consideration may be given to CBRN materials. Consideration may also be given to the screening of other items which may include wheelchairs, prosthetics, crutches, pushchairs, bikes and other similar items. Formal bids are now invited from potential suppliers who would be able to deliver such a literature review before the end of March 2013.

Specification

Contents of the literature review must include (percentages in brackets represent estimates of the amount of effort expected in each section):

1. Review of current commercially available **and** novel and future (high TRL) equipment and its applicability to high throughput screening of passengers in the LUNR environment.
Must include:
 - *Discussion of the advantages/disadvantages of each technology/method with regard to costs, throughput, detection rates etc. (40%)*
 - *Technologies may include, but is not limited to: X-ray, mm-wave, THz, magnetometry, stand-off, vapour and trace methods, other (neutrons, NQR, other electromagnetic radiation, ultrasound, etc).*
 - *Health and safety considerations for both general public and LUNR/security staff (5%)*
 - *Public perception and acceptability of equipment (5%)*
2. Investigation into the potential for screening to be conducted at 'semi-controlled' locations within the station such as tops/bottoms of escalators,

ticket barriers and platforms (noting that there may be other suitable locations which the contractor should identify). (25%)

3. Considerations when deploying static or mobile detection equipment (current COTS or high TRL). (10%)

Must include:

- *Infrastructure considerations for new build stations in the case where static equipment is found to be effective*
- *Relevant legal/legislation issues for the UK*
- *Detection strategies*
- *Access points*
- *Human factors*
- *Training*

4. Basic modelling of crowd flow, throughput, etc. may be included in this work, but it is more important to gain an understanding about the potential for conducting screening at stations rather than providing exact figures. (5%)

5. Conclusions (5%)

6. Options for further work (5%)

Notes

- Any screening methodologies proposed must not delay the passengers any more than they are currently as they pass through the station.
- Screening options shall investigate what throughput can be achieved when screening 25% of passengers. Information shall also be provided relating to detection percentages and false alarm rates.

Given the scale of the work, it is proposed that potential suppliers provide information relating to what they can achieve within the proposed cost and timescales. Please refer to the table for further information.

Requirements	Package 1	Package 2
Items to be screened shall include:	Passengers Passengers' bags	Passengers Passengers' bags Wheelchairs Prosthetics Crutches Pushchairs Bicycles Other similar items
Threats to be screened for include:	Explosives Weapons (firearms and knives)	Explosives Weapons (firearms and knives) CBRN materials
Screening options shall include equipment which is:	Commercially available Novel and future (high TRL)	Commercially available Novel and future (high TRL)

Locations within the station shall include:	'Semi-controlled' areas such as tops/bottoms of escalators, ticket barriers and platforms	'Semi-controlled' areas such as tops/bottoms of escalators, ticket barriers and platforms Other similar locations
Modelling of passenger throughput is:	Not included	Included (basic modelling only)
The screening options shall include:	Static (fixed) equipment which may be built into the station infrastructure Portable equipment which may be moved to different locations within the station depending on factors (e.g. throughput, threat level, intelligence, etc.)	Static (fixed) equipment which may be built into the station infrastructure Portable equipment which may be moved to different locations within the station depending on factors (e.g. throughput, threat level, intelligence, etc.)

Key Criteria

In their formal proposals, potential suppliers must indicate:

- How they would undertake the task
- How they would manage risks and security issues
- Any relevant skills including successful delivery of similar projects
- A proven track record of working skills in the field of checkpoint security screening.
- A plan of how the literature review could be delivered within the specified timeframe
- Which package (1 or 2 or a combination, based on the requirements in the table) the bid is for within their proposed cost and timescales
- A full cost plan detailing day rates for all staff members involved in the review

All proposals will be evaluated against the above criteria. Following the sift and any subsequent bid clarification, it is expected that a contract will be awarded to the successful bidder in September 2012.

Timetable

Closing date for proposal submission:	31 st August, 2012
Assessment of proposals:	early September, 2012
Award of contract:	mid September, 2012
Completion of first draft:	late Feb/early March, 2013
Document review:	1 st half March, 2013
Delivery of final literature review:	end of March, 2013

Formal proposals must be submitted to
HOSProcurement@HomeOffice.gsi.gov.uk by 31/08/2012 quoting
HOS/12/020 in the subject box.