

## Public spaces, safer places

*protecting against a vehicle-borne attack*

### Background

- 1 Terrorism is not a new phenomenon; its roots can be traced back to ancient times. The defining characteristic of terrorism is the targeting of civilians as a means of achieving some political, ideological or religious cause. Some other characteristics of contemporary terrorism are:
- multiple co-ordinated attacks
  - no warning attacks
  - mass casualties
  - targeting crowded places
  - the use of person-borne and vehicle-borne improvised explosive devices, henceforth, known as PBIEDs and VBIEDs
  - suicide attacks

- 2 The use of explosives is still the favoured technique for attack, with the intention of killing large numbers of people or destroying and collapsing structures.

### Context

- 3 Using the type of threat described above as the overarching context, imagine that the owners of the country's largest night club, Enterprise Nation, have approached you for advice and help. They are concerned that the venue requires better hostile vehicle mitigation (HVM) to protect against a VBIED attack.
- 4 The club has the capacity to hold 8,000 people. Its weekend events are televised live and shown across Europe and the Americas. It is built on the site of an old stadium and retains the stadium's original road layout.
- 5 The site has a number of key features, which are shown in plan form at appendix one. They are:
- **The inner road:** Only emergency service vehicles and service vehicles should have access to the inner road that directly abuts the club
  - **The outer road:** All vehicles should have access to the outer road thereby providing vehicular access to the location from the surrounding road network. The outer road also allows vehicular movement between the car parks
  - **The interlinking roads:** These two roads connect the inner and outer roads allowing emergency service and service vehicles to access the inner road from the outer road

- **The two car parks:** These provide adequate parking provision when the club is at full capacity
- **The feeder road:** This road provides access to the site (initially the outer road) and brings traffic from the general road network to the site
- **Pedestrian access:** Four footways, two servicing each car park, cross the land between the outer and inner roads. Pedestrians therefore have direct access from the car parks to the club.

- 6 The owners of the club are highly safety conscious and the emergency services are in attendance, especially at weekends when the club is full to capacity. They park near the club on the inner road in order to deal effectively with any emergencies.

### Design Challenge

- 7 The owners are acutely aware of the following styles of vehicle borne attack:
- **Parked vehicle** – a hostile vehicle carrying an Improvised Explosive Device (IED) is parked as close to the target as possible
  - **Encroachment** – negotiating a vehicle through an incomplete line of physical barriers without the need for impact to gain closer proximity to the target
  - **Penetrative attack** – using a vehicle as a ram in order to breach a physical perimeter and get as close to the target as possible
  - **Deception** – using a 'Trojan' vehicle where its design features are changed in order to replicate that of a legitimate vehicle; or when an IED is surreptitiously planted on a legitimate vehicle
  - **Duress** – against a legitimate driver to transport an IED onto premises, or duress against a guard to allow entry through a vehicle access control point
- 8 Bearing in mind these styles of attack there are four main traffic management approaches that may help to mitigate vehicle borne threat. They are:
- **Total vehicle exclusion from the wider area around the club** – this is the most effective way of keeping an adequate distance between the VBIED and the target. However, it can create traffic congestion and make the legitimate servicing of the club more problematic
  - **Access to secure areas around the club by screened vehicles only** – bear in mind however that this relies on diligent guards and ALL vehicles requiring access to the club being searched or screened

- Traffic inclusion within the area surrounding the club – this approach is typically coupled with HVM measures for the protection of discrete critical assets within the area
- Temporary HVM measures often used at times of heightened threat – their deployment is pre-planned for specific events or based on prior intelligence and, of course, provide a deterrent only when present. They typically require specialist installation

## Brief

- 9 We would like to see participation from architects, engineers and urban planners, and from designers across the disciplines. The brief offers two potential approaches. Either option is open to any participant:

### Option 1: Design and layout of Hostile Vehicle Mitigation measures

- 10 The owners want you to put in place measures to help deal with the five styles of vehicle borne attack described earlier (see paragraph 7 above). The aim of the brief is to achieve this using any of the traffic management approaches previously listed (see paragraph 8 above).
- 11 You should concentrate on the layout of the site and the site owners would like to see how your proposed measures will address the following:
- how emergency service vehicles and other service vehicles can gain exclusive access to the inner road from the outer road
  - how non-authorized vehicles can be prevented from accessing the inner road
  - how vehicles can be prevented from traversing the ground between the inner and outer roads
  - how physical barriers can be used to control access to the inner road
- 12 The use of new or innovative materials and configurations of barriers is welcome.
- 13 Any HVM measures you design must observe the following three design rules:
- maximum 'air' gap<sup>1</sup> of 1200mm between the proposed HVM measures to maintain a continuous perimeter
  - minimum height of HVM should be 650mm from the ground level
  - minimum distance of HVM from kerb edge of 450mm

### Option 2: Vehicle verification

- 14 The owners are concerned that the illegitimate use of a service vehicle such as a refuse collection vehicle or delivery vehicle may result in an attack against the club with subsequent loss of life.
- 15 They are looking for innovative proposals that will enable them to verify that a vehicle at a vehicle control point is both legitimate in terms of its identity (that it is a genuine service vehicle), and its need to enter the site (that it has good reason to be there).
- 16 In developing your design proposal you should consider:
- the process of verification. This can involve both electronic and/or physical means, such as electronic signatures, tokens or similar physical 'keys' but should be an aid to human decision-making, not a replacement
  - that the verification process could be automated but, as with any automated system, a final decision on entry must be subject to human scrutiny
  - that it should not be exclusively dependent on visual verification of the vehicle
  - how it fits into the wider security procedures for the site

### Submission details

- (for all students – please specify the option to which you have responded)
- A3 boards (max. 5) showing design details and any plans
  - a short typewritten test (max. 500 words, sans serif 14pt) expressing the rationale for the chosen design options
  - a further typewritten list of bullet points (sans serif 14pt) detailing the principal benefits of the proposed solutions
  - any models or mock-ups should be submitted as photographs or printouts mounted on A3 board. This is in addition to the five design boards
  - one sketchbook only, related to the brief is admissible
  - all work submitted should carry an RSA label on the back

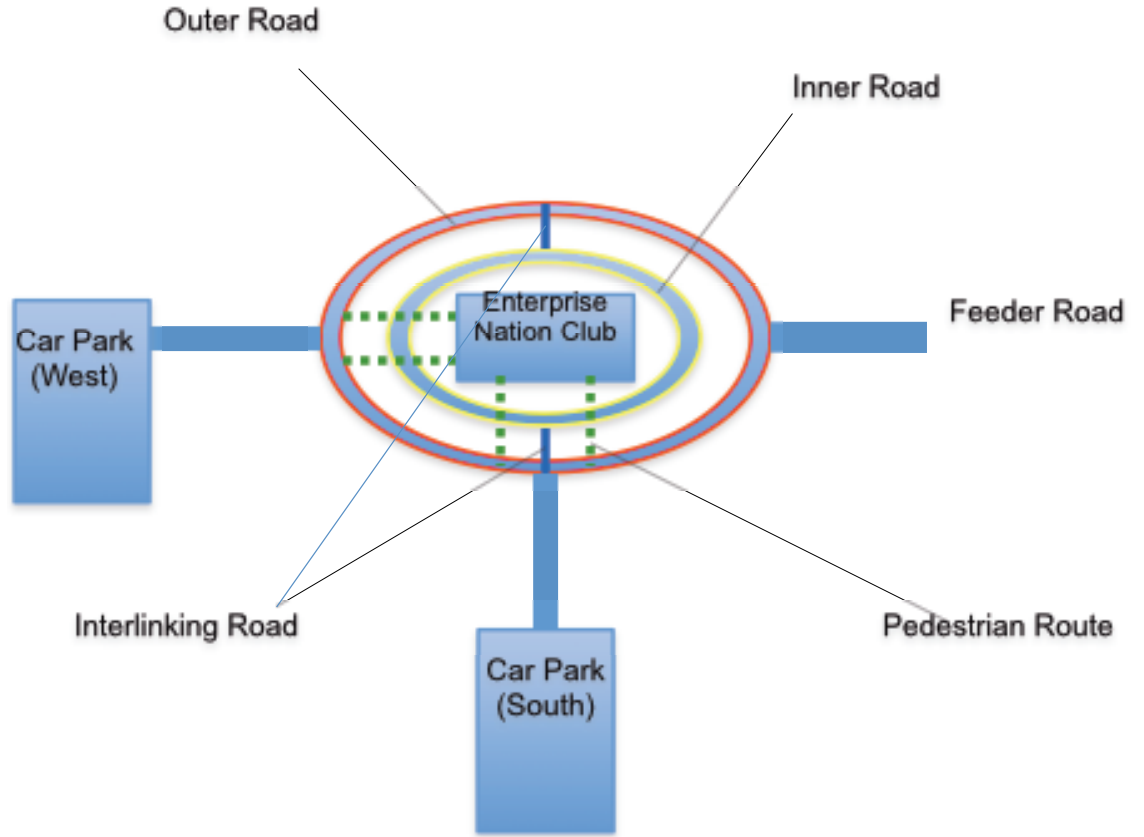
<sup>1</sup> The HVM measures should be spaced such that the maximum clear distance between fixed structures is 1200mm.

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Brief devised by the Home Office, National Counter Terrorism Security Office (NaCTSO), and the Centre for the Protection of National Infrastructure (CPNI)  
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**Design Directions 2009/10**  
An innovative programme of awards

**Appendix One**  
Plan of the Enterprise Nation Site



## Schedule

### **Dates for submission of entry forms, fees and work**

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Thursday 19 November 2009

### **Deadline for Entry Form(s)/Fee(s) for all projects**

(including *Directions Plus*)

Entry Forms/Fees should be sent under separate cover

– **not** with your entry – to:

RSA Design Directions Registrations  
8 John Adam Street  
London WC2N 6EZ  
UK

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Monday 16 November  
– Friday 11 December 2009

### **Submission period for all project entries**

(except *Design Directions Plus*\*)

Entries will be accepted at Brooks Transport Services Ltd on any weekday within the dates stated between 08:00-18:00, excluding weekends and bank holidays. Entries arriving after 18:00 on Friday 11 December 2009 may not be accepted

Please remember that all entries should be sent or delivered to:

Brooks Transport Services Ltd  
Unit 2/15  
Second Avenue  
Bluebridge Industrial Estate  
Halstead  
Essex CO9 2SU  
UK

All Entry Forms/Fees should be sent or delivered to:

RSA Design Directions Registrations  
8 John Adam Street  
London WC2N 6EZ  
UK

\**Design Directions Plus* – Submission date for entries for these projects is:  
Friday 8 January 2010