National Protective Security Authority

NaCTSO NATIONAL COUNTER TERRORISM SECURITY OFFICE

Hostile Vehicle Mitigation

Considerations for Temporary Vehicle Security Barriers

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Introduction

This note, written by NPSA and NaCTSO, the Government and Policing leads for Hostile Vehicle Mitigation (HVM), introduces Local Authorities, Event organisers, and similar end user groups to using temporary Vehicle Security Barriers (VSBs) as part of a HVM scheme, which itself should be one piece of a wider security plan. This note contains crucial awareness information, poses pertinent questions, and signposts to further information and resources.

Advice is also available from your local Police Counter Terrorism Security Advisor.

Conducting a comprehensive risk assessment, based on threat reporting and identifying vulnerabilities, are the first steps toward identifying operational requirements. It is important to understand your objectives before seeking solutions, as barriers vary in terms of capability, deployment demands, operation and cost.

Consider:

- **The barriers' ability to stop or delay different types of vehicle attack**
- **Method of installation**
- **Operational features (ease of use, 'lock and leave', guard operations)**
- **Advertising and messaging space**

At a high level, you should set your Operational Requirements to protect against a vehicle attack; this could be a vehicle bomb, ramming attack, or both.

Ideally, this means selecting a barrier that will **stop** a high-speed vehicle attack and **delay** a repetitively ramming vehicle when deployed in the **same rated formation**.

Each of these has risk attached: there is no practical way to remove all risk, but there are options to reduce it to an acceptable level.

Consider:

- **Can you protect the event from a high speed vehicle attack?**
- **Can you delay ramming vehicles (but not stop) from entering your event?**
- **Are you only providing a visual deterrent (not physically stopping vehicles)?**

Requirements and Considerations

NPSA and NaCTSO recommend Local Authorities, Event Organisers and similar end user groups to consider the aspects below to help shape Operational Requirements, increasing the likelihood of a successful HVM scheme.

Barrier movement

- Will you need to provide access to known vehicles (deliveries, event vehicles, emergency services etc.)?
- How many times a day would the barrier need to move?
- Who is going to operate/supervise the barrier (core hours and out of hours)?
- What is the process for denying or allowing vehicle access?
- How will the barrier be secured when closed or not in use?

Barrier positioning

- Who owns the land the barrier is being installed on? Are they aware?
- Is traffic flow affected or stopped? (See ATTRO advice below)
- Is traffic management needed?
- Will the barrier adversely affect pedestrian movement?
- Will the barrier affect other users such as wheelchairs, mobility scooters, buggies, cyclists?
- Are additional safety measures needed (signage, warning system, alarms etc.)?
- Is the barrier location and operation factored into an emergency egress plan?
- Can the barriers be driven around? Air gaps should be no wider than 1.2 metres.
- Have you maximised the stand-off distance between barriers and people inside the event?
- Consider having a sterile zone that keeps people away from the barrier.

Threat vehicle

- What vehicle(s) are you protecting the event from? Car, 4x4, or Truck?
- What speed can an approaching attack vehicle reach? An accurate Vehicle Dynamics Assessment (VDA) can be produced by a certified professional will tell you and help quantify the threat as well as aid barrier selection.
- Is the potential barrier capable of stopping the quantified vehicle threat?

Liaison, logistics and compliance

- Does the installation meet the Operational Requirements?
- Have you planned when to install, operate and remove barriers?
- How long will they be in position?
- Have you liaised with stakeholders to minimise disruption?
- Who is ‘on the ground’ and ‘signing off’ the installation? Are they suitably qualified and experienced?
- Do the barriers require specialist lifting / plant equipment?
- Is damage to existing footways, paving stones etc. possible? Who is responsible for repairs?

Visual appearance

- How overt should the barriers be?
- The presence of overt barriers may deter attackers but are hard to blend into a public space.
- Can Security Minded Communications be used to improve the overall security posture?
- Do you require signage, nearby to help people way find?
- Is this an opportunity to display event messaging or income generating advertising on the barriers?

Selection of Barriers

- Many temporary barriers hold ratings for both types of attack:

    - High-speed impact
    - Repetitive ramming

    However, some barriers only hold one rating.

- The ratings only apply to the 'as tested', specific configuration / layout or arrangement of the barrier; **changes should be declared and reviewed by the installer and risk owner**. A barrier may need installing differently, so you will need to know:

    - How the barrier was tested
    - What is being offered for the event
    - What the differences are
    - How this changes the barrier performance

In the UK, there are two distinct types of **test standards** that assess barrier performance. Only barriers that pass testing should be used to form a HVM scheme.
For a temporary barrier, it should have passed **both** a 'high-speed impact' and 'repetitive ramming test' to reduce risk to as low as reasonably practicable.
See table on the next page.

Standard	Vehicle Impact Test Standards	NPSA Vehicle Attack Delay Standard (VADS)
	Hostile Vehicle Mitigation (HVM) | NPSA	
Objective	These standards test barrier performance against a **high speed vehicle impact** (e.g. 48, 64 or 80 KPH) by a Car, 4x4, Truck: • ISO 22343-1 (Default standard as of 2024) • IWA 14-1 • PAS 68	VADS tests barriers, typically lightweight and temporary, deemed vulnerable against **repetitive vehicle nudge / ramming attack** The test determines if the vehicle can get beyond the barrier. Typically, tests use a 4x4 vehicle and/or a Truck.
Outcomes	The main outcomes from this testing are knowing if the vehicle was restrained and/or immobilised by the barrier, and how far the vehicle and major debris travelled beyond the barrier before stopping.	If the barrier withstands the attack for **at least 30 seconds** it is awarded a 30 seconds VADS rating. If the barrier withstands the attack for **at least 60 seconds** it is awarded a 60-second rating. Not achieving 30 seconds means the barrier fails.
Security Catalogues	HVM - Impact Rated | NPSA	HVM - Delay Rated | NPSA

VADS Rated Barrier

Risk owners should understand that **barriers only holding a VADS rating** are not a direct substitute for ISO 22343-1, IWA 14-1 and PAS 68 rated barriers. They may not stop a high-speed vehicle impact.

Impact Rated Barrier

Risk owners should understand that barriers only holding solely ISO 22343-1, IWA 14-1 or PAS 68 rated, and **do not hold a VADS rating**, have not been proven to work against a repetitive nudge / ramming attack, so may not delay a vehicle progressing beyond the barrier.

Deployed in the same rated formation

NPSA and NaCTSO recommend using barriers holding **BOTH** types of ratings: ISO 22343-1, IWA 14-1 or PAS 68; **and** NPSA VADS rating.

Risk: Awareness, Management and Acceptance

It is the risk owners' responsibility to 'sign off' a temporary HVM scheme. They should only do so after they have been made aware of the risk, been taken through potential mitigations, and made an informed decision that leaves them with a level of residual risk and are comfortable with it.

One significant risk is the penetration distance of a vehicle impacting a temporary barrier and taking several metres to stop in the impact zone, as well as generating significant debris that will be propelled forward that may cause injuries to people if they are too close to a rated barrier.

Consider the barrier location relative to the crowd i.e. ensure there is sufficient stand-off distance to minimise people being hurt by the vehicle impacting the barrier and debris.

NPSA and NaCTSO strongly recommended vehicle impact ratings of temporary barriers **meet or exceed** the stated vehicle threat: size of vehicle, approach speed and penetration distance. If this is not achievable, identify and manage the risk.

Legislation

If pedestrians and/or vehicles are restricted for counter-terrorism reasons, specific legislation must be followed. The Anti-Terrorism Traffic Regulation Order (ATTRO) uses sections 22C and 22D of the Road Traffic Regulation Act 1984 can be made by a traffic authority on the recommendation of a Chief Officer of Police.

ATTROs can enable the use of physical obstructions to restrict traffic - separate guidance is available from NPSA. Notwithstanding this, local authorities should also consider if the temporary barriers require their licensing under Section 115E of the Highways Act 1980. If deployed on the public carriageway, traffic signage should conform to the Department for Transport's The Traffic Signs Regulations and General Directions 2016. Adequate lighting should illuminate the deployment location so that pedestrians and drivers can see the barriers and signage.

Operation

To prevent events from being vulnerable to attack, it is crucial that active barriers are well operated. Robust procedures for securely and safely operating the specific locations where barriers are moved to provide vehicle access must be established.

It is important to clearly identify who will operate the barrier, when they will do so, and the circumstances under which they will allow vehicle access. It is essential that all barrier operators are well trained to ensure the safety and security of the event. Inadequate instructions or misunderstandings of procedures could lead to HVM being easily bypassed.

Obtaining temporary barriers (hire and purchase)

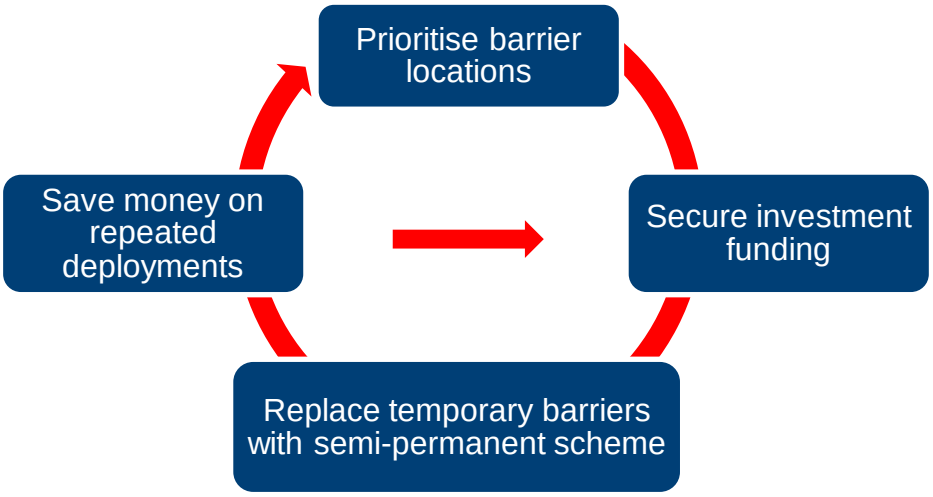
There are numerous barrier manufacturers and installers that provide rated barriers (for hire and purchase) that are listed in NPSA's Catalogue of Security Equipment chapters: HVM – Impact Rated and HVM – Delay Rated. They can also provide trained staff to install, operate and remove the barriers.

However, due diligence in the selection and procurement of vehicle security barriers is required to ensure that your operational requirements are met with an appropriate barrier.

Long term approach

Barriers can be bought outright or hired, and used on a short term 'per event' basis. Longer term, it is more cost effective to have a more permanent scheme installed, rather than repeat deployments of temporary barriers.

With planning, transitioning away from temporary barriers can be done in stages to accommodate limited funding and annual budgets. Installing infrastructure to host barriers on a 'per event' basis reduces long term costs by reducing the number of temporary barriers. Shifting from temporary to semi-permanent barriers can be done gradually, over multiple years, to spread the initial cost of investment.



Further information

For further operational support and information, the National Vehicle Threat Mitigation Unit is a specialised police unit operating within the National Counter Terrorism Security Office (NaCTSO).

The NVTMU have a wealth of experience in the deployment of temporary vehicle security barriers; they understand the methodology behind Vehicle as a Weapon (VAW) attacks and the use of Vehicle Borne Improvised Explosive Device (VBIED) as intentional weapons against people, events or infrastructure.

You must ensure that any installation meets the operational requirements, and that its installation, and use, has been risk assessed to mitigate any potential injury or damage (outside of its intended threat mitigation), to those installing/operating it or the public. It is advisable, especially given the temporary nature of these barriers that robust procedures for installation and maintenance are in place.

Other information sources

NPSA Hostile Vehicle Mitigation - ProtectUK - Working with CTSAs