Department for Transport

Security in Design of Stations (SIDOS) Guide

BRITISH TRANSPORT POLICE

CPNI
Centre for the Protection of National Infrastructure

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Joint agency foreword

The last decade has witnessed a number of major terrorist atrocities and, unfortunately, rail and underground transport has been a key target of these attacks. The Madrid commuter train attacks on 11 March 2004 killed approximately 200 and wounded nearly 2000 persons. The London attacks on the 7 July 2005 (three of which occurred on the Underground) killed 52 and injured approximately 700.

The large number of passengers who use the public transport networks on a daily basis, the psychological impact of a successful attack and the openness of the rail and underground networks in particular, all contribute to making transport hubs a very attractive target to the terrorist.

On 18 October 2010 the Government published its National Security Strategy, which reiterated that the international terrorist threat to the UK is a tier one risk, meaning it is part of a group of the highest priority risks for UK national security looking ahead, taking account of both likelihood and impact. Protecting the travelling public is therefore vital for the foreseeable future, and is the responsibility of us all. Government Departments, the Security Agencies, Police, Transport Operators, Planners and Designers all have key roles to play.

There is considerable scope in the design and planning of station infrastructure to include proven and effective protective security measures that will prevent, mitigate or deter attacks from terrorists using person-borne or vehicle-borne explosive devices.

We also recognise the important security synergies between countering crime and terrorism. Much of the on-going work to reduce crime at our stations will benefit the aims of counter-terrorism, and vice versa.

We recognise that security is only one element in station design, and it is important that a holistic approach is taken which also takes account of other considerations including passenger access, use by the full range of disabled people, health and safety, creating places that people enjoy/are visually stimulating and making sure somewhere is functionally usable. This guide has therefore been compiled not only by experts in the field of counter-terrorism security and crime reduction but also in close consultation with experts from non-security disciplines. Contact points where further information on these non-security considerations can be found have been included in this guide.

We encourage you to use this guide and hope that you find it a practical and user-friendly document.

Ian Woodman
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Director, Centre for the Protection of National Infrastructure

Stephen Thomas QPM
Assistant Chief Constable, Central Operations, British Transport Police

Quick reference checklist

IMPORTANT: Please read the following:

Designers, architects and engineers should agree with the client (who in turn will consult with the Department for Transport (DfT)) what counter-terrorism measures are appropriate at a specific station before adopting any or all of these recommendations within a programme/project, but as a general rule crime reduction measures such as those linked with the Secure Stations Scheme are applicable to all stations.

It is recommended that you take a photocopy of the checklist. You should then read through all of the questions below and tick the boxes. The checklist should then be signed and a copy retained to show that counter-terrorist physical security has received initial consideration at the commencement of a programme/project. Contact details for the organisations referred to in the questions and elsewhere in this guide can be found in Chapter 9.

Have you:

☐ Considered physical security at an early stage in the design process?

☐ Informed DfT of the new or major rebuild station development?

☐ Sought specialist counter-terrorism security advice from a BTP Counter-Terrorism Security Adviser (CTSA)?

☐ Sought specialist crime reduction advice from a BTP Architectural Liaison Officer (ALO)?

☐ Considered the generic security recommendations contained in this guide?

☐ Included physical security in the project documentation e.g. project delivery brief, risk register?

☐ Appointed a member of the project team as being responsible for physical security?

☐ Where necessary, set-up a security steering group (chaired by the person nominated above) to co-ordinate the physical security input into the programme/ project, and invite DfT, BTP CTSA and BTP ALO to attend as stakeholders?

☐ Developed an Operational Requirement (OR) informed by the risk register?

Signed: …… Date: ……

Print name:…….. Title/Position:……..

Chapter 1 – Objective

Purpose of the guide and who should read it

1.1 Given the attractiveness of stations as potential targets for terrorism, protection of passengers and staff who use the rail and underground networks is a priority for government and rail operators. Incorporating physical security measures into stations is one method of mitigating the risk of a terrorist attack and other crime. Incorporating such measures at an early stage in the design of a new or major redevelopment of a station has benefits both in terms of their effectiveness and of minimising costs, and can take account of the needs of the travelling public better. A readily available guidance document to provide generic security recommendations and contacts will help this process.

1.2 The guide has been produced jointly by the Department for Transport (DfT), the Centre for the Protection of National Infrastructure (CPNI) and the British Transport Police (BTP), and has been designed to be as practical and user-friendly as possible. Where appropriate, related crime reduction and security publications such as the Secure Stations Scheme and the Home Office's Crowded Places initiative have been suitably referenced. Within the guide there are references to other non-security materials, as these will need to be considered too.

1.3 **This guide is intended for anyone involved in commissioning, planning, designing and managing new or major redevelopments of stations, and aims to provide increased protection to persons using rail stations by designing in proportionate security measures whilst taking account of ease of access.**

Applicability and scope of the guide

1.4 As a general rule crime reduction measures such as those linked with the Secure Stations Scheme[1]are applicable to all stations. Good design of the physical environment can reduce the opportunities for crime, by making it harder to commit the crime. This is where Crime Prevention through Environmental Design (CPTED) is effective and where the British Transport Police Architectural Liaison Officer (BTP ALO) can assist. They can help with the overall design of the station, which will assist you in getting it accredited under the DfT/BTP Secure Stations

[1] For information on accreditation under the DfT/BTP Secure Stations Scheme see http://www.dft.gov.uk/pgr/crime/sss/

Scheme. Counter-terrorism measures such as hostile vehicle mitigation systems and the use of bomb blast resistant materials should be applicable to a much smaller number of sites in major cities (e.g. a station which is a transport interchange, has high passenger numbers and is an economically significant and/or iconic target is more at risk than a small rural station). It is important therefore that designers, architects and engineers should agree with the client (who in turn will consult with the DfT) how the appropriate counter-terrorism measures are included at a specific station before adopting these recommendations within a programme/project.

1.5 The guide is 'Not Protectively Marked' and therefore contains generic physical security recommendations. It does not contain detailed technical specifications for the various physical security measures, as technical specifications are subject to updating, e.g. for vehicle restraint bollards and bomb blast laminate glazing. Given that railway stations' designs and their environments can differ, it is not practicable to list the technical specifications of measures that would be applicable to each and every one. Specific advice on the latest technical specifications should be sought from the British Transport Police Counter-Terrorism Security Adviser (BTP CTSA).

1.6 Although every effort has been made to ensure that the law is stated accurately, this Guide is not intended to go into the detail of legal requirements. Furthermore, only a Court can interpret the law authoritatively. Therefore, this guide must not be treated as legal advice.

1.7 The guide does not deal with operational security considerations such as the frequency of security patrols or personnel security matters such as vetting of new and existing staff. Such considerations are comprehensively covered in the relevant security directions issued by the DfT. The focus of this guide is solely upon physical security.

Non-security considerations

1.8 Physical security measures should be appropriate, proportionate and balanced with other non-security considerations; Chapter 3 deals with these in more detail. The needs of the travelling public and staff (including those with any form of visible and/or invisible disability), building regulations, planning requirements and heritage issues must all be taken into account when planning a new station or the major redevelopment of one.

Chapter 2 – Inclusion of physical security in programme and project management

2.1 It is now standard practice in the rail industry to manage new and major redevelopments at stations using recognised programme and project management (PPM) techniques. The planning and design of physical security measures should be integral to these processes. There should be specific reference to this within programme and project documentation (including costs). There should also be a commitment at senior level[2] and a designated person within the project team who is responsible for security matters throughout the life of the project. Depending upon the project the role might be undertaken by a Construction Design and Management Co-ordinator (CDMC).

2.2 On large projects, particularly when the physical security involves both crime reduction and counter-terrorism measures, it may be necessary to set up a security steering group. The group's remit should include oversight of all security aspects of the programme/project in order to ensure that a holistic approach can be taken; additionally, all members share responsibility to deliver workable solutions. As well as addressing physical security, the group's remit might include operational security throughout the construction phase, especially where the station continues to operate.

2.3 The group's membership should include stakeholders such as the contractor, designer, developer, local planning authority, DfT, BTP CTSA and BTP ALO. Whilst there would be a core membership led by the main client, the precise representation would depend on the complexity of the project, e.g. the interdependency with bus and Underground operations and shopping centres, amongst others. Where necessary, sub-groups specialising in particular measures identified in the Operational Requirement (such as Hostile Vehicle Mitigation – HVM), should be formed with a reporting chain leading to the security steering group. Draft terms of reference for a steering group are at Annex A.

[2] A person at board level or equivalent should preferably be appointed

2.4 It is important that our public realm continues to be open and inclusive and that the application of security measures is both integrated and proportionate to the assessed threat. Where opportunity arises, public realm designers should be encouraged to introduce physical security measures with an aspiration to enhance the safety, aesthetics, function and accessibility of the public environment.

Non-security considerations when planning/designing physical security

2.5 Chapter 1 referred to the need for physical security measures to be appropriate, proportionate and balanced with non-security considerations. The following sub-headings cover non-security considerations of which account needs to be taken during appropriate stages of the programme/project lifecycle:

Equality Act 2010

The Equality Act 2010 gives disabled people protection against disability discrimination in a wide range of areas, including access to goods, facilities and services. It replaces the Disability Discrimination Act 1995, now repealed, subject to a number of transitional measures and savings. Further information can be found at:

- http://www.direct.gov.uk/en/DisabledPeople/index.htm
- http://www.direct.gov.uk/en/DisabledPeople/Everydaylifeandaccess/index.htm)

It is important to note that many people are disabled by the station environment, even if they do not fall into traditional 'disabled' models. The needs of people with disabilities (both visible and invisible disability) should be taken into account when planning/designing physical security. Accessible Train Station Design for Disabled People: A Code of Practice, published by the DfT online and by The Stationery Office (TSO) in hard-copy format, provides standards and guidance for accessibility at railway stations. It can be found at:

- http://www.dft.gov.uk/topics/access/rail/rail-stations/

Listed building and conservation area consents

The Local Planning Authorities (LPAs) have primary responsibility for listed building and conservation area consents, although they will often be advised by the relevant national 'heritage' organisation, whose views they must in some cases follow.

National heritage organisations

The national heritage organisations Cadw, Historic Scotland and English Heritage (covering Wales, Scotland and England respectively) as well as Railway Heritage Trust, work in partnership with central government departments, the devolved administrations, local authorities, voluntary bodies and the private sector to:

- conserve and enhance the historic environment;
- broaden public access to the heritage; and
- increase people's understanding of the past.

They will advise planning authorities on listed building and conservation area consents. In some cases, their advice is binding. Contact points are:

- Cadw http://www.cadw.wales.gov.uk/default.asp?id=4&lang=contactcadw
- Historic Scotland http://www.historic-scotland.gov.uk/index/contact_us.htm
- English Heritage http://www.english-heritage.org.uk/about/
- Railway Heritage Trust http://www.railwayheritagetrust.co.uk/

Commission for Architecture and the Built Environment (CABE)

CABE works with architects, planners, designers, developers and clients, offering guidance on projects.

Further information can be found at: http://www.cabe.org.uk/#2

Office of Rail Regulation (ORR)

The Office of Rail Regulation is the independent safety and economic regulator for Britain's railways. Alterations to stations should be made in accordance with the operator's safety management system, and certain alterations will require amendment of the station licence. The requirements of European regulations on interoperability may also need to be considered.

Further information can be found at: http://www.rail-reg.gov.uk/

Health and safety

The ORR is responsible for health and safety matters on the operational railway, including stations. The Health & Safety Executive (HSE)'s remit only extends to stations during the construction phase (i.e. when they are building sites rather than railway premises), to building sites within stations when these are sufficiently separated from the tracks, or to non-operational areas such as offices and retail outlets on the same site.

It is important that health and safety procedures are followed, and further advice can be found on the HSE website at: http://www.hse.gov.uk/

Industry standards

Station owners have their own additional standards on physical security which need to be incorporated in the design process.

Chapter 3 – Minimising the effects of an explosion

3.1 In order to minimise loss of life and casualties it is recommended that measures are taken to mitigate against the effects of an improvised explosive device (IED). In general IEDs may take any of three forms: vehicle-borne (VBIED); person-borne (PBIED); and hand-delivered (abandoned baggage or letter-bombs, for example).

Blast and fragmentation

3.2 The detonation of an IED causes an instantaneous release of energy creating a blast wave and heat. The effects of the blast wave can be felt as positive pressure, which carries destructive power out from the seat of the explosion followed by negative pressure. The blast wave itself can cause death and serious injury.

3.3 Along with the blast there are further issues to contend with: primary fragmentation (from the device itself and possibly including items such as ball bearings) and secondary fragmentation (from the structure of the building, glazing, etc., caused by the initial blast). Building collapse and glazing fragments are the main cause of trauma injuries in attacks involving explosive devices. Physical security measures must not increase the amount of secondary fragmentation.

3.4 Obviously a letter-bomb, other hand-delivered device or PBIED (targeted at people) will not be of the same size or magnitude as a VBIED (usually targeted at buildings and people) and will not possess the same explosive power. Smaller devices may be easier to conceal and their effects far harder to mitigate. Therefore the effects of smaller devices should be considered in the design.

Mitigating the effects of blast

3.5 Detonation of an IED can occur anywhere within or adjacent to the station perimeter. To minimise the effects of the blast wave the seat of the explosion must be kept as far away as possible from a potential target, such as a station concourse. This is referred to as the blast stand-off distance (the distance from the source of the blast) and can be summed up by the phrase '**every metre counts**'. The intention is that detonation should always be mitigated against by the implementation of appropriate physical and procedural security measures.

3.6 The most cost-effective method of mitigation is ensuring that security is 'designed-in' at all stages of station development or refurbishment.

Chapter 4 – Site evaluation and layout of facilities

The Operational Requirement process

4.1 In order to ensure cost-effective, relevant and proportionate physical security measures are implemented, use of the Operational Requirement (OR) process is highly recommended as best practice.

4.2 The OR process is split into two stages. The Level 1 OR will assist the identification of all physical security measures that will provide the necessary security regime. It could include measures such as HVM (Hostile Vehicle Mitigation), CCTV, access control, lighting, perimeter fencing and detection.

4.3 Once the Level 1 OR process has been completed, each facet (such as HVM) can be further developed through the Level 2 OR. This is specific to the particular security measure and will aid the development of the required standards, capabilities and extent of that measure.

4.4 The OR process does not design or procure the finished product, but will provide companies who wish to tender for such a contract with a clear customer requirement for them to meet and that can be tested against.

Operational Requirement Process

Assistance with the OR process can be found at: http://www.cpni.gov.uk/documents/publications/2010/2010-word_op_reqs.doc.

Critical equipment and assets

4.5 Where it is proposed that equipment and assets critical to the ability to run a train service or the station are to be located within the station footprint, consideration should be given to their siting to maximise protection. This should include stand-off (including, where necessary, blast mitigation), access control and detection. Where possible and practicable, major building services, air conditioning and power supplies should be discreetly located, concealed or contained, particularly where they are in close proximity to publicly accessible areas. The position of railway systems, e.g. signals, sub-stations and other key elements, should likewise be away from public access. Where assets are assessed or advised to be critical national infrastructure, CPNI should be contacted.

Parking

4.6 Wherever possible underground parking, parking under overhanging structure, or parking beneath buildings, should be avoided. The cost of achieving the necessary standards of blast protection and preventing the progressive collapse of buildings is increased considerably. If such parking is required, it should be limited, wherever possible, to staff only. Appropriate access control and security measures should be in place to prevent unauthorised entry.

4.7 Public car parks should be located as far away from station buildings as practicably possible, with no uncontrolled vehicular access from the car park to the station itself. Station owners should be consulted on reasonable adjustments to take account of the needs of Blue Badge holders. The car park should be subject to surveillance, not just as a counter-terrorism measure but also to prevent thefts of/from vehicles, with the clear intention of achieving 'Park Mark'[3] award scheme status. Where car parks cannot be situated more than 30 metres away from station buildings. more surveillance, physical construction and procedural measures should be implemented to deter, detect and mitigate hostile intent.

4.8 Staff parking should also be located more than 30 metres from station buildings. Where this is not possible, staff car parks should be located within a secure area with access control and security measures in place to prevent unauthorised parking. Where secure parking is not possible, more procedural measures should be implemented to deter and detect hostile intent.

4.9 The overall intention is to maximise as far as practicable the distance between vehicles and the station. This increases stand-off in the event of the detonation of an IED and aids the design process by reducing the requirement for more robust building construction.

Integration with other 'Crowded Places'

4.10 Wherever possible there should be a distinct separation (i.e. physical space) between the station and other crowded places such as sports stadia, shopping centres and bus termini. Separation of the assets will help to reduce the attractiveness of the location as a target and the ease with which both assets can be affected by a single IED.

4.11 Where such separation is not possible, the security steering group for the station development should include a representative of the security management of the neighbouring crowded place to ensure that all security measures are complementary – for example, by ensuring that

[3] The Park Mark® Safer Parking Award creates standards to which all new and refurbished car parks should adhere – see: http://www.britishparking.co.uk/Park-Mark---The-Safer-Parking-Scheme for further information.

HVM at the neighbouring crowded place also protects the station so that there is no unprotected access onto the station concourse. Furthermore, service roads, delivery areas, staff parking and public parking for the neighbouring crowded space must all be taken into consideration to ensure that any incident taking place in these areas does not impact on the operation of the station.

4.12 The Home Office has produced documents to assist in the protection of non-transport crowded places. Further details can be found by contacting: public.enquiries@homeoffice.gsi.gov.uk

4.13 **An integrated and holistic approach, not just to physical and procedural security measures but also to contingency and business continuity planning, is essential.**

Perimeter

4.14 The demarcation between public and private (rail network) space should prevent unauthorised and undetected access. This is particularly important where an area is considered to be a more attractive target. Under these circumstances a higher standard of security fencing should be used and the protection of any necessary access points considered (taking account of the needs of the travelling public and staff, including those with any form of visible and/or invisible disability).

4.15 In general, access to the station, including staff entrances and direct access to platforms, should be by the fewest possible points. Such access points should be monitored and/or controlled by station staff taking into account relevant fire safety regulation.

Lighting

4.16 Lighting that is effective and fit for purpose is necessary. Consideration needs to be given to its colour rendition, uniformity and its support of any CCTV system that is in place at the station.

Cycle racks

4.17 Cycles can be used to conceal IEDs. Whilst the amount of explosives that can be used in such an attack is limited by the size of the cycle, such devices could have a devastating effect if placed in a crowded area. These facilities should be located so as not to interfere with entrances and main pedestrian flow routes. The relevant security regulations contain recommendations for CCTV coverage of such facilities.

4.18 Consideration needs to be given to the design of cycle racks and to their surveillance by human or technological means for the purpose of crime reduction.

Other structures

4.19 The security implications of other structures which impact upon the station footprint, such as railway arches, foot and road bridges and public footpaths, need to be considered in the overall security plan.

Chapter 5 – Station approach

5.1 During the identification and development of a requirement for physical security measures it is recommended that the OR process, as described in paragraphs 4.1 to 4.4, is followed as best practice.

5.2 CPNI has produced *Integrated Security – A Public Realm Design Guide for Hostile Vehicle Mitigation* to assist in design of the public realm, aiming to promote consideration of protective security at project inception. It also aims to promote the development of innovative and integrated security solutions that protect public spaces and maintain an accessible and inclusive environment.

Integrated Security – A Public Realm Design Guide for Hostile Vehicle Mitigation

Further details can be found on CPNI's website at

http://www.cpni.gov.uk/advice/Physical-security/Vehicle-borne/Public-realm-integration/

Station approaches and HVM

5.3 In order to mitigate the effects of blast it is necessary to increase stand-off (the distance between the IED and intended target) to the maximum distance possible. When the minimum stand-off has been identified, it is necessary to ensure that unauthorised vehicles have no means of access to this area. The preferred option is total vehicle exclusion at the identified perimeter around the station footprint, but authorised vehicular access can be facilitated using access control measures where necessary.

5.4 When designing HVM, consideration must be given to a number of factors, not least the approach speed of any potentially hostile vehicle. This can be reduced using landscaping and road design features such as traffic calming chicane measures. However, it is likely that preventing VBIEDs gaining access to areas where they may cause the greatest devastation, such as station concourses, will need to include physical barriers. Other factors that must be considered when planning HVM include: emergency access; access for essential regular and irregular maintenance; access for deliveries to commercial premises within the station; underground services; the provisions of the Equality Act 2010, etc.

5.5 The standards for manufacturing, testing and installing HVM measures such as vehicle security barriers are BSI PAS 68 and BSI PAS 69. Further advice can be sought from the BTP CTSA.

Emergency vehicle and maintenance access

5.6 It is essential that the emergency services are consulted at an early stage in the planning process with regard to the placing of HVM. HVM measures should not hinder or delay their ability to access the station in the event of an incident. Procedures for emergency service access should be included in the station's emergency procedures.

5.7 It will also be necessary to allow access for planned and emergency maintenance purposes. This access should be given through a controlled process whereby only authorised contractors/workers are permitted access through the HVM measures. When evaluating the design of the station, due consideration should be given to the necessary methods and frequency of maintenance required for its upkeep, as this will have an impact on the HVM strategy. For example, the need to lower and raise bollards to allow access for daily maintenance should be avoided.

5.8 Full regard should always be paid to ensuring that access for emergency services and maintenance is properly controlled. At no stage should such access arrangements compromise the overall HVM measures in place to meet the objective of protecting the station and the public. Methods to ensure this objective is met may include: proper key control; verification of identification and authority; and correct operation of movable access control measures, barriers and bollards.

Buses, taxi ranks and passenger drop-off/pick-up

5.9 Whilst accepting the need for public transport connections and customer drop-off and pick-up to be as near to the station as possible, this should be balanced against the intention to provide maximum stand-off from VBIEDs. The use of perceived 'normal' vehicles by terrorists has historical precedents, such as the Real IRA VBIED in a taxi that detonated outside the BBC offices in Wood Lane in March 2001.

5.10 Whilst total vehicle exclusion remains the preferred option, it is recognised that the availability of public transport to passengers (particularly those with visible and/or invisible disabilities) is a necessity, and the intention remains to provide accessible public transport to/from the station. It is therefore recommended that, where it is not possible to locate public transport facilities at an appropriate stand-off distance from a station, they are located at the side of a station rather than directly in front of any station entrances.

5.11 The proximity of bus stops and taxi ranks to the station should take precedence over drop-off/pick-up locations for private cars.

Hire cars

5.12 Where hire car facilities are provided, they should be located outside the HVM measures and the main station building. This is strongly recommended for hire car returns until they have been checked-in and inspected by hire car company staff.

Chapter 6 – Building structure and fabric

6.1 When considering the structure and fabric of a building, the intention should always be to minimise possible loss of life and to reduce casualties.

Building structure

6.2 The structure of any building should be such that it has built in to it a quantifiable degree of blast resistance. This should include the prevention of progressive collapse, the avoidance of non-reinforced load-bearing walls and an understanding of the effects of the loss of one or more load-bearing columns. Specialist advice can be obtained from members of the Register of Security Engineers and Specialists (RSES).[4]

6.3 It is recommended that, wherever possible, reinforced concrete frames are used in the construction. Where steel frames are to be used, the vertical members should be encased using concrete or other resistant materials. Where hollow tubular steel vertical supports are to be used, the recommendation is that these be concrete filled up to 3 metres.

6.4 Horizontal beams and floor-pan ties should be of sufficient strength and capability to maintain integrity under blast conditions, which includes phases of positive and negative pressure.

6.5 The use of a permanent steel formwork for concrete flooring is recommended, as it helps to reduce fragmentation under blast.

Building fabric

6.6 When deciding upon the materials to be used in the fabric of the building, an understanding of how they react during a blast is needed, including the propensity to create additional, secondary shrapnel, and a risk-based approach should be used to decide on the fabric.

6.7 Any glazing should be Polyvinyl Butyral (PVB) laminate fitted in accordance with advice provided by the BTP CTSA. An appreciation of

[4] CPNI sponsor the Register of Security Engineers and Specialists (RSES) that is held by the Institute of Chartered Engineers. For companies wishing to employ members of the RSES please see the contact details in Chapter 9.

the association between the seat of an explosion and any glazing is essential when deciding on the standard of glazing to be used. The preferred option for fixing such glass is for it to be fully framed and secured.

6.8 As a starting point, details of glazing standards have been produced by the Home Office's Centre for Applied Science and Technology (CAST), which was formerly known as the Home Office Scientific Development Branch (HOSDB).

Home Office – Centre for Applied Science and Technology (CAST)

CAST's contact details can be found at:

http://www.homeoffice.gov.uk/science-research/hosdb/

As part of a programme of research and development funded and directed by the Centre for the Protection of National Infrastructure (CPNI), a Guidance Note has been developed by CAST and can be accessed from CPNI's website at:

http://www.cpni.gov.uk/advice/physical-security/ebp/blast-resistant-glass/

Cladding

6.9 Any cladding used should not fracture in such a way as to increase the amount of secondary fragmentation. Equally, it should be robustly secured to the structure of the building to reduce the likelihood of detachment during a blast causing additional casualties.

Lifts

6.10 Where lifts are required and are to be constructed from glass, the recommendation to use PVB laminate remains. The construction methodology needs to be such that, in the event of a blast within the lift car, the structure itself will not fail.

Chapter 7 – Internal facilities

7.1 Simple design measures can enhance internal station security, and basic recommendations are provided in the relevant security regulations.[5] Clear lines of sight aid search and evacuation procedures. Curved or sloping tops on ticket machines, advertising panels and vending machines make it difficult to place items on them and are strongly recommended. Flat-topped structures should not be used. Fitting them back-to back with other machines, or on legs with large gaps underneath, can also make it difficult for someone to attempt to conceal an item without it looking obvious. Making window sills slope is also recommended. Similarly, if planters are to be used on a station, they should be designed so as to make it impossible to hide anything underneath, i.e. with either no gap or a gap so big that anything can be visible from all sides. Planting should not be so dense that it hinders searches.

7.2 As with external glazing referred to in paragraph 6.7, any substantial area of internal glazing, e.g. retail unit frontage, should be Polyvinyl Butyral (PVB) laminate fitted in accordance with advice provided by the BTP CTSA.

7.3 Waste management facilities should always be located away from entrances and main pedestrian flow routes. The relevant security regulations detail the requirements for litter bins, bulk rubbish containers, compactors and recycling facilities.

7.4 Left luggage and other such storage facilities at stations should be located away from public entrances and pedestrian flow routes (preferably sited on, or close to, the station perimeter so as to facilitate the removal of a suspect package by the appropriate authorities). They should be constructed in such a way as to minimise the effects of an explosion occurring in an item being handled or stored. They should be capable of being secured when not staffed, and the relevant security regulations detail their operation.

7.5 BTP publishes a *CCTV Output Requirements* document which highlights what standard of image is required.

BTP – CCTV Output Requirements

A copy of this document is available from the BTP Architectural Liaison Officer at fhqcrimereduction@btp.pnn.police.uk.

[5] DfT can advise on these regulations.

7.6 Other aspects of the internal facilities which need to be considered for the purposes of crime reduction and counter-terrorism are the siting and design of: the toilet area; retail outlets and associated storage and delivery facilities; lifts and escalators. This list is not exhaustive.

BTP – Retail Outlets on Stations

See guidance issued by BTP on retail outlets on stations available from fhqcrimereduction@btp.pnn.police.uk

Access control

7.7 Requirements on access control to non-public areas of stations are contained in the relevant security regulations. It is important that such access control measures are effectively integrated with other station systems and are included in the station design at the earliest possible stage of the design process.

Doors and locks

7.8 Consideration needs to be given to the installation of doors and locks which are better able to withstand entry from armed intruders and to help provide cover for people caught up in a firearms attack.

Chapter 8 – Additional considerations for international stations

8.1 There are additional mandatory legal requirements for stations that handle international rail traffic, which are set out in detail in directions made under the Channel Tunnel (Security) Order 1994, SI 1994/570 (DfT can advise on these). In terms of physical security, it is worth mentioning here that stations which handle international traffic will invariably be directed to contain a Restricted Zone (RZ).

8.2 An RZ is an area of the station designated as being for the use of departing and arriving international passengers only. An RZ must be bounded by effective physical barriers to prevent unauthorised entry, with gates and openings locked closed or controlled at all times. There must be physical segregation of departing and arriving international passengers within the RZ. This can be accomplished by a variety of means, including arrangements whereby the passengers and vehicles are not present in the same space at the same time, screens, and by having arriving and departing passengers on different floor levels. All departing international passengers are liable to be security screened upon entry to the RZ. Appropriate space therefore needs to be allocated for a screening facility. It is important to ensure that such a facility has sufficient space to carry out the screening effectively, and that the screening process cannot be overlooked, e.g. from retail outlets. Screens are one method which can be used to prevent overlooking. Future growth in passenger numbers should also be considered when designing a screening facility in order to allow additional security search lanes to be incorporated when necessary.

8.3 Space within the RZ, such as office areas, should also be allocated for the use of the control authorities such as the UK Border Agency (UKBA).

UKBA

The UKBA can be contacted at: http://www.bia.homeoffice.gov.uk/contact/

8.4 Where relevant, the RZ should also conform with recommendations contained in the other chapters of this guide.

Chapter 9 – Contact points for further information

9.1 Contact details for the security organisations referred to in this guide can be found at:

Department for Transport (DfT)

- Address: DfT Land Transport Security, Great Minster House, 33 Horseferry Road, London, SW1P 4DR
- E-mail: landsecurity@dft.gsi.gov.uk

Centre for the Protection of National Infrastructure (CPNI)

- Address: Central Support, PO Box 60628, SW1P 9HA
- E-mail: via general enquiries form on the CPNI website at:

  http://www.cpni.gov.uk/Contact-us/contact/

British Transport Police (BTP)

(For the BTP CTSA and ALO)

- Address: 25 Camden Road, London, NW1 9LN
- Phone: 0207 830 8994
- E-mail: fhqcrimereduction@btp.pnn.police.uk

9.2 Other links and references can be found at:

Secure Stations Scheme

- http://www.dft.gov.uk/pgr/crime/sss/

Safer Parking Award

- http://www.britishparking.co.uk/Park-Mark---The-Safer-Parking-Scheme

The Register of Security Engineers and Specialists

- http://www.ice.org.uk/getattachment/f556d766-03c7-40dc-b5fa-3c295a44ac49/RGN-4---Companies-with-Members-of-RSES.aspx
- DfT – *Accessible Train Station Design for Disabled People: A Code of Practice*
- http://www.dft.gov.uk/topics/access/rail/rail-stations/

Retail Outlets on Stations

- E-mail: fhqcrimereduction@btp.pnn.police.uk

Home Office – Protecting Crowded Places: Design & Technical Issues

- http://www.homeoffice.gov.uk/publications/counter-terrorism/crowded-places/design-tech-issues?view=Binary

Royal Institute of British Architects (RIBA) – Guidance on designing for counter-terrorism

- http://www.architecture.com/Files/RIBAHoldings/Communications/Press/General/RIBAguidanceoncounterterrorism.pdf

Chapter 10 – Glossary of terms

ALO	Architectural Liaison Officer
BTP	British Transport Police
CPNI	Centre for the Protection of National Infrastructure
CTSA	Counter Terrorism Security Adviser
DfT	Department for Transport
HVM	Hostile Vehicle Mitigation
IED	Improvised Explosive Device
LPA	Local Planning Authority
LUL	London Underground Ltd
NaCTSO	National Counter Terrorism Security Office
NR	Network Rail
OR	Operational Requirement
PBIED	Person-borne Improvised Explosive Device
PVB	Polyvinyl Butyral
RSES	Register of Security Engineers and Specialists
TfL	Transport for London
UKBA	United Kingdom Border Agency
VBIED	Vehicle-borne Improvised Explosive Device

Annex A – xxx station Security Steering Group

It is strongly recommended that the security agencies referred to in this guide are included within the Security Steering Group and that their advice is sought at the earliest possible stage of the programme/project.

Terms of Reference

1. Purpose/aim

A forum to identify security and crime risks in the new xxx station/xxx station redevelopment (delete as appropriate), and to agree proportionate security measures to prevent and mitigate acts of violence, including terrorism and general crime in this area by facilitating discussions between relevant stakeholders either interested in or engaged in the design, construction and operation of xxx station.

2. Objectives

- To identify current and foreseeable security and crime risks at xxx station (including xxx Underground station/bus station/hotel/retail centre).
- To design into the construction of the buildings and their operation at the earliest stage effective security measures that are based upon a proportionate and risk based approach, taking account of current and foreseeable security (including terrorism) and crime threats.
- To incorporate suitable security measures into the construction site(s) to protect it adequately and still allow normal transport services to operate effectively.
- To provide a forum and an interface between the different sites that will enable security measures to be discussed and, if differing views are expressed, resolved to the best outcome.
- To facilitate the input and exchange of information on security that will enhance knowledge and understanding of all members and stakeholders.
- To promote proper implementation of security measures that:
  - meet minimum legal requirements;
  - align with best practice where practicable and resources permit;
  - are compatible with other requirements of building design; and
  - are well-designed and contribute to a high quality environment.

3. Breakdown of work, structure and schedule

The steering group should discuss strategic matters, issues that have not been resolved in bilateral or subgroup meetings, and useful information that other members will benefit from. It will be chaired by a representative of xxx and normally meet on a [3 monthly] basis at a venue to be defined ahead of the meeting. This frequency can be changed depending on the need to meet. Minutes will consist of key points and actions and will be distributed within one week of the meeting.

The table below contains the members of the steering group. New members can be added to or deleted by agreement of the group.

Name	Organisation	Role	Title
xxx	Chair organisation to be agreed by Steering Group members	Chair	xxx
xxx	Network Rail	Member	xxx
xxx	London Underground Ltd	Member	xxx
xxx	TfL	Member	xxx
xxx	Train Operating Company (TOC)	Member	xxx
xxx	xxx architectural design company	Member	xxx
xxx	xxx construction company	Member	xxx
xxx	DfT	Member	xxx
xxx	BTP CTSA	Member	xxx
xxx	BTP ALO	Member	xxx

The group's work will be finished with completion of the xxx new station/xxx station redevelopment. The cost of attending and organising the steering groups and any sub groups will be met by individual participants.

Most discussions on security will take place directly between interested parties, either through bilateral meetings or subgroups set up by the steering group.

4. Success factors

All stakeholders involved in providing, advising and the delivery of security measures will have access to the group.

The buildings in the xxx station will meet minimum security levels where practicable and proportionate. Measures will also meet security best practice.

All members of the group should make sure that other initiatives, such as the Home Office work on soft targets and crowded places, are brought to the attention of other members.

Any lessons learned that would be useful to those participating in other new stations, station rebuilds or similar activities are recorded for future reference.

xxx name

xxx position

xxx company

xxx date