Resilient Design Tool for Counter Terrorism

Use the Resilient Design Tool
The Resilient Design Tool (RDT) will help key decision makers consider the proportionate use of counter terrorism (CT) design features in new and existing developments planned for crowded public places (i.e. anywhere in, or adjacent to, locations to which large numbers of the general public have access).

This decision support tool has been developed with the assistance of the Centre for the Protection of National Infrastructure (CPNI) and the National Counter Terrorism Security Office (NaCTSO). By considering counter terrorism at the earliest stage of a development or refurbishment, this tool will help project decision makers to develop the design and construction strategy in a cost effective manner.

The Resilient Design Tool has been developed in a PDF format which is designed to be used on screen. Enter the toolkit on the right then navigate to any of the ten main sections by clicking on the tabs on the right hand side of the screen. Thereafter, use the tabs across the top of the text boxes to move between sub-sections. The tabs include advice and guidance, further reading and an interactive stakeholder map.

The stakeholder map has been included to aid developers, designers, planners, construction engineers, transport security advisors / British Transport Police (BTP), Architectural Liaison Officers (ALO), Crime Prevention Design Advisors (CPDA) and Counter Terrorism Security Advisors (CTSA). This toolkit is designed to help meet the challenges of a rapidly evolving security environment providing practical advice and guidance. The Resilient Design Tool has been developed to meet local needs and to encourage joint working in a cost effective way, thereby reducing duplication of effort and minimising cost. It provides general guidance, but more sector specific advice may be available in complementary guidance (see glossary).
A shopping centre is being developed which includes an integrated transport hub with a tram station. The entire complex is a new build. The developers are aware of the need to consider Counter Terrorism (CT) measures, and to do so most effectively they have:

• considered CT issues early in the life of the project.

• liaised with Counter Terrorism Security Advisors (CTSAs) at the concept and feasibility stage, allowing them to conduct a risk assessment and make decisions about any CT needs. This included consideration of sites neighbouring the development, addressing any additional risks that may have arisen, allowing the designers, planners and developers to take a holistic view of safety and security;

• incorporated into the build a range of non-invasive, passive security design features have been incorporated into the build. These will have minimal or no impact on the later operation of the centre and transport hub, and to the public will be largely invisible;

• contacted a range of interested parties and stakeholders who will have views or regulatory influence over the development. This has helped prevent late changes and additional unforeseen costs;

In planning the operation of the shops and transport hub early consideration of CT has allowed careful integration of features such as vending machines, kiosks and café seating areas. These often overlooked elements were included in the planning of the site, do not create concealed or unregulated spaces, and avoid creating additional unplanned crowded areas.
A development is undertaken of a shopping centre (which includes other buildings). The developers are aware of the need to consider CT measures.

By considering CT early, the developers of the shopping centre have:

- liaised with CTSA at the concept and feasibility stage. As a result various non-invasive, passive security design features have been suggested by CTSA, while threats associated with neighbouring developments, including transport systems, have been incorporated into the planning and development of the shopping centre;

- liaised with important stakeholders involved with the concurrent development of a tram stop, subcontractors for other buildings and specialists in CT building design;

- put in place measures to ensure CT features are not compromised later in the life of the development, e.g. poor maintenance preventing a vehicle barrier from functioning.
Resilient Design for Counter Terrorism
Towards integrated partnerships and solutions

Start

Is the proposed development going to be located in or adjacent to a place accessible to the general public?

Yes

Has somebody in your organisation been tasked with managing security or CT for the project?

No

Assign somebody to this role. The size of the role will differ significantly depending on the project size.

Yes

Has you liaised with a CTSA about potential terrorist related threats to this development?

No

Consult your local Counter Terrorism Security Advisor (CTSA).

Yes

Do you know what actions are required to address the threat of terrorism?

No

Seek advice and guidance from a Counter Terrorism Security Advisor (CTSA).

Yes

Do you know who you need to be seeking advice from to incorporate CT solutions?

No

End

Yes

Have you incorporated CT measures into the design and construction of the development? If not, contact a CTSA.

Yes

Proceed to the next stage of the project.

IMPORTANT
Document decisions and actions made at these stages.

Training in these areas is available through workshops and programmes such as Projects Griffin and Argus - see Glossary.

Decision making flowchart

Introduction

Good Practice Examples

Typology of CT measures

Broader CT considerations

Key stages of a project

Key stakeholders

Further reading

Useful contacts

Glossary
Key Design Principles

1. Consider forward planning and flexibility to counter developing threats.
2. Provide mitigation measures proportionate to the threats.
3. Design to enhance the setting.
4. Include multi-functional elements.
5. Ensure an accessible and inclusive environment.
6. Design with maintenance in mind.
Hostile Vehicle Mitigation (HVM)

HVM encompasses the physical control of vehicles within a given area in order to deter an attacker, deny methods of attack from being achievable, and to minimise the impacts of an attack should one be carried out. This can be achieved by traffic management initiatives (traffic exclusion, traffic restriction with screening or traffic inclusion with more local asset protection), traffic calming vehicular approaches then controlling access to the asset by using appropriately specified vehicle security barriers (VSBs).

While bollards and planters are typically used to enforce the vehicle security barrier cordon, certain profiles of landscaping and structural versions of street furniture can also fulfil certain HVM functions.

Bollards enforcing a stand-off distance between the exterior of a building and where a vehicle bomb could be deployed. HVM measures that are more in keeping with the surrounding architecture can be achieved with planning.
Protective construction

Protective construction encompasses the robustness and design of a building, in order to mitigate the impacts of a blast. Such protection includes the incorporation of CT measures in relation to the skin, structure, services and plan of a building.

Glazing can be enhanced in a number of ways, some of which can even reduce energy costs as well as providing blast mitigation.

Stairwells can be used as protective features if designed correctly.
Planning, Detection and Procedures (PDP)

PDP encompasses the detection of hostile vehicles and/or suspicious behaviour. It employs human, technological or procedurally-based CT measures which help in preventing and responding to terrorist attacks, as well as the incorporation and development of a security culture.

CCTV, while typically associated with crime prevention, can help in deterring and identifying hostile reconnaissance.

Evacuation and invacuation planning, search procedures, and a range of other arrangements can be made that help preparedness, and enable measured responses to incidents.
Cost and return on investment

While the cost of incorporating CT measures has always been a key issue in relation to their use, CT measures can sometimes be incorporated at negligible capital cost. In some cases CT measures can provide a return on investment in the form of revenue generation and increases in property/area values.

Revenue can be generated by using CT measures which contain advertising space, as demonstrated below. Research has also shown that the exclusion of traffic, while being perceived to impact detrimentally on businesses, may actually improve the shopping environment.

Moving staff away from vulnerable areas, for example by re-organising offices, and bringing in CTSAs to run Project Argus or Project Griffin events can all be achieved at no cost.

Advertising boards, such as those pictured above, could be structurally enhanced to provide HVM functions, while also generating revenue.

Excluding traffic from areas, while increasing safety and reducing pollution, can also increase footfall and turnover for businesses.
Design quality

The symbolism and physical appearance of CT measures have long been considered as being in direct contrast to design and permeability. However, CT measures and the pursuit of unimpaired design and permeability can go hand in hand. Although certain specifications can change, the design concept can still be the same; buildings or space can look like they would have looked without the incorporation of CT measures.

Ensuring that designs and their quality are not impinged upon is of particular importance in heritage settings. In these cases it is important not to detract from the historic fabric of the building or space; consultation with English Heritage is therefore advised when considering temporary or permanent design alterations. As demonstrated below, non-obtrusive CT measures can be incorporated which do not require interference in such places.

Architecturally-sensitive (and structurally-hardened) walls protect buildings from vehicle-borne attacks.

When extensive glazing is used, protective secondary layers of glazing can be incorporated that do not interfere with existing frames, fixtures and fittings.
User experience

The built environment directly influences physical and psychological comfort, and the experience of the user is a crucial factor in the perception and use of crowded places. CT measures can therefore influence users accordingly, which puts an impetus on their consideration and incorporation at the earliest possible opportunity, in order to ensure their highest aesthetic and functional performance.

Some CT measures are ‘invisible’; paying attention to building robustness can mitigate the impact of blasts and a range of threats, hazards and accidents. Other CT measures are more visible and therefore require further thought when considering user experience.

Temporary barriers, while necessary in certain circumstances, can be more obtrusive than permanent or ‘designed-in’ CT measures, and can therefore have a greater impact on user experience.

Some permanent CT measures can be obtrusive. However, CT measures can be reduced in size, along with considerations such as traffic calming measures, when CT is considered at an early stage in a development.
Energy and the environment

CT measures can be used to address energy and environmental concerns. For example, traffic exclusion and restriction for HVM purposes can reduce air and noise pollution, certain types of glazing and adhesive films can reduce energy consumption, and 'green space' and biodiversity can be increased through the use of particular traffic management approaches and CT measures.

Glazing, which is a popular feature of many buildings, has a range of functions. It can be used to create open, well lit spaces, reduce energy consumption, and when reinforced, can mitigate against blasts.

The use of planting and landscaping, whilst having aesthetic appeal, can also contribute to environmental agendas.
Concept

- development of initial statement of requirements in the Design Brief by or on behalf of the client confirming key requirements and constraints
- identification of procurement method, procedures, organisational structure and range of consultees and others to be engaged for the project
- implementation of Design Brief and preparation of additional data
- preparation of Concept Design including outline proposals for structural and building services systems, outline specifications and preliminary cost plan
- review of procurement route
- development of concept design to include structural and building services systems, updated outline specifications and cost plan
- completion of Project Brief
- application for detailed planning permission, including Design and Access Statement - make reference to anti-crime and CT measures in the Design and Access Statement
- preparation of technical design(s) and specifications, sufficient to co-ordinate components and elements of the project and information for statutory standards and construction safety
Feasibility

- identification of client’s needs and objectives, business case and possible constraints on development
- preparation of feasibility studies and assessment of options to enable the client to decide whether to proceed
- preparation of detailed information for construction
- application for statutory approvals
- preparation of information for construction required under the building contract.
- review of information provided by specialists
- preparation and/or collation of tender documentation in sufficient detail to enable a tender or tenders to be obtained for the project
- identification and evaluation of potential contractors and/or specialists for the project
- obtaining and appraising tenders; submission of recommendations to the client
Construction

- letting the building/site contract, appointing the contractor
- issuing of information to the contractor
- arranging building/site hand over to the contractor
- administration of the building/site contract to practical completion
- provision to the contractor of further Information as and when reasonably required
- review of information provided by contractors and specialist
Operation

• administration of the building/site contract after practical completion and making final inspections

• assisting building/site user during initial occupation period

• review of project performance in use

• maintenance of the building/site, on a day to day basis but also over a prolonged period of time

• considerations made regarding the maintainability and flexibility of building/site usage should be central to the design

• engage with emergency planners/services regarding the review and testing of emergency procedures
Refurbishment

- identification of client’s needs and objectives, business case and possible constraints on development

- preparation of feasibility studies and assessment of options to enable the client to decide whether to proceed

- development of initial statement of requirements into the Design Brief by or on behalf of the client confirming key requirements and constraints

- identification of procurement method, procedures, organisational structure and range of consultants and others to be engaged for the project
Key Stakeholders

There will be a range of interested parties and stakeholders who will have views or regulatory influence over a development. The following link takes you to an interactive ‘map’ showing who these organisations may include, although the exact list will be specific to your development.
The stakeholders are categorised according to the stages of a typical project, from concept through to operation, including later refurbishment. At each stage those expected to have views, concerns or regulatory power are indicated, and a brief summary is given of their area of interest.

For many of the stakeholders a series of search terms or names of several organisations are suggested. To avoid referencing outdated information these are not direct links, but are terms with which you can find the latest relevant information by searching the internet. Use a web browser with these terms to direct yourself to further information.
Important stakeholders to liaise with throughout the lifecycle of a shopping centre and tram

Click to identify what stakeholders you need to contact at various key stages in the lifecycle of a development, including the planning or refurbishment of shopping centres and light rail systems.

This document provides you with information and advice about stakeholders involved at various stages of a range of developments. Guidance and advice from these stakeholders may help to ensure that a range of security measures are implemented efficiently and effectively. This document works alongside the decision support guidance notes. The guidance notes include some examples of the benefits provided by the early integration of Counter Terrorism security measures.


*The following documents are also available from the CPNI (www.cpni.gov.uk):*


*The following documents are also available from NaCTSO (see useful contacts):*

A suite of ‘counter terrorism protective security advice’ documents for crowded places;

A range of business continuity publications (**Expecting the Unexpected, Secure in the Knowledge**, and **Counting the Cost**);

Publications on the planning system and counter-terrorism, design and technical issues, and working together.
Centre for the Protection of National Infrastructure (CPNI)
www.cpni.gov.uk
CPNI is the UK Government authority that provides protective security advice to businesses and organisations across the national infrastructure.

National Counter Terrorism Security Office (NaCTSO)
www.nactso.gov.uk
NaCTSO is a police unit co-located with CPNI. They are funded by, and report to, the Association of Chief Police Officers (ACPO).

Home Office
www.homeoffice.gov.uk/counter-terrorism
Responsibility for counter-terrorism sits within the Office for Security and Counter-Terrorism (OSCT), which is part of the Home Office. OSCT provides strategic direction to the UK's work to counter the threat from international terrorism.

Department for Transport (DfT),
www.dft.gov.uk/topics/security/
The Department for Transport (DfT) aims to protect the travelling public, transport facilities and those employed in the transport industry, primarily from acts of terrorism.

Secured by Design
www.securedbydesign.com
The official UK Police flagship initiative supporting the principles of 'designing out crime'.

Landscape Institute (LI)
www.landscapeinstitute.org
Royal Chartered body for Landscape Architects in the UK.

Royal Institute of British Architects (RIBA)
www.architecture.com
Professional Association of Architects in the United Kingdom.

The Royal Town Planning Institute (RTPI)
www.rtpi.org.uk
The Royal Town Planning Institute is the UK’s leading planning body for spatial, sustainable, integrative and inclusive planning.
ACPO - Association of Chief Police Officers. ACPO coordinates policing policies on behalf of 44 forces across England, Wales and Northern Ireland. It also liaises with Government on dealing with civil emergencies and terrorist incidents.

ALARP - As Low As Reasonably Practicable. The ALARP principle is often used by decision makers when considering whether to adopt CT measures and what measures to implement. The principle dictates that the risk of terrorism should be reduced as low as possible within the constraints of cost and acceptability. More information about ALARP can be found on the website of the Health and Safety Executive at hse.gov.uk/risk/theory/alarp.htm

ALO – Architectural Liaison Officer. A specialist crime prevention officer, employed within local police forces to advise on crime risk and reduction. Specialising in designing out crime – or Crime Prevention Through Environmental Design - these professionals work closely with architects and built environment specialists to assess the possible impacts of various crimes and how the built environment may be designed to mitigate the effects of such crimes.

BTP – British Transport Police. The national police force for the railways, providing a policing service to rail operators, their staff and passengers throughout England, Scotland and Wales.

CBRN - Chemical, Biological, Radiological and Nuclear. A categorisation of weaponry that includes components sourced from chemical, biological radioactive or nuclear materials.

CNI - Critical National Infrastructure. The nation's critical national infrastructure includes: Communications, Emergency Services, Energy, Finance, Food, Government, Health, Transport and Water. Within these nine national infrastructure sectors there are critical elements (these may be physical or electronic), the loss or compromise of which would have a major detrimental impact on the availability or integrity of essential services, leading to severe economic or social consequences or to loss of life.
**CPNI** – Centre for the Protection of National Infrastructure. This organisation offers advice aimed to reduce the occurrence of attack and reduce the vulnerability of Critical National Infrastructure to terrorist attack and threats. Typically contacted via CTSAs and NaCTSO for critical issues.

**CPDAs** - Crime Prevention Design Advisors - ensure that all such relevant planning applications submitted to their respective planning authorities are noted and forwarded to the CTSAs for their assessment and advice.

**CPTED** – Crime Prevention through Environmental Design – The ethos behind this concept is that the physical environment can be designed and enhanced to produce behavioural effects that will reduce the incidence and fear of crime. The three strategies of the CPTED approach that can help reduce crime are: Natural Surveillance, Natural Access Control, and Natural Territorial Reinforcement.

**Contingency Planning** - Measures of preparedness in the face of a range of identified risks.

**CTSAs** – Counter-Terrorism Security Advisers. These are specialists within each UK police force, primarily commissioned to provide specialist advice regarding counter-terrorism efforts and modes of protective security.

**DfT** – The Department for Transport aims to protect the travelling public, transport facilities and those employed in the transport industry, primarily from acts of terrorism. The DfT’s Land Security is responsible for ensuring the security of passengers and staff on the national rail network, underground and light rail systems and in the Channel Tunnel.

**Home Office** - The lead government department in the United Kingdom for immigration and passports, drugs policy, counter-terrorism and police.
**Light Rail** - Urban-based passenger railway systems.

**LRF** - Local Resilience Forums draw together key emergency responders to consult, collaborate and disclose information with each other to facilitate planning and response to emergencies, and produce a Community Risk Register.

**NaCTSO** - National Counter Terrorism Security Office. NaCTSO contributes to the UK government’s counter terrorism strategy (CONTEST) by supporting the Protect and Prepare strands of that strategy. NaCTSO co-ordinates a nationwide network of specialist police advisers known as Counter Terrorist Security Advisers (CTSAs) who can offer help on counter terrorism security.

**Network Rail (NR)** - NR is a rail infrastructure manager constituted as a not-for-profit company. It is responsible for the ownership, maintenance and operation of the heavy rail network in Britain.

**ORR** - Office of Rail Regulation. The ORR is a body established to monitor the licence performance of Network Rail and to set targets in relation to business performance, funding and the development of new projects.

**OSCT** - The Office for Security and Counter-Terrorism. OSCT is part of the Home Office, with responsibility for co-ordinating counter-terrorism activities in the UK.

**Project Argus** - A NaCTSO initiative, exploring ways to help in preventing, handling and recovering from a terrorist attack. Further information available from NaCTSO.

**Project Griffin** - A police initiative to protect cities and communities from the threat of terrorism. Search Project Griffin