CRIME PREVENTION THROUGH HOUSING DESIGN

Policy and Practice

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Crime Prevention and Security Management

Series Editor: **Martin Gill**

Adam White
THE POLITICS OF PRIVATE SECURITY
Regulation, Reform and Re-Legitimation

Crime Prevention through Housing Design

Policy and Practice

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Series Editor's Preface

To many independent observers it would seem a statement of the obvious that the design of the environment has an impact on crime. If you create lots of opportunities in terms of good places to hide and keep watch on potential targets, provide easy getaway routes (on foot or by vehicle), make covert entry and exit to estates and buildings possible, in short if you make it easy for offenders, then it seems obvious that it would be more risky to live and work at such locales. To put it a different way, Rachel Armitage summarises thus: 'When people feel safe in an area, they are less likely to choose to move out, more likely to use public transport, more likely to make use of public facilities and less likely to require the intervention of health professionals for issues such as stress and anxiety.' And, as she discusses, a sequence of studies that have examined the Secured by Design (SBD) schemes – by different authors in different places, including Rachel – have consistently found them to be successful in reducing crime and, for the most part, cost-effective too. Yet the value of designing out crime remains contested territory.

This book, however, is about more than just defending the theories and practices of designing out crime. Rachel engages with a range of critiques of the designing out crime approach generally and the SBD scheme specifically, and in so doing draws parallels with many of the problems encountered in making crime prevention and security measures work. For example, she explores some of the synergies and tensions between security and surveillance and security and sustainability; the concept of risk and how it underpins approaches (or should do); the history, politics (national and local), economics and environmental issues that have impacted on the acceptance and adoption of different strategies; and the importance and potential of localism. Via comparisons with Australia and the Netherlands she highlights some advantages and drawbacks of bedding this type of crime prevention in the legal process; and, by reference to practices in the UAE, she shows how culture and traditional attitudes can undermine commitment to an effective designing out crime approach. She discusses the crucial role played by the police, and how a business

model approach to SBD in one force offers potential for sustaining commitment while the marginalisation of the police in favour of private consultants raises questions of 'neutrality and quality' that have the potential to undermine its credibility.

Rachel has devoted her professional life to the subject of crime prevention through environmental design and this book is the culmination of that interest, which is reflected in the extensive review of a wide range of literature including different theories and practices. She sees the faults in designing out crime and SBD, including the alleged inflexibility, inconsistent delivery, confusion of principles and lack of scope, to name but a few. But on finding the evidence overwhelming she puts the case and in so doing expresses surprise that others are less convinced. It might be that the security and crime prevention worlds are just not used to success stories and a book that articulates one becomes an important contribution to the debate.

Martin Gill

Acknowledgements

Acknowledgements have a tendency to sound predictable and, for some, they may feel like a necessary yet pointless section that comes between the Contents pages and the Introduction! However, for me, the people mentioned below are extremely important, inspirational and truly wonderful, so thank-you to you all.

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Introduction

It's January 2013, and after many months of writing I am sitting down to conclude the final chapter of a book which represents approximately half of my life's work – the Introduction. I have left this until last because I want to be able to tell you what to expect and because, in my view, the Introduction represents the most difficult part of any book. I want to begin by saying a few words about designing out crime before outlining the content of this book. For me, designing out crime represents one of the most common-sense approaches to crime reduction. It may not have the same appeal as offender based interventions, but designing out crime represents both a long-term approach and one which requires the collaboration of partners as diverse as police, planners, architects, developers and community groups. This approach is often criticised as simplistic, as focusing upon quick wins and avoiding the root causes of crime. For me, there is little simplism about an approach which requires the collaboration of such diverse partners. There is little short-term about an approach which involves several years of planning and designing – even before a property is built. Suggesting that designing out crime fails to address the root causes of crime is to deny that opportunities play any part in offender decision-making; hopefully, after reading this book you will understand that opportunities do play a part. Properties, not unlike people, exist for many decades, and once they are built there is little that can be done, without great effort and expense, to alter their design. However, unlike people, houses can be planned, designed and created utilising evidence and expertise to maximise the likelihood of success – success being a property and community

in which people want to live and work for decades; a property which promotes community cohesion and a sense of well-being amongst residents, and creates an environment in which potential offenders feel conspicuous, uneasy and unable to commit an offence.

One of my first research projects involved assessing the environmental features of properties across West Yorkshire. This involved scrutinising over 2000 properties to assess access, surveillance, physical security and management and maintenance. One area I visited was a neighbourhood in Bradford which included a development of new properties built directly adjacent to an existing development, and where, contrary to the advice of the Police Architectural Liaison Officer (ALO), connectivity had been promoted to allow and encourage residents from the new development to walk through the existing development to access a main road, transport links, shops and leisure activities. There had been little consideration for the principles of designing out crime within this new development. Through movement was promoted with no additional measures to maximise defensible space or surveillance, and the existing development had become a through route for both legitimate and non-legitimate users of the space. In conducting my fieldwork I came across a lady who lived in and owned a property on the existing development. A property which bounded the walkway and was experiencing not only increased crimes such as burglary and theft of/from vehicles, but also antisocial behaviour from passers-by who regularly knocked on her window and rang the doorbell. Due to the increased levels of crime on this development, her property had plummeted in price and, if selling the property, she would have made huge losses due to negative equity. This lady was experiencing ill health, anxiety and depression and was frightened both inside and outside her house. She was a pensioner, thus most of her time was spent at this property. This lady told me how trapped she felt, how she did not want to live in this property yet could not afford to move. The lack of consideration for the impact of the new development upon the surrounding community had led to increased levels of crime, antisocial behaviour and, for many residents, increased levels of anxiety and ill health. Since meeting this resident, I have had many similar encounters with residents whose lives have been negatively affected by poor design decision-making. Without risking sentimentality, these stories should remind academics and practitioners alike that we are not simply working

with bricks and mortar; we are designing and building homes in which people invest financially and emotionally. If you have always held the view that designing out crime is simply about buildings, I hope this book will convince you otherwise. If you are already a convert, I hope you learn from the research which is presented and put it to good use.

And so to the content of this book. If the opening paragraphs sound as if I am blindly selling the concept of designing out crime, this is not the case. The book presents findings from my research which should be described as improvement-focused and designed to maximise the efficacy of designing out crime interventions through recommendations for policies, processes and practical implementation. The book is aimed at practitioners, students and academics working within the fields of urban planning, architecture, criminology and policing. It can be read as a whole – which should hopefully enhance the coherence of the 'story' – or dipped in and out of to inform specific areas of interest.

Chapter 1 explores the theoretical links between design and crime and the emergence of designing out crime as a practical intervention widely implemented by police forces and local authorities. This opening chapter outlines the new opportunity theories, routine activity theory, rational choice theory and pattern theory, and how they link to the practical applications of situational crime prevention (SCP) and crime prevention through environmental design (CPTED). This chapter also outlines the major shift in the perception of how crime reduction (particularly in England and Wales) is to be achieved. The first facet of this change is the advance in SCP and the evidence that crime trends are more readily understood in terms of the supply of opportunities than the distribution of criminal propensity across the population. This in turn is reinforced by evidence that the regulation of crime opportunities can and will impact upon crime rates. The second facet of this change in thinking was the recognition that the control of crime is not the sole responsibility of the police, and that other agencies have a key role to play in its prevention and reduction.

Chapter 2 focuses upon the practical delivery of designing out crime from residential housing within England and Wales. This chapter introduces the key agencies involved in the process, in particular, the police ALO and Crime Prevention Design Advisor (CPDA) role. Whilst delivery of designing out crime from residential

housing differs across England and Wales, there is nevertheless a 'typical' model of delivery, and this is presented and discussed. Chapter 2 goes on to explore innovations in delivery, in particular the approach taken by one police force in the North of England – Greater Manchester Police. The chapter concludes with a detailed review of the main focus of ALO/CPDA delivery – the Secured by Design (SBD) scheme, which is awarded to developments designed and built to certain specifications.

Chapter 3 focuses upon the consideration for crime prevention within the planning system in England and Wales, with a detailed review of relevant legislation, regulation, national and local policy and guidance. The chapter details the increased emphasis placed upon the importance of planning for crime prevention in the late 1990s and how this culminated in a system which encouraged designing out crime through legislation, regulation, policy, guidance and funding incentives. This chapter also outlines the changes taking place within the planning system following the economic crisis and the move towards deregulation and neighbourhood planning. The implications for crime prevention are presented and discussed.

Chapter 4 presents a review of the different approaches to embedding crime prevention within the planning system in four very different countries – Australia, the Netherlands, Scotland and the region of Abu Dhabi within the United Arab Emirates. The chapter highlights the similarities and differences between the approaches taken within these countries and considers the challenges of transferring principles and practice to different countries and cultures.

Chapters 5–8 consider the impact of specific features of design on crime and the fear of crime. Chapter 5 looks at house design, focusing upon the type of property and its position within a development, and the associated risks of victimisation. Chapter 6 looks at the controversial topic of connectivity and the impact of through movement on crime levels. This chapter focuses upon road type and pedestrian and vehicular movement within and between developments. Chapter 7 focuses upon surveillance, highlighting the importance of measures to maximise informal surveillance such as ensuring that houses are overlooked by neighbouring properties, that rooms facing the street are active and that sightlines are not obstructed by shrubbery or high walls. Chapter 8 focuses upon a design feature which has historically been paid very little attention within the CPTED literature – that

is the impact of the design of car parking on crime and antisocial behaviour. Although car parking may be commonly associated with vehicle-related crimes such as theft of and from vehicles, research presented within this chapter also highlights the link between poorly designed car parking and problems such as youths causing annoyance, neighbour nuisance, criminal damage and even violent crimes such as assault.

Chapter 9 explores the links between sustainability and security and the extent to which the aims are aligned or in conflict. Common sense suggests that minimising crime and the fear of crime will improve an area's sustainability. When people feel safe in an area, they are less likely to choose to move out, more likely to use public transport, more likely to make use of public facilities and less likely to require the intervention of health professionals for stress and anxiety. Thus, if common sense is followed, sustainability policy should reflect this route to achieving sustainable development. This chapter explores whether it is that simple. Can the two agendas be aligned, or are there tensions and pinch points between the wider principles of sustainability and security?

Chapter 10 looks in more detail at the SBD scheme, initially presented in Chapter 2. This chapter presents the findings of research conducted over a ten-year period into the effectiveness of the scheme. The emphasis is upon highlighting areas of strength and areas for improvement.

That concludes the outline to the content of this book. I hope you enjoy it, and above all, I hope you find some use in the recommendations made throughout.

Part I

Reducing Residential Crime through Design – Theory, Policy and Practice

1
Exploring the Theoretical Links between Design and Crime

Introduction

This chapter explores the theoretical links between design and crime and the emergence of a design based approach as a practical intervention widely implemented by police forces and local authorities. Whilst the recognition that the environment can influence behaviour has been explored for decades, specific reference to the potential to reduce crime through the design and manipulation of the physical environment only began to transcend the fields of geography and architecture in the second half of the twentieth century. Specific methods of applying these principles in practice increased in popularity in the late 1990s through the emphasis placed upon multi-agency crime reduction and the demonstration that interventions to block criminal opportunities can act as effective crime reduction measures. This chapter explores the emergence of new opportunity theories such as rational choice theory, routine activity theory and crime pattern theory, and the impact which these theories had upon practical interventions to reduce crime. The recognition that crime is not inevitable, that criminal opportunities can be blocked and that the responsibility for this does not lie entirely with the police created an environment in which crime prevention approaches such as situational crime prevention (SCP) and crime prevention through environmental design (CPTED) could flourish. This chapter outlines the basic principles of these approaches and concludes by presenting an updated set of CPTED principles.

The responsibility for crime reduction

The last three decades have seen a major change in the perception of how crime reduction (in crime in England and Wales) should be achieved. This change can be characterised as having two primary facets, which are closely linked. The first is the advance of SCP, following the demonstration that crime trends are more readily understood in terms of the supply of crime opportunities than the distribution of criminal propensity across the population (Mayhew *et al.*, 1976; Felson, 1998; Felson and Clarke, 1998). This insight has been reinforced by the demonstration that the regulation of these opportunities will impact on rates of crime (Clarke, 1992). The doctrine of SCP, and the contributions which diverse applied sciences can make to the discipline of crime reduction, has been exemplified by the founding of the Jill Dando Institute of Crime Science at University College London. Crime science, as Laycock (2001) suggests, involves the application of scientific principles to the reduction of crime. It is outcome focused, evidence based and aims to enhance the knowledge of crime and its control through the engagement of academics from a variety of disciplines.

The second aspect of the change in the perception of crime reduction flows from the first, but in fact developed alongside it, with its first expression being found in the Morgan Report of 1991 (Home Office, 1991). This is the recognition that the supply of crime opportunities is under the control of agencies other than the police, such that the historic reliance upon the police as the primary crime reduction functionaries was misguided, and certainly unfair.

The domain of crime reduction historically comprised its detection (for which responsibility predominantly lay with the police), the apprehension and incapacitation of offenders following detection and the prevention of recidivism (which involves agencies such as the police, the prison and probation services as well as the judiciary). These traditional responses focused upon offenders rather than the supply of criminal opportunities and were predominantly reactive in nature. Intervention prior to a crime taking place has historically taken a back seat to detection and apprehension. Although the prevention of crime was the principal duty of the police service when it was first established in 1829, in reality this role involved prevention through the targeting of high crime areas and of particular

individuals and groups, rather than by arranging the environment so that crime opportunities were limited (Hughes, 1998). It was in the period following World War II that some police officers came to be designated as having a special responsibility for crime reduction, specifically following the recommendation by the Cornish Committee on the Prevention and Detection of Crime (1965) that an officer of at least Inspector rank should be designated force crime prevention officer. However, even with this recognition, those responsible for crime prevention have never represented more than a small minority within the police service, with this position being viewed as one of low status and low interest when compared to those involving detection or apprehension (Graef, 1989). As Weatheritt (1986) suggests, the role of crime reduction officer is often viewed as one in which pre-retirement officers serve out their time:

> Until recently, when the figure has fallen to about fifteen years, the average length of service of constables and sergeants attending the basic training course for newly appointed crime prevention officers at the Crime Prevention Centre was twenty years, just five years short of the period at which police officers become eligible for pensionable retirement on half pay.
>
> Weatheritt (1986, p. 49–50)

The number of police officers designated as responsible for crime reduction is, although interesting, a side issue. The real change came with the assumption of responsibility for crime reduction of those outside the police service, a recognition which saw relevant authorities becoming responsible for considering the crime and disorder implications of every decision that they made, be that awarding planning permission to a new nightclub or the decision not to install street lighting within a high crime area. The Crime and Disorder Act (1998), in particular Section 17, recognised that those who supply criminal opportunities can and should be responsible for their control. Section 17 of the Act placed a responsibility upon relevant authorities to consider the crime and disorder implications of every decision that they make, stating that 'it shall be the duty of each authority . . . to exercise its various functions with due regard to the likely effect of those functions on . . . crime and disorder in its area' (Great Britain, 1998). Responsible authorities were originally defined

as local authorities, joint authorities, the national park authority, broads authorities and the police. This was extended in 2002 to include primary care trusts, and in 2003 to include fire and police authorities. This section of the Act requires a variety of agencies, which may never have been concerned with crime and its prevention, to consider crime and disorder in every decision that they make. Moss and Pease (1999) suggest that '... *it is difficult to conceive of any decision which will remain untouched by s 17 considerations*' (p. 16), and provide examples of decisions which may be influenced by this legislation. These include granting planning permission to a new housing estate and the extent to which those homes are built to the SBD standard, local authority policies relating to the repair of council homes which have been burgled, or a council's failure to upgrade street lighting within a residential area; all of which could result in legal action against the local authority for failing to consider the crime implications of their decisions and actions.

Whilst crime reduction, and specifically the reduction of crime through the design and manipulation of the environment, had been considered both in theory and in practice prior to these legislative changes, the Crime and Disorder Act (1998) represented an opportunity for many different agencies to explore multi-agency approaches to reducing crime and to think outside of what might be referred to as traditional interventions. Reducing crime through design was one approach which fulfilled these criteria, and the post-1998 period saw an increase in the application of its principles in practice, as well as an increase in research to enhance this application.

Reducing crime through design

The recognition that the environment can influence behaviour dates back thousands of years, but the formal study of the geography or pattern of socio-economic variables (and the social problems associated with these) began largely with the University of Chicago School of Sociology in the 1920s and 1930s (Burgess, 1916, Park *et al.*, 1925). Although the geography of social problems such as unemployment, delinquency and deprivation had been researched long before, specific reference to the potential to reduce crime through the design or manipulation of the environment began in the 1960s and 1970s with

research conducted by authors such as Wood (1961), Jacobs (1961), Angel (1968), Jeffery (1971) and Newman (1973).

In the early 1960s the American sociologist Elizabeth Wood focused on the micro-environment of blocks of public housing in the United States (Wood, 1961). Her starting point was the concept that housing projects can never employ enough police officers, caretakers, service engineers and other guardians to prevent crime from taking place. She emphasised the need for managers to work closely with residents and concentrated her thoughts on physical improvements to the redesign of public and semi-public spaces that should become places of leisure, thereby improving visibility. Examples included recommending that children's playgrounds and seating areas for adults should be placed so that they are visible from the surrounding houses.

Far ahead of her time, Wood focused on teenagers. She based her ideas about youngsters on the assumption that because of the lack of good recreational areas, young people have little choice but to act antisocially. Her solution was to provide more facilities, but to ensure that these were vandal-proof. She also proposed the idea of appointing one of the tenants of a block of flats as caretaker. This person would then be responsible for forming a link between housing management and the residents and initiating and coordinating the activities of the residents.

Although based largely upon her observations of urban planning, as opposed to examining actual patterns of crime, Jane Jacobs' (1961) work has been highly influential within the fields of urban design, planning and designing out crime. Jacobs raised many issues which are still debated decades later and these relate to both planning policy and practice. Jacobs argued that design should not be paternalistic and planners must not assume that they know what residents want. She also recommended that there should be a clear demarcation between public and private space (and the function of that space) as a means of promoting a sense of ownership amongst residents. Jacobs also introduced the concept of 'eyes on the street' and argued that not only should buildings be oriented towards the street (to increase the level of natural surveillance), but also that streets should be used as continuously as possible, thus bringing more people (and surveillance) to the area.

The debates surrounding the issues of natural surveillance and mixed land use will be discussed in more detail later in the book, particularly those relating to through movement and connectivity. However, it is worth highlighting two key limitations of Jacobs' theory. The first is that the crux of Jacobs' theory relates to the trust that those using the street (be they shopkeepers, residents or passers-by) would intervene should a crime occur. However, it cannot be assumed that residents and passers-by will notice a crime taking place (Gelfand *et al.*, 1973; Mayhew *et al.*, 1979) and if they do, it cannot be assumed that they will intervene (Rosenthal, 1964; Latane and Darley, 1970).

The second criticism, which is raised by Jacobs herself throughout her work, is that her theories relate to cities and were never intended to be translated to towns, suburbs or smaller developments:

> I hope no reader will try to transfer my observations into guides as to what goes on in towns, or little cities, or in suburbs which still are suburban. Towns, suburbs, and even little cities are totally different organisms from great cities . . . To try to understand towns in terms of big cities will only compound confusion.
>
> Jacobs (1961, p. 26)

As Jacobs (1961) points out, many people choose to live in cities for the very reasons which make them different from towns or suburban areas – such as flexibility, mobility and relative anonymity. For these reasons, the dynamics of those living and working within a city will not necessarily translate to suburban areas.

C. Ray Jeffery coined the phrase 'crime prevention through environmental design' in his 1971 book of the same title. Jeffery was disillusioned with the ineffectiveness of the criminal justice system and was searching for a new theory of crime prevention based upon the relationship between humans and their environment. Drawing upon a biosocial theory of learning, he argued that crime prevention must take into account the effects of the environment upon human behaviour as well as the genetic predisposition towards criminal activity. As Clarke states, '*Jeffery's general theory of criminal behaviour has enjoyed less support than his concept of CPTED*' (Clarke, 1992, p. 6) and the term CPTED has influenced both theory and intervention since its inception.

Oscar Newman's work (1973) played a large part in the development of designing out crime, and the principles introduced by Newman can be seen in many modern crime reduction theories and interventions. In his book *Defensible Space: Crime Prevention through Urban Design* (1973) Oscar Newman set out his theories based on an analysis of detailed statistics on the physical form of housing in New York, including a profile of the residents and recorded incidents of crime in housing owned by the New York Housing Authority. His study produced some interesting findings which are presented in detail in later chapters. These include the findings that:

- The lowest recorded crime rates occurred in the three-storey buildings, whereas buildings higher than six storeys and developments larger than 1000 dwellings suffered significantly higher crime rates.
- In high-rise buildings, a higher proportion of crime takes place in the interior of public spaces than in similar areas in low-rise housing. Newman pointed out that whilst high-rise can be successful for higher income households with few children, and when protected by permanent security devices and concierge staff, it generally does not work for general use.

Newman's central concept was defensible space, which has four main design elements:

Territoriality: With the use of real or symbolic barriers, residential environments can be subdivided into zones that are manageable for the residents through their adoption of space as 'their territory'. The transition from private (easily manageable) to public (difficult to manage) space is important and to achieve this:

- All spaces both outside and inside buildings should as far as possible be under the control or the influence of the residents.
- External spaces should be seen to be clearly private or semi-private when viewed from public streets and footpaths. Walls, fences and gates clearly define territoriality, but symbolic devices may also be used, such as changes of level, steps, gateways or portals.
- In higher density developments, common staircases should serve as small a number of residential units as possible so that residents recognise each other, and more importantly, recognise intruders.

- External communal areas – such as play areas, drying greens and parking – should, where possible, be accessible from and in close proximity to the entrances of buildings or be entered from the private domain.

Surveillance: Residents must be able to survey what is happening in and around public spaces inside and outside the buildings. To achieve this:

- Windows should be positioned not just to suit the internal plan of a house, but to survey public spaces, both external and internal within the scheme.
- Gable ends of terraced housing should have windows to overlook adjoining streets or open space.
- Front entrances to buildings should face on to streets so that passing pedestrians and motorists can observe the surrounding areas.
- It is preferable if all common areas within buildings – staircases, lift lobbies and landings – are visible from the street outside the building; where regulations permit, they should also be overlooked by windows from the dwelling units.
- Fire-escape stairs should be located on the outside of buildings, be glazed and discharge any users to the front of the buildings.

Building Image: Newman argued that the proper use of materials and good architectural design can prevent residents from feeling stigmatised, which can in turn lead to a feeling of isolation. Practical solutions include:

- Avoiding building forms and layout which stand out as completely different, since they draw specific attention to the project.
- Retaining the streets, rather than closing them off, in very large redevelopment projects where there is an existing grid of streets. This will help the scheme avoid appearing to be totally different and will maintain street surveillance.
- Not letting high-rise/high density housing blocks to low-income residents as they are particularly vulnerable to crime.

- Ensuring that finishes and furnishings in interior spaces are robust, yet attractive to residents. Institutional hard materials, which could be vandalised, may encourage an urge to test their destructibility.

Juxtaposition of residential areas with other facilities: Newman argued that housing should be mixed with commercial and social facilities as this helps improve security in an area. He also emphasised that parks and playgrounds should be overlooked by housing to maximise natural surveillance.

Authors such as Mawby (1977), Bottoms (1974), Wilson (1978) and Merry (1981) have criticised Newman on the grounds of methodological weaknesses as well as the presentation of findings. Others suggest that the term 'defensible space' contains a '*rat's nest of intertwining hypotheses*' (Rubenstein *et al.*, 1980 p. 6), making it difficult to measure and define (Cozens *et al.,* 2001), and that Newman overemphasised the physical environment at the expense of socio-economic and demographic variables (Wilson, 1978; Mayhew, 1979; Poyner, 1983; Moughtin and Gardner, 1990). Despite these criticisms, much of the appeal of Newman's work lies in its promise of practical benefits in terms of crime reduction; Newman's later work applied his theory to residential housing projects within Ohio and New York (Newman, 1995) to reveal lower levels of crime and fear of crime, and higher levels of occupancy, property sales and property values.

Early research into the influence of the environment upon human behaviour was written largely from a planning perspective and although the theories could transcend fields of both architecture and criminology, the transition from planning-based research to practical solutions applicable to crime reduction practitioners, criminologists and architects alike largely began in the 1980s and 1990s with (amongst others) work conducted by Brantingham and Brantingham (1981), Poyner (1983) and Poyner and Webb (1991).

Crime as a response to opportunity

Since the early 1970s much evidence based criminological theory has been moving towards a focus upon criminal events as opposed to the offender. Although these theories differ in their focus, many share the

theme that opportunity generates crime and start from the premise that crime is normal as opposed to something unusual which has to be explained:

> Crime becomes a risk to be calculated (by the offender and the potential victim) or as an accident to be avoided, rather than a moral aberration which needs to be specially explained.
>
> Garland (1996, p. 450–451)

The new opportunity theories (including routine activity theory, rational choice theory and crime pattern theory) suggest that opportunities play a role in causing crime. Based on this premise, the reduction of crime must focus upon the reduction of opportunities for crime to occur. Routine activity theory is ecological in its approach – focusing on the offender and the environment, rational choice theory has a psychological approach and crime pattern theory an environmental approach.

Routine activity theory (Cohen and Felson, 1979) considers how the structure of modern society and the routine activities of everyday life have created more opportunities for criminal activities. These opportunities include an increase in easily accessible, lightweight and high value consumer products; the dispersal of individuals into more households – thus increasing the number of potential burglary targets; the increased use of motor vehicles – thus more targets for acquisitive crimes; and also more opportunities in the form of surplus time and energy as historically time-consuming tasks are aided or replaced by electronic goods and convenience products. Cohen and Felson (1979) suggest that the increase in crime in the United States from 1960 was not so much an indicator of social breakdown, as a '*by-product of the freedom and prosperity within the routine activities of our everyday lives*' (p. 605). From the perspective of routine activity theory, for a crime to be committed there must be a motivated offender, a suitable target and the absence of a capable guardian. A situation in which a motivated offender comes into contact with a suitable target, in the absence of a capable guardian, is likely to lead to the committal of a crime. Therefore, an intervention which removes/demotivates the offender, makes the target unsuitable or introduces a capable guardian is likely to prevent crime taking place.

Another perspective grouped with the new opportunity theories is rational choice theory. This perspective is influenced by economic thinking and assumes that offenders seek to maximise the benefits of offending and in doing so make rational choices or decisions based upon the information or cues available to them at the time of offending. Decision processes are likely to vary according to the different stages of criminal involvement, between offenders (based on age, experience etc.) and between different offence categories. Preventive suggestions seek to influence an offender's decision or choice to commit a crime through (1) increasing what they perceive to be the risks involved in committing that offence (installing a burglar alarm, designing housing estates to maximise natural surveillance), as well as (2) reducing the rewards should that crime occur (property marking). The aim is to ensure that for the offender the perceived costs outweigh the perceived benefits of offending.

Crime pattern theory, developed by Brantingham and Brantingham (1981), draws upon key concepts from behavioural geography and suggests that crimes '*do not occur randomly or uniformly across neighbourhoods, or social groups, or during an individual's daily activities or during an individual's lifetime*' (Brantingham and Brantingham, 2008, p. 79). Crime pattern theory argues that the design of a neighbourhood, in terms of both the internal layout and its positioning in relation to other key facilities, will influence how likely potential offenders are to learn about potential targets for crime. According to this theory: '*Offenders go to jobs, visit friends, come home, stop at the store, and carry out other daily activities just like the rest of us*' (Taylor, 2002, p. 419), and the spaces in which they travel to reach these locations are known as their activity space. These potential offenders, like all individuals within society, will have an awareness space which is made up of the locations, and the spaces in between those locations, about which they are knowledgeable. An individual's awareness space is structured by their activity space, which in turn has been structured by their daily activities.

Applied to the design and layout of residential areas, this theory would suggest that an area with an internal street layout which makes it harder to get around, and which is not part of a network of streets, is less likely to be targeted by offenders who, the theory argues, are highly opportunistic. Alternatively, crime pattern theory would argue that properties away from major street systems and out of the activity

and awareness space of offenders are less likely to be selected by offenders – who can only target areas which they are aware of:

> The configuration of the street network and its topology affect how people move in space and hence the opportunities for crime of which offenders will become aware of. Of course, offenders may seek opportunities outside of their activity spaces, but research suggests that such spatial exploration is atypical.
>
> Johnson and Bowers (2010, p. 5)

In summarising the theoretical links between new opportunity theories and the reduction of crime through residential design, the key principle is that offenders seek to minimise the risks involved in offending and therefore select targets which are perceived as suitable and lacking in the presence of capable guardians. Offenders will also make these selections based upon their knowledge of the areas which they frequent. According to these theories, crime can be reduced by designing residential areas to minimise the likelihood that potential offenders will pass by en route to their daily activities, and should they become aware of an area, the design and layout convey the impression that the risk associated with offending against this target is too great.

Situational crime prevention and crime prevention through environmental design

If individuals commit crime as a response to opportunities that arise and these opportunities are shaped by these individuals' views of the environment surrounding them, it follows that crime can be reduced through the manipulation of the environment. Crime prevention interventions which aim to achieve this include SCP and CPTED.

According to Clarke (1992) SCP comprises opportunity reducing measures that are directed at highly specific forms of crime and involve the management, design or manipulation of the immediate environment in as systematic and permanent a way as possible, so as to increase the effort and risks of crime and reduce the rewards as perceived by offenders. The mechanisms through which SCP reduces crime are:

- *Increasing perceived effort* – This may include target hardening measures such as improving door and window locks.
- *Reducing anticipated rewards* – This may include property marking or measures to disable stolen mobile phones.
- *Increasing perceived risks* – This may include the installation of CCTV or burglar alarms, increasing the likelihood that an offender will be seen and potentially apprehended.
- *Removing excuses* – This may include the use of signs which state that shoplifters will be prosecuted, thus removing an offender's excuse that they were not aware that they were doing anything wrong.
- *Reducing provocations* – This may include ensuring residents have adequate allocated space for car parking, thus reducing the likelihood of neighbour disputes which have the potential to turn violent.

SCP interventions work on the premise that offenders make calculated decisions (of limited rationality in formal decision theory terms) about the most suitable targets to select. Therefore, altering the target (installing a burglar alarm or CCTV), or portraying the message that you may have altered the target (installing a dummy burglar alarm or installing CCTV in some shops but not others), should render that target less suitable, as perceived by the potential offender.

SCP increased in popularity in the late 1970s and 1980s following a period in which criminology was predominantly focused upon the criminal justice system and the offender. The Home Office established its Crime Prevention Unit at this juncture, headed first by Kevin Heal and latterly by Gloria Laycock. Garland (2000) suggests that its re-emergence can be explained by:

- SCP's use of economic language such as rewards, risks, demand and supply fitted well with the Conservative government of that time.
- SCP interventions were typically short-term and relatively inexpensive compared to social programmes which aimed to alter criminal behaviour.
- SCP provided practical solutions, rather than simply postulating theories as to why crime is committed. This was attractive to practitioners who had to implement such theories on the ground.

The appeal of this type of intervention over long term, resource intensive offender-based interventions is highlighted by Smith (2000). For practitioners who are tasked with achieving crime reduction targets within a short timescale with very few additional resources, many crime reduction theories (and accompanying interventions) are unfeasible:

> It is easy to see that happy families tend not to produce criminals.

> It is hard to see how public policy can decree that family relationships be constructive and positive.

<div align="right">Smith (2000, p. 149)</div>

Whilst SCP has risen in popularity, many still criticise this approach on the grounds that it focuses on blocking crime opportunities as opposed to addressing the root causes of crime, that crime may be simply displaced (be that spatially, temporally or in terms of crime type) as opposed to reduced, and that viewing crime as a risk to be avoided (and informing individuals of what they must do to avoid that risk) places the burden of responsibility upon potential victims should they fail to take these security precautions (Duff and Marshall, 2000).

CPTED is an approach to crime reduction which aims to reduce crime through the design and manipulation of the built (and sometimes natural) environment. It focuses predominantly upon designing out opportunities for crime before they occur; this ideally takes place at the pre-planning or planning stage. However, some interventions are implemented post-development as a response to a crime problem which has emerged.

A commonly used formal definition is that used by Tim Crowe who defines CPTED as:

> The proper design and effective use of the built environment, that can lead to a reduction in the fear or incidence of crime and an improvement in quality of life…The goal of CPTED is to reduce opportunities for crime that may be inherent in the design of structures or in the design of neighbourhoods.

<div align="right">(Crowe, 2000, p. 46)</div>

Ekblom (2011a) proposes a redefinition and presents the following alternative, which introduces several points not included within

Crowe's definition – including the balance between security and contextually appropriate design and the possibility of intervening at different stages between pre-planning and post-construction. Ekblom states that CPTED is

> Reducing the possibility, probability and harm from criminal and related events, and enhancing the quality of life through community safety; through the processes of planning and design of the environment; on a range of scales and types of place, from individual buildings and interiors to wider landscapes, neighbourhoods and cities; to produce designs that are 'fit for purpose', contextually appropriate in all other respects and not 'vulnerability led'; whilst achieving a balance between the efficiency of avoiding crime problems before construction and the adaptability of tackling them through subsequent management and maintenance.
>
> (Ekblom, 2011a, p. 4)

More recently, research within the field of CPTED has focused upon the *effectiveness* of both the individual and collectively applied principles of CPTED measures in reducing crime and the fear of crime (by authors such as Pascoe, 1999; Armitage, 2000, 2006a; Cozens *et al.,* 2005; Cozens, 2008; Hillier and Sahbaz, 2009), the *process* of applying CPTED principles within police and planning environments (by authors such as Monchuk, 2011), the development of CPTED based *risk assessment tools* to predict (and prevent) risk (by authors such as Winchester and Jackson, 1982; Van der Voordt and Van Wegen, 1990; Armitage, 2006a; Armitage *et al.,* 2010), and a wider approach to the potential benefits of such interventions including the impact upon environmental and social *sustainability* (by authors such as Dewberry, 2003; Cozens, 2007; Armitage and Monchuk, 2009).

Given a widening of the focus to include the process of application and consideration of benefits beyond crime reduction, such as social and environmental sustainability, a more appropriate definition of CPTED might be 'the design, manipulation and management of the built environment to reduce crime and the fear of crime and to enhance sustainability through the process and application of measures at the micro (individual building/structure) and macro (neighbourhood) level'.

The principles of CPTED have been presented by several authors, including, but not limited to, Poyner (1983), Crowe (2000) and

Cozens *et al.* (2005) and adapted across different countries to form the attributes of safe places/environments within planning policy and guidance (for example, *Safer Places* within England and Wales). Poyner (1983) outlined the principles as surveillance, movement control, activity support and motivational reinforcement. Cozens *et al.* (2005) extended this to include the seven principles of defensible space, access control, territoriality, surveillance, target hardening, image and activity support. This chapter concludes with a basic summary of these terms.

Defensible space

Defensible space is the creation of buildings/enclosures/spaces which allow/facilitate/help the residents of that space to keep potential offenders out. As was mentioned earlier, the term was coined by Newman (1973), who suggested that the physical design of a neighbourhood can either increase or inhibit people's sense of control over the spaces in which they reside. Newman categorised space into public (for example, the road in front of a property), semi-public (for example, the front garden), semi-private (for example, the back garden) and private (inside the property). He argued that if space is defensible, it will be clear to the owner/user of that space, and to non-legitimate users, who should and who should not be in this space. CPTED interventions ensure that space is clearly demarcated, that it is clear who has control/ownership/rights over that space and that potential offenders have no excuse to be in that space. CPTED interventions would rarely achieve this through the installation of physical barriers; rather interventions would include more subtle measures such as a change in road colour and texture or a narrowing of the entrance to the development to mark the area as private.

Territoriality

Territoriality involves the human emotion/response to the space which people define as their own. Physical responses to territoriality might include a resident marking an area as their own through the installation of a house sign or gate. Emotional responses to territoriality would include a resident's feelings of intrusion or infringement should another person enter what they consider to be their space. Thus, territoriality refers to the human motivation to control the space which people believe is theirs, be that through

legal ownership of that space or through adoption and management of that space. Whilst Cozens *et al.* (2005) separate defensible space and territoriality, a more concise summary of CPTED principles might categorise defensible space alongside territoriality, given that the physical creation of defensible space aims to create territorial control over that space.

Access control

Access control refers to the design of buildings and space to actively keep people out. Whilst this principle has traditionally been referred to as 'access' control, perhaps due to its routes in more traditional SCP measures to restrict entry into buildings and rooms within buildings, within CPTED the aim is much wider. What has been referred to as access control encompasses these aims: (1) to limit the likelihood that offenders will become aware of that area as a potential target; (2) to make it more difficult for offenders to navigate into, out of and within an area should they select it as a target; (3) to increase the *physical* difficulty of entering a building/space should offenders become aware of the area as a target; (4) to increase the difficulty *psychologically* for offenders to enter and move around an area without feeling conspicuous, and (5) to remove any excuse for potential offenders to be within a private or semi-private space and maximise the legitimate users' confidence in challenging non-legitimate users of space. Given the wider aims of this principle, 'access control' would appear too limited a definition. A more appropriate term might be 'limitation of access, egress and through movement'.

Surveillance

Surveillance refers to the way that an area is designed to maximise the ability of formal (security guards, police, employees) or informal (residents, passers-by, shoppers) users of the space to observe suspicious behaviour. These formal and informal users are referred to in routine activity theory as capable guardians. Within SCP more generally, surveillance may include the installation of CCTV or the use of formal security guards. Within CPTED, surveillance rarely relates to formal measures but refers more to the informal surveillance created through measures such as ensuring that dwelling entrances face the street, that rooms facing the street are active (such as the kitchen or living room) and that sightlines are not obstructed by shrubbery

or high walls. Linked with territoriality, the principle of surveillance requires users of that space to realise that an individual is behaving in a suspicious manner (be that through their behaviour or simply their presence within a private/semi-private area) and to have the confidence to challenge them or intervene. Therefore, the term 'surveillance' includes the operational tasks of active (formal) and passive (informal) surveillance, the surveillability (Ekblom, 2011a) of that space and the creation of the perception amongst offenders that they are being observed.

Target hardening

Target hardening is often referred to as physical security and includes the initial design, or retrofit upgrade, of doors, windows, fences and other physical structures to increase the difficulty for offenders in entering a building or space.

Image

Cozens *et al.* (2005) use the term 'image', whilst others have used 'management and maintenance' to cover the principle of creating buildings/spaces which are physically free from litter, graffiti, vandalism and damage but are also areas without stigma or a poor social reputation. It is difficult to allocate a specific label to these concepts as 'image' refers to a state and 'management and maintenance' to the activities which create that state.

Activity support

Activity support relates to the creation of an environment which increases the likelihood that legitimate users will make use of space and subsequently provide additional surveillance. Although activity support is included by many as a distinct principle of CPTED, the ultimate aim is to enhance surveillance and so the two principles can be combined.

2

From Theory to Practice: Reducing Residential Crime through Design in Practice within England and Wales

Introduction

This chapter focuses upon the everyday delivery of crime prevention within the planning system in England and Wales. The chapter begins with an introduction to the key agencies involved in the process, and in particular the police ALO or CPDA role. It then presents findings on the variation in delivery across England and Wales, focusing upon the extent to which the process differs between police forces. Whilst the role does vary, there is nonetheless a 'typical' model of delivery, and this is presented as an example of the process of consultation between local planning authorities and police ALO/CPDA. The chapter discusses recent changes in the process and method of delivery following the extensive cuts to police budgets, and how this has affected a role which was already historically viewed as a low priority within policing. Such disturbances to the status quo – arguably unwelcome from a practical perspective – can nonetheless be revealing of underlying issues and tensions.

In addition to presentation and discussion of the 'typical' process and delivery of CPTED advice within local planning authorities and police forces, the chapter presents the unique approach adopted by one northern police force: Greater Manchester Police (GMP). Their approach has been to establish a consultancy which provides the ALO/CPDA service, but which is delivered by civilian staff with a design/architecture background who are trained in CPTED. This process of delivery has been viewed with some scepticism (by those delivering CPTED within other police forces), but the recent budget

cuts have left this police force, which charges a nominal fee for the delivery of CPTED advice, in a position to retain and expand the service whilst other ALO/CPDA teams have been cut. As will be discussed below, this model of delivery is currently being evaluated (see Monchuk, 2011). Without full evaluation it remains to be seen whether this method represents the way forward within the current economic climate, or whether it is viewed as yet another responsibility for already overburdened developers.

The chapter concludes with a detailed review of the main focus of ALO/CPDA delivery – namely the police SBD award, which is given to developments designed and built to specific security standards. This scheme has formed the basis of much of the delivery of CPTED within England and Wales, and whilst different police forces afford the scheme different levels of priority, its principles and the consultation which it requires have been used as an enabling tool. The effectiveness of the SBD scheme as a crime reduction measure is presented, focusing upon the five major evaluations of the scheme. These evaluations utilise a variety of datasets and methodologies including police recorded crime data, residents' surveys, analysis of offenders' *modus operandi,* visual audits and costs of crime. The presentation of the cost benefits of this scheme is discussed with reference to Pease and Gill's (2011) report, which questions the conventional measures of the costs/benefits of crime reduction initiatives, arguing that these fail to take account of wider social and economic costs such as the premature destruction of otherwise adequate housing, the carbon costs of house moves where residents' fear of crime has forced their flight, the launching of criminal careers for those who live in areas with ample opportunities and the opportunity costs of emergency service time spent responding to these crimes. The sustainability benefits of this scheme are discussed in more detail throughout this book, as are the impact on crime of the individual design features considered within the SBD scheme. This chapter should be read as an introduction to the practical application of CPTED within England and Wales, and as a review of the benefits of the scheme.

Key roles and agencies

Across England and Wales there are 43 police forces and within each of these there is (at present) at least one individual whose role involves reviewing the planning applications which are submitted to

the local planning authority, and offering CPTED advice to mitigate any potential crime risks associated with the proposed development. This role is referred to as ALO or CPDA. The distinction is generally geographical, with northern police forces using the term 'ALO' and southern forces using the term 'CPDA'. As will be discussed in the next section, there is one police force (GMP) which uses neither term (illustrating the arguably perverse independence of UK police forces) and refers to this role as DfSC. The role of ALO/CPDA varies greatly between forces with some ALO/CPDAs dedicated entirely to this role whilst others have numerous additional roles. The role can also vary in terms of process, with some local planning authorities *requiring* pre-planning consultation with the ALO/CPDA. This would usually take the form of a reference to the importance of consultation within local planning policy, but this would not be legally binding, with the leverage based only on the hope that developers/applicants will seek to avoid delays at the decision stage should the planning officer feel that their failure to consult has impacted on future crime risk. It may also involve the physical positioning of the ALO/CPDA at a desk within the local planning office so that they are aware of all planning applications submitted. In other police forces the role can be more reactive, with the advice offered entirely dependent upon the ALO/CPDA seeking out current planning applications and contacting the planning office to offer CPTED advice.

A review of the ALO/CPDA service across England and Wales (Wootton *et al.,* 2009) revealed that in January 2009 there were 347 ALO/CPDAs in post in England and Wales. However, by August 2009 this had fallen to 305 – a reduction of 12 per cent within seven months. The research also revealed that in August 2009, 21 per cent of all police forces in England and Wales had two or fewer ALO/CPDAs in post for the entire police force area.[1] A recent update of this review (August 2011) revealed that in the ensuing two-year period, there was a further reduction in numbers, with only 236 ALO/CPDAs in post. This ranged from just one in Bedfordshire, Durham, Lincolnshire, Suffolk and Warwickshire, to 49 in London Metropolitan. The update also revealed that by August 2011, 31 per cent (a 10 per cent rise) of police forces had only two or fewer ALO/CPDAs covering the entire force.

Within England and Wales each police force covers more than one local authority/planning authority area; therefore, an ALO/CPDA is likely to be responsible for liaising with several planning authorities,

each with different policies and procedures. As was highlighted above, these policies and procedures can vary dramatically between planning authorities, and this can impact upon the extent of involvement of the ALO/CPDA. The involvement of the ALO/CPDA varies between police forces with some very different models of delivery, but in general, the process which will be followed by the majority of ALO/CPDAs within England and Wales is demonstrated in Figure 2.1.

Process

There has been very little systematic evaluation or analysis of the role of ALO/CPDA across England and Wales. At the time of writing, the author is aware of only one in-depth case study being conducted and this focuses on the delivery of GMP's (somewhat exceptional) ALO service (see Monchuk, 2011). In 2009, a study was commissioned by the Home Office (see Wootton *et al.*, 2009) to review the ALO/CPDA role nationally and to investigate the feasibility of setting up a National Crime Prevention Service which would co-ordinate the delivery of this role. The project involved two strands. The first element included an online survey of all 321 ALOs (with 257 responses), the second phase involved a series of 43 focus groups conducted with ALO/CPDAs across England and Wales. The findings revealed that the delivery of the role was varied, with very little standardisation.

The study further showed that 74 per cent of respondents have other non-ALO/CPDA duties. Only 27 per cent of respondents expressed the view that they are able to spend 100 per cent of their time on ALO duties. Twenty-five per cent were able to spend more than 50 per cent of their time on ALO duties and 33 per cent to spend 20–50 per cent of their time on ALO duties. Fifteen per cent of respondents stated that they spend less than 20 per cent of their time on ALO/CPDA duties. These responsibilities include Crime Reduction/Prevention Officer, CCTV Liaison Officer, Counter-Terrorism Security Advisor, Licensing Officer and general operational policing duties. This suggests that the role is a difficult one to manage, with ALO/CPDAs carrying large workloads which often require short-term reactive responses which can take them away from the time required to comment on planning applications and become involved in strategic policy decisions. The research revealed that where ALO/CPDAs have additional duties, it is these which
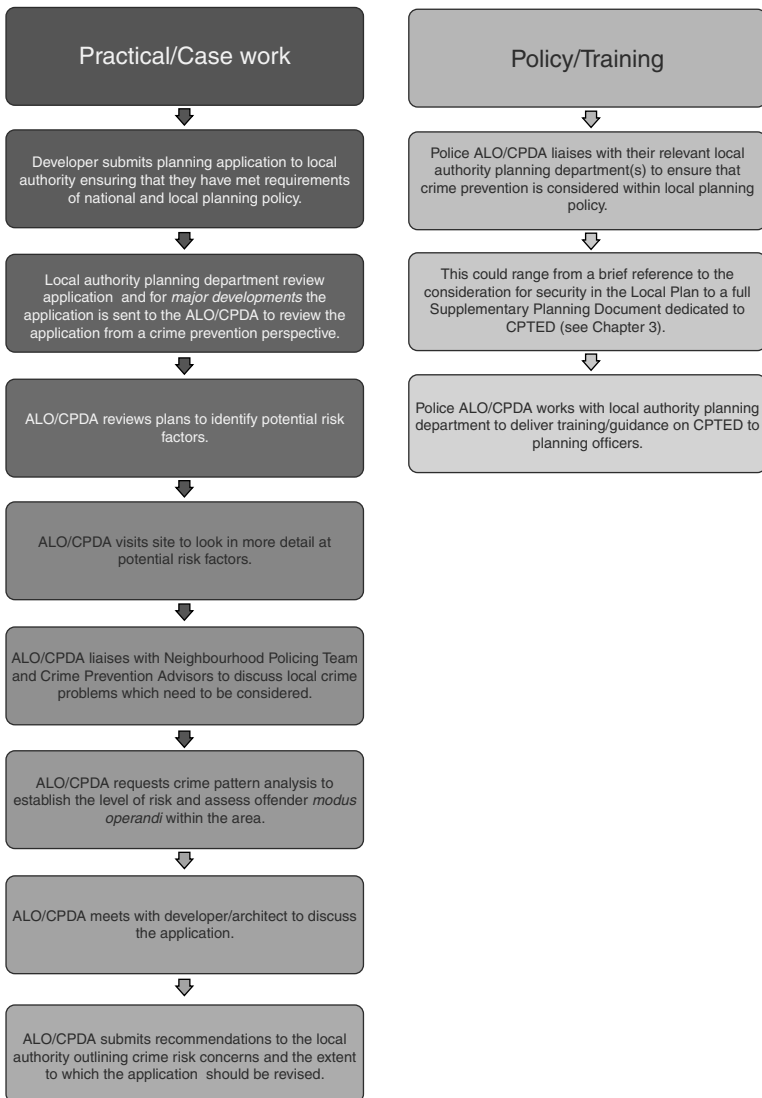
Figure 2.1 Flowchart to demonstrate 'typical' ALO/CPDA involvement in the planning process

invariably take priority in terms of management allocation of work-loads. The respondents expressed the view that management tends to prioritise the roles where outputs can be quantified and where short-term results can be seen. For example, the role of a Crime Prevention/Reduction Officer may see ten locks fitted to burgled homes in one day, or 200 crime prevention leaflets handed out at shopping centres – these are quantifiable outputs. In contrast, the ALO/CPDA role involves long-term benefits which are difficult to quantify (a problem which will be returned to within the conclud-ing chapter). It is likely that a development for which a planning application is refused (based upon crime risk) may not even be built within the career of the ALO/CPDA or their manager. The crime reduction benefits could be 10–15 years ahead, and for this reason, management often prioritise tasks with short-term benefits.

> I'm trying to juggle crime prevention work, which is coming out of my ears. I'm being tasked to go and look at Mr. Smith's little picket fence that's been kicked over and give him crime preven-tion advice. So police officers on the ground aren't using their own skills and knowledge, they're just going: 'Oh, we've got a crime prevention officer for that'. So I'm being run ragged…I've got plans stacked up in my in-tray that I haven't looked at. I haven't looked at any planning for a month.
>
> [ALO/CPDA]

In terms of how they work, the research revealed that the majority of ALO/CPDAs are based within operational police stations – either a divisional police station or police headquarters. Several police forces have opted to locate the ALO/CPDA within the local authority plan-ning department. Other ALO/CPDAs were co-located between a local authority and police base. The respondents expressed the view that being located within a police station had many benefits including allowing access to police recorded crime data as well as local intel-ligence from the Neighbourhood Policing Teams and other local police.

> You can get more information off a person than you can from a computer. You find out what is really going on.
>
> [ALO/CPDA]

The downside of being located within a police station was that being physically present within the station made it easier for management to request their time on operational, reactive duties.

> The negatives are that you're drawn to other police activities, you're not given time. The bosses don't appreciate what ALOs do, so to them they want us to solve burglaries that have happened overnight. They want the biggest slice of you and, to be honest, sometimes your ALO work is going to go on the back boiler.
>
> [ALO/CPDA]

The research found that numbers of ALO/CPDAs within England and Wales were already reducing, even before the 2010 Comprehensive Spending Review (at which police budgets were cut by 20 per cent). Between January and August 2009, the number of ALO/CPDAs had reduced by 12 per cent with many vacant posts not being filled once ALO/CPDAs retired. The research revealed that for 21 per cent of police forces there were two or fewer ALO/CPDAs dealing with the whole police force area. In this case, the 15 ALO/CPDAs in these police forces were expected to deliver a service to more than 80 local planning authorities. For these forces, it is unlikely that, should they succeed in making the ALO/CPDA a statutory consultee, the ALO/CPDA would be able to meet this requirement due to current workloads.

Historically, there has been an unsubstantiated, yet widely held view that the ALO/CPDA role is one taken up by police officers who are either reaching their pensionable age – thus preferring to serve out their time in a nine-to-five role – or by those who, for reasons such as injury, are unable to act as front-line police officers. Weatheritt (1986) is referring to Crime Prevention Officers (as opposed to ALO/CPDAs) in the following comment, but the view has nevertheless been shared with regard to ALO/CPDAs.

> Until recently, when the figure has fallen to about fifteen years, the average length of service of constables and sergeants attending the basic training course for newly appointed crime prevention officers at the Crime Prevention Centre was twenty years, just five years short of the period at which police officers become eligible for pensionable retirement on half pay.
>
> Weatheritt (1986 p. 49–50)

Wootton *et al.* (2009) did not enquire as to the stage of career at which they entered the role, but they did suggest that there was a mix of experience amongst ALO/CPDAs. The research suggested that 55 per cent of ALO/CPDAs had been in post for five years or less. Twenty-seven per cent had been in post for five to ten years, 17 per cent for 10–20 years and 1 per cent for 20 years or more.

In terms of the variation in delivery, participants were asked how many written consultations on planning applications they had made within the previous 12-month period, and also how many SBD applications had been processed. Regarding written consultations on planning applications, the results revealed that the London Metropolitan Police had made 4400 within the previous 12 months, GMP had made 1830 and West Yorkshire Police 1713. This does not necessarily equate to the number of ALO/CPDAs in post as GMP have just six[2] and West Yorkshire Police just five. In contrast, West Midlands Police, with 13 ALOs, made only 484 written consultations and Hampshire (again with 13 CPDAs) made 798.

In terms of processing SBD applications, London Metropolitan Police had the highest number, with 775 applications. Other forces such as West Yorkshire Police, which had a high number of written consultations on planning applications, did not necessarily have a high number of SBD applications, with just 88 in the one-year period. Whilst encouraging developers to build to the SBD standard, many police forces hold the view that the consultation process is as important as the achievement of the SBD award. Encouraging a developer to consider, and design out, crime risk can be as important as the achievement of SBD certification, which could be unattainable for a variety of reasons (discussed in more detail below).

As will be discussed below, ALO/CPDA involvement at the pre-planning stage of the development is beneficial to all agencies involved in the process. Pre-planning is the stage where design concepts and ideas are being explored and tested, and the design of the development is not yet fixed. At this stage, amendments to the design, based upon ALO/CPDA recommendations, will be easier to accommodate and will incur fewer costs. The earlier the involvement in the planning and design process, the easier it is to address trade-offs and avoid uneasy compromises. At the planning application stage, any changes to the proposed plans can have major time and cost implications. The results of the national review revealed

that just 2 per cent of police forces consult on all developments at the pre-planning stage. Twelve per cent consult on between 50 and 95 per cent and 86 per cent of forces consult on less than 50 per cent of developments at the pre-planning stage. This variation is likely to relate to the existence of formal procedures/agreements with the local planning authority. Where there exists a strict requirement to consult at the pre-planning stage (for example, GMP), there will be no possibility of a planning application being processed without proof of consultation with the ALO/CPDA. Otherwise the procedures will be more informal. The research revealed that in only 26 per cent of the police forces was there a formal agreement to consult at some stage in the planning process between the ALO/CPDA and *all* the local planning authorities within their area (this is an agreement to consult at some point, not an agreement to consult pre-planning). Thirty-one per cent of forces had an agreement with *one* but not *all* local planning authorities and for 45 per cent of respondents individual ALO/CPDAs were responsible for negotiating agreements with local planning authorities on an informal basis.

> There is no force policy. There is no direction. And whatever level of operation we have is down to individual development and partnerships – which is a shame.
>
> [ALO/CPDA]

The Greater Manchester police model

The previous sections have summarised both the role of the ALO/CPDA and the typical process of delivering that role. The chapter will now move on to discuss a different approach to delivering the role, one which has gradually evolved over the past two decades, and an approach which at the time of writing, for many reasons (discussed below) is beginning to be viewed as what Monchuk (2011) refers to as 'the way forward in designing out crime' (Monchuk, 2011, p. 31).

The GMP approach to delivering the ALO/CPDA role involves a team of six consultants and one dedicated crime analyst[3] under the title of Greater Manchester Police Design for Security Consultancy (GMP DfSC). Although the team are based within GMP Police Headquarters, have access to police recorded crime data, Neighbourhood

Policing Teams (NPTs) and other relevant police intelligence, the DfS consultants are civilian staff who have a background within a built environment profession such as design, architecture or planning. The importance placed upon design background is one which has been evident throughout the development of the ALO service within GMP (see Monchuk, 2011). It is an innovative approach, but the view of those who developed the service was that it can be easier for design professionals to learn the theories and practical application of crime prevention than for a police professional to learn about planning and architecture. There was a view that the relationship between ALO (now DfS consultant) and architect/planner/developer may benefit from a common knowledge of the planning system and its requirements and complexities. There was also a belief that ALOs with a design background would understand that whilst crime prevention is an important consideration, it is not the only consideration within the planning process – hence they would approach the consultation with more flexibility.

Whilst the (entirely) civilian background is unique to GMP, it is by no means the only difference in their approach. The second major variation is the emphasis placed upon pre-planning consultation between developer/client and DfSC. Greater Manchester includes ten local planning authorities. Where a client wishes to apply for planning permission, the application which is made to the *local* planning authority must adhere to *national* planning policy, and also to the requirements of each local authority's Validation Checklist. Since its inception, the DfS (and previously ALO) service have worked closely with the local planning authorities. They have thereby reached a stage where for each such local planning authority, the Validation Checklist *requires* that the submission of a major planning application be accompanied by a Crime Impact Statement (CIS). Whilst the local planning authorities inform clients that the CIS can be compiled by DfSC, there is no stipulation that it is they who *must* produce the report. However, given the content of a CIS, which relies upon police recorded crime data, knowledge of common offender *modus operandi* and local police intelligence, it is difficult to see how this could be delivered (to the required standard) by any other agency.

Although the CIS is a document which contains an analysis of local crime, an evaluation of the proposed development and recommendations, it also represents a process, and it is the process

as much as the document itself which marks GMP as being so unique in its delivery of the ALO role. Briefly summarised (see Monchuk, 2011 for further details), the CIS process involves the following stages (Figure 2.2).

The final unique element to the delivery of the ALO role within GMP, and one which has proved to protect the provision of this service within the current economic climate is that, although a not-for-profit organisation, DfSC does charge a fee for the production of a CIS. The fee is based upon the number of dwellings within the proposed development, and although this is a small proportion of the developer's costs, it provides DfSC with an income stream to support the retention of staff, a dedicated crime analyst and the

For any residential planning application of more than ten dwellings, a client must contact DfSC (or alternative provider) with a copy of the proposed plans.

A DfS Consultant will be allocated to the case and will commence the process of liaising with the client, visiting the site, and collecting intelligence from other relevent agencies.

A detailed crime pattern analysis will be conducted on the site and surrounding area and recommendations are formulated.

The CIS document formalises and evidences the process and is submitted to the local planning authority with the cllient's planning application.

Figure 2.2   The process of producing a CIS

provision of equipment and software, as well as Continued Professional Development and training opportunities, which may be limited for other police forces where budgets are restricted.

We now return to ALO/CPDAs in general. Although not their only focus, a significant aspect of their role is to encourage developers, planners and architects to design and build developments to the SBD standard. Because each police force/planning authority may place a different emphasis on the scheme, the number of applications processed may differ greatly between forces (see above). Many forces see SBD as an enabling tool which acts to encourage discussion and consultation between the police and planning authority/developer, and it is this which they view as crucial, as opposed to the presentation of an award at the end of that planning/development phase. Whilst the emphasis may differ, there is little doubt that SBD is the primary nexus/tool utilised by ALO/CPDAs within the UK to encourage developers to design out crime at the pre-planning stage. The following section will focus upon the principles, implementation and effectiveness of this UK based award scheme.

The Secured by Design award scheme

Secured by Design (SBD) is a UK based award scheme, managed by ACPO CPI, which aims to encourage the building industry to design out crime at the planning stage. SBD was devised in 1989 by police forces based within the South East of England, with the aim of countering the rise in household burglary (Pascoe and Topping, 1997). Although the scheme is owned and managed by ACPO CPI, it is run on a day-to-day basis by local police ALOs or CPDAs whose role is to ensure that developments are designed and built to certain specifications.

In an attempt to establish how far the SBD scheme was theoretically and empirically supported at the time of its inception, Pascoe and Topping (1997) conducted a review of the available documentation as well as interviews with 15 police officers. They suggest that the scheme was influenced by both environmental criminology (including situational crime prevention and defensible space) as well as theories (including rational choice theory) which focused upon offenders as decision-makers.

The principles of SBD fall largely into the following categories:

Physical Security

SBD sets standards of physical security for each property and its boundaries. This applies to doors, windows and locks which are tested to British standards of security and performance[4] and reviewed on a regular basis.

Surveillance

SBD estates are designed to achieve maximum natural surveillance without compromising the need for privacy. As Figure 2.3 displays (Figure 2.3), the surveillance within SBD developments is achieved naturally, without the need for formal measures such as CCTV. Dwelling entrances face the street, rooms facing the street are active – such as the kitchen or living room – and sightlines are not obstructed by shrubbery or high walls. In fact, there is little evidence of formal security measures within SBD developments.

Access/Egress

SBD developments are designed to include a minimum number of access and egress points. This is based upon the principle that

Figure 2.3   Informal surveillance between properties

highly 'permeable' residential developments have the following criminogenic properties:

1. They provide convenient escape routes for offenders.
2. They allow potential offenders the opportunity to attach the estate to what Beavon *et al.* (1994) refer to as their 'awareness space'. If offenders pass through en route to school, friends' homes or leisure activities, they are more likely to become aware of potential targets.
3. They make it difficult for residents to distinguish between legitimate users of space and potential offenders.

Although SBD discourages through movement between developments, there is a recognition (discussed more widely in relation to New Urbanism in Chapter 6) that through movement has many benefits including encouraging residents to walk or cycle as opposed to relying on the car and also creating eyes on the street, and provides (where appropriate) informal surveillance from passers-by and users of the space. Where footpaths are included within a SBD development, they would be required to run at the front of properties (as opposed to the side or rear), they would be wide, well lit, and judged to be desired/required, thus increasing the likelihood that they would be frequented by legitimate users who could in turn provide informal social control.

The photographs below show footpaths which would *not* be acceptable within SBD developments. The first (Figure 2.4) runs at the rear of properties with access through a gate into each rear garden. The path is also narrow with little natural surveillance from the surrounding development (due to the high fence). The second (Figure 2.5) photograph shows a dark and narrow footpath which lacks a direct line of sight from one end to the other, thus providing potential hiding places or ambush sites for offenders.

Territoriality

Territoriality builds upon Newman's theory of defensible space, which suggests that the physical design of a neighbourhood can either increase or inhibit people's sense of control of the spaces in which they live. Newman categorised space into public (the road in front of a property), semi-public (front garden), semi-private (back

Figure 2.4 A rear footpath which would not be acceptable within SBD developments

garden) and private (inside the property). SBD aims to minimise public and maximise private space. Like Newman, SBD advocates the principle that space should have a clearly defined ownership, purpose and role so that it is evident to residents who should and, more importantly, who should not be present in a given area. This can be achieved in many ways, but rarely involves the installation of security gates or formal barriers. As can be seen from the photograph below (Figure 2.6), this feeling of privacy can be achieved by a narrowing of the entrance to the development and a change in the road texture and colour.

Management and Maintenance

SBD estates should have a programmed management system in place to maintain the area. This includes the removal of litter and graffiti, cutting grass and maintaining property boundaries.

It is important to highlight that, although physical security is one of the principles of the scheme, with security standards for windows, doors and locks, the scheme is about much more than physical security. Many of the methods of crime prevention focus upon subtle

Figure 2.5   A dark, narrow footpath which would not be acceptable within SBD developments

changes to the design and layout of the development. Many of the requirements are made at the planning stage and it would be difficult for the untrained observer to distinguish an SBD from a non-SBD estate. There are no gates, barriers, high fences, barbed wire, bars on windows or CCTV cameras. In fact, research conducted by the author found that it was the non-SBD developments which appeared to have more visible security measures because the residents felt that the introduction of retrospective measures was required to address the crime problem which had emerged. Designing out crime before the development is built means that these measures can be subtle and blend with the architectural style, as opposed to the more visible security measures which are installed following the emergence of a crime problem. 'Indeed, windows which thwart burglars are likely to be less ugly than windows that are insecurely designed and need protection from bars' (Pease, 2001, p. 27).

As Pease (2001) highlights, the relationship between innovation and crime typically goes through three phases: (1) innovation takes place with a neglect of the potential crime consequences (2)

Figure 2.6 A narrowing of the road and change of colour and texture convey an impression of privacy

criminals reap the crime harvest, and (3) a solution is retrofitted. Where a retrofit is required, three obvious negatives have taken place: (1) an individual has been provided with an easy opportunity to commit a crime, thus entering (or continuing) their criminal career (2) a victim has experienced an extremely traumatic experience with financial and emotional consequences, and (3) society reaps the social and economic costs of responding to that crime – both immediately, and in the long term. As Pease (2001) states: 'If the cycle of innovation-harvest-retrofit has been for all practical purposes universal . . . it means that, in terms of an arms race, we wait to lose a lot of battles before we update our armoury' (p. 27).

Evaluating the effectiveness of SBD

There have been five published evaluations of the effectiveness of the SBD scheme (Brown, 1999; Pascoe, 1999; Armitage, 2000, Teedon *et al.*, 2009 and 2010; Armitage and Monchuk, 2011) each concluding that SBD confers a crime reduction advantage.

Using police recorded crime data, residents' surveys and focus groups with local residents, Pascoe (1999) found that both the residents' perceived levels of crime and the actual levels of crime had been reduced following modernisation to SBD standards on ten estates within the UK.

A second evaluation of SBD housing revealed positive results in terms of crime reduction and prevention. This evaluation was carried out in Gwent, South Wales (Brown, 1999) and involved an analysis of police recorded crime data alongside structured interviews with police officers, housing association managers, architects and tenants. The results revealed that SBD properties experienced at least 40 per cent fewer burglaries and vehicle related crime, and 25 per cent less criminal damage than the non-SBD properties. There was no evidence of crime switch; however, there was evidence of temporal displacement from daylight to night-time, where surveillance was limited. The results from qualitative interviews reflected the findings from the quantitative analysis with fear of crime lower and quality of life higher on SBD as opposed to non-SBD estates.

Teedon *et al.* (2009 and 2010) conducted an evaluation of the installation of SBD windows and doors in Glasgow Housing Association housing stock in Glasgow, Scotland. The evaluation examined housebreaking crime before and after the installation of SBD standard doors and windows, compared SBD properties with a non-SBD control sample (within the same socio-demographic category), considered levels of displacement or diffusion of benefit, and also included qualitative interviews and focus groups with residents and key stakeholders. The results revealed that when comparing crime levels before and after the installation of SBD doors and windows, for the SBD sample (2028 properties) total housebreaking crime fell by 61 per cent. Attempted housebreaking with intent fell by 80 per cent, housebreaking with intent to steal fell by 50 per cent and theft by housebreaking by 55 per cent. For the non-SBD sample (14,185 properties) total housebreaking crime fell by 21 per cent. Attempted housebreaking with intent fell by 55 per cent, housebreaking with intent to steal by 5 per cent and theft by housebreaking fell by 14 per cent. The authors suggest a diffusion of benefit to the non-SBD sample, with no evidence of geographical displacement (although this is not verified within the analysis presented in the paper). When comparing the proportion of SBD and non-SBD properties affected

by housebreaking before and after installation of SBD windows and doors, the results were also very positive. After installation of the SBD windows and doors, the SBD sample experienced a statistically significantly lower rate of housebreaking than the non-SBD sample. This difference between samples was not statistically significant before the installations.

The qualitative analysis also revealed positive findings with residents and stakeholders suggesting that the SBD doors and windows had lowered crime and reduced fear of crime. The evaluation concluded that the installation of SBD doors and windows had reduced housebreaking crime and improved resident satisfaction. The assessment of individual properties also revealed that the improvements were most beneficial when applied to houses and multi-storey flats as opposed to tenements.

Rachel Armitage (2000) used a mixed methodology to establish whether residents living on SBD estates were experiencing less crime than their non-SBD counterparts; whether residents living on SBD estates were experiencing less fear of crime than their non-SBD counterparts; whether SBD was simply displacing crime and whether the SBD scheme was improving.

Estates which had been refurbished to the SBD standard (there were two within the sample) were analysed on a before and after basis. Analysis of recorded crime levels (pre- and post- certification to SBD) revealed that for both estates total crime fell by 55 per cent relative to the pre-SBD period. For the analysis of new-build properties, 25 SBD estates (660 dwellings) were each assigned to a matched pair which was selected according to age, location, housing tenure and physical/environmental characteristics (522 dwellings). The results revealed that the mean crime rate within the SBD sample was 0.70. This was compared to a non-SBD rate of 0.94. Although the crime rate was higher within the non-SBD sample, statistical analysis revealed that the difference between the crime rate within the SBD sample and non-SBD sample was not statistically significant at a probability of 0.05.[5] When excluding all crimes other than burglary in a dwelling, the results revealed that the mean burglary rate within the SBD sample was 0.17; this was compared to a rate of 0.29 within the non-SBD sample. As with total crime, statistical analysis[6] revealed that the difference between the burglary rate on SBD and non-SBD estates was not significant at a level of 0.05.

Of the 36 crime categories that were analysed as part of the evaluation, the only crimes which were higher within the SBD sample were damage related offences, Actual Bodily Harm (ABH) and Grievous Bodily Harm (GBH). Although ABH and GBH were slightly higher within the SBD sample, further analysis of the *modus operandi* revealed that this could not be a result of escalation (whereby an offender increases their use of violence during burglary offences due to frustration at being unable to overcome security measures), as both the threat of and use of violence in burglary offences were much lower within the SBD sample.[7] The higher levels of damage related offences may be explained by the fact that attempted burglaries were often categorised as damage offences, even though the motive was clearly an attempt to break in. The following example of a damage to a dwelling offence *modus operandi* supports this suggestion:

> During hours of darkness person(s) unknown approach wooden rear door of premises and by believed kicking damage bottom panel of door which is actually kicked right through. Person(s) then make good escape. Possibly after being disturbed as no entry gained to premises.
>
> [Damage to a dwelling offence *modus operandi*]

An increase in attempted burglaries (even though these appear to have been categorised as damage offences) could be seen as a positive for SBD as the offender has actually failed to enter the property.

As well as the analysis of police recorded crime, a residents' survey was conducted as a means of measuring residents' actual (as opposed to reported) experiences of crime as well as their fears, perceptions and concerns regarding crime and disorder within their neighbourhood. Two hundred and fifty SBD and 250 non-SBD addresses were visited as part of the residents' survey, with a response rate of 47 per cent. The results revealed that 2.9 per cent of SBD respondents had been burgled within the previous year; this was compared to 8.4 per cent of non-SBD respondents[8] and 4.3 per cent of British Crime Survey (BCS) respondents[9] (Mirlees-Black *et al.*, 1998). In terms of fear of crime, when asked how safe they felt when walking alone after dark, 11.4 per cent of SBD respondents felt very unsafe compared to 19.1 per cent of non-SBD respondents and 11 per cent[10] of BCS respondents. 3.8 per cent of SBD respondents felt very

unsafe at home alone at night compared to 7.6 per cent of non-SBD respondents[11] and 2 per cent of BCS respondents.

This study also conducted a detailed analysis of point of entry *modus operandi* data for the same sample of SBD and non-SBD dwellings. The findings interestingly suggest that, as well as the increased difficulty in physically entering an SBD property, the design and layout of the developments has some impact upon offenders' choice of point of entry/escape. For non-SBD properties, a greater percentage of offences involved entry via the front of the property. The front door was used as the point of entry in 16 per cent of burglaries against non-SBD properties, but just 9 per cent of burglaries against the SBD sample. The analysis of point of escape data revealed similar findings. In 17 per cent of offences against non-SBD properties the point of escape was the front door; this is compared to only 9 per cent of offences against SBD properties.

In addition to evaluating the effectiveness of the scheme as a crime reduction measure, several studies have concluded that the SBD scheme is cost-effective, or at least cost-neutral (Armitage, 2000; Association of British Insurers, 2006; Teedon *et al.*, 2009). Armitage (2005) concluded that, taking the average additional cost of building to the SBD standard to be £795,[12] calculating the additional crimes taking place at a sample of SBD properties in the one-year period January–December 1999 (Armitage, 2000) and the costs of these additional crimes as estimated by Brand and Price (2000), the total saving per property of building to the SBD standard was £5.97 per year.[13] Pease and Gill (2011) reanalysed Armitage's (2000) figures and conclude that, using more recent calculations of the costs of crime, and the costs of building to the SBD standard (which have reduced as more manufacturers produce the required products), it would take just one year for the additional costs to be recouped through crimes prevented. Teedon *et al.*'s (2009) study of Glasgow Housing Association properties revealed that there had been a saving of £18,304 in the research area due, at least in some part, to the introduction of SBD. A recent report (Davis Langdon, 2010) suggests that the additional cost of building a property to the SBD standard may be much lower than the £795 suggested by Armitage (2005) or the £630 reported by the ABI in 2006. The figure suggested by Davis Langdon (2010) suggests that the over-costs of building to the SBD standard are £200 for a four-bedroom detached house, £170 for a three or

two-bedroom detached house, £240 for a ground floor apartment and £70 for an upper floor apartment, making these figures an overly cautious estimate of the cost benefits of building to the SBD standard. The differences in cost estimates relate to the time at which the study was conducted, Armitage's research taking place in the early 2000s, Teedon *et al.* some five years later and Davis Langdon and Gill and Pease in 2010. The cost of products reduces as the number of manufacturers producing those goods increases, thus providing very different estimates. The costs also vary depending on what is considered to be a valid over-cost of building to the standard. Some would include the additional doors, windows and locks only, whilst others would build in costs such as building space lost due to the layout and orientation of buildings, road surface, fences, lighting and costs associated with the layout of the street/development.

Pease and Gill (2011) argue that the costings conventionally applied in the calculation of costs/benefits of security measures have ignored many of the wider economic and social costs such as the costs of the premature destruction of otherwise adequate housing stock (due to high crime and low desirability), the carbon cost of crime (Pease, 2009), the opportunity costs of emergency service time, the launching of criminal careers of those whose apprenticeship is in areas providing ample opportunities to offend, the costs of securing void properties and the loss of rent and community charge from void homes. Taking these into account, it is easy to see that 'where costs and benefits are roughly in balance on a narrow view, benefits will outweigh costs taking a broader view' (Pease and Gill, 2011, p. 9). Pease and Gill (2011) conduct a detailed reanalysis of the 1998 BCS and conclude that if all homes had security to the level of best protected, 700,000 burglaries would have been avoided, representing an annual saving of £1.97 billion. Pease and Gill (2011) highlight how, notwithstanding the caveats identified within the report, 'the Budd work reanalysed here provides a clear vindication of the value of security in individual households' (Pease and Gill, 2011, p. 24). Pease and Gill (2011) also reanalysed the findings from Armitage and Monchuk's (2011) study of the effectiveness of SBD, and established that, taking the Davis Langdon (2010) figure for the cost of SBD and setting this against the crimes saved, SBD pays for itself in just under two years considering only burglary and criminal damage

offences. The inclusion of other offences, they state, would reduce this period.

As well as evaluations of the SBD scheme as a whole, there has been an abundance of studies which have revealed that the principles upon which SBD is based each work to reduce crime, disorder and the fear of crime. These include:

- *Increasing physical security* (Cromwell and Olson, 1991; Tilley and Webb, 1994; Ekblom *et al.,* 1996; Budd, 2001; Hamilton-Smith and Kent, 2005; Armitage, 2006a; Van Dijk, 2007; Farrell *et al.*, 2008; Tilley *et al.,* 2011).
- *Minimising access, through movement and connectivity* (Bevis and Nutter, 1977; Rubenstein *et al.,* 1980; Taylor and Gottfredson, 1987; Van der Voordt and Van Wegen, 1990; White, 1990; Poyner and Webb, 1991; Matthews, 1992; Atlas and LeBlanc, 1994; Beavon *et al.,* 1994; Newman, 1995, 1996; Donnelly and Kimble, 1997; Wagner, 1997; Lasley, 1998; Mirlees-Black *et al.,* 1998; Rengert and Hakim, 1998; Zavoski *et al.,* 1999; Hakim *et al.,* 2001; Taylor, 2002; Nubani and Wineman, 2005; Armitage, 2006a; Yang, 2006; Farrington and Welsh, 2009; Johnson and Bowers, 2010; Armitage *et al.,* 2010).
- *Increasing surveillance* (Reppetto, 1974; Winchester and Jackson, 1982; Brown and Altman, 1983; Coleman, 1986; Taylor and Gottfredson, 1987; Van der Voordt and Van Wegen, 1990; Cromwell and Olson, 1991; Brown and Bentley, 1993; Groff and LaVigne, 2001; Nee, 2003).
- *Managing and maintaining* developments (Zimbardo, 1970; Finnie, 1973; Wilson and Kelling, 1982; Taylor and Gottfredson, 1987; Skogan, 1990; Cozens *et al.,* 2001, 2002a, 2002b, 2002c and Armitage, 2006a).

An interesting finding of a previous investigation into the impact of environmental factors on levels of crime (Armitage, 2005) revealed that, although the features of SBD developments (such as minimising through movement, maximising natural surveillance, minimising litter, graffiti and vandalism) each worked to confer a crime reduction advantage, properties built to the SBD standard between 1994 and 1998 did not necessarily adhere to these principles. The study

awarded a Burgess Score based upon the number of environmental risk factors possessed by a property – a high score was positively associated with higher levels of crime (see Armitage, 2006a for a detailed discussion). However, a detailed analysis of the sample of 1058 properties showed that, although non-burgled properties (SBD or non-SBD) had lower Burgess Scores (than burgled properties), SBD properties had higher Burgess Scores (burgled and non-burgled) than the non-SBD sample. This finding suggests that the crime reduction benefits achieved by the pre-1999 SBD sample (and reported in Armitage's earlier publications) were achieved in spite of, not because of the environmental factors which the properties possessed. It further suggests that the benefit from SBD (pre-1999) was derived from variables other than those environmental factors.

In an attempt to replicate the 1999 evaluation, Armitage and Monchuk (2011) utilised a variety of datasets including police recorded crime, self-reported crime (residents' survey) and visual audits. The sample included properties within the West Yorkshire Police Force area and analysed crime for the one-year period from August 2007 to July 2008. The outline finding from the study was that, when comparing the burglary rate of all SBD properties within West Yorkshire (for that one-year period) with the burglary rate of all properties within the force (as a rate per 1000 dwellings), SBD properties experienced a much lower rate of burglary. The overall burglary rate per 1000 dwellings for properties in West Yorkshire was 22.7 as compared to just 5.8 for SBD properties. This difference was statistically significant (Wilcoxon Signed Ranks Test $p < 0.01$). The evaluation also compared a sample of 11 SBD developments (101 properties) with the nearest 11 non-SBD developments (354 properties) to establish whether there were any differences in levels of crime. The results revealed that a total of 105 crimes were committed within the sample between August 2007 and July 2008. Of these 105 offences, 93 were committed against non-SBD properties and 12 were committed against SBD properties. This equates to a rate of 262.7 crimes per 1000 households within the non-SBD sample and 118.8 crimes per 1000 households within the SBD sample. This difference in rates was statistically significant (Wilcoxon Signed Ranks Test $p < 0.05$). No burglary dwellings were recorded against the SBD properties within this sample; however, five were recorded against the non-SBD sample. This study is discussed in more detail in Chapter 10.

Summary and implications

The key agencies involved in delivering CPTED advice within England and Wales are police ALO/CPDAs and local authority planning authorities who, using often very different models of delivery, work together to produce local planning policy and deliver consultation on the crime risks associated with planning applications. A review of the ALO/CPDA role has shown that, even before the major spending cuts introduced in the 2010 Comprehensive Spending Review, the number of ALO/CPDAs was in decline. In January 2009 there were 347 ALO/CPDAs within England and Wales, by August 2009 this had reduced to 305 and in the ensuing two-year period the numbers were cut further, to 236. In August 2009 (before the major cuts), 21 per cent of police forces had two or fewer ALO/CPDAs. This equates to a position where 15 ALO/CPDAs were responsible for 80 local planning authorities and the planning applications received within those areas. In reality, this meant that had these individuals negotiated a successful policy with the local authority to include the ALO/CPDA as a statutory consultee (the most desirable outcome in terms of crime reduction), this commitment would be unachievable. For this reason, these individuals do not strive to enhance the requirements for CPTED advice/consultation within existing planning policy or procedures.

The review also revealed large variations in the priority afforded to CPTED across England and Wales, with some ALO/CPDAs dedicating 100 per cent of their time to this role, and with others (74 per cent of respondents) taking on many additional roles and responsibilities such as CCTV Officer, Licensing Officer, Counter-Terrorism Security Advisor and other operational policing duties. Whilst there are some advantages in dual roles, the respondents expressed the view that the long-term benefits of designing out crime leave CPTED duties taking less of a priority than tasks which present quick wins. This has implications for the delivery of CPTED, and as long as police management take a short-term view of success the incorporation of CPTED within policy and practice will never be prioritised. Wooton *et al.*'s (2009) study set out to recommend changes in the management of the delivery of the ALO/CPDA role, highlighting the need to quantify the process and delivery of CPTED advice. The long-term benefits of working to ensure that buildings are designed and developed to a

safer standard are both difficult to quantify and justify whilst managements prioritise short-term gains; however, the difficulty must not preclude efforts to take this forward.

There are also variations in the process of delivering the ALO/CPDA role and the relationship with local planning authorities. Only 2 per cent of police forces in England and Wales stated that they were consulted at the pre-planning stage for all planning applications. Whilst pre-planning consultation is crucial in cutting delays and costs for the developer and maximising the likelihood that developments can be truly designed according to the CPTED principles, it seems that consultation at any stage in the planning process still remains limited. Only 26 per cent of police forces had a formal agreement for local planning authorities to consult with the ALO/CPDA on all planning applications. For 45 per cent of police forces the consultation process relied upon informal agreements drawn up between individual ALO/CPDAs and local authority planners/development controllers. It is clear that the process and delivery of this role varies dramatically throughout England and Wales and that much is left to informal relationships built up between committed individuals, thus risking the loss of continuity, let alone progress, once individuals leave the post.

Whilst there is a 'typical' delivery of CPTED advice within the police that varies slightly in terms of the requirement to consult, the stage at which consultation takes place and the capacity for ALO/CPDAs to consult should they be asked, one police force in the north of England takes a very different approach to the delivery of CPTED advice. GMP have a unique approach to delivering CPTED advice which has historically been viewed with some scepticism, but which, in the current economic climate, has come to be viewed as the way forward in the police's delivery of designing out crime. GMP have set up their ALO service as a consultancy team – Greater Manchester Police Design for Security, using individuals with a planning and design background as opposed to police. The team have worked alongside local planning authorities to ensure that pre-planning consultation is mandatory on all major developments and that a fee is charged for that consultation and advice. Whilst the fee is nominal when compared to the cost of designing and building developments, this income has not only protected the team from budgetary cutbacks, it has allowed the team to grow, to maintain

training and development, to fund a dedicated crime analyst and to ensure that the staff have up to date equipment and software. Whilst GMP's method of delivery is yet to be fully evaluated (it is currently a case study for a detailed research project – see Monchuk, 2011), it is clear that many other police forces within England and Wales are watching this model with interest.

Within England and Wales, much of the focus of ALO/CPDAs is on promoting and monitoring SBD – an award scheme which is given to developments built according to specific CPTED standards and principles. The scheme has been in place for over 20 years and its effectiveness has been evaluated by several independent and methodologically rigorous studies. Evaluations of the scheme have utilised a variety of different datasets and methods (including analysis of police recorded statistics, residents' surveys, visual audits and costs/benefits) and each concluded that the scheme offers a crime reduction advantage. Cost-benefit analyses suggest that the additional costs of building to the SBD standard are negligible and that these costs are recouped in crimes prevented within approximately one to two years. It is recognised that conducting cost-benefit analyses is difficult given the many factors which need to be accounted for; however, the production of a standard cost-benefit framework (perhaps led by ACPO CPI) which is agreed by all stakeholders should be pursued. Several of the evaluations have taken an improvement perspective, highlighting areas of the scheme which require improvement, and these have revealed weaknesses in reducing repeat victimisation and violent crimes committed within the home.

It is clear that the promotion and implementation of the SBD scheme forms a large part of an ALO/CPDA's day-to-day role, working with local authorities to try and make the scheme a planning requirement, encouraging local developers and architects to design and build according to its principles and reviewing applications for the award. However, a review of ALO/CPDAs in 2009 revealed that the number of SBD applications processed in a 12-month period differed greatly between police forces – and not necessarily according to size of force, extent of new developments, or number of ALO/CPDAs. It is clear that many ALO/CPDAs hold the view that, whilst achieving the certification to SBD is a desired outcome, one of the more subtle benefits of the scheme is the extent to which it can be used as an enabling tool to initiate consultation with architects and developers

and to encourage them to think about the principles and benefits of CPTED. Many ALO/CPDAs express the view that they would rather work alongside a developer who takes on board the principles of the scheme, incorporates what they can within their planning and cost constraints but does not quite achieve certification, than to push for the full award and in that process intimidate the developer and alienate them from seeking future advice.

3

From Theory to Practice: Consideration of Crime Prevention through Environmental Design within Policy and Guidance (England and Wales)

Introduction

The consideration of crime prevention within the planning system can be encouraged through regulation, policy (be that national or local), guidance, awards/incentives and systems and processes. Chapter 4 will consider the different approaches to planning for crime prevention from an international perspective. This chapter will focus upon the *current* consideration of crime prevention within the planning system in England and Wales, although inevitably this will involve a review of the historical context and how the current position has been achieved. More particularly, it will cover laws and regulation, national and local policy and guidance – the practical application of these having been covered in the previous chapter.

Although this chapter seeks to present the current policy context, as well as imminent and proposed changes, there is always a risk that such a review will soon become dated, particularly in the current political and financial climate. But whilst policy changes will undoubtedly occur, there are always lessons to be learnt from the consideration of previous approaches – what worked well, what did not and what led to the changes which have been implemented? In a sense we may not always be talking about 'progress' to an ever-better

system of planning out crime, but the resolution and re-resolution of issues perpetually in tension (such as cycles of centralisation and decentralisation and trade-offs between permeability and defensibility); as administrations and their preferences change, shortcomings in one approach become apparent and perhaps even fashions come and go. In these circumstances all arrangements remain worthy of attention as possibilities to consider, to modify or to avoid in future and hence merit documentation here.

Regulation

Regulating for crime prevention within the planning and development of residential housing can take several forms. This can include legislation which places a responsibility upon the agencies which make planning decisions to consider the implications of their decision-making for levels of crime and disorder. This is an approach which has been taken within England and Wales with the introduction of Section 17 of the Crime and Disorder Act (1998). An alternative approach, and one which would complement such legislation, is to include the consideration for security within building regulations – for example, ensuring that windows and doors meet specific security requirements. This approach has been adopted in Scotland and the Netherlands, but not within England and Wales (see below).

Section 17 of the Crime and Disorder Act (1998)

Although England and Wales does not mandate specific security standards within residential housing, there is an overarching legislative requirement for responsible/relevant authorities to consider the crime implications of their policy and practice. Section 17 of the Crime and Disorder Act (1998) imposes a duty upon local authorities (as well as other responsible agencies such as police and fire authorities) to 'Without prejudice to any other obligation imposed upon it . . . exercise its functions with due regard to . . . the need to do all it reasonably can to prevent crime and disorder in its area' (Great Britain, 1998). Here local authorities are being required to conduct all of their functions with consideration for any likely impact upon crime and disorder. Within England and Wales, local authorities include departments which take responsibility for local planning policy – developing policy documentation to outline the future of

development within the area. They also include the responsibility for development control and making decisions regarding planning applications for developments within the area. Under Section 17, these (and many other) decisions are required to be made with crime and disorder in mind.

Moss and Pease (1999) refer to Section 17 as 'the most radical part of the Act' (p. 15), suggesting that 'it is difficult to conceive of any decision which will remain untouched by s 17 considerations' (p. 16). It is likely that the benefits of Section 17 have not emerged from the likely threat of the legal implications of non-compliance, but rather from using the Act as an enabling tool to encourage those who had perhaps considered themselves peripheral to the crime and disorder agenda to understand their role within crime reduction. There is little evidence of Section 17 being legally invoked (this may relate in part to a culture within England and Wales which is undoubtedly less litigious than the USA); however, Bullock *et al.* (2000) highlight the possible legal implications of non-compliance. These broadly translate to (a) liability in private law for breach of a statutory duty and (b) liability to judicial review under the doctrine of *ultra vires*. Under liability in private law for a breach of statutory duty, there are three possibilities.

Liability in private law for breach of a statutory duty

Careless exercise of statutory powers and duties: in this case it must be proven that the plaintiff suffered damage and that the public body owed the plaintiff a legal duty of care. In making judgements about potential breaches the courts must also look at two further issues; these are (i) reasonableness and (ii) the intentions of Parliament and the public interest – for example, what was the thinking behind the Act? For example, Clunis was found guilty of the murder of John Zito following his release from a psychiatric hospital. He sued the local authority for negligence under Section 117 of the Mental Health Act 1983, stating that it was their duty to provide aftercare for the mentally disordered. The court's response was that they did not believe that Parliament intended alleged failures of this duty to be actionable in damages and his legal action therefore failed (*Clunis v Camden and Islington Health Authority, 1997*).

Failure to exercise a statutory power: this could only occur in very limited cases where the plaintiff could prove that (i) the failure was

irrational, or (ii) a finding of liability would not be contrary to the policy considerations of the Act. For a court to reach this finding, they must be able to identify the Act's requirement precisely. With the wording of Section 17 of the Crime and Disorder Act 'all that it reasonably can', this would not be straightforward.

Breach of statutory duty: in this case the plaintiff must prove that the public body was under a statutory duty to take a particular course of action, that the duty was not fulfilled and that this failure caused damages.

Liability to judicial review

The second option relates to liability to a judicial review under the doctrine of *ultra vires*. A Judicial Review allows people with enough interest in a decision made by a public body to ask a judge to assess its lawfulness. It does not assess the merit of a decision, merely its lawfulness. Remedies include: (i) Certiorari – quashing a decision; (ii) Prohibition – preventing a public body from making an illegal, irrational or improper decision; (iii) Mandamus – forcing a public body to reach a decision when it has failed to do so (but it does not determine outcome); (iv) Declaration – declares the way in which the Act should be interpreted in the future; (v) Injunction – prevents an illegal act and enforces the performance of a public duty; and (vi) Damages – compensation payable to individuals against whom unlawful decisions have been made. There are several ways in which a local authority can be found to have made an unlawful decision, and these are known as 'grounds' or 'heads of review'. These are (i) Illegality (under which comes failure to fulfil a statutory duty); (ii) Irrationality; (iii) Procedural Impropriety; and (iv) Incompatibility with European law (this includes Section 6 of the Human Rights Act 1998 – 'Breach of a Convention Right'). Moss and Pease (1999) highlight one of the many outcomes of non-compliance with Section 17 of the Crime and Disorder Act.

> There are many circumstances in which an individual citizen, a business or a residents group could plausibly argue that a local authority had breached s.17. To take one example: someone moves into new home. She is told by the police that her home is not built to SBD standards, despite the area's high rate of burglary. A Residents' Association meeting is convened and she finds that

the experience is not unusual: burglars always gaining entry in the same way because of the clear design weaknesses. With the Association's support she successfully seeks a judicial review of the authority's actions, with the expectation of a decision of mandamus, whereby the security uprating of the homes to SBD is ordered.

<div align="right">(Moss and Pease, 1999, p. 16)</div>

Building regulations

Whilst the consideration for physical security is included within building regulations in Scotland, at the time of writing this has not been achieved within England and Wales. Discussions with the Department for Communities and Local Government (DCLG) suggest that this has been considered, but a requirement to demonstrate a cost advantage in the inclusion of security standards has remained unproven. Given the evidence presented throughout this book of the benefits of crime reduction to residents' well-being, social and environmental sustainability, and therefore, the benefits to society, this is a difficult conclusion to understand. However, the current climate of deregulation could go some way to explaining this reluctance. Pease and Gill (2011) discuss how a key measure of the recovery of the economy is growth within the building sector and that this inevitably leads to an emphasis on deregulation. They highlight how the government's commitment to reducing the regulatory burden includes the 'one in one out policy' where any increase in regulation in one area must be matched by a decrease in another area. This means that the inclusion of security within building regulations would have to be accompanied by the removal of another regulation, and, at present, this case remains unmade.

National planning policy and guidance

The period following the 1998 Crime and Disorder Act saw an increasing recognition of the role which planning and design can have in the reduction of crime, and within England and Wales this was reflected in the emphasis placed upon evidence based policy, guided by independent evaluation and research. The Labour government's three-year Crime Reduction Programme was launched in 1999 and included an ambitious range of research projects and evaluations

aimed at gathering evidence on the effectiveness of a variety of interventions. As Homel *et al.* (2004) highlight, this was 'the most ambitious, best resourced and most comprehensive effort for driving down crime ever attempted in a Western developed country' (p. *v*), with £400 million assigned to the programme and roughly 10 per cent of the original £250 million budget allocated to evaluation (backing up the stated aim that the programme was focused on creating evidence based policy). The Crime Reduction Programme aimed to reduce crime, to maximise the implementation of cost-effective crime reduction activity and to improve and mainstream knowledge of best practice. The focus was to turn 'research-based evidence into mainstream practice – a systematic research and evaluation driven approach known as evidence based policy programme (EBPP)' (Homel *et al.*, 2004, p. *v*). Although the Crime Reduction Programme included many separate initiatives, these were organised around five core themes – one of which was developing products and systems that are resistant to crime. Although this theme primarily focused upon product design, there were funds available for research into designing out crime from residential housing. This period allowed a rare opportunity for the evaluation of a variety of crime reduction initiatives – many that were (to some extent) established and others that were more innovative approaches. Although some might question the extent to which this programme was truly intended to influence policy, as opposed to being target-driven (Maguire, 2004), there is little doubt that, within the field of designing out crime, this funding supported independent research and subsequent publications, which in turn were referenced within local and national planning policy and guidance as evidence to support the efficacy of CPTED. As is outlined below, prior to this period the only planning policy which referred to crime prevention was circular 5/94 – Planning out Crime. Post-1998 the recognition of the role of planning in crime reduction became increasingly accepted, and although the link cannot be made with any certainty, this was unquestionably an era in which policy did begin to recognise (if not entirely reflect) academic research. Although perhaps this was not always to the extent which many hoped for, crime and disorder did begin to be acknowledged within planning policy and guidance.

there are certain 'windows of opportunity' in political cycles when combinations of circumstances bring the aims and interests of (some) researchers and policy makers much closer together – one such being the period between 1998 and 2000.

(Maguire, 2004, p. 219)

It is important to highlight that historically (prior to changes introduced in the Localism Act 2011), the planning system within England and Wales had been plan-led. Therefore, as Ted Kitchen (2009) highlights: 'If the planning system is to take action in any area, then appropriate policies need to be written into development plans to make sure that this is what actually happens' (pp. 330–331). As was highlighted above, prior to 1998 the only policy which referred to crime prevention within the planning system was circular 5/94 – Planning out Crime. Planning out Crime was just 11 pages in length (13 with references) and offered little in the way of guidance, other than highlighting the importance of consultation with police ALOs.

Local authorities are advised to consult police ALOs (CPDAs in the Metropolitan Police service) on planning applications for those developments where there is potential to eliminate or reduce crime through the adoption of suitable measures at the design stage.

(Department of the Environment, 1994, p. 2)

Planning out Crime did highlight the importance of early consultation with police ALOs/CPDAs, and also referred to SBD as a best practice scheme for designing out crime within residential housing.

The recognition of the importance of crime, disorder and the fear of crime within urban renewal, development and the planning system began to increase with the publication of the Urban Policy White Paper *Our Towns and Cities: The Future* (Office of the Deputy Prime Minister, ODPM, 2000), which took forward many of the recommendations which had been raised within the final report produced by Lord Rogers' Urban Task Force (Urban Task Force, 1999). The *Towards an Urban Renaissance* report focused upon the creation of what it referred to as well designed, compact and connected cities. The focus was upon revitalising towns and cities, improving social

and environmental sustainability, improving transport networks and reducing development on greenfield sites. Whilst criticisms were raised regarding some of the conflicts between the vision of connectivity and principles of crime reduction (Armitage, 2006b),[1] the key message contained within the report (and taken forward within the Urban White Paper) was that urban neighbourhoods should be vital, safe and beautiful places to live. The 2000 White Paper is a large document which covers many issues relating to urban renewal within towns and cities. However, even with its vast scope, crime and safety are referred to many times throughout the document; in fact, the second sentence highlights the importance of safety: 'But wherever people live, they want the same things: jobs, a healthy economy, a decent home, good public services and an attractive and safer environment' (ODPM, 2000). Whilst the White Paper makes many references to the importance of crime, the key statements include the recognition that 'good design of buildings and the way buildings and public spaces are laid out can help prevent crime' (ODPM, 2000), that 'properly designed developments can also discourage crime' (ODPM, 2000) and the recommendation to review and update advice on circular 5/94 – Planning out Crime.

Circular 5/94 was officially cancelled with the publication of Planning Policy Statement 1: Delivering Sustainable Development (DCLG, 2005), a policy document which (alongside other Planning Policy Statements) set out the Government's national policies on land use planning in England. Although this Statement was not specific to crime prevention, it contained many references, not only to the updated guidance (ODPM/Home Office, 2004) which replaced 5/94, but also to the importance of crime prevention in good design and sustainable design. The importance of crime prevention as a consideration within sustainable design is highlighted within the document's first paragraph – which sets the scene for the emphasis contained within this Policy Statement. It highlights how 'poor planning can result in a legacy for current and future generations of run-down town centres, unsafe and dilapidated housing, crime and disorder, and the loss of our finest countryside to development' (DCLG, 2005, p. 2). The Statement identifies five ways in which planning should support, facilitate and promote sustainable development, one of which includes 'ensuring that development supports existing communities and contributes to the creation of safe, sustainable, liveable

and mixed communities' (DCLG, 2005, p. 3). Planning authorities are guided, in the preparation of their local Development Plans, to 'Deliver safe, healthy and attractive places to live' (DCLG, 2005, p. 7); to 'Promote urban and rural regeneration to improve the well being of communities, improve facilities, promote high quality and safe development' (DCLG, 2005, p. 11); and to 'Promote communities which are inclusive, healthy, safe and crime-free' (DCLG, 2005, p. 11). With reference to the requirement to prepare Design and Access Statements (discussed below), this Statement also states that 'Planning authorities should prepare robust policies on design and access ... Key objectives should include ensuring that developments create safe and accessible environments where crime and disorder or fear of crime does not undermine quality of life or community cohesion' (DCLG, 2005, p. 15). With the publication of Planning Policy Statement 1 and the accompanying *Safer Places* guide (the government's guidance which specifically relates to crime prevention through environmental design), the importance placed upon crime prevention within the creation of sustainable, high quality developments was underlined, and planning authorities were expected to consider crime and its prevention within their Regional Strategies and Local Development Plans.

The Planning and Compulsory Purchase Act (2004) introduced the requirement for local authorities to produce a Development Plan which set out the objectives in relation to development and land use for their area. As Kitchen (2009) outlines, this introduced new types of plan making and encouraged local authorities to review and change their style of Development Plans. One benefit which this introduced for crime prevention within the planning system was that many local authorities developed a model of producing an overarching 'core' strategy/plan which outlined the general statement that planning decisions should take account of crime prevention considerations, and this was supplemented with a detailed 'themed' Supplementary Planning Guidance/Document focused solely upon crime prevention. These detailed documents are generally entitled *Supplementary Planning Guidance: Planning out Crime, Supplementary Planning Guidance: Design for Community Safety* or *Supplementary Planning Guidance: Crime Reduction/Prevention through Design*. They vary in style and length, but the content generally follows the principles of CPTED covering defensible space, layout, natural surveillance,

management and maintenance, footpaths/access, car parking, mixed use and open space. One of the earliest Supplementary Planning Documents which focused specifically upon crime prevention was Bradford's *Planning for Crime Prevention* (Bradford MDC, 2007), which was 36 pages in length and included five core principles applied in detail to design themes. These were accompanied by an introduction to CPTED, a discussion of why crime prevention should be considered and a review of the policy context. Such detail could not be achieved within a single Local Development Plan.

The Planning and Compulsory Purchase Act (2004) also introduced the requirement to produce Design and Access Statements when submitting applications for outline and full planning permission. The DCLG Circular 01/2006 – *Guidance on Changes to the Development Control System* (DCLG, 2006), outlines what is required within a Design and Access Statement and paragraph 87 states that Design and Access Statements must demonstrate how crime prevention measures, and in particular the principles outlined in *Safer Places*, will be addressed.

> Design and access statements for outline and detailed applications should therefore demonstrate how crime prevention measures have been considered in the design of the proposal and how the design reflects the attributes of safe, sustainable places set out in Safer Places – the Planning System and Crime Prevention.
>
> (ODPM/Home Office, 2004) (DCLG, 2006, p. 15)

The seven principles of safer places, as defined by the ODPM/Home Office guidance *Safer Places – The Planning System and Crime Prevention* (ODPM/Home Office, 2004) are access and movement, surveillance, structure, ownership, physical protection, activity, and management and maintenance. *Safer Places* is a guidance document as opposed to planning policy; however, as was highlighted above, there are planning policies which refer to the requirement to consider *Safer Places* and its recommendations. *Safer Places* is a joint ODPM and Home Office publication and was produced following an extensive consultation with practitioners and academics. The project team was assisted by a steering group and a sounding board and it is clear that the content is based upon a thorough review of the evidence base. The document is 108 pages in length and is based around the presentation of guidance and recommendations, supported by academic evidence

and case study examples. Although many (including practitioners and academics) were critical of the lack of prescription within the guide, this was, to some extent, linked to the debates which were emerging within this field relating to issues such as connectivity and through movement and the conflicting messages coming from Government departments. Armitage (2006b) highlights the ambiguity within the guide's recommendations, particularly relating to access and movement, suggesting that the significant opportunity to review 5/94 – Planning out Crime, had been wasted.

> Although this guide highlights the importance of crime reduction considerations in planning and design, its seven attributes of safer places have not addressed the confusion surrounding access and movement and the message conveyed still remains unclear.
>
> (Armitage, 2006b, p. 86)

This criticism relates to the lack of clarity in the guidance offered to practitioners when considering the impact of through movement and connectivity on crime. *Safer Places* highlights how safer places will have 'well-defined routes, spaces and entrances that provide for convenient movement without compromising security' (p. 16), yet how crime and ASB are more likely to occur if 'there are several ways into and out of an area – providing potential escape routes for criminal activity' (p. 16). The answer, according to this guide, is that 'too few connections can undermine vitality, too many – and especially too many under-used or poorly thought out connections – can increase the opportunity to commit crime' (p. 16). The concern raised by many practitioners was that these 'on the one hand, on the other hand' comments do little to help practitioners faced with making planning decisions on the ground. To some extent, these criticisms were justified; however, it should be highlighted that they may have been linked to the anticipation surrounding the publication of the document, as opposed to its specific content. In defence of the document, there are strengths in offering evidence based guidance which is not overly prescriptive. Where specific details are presented as a design solution there becomes a risk that evidence changes and what specific guidance had been correct at the time becomes outdated and no longer accurate. One example where this has occurred, even within a document considered to lack the required

detail, relates to the recommendation regarding cul-de-sac design. The guidance states that 'Homes in cul-de-sacs can be highly secure, but the cul-de-sac should be short and straight (to allow visibility to the other end)' (ODPM/Home Office, 2004, p. 20). As is high-lighted within Chapter 6, recent research by Armitage *et al.* (2010) and Johnson and Bowers (2010) has revealed that the safest design of cul-de-sac is one which curves (i.e. is sinuous) so that the end of the cul-de-sac is not visible from the connecting street. Unfortu-nately, whilst basing the guide on the research and evaluation which did exist, the *Safer Places* project team did not have the benefit of such detailed research. Overly prescriptive guidance also risks stifling creativity and creates a tendency for architects/developers to design down to the level required. As is highlighted by Ekblom (2011b), this can be resolved within guidance by careful consideration of the discourse in which recommendations are expressed. *Functional* dis-courses, such as stating a crime reduction purpose/consideration, or *mechanistic* discourses such as 'facilitating surveillance' or 'encour-age through-movement' allow more design freedom than *technical* discourses such as 'foliage must be no higher than two metres'.

As was highlighted above, *Safer Places* presents the seven attributes of safe and sustainable places. These are presented as statements sup-ported by evidence and examples of what a successful place would look like. The attributes are very similar to the basic principles of CPTED, and with the exception of access and movement (which lacks some clarity), there is little room for dispute or disagreement. Access and movement encourages through movement but specifies that this should not compromise security. It also highlights the risk of leaky culs-de-sac. Structure relates to road layout and land use. Surveil-lance emphasises the importance of natural, informal surveillance from residents and users of space. This encourages active frontages and the orientation of buildings to ensure that they face the street. Ownership refers to the promotion of design which encourages terri-torial responsibility and community; this relates to defensible space and the importance of clearly delineating public, semi-public, semi-private and private space. Physical protection refers to the target hardening of properties but highlights how this should be propor-tionate to the level of risk. Activity encourages 'appropriate' presence of human activity to act as eyes on the street and to informally sur-vey the area. Finally, management and maintenance highlights the

importance of good quality design and materials and the need to continue to monitor and manage an area following development.

Alongside these policy and guidance documents, *Planning Policy Statement 3: Housing* (DCLG, 2011b), originally published in 2006, highlights the importance that planning authorities should place upon the creation of safe developments. This policy statement highlights how local planning authorities should design policies that set out the expected quality of development within their area, and that (amongst others), these should be aimed at 'Creating places, streets and spaces which meet the needs of people, are visually attractive, safe, accessible, functional, inclusive, have their own distinctive identity and maintain and improve local character' (DCLG, 2011b, p. 8). This policy statement also emphasises how safety should be considered when assessing the design quality of proposed developments: 'Matters to consider when assessing design quality include the extent to which the proposed development . . . [i]s easily accessible and well-connected to public transport and community facilities and services, and is well laid out so that all the space is used efficiently, is safe, accessible and user-friendly' (DCLG, 2011b, p. 8).

The code for sustainable homes

An additional policy area which has helped to incentivise and encourage the consideration for crime prevention within the design and build of housing is that of sustainability. In 1999, the then Labour Government launched the White Paper entitled *A Better Quality of Life* (DEFRA, 1999). The main message of this paper was that the measurement of sustainability should move away from a focus upon economic success to a measure which considered sustainability against a range of other factors. In this White Paper, the then Prime Minister commented:

> Now as we approach the next century, there is a growing realisation that real progress cannot be measured by money alone . . . we know the value of money. We know that it can bring comfort, security, and new opportunities. But we also know that money isn't everything. Feeling safe on our streets or in our homes. Enjoying our rich and diverse countryside. Knowing that a modern, dependable NHS is there when you need it. Living in strong communities. These all matter too . . . That is why sustainable

development is such an important part of this Government's pro-
gramme . . . Talking about sustainable development is not enough.
We have to know what it is, to see how our policies are working
on the ground.

<div align="right">(DEFRA, 1999, no page number)</div>

It is interesting that the first non-monetary factor identified by
the Prime Minister concerned 'feeling safe on our streets or in our
homes'. The crucial role played by crime and disorder in mov-
ing people from otherwise satisfactory homes was thus recognised
implicitly although, as will be seen, this was not fully translated into
prominence within the *Code for Sustainable Homes*.

In an attempt to identify, monitor and measure how policies were
working on the ground and helping to encourage sustainability, the
White Paper introduced no fewer than 147 indicators. Some of these
built on indicators devised in an earlier (1996) strategy and some
were newly introduced to reflect apparent recent changes in society.
It was within the 1999 strategy that the level of crime and the fear of
crime were first introduced as indicators. The importance of includ-
ing these two indicators came as a recommendation from a public
consultation.

Building upon the 1999 strategy, in 2005 the Government pro-
duced its sustainable development strategy document *Securing the
Future* (HM Government, 2005). This strategy, again, aimed to reflect
societal changes and to review the indicators formed for the 1999
strategy. In the 2005 report, the number of indicators was reduced
from 147 to 68, to focus more clearly and concisely on a smaller and
more targeted set of key priorities. The 2005 strategy includes many
references to the importance of the reduction of crime and the fear of
crime within sustainable communities. This is considered within the
definition of sustainable communities, within strategy indicators and
within measures of inequality. Importantly, the strategy states that
sustainable communities should be 'Active, inclusive and safe' and
offer 'low levels of crime, drugs and anti-social behaviour with vis-
ible, effective and community-friendly policing' (HM Government,
2005, p. 184). The strategy also states that sustainable communi-
ties are 'Well designed and built' and offer 'buildings and public
spaces which promote health and are designed to reduce crime and
make people feel safe' (HM Government, 2005, p. 185). The strategy

identifies key indicators which will be used to measure progress, and these include the recorded crime categories of violent crime, vehicle crime and burglary, as well as fear of car crime, burglary and physical attack.

From these strategy documents emerged the most recent measure of sustainability, the *Code for Sustainable Homes* (DCLG, 2008). This is produced by the Department of Communities and Local Government and was first introduced in England in April 2007. The *Code* is a voluntary standard designed to improve the sustainability of new homes by setting a single framework which can be used to measure standards of sustainable design. It can be used by developers to differentiate themselves within the market, but also by home buyers who want to assess the environmental impact of a dwelling.

The *Code* measures the sustainability of a home against nine categories. These are:

- Energy and CO2 emissions

  - Of relevance to crime prevention, this category includes limits on the wattage of security lighting. One credit is available for limiting wattage; alternatively, one credit is awarded if no security lighting is installed.

- Water
- Materials
- Surface water run-off
- Waste
- Pollution
- Health and well-being

  - Of relevance to crime prevention, this category includes sound insulation to minimise the likelihood of noise complaints. Four credits are available here.

- Management

  - Of relevance to crime prevention, this category includes security requirements. Complying with Section 2 (physical security) of SBD standards means that two credits are awarded.

- Ecology

The categories within the *Code* are not accorded equal importance and a weighting system is used which is based upon 'extensive studies involving a wide range of stakeholders who were asked to rank . . . a range of environmental impacts' (DCLG, 2008, p. 12). The specific sections of the *Code* which relate to crime prevention are detailed below.

There are four mandatory categories for which no credits are available (environmental impacts of materials, management of surface water run-off from developments, storage of non-recyclable waste and recyclable household waste and construction site waste management). These must be met to achieve a minimum one star rating. Two further issues are mandatory, but do receive credits – these are dwelling emission rate and indoor water use. The categories which relate to crime prevention are all non-mandatory and awarded credits. The *Code* level (number of stars) is calculated based upon the number of points gained.

- 36 points = one star
- 48 points = two stars
- 57 points = three stars
- 68 points = four stars
- 84 points = five stars
- 90 points = six stars

The main section of the *Code* which considers and incentivises crime prevention is Management Four: Security, for which a maximum of two credits (weighted at 1.11 per credit) are available. This section is non-mandatory. Two credits (2.22 points) are obtained where an ALO or CPDA from the local police force is consulted at the design stage and their recommendations are incorporated into the design of the dwelling (an actual SBD certificate is not required). It is thus possible that even the marginal security considerations required under the *Code* fall short of the standards which have been demonstrated to be crime-reductive (see Chapter 2).

The *Code* states that 'The sustainability rating a home achieves represents its overall performance across nine code design categories' (DCLG, 2008, p. 7). Yet it is possible to score as high as Code Level Six without even considering security. Consulting with the local ALO/CPDA and implementing their recommendations will provide

two credits (2.22 points). This does not require the developer to gain a SBD certificate, but to meet the physical security standards of SBD. Given that an equivalent number of points are more easily gained through simpler, less costly and less time intensive measures (for example, installing a water butt), many developers have opted for less cost-intensive options to achieve the required points.

Housing corporation/homes and communities agency

The Homes and Communities Agency (and prior to that the Housing Corporation) also includes incentives to encourage the development of secure housing – be that housing which meets the SBD standard, or the incorporation of some of the features of SBD. These features are set out in the Housing Corporation's *Design and Quality Standards* (2007), and, in addition, for land owned or managed by the Homes and Communities Agency, within the English Partnerships' (2007) *Quality Standards*. The Housing Corporation's *Design and Quality Standards*, which replaced the original *Scheme Development Standards*, sets out the requirements and recommendations for all new homes which require Social Housing Grants. Security is referenced within the Core Performance Standards and within the Recommendations Annex. Under the Sustainability Core Performance Standard, there is a requirement (for homes receiving Social Housing Grants) to meet the minimum of level three – *Code for Sustainable Homes*. The standard also specifies that, in achieving this, developments must include full points from the management category – Security. As was described above, this does not require full certification to SBD standard, but it does require consultation with the local police ALO/CPDA. In addition to the Core Standards, the Recommendations Annex presents enhanced standards that will improve the design quality of the development and these recommendations include both obtaining SBD certification and ensuring that the scheme design reflects the advice obtained from the local police ALO/CPDA. The document states that developments which meet Recommended standards will 'subsequently find reflection in the Corporation's assessment of affordable housing providers through the Value for Grant Comparator tool' (Housing Corporation, 2007, p. 2). It goes on to state that 'Some enhanced aspects will be reflected in the Grant Index during the bid assessment process and improve the value for money ranking' (Housing Corporation, 2007, p. 3). This

is a very similar process to that set out in the previous *Scheme Development Standards* (Housing Corporation, 2003) which only included SBD as a 'recommended' criterion but highlighted how Registered Social Landlords that build schemes to a standard over and above the essential criteria (to incorporate recommended items) would achieve Enhanced Quality Assessments. These were reflected in compliance audit results and in turn influenced the level of future funding from the Housing Corporation.

In addition to the Design and Quality Standards, the Homes and Communities Agency have also (between 2008 and 2011) imposed English Partnerships' *Quality Standards* for developments on land where they retain an interest. This includes developments on land which is entirely or part owned by the Homes and Communities Agency, or public land regeneration programmes which they manage. Where these standards are applied, all development on this land must be designed and developed in line with the principles of SBD. Although these standards remain active at the time of writing, there are suggestions that they will be phased out over the coming years.

The Localism Act (2011) and national planning policy framework

Whilst it is clear that the period of 1998–2011 saw some major improvements in the consideration for crime prevention within planning policy, reforms introduced in 2011 have brought substantive changes which (at the time of writing) have yet to be fully implemented. The Localism Act (2011) introduced major alterations to the planning system within England – the primary change being that regional planning is abolished and replaced with a greater focus upon neighbourhood planning. This will see the introduction of new neighbourhood level plans, the abolition of regional strategies, the restriction on local planning documents – discouraging supplementary planning guidance or documents – and of greatest relevance within the context of this chapter, the replacement of all existing Planning Policy Statements with one single National Planning Policy Framework. Whilst the aims of the Act are expressed in terms which suggest an emphasis upon community empowerment and local decision-making, there is no doubt that its introduction is a response to the need to stimulate growth within development in England and Wales. The number of housing starts saw a dramatic

decrease in 2008/2009, from 163,370 in 2007/2008 to 80,580 in 2008/2009 and 87,690 in 2009/2010 (House of Commons, 2011a). Whilst this fall reflects a period of severe economic decline, many of the changes introduced by the Localism Act were made with the aim of reducing both cost and delay in developing within the existing legislative and policy framework.

The Localism Act (2011) abolishes regional planning in favour of neighbourhood planning and introduces Neighbourhood Development Plans and Neighbourhood Development Orders. Neighbourhood Development Plans allow communities to come together through a local parish council or neighbourhood forum to produce a plan which sets out policies in relation to the development and use of land within a neighbourhood area. The Plan will outline what development will take place and what that development will look like – the aim being to place decisions in the hands of those communities where development will be taking place. As was stated by Eric Pickles, the Secretary of State for Communities and Local Government:

> The Bill [now Act] is based on a simple premise: we must trust people who elect us and we must ensure that we trust them to make the right decision for their area . . . by pushing power out, getting the Government out of the way and letting people run their own affairs.
>
> (House of Commons, 2011b, p. 3)

According to the coalition government, the introduction of Neighbourhood Development Plans will 'Allow communities to come together through a local parish council or a neighbourhood forum and say where they think new houses, businesses and shops should go, and what they should look like' (Department for Communities and Local Government, 2011a, p. 11).

Pease and Gill (2011) highlight two of the potential benefits of allowing those who live within a community and know the local issues and concerns to make decisions regarding planning and development. However, they also highlight the potential risk that the active involvement of all sectors of the community may be unlikely and that those residents most at risk from poor design (those in high crime areas who cannot afford to move should crime worsen) could be those least likely to voice their concerns.

> At the risk of sounding elitist, it may be that residents in the most prestigious housing types are potential community leaders and volunteers for Big Society purposes. They may be among the most active parents in local schools. Yet they will on average be those most economically able to move home.
>
> (Pease and Gill, 2011, p. 35)

Pease and Gill (2011) also highlight two contrasting comments which present the two possibilities which could emerge from the shift towards local decision-making. The first presents the ideal scenario, the second a less desired, but perhaps more realistic response.

> When people are given the chance and are treated as if they are capable they tend to find they know what is best for them and can work out how to fix problems they have and realise their dreams. Bringing local knowledge based on everyday experience to bear on planning and decision-making usually leads to better results. Evidence shows that when people feel they have control over what happens to them and can take action on their own behalf, their physical and mental wellbeing improves. When individuals and groups get together in their neighbourhoods, get to know each other, work together, and help each other, there are usually lasting benefits for everyone involved: networks and groups grow stronger, so that people who belong to them tend to feel less isolated, more secure, more powerful and happier. It serves the well-established principle of subsidiarity: that matters should be handled by the smallest, lowest or least centralised component authority.
>
> (New Economics Foundation, 2010, p. 2)

This comment presents a desired effect of localism; the second presents a situation where certain sections of communities feel less inclined to become involved in local decision-making, partly due to feelings of isolation but also due to the more pressing demands and responsibilities of coping with day-to-day survival.

> There are examples of troubled communities making marked improvement in their physical environment, levels of civic participation, opportunities, well-being and quality of life. But these

> are not commonplace . . . Resilience – the ability to deal with life's problems – is an important component of individual well-being, but promoting it is not an alternative to removing the systematic barriers that produce these disadvantages.
>
> (New Economics Foundation, 2010, p. 4)

The Plan can be produced by a parish council or a body designated by the planning authority as a neighbourhood forum. A neighbourhood forum must contain a minimum membership of 21 individuals residing or working within the designated area. Its membership must also have been drawn from different places within the neighbourhood area and from different sectors of the community. Whilst the emphasis is on deregulation, there are procedures in place to ensure that Plans are produced with guidance and support from local authorities, and assessed by an independent examiner to ensure that what they contain is in line with national planning policy (the National Planning Policy Framework), with the strategic vision for the local area (the Local Plan) and that it is compatible with EU obligations and requirements (such as the Human Rights Act, 1998). Once the Neighbourhood Plan is approved by the independent assessor, a local referendum must be conducted to ensure that it has local support (if 50 per cent of those who vote are in favour, the planning authority must implement the plan).

The Localism Act also introduces Neighbourhood Development Orders which, subject to independent examination (to ensure that the proposals are in line with EU, national and local policy) and approval through a local referendum (as above), will allow full or outline planning permission to be granted without the direct permission of the local authority.

At the time of writing, 108 communities had joined the 125 'frontrunner' communities in trialling the new rights in neighbourhood planning introduced by the Localism Act (2011). These include the development of Neighbourhood Development Plans and the ability to grant automatic planning permission through Neighbourhood Development Orders. In this initial pilot stage, communities have each been awarded £20,000 to support their work. Initial indications (from the 108 communities joining the frontrunners) suggest that the majority of the community groups are Parish Councils[2] (65 per cent), with a further 27 per cent being Town Councils.[3] Only a small

proportion (17 per cent) appear to be neighbourhood/community groups (New Planning Powers Continue to Be a Hit with Communities, 2012).

In addition to the introduction of Neighbourhood Development Plans and Orders, the move from regional towards neighbourhood planning and emphasis upon deregulation has also seen the introduction of the 59-page National Planning Policy Framework (DCLG, 2012), which replaced 44 documents including Planning Policy Statement 1: *Delivering Sustainable Development* and Planning Policy Statement 3: *Housing.* As well as replacing key Planning Policy Statements, the National Planning Policy Framework discourages the production of Supplementary Planning Documents such as those discussed above.

> Any additional development plan documents should only be used where clearly justified. Supplementary planning documents should be used where they can help applicants make successful applications or aid infrastructure delivery, and should not be used to add unnecessarily to the financial burdens on development.
>
> (DCLG, 2012, p. 37)

Although changes in the planning system will place greater power and more decision-making with local communities, the National Planning Policy Framework emphasises how Neighbourhood Plans and Neighbourhood Development Orders must be based upon the principles contained within the local authority Local Plan, and that the Local Plan must in turn be based upon the guiding principles of the National Planning Policy Framework. In guiding the production of Local Plans, the National Planning Policy Framework states the importance of the consideration of security within these plans.

> Local planning authorities should set out the strategic priorities for the area in the Local Plan. This should include strategic policies to deliver . . . the provision of health, security, community and cultural infrastructure and other local facilities.
>
> (DCLG, 2012, pp. 37–38)

As Figure 3.1 highlights, the National Planning Policy Framework requires local authorities to produce Local Plans which are in line with the principles contained within national planning policy and
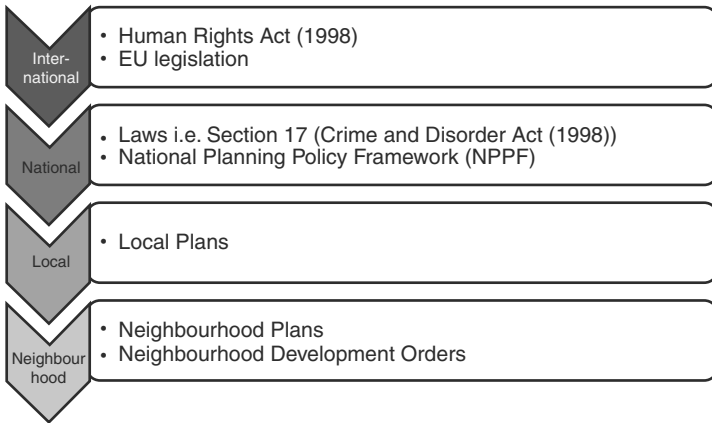
Figure 3.1 National planning policy framework

which meet the requirements of EU legislation and international law. The Local Plans must be developed in line with the National Planning Policy Framework (paragraph 151, page 37) and Neighbourhood Plans and Development Orders must support the strategic development needs set out in Local Plans (paragraph 184, page 44).

At the time of writing the National Planning Policy Framework remains in draft format. However, it does contain key references to the importance of considering crime prevention within planning and development, and crucially, these references refer to the consideration of crime prevention within the production of Local and Neighbourhood Plans.

> Local and neighbourhood plans should develop robust and comprehensive policies that set out the quality of development that will be expected for the area. Such policies should be based on stated objectives for the future of the area and an understanding and evaluation of its defining characteristics. Planning policies and decisions should aim to ensure that developments . . . create safe and accessible environments where crime and disorder, and the fear of crime, do not undermine quality of life or community cohesion.
>
> (Department for Communities and Local Government, 2012, p. 15)

The government's housing strategy

Although it is not a policy document, at the time of writing the coalition government had recently published their Housing Strategy, designed to outline plans for housing development within England and Wales. Continuing the theme of the Localism Act, the Strategy emphasises the importance of limiting regulation within the planning system as a means of stimulating growth and placing control with the communities in which development would be taking place. The Strategy repeats the assertion that communities know where they want development to take place, and what they want homes to look like.

> Neighbourhood planning will put power back in the hands of local residents, businesses, councils and civic leaders. Communities will be able to: (1) Choose where they want new homes, shops and office to be built. (2) Have their say on what those buildings should look like.
>
> (HM Government, 2011, p. 12)

The impact of housing design on safety and security (as well as economic, social and environmental sustainability, health and well-being) is highlighted within the Strategy, which emphasises how 'Well thought-through design can also improve the safety and security of homes and neighbourhoods as well as creating accessible and inclusive environments' (HM Government, 2011, p. 56).

Summary

It is clear from this chapter that regulation, policy and guidance relating to planning for crime prevention within England and Wales have seen a period of great progress, but that this development of evidence based policy and guidance risks becoming lost in the drive for deregulation by the existing coalition government. It is difficult to predict the impact of the move towards neighbourhood planning, and there are many positive possibilities of placing decision-making in the hands of those who reside and work within an area. These people are more likely to know what crime problems exist and can inform the understanding of what designs may work well within a specific context. However, there is concern regarding the extent

to which these communities can make decisions regarding the finer detail of design, with limited resources from police ALOs/CPDAs and with reduced guidance and policy documentation. For this reason, it is essential that these recent and imminent policy changes are supported by the dissemination of clear, evidence based guidance such as that supported by the Home Office, ACPO and Commission for Architecture and the Built Environment (CABE) Design Council (Armitage, 2010a; 2010b; 2010c).

Implications for CPTED

This review of the consideration of crime prevention within planning policy, guidance and regulations (within England and Wales) has shown the extent to which priorities, and the resources to implement them, can change and have changed. Whilst the steps taken over the last 20 years may now appear futile, even wasteful, there are always lessons to be learnt from the consideration of previous approaches and change must be seen as an opportunity to pursue a different approach. So as the pendulum swings from regulation and centralisation towards deregulation (as it often does in the governance of many countries), CPTED, and the institutions that support its implementation, must adapt and find ways of maintaining (or even extending) its influence which do not depend on enforcement through policy or regulation.

Whilst much of the evidence based policy which influenced planning decisions has now gone, the process of highlighting the influence of design on crime has left its mark. The influence which crime reduction can have on the achievement of sustainable communities has been recognised, and whilst the specific *Code* or documentation may no longer apply, the case has been made for future governments within England and Wales (or elsewhere in the world) to consider. The *Safer Places* guidance still remains in place and it is this document which acts to inform many practitioners. Whilst PPS1 (which directs planners to the considerations contained within *Safer Places*) no longer exists, the National Planning Policy Framework does highlight the importance of crime prevention.

Moving away from regulation and centralised decision-making will require new approaches. The emphasis on neighbourhood planning places control in the hands of communities, the people who know what problems exist within their neighbourhood. With guidance,

these could be the most appropriate people to say what development should take place and what it should look like. The emphasis, for those hoping to maintain the importance of CPTED considerations, should shift towards a focus upon consumer pressure for its influence, rather than relying upon regulatory or statutory requirements. Where consumers (residents) know the benefits that can be achieved through the appropriate design of residential housing, they can make informed decisions, which could see the influence of CPTED elevated – after all, what resident would not choose to design out crime when given accurate information and guidance? The existing national planning policy recommends that security should be considered within the planning process. It emphasises how Local Plans must reflect national policy, and how Neighbourhood Plans must reflect local planning policy. We have an, albeit lighter, planning system which maintains the importance of crime prevention within the planning system. Now comes a period where communities, local planning authorities and those tasked with crime reduction should think outside the box, consider new ways to impart their message and incentivise the implementation of CPTED. Many of the existing incentives may have been lost, but the message conveyed whilst creating those incentives still remains.

4

International Perspectives on Planning for Crime Prevention

Introduction

This chapter presents a review of the different approaches to embedding crime prevention within the planning system of four different countries – Australia, the Netherlands, Scotland and the United Arab Emirates (focusing specifically upon the region of Abu Dhabi). Whilst a review of four countries cannot be considered exhaustive, this does present an attempt to highlight the similarities and differences between these countries and the approach taken in England and Wales, and to consider the challenging of transferring CPTED principles to different countries and cultures. Australia, and specifically New South Wales (NSW) is included for two reasons. The first is that legislation has been enacted which requires new developments to be assessed for crime risk. This bears similarities to the approach adopted in Greater Manchester (England); however, this is state-wide legislation, as opposed to local planning policy. The second reason for including NSW is the means by which this legislation is delivered, which is primarily through the use of private security consultants and private planning companies, with little formal involvement from the police. In a time of financial constraints in England and Wales (as in many countries), when questions are being raised regarding the role and responsibilities of the police, privatisation of specific duties and the associated concerns that this raises regarding legitimacy and professionalism, this model should be considered for its strengths and weaknesses and for its relevance to England and Wales. The Netherlands is considered for

its comprehensive model of delivering CPTED within the planning system – a model which includes legislative requirements, planning policy and guidance, incentives and a tool to aid the process of delivery. Scotland is considered as an example of a country, very similar to England and Wales, which has succeeded in requiring the consideration for security within building regulations. Finally, Abu Dhabi within the United Arab Emirates is considered as a region recently commencing the process of developing planning policy and guidance specific to crime prevention. One of the key considerations here is the challenge of transferring what might be referred to as 'traditional' CPTED values to an area very different in culture and climate.

New South Wales, Australia

This chapter commences with the case study example of the delivery of CPTED within the state of NSW, Australia. As was highlighted within the introduction, NSW is selected as a case study for two primary reasons. The first is that, unlike England and Wales, the state of NSW has succeeded in enacting legislation to require the consideration of crime risk within the development process. This means that, however this is delivered on the ground (in terms of process and implementation), all major developments are required under law to receive a crime risk assessment to identify potential crime and disorder risks associated with the proposed development. The second rationale for including NSW relates to the approach taken regarding the implementation of this legal requirement – one in which the primary agents involved in the delivery are private, funded security consultants, as opposed to England and Wales where delivery is predominantly within the public sector, in the form of warranted or civilian police. This is particularly interesting given the current discussions regarding the role of the police within England and Wales, where crime prevention fits within a service facing financial constraints (Hirschfield *et al.*, 2013), and the move (within some police forces) to civilianise and privatise the delivery of this crime prevention function. Issues of concern and lessons to be considered include legitimacy and risks relating to independence of decision-making, and also the quality of a service delivered in the absence of what some may consider to be vital skills, intelligence and experience which (it could be argued) can only be provided by the police.

Legislation, planning policy and guidelines

In 2001, the then Department of Urban Affairs and Planning (DUAP) within NSW introduced *Crime Prevention and the Assessment of Development Applications: Guidelines under Section 79C of the Environmental Planning and Assessment Act* (1979). Section 79C of the Environmental Planning and Assessment Act (1979) and the associated guidelines (although not without weaknesses, to be discussed later) require that a consent authority (local authority) must consider the potential impact of that development upon safety and security, and that this should be achieved through the production of a formal crime risk assessment.

> [The consent authority must consider] The likely impacts of that development, including the environmental impacts on the natural and built environments, and the social and economic impacts on the locality...Councils have an obligation to ensure that a development provided safety and security to users and the community.
>
> (DUAP, 2001, p. 2)

The guidance states that crime risk assessments must be conducted for developments which, in the council's opinion, pose a risk to safety and security. The findings from the crime risk assessment can then be used to justify the modification of a proposed planning application, or to refuse the application on the grounds of crime risk.

The guidelines do not specify who should produce the crime risk assessment, or the format in which it should be delivered, but they do encourage local councils to formalise the crime risk assessment process (through Development Control Plans, through other local council policy or through formal agreements/protocol with the police) and also that a crime risk assessment must use police recorded crime data and Australian Bureau of Statistics socio-economic data to inform the prediction of risk. Part A of the guidelines defines a crime risk assessment as being a 'systematic evaluation of the potential for crime in an area. It provides an indication of both the likely magnitude of crime and likely crime type. The consideration of these dimensions (crime amount and types) will determine the choice and appropriate mix of CPTED strategies' (DUAP, 2001, p. 3). The guidelines also state that 'When conducting individual crime risk

assessments, the consequences and likelihood of crime are identified and measured using recorded crime statistics, hot spot analyses and Australian Bureau of Statistics (ABS) socio-economic data' (DUAP, 2001, p. 3).

Whilst this legislation does require local authorities to consider the impact of development on safety and security, there are weaknesses associated with the guidelines, primarily the lack of content regarding *how* to assess crime risk, and consequently, how to mitigate any risks identified. The guidance is very short – just five pages in length – and includes no illustrations, case studies or photographs. As is highlighted above, there are suggestions regarding what should be considered within the risk assessment and how this might be implemented (through Development Control Plans, other local council policy or formal agreements with the police); however, there are no examples of good practice or indications of the strengths and weaknesses of different models of delivery. In an attempt to establish the extent to which (if at all) this process has been formalised, Clancey and Yue Kim Chiu (2011) conducted a review of NSW council policies. They found that there are three ways in which councils appear to have formalised the process of embedding CPTED within their policies. These are: (1) Including CPTED design advice within a Crime Prevention Plan (similar to the Crime and Disorder Audits introduced in England and Wales through the 1998 Crime and Disorder Act); (2) Including CPTED within their Development Control Plan; (3) Producing specific CPTED Development Control Plans (similar to the Supplementary Planning Guidance within England and Wales). The review found that, although many councils had produced Crime Prevention Plans, only one referenced CPTED as a crime prevention measure. Of the local authorities reviewed, five included CPTED within their Development Control Plan; these varied from a brief introduction to the principles of CPTED to detailed design requirements relating to surveillance, territoriality, physical security, access and management/maintenance.

Although reference to crime prevention and CPTED within local planning policy is one method of formalising the process of requiring developments to consider crime risk, the Section 79C guidelines do highlight the importance of formalising an agreement or protocol with the local police. The review of council Development Control Plans revealed no reference to formal agreements regarding the

process of producing crime risk assessments and a study conducted by Clancey *et al.* (2011) suggests that the police are rarely involved in this process.

Process and delivery

NSW does not have a role equivalent to England and Wales' ALO/CPDA. The closest role which holds some responsibility for the delivery of CPTED is the police Crime Prevention Officer (CPO). The police CPO is required to receive CPTED training (a four-day course) and this training involves the assessment of crime risk within planning applications. However, much like the Crime Prevention/Reduction Officer role within England and Wales, this is a diverse role, with many CPOs covering a huge geographical area and holding a vast array of additional responsibilities and duties. This restricts the ability of those delivering this role to become involved in the systematic review of planning applications. Whilst the legislation and associated guidance encourage the formalisation of the process of assessing crime risk, a review by Clancey *et al.* (2011) suggests that the police do not play a key role in the process of assessing crime risk.

Clancey *et al.* (2011) conducted an analysis of 33 Crime Risk Assessment reports submitted to the required public website between 1 January 2007 and 31 October 2010; from this analysis they identified several key concerns regarding the delivery of this legislative requirement. The first relates to the extent to which the authors of these reports were entirely neutral in the planning process, with no vested interest in the outcome of the council's decision. Clancey *et al.* (2011) found that 24 companies compiled the 33 reports. Eleven of these companies were planning firms, eight were social planning firms, seven were property development companies, five were private crime prevention consultants and two were engineering firms – no reports were compiled by the police.

The second concern relates to the content of the reports and the extent to which the requirement to use recorded crime statistics, hotspot analyses and ABS socio-economic data is being complied with. Clancey *et al.* (2011) review of 33 reports revealed that the length of reports ranged from 2 to 35 pages, with the mean number of pages being 11.5. The review found that some form of crime data was presented in just 16 of the 33 reports, with those containing

reference to crime data presenting a broad and shallow analysis which gave little indication of specific crime risk in terms of location, crime type or *modus operandi.* Crime data was sourced from publicly available data, presented at Local Government Area and not address-point level. Subsequently, crime data were simply presented as trends for key crime categories as opposed to a detailed assessment of risk.

The NSW model of delivery has greater legislative strength than that of England and Wales, with a requirement in legislation for crime risk assessments to be conducted where a local council considers there to be a crime threat from a potential development. However, there is concern that this process of conducting crime risk assessments, produced largely by private firms (often with a vested interest in the outcome) and using area-level publically available generic crime data, is in danger of becoming a tick-box exercise, with little independent, detailed scrutiny.

> It is suggested that crime risk assessments in NSW are currently operating as little more than legitimising documents. As documents that have pretence to minimise the risks of crime and victimisation, and speak the language of risk minimisation, their utility is extremely questionable.
>
> (Clancey *et al.*, 2011, p. 252)

Strengths of the NSW model include legislative power to require consideration of crime as well as less pressure on police resources. Potential weaknesses relate to the threat to independence where a crime risk assessment is conducted by a company who may have a vested interest in seeing the development go ahead with little or no alteration to the planning application. There is also concern regarding the level of intelligence available to non-police agencies in terms of point-level data regarding crime risk.

Transferring CPTED principles

In terms of the key principles of CPTED there were very few differences between NSW and England and Wales. One of the key issues which appeared to cause concerns regarding crime risk was that of connectivity. This is in part exacerbated in NSW by the traditional design of detached single storey properties on large plots which are

Figure 4.1   Footpaths connecting residential areas

located within large areas of open space. As Figures 4.1 and 4.2 show, many neighbourhoods were connected by under-used footpaths running through open space with little or no surveillance from nearby properties.

The geographical spread of neighbourhoods makes it difficult to avoid connections which run through open space, or under-used pathways. However, crime risk can be reduced through enhanced lighting, redirecting footpaths through areas with increased natural surveillance and lowering fences to enhance surveillance from nearby properties.

Scotland

Scotland is included within this chapter as a means of highlighting the similarities and differences between England/Wales and Scotland. Whilst there are many similarities, Scotland does appear to have made greater progress in terms of embedding the consideration for security into regulation. There are, however, weaknesses in the practice of delivering CPTED within the planning system.

Figure 4.2   High boundary fences restrict surveillance

Like England and Wales, Scotland has the post of ALO whose task
it is to work at a strategic level to encourage local planning author-
ities to include security within local policy, and to assess planning
applications from a security perspective and make recommendations
to mitigate any identified risk. Whilst this post is very similar to that
of England and Wales, with the majority of ALOs being serving war-
ranted police officers, there is a major difference which has impacted
upon the consistency of delivery. Unlike England and Wales, the post
of ALO in Scotland is a tenured post of only two years. In practice,
this means that a police officer holding this responsibility would
have to move on to a new role every two years. The time taken to
develop the skills and knowledge required to perform this role, the
time required to become familiar with national and local policy, and

to build relationships with key stakeholders, suggests that an offi-cer moving on after just two years is unlikely to have had sufficient time to make a significant impact on policy and practice. This also raises problems in terms of consistency and continuity. The planning process can be lengthy, with developments often taking years from outline planning application to design and build. The close involve-ment of an ALO at each of these stages – to make recommendations, to assess changes made and to ensure that these are put in place at the development phase is crucial. Much of the success of this process relies upon relationships, communication and compromise, and for this to work effectively, consistency of personnel, and more crucially the advice that they offer, is vital (Armitage and Monchuk, 2009). The current tenure of two years for the ALO post does not encourage this stability.

In terms of policy, Scotland has made more progress than England and Wales and physical security requirements are included within building regulations. These do not state that compliance with SBD physical security requirements is essential, but they do give four options on how to comply, one of which is meeting the physical security requirements of SBD (for doors and windows)– and being the first and most recognised amongst developers, this is the most com-monly used. Whilst this is extremely beneficial in terms of requiring in-built security, the regulations are limited to compliance with the physical security element of SBD only; this includes windows, doors, locks and the like. It does not include the wider principles of SBD such as surveillance, territoriality, management and maintenance or access control.

As with England and Wales, Scotland has a national planning guid-ance document: *PAN-77 (planning advice note) – Designing Safer Places*. *PAN-77* is very similar to England and Wales' *Safer Places* and follows the principles of CPTED and covers three major themes: Context, Identity and Connection. Unlike *Safer Places*, it does go on to dis-cuss roles within the planning system, and here is refers to the SBD scheme and its importance in designing out crime.

Teedon *et al.* (2010) conducted an evaluation of Glasgow Housing Association's (GHA) programme of replacing all doors and windows with those that met SBD standards.[1] The evaluation compared crime levels before and after the changes and also between those properties which had received the changes and those which had not. The SBD

sample of properties was 2028 out of a total of 14,185 – the SBD sample accounting for 14 per cent of the total sample. Over the period of analysis (2003–2007), total housebreaking crime fell by 61 per cent within the SBD sample (after upgrades) and 21 per cent within the non-SBD sample (before upgrades). The difference between these means was statistically significant. For the period post-change ($N = 2028$) attempted housebreaking reduced by 80 per cent, housebreaking with intent by 50 per cent, theft by housebreaking by 55 per cent and total housebreaking offences by 61 per cent. For the period pre-SBD ($N = 12,157$), attempted housebreaking fell by 55 per cent, housebreaking with intent by five per cent, theft by housebreaking by 14 per cent and total housebreaking by 21 per cent. The wider GHA evaluation (GHA, 2005) also showed extremely positive results for both the quantitative analysis of crime statistics and also the qualitative analysis of residents' feelings of safety. This evaluation looked at a sample of 1571 houses which were to receive SBD upgrades to windows and doors, out of a total sample of 11,500 properties. The samples were matched according to the Scottish Index of Deprivation. Unfortunately, the qualitative sample was much smaller – just one focus group with ten residents. Crime levels were analysed for the period January 2000–December 2003 (before) and January 2004–December 2004 (after). From January 2004, housebreaking fell by 75 per cent (SBD sample). Comparing the SBD sample with a similar non-SBD sample for the same period of time (as opposed to before and after), the results revealed that for the period 2003–2004 housebreaking fell by 63 per cent in the SBD sample, 6 per cent in the non-SBD sample ad 4 per cent in Glasgow as a whole. The authors highlight how SBD had the most positive effect in houses and multi-storey flats and the least impact in inter-war tenements. It should be noted that, although SBD had a positive effect on housebreaking levels, there were areas of Glasgow as a whole where these offences decreased at a greater level than the study area – without the intervention.

Transferring CPTED principles

One of the main design issues, specific (although not unique) to Scotland, was maisonette developments which had traditionally experienced many crime and disorder problems. Figure 4.3 shows

Figure 4.3   A maisonette

a maisonette design where garages were located underneath the properties, at both the front and rear of the dwellings. Those garages at the rear had little or no informal surveillance from residents, and the design was actually acting to block all natural surveillance from residents or passers-by for those entering the maisonette building. Entry to the building was via a doorway at the end of this set of garages. The walkway leading up to this door was dark and there is little doubt that residents would feel unsafe.

   As this development was not selected for demolition, the retrofit design solution implemented by the local authority was to board up the garages. A preferred option, and one which had been carried out nearby, was to demolish and rebuild the maisonettes to SBD standards. Figures 4.4 and 4.5 show a maisonette development before and after renovation. The original development had experienced high levels of crime and flats were being sold (and often sublet) for as little as £2000. The rebuild allowed the ALO to offer CPTED advice, and the development was built to SBD standards.

Figure 4.4   Maisonette development before demolition

The Netherlands

As was highlighted within the introduction, the Netherlands is included as an international example because of its comprehensive model of delivering CPTED within the planning system. The model includes legislative requirements (in the form of secure windows and doors and compliance with the requirements of the Police Secure Housing label), an award scheme to promote designing out crime within residential housing (the Police Secure Housing label) and a clear process of delivering these in practice: Building Plan Advisors (*Bouwplanadviseur*) and the *Safety Effect Report* (*VeiligheidsEffectRapportage* [*VER*]).

Legislation, planning policy and guidelines

Unlike England and Wales (and in fact any other country that the author is aware of), the Netherlands has succeeded in developing and implementing a holistic approach to designing out crime within the planning system – one which includes legislative requirements,

Figure 4.5   Maisonette development following renovation

award schemes to incentivise the approach and a model of delivery (accompanied by tools/mechanisms) to implement that on the ground. In terms of building regulations, since 1999 all windows and doors (for new build properties) must be made from material certified and approved by the European ENV 1627:1994 Class 2 standard, or the Dutch NEN 5096 Class 2 standard. Whilst other countries (namely Scotland in the UK) have succeeded in requiring consideration for security within building regulations, the Dutch government have taken this a step further in requiring (since 2004) that all new build properties are built in accordance with the Police Secure Housing label (or equivalent). In practice, this means that not only is the physical security element of CPTED considered, but also the additional principles relating to surveillance, territoriality and management and maintenance.

In addition to building regulations, the Netherlands also has an award scheme: Police Label Secure Housing. The award is managed by the Dutch government (having been originally developed and managed by the police) who have adopted the label into planning

policy and guidelines. The scheme was first developed in 1994 and became nationwide in 1996. Whilst taking the UK's SBD scheme as its starting point, the Dutch label has many differences. The scheme and its guidelines were developed using Alexander's Pattern Language (Alexander *et al.*, 1977), with 48 patterns of design elements that could have possible crime preventative/fear reducing effects identified. This covers every design elements from macro to micro including urban planning and design (i.e. size of district, density, height and scale, transport), public areas (i.e. lighting, play facilities and management and maintenance), layout (i.e. footpaths, gardens), buildings (i.e. house type) and dwellings (i.e. orientation of building, target hardening). Through the five levels and 48 patterns (30 basic and 18 additional requirements) each pattern has to be checked for compliance.

In terms of specific requirements, the Dutch scheme is less prescriptive than the UK's SBD scheme. The requirements include a combination of an objective (what) stated in broad terms and a concrete elaboration (how). These are presented for the 48 patterns. As a means of encouraging creativity and avoiding the risk of developers 'designing down' to specific requirements, where a developer offers a solution which differs from that set out in the 'how', but can still demonstrate the same preventative effect, then this will be considered. There are two labels: 'new' and 'existing' developments. The decision (in 2008) to split the label came as a response to many developers being unable to meet the requirements of the label, because the development had already been built. For this reason, for 'existing' developments, there are three different certificates: 'Secured Dwelling', 'Secured Building' and 'Secured Neighbourhood'. They can be issued separately; however, to achieve the full Police Label Secure Housing award, 60 per cent (or more) of all dwellings and 60 per cent (or more) of all complexes in a neighbourhood have to obtain all three certificates.

Unlike the UK SBD award, the label is only valid for ten years before the development is reassessed. This was originally a two-year period; however, the financial implications of this meant that it was increased to ten years. In the UK the award is given indefinitely, with no clause regarding failure to maintain standards. An additional difference relates to the extent to which residents are informed of the award. In the Netherlands, all residents are given written information

about the label including a certificate which can be used to achieve reductions in home insurance (reductions are approximately 10–30 per cent). This is very different to the UK, where a conscious decision was made by many police forces not to publicise the scheme for fear that it would act as a potential challenge to offenders (i.e. I can break into this 'secure' house). Research conducted in the UK (Armitage, 2000) suggests that approximately 5 per cent of residents living within SBD developments were aware that their property/estate was designed to an enhanced security standard.

Process and delivery

In terms of the delivery of the scheme, the system is very similar to that within England and Wales. Until 2009, each police region had a number of Building Plan Advisors (Bouwplanadviseur) whose role was very similar to the ALO/CPDA role. As a response to budget cuts, the role has been civilianised and is run by the municipalities either through the employment of external consultants or civilian Building Plan Advisors located in-house. As a means of supporting the implementation of the scheme, the Dutch Ministry of the Interior developed an initiative, the *VER*, which acts as an instrument to inform the process of embedding designing out crime into the planning process. The *VER* is a document/report which identifies crime risk, but it also represents a process of consultation between key partners as a means of producing the report. The completion of a *VER* is not mandatory, unless a local planning authority requires its completion – based upon the likely crime risk associated with a proposed development. Where a local authority requires the completion of a *VER*, they are then in a position to require certain security standards as a condition of planning approval.

Transferring CPTED principles

In terms of transferring the key CPTED principles, there appear to be very few differences between the UK and the Netherlands. Although there is not a difference in the basic principles, there do appear to be some differences in emphasis – one of which was the priority given to play provision within residential developments. In contrast to England and Wales, designing out crime within residential housing within the Netherlands places great importance on

ensuring that social space is provided for different age groups. Visits to residential sites revealed one neighbourhood which included a traditional play facility for those aged zero to six (see Figure 4.6), a basketball/netball/football court for those in the older age group (see Figure 4.8) and a social seating area for teenagers wanting to congregate within a safe space (see Figure 4.7). Each of these facilities is integrated into the development, with natural surveillance from nearby properties – particularly for the play provision aimed at the younger age groups (see Figure 4.6).

Figure 4.6   Play provision integrated into the development

Figure 4.7   Seating areas for older children

Again with more of a difference in emphasis as opposed to underlying principles, the Dutch approach to implementing CPTED focuses to a greater extent on the whole environment (from macro to micro). In practice, this means that crime prevention is considered from the concept/pre-planning stage in the master-planning of a neighbourhood. This might include the design of a local train station to maximise natural surveillance (see Figure 4.9) right down to the consideration for theft of mail within multi-dwelling complexes. Figure 4.10 shows how the mail box is slanted to discourage residents from accidentally leaving their mail on top. Another example of design at the micro level is the design of public benches to deter rough sleepers. As Figure 4.11 shows, these public benches have arm rests which would make it difficult to stretch out along the bench.

Abu Dhabi (United Arab Emirates)

This section of the chapter differs in that it is included as an example of a region where regulations, policy and guidance, relating to

Figure 4.8   Play provision for older children

the consideration for crime prevention within the planning system, have only recently been developed (as part of a project involving the author and other researchers).[2] The task of developing planning guidance specific to crime prevention, within a system which had no such existing regulations, policy or guidance, presented a unique opportunity to investigate the viability of transferring 'traditional' CPTED principles to an area very different in terms of culture and climate and to identify the challenges of cross-cultural knowledge transfer.

Figure 4.9   A local train station designed to maximise natural surveillance

CPTED evolved in Western countries with commonalities of culture and built environment, and despite variations in climate between some of these countries, for example Australia and the UK, they still share many similarities in terms of culture, lifestyle, policing and systems of regulation. As will be highlighted below, there are many issues relating to culture, climate, architecture, crime and policing which present difficulties in terms of simply transferring policy, practice and principles from one country to another.

CPTED policy and practice cannot be mass-produced; it needs to be customised to local conditions. Interventions, and the mechanisms through which they take effect, rely upon the actions, motivations and emotions of those living and working within the surrounding area and the way in which they interact with offenders/potential offenders to demotivate and deter. As such, it is vital that consideration is given to the culture and lifestyle of residents, workers and passers-by, and the way in which they interact within the surrounding environment. The difficulties of transferring practical applications are also compounded by differences in the process of

Figure 4.10   Slanted communal mail boxes deter residents from leaving post on top

applying related policy and practice. These include engaging relevant stakeholders, understanding accountability and local governance, and aligning these priorities with existing responsibilities, regulation and policy.

Establishing how CPTED can adapt and be applied to diverse cultures, climates and countries/regions is vital for knowledge transfer and for the evolution of CPTED. This section of the chapter investigates that adaptation and the tensions/pinch-points which

Figure 4.11   Public benches designed to deter rough sleepers

can emerge. The findings are based upon a wider project, commissioned by the Abu Dhabi Urban Planning Council to effectively design from scratch a planning manual specific to crime prevention and to develop this based upon an extensive benchmarking exercise of international CPTED related regulations, policies, guidance, awards and incentives. The challenge was to take that 'good practice' and to apply that which was relevant and suitable to the local context of Abu Dhabi. Practical issues which were raised are covered in more detail in Ekblom *et al.* (2013); however, these (briefly) include: (1) Difficulties in obtaining local crime data due to issues of reporting and recording; (2) an ever changing built environment, due to the level of local development of residential and commercial districts; (3) low levels of recorded crime, thus a difficulty in engaging stakeholders who felt that everyday crime, and its prevention,

was not a priority; (4) a lack of existing CPTED related research within similar countries, cultures or climates on which to base the recommendations for policy and practice.

Transferring CPTED principles

Below is an attempt to illustrate some of the issues raised in applying CPTED principles to the Abu Dhabi context. On the grounds of brevity, this is selective, presenting a set of examples which may impact upon knowledge transfer in other countries/regions with similarities in terms of culture and climate. These tensions are presented against the seven CPTED principles of access and movement, structure, ownership, surveillance, activity, management and maintenance and physical protection.

Access and movement

One of the main tensions to arise when transferring CPTED principles to the Abu Dhabi context was the difficulty of limiting movement within neighbourhoods which have been designed to encourage pedestrian movement through the inclusion of pathways – referred to as 'sikkas'. Sikkas are pedestrian passageways which are common throughout the Emirate in both traditional and new neighbourhoods. They are designed, through their positioning between the high boundaries walls of neighbouring properties and their landscaping, to provide shade for pedestrians and, therefore, enhance walkability within and between neighbourhoods, even in the extreme heat of summer months. Whilst a key principle of CPTED is to limit access and movement, this proved to be very difficult within a region which has traditionally relied upon these shaded passageways to aid pedestrian movement.

   An additional concern which arose from this design and layout was that, whilst sikkas have been deliberately included within neighbourhoods to replicate traditional form and for use as utility corridors, many residential neighbourhoods contained an abundance of alleyways, not intentionally designed for aiding pedestrian movement, but which had been created as a result of the desire for residents to own the four boundary walls of their property, the alleyway itself a product of left-over, unallocated land (see Figure 4.12). Where a property is designed with four boundary walls which are separate from any neighbouring walls, the inevitable product of this

Figure 4.12   Unused, unallocated land between properties

design is a space between those boundaries. In the case of many residential areas, these spaces are not being used and their lack of function leaves them vulnerable to misuse (litter, graffiti, vandalism), and also to being used as a means of gaining access to, and escape from surrounding properties. An example of an unused sikka can be seen in Figure 4.12.

Ownership

Whilst many cultural traditions within Abu Dhabi encourage a sense of ownership, several tensions were identified which make the transference of ownership principles difficult. One example identified as particularly problematic was the current rate of construction across Abu Dhabi, which introduced two particular challenges for defining the ownership of space. The first was that, where land is being developed, particularly over a long period of time, it becomes difficult for those residing within an area to distinguish between private and public space and to develop territorial responses to the land surrounding their property. In any area undergoing construction, there

will always exist a difficulty in creating territorial responses whilst the area remains under development; however, where construction is taking place at the rate seen in Abu Dhabi, this lack of definition moves from a temporary risk to a permanent lack of ownership.

This is compounded by the presence of construction workers throughout an area of development, and where construction workers are migratory (working on short-term contracts) this creates an environment in which it is difficult for residents to know who is legitimately working on the site, and who is entering the space with criminal intent. Where an area is being developed, particularly at a staggered rate, there will be properties that are occupied but surrounded by undeveloped land – land where ownership is unclear.

A further complicating cultural issue is the Emirati tradition of 'gifting' plots to relatives at birth. These plots may then remain undeveloped for years or even decades. If we consider development within a country such as England, the common order of events would be for a plot to receive outline planning permission for development, with conditions on the type and number of properties. That land would be bought by a developer who would build the permitted number of properties and either sell them in phases (for a larger development) or commence sales once all properties were built (for smaller plots). In either scenario, the timescale from the purchase of land to the completion of development and sales would be approximately one to two years. Where plots of land are gifted, development would take place at a slower and much more staggered rate, with the possibility that a large villa could be surrounded by empty plots for many years (even decades). Figure 4.13 illustrates an example of land which has been gifted and has not yet been built upon, a very common sight in newer suburban neighbourhoods. This consequently creates a lack of ownership and a lack of clarity as to who should or should not be within the area.

Structure

Structure, or spatial layout, incorporates much of what is dealt with under *access and movement* and also *ownership*. It refers to the wider layout of streets and space and how this can inhibit or facilitate criminal activity. One of the difficulties of transferring this CPTED principle is the need, due to local climate, to adapt the spatial layout

Figure 4.13 Example of a 'gifted' plot which is yet to be developed

to maximise shade and breeze. The orientation of buildings and position of pathways are therefore aligned in relation to sun and prevailing winds, with crime prevention typically accorded less priority than comfort.

Surveillance

Incorporating the principle of maximising informal surveillance raised concerns relating to both climate and cultural sensitivities. Within Abu Dhabi, the cultural importance of privacy means that, very often, boundary walls are high and blank with the desired effect of restricting surveillance into the property, but consequently limiting the extent to which residents can act as crime preventers overlooking the area surrounding their property. Perimeter walls are designed to define a property's boundaries and to improve the privacy for residents by preventing inward observation from the street. This same restriction makes the implementation of this CPTED principle difficult and a balance must be struck between the desire for privacy and the crime prevention benefits of surveillance.

Figure 4.14   High boundary walls restrict levels of surveillance

Figure 4.14 is an example of a development with blank boundary walls. This, coupled with the dwelling's blank gable ends, limits levels of surveillance.

The second limitation regarding surveillance relates to the requirement for shade, particularly within the traditional sikkas which connect residential developments. Although these walkways enhance connectivity between neighbourhoods, the Abu Dhabi climate means that, unless such pathways are shaded, residents are unlikely to choose to use them. For this reason, many sikkas are designed to include landscaping, in the form of large trees which overhang the walkway and provide shade for users. Whilst this creates a shaded pathway, it very often completely restricts visibility and surveillance both along the pathway, and from properties which bound the pathway. An example of a sikka which provides shade for pedestrians, yet limits natural surveillance, is displayed in Figure 4.15.

Activity

This CPTED principle relates to the benefits of encouraging activity throughout the day and evening to provide informal surveillance

Figure 4.15   Example of a sikka providing shade for pedestrians

and 'eyes on the street'. Within the context of Abu Dhabi, the day-time heat restricts the likelihood that pedestrians will populate public areas within the day, leaving many public spaces deserted. This raises crime prevention concerns within the day. However, the heat has a positive effect of encouraging people of all ages to populate public spaces throughout the cooler evenings – thus providing informal surveillance of public space at a time when in many Western temperate climes the evening streets are deserted, or populated by the young.

The issue of gifted plots also limits activity in areas where land is undeveloped. This can create an environment in which single properties are surrounded by empty plots, with developments lacking the communal facilities to encourage pedestrian activity.

Management and maintenance

There are several issues which limit the ability to manage and maintain public space within Abu Dhabi. The first relates to the lack of a postal delivery service, with residents collecting mail from a post office. One crime prevention problem which emerges from this is that

Figure 4.16   Marketing mail left in the front gates of properties

properties lack letterboxes and, therefore, marketing material is often left tucked in the front gates (see Figure 4.16), flagging the absence of occupants.

As was highlighted under *access and movement,* the cultural importance of owning four boundary walls (as opposed to sharing with a neighbour) and the status associated with this have created areas of unused, unmanaged public space which are not large enough to act as pathways, nor to be used for public, legitimate activities. Whilst these areas should be maintained by the local municipalities, evidence suggests that they are often left unmanaged with an abundance of litter and leftover building materials, which in some cases could be used to aid access into the properties bounding those spaces (see Figure 4.17).

Physical protection

The physical protection of properties through target hardening measures raised very few tensions or conflicts. The cultural desire for privacy, reflected in high boundary walls, naturally enhances physical security; however, this risks the over-fortification of developments

Figure 4.17   An example of unmanaged public space

which may not be at risk of crime. Examples of this included excessively high, blank boundary walls which are vulnerable to vandalism and graffiti and also risk enhancing fear of crime. Rather than encouraging physical security, the challenge within Abu Dhabi was to ensure that protection was commensurate with risk, and that security did not undermine design quality. Specific concerns relating to the climate included the need to ensure that materials used for target hardening are resistant to dust and extreme heat.

Summary

The exercise of producing a planning manual, specific to crime prevention, for a region with no such existing regulations, guidance or policies proved challenging. There were tensions identified, mainly those relating to culture and climate; however, in general, the traditional principles of CPTED, those which the project team commenced with (the seven attributes of safer places, based on the UK planning guidance) remained intact. There were differences in

the priority afforded to different crimes, particularly related to sexual behaviour or alcohol consumption; however, these did little to alter the principles of crime prevention. Cynics might raise the point that Abu Dhabi, whilst differing in culture, remains fairly Westernised and that this exercise should be repeated to ascertain the transferability of principles to other contexts. The author would agree. However, this exercise marked the start of what it is hoped will be further research within different countries/regions and cultures.

Transferable lessons

This chapter has outlined the different approaches to embedding CPTED into the planning system within four different countries – Australia, the Netherlands, Scotland and the region of Abu Dhabi within the United Arab Emirates. Whilst this has highlighted differences in policy and practice, the general conclusion is that the principles of CPTED remain consistent. Issues of culture and climate raise challenges regarding the implementation of these principles in practice – for example, to maintain the importance placed upon privacy and the need to prioritise shade within Abu Dhabi. However, these challenges simply highlight the importance of considering local context and avoiding the blind application of textbook principles.

Each of these countries/regions has taken a unique approach to delivering CPTED within the planning system, and there are lessons to be drawn from these. For NSW, legislation has been introduced to allow the local authority to require a crime risk assessment for any development which they consider to pose a crime risk. Yet this legislation is not supported by guidance (the associated guidance is only five pages long); therefore there is little to support authorities in identifying who should conduct the crime risk assessment and what it should contain. As a result of this, crime risk assessments are generally delivered by private companies – largely security consultants, planning firms and developers themselves, with little or no involvement from the police. This raises concerns regarding neutrality and quality – do these firms have a vested interest in the outcome of the assessment, and can a crime risk assessment be complied in the absence of point-level police data, knowledge of local intelligence or experience in dealing with victims and offenders? This raises the importance of ensuring that legislation is accompanied by sufficient guidance as well as systems to implement those requirements.

The Scottish building regulations include the requirement to meet specific physical security standards for windows and doors; however, unlike the Dutch system, this does not extend to the wider principles of CPTED such as maximising surveillance, minimising access, maximising territoriality or ensuring that a development is managed and maintained. An additional weakness of the system in place to implement this requirement is that the ALO post is limited to a two-year tenured post; therefore, each ALO can only serve for two years before moving on to a different role. This impacts upon the level of skills and knowledge and also upon consistency of personnel and advice.

The Netherlands offers a complete (although not without some weaknesses) package which includes legislation, guidance, awards and incentives and a process for implementing those on the ground. Not only have they required security standards within their building regulations (introduced in 1999), they have gone further to require that all new build homes are built to the Police Label Secure Housing standard. In practice, this means that not only are the doors and windows of a sufficient security standard, but the wider principles of CPTED are considered within the design and layout of developments. The Police Label Secure Housing award was based upon the UK's SBD scheme, yet improvements have been made which address weaknesses within the UK scheme. The Dutch scheme is much less prescriptive, and whilst requirements are made (in the form of objectives), developers are afforded the flexibility to adapt their response to achieving these objectives – therefore, the 'how' is less rigid. This avoids the risk of stifling creativity and designing down to meet the stated requirements. The Dutch scheme has also made minor adaptations, including limiting the time period before a reassessment is required to ten years. This would address many of the criticisms of the UK scheme which relate to deterioration post-award and a failure to maintain the standards required to achieve the original award. Some of the lessons to be drawn from the Dutch approach include ensuring that legislation is accompanied by guidance and mechanisms to implement the requirements. Requiring new build properties to meet the requirements of the Police Label Secure Housing scheme, as opposed to simply physical security standards for windows and doors, not only ensures that the wider CPTED principles are incorporated into a design, but also that the

infrastructure surrounding the scheme (including police expertise, data and intelligence) is utilised.

The opportunity to develop planning guidance specific to crime prevention, in a region with little existing consideration for the subject, presented a further opportunity to explore the ease with which CPTED principles could be transferred to different countries, cultures and climates. The fact that this was conducted following an extensive benchmarking exercise to identify the existence of relevant policies and practices meant that the principles were created as opposed to imposed. Whilst several tensions were identified, including the importance of privacy and the need to maximise shade, the traditional CPTED principles remained largely intact. There were also differences in emphasis regarding what was considered to be criminal behaviour, and this must be taken into account when applying principles and practice to different countries and cultures.

Part II

What Works in Reducing Residential Crime through Design

5
The Impact of House Design on Levels of Crime and Fear of Crime

Introduction

The design and positioning of a property within a residential development can influence its vulnerability to crime. This includes the type of property (whether the property is detached, semi-detached, terraced or multi-occupancy), the orientation of the property (whether the front door faces the street) and the position of the property within a development (whether it is set back from the street, overlooked by neighbours and/or located on a corner plot). Research presented within this chapter suggests that certain types of properties experience higher levels of burglary than others, as evidenced through analysis of police recorded crime statistics. It also suggests that certain types of property are perceived to be more vulnerable to crime, as judged by offenders, police and planning professionals.

This chapter will review research conducted into the impact which house design has on crime risk, focusing upon factors such as property type, position of a property within a development and orientation. Research findings will be presented alongside practical interventions to minimise risk. Whilst it may be of interest to note that a certain property type is more vulnerable to crime, there is little point prescribing that all properties should be detached or that multi-storey developments should be avoided. The emphasis within this chapter is on identifying and anticipating risk, but also ensuring that there is consultation at the design stage to minimise the likelihood of that risk becoming a certainty.

What does the research say?

Property type

As a means of determining the relationship between design features and crime risk, Winchester and Jackson (1982) produced a risk index based upon 14 different variables which were found to be particularly effective in discriminating between houses which had experienced burglary and those which had not. Houses with a score of zero had a one in 1845 chance of being burgled during the course of one year; those possessing nine or more features had an average one in 13 chance of being burgled. The median score on the Environmental Index of Risk for victims' houses was five, compared to a median score of two for houses lived in by the general household sample. Multiple victims (those who had been burgled on more than one occasion during the period that the present household had lived there) had a median score of seven on the index. In terms of house design, Winchester and Jackson (1982) identified two factors which they found to increase a property's vulnerability to burglary. They found that where there is access at both sides of a property from the front and the back, the likelihood of burglary victimisation is increased. This suggests that detached houses are more vulnerable to burglary than those which are attached. This could also include (although their study did not identify this level of detail) terraced properties with access via an alleyway, although it is unlikely that a terraced property would have an alleyway at both sides of the individual property.

Armitage *et al.* (2010) conducted a detailed review of the impact of residential design on crime. One element of this research involved collecting data on the specific design features of 2193 properties located on 12 developments across three UK police forces. In terms of property type, the sample included a mix of four-storey plus apartment blocks (accounting for 28 per cent of the sample), terraced houses (28 per cent), three-storey apartment blocks (17 per cent), semi-detached houses (15 per cent), detached houses (6 per cent) and two-storey apartments (6 per cent). Due to the low crime counts on the sample developments (something which had not been predicted prior to the sample selection), many design features showed some relationship with crime levels, but few of these relationships were statistically significant. Although property type was not associated with

crime at a statistically significant level, the study found that burglary rates were higher in detached homes compared to other property types.

In a series of studies, Cozens *et al.* (2001, 2002a, 2002b) used photographs of five housing designs to probe the perceptions of convicted burglars, planning professionals, police and young adults to establish which property type was considered to be most vulnerable to burglary. Vulnerability was measured by perceptions of risk of being noticed or approached by neighbours, residents' pride in their property, clarity of property boundaries and potential opportunities for offenders to hide. In all studies, single dwelling units were considered to be the least vulnerable to crime, with multiple dwelling units the most vulnerable. When different groups of individuals were asked to consider the vulnerability of property types, the studies found that planning professionals considered semi-detached (followed by detached and terraced housing) to be the least vulnerable. Young adults and burglars both perceived semi-detached (followed by detached and low rise housing) to be the least vulnerable. Police considered detached (followed by semi-detached and terraced housing) to be the least vulnerable. All groups perceived the high-rise housing to be the most vulnerable to burglary.

As was highlighted within the introduction, there is little point presenting research which suggests that multi-occupancy dwellings are more vulnerable to crime unless those findings are accompanied by practical recommendations to minimise that risk. Several studies have focused upon the specific design of multi-occupancy units and design factors which impact upon crime risk. In his study of multi-occupancy units in Pruitt-Igoe and nearby Carr Village Square, Newman (1973) found that the lowest recorded crime rates occurred in the three-storey buildings, whereas buildings higher than six storeys and developments larger than 1000 dwellings suffered significantly higher crime rates. This was supported by Newman (1980) and Newman and Franck (1982). Newman (1980) and Newman and Franck (1982) also found that units with fewer apartments served by an entrance-way experienced lower levels of victimisation and fear of crime.

Hillier and Sahbaz (2009) used Space Syntax – 'a mathematical approach which takes explicit account of the street network and how each street segment connects to every other at the local and

wider area level' (Johnson and Bowers, 2010, p. 7) to analyse five years' of police recorded crime data for a London Borough consisting of 101,849 dwellings. In contrast to some of the studies presented above, Hillier and Sahbaz found that flats had the lowest risk of burglary. Confirming some of the studies presented above, Hillier and Sahbaz found that detached properties had the highest risk of burglary. The study presents the mean burglary rate for 13 property types ranging from very tall blocks to large detached properties. The findings revealed that, in general, the higher the number of sides on which the dwelling is exposed (high-rise flats not at all and detached buildings on all four sides), the more vulnerable a property is to burglary. The paper concludes that 'All classes tend to be safer in flats, but with increasing wealth, the advantage of living in a flat rather than a house increases, as does the disadvantage of living in a house' (Hillier and Sahbaz, 2009, p. 183). This study also concludes than purpose-built flats are much safer than converted flats.

Position of a property within a development

As was discussed above, Winchester and Jackson's (1982) index of risk identified the design features which increase a property's risk of burglary. As well as property type, the study also found that where a property is set at a distance from neighbouring properties, it is more likely to have experienced prior victimisation. This finding was supported by a study conducted by Armitage *et al*. (2010) which collected data relating to the design features of 2193 properties and assessed the association between these design features and crime risk. Although the research collected data relating to 31 design features of each individual property and 19 relating to the development, due in some part to the low levels of crime, only three variables were associated with crime at a statistically significant level. Of these three factors, two related to house design – being located on a corner plot (see below) and the extent to which the property was overlooked by other properties from the front and the rear. The research found that the number of other properties overlooking a dwelling was statistically associated with reduced risk of crime. Properties overlooked at the rear by three to four properties experienced 38 per cent fewer crimes (than those not overlooked), and houses overlooked by five or more properties experienced a similar reduced risk of crime (34 per cent).

Being overlooked by one or two other properties was not statistically associated with reduced risk of crime. These two studies suggest that properties set at a distance from neighbours, and those which are not overlooked by other properties experience higher levels of burglary.

Groff and La Vigne (2001) adopted the idea of designing a predictive tool to help identify burglary risk. Using Geographical Information System (GIS) mapping, Groff and La Vigne created an opportunity surface which incorporated several grids, each representing a different environmental characteristic. Each cell was given a score of one for present and zero for absent based upon the environmental variables which it possessed. The final opportunity score for each cell represented the sum of the scores for each of the variables. The results revealed that the majority of burgled cells had either an average opportunity score or higher. All repeat victims had a higher than mean opportunity score. The vast majority of cells which had not been burgled had an absence of the predictive environmental variables. Of the ten factors identified as having a significant impact on a property's risk of burglary, one related to property type. Groff and La Vigne (2001) suggested that properties located on corner plots were more vulnerable to burglary than those which were not. This finding is supported by Armitage *et al.* (2010), who found that being located on a corner plot increases a property's risk of crime by 18 per cent (as compared to properties not positioned on a corner plot).

These findings are confirmed by several studies which ask burglars to identify properties which they consider to be at risk of burglary. In a survey of residential burglars in Ireland, Taylor and Nee (1988) used simulated environment (photographs) to establish which environmental cues may have an impact upon target choice for burglars. One of the findings of the study was that burglars expressed a consistent preference for corner houses – as opposed to those located further into a development. Cromwell *et al.* (1991) used staged activity analysis (interviews and ride-alongs) with a sample of 30 active burglars as a means of establishing which (if any) environmental cues influenced target selection. One of the factors considered to influence target selection was whether or not a property was located on a corner plot – with corner plots being considered to be more vulnerable than properties located further into a development.

Table 5.1   Summary of findings relating to property type

Design Feature	Author(s)
Property being set at a distance from the nearest house *increases* the risk of burglary.	Winchester and Jackson (1982)
Property overlooked at the front and/or rear by three or more other properties *reduces* the risk of crime.	Armitage *et al.* (2010)
Having access at both sides of the property from front and back of the plot *increases* the risk of burglary.	Winchester and Jackson (1982)
Multi-dwelling units are perceived by burglars, planners, police and young adults to be *more vulnerable* to crime than single dwelling units.	Cozens *et al.* (2001, 2002a, 2002b)
Planners, young adults and burglars perceive semi-detached housing to be the *safest* property type.	Cozens *et al.* (2001, 2002a, 2002b)
Police perceive detached housing to be the *safest* property type.	Cozens *et al.* (2001, 2002a, 2002b)
Planners, police, young adults and burglars perceive high-rise housing to be the *most vulnerable* to crime.	Cozens *et al.* (2001, 2002a, 2002b)
Greater number of apartments serving an entrance-way *increases the risk* of burglary.	Newman and Franck (1980, 1982)
Greater number of storeys per development *increases the risk* of burglary.	Newman (1973); Newman and Franck (1980, 1982)
Detached properties experience an *increased risk* of burglary.	Hillier and Sahbaz (2009); Armitage *et al.* (2010)
Flats experience *lower levels* of crime than other property types.	Hillier and Sahbaz (2009)
Properties located on corner plots experience *more burglaries* than other property types.	Groff and La Vigne (2001); Armitage *et al.* (2010)
Properties located on corner plots are perceived by burglars to be *more vulnerable* to burglary than other property types.	Cromwell *et al.* (1991); Taylor and Nee (1988)

Key research findings and practical considerations

The design and position of a property can influence crime risk. This includes the design of the house in terms of property type (detached,

semi-detached, terraced, flat) and its position within a development – whether it is set back from neighbouring properties, overlooked from the front or the rear and whether the property is located on a corner plot.

The majority of studies suggest that detached properties are the most vulnerable to crime, due largely to the access to the front and back of the property from both sides of the house. Practical measures can be implemented to minimise risk, and these include ensuring that properties are oriented to face the street, with consideration for the positioning of specific rooms within a property to maximise surveillance at appropriate times of the day and night. Access to the rear of the property should be minimised through the use of fencing and lockable gates, or through the use of defensive planting to create a natural barrier. Ensuring that the boundaries of the property are clearly demarcated can also reduce vulnerability. There should be a clear distinction between private, semi-private, semi-public and public space and this can be achieved through fencing, planting or a change in road/pavement colour and texture.

In terms of multi-storey dwellings, whilst research suggests that this property type is perceived to be more vulnerable to crime, analysis of recorded crime levels reveals that flats are the safest property type. When focusing upon multi-occupancy dwellings alone, research suggests that those with a lower number of levels are the least vulnerable to crime and that minimising the number of flats accessed by an entrance-way also reduces the risk of crime.

One of the most consistent findings was that properties located on a corner plot experience higher levels of crime that those which are not. This is supported by offender accounts which suggest that burglars perceive corner plot properties to be the most vulnerable to crime. Properties located on corner plots require additional consideration regarding security. They are often more visible and exposed to potential offenders with access from a greater number of sides. The orientation of these properties can also result in less natural surveillance from neighbouring properties. Risk can be reduced by minimising access from public to private space through the use of fencing and planting. By their very nature, corner plots are more likely to be surrounded by a larger external plot and exposed on more sides to the public area. Boundaries should be clearly marked to make a clear distinction between private and public space. This

Figure 5.1   Corner plot of an apartment block

does not have to be achieved through fortification; the demarca-
tion can be subtle and include low fencing, hedges and changes in
the floor material, such as tarmac to grass. Natural surveillance from
the property itself and from neighbouring properties should be max-
imised through the careful consideration of property orientation to
ensure that rooms are positioned to maximise surveillance at key
times of the day and night. The photograph in Figure 5.1 shows the
corner plot of an apartment block where planting has been used to
create a buffer between public and semi-private space. The design
of this block has also utilised the exposure of the corner plot to
maximise surveillance of the entrance to the development and the
surrounding area.

6
The Impact of Road Layout on Levels of Crime and Fear of Crime

Introduction

The design and layout of the development on which a property is located can have a significant impact upon crime, antisocial behaviour and the fear of crime, and must, therefore, be considered as an important factor in designing out crime. Issues to consider include the layout of the road on which the properties are located (should this be a through road or cul-de-sac?), the level and type of movement into and out of a development (how many access points are there? are these vehicular or pedestrian?) and the level of movement within the development (should there be footpaths within the development and what form will these take?). These factors have the potential to impact upon crimes such as burglary dwelling, burglary other and theft of and from motor vehicles – through the provision of access to a potential target, but also offences such as criminal damage, violent crimes and antisocial behaviour – where the road or footpath itself can provide a suitable location for the offence to take place.

This chapter will review planning policy and guidance relating to the influence of road layout on crime and antisocial behaviour. This will include national planning policy, planning guidance and award schemes such as the UK's SBD scheme. The chapter will also review the findings from previous research, focusing upon issues such as connectivity and through movement and the design and positioning of footpaths and alleyways. The chapter will then present the findings from a major UK research project (conducted in 2010) which investigated the relationship between residential design and crime at

over 6000 properties on 44 developments across three police forces. Using analysis of police recorded crimes, as well as interviews with police and planning professionals, the research identified good and bad practice in the design and layout of residential developments – focusing particularly on developments which had been recognised for their innovative design. The chapter will conclude with a summary of the findings and recommendations regarding road layout and the reduction of crime and antisocial behaviour.

What does the policy and guidance suggest?

In terms of policy and guidance, the message regarding road layout is mixed. Some policy and guidance clearly encourages connectivity and through movement whilst other guidance highlights the need to limit accessibility into and within a development. Policy and guidance which recommends increased levels of connectivity includes the UK's *Manual for Streets* (Department for Transport, 2007), which highlights that street networks should be connected to encourage walking and cycling and that connectivity within and between developments is important. CABE's *This Way to Better Residential Streets* (CABE, 2009) goes further and actually discourages the use of the cul-de-sac design, arguing that this design places limits upon walkability. The UK's *Housing Strategy* (2011) also emphasises the importance of accessibility within neighbourhoods, stating that good design is 'Light, spacious, quiet homes, with adaptable and flexible indoor and outdoor spaces that connect well to local community amenities . . . Well thought-through design can also improve the safety and security of homes and neighbourhoods as well as creating accessible and inclusive environments' (HM Government, 2011, p. 56). Accessibility is also referred to within the UK Government's *Draft National Planning Policy Framework* (2011), which will replace existing planning policy statements and guidance, and states that 'Planning policies and decisions should aim to ensure that developments . . . create safe and accessible environments' (Department for Communities and Local Government, 2011, p. 33).

The UK currently has a number of planning policy statements (although the National Planning Policy Framework is likely to replace these) which make reference to the importance of the consideration of the impact of design on crime. These include: Planning Policy

Statement 1 (PPS1): *Delivering Sustainable Development* and PPS3: *Housing* which suggest that crime should be considered throughout the design and development of the built environment. Although reference is made within Planning Policy 1 (PPS1) to the need to create accessible places, this policy document (as with *Safer Places* discussed below) specifically states that this should not compromise security within the development. PPS1 specifically states that developments should 'create safe and accessible environments where crime and disorder or fear of crime does not undermine quality of life or community cohesion...' (Department for Communities and Local Government, 2005, p. 15). In addition to the overarching planning policy statements, the UK has a planning guidance document which specifically relates to crime prevention within the planning system; this is *Safer Places: The Planning System and Crime Prevention* (2004). *Safer Places* promotes seven attributes of safer places. Although one of these seven relates to access and movement, it is again made clear that in encouraging access and through movement, security must not be compromised. *Safer Places* highlights how places should have 'well defined routes, spaces and entrances that provide for convenient movement without compromising security' (Office of the Deputy Prime Minister and the Home Office, 2004, p. 16). Although *Safer Places* was welcomed as a national guidance document, it has been criticised for failing to offer specific guidance relating to access and through movement – a contentious subject within the field of designing out crime. Armitage (2007) highlights how the guidance remains ambiguous in terms of the impact of connectivity on levels of crime and disorder, with statements such as: 'Too few connections can undermine vitality, too many – and especially too many under-used or poorly thought out connections – can increase the opportunity to commit crime' (Office of the Deputy Prime Minister and the Home Office, 2004, p. 16) offering little in terms of practical assistance to practitioners tasked with making planning decisions.

The UK's SBD award scheme does not favour one road layout over another (in terms of cul-de-sac versus through road); however, it does highlight how through routes within a development provide access and escape routes and also facilitate the searching behaviour of offenders. SBD states that 'While it is accepted that through routes will be included within development layouts the designer must ensure that the development's security is not compromised

by excessive permeability' (ACPO Secured by Design, 2010, p. 10). *Secured by Design New Homes* references research evidence that high levels of connectivity create opportunities for criminals and reiterates throughout that permeability should be limited: 'Overlooking of the street from the dwellings and a high level of street activity are desirable, but are no guarantee of lower crime, which evidence proves is achieved through the control and limitation of permeability' (ACPO Secured by Design, 2010, p. 10).

Interestingly *Secured by Design New Homes* (ACPO Secured by Design, 2010), *Manual for Streets* (Department for Transport, 2007) and *Safer Places* (Office of the Deputy Prime Minister and the Home Office, 2004) each highlight how, where used, culs-de-sac should be short and linear (and not linked by footpaths). However, research (see below) by Johnson and Bowers (2010) and Armitage *et al.* (2010) highlight how sinuous (curvy) as opposed to linear culs-de-sac experience less crime (although both experience less crime than through roads).

What does the research say?

Road layout refers to the type of road serving the development on which the property is located (for example, is the road directly in front of the property a through road, a sinuous[1] or linear[2] cul-de-sac?) as well as the internal network of pathways/footpaths within, and leading out of, the development. Although Hillier and Sahbaz (2009) argue that there are insufficient empirically based studies to form any conclusions regarding the impact of road layout on residential crime, a review of the literature suggests otherwise, with many methodologically strong studies presenting clear findings relating to the impact of road layout, connectivity and permeability upon residential crime.

One of the major current debates surrounding designing out crime within residential housing is that of connectivity or through movement – often referred to as permeability. Often findings have been polarised and overstated with headlines such as 'End of the Road for the Cul-de-Sac' (Fairs, 1998, p. 1), 'Culs-de-Sac Hit the Skids' (Stungo, 1998, p. 2) and 'How Brookside Boom Helped the Burglars' (Summerskill, 2000, p. 16). Not only has such simplification proved unhelpful for those tasked with reducing crime through the design and manipulation of the environment, it has also led to unnecessary

confusion regarding a subject for which the academic evidence (as is highlighted below) appears to be relatively unambiguous. The debate centres upon the benefits of facilitating movement within an area weighed against the risks of potentially criminogenic design. For those who advocate increased connectivity, the rationale does not necessarily relate to crime reduction. The primary purpose of designing connected developments is to ensure that people can get from A to B without the need for use of a vehicle, thus reducing carbon emissions and the visibility of the car, and to avoid the need for residents to take unnecessarily lengthy routes. Whilst the cul-de-sac layout is favoured by the majority of criminological literature, urban designers would argue that there are many negative features of this layout. It increases travel distance and therefore reliance upon the motor vehicle, it is an inefficient use of land and it increases the difficulty of ensuring that public transport can travel close to these residential properties. Those who argue that crime is likely to be higher along major vehicular or pedestrian pathways do so based upon the following explanations:

• Properties on developments with high levels of through movement provide ease of entry and escape for potential offenders.
• Properties on developments with high levels of through movement are more likely to be within the activity space, and therefore awareness space, of potential offenders.
• Developments with high levels of through movement offer increased levels of anonymity for potential offenders.

The review of literature revealed several studies which support the first point – that offenders prefer permeable neighbourhoods due to the ease they offer in terms of entry, through movement and escape. These include Rubenstein *et al.* (1980), Taylor and Gottfredson (1987), and Poyner and Webb (1991). Several studies have also shown that physical changes to the internal layout of residential areas – through the closure of streets – have resulted in reduced levels of crime (Matthews, 1992; Atlas and LeBlanc, 1994; Newman, 1995, 1996; Donnelly and Kimble, 1997; Wagner, 1997; Lasley, 1998; Zavoski *et al.*, 1999; Eck, 2002; Farrington and Welsh, 2009).

   The second explanation for higher crime within permeable neighbourhoods suggests that offenders have to be aware of a

property's existence before they can select it as a target for crime. As offenders spend much of their time travelling between home, work, school or leisure activities, the properties that they become aware of are likely to be along the travel paths that they frequent. Wiles and Costello (2000) used interviews with offenders, police recorded crime data and forensic science data from the police DNA database as a means of investigating the distance which offenders will travel to offend. Their findings suggest that burglars are largely opportunistic, with the selection of a particular target taking place as they pass properties and notice their suitability. The dominant reason given by offenders for selecting a target was chance – with 63 per cent of offenders giving this response.

Additional research findings which support the premise that offenders select properties as they take part in day to day activities include Letkemann (1973) who found that burglars interviewed in British Columbia, Canada stated that they generally kept their eyes open for targets all of the time. Rengert and Wasilchick (2000) found that convicted Philadelphia (USA) area burglars usually picked their targets within a limited distance of their normal travel paths, primarily along the axis of their usual home-to-work travel path. Floyd Feeney (1986) and Gabor *et al.* (1987) found that individual choice of robbery locations was oriented or directed towards personally well known locations. Poyner and Webb (1991) also suggest that through routes allow offenders to search for potential targets.

The final rationale, that offenders prefer targets located within areas of high pedestrian movement due to the anonymity which this movement provides, is supported by Angel (1968), Suttles (1968), Brantingham and Brantingham (1975), Taylor and Gottfredson (1987), and Poyner and Webb (1991).

Many other studies also found higher levels of crime on developments with more permeability or through movement. Bevis and Nutter (1977) studied the relationship between road layout and burglary within Minneapolis, USA and found a strong association between road network complexity and crime. The study revealed that residences on grid streets experienced the highest rates of burglary, with properties located on culs-de-sac and dead end streets experiencing the lowest rates.

Garland White (1990) examined the relationship between risk of burglary and levels of permeability in 86 neighbourhoods in

Richmond, Virginia, USA. The measure of permeability was the number of roads in each area directly connected to a major traffic artery. White (1990) found that the index of permeability explained a significant amount of variation in area-level burglary rates, and after controlling for socio-economic variables, the study concluded that higher levels of permeability were associated with higher levels of burglary. Nubani and Wineman (2005) used Space Syntax measures of accessibility to examine the geographical patterns of four types of offence – breaking and entering, larceny, vehicle theft and robbery – in Michigan, USA. This study found both high local integration[3] and high connectivity to be positively associated[4] with crime. Street spaces with low integration were safer as were areas with low connectivity. Beavon *et al.* (1994) examined the relationship between permeability and crime in Ridge Meadows, Canada – the index of permeability used being the number of roads directly connected to each street segment analysed. The results revealed a positive association between connectivity and crime levels.

In their excellent study of the impact of permeability of burglary risk in Merseyside, England, Johnson and Bowers (2010) test the three hypotheses: (1) risk of burglary will be greater on major roads and those intended to be used more frequently; (2) risk of burglary will be higher on street segments that are connected to other segments, particularly where those to which they are connected have higher intended usage; and (3) risk of burglary will be lower in culs-de-sac, particularly those that are non-linear and not integrated into the wider network of roads. Their sample included 118,161 homes and used both GIS and manual identification to establish road networks[5] and police recorded crime data to measure burglary levels. The results, which controlled for socio-economic influences, revealed that, if a street segment is part of a major road,[6] all other things being equal, relative to a local road,[7] there is an expected increase in the volume of residential burglaries on that segment of 22 per cent. In contrast, for street segments classed as private roads,[8] relative to a local road, there would be a 43 per cent decrease in burglary. In terms of road network, the study suggested that for each additional link to other roads, the predicted burglary count would increase by a factor of 3 per cent. If a street segment had five more connections than another, there would be an expected increase in burglaries at that segment of 16 per cent. In terms of connectivity, the results revealed

that being linked to one other major road increases the expected count of burglary by 8 per cent. In contrast, being linked to a private road decreases the estimated burglary levels by 8 per cent. The study concludes that culs-de-sac are safer than through roads and that sinuous culs-de-sac are safer still. It should be highlighted that although culs-de-sac were manually identified, this study did not distinguish between 'true' and 'leaky' culs-de-sac, and therefore all were analysed under the same category. Based upon previous studies, this would suggest that the positive conclusions relating to culs-de-sac present a less positive picture than would have been revealed had 'leaky' culs-de-sac been excluded from the analysis. Mirlees-Black *et al.* (1998), Rengert and Hakim (1998), Hakim *et al.* (2001) and Yang (2006) also found that areas with higher pedestrian and vehicular flow experienced higher crime, with culs-de-sac experiencing the lowest levels of crime.

An ambitious, collaborative research project which took place in the UK (Armitage *et al.,* 2010) analysed the design features of over 6000 properties on 44 developments within the three police forces of Greater Manchester, Kent and West Midlands. Individual properties, their boundaries and the layout of the development on which they were located were meticulously and manually analysed and compared with prior victimisation (at property and development level). The macro strand of the research analysed crime levels at 34 developments (4091 properties) and compared this with the scores awarded by CABE Housing Audit Assessors. The Housing Audit questions relevant to road layout and connectivity were:

- Does the layout promote use of the street by those not in cars?
- Does the building/spatial layout take priority over road layout?
- Does the scheme integrate with existing roads, paths and developments?

These questions were aggregated together to create a 'layout' score. The analysis revealed that for total crime, burglary, vehicle crime and criminal damage, high scores on the layout criteria acted to increase crime. Therefore, developments which achieved the highest scores for (a) integration with existing roads, paths and developments, (b) promotion of non-car travel, and (c) ensuring roads do not dominate the spatial layout were more likely to experience higher

crime. For total crime, a one unit increase on the layout score resulted in a 16 per cent increase in crime. For burglary, a one unit increase in the layout score resulted in a 14 per cent increase. For vehicle crime the increase was 17 per cent, and for criminal damage the increase was 55 per cent.

The micro-analysis of this research project looked at the crimes experienced by 2193 properties located on 12 developments. The sample sites presented a variety of street layouts and across the whole sample 54.5 per cent of properties were situated on a cul-de-sac, compared to 45.5 per cent on through roads. The analysis utilised data collected by the fieldworkers (using a detailed environmental features checklist) to establish which particular design features were associated with higher levels of crime. The analysis supported the findings of the macro-analysis, suggesting that the safest road layout was the true cul-de-sac (that with the least connectivity), followed by the through road, with the least safe road layout being the leaky cul-de-sac. The results found that, compared to the true cul-de-sac (the safest), through roads experienced 93 per cent more crime and leaky culs-de-sac 110 per cent more crime. The analysis also identified that crime risk was generally lower on sinuous compared to linear culs-de-sac (replicating Johnson and Bowers, 2010).

Several studies have also highlighted through movement as a criminogenic feature in their production of crime risk-assessment mechanisms. Armitage's (2006a) Burgess Checklist identified through movement as a key factor associated with both burglary and crime-prone homes. Six of the 13 environmental factors which were associated with risk of burglary (at a statistically significant level), and eight of the 17 factors which were associated with total crime (at a statistically significant level) were related to permeability and through movement. In their Delft Checklist, Van der Voordt and Van Wegen (1990) also identified several factors relating to access and through movement which increased a property's vulnerability to crime, these were: Number of entrances and escape routes, the ease of access to entrance and escape routes, the physical accessibility of entrance and escape routes and the absence of symbolic barriers.

In a review of the evidence relating to the impact of permeability on crime, Taylor (2002) concludes that 'Neighbourhood permeability is…one of the community level design features most reliably linked to crime rates, and the connections operate consistently in

the same direction across studies: more permeability, more crime' (Taylor, 2002, p. 419). However, this assertion is not entirely correct as several studies – particularly those conducted in the last decade and using Space Syntax techniques – have concluded that increased levels of through movement have a beneficial impact upon crime. Several studies have concluded that crime is concentrated in more isolated and less accessible streets (Rudlin and Falk, 1995; Jones and Fanek, 1997; Hillier and Shu, 1998, 2000; Shu and Huang, 2003; Hillier, 2004). However, each of these studies uses Space Syntax as a means of calculating integration and connectivity. Space Syntax is a mathematical approach which takes account of the street network and how each street segment connects to other streets at the local and wider area level.

Simon Shu (2000) looked at police recorded crime data for three case study areas in England. This study studied road type,[9] how constituted the street segment was,[10] whether space was distributed[11] and number of line neighbours, as well as lines of sight. Shu (2000) found that the positive features of road layouts, in terms of reducing burglary risk, were constitutedness, global integration, more line neighbours and through networks. Negative features were unconstitutedness, global segregation, fewer line neighbours and cul-de-sac networks.

> It seems that burglars avoid dwellings on linear constituted through carriageways and also on the first line into cul-de-sacs off integrated through streets, and instead look for those in the deeper, most segregated and also more broken up parts of the tree pattern like cul-de-sac complex, especially those with unconstituted back access.
>
> Shu (2000, p. 187)

Early publications by Bill Hillier (alone and with others) support the notion that through movement and permeability are preferable to limited access when attempting to reduce crime. However, later work by Hillier (2004), whilst maintaining that through routes are preferable to enclaves, recognises the simplistic interpretation of his findings by journalists who preferred to present the case of culs-de-sac versus through roads, whilst ignoring the 'difficult bits' (p. 9).

In this paper, Hillier's findings suggest that rather than it being a simplistic presentation of through roads versus culs-de-sac, it is 'leaky' culs-de-sac as opposed to culs-de-sac in general which present security problems, and that even integrated streets (through roads), if designed with a system of back alleys, will also be vulnerable to crime. In their latest paper, Hillier and Sahbaz (2009) use Space Syntax methods to analyse police recorded crime data for a five-year period for 101,849 dwellings in London, England. Their findings generally support those who suggest that high street connectivity in a grid-like system results in lower levels of crime, with lower levels of connectedness resulting in higher vulnerability to crime. However, this paper does highlight that a key factor influencing the vulnerability of certain road layouts is density, with small groups of houses being less safe for through streets and culs-de-sac alike – the risk of burglary decreases with the number of neighbours on a street segment. For Hillier and Sahbaz (2009), the argument is not culs-de-sac versus through streets, but rather safety in numbers. According to this paper, culs-de-sac are the least safe option but can be safer where they are embedded into the street network and made large and linear enough to provide that safety in numbers. Hillier and Sahbaz (2009) do accept that an increase in through movement and levels of activity can have a dual effect – it can produce more natural surveillance, but also means that criminals find the development more accessible. However, their findings conclude that the key variable is the extent to which the residential culture is active where 'Eyes from the street and eyes on the street conspire to create greater safety' (Hillier and Sahbaz, 2009, p. 179).

One explanation for the disparity between these findings is that, although Space Syntax allows a greater number of properties to be analysed (Hillier and Sahbaz looked at 101,849 properties), by the same token this means that presumptions are made about movement and patterns. Where the road layout is physically assessed, fieldworkers can make clearer distinctions regarding road layout, official and unofficial footpaths, and observe the development and how it is used. As Schneider and Kitchen (2002) highlight, Space Syntax is unable to conduct 'fine-grain analysis' which accounts for 'types of surveillance, street patterns or local context' (Schneider and Kitchen, 2002, p. 40) (Table 6.1).

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Table 6.1 Summary of existing literature

Study revealed that	Study reference
Being located on a development with high levels of permeability/connectivity/through movement <u>increases</u> the risk of crime	Bevis and Nutter (1977) Rubenstein *et al.* (1980) Taylor and Gottfredson (1987) Van der Voordt and Van Wegen (1990) White (1990) Poyner and Webb (1991) Beavon *et al.* (1994) Mirlees-Black *et al.* (1998) Rengert and Hakim (1998) Hakim *et al.* (2001) Taylor (2002) Nubani and Wineman (2005) Yang (2006) Armitage (2006a) Armitage *et al.* (2010)
Being located on a travel path <u>increases</u> the risk of crime	Letkemann (1973) Brantingham and Brantingham (1984) Feeney (1986) Gabor *et al.* (1987) Poyner and Webb (1991) Wiles and Costello (2000) Rengert and Wasilchick (2000)
Being located on a cul-de-sac, or a development with low connectivity, <u>reduces</u> the risk of crime	Bevis and Nutter (1977) Johnson and Bowers (2010) Armitage *et al.* (2010)
Closing off streets <u>reduces</u> crime	Matthews (1992) Atlas and LeBlanc (1994) Newman (1995,1996) Donnelly and Kimble (1997) Wagner (1997) Lasley (1998) Zavoski *et al.* (1999) Eck (2002) Farrington and Welsh (2009)
Being located on a leaky cul-de-sac <u>increases</u> the risk of crime	Hillier (2004) Armitage (2006a) Armitage *et al.* (2010)
Being located on a development with high levels of permeability/connectivity/through movement <u>reduces</u> the risk of crime	Hillier and Shu (1998) Shu (2000) Hillier (2004) Hillier and Sahbaz (2009)

Issues to consider

Culs-de-sac

One of the key findings to emerge from the review of relevant literature is that cul-de-sac layouts, where true (with no linked footpaths), are the safest design option, with leaky culs-de-sac (with linked footpaths) the least safe. Research also suggests that sinuous culs-de-sac (curved design) are safer than those with a linear layout (Armitage *et al.,* 2010; Johnson and Bowers, 2011). There is a general view held by those working within the field of CPTED that culs-de-sac portray the impression to potential offenders that they are entering a private area – increasing the likelihood that offenders will feel uncomfortable entering the development (Armitage *et al.,* 2010), and this is supported by interviews with offenders (Repetto, 1974; Brown and Altman, 1983; Wiles and Costello, 2000). Although the majority of research suggests that developments with low levels of connectivity are the safest design layout, there are methods of designing permeable developments whilst retaining low levels of crime. Research conducted within the UK (Armitage *et al.,* 2010) identified that residential developments can have high levels of connectivity and experience low levels of crime and disorder, where certain design principles have been applied. These include: (1) ensuring that footpaths are positioned at the front of properties; (2) ensuring that footpaths are straight, wide and well lit; and (3) ensuring that footpaths serve a purpose, are required and are therefore well used. Whilst highlighting examples of permeable, low-crime developments, Armitage *et al.* (2010) highlight how social buy-in, community involvement and high standards of management and maintenance are essential ingredients in the success of these permeable design layouts (see Figure 6.1). As such, they add caution regarding the replication of such designs within different contexts.

Gated developments

Gated developments are often viewed (particularly by residents) as the safest residential design layout; however, this is not an entirely accurate perception. Detailed analysis of two gated developments within the UK found that not only were they unpopular with local planners, they were also unsuccessful in reducing crime. The planners

Figure 6.1   Developments which were highly permeable yet had maintained a sense of ownership and social buy-in[12]

who took part in the research expressed the view that the solution of physically gating an area would be unlikely to be repeated in future developments, and that the desired sense of privacy could be achieved through more subtle techniques such as a narrowing of the road entrance or a change in road colour and texture.

One of the main problems with the gated developments was that, although gated at the boundary (see Figure 6.2), these developments were highly permeable inside, with an abundance of alleys and

Figure 6.2   Gated developments

pathways which were narrow, dark and with little or no surveillance from surrounding properties (see Figure 6.3).

   In addition to the internal connectivity, the security offered by the gates was compromised by the poor positioning of street signs, utility boxes and street furniture which acted as climbing aids for offenders wishing to scale the gates (see Figure 6.4). As the developments portrayed an impression of high security, yet offered little in terms of actual protection, it could be argued that the gating acts to entice

Figure 6.3   Once inside the gated development alleys are dark, narrow and not overlooked by surrounding dwellings

Figure 6.4   Lack of consideration for security in the positioning of street signs and utility boxes provides climbing aids for offenders

offenders into the area – portraying an image that the development contains valuable possessions which require additional protection.

Footpaths

Although research relating to the impact of residential design on crime clearly highlights the risk of high levels of connectivity within a development, detailed analysis of case study sites within the UK suggests that footpaths can be included as long as they are designed with consideration for safety and security issues. The presence of footpaths within a development does increase the risk of crime, particularly where the footpaths provide access to the rear or side of

Figure 6.5   Footpaths should not run at the rear or side of properties and should be direct, well lit and overlooked

the dwelling, where footpaths are not overlooked by surrounding dwellings and where footpaths are under-used (see Figure 6.5). Corner plots located next to footpaths are also particularly vulnerable to crime. One of the key factors to minimise the risk associated with footpaths is to ensure that they are well used. For a footpath to be well used, it must serve a purpose and provide access to and from locations frequented by local residents or passers-by.

Although footpaths can increase the risk of crime, it must be borne in mind that should existing routes be closed or relocated, there is a likelihood that residents will create their own pathways to maintain access to and from a popular location. This was highlighted by Armitage *et al.* (2010) in a case where the street layout of one cul-de-sac had ignored existing desire routes in closing off access to nearby local shops. In response pedestrians had created an unofficial route over a resident's garden fence in an attempt to create their own shortcut to and from the development. The pictures below (Figure 6.6) show the residents' response to the use of their rear garden as an unofficial shortcut, with anti-climb paint placed on top of the fencing. The second picture shows another development in Manchester, England, where pedestrians had created a shortcut through a gap in railings, giving access to other footpaths leading to the city centre. Unofficial shortcuts will not be subject to any maintenance and are unlikely to be adequately lit or overlooked. Where the shortcut is through a resident's garden this also risks neighbour disputes and

Figure 6.6   Where existing desire lines are ignored, residents are likely to create their own shortcuts

heightened fear of crime. Designs which restrict pedestrian move-ment, therefore, risk prompting the development of desire routes that are far more criminogenic than deliberately designed-in alternatives.

Although the presence of footpaths often causes concern, footpaths can be included within residential developments if safety and security is considered in the design and layout. If footpaths are to be included within residential developments they must be well used and serve a purpose – connecting the development to local amenities and/or other developments. Footpaths must also be well lit, short and straight with no hiding places for potential offenders. One of the key factors to reduce the risk associated with footpaths is to ensure that they do not run at the side or rear of properties (see Figure 6.7). One of the case study sites analysed in Armitage *et al.* (2010) was highly permeable with an abundance of footpaths running throughout the development. However, this development (in a high crime area) had not experienced any burglary dwelling offences within the three year period of analysis. Detailed analysis of the design features of this development revealed that all footpaths ran at the front of properties, with high levels of surveillance from active rooms within adjoining dwellings. This suggests that appropriately designed footpaths can be included within a development without increasing the crime risk.

The impact of connectivity on levels of crime and disorder has dominated the designing out crime agenda, leaving practitioners with little clear guidance as to how to design out crime in practice. Culs-de-sac have been encouraged by some (on the grounds of crime reduction) and discouraged by others (on the grounds of that they

Figure 6.7 Footpaths should be located at the front of properties and be wide, well lit and direct

limit walkability and encourage car travel). Overall the evidence base relating to connectivity and levels of crime is consistent. Research conducted with varied methodologies has supported the hypothesis that high levels of connectivity and through movement contribute

to higher levels of crime, with true, sinuous culs-de-sac experiencing the lowest levels of crime. The exceptions are the majority of studies conducted using Space Syntax methodologies.

Research suggests that sinuous, true culs-de-sac experience the lowest levels of crime and developments containing rear access pathways, particularly where access is provided from the footpath into the adjoining property, experience the highest levels of crime. However, detailed analysis of case study sites has revealed that footpaths can be included within developments without increasing crime risk, as long as they are designed in accordance with crime reduction guidelines and in close consultation with police ALOs/CPDAs. Where footpaths are included within a development they must be required/desired (and therefore well used), short, direct, wide, overlooked, well lit and should not run at the side or rear of properties.

Key research findings

- A review of relevant research suggests that there is an abundance of methodologically strong studies presenting clear findings relating to the impact of road layout, connectivity and residential crime.
- For those who advocate increased connectivity, the rationale is not related to levels of crime; therefore those working within the field of planning and crime reduction must consider all agendas and work towards a compromise, or creative designs enabling both connectivity and security.
- Research suggests that offenders prefer permeable layouts due to the ease they offer in terms of entry, through movement and access.
- Research suggests that properties within the 'activity' and therefore 'awareness' space of offenders are more vulnerable to crime. Offenders select properties which they pass on a daily basis as they conduct their activities.
- Research suggests that offenders prefer permeable layouts because of the anonymity that the increased through movement provides.
- Research suggests that sinuous, true culs-de-sac experience the lowest levels of crime.
- Research suggests that leaky culs-de-sac experience the highest levels of crime.

- The majority of research supports the notion that being located on a development with high levels of connectivity and through movement increases the risk of crime.
- Gated developments do not experience lower levels of crime.
- Closing off or rerouting footpaths can lead to the creation of unofficial shortcuts which follow residents' desire lines.

Practical issues

- Sinuous, true culs-de-sac are the safest road layout and should be encouraged.
- Leaky culs-de-sac are the least safe road layout and should be avoided.
- Residential developments should limit connectivity and through movement. However, where footpaths are required within a development, they must be desired/well used, short, wide, well lit, overlooked by neighbouring properties and must not run at the side or rear of properties.
- One of the key factors in reducing the risk of crime associated with footpaths is to ensure that they run at the front of properties – with good surveillance from active rooms located in adjoining dwellings.
- Pedestrian desire lines should be identified and well considered footpaths should be designed into the development. To ensure footpaths are well used they should connect the locations residents need to reach, be suitably maintained and adequately lit.
- Gating a development is not an adequate crime prevention measure on its own. It does not absolve a design team from designing carefully within the perimeter to ensure the scheme as a whole reduces crime opportunities. Where developments are gated, care must be taken to ensure that the boundary is not compromised by the positioning of street furniture which can act as a climbing aid.

7

The Impact of Surveillance on Levels of Crime and Fear of Crime

Introduction

This chapter reviews the research evidence regarding the impact of surveillance on levels of crime and makes design suggestions to improve residential developments. Surveillance refers to the way that an area is designed to maximise the ability of formal (security guards, police, employees) or informal (residents, passers-by, shoppers) users of the space to observe suspicious behaviour. Within situational crime prevention more generally, surveillance may include the installation of CCTV or the use of formal security guards – these interventions are often referred to as formal or mechanical surveillance. However, within the field of designing out crime, surveillance rarely relates to formal measures, but refers more to the informal or natural surveillance created through measures such as ensuring that houses are overlooked by neighbouring properties, that dwelling entrances face the street, that rooms facing the street are active (such as the kitchen or living room) and that sightlines are not obstructed by shrubbery or high walls. Much of the evidence relating to surveillance as a crime reduction measure focuses upon formal or mechanical surveillance – in particular CCTV, the employment of security guards and measures such as street lighting, to enhance their performance. As the focus of this book is residential design, and the ways in which the environment can be planned to reduce crime risks, this chapter will focus solely upon informal surveillance – that which takes place between users of the space, by the residents, those working in the area or those simply passing by.

What does the research say?

Research suggests that surveillance and visibility play a major part in offenders' decision-making processes when selecting properties to offend against. Offenders prefer to avoid confrontation and, where possible, select targets which are unoccupied. Thomas Repetto (1974) interviewed 97 convicted burglars and found that the most common reason for avoiding a target was that there were too many people around. Offenders stated that the possibility of neighbours watching them deterred them from selecting a property and that they would select targets where they felt less conspicuous and where there was less visual access to neighbouring properties. In interviews with a sample of 30 active burglars, Cromwell *et al.* (1991) found that properties considered to be the most attractive targets were those which were located within close proximity to a stop sign, traffic lights, commercial business establishment, park, church or four-lane street – these properties being within the activity and awareness space of offenders. This research also revealed that over 90 per cent of the sample stated that they would never enter a residence which they suspected to be occupied.

Brown and Bentley (1993) asked 72 incarcerated burglars to assess, from photographs, whether or not properties had been burgled. Across all ten homes, the houses judged to be occupied were perceived by the burglars as being those which had not been burgled.

Nee and Meenaghan (2006) interviewed 50 residential burglars in the UK, asking questions relating to decision to offend, target selection, search behaviour inside the property and disposal of stolen goods. The findings confirm those presented above: that offenders prefer to select unoccupied properties, and properties with little or no surveillance from neighbouring houses. Nee and Meenahan found that the most commonly mentioned feature of attractive targets was the degree of cover (47 respondents). Three-quarters (38) of the sample preferred a property to be unoccupied, with two-thirds of that number checking this by knocking on the door or ringing the bell. Other checks included assessing the level of lighting inside the property (seven), whether there was a car on the driveway (five) and whether milk was left on the doorstep (five). Ten accepted a target in which residents were present, as long as they were judged to be asleep at the time of the offence.

When assessing the design characteristics of victimised properties, several studies identified a lack of surveillance or poor levels of visibility as key features of crime-prone homes. Armitage (2006a) conducted research on the design features associated with increased risk of crime on a sample of over 2000 properties in West Yorkshire, England. Using data relating to specific design features of each property and police recorded crime data on prior crimes experienced at the sample of properties, Armitage developed a scoring system (the Burgess checklist) which assigned a risk score to each design feature – the higher the score, the higher the predicted risk of crime. In terms of surveillance, the research found that there was a complex relationship between surveillance and crime risk. Surveillance from neighbouring properties appeared to reduce crime risk, yet surveillance from a nearby road or footpath enhanced a property's risk of crime. The latter can be explained by Brantingham and Brantingham (1984) and later Beavon *et al*.'s (1994) suggestion that properties within the awareness space of potential offenders are more likely to be selected as targets. Where a property is located within viewing distance of an offender's daily travel path, that property is more likely to be noticed as part of their day-to-day activities. Armitage's research found that being overlooked at the front by neighbouring properties produced a risk score of −0.6 – suggesting a less than average crime risk. Not being overlooked at the front produced a risk score of +5.7 – an above average crime risk. This is clearly related to the benefit of informal surveillance from neighbours who are able, and likely, to act as capable guardians. In contrast, a property being visible from a nearby footpath experienced an increased risk of crime, with a score of +6.3. As Brantingham and Brantingham suggest, this design feature is likely to enhance crime risk due to the position of the property within viewing distance of a footpath, and therefore, placing the property within the awareness space of potential offenders. Similarly, a property situated within viewing distance of traffic lights, according to Armitage (2006a), has a risk score of +46.6, the second highest score (second to property having a gate leading into the garden from a rear footpath, which scored +51.9).

Research conducted across three police forces in the UK revealed findings to support those presented above. Armitage *et al*. (2010) analysed the design features of over 6000 properties on 44 developments within Greater Manchester, Kent and the West Midlands

(England). Individual properties, their boundaries and the layout of the development on which they were located were meticulously and manually analysed and compared with prior victimisation. In terms of crime risk, the research found that the number of properties over-looking a dwelling was statistically associated with a reduced risk of crime. Properties overlooked by between three and five other prop-erties experienced 38 per cent less crime than those not overlooked. However, there did not appear to be any additional benefits for those properties overlooked by five properties or more – these dwellings experiencing 34 per cent less crime than properties not overlooked. Interestingly, the research found that the surveillance related design features 'property faces the street on which it is located', 'windows offer good surveillance' and 'property boundary blocks view of neigh-bouring properties' had no statistically significant association with crime risk.

As a means of determining the relationship between design features and crime risk, Winchester and Jackson (1982) produced a risk index based upon 14 different variables which were found to be particularly effective in discriminating between houses which had experienced burglary and those which had not. Houses with a score of zero had a one in 1845 chance of being burgled during the course of one year; those possessing nine or more features had an average of one in 13 chance of being burgled. The median score on the Environmental Index of Risk for victims' houses was five, compared to a median score of two for houses lived in by the general household sample. Multiple victims (those who had been burgled on more than one occasion during the period that the present household had lived there) had a median score of seven on the index. Of the 14 variables linked to heightened risk of burglary, nine relate to a lack of surveillance from neighbouring properties, or being within the awareness space of potential offenders. In terms of surveillance from neighbouring properties, those variables include: property is isolated, property is set in a location with less than five other houses in sight, property is set at a distance from the road on which it stands, property is not overlooked at the front by other houses, property is not overlooked on either side by other houses, the majority of the sides of the house are not visible from a public area, the property is set at a distance from the nearest house and the property frontage is obscured from roadside view. In terms of being located within the awareness space

of potential offenders, Winchester and Jackson found that properties located on the nearest main road experienced an increased risk of crime.

From her analysis of 4099 blocks of flats and maisonettes in the London Boroughs of Southwark and Tower Hamlets, Alice Coleman (1986) created a list of factors which she believed contributed to the social and physical decay of housing estates – the Design Disadvantage Score. Coleman found that blocks of flats with entrances which faced inside the estate and which were set back from the road, had higher levels of physical and social decay.

Brown and Altman (1983) studied 306 burgled and non-burgled properties and found that burgled houses showed fewer indications of the probable presence of residents than non-burgled properties. These signs or traces included toys strewn across the yard or sprinklers operating in the garden. Brown and Altman also found that burgled properties had less visual access to neighbouring properties.

In their risk-assessment tool, Groff and La Vigne (2001) also identified several key factors which increased a property's vulnerability to burglary. Properties located within a two-block radius (1000 feet) of major roads were considered to be at more risk than others, as were properties within dark (as opposed to illuminated) areas.

Van der Voordt and Van Wegen (1990) also developed a checklist for measuring the risk of crime – the Delft Checklist. The empirical validity of the checklist was tested on four urban areas in Holland concluding that the checklist 'proves an excellent aid to identify risk-increasing environmental factors and the design factors which can prevent crime' (p. 152). Of the factors which were identified as helpful in predicting levels of crime, several related to surveillance and visibility. These were: visual contact between buildings, amenities and outside spaces, sightlines between buildings and adequate levels of lighting.

Authors such as Jane Jacobs (1961) highlight the importance of informal surveillance from those living and working within an area, and from those users of the space who are simply passing by. Jacobs refers to this as 'eyes on the street', commenting:

> there must be eyes on the street, eyes belonging to those we might call the natural proprietors of the street . . . the sidewalk must have users on it fairly continuously, both to add to the number of

> effective eyes on the street and to induce a sufficient number of
> people in buildings along the street to watch the sidewalks.
>
> (Jacobs, 1961, p. 35)

Of course this argument has many weaknesses, the most notable
being that, whilst a street may be surveyed by many people, those
people do not always notice crimes taking place (Gelfand *et al.*, 1973;
Mayhew *et al.*, 1979) and if they do, they do not always intervene
(Rosenthal, 1964; Latane and Darley, 1970). This concept of self
policing, which may apply in busy cities (which were the focus of
Jacobs' work) is also weakened when transferred to suburban residen-
tial developments which are less densely populated. As Paul Cozens
(2011) highlights, many social as well as design factors make this con-
cept less likely to apply within residential settings. Often both adults
within a household work full-time and developments have few or no
community facilities, making surveillance from those living, working
and passing through the area less likely to take place.

Recognising the difference between predicted or potential surveil-
lance and that which actually takes place, Danielle Reynald (2009)
conducted an excellent study which measured the relationship
between guardianship intensity and surveillance opportunities – is
actual guardianship bolstered by opportunities for surveillance? –
and between guardianship intensity and actual crimes experienced
on a sample of 814 residential properties in The Hague. Reynald mea-
sured guardianship intensity using a four-stage model which moves
from stage one – invisible guardian stage (no evidence that the prop-
erty is occupied), to stage two – available guardian stage (evidence
that the property is occupied), to stage three – the capable guardian
stage (fieldworkers are observed by residents) and to stage four –
intervening guardian stage (fieldworkers are challenged by residents).
Surveillance opportunities were measured by observing the extent to
which the view of a property's windows was obstructed by physical
features such as trees and walls. The results revealed a positive statis-
tically significant correlation between surveillance opportunities and
guardianship intensity (0.45), suggesting that guardianship intensity
increases as opportunities for surveillance increase. When assess-
ing the relationship between crime and guardianship intensity the
results were positive and statistically significant. The analysis revealed
that crime decreases consistently at each stage of the four-stage

model. Crime drops significantly between the invisible and available guardian stages, decreasing even more at the capable guardian stage and slightly more at the intervening stage.

Surveillance, whether that is the actual ability to view offenders or a perception of an enhanced likelihood of being observed, requires adequate lighting – if the crime in question is taking place after dark. Robert Samuels (2005) highlights the importance of considering a development's design after dark, when fear of crime is heightened and when risk of certain offences is increased. Samuels states that 'It is probably true to say that architects do not imagine the buildings they design changing their personality at night' (p. 4). However, whilst this may be the case, within the planning system in England and Wales it would be the responsibility of the Architectural Liaison Officer/Crime Prevention Design Advisor to comment on the specific impact of such crime reduction measures and to consider the crime risk in both the light and the dark. Welsh and Farrington (2009) report on the findings of a systematic review of both British and American evaluations of the impact of street lighting on levels of crime. The systematic review selected evaluations which meet a set of criteria – that street lighting was the main intervention, that there was an outcome measure of crime and that the evaluation design was of a high methodological quality. The results revealed that four of the eight USA studies showed a desirable effect on crime. Taken together, the eight studies showed a 19 per cent decrease in crime in the experimental area – this equates to an odds ratio of 1.24. There were five British studies included in the systematic review, of which four showed a desirable impact on crime. When all five studies were combined, the results showed a reduction in crime of 38 per cent in the experimental area – an odds ratio of 1.62. Combining the USA and UK studies showed an average reduction in crime, in the areas which had received improved street lighting, of 21 per cent – an odds ratio of 1.27.

Key research findings and practical considerations

Research utilising a variety of different methodologies suggests that offenders prefer to select properties which are unoccupied or perceived to be unoccupied and properties with less visual access to neighbours. Offenders prefer to target areas where they feel less

Table 7.1 Summary of literature

Study revealed that:	Study reference
Offenders avoid properties with visual access to neighbouring houses.	Repetto (1974)
Offenders select targets with less visual access to neighbouring properties.	Repetto (1974) Nee and Meenaghan (2006)
Offenders select targets which are unoccupied.	Cromwell *et al.* (1991) Nee and Meenaghan (2006)
Offenders avoid targets which are occupied (or perceived to be occupied).	Brown and Bentley (1973)
Increasing level of surveillance enhances guardianship activity.	Reynald (2009)
Properties overlooked by neighbouring properties experience less crime.	Armitage (2006a) Armitage *et al.* (2010) Winchester and Jackson (1982) Van der Voordt and Van Wegen (1990)
Properties not overlooked by neighbouring properties experience more crime.	Armitage (2006a) Armitage *et al.* (2010) Winchester and Jackson (1982) Van der Voordt and Van Wegen (1990)
Properties with fewer visual signs of presence of residents experience more crime.	Brown and Altman (1983)
Properties with front door facing away from the street experience more physical and social decay.	Coleman (1986)
Properties with view from roadside obscured/obstructed experience more crime.	Winchester and Jackson (1982)
Properties visible from nearby footpaths experience more crime.	Armitage (2006a) Armitage *et al.* (2010)
Properties located in close proximity to stop sign, traffic lights, commercial business establishment, park, church or busy road are more attractive to offenders.	Cromwell *et al.* (1991)
Properties located within viewing distance of traffic lights experience more crime.	Armitage (2006a)
Properties located on a main road experience more crime.	Winchester and Jackson (1982) Groff and La Vigne (2001)
Increased level of street activity reduce crime.	Jacobs (1961)
Properties in areas less illuminated by street lighting experience more crime.	Groff and La Vigne (2001) Van der Voordt and Van Wegen (1990) Welsh and Farrington (2009)

conspicuous and where they can find 'cover' when entering and exiting a property (and the surrounding area). Research which analyses the link between particular design features and prior victimisation also supports these findings. Research suggests that properties are more likely to experience crime if they are isolated, if they are not overlooked by neighbouring properties and if there are fewer signs of the physical presence of residents.

The relationship between surveillance and crime risk is quite complex. Whilst surveillance from neighbouring properties appears to offer protection against crime, surveillance from nearby public space – such as a footpath, road or park – appears to increase the risk of crime. Whilst this may appear contradictory, it makes intuitive sense when considering theories such as those offered by Brantingham and Brantingham (1984). Crime pattern theory suggests that offenders select properties which they become aware of as part of their day-to-day activities. Therefore, those properties which are located close to major roads, junctions, traffic lights, parks or footpaths are more likely to be noticed by potential offenders.

In terms of practical suggestions for the design and layout of developments, research suggests that properties should be overlooked by at least five neighbours – increasing that number does not appear to enhance protection. Front doors should ideally face on to the street and not be hidden from view. Developments should be well lit without dark, vulnerable locations which can provide cover for offenders. Where possible, properties should show signs of guardianship, such as toys or garden furniture in the front garden. This portrays the impression that residents are around and that they care for the property and surrounding area. In terms of limiting the likelihood of a property being in a potential offender's awareness space, it may be difficult to influence a development's positioning in relation to nearby roads or parks; however, access to, from and within a development can be limited through avoiding interlinking footpaths which allow offenders to legitimately pass through the development without appearing conspicuous.

8

The Impact of Car Parking Design on Levels of Crime and Fear of Crime

Introduction

The design and layout of car parking provision within residential housing can have a significant impact upon crime, antisocial behaviour and feelings of safety amongst residents. Although car parking may often be associated with vehicle related crimes such as theft of and from motor vehicles, research has also shown that poorly designed car parking can lead to problems with youths causing annoyance, neighbour nuisance, criminal damage and even violent crimes such as assault.

This chapter will review good practice in the design of car parking within residential areas. In doing so it will summarise the findings from previous research as well as policy and guidance. The chapter will then focus upon the findings from a major UK research project (conducted in 2010) which investigated the relationship between residential design and crime at over 6000 properties on 44 developments across three police forces. Using analysis of police recorded crimes, as well as interviews with police and planning professionals, the research identified good and bad practice in the provision of car parking within residential developments – concentrating particularly on developments which had been recognised for their innovative design.

What does the policy and guidance suggest?

In terms of planning guidance, within the UK, *Secured by Design New Homes* (ACPO Secured by Design, 2010) and *Safer Places* (Office of the Deputy Prime Minister and the Home Office, 2004) recommend the provision of garages or parking within the curtilage of the property boundary. *Secured by Design New Homes* recommends that where communal parking is necessary, it should be in small groups and within viewing distance of active rooms within the adjacent properties. Active rooms are those which are likely to be used by residents whilst awake – such as kitchens and living rooms. *Secured by Design New Homes* discourages rear parking courts due to the access they provide to the vulnerable rear of properties, the increased risk of antisocial behaviour – where courts are isolated and unobserved – and the risks of increasing fear of crime due to lack of surveillance and low levels of lighting. *Secured by Design New Homes* states that, where parking courts are necessary, they should be protected by a gate (the design of which should be discussed with the local ALO/CPDA).

Other guidance, for example the UK's *Manual for Streets* (Department for Transport, 2007) discourages parking within the front curtilage of a property due to the negative impact which this has upon the street scene. There are many examples, within the UK, where the planning response to this has – unfortunately – been the provision of parking within rear courts. As indicated already and further highlighted below, these have not proved successful in terms of the prevention of crime and antisocial behaviour.

What does the research say?

A review of previous research found very few studies which specifically identified particular designs for accommodating parking within residential areas as being more vulnerable than others. Brown and Altman (1983) studied the environmental features of 306 burgled houses on burgled blocks, non-burgled houses on burgled blocks and non-burgled houses on non-burgled blocks in an attempt to establish which factors were associated with burglary-prone homes. Several features were found to be associated with burglary-prone homes, one of which was the absence of a garage. Brown and Altman (1983) concluded that properties with a garage were less vulnerable to burglary than those without garages. Cromwell *et al.* (1991) used

staged-activity analysis (drive-arounds) with a sample of 30 active burglars as a means of identifying which environmental cues influenced their target selection. One of the features identified by burglars was the presence or absence of a garage. Burglars found properties without a garage, or with an open carport, to be more vulnerable to burglary. Although not explicitly stated, it could be that offenders select properties where vehicles are parked in less secure locations (i.e. on-street) in order to commit a vehicle related offence, and then continue to commit other offences (such as burglary) either at the same time, or at a later date.

A study which took place in the UK (Armitage *et al.*, 2010) analysed the design features of over 6000 properties on 44 developments and compared these features with the crimes experienced at those properties and on those developments. The focus of the study was on developments awarded 'Building for Life' status for their architectural quality and innovative design, by CABE. Building for Life is an award scheme given to housing developments which demonstrate a commitment to high design standards and good place-making against the four categories: environment and community; character; streets, parking and pedestrianisation; and design and construction. In terms of crimes relating to car parking, the study found that developments which had scored highly on the CABE Housing Audit question 'car parking is situated so as not to detract from the street scene' experienced lower levels of vehicle crime and criminal damage. For each development, a score of one to three was awarded, with one suggesting that parking provision did detract from the street scene, and three suggesting that it did not. The analysis of police recorded crime suggested that, as compared to the base score of one, developments which scored two experienced 40 per cent less vehicle crime and 68 per cent less criminal damage. The difference between two and three did not produce a significant effect for vehicle crime, but those scoring three did experience 74 per cent less criminal damage than those scoring one. CABE's housing audits are conducted by independent assessors with expertise in urban design. Their aim is to judge a development in terms of its design and layout, without prior knowledge of any crime and disorder issues taking place at the development. This finding does suggest that cars which are parked away from the street scene (either in a garage, a car park or within the property's rear curtilage) will experience lower levels of vehicle crime and criminal damage.

The same study looked in detail at 2193 properties on 12 developments – analysing the individual design features of every property and comparing those with crime rates. The findings revealed that the only parking variable that significantly impacted upon total crime and upon vehicle crime was the provision of visitor parking – developments which included allocated visitor parking spaces experienced lower crime than those which did not. The overall nature of parking provision did not significantly impact on crime levels; however, properties with communal parking did experience higher levels of vehicle crime than those with other types of parking.

Issues to consider

Rear parking courts

Rear parking courts are one option for providing car parking provision away from property frontages. Cars are located behind properties in courtyards which are usually accessed through an archway between properties. As Figure 8.1 shows, these archways are often narrow, running under dwellings with little natural surveillance or light. There are options to gate the courtyard entrances, but the benefits of such measures depend upon the extent to which they are implemented by residents and visitors who may fail to close and lock gates once they have entered the courtyard. By their very nature, rear parking courts are out of view of street users and even, in many cases, neighbouring residents. As can be seen in Figure 8.1, high boundary walls block the view from adjacent properties and enhance the feeling of isolation.

Many residents, even where no legitimate alternative is provided, prefer not to park in these rear courtyards due to the inconvenience of having to walk from the car park to their home; due to concerns regarding the risk to their vehicle whilst parked in the courtyard; and for reasons regarding their own safety. Where courtyards are unused, the space can often become an ideal location for antisocial behaviour, perpetuating and amplifying the fear felt by legitimate users.

Inappropriate car parking solutions

As well as the negative consequences of rear parking courts, there are many other negative, and largely unintended, consequences of planning which has focused upon the desire to remove the car from the

Figure 8.1   Empty, dark and desolate rear parking courts

street scene. One approach, seen at two developments in the south of England, had included deliberately short driveways (not long enough for cars to park on) with the aim of encouraging residents to use their garage or the additional space provided in communal parking

courts (see Figure 8.2). However, residents were clearly continuing to use the driveway as a parking space – for convenience and through the desire to ensure that their vehicle was within viewing distance of their property. As a consequence, cars were left jutting out onto the pavement or road, blocking the path for those with pushchairs, prams or wheelchairs. In one development, this resulted in the employment of a management company to enforce parking regulations.

Figure 8.2 Cars jutting out onto the street due to short driveways not long enough for a car[1]

Designing developments with a low ratio of car parking spaces per dwelling, particularly where one of those spaces includes the garage, presumes first that residents will use the garage as a parking space (which very few do) and also that residents feel comfortable using the additional space which may be located away from their property. This design solution has made several incorrect assumptions about how residents will respond to the layout of their neighbourhood, with little consideration for the reality of how residents use the space around them. The first assumption is that residents are happy for their car to be parked out of sight. In most cases, residents want their car to be within viewing distance of their property. A car is often a valuable possession, and one which we naturally want to keep our eye on. The second assumption is that residents are happy to walk a distance to and from their car. Residents will often have to transfer bags, valuables, car seats and children to and from their house, and therefore want their cars to be as close as possible to the property to make this journey easier and safer. The final assumption is that residents will use their garage to park their car in. In reality this is rarely the case, and very often garages are used as additional storage space (see Figure 8.3).

Poor allocation of car parking spaces

When designing car parking provision within residential areas, care must be taken to ensure that the allocation of parking spaces is both appropriate and considerate. This includes the allocation of both resident and visitor parking. The picture below Figure 8.4 shows the parking provision at one development in the West Midlands, UK. The parking space is located directly in front of the bay window (living room) of two neighbouring properties. As there is one space only, this is allocated to just one of those properties, meaning that the residents at the second property have to look out of their front window directly onto the vehicle belonging to their neighbour. Although this may not cause problems where the vehicle is small in size or parked in the space for short periods of time, there is every likelihood that the vehicle could be a people carrier, a four-wheel drive or even a commercial van. If this was parked during daylight hours the neighbour would have very little outlook, other than the side of their next door neighbour's vehicle. Visits to this development revealed that neighbours had left notes in each other's vehicles relating to their parking; analysis of police recorded crime data also revealed that there had

Figure 8.3   Residents often choose to park on the street for convenience and safety and garages are often used for storage as opposed to parking

been two serious incidents relating to parking disputes: one public order offence and one assault, both of which had led to residents being arrested.

The second picture Figure 8.4 shows a less obvious problem, but one which could be avoided. The parking space here is located

Figure 8.4   Inconsiderate and inappropriate parking allocation

directly adjacent to the property's patio doors – almost so close that the French windows would touch the vehicle when opened. This is neither considerate nor appropriate design.

On-plot car parking and garages

On-plot parking is recommended by policy and guidance, and research confirms that not only are cars safer when parked on-plot, but also that residents want to park close to their property for both safety and convenience. However, several issues should be considered when designing on-plot parking. The first relates to over-dominance of the car, which can detract from the street scene and restrict natural surveillance. Where parking is within the curtilage of the property boundary, it should not take up the entire area of private space or restrict the ability of residents to personalise the environment. Consideration should also be given to the location of a property's garage. Where garages are provided, they can be one of the safest parking options; however, the location of the garage can be crucial in ensuring that this benefit is maximised. Research by Armitage *et al.* (2010) revealed that several developments had located the garage at the end of the rear garden. These proved to be extremely vulnerable to crime with an unexpectedly high level of burglary other offences at developments which had utilised this design.

Key research findings

- Rear parking courts experience higher levels of vehicle crime and criminal damage than other types of parking provision.

- As well as leaving vehicles vulnerable to crime, rear parking courts also facilitate offenders' access to the rear of properties.
- Residents prefer to park in close proximity to their property. Where this is not provided, residents will often find their own solutions – such as parking illegally on pavements.
- Lack of consideration for users in the design and allocation of car parking can lead to expensive retrospective solutions such as the need to employ management companies to enforce parking regulations.
- Developments with allocated car parking spaces for visitors experienced lower levels of crime than those which did not.
- Disputes relating to car parking provision can lead to more serious crimes such as assault and other violent crimes.
- Garages located at the end of rear gardens experienced high levels of burglary other.

Practical issues

- Rear parking courts should be avoided. However, where they are essential, they should be overlooked by nearby housing and be small in size.
- A resident's parking should be located within close proximity of their property. Ideally, parking should be provided within the curtilage of the property (garage, carport or driveway).
- Developments should have allocated car parking spaces for visitors.
- The design and allocation of on-street and communal parking must take care to avoid neighbour disputes.
- Garages should be located within close proximity of the property – in clear view of the property and neighbouring dwellings. Avoid locating garages at the end of rear gardens.

9
Synergies and Tensions between Security and Sustainability

Introduction

This chapter explores the subject of sustainability within England and Wales, highlighting the traditional narrow focus upon the green agenda at the expense of wider quality of life issues such as health, education and crime. The review of literature, policy and guidance suggests that safety and security are given some consideration within the sustainability agenda, but perhaps not enough. Common sense suggests that minimising crime and the fear of crime will improve an area's sustainability. When people feel safe in an area, they are less likely to choose to move out, more likely to use public transport, more likely to make use of public facilities and less likely to require the intervention of health professionals for issues such as stress and anxiety. Thus, if common sense is followed, sustainability policy should reflect this route to achieving sustainable development – sustainability via security. But is it that simple? Can the two agendas be aligned, or are there tensions and pinch points between the wider principles of the two agendas which cannot be resolved?

As a means of establishing the extent to which the two agendas can complement each other, research was conducted which included a review of the key literature, interviews with key personnel including police, academics, designers and civil servants and a review of eight case study sites which were selected based upon their experience (both positive and negative) of attempting to develop neighbourhoods which aligned the two agendas. The findings of this analysis are presented with conflicts identified and recommendations made to address these tensions.

Sustainability and sustainable development

There are many definitions of sustainability and sustainable development. One of the first and most often cited definitions of sustainability is that created by the Brundtland Commission, convened by the United Nations in 1983. The Commission defined sustainable development as development that 'meets the needs of the present without compromising the ability of future generations to meet their own needs' (UN Department of Social Affairs Division for Sustainable Development, 1987, p. 54). A review of the literature, however, suggests that this resource-based definition may fail to encompass the deeper meaning of sustainable development, which many see as creating places where people want to live and where people feel content. The then Office of the Deputy Prime Minister's (England and Wales) *Defining Sustainable Communities* states that sustainable communities are 'places where people want to live and work now and in the future. They meet the diverse needs of existing and future residents, are sensitive to the environment, and contribute to a high quality of life' (Office of the Deputy Prime Minister, 2005, p. 1).

   Sustainable means capable of being maintained; therefore, development which requires extensive regeneration or even demolition due to design or policy errors is not sustainable. As Wayne Hemingway (2007) highlights: 'The main thing we want is places where we can live for a long time and don't have to bloody regenerate. The fact that we've got regeneration departments in all our councils says that we fail and that we are unsustainable' (Hemingway, 2007, pp. 1–2). This view is supported by Brian Edwards (2000), who contends that although we focus upon the production of carbon emissions and waste, we are failing to see the wider picture regarding sustainability. Although the figure that buildings contribute half of the UK total CO_2 emissions is often quoted, little is said about the fact that buildings generate 16 per cent of the nation's waste in the construction phase. Therefore, a development which is not designed to last, which has to be demolished or regenerated, is failing to address the issue of sustainability. As Symes and Pauwels (1999) suggest: 'The longer a building lasts, the longer the period of time over which the environmental impacts of building it can be spread' (Symes and Pauwels, 1999, p. 104).

Many authors have expressed concern that the sustainability agenda has become too closely focused upon environmental concerns at the expense of wider social issues such as education, health and, crucial to this paper, crime (Edwards, 2000; Cozens, 2002, 2007; Hemingway, 2007).

> We have to start rolling things into sustainability. We have to address the climate but . . . we're becoming blinkered and thinking this is the only thing that matters to society at the moment. Well it isn't. Other things go hand in hand.
>
> (Hemingway, 2007, p. 4)

Edwards (2000) expresses concern that the focus has been too closely placed upon energy and carbon emissions: 'Energy efficiency is not the only issue with regard to housing, and for many tenants of social housing schemes, the priority is staying warm, living in safe neighbourhoods and keeping water bills down' (Edwards, 2000, p. 20). According to Edwards, a more accurate definition of sustainability would be: 'Housing that meets the perceived and real needs of the present in a resource efficient fashion, whilst providing attractive, safe and ecologically rich neighbourhoods' (Edwards, 2000, p. 20).

There appears to be little doubt that the sustainability issue has historically been too narrowly focused and common sense would surely dictate that achieving one (security) will naturally enhance the other (sustainability). Virtually all the aspects of life associated with local contentment will diminish unnecessary energy use. People will move less in pursuit of better schools or a less crime-challenged environment, thus avoiding the carbon costs of moving home. They will be less prone to stress-related disorders, thus reducing health service costs. They will be more prepared to walk or take public transport rather than driving their cars through fear of trouble on buses or pedestrian routes. However, whilst this in principle appears to be a common-sense approach, in practice the two agendas have yet to be fully aligned and there is little reference to crime and its reduction within sustainability literature, policy and guidance. Many authors (Poyner,1996; Du Plessis, 1999; Edwards, 2000; Cozens, 2002, 2007; Dewberry, 2003; Black, 2004) have argued that crime and the fear of crime are integral elements of sustainability, yet explicit

reference to their reduction are rarely referred to in discussions of this issue. Cozens (2002) asserts that 'the environmental movement may stand accused of ecocentrism' and goes on to argue that 'the criminogenic capacity of the built environment has consistently been ignored within this conceptual framework' (Cozens, 2002, p. 130). Cozens (2007) argues that crime reduction alone will not necessarily contribute significantly towards sustainability objectives, yet the inclusion of such key issues will help to achieve what he refers to as a 'more holistic form of urban sustainability' (p. 193). A brief review of the development of the sustainability agenda within England and Wales highlights the consideration (or lack of it) afforded to safety and security.

The sustainability agenda within England and Wales

In 1999, the England and Wales government launched a White Paper entitled *A Better Quality of Life*. The aim of this strategy was to move away from measuring sustainability solely in terms of economic success, and to measure sustainability against a range of other factors. In this White Paper, the then Prime Minister commented:

> Now as we approach the next century, there is a growing realisation that real progress cannot be measured by money alone ... we know the value of money. We know that it can bring comfort, security, and new opportunities. But we also know that money isn't everything. Feeling safe on our streets or in our homes. Enjoying our rich and diverse countryside. Knowing that a modern, dependable NHS is there when you need it. Living in strong communities. These all matter too ... That is why sustainable development is such an important part of this Government's programme ... Talking about sustainable development is not enough. We have to know what it is, to see how our policies are working on the ground.
>
> (HMSO, 1999)

It is perhaps instructive that the first non-monetary factor identified by the then Prime Minister concerned feeling safe on our streets or in our homes. The crucial role played by crime and disorder in moving people from otherwise satisfactory homes was thus recognised implicitly, although, as will be seen, it was not fully translated into

prominence within policy and guidance. In an attempt to identify, monitor and measure how sustainability policies were working on the ground the White Paper introduced no fewer than 147 indicators. Some of these built on indicators devised in an earlier (1996) strategy and some were newly introduced to reflect apparent recent changes in society. It was within the 1999 strategy that the level of crime and the fear of crime were first introduced as indicators of sustainability.

Building upon the 1999 strategy, in 2005 the government produced its Sustainable Development Strategy, entitled *Securing the Future* (HMSO, 2005). This strategy, again, aimed to reflect societal changes and to review the indicators which had been formed for the 1999 strategy. In the 2005 report, the number of indicators was reduced from 147 to 68, to focus more clearly and concisely on a smaller and more targeted number of key priorities. Examples of these indicators included: measuring CO_2 emissions by end user, measuring land recycling, river quality, water stress, pensioner poverty, childhood obesity, air quality, health and crime.

Whilst these policies stated the importance of sustainability, the main instrument used to measure and subsequently market sustainable design within England and Wales was, and still is, the Code for Sustainable Homes, first introduced in England in April 2007. The Code for Sustainable Homes is a voluntary standard designed to improve the sustainability of new homes by setting a single framework which can be used to measure standards of sustainable design. It can be used by developers to differentiate themselves within the market, but also by home buyers who want to assess the environmental impact of a dwelling and surrounding development.

The Code for Sustainable Homes uses a rating system of one to six stars – one star being entry level (36 points) and six stars being the highest level of sustainable design (90 points). The four mandatory issues for which no credits are available (environmental impacts of materials, management of surface water run-off from developments, storage of non-recyclable waste and recyclable household waste and construction site waste management) must be met to achieve a minimum one star rating. Two further issues are mandatory, but do receive credits – these are dwelling emission rate and indoor water use. With the exception of these mandatory standards the Code is flexible and developers can choose how they make up their credits. The credits awarded for each category vary and each credit is weighted

dependent upon the section to which it applies. For example, for standards included within the Health and Wellbeing category, credits are weighted at 1.17 points. Therefore, compliance with, for example, the day-lighting criteria contained within this section will contribute 3.51 points (3 multiplied by 1.17) towards the 36 points required for one star – up to 90 points required for six stars. In the Water section, credits are weighted at 1.50 points per credit, Ecology standards are weighted at 1.33 points per credit, Energy and CO_2 Emissions at 1.26 and Management (the section in which security is included) at 1.11 points per credit. Categories weighted at less than 1.11 (thus considered to be less important than security), include Waste (0.91), Pollution (0.70), Surface Water Run-Off (0.55) and Materials (0.30). The Code states that the weighting system is based upon 'extensive studies involving a wide range of stakeholders who were asked to rank . . . a range of environmental impacts' (Department for Communities and Local Government, 2008, p. 12). This suggests that these stakeholders would consider security (which is based within the management section and therefore weighted at 1.11 points per credit) to be less important in achieving sustainable development than categories such as Water, Health and Wellbeing, Ecology and Energy and CO_2 Emissions.

The main reference to crime reduction or security within the Code can be found within the Management section. A maximum of two credits (weighted at 1.11 per credit) is available for security. Two credits (2.22 points) are obtained where an ALO or CPDA from the local police force is consulted at the design stage and their recommendations are incorporated into the design of the dwelling *and* by complying with Section Two (Physical Security) of SBD New Homes (an actual SBD certificate is not required). This appears to be a relatively small number of points awarded for achieving a major impact upon the quality of a development and the quality of life of residents living within that development. This perhaps offers some indication of the importance (or lack of it) placed upon the impact of crime reduction on the achievement of a sustainable neighbourhood.

Secured by design

Although there are many different methods of crime reduction, it is the SBD scheme (and the advice offered by ALO/CPDAs) which the Code for Sustainable Homes recommends as a tool for maximising the security of a property. The SBD scheme is discussed in detail in

Chapter 2; therefore this section simply offers a recap of the principles and effectiveness of the scheme. SBD is a UK based initiative, managed by ACPO Crime Prevention Initiatives (ACPO CPI), which aims to encourage the building industry to design out crime at the planning stage. SBD was devised in 1989 by police forces based within the south-east of England, with the aim of countering the rise in household burglary. SBD includes both the Developers' Award and Licensed Products. The Developers' Award is a certificate given to building developments which are built to the SBD standard; that is, following consultation with the police ALO or CPDA, the development is deemed to conform to the appropriate standards. SBD guides exist for a variety of buildings and spaces including new homes, refurbishments, sheltered accommodation, multi-storey dwellings, car parks, railway stations, caravan parks and play areas. Although the SBD scheme requires the input of a variety of agencies such as local authority planning departments, registered social landlords (RSLs) and architects, it is managed and promoted primarily by the police. Each police force has a number of ALOs or CPDAs who work in consultation with these different agencies to ensure that as many developments as possible are designed and built (or refurbished) to the SBD standard. It is the responsibility of ALOs and CPDAs to assess planning applications from a security perspective and to work with developers to attempt to address any design weaknesses which emerge.

The principles of SBD draw largely upon the new opportunity theories of crime (routine activity theory, rational choice theory and crime pattern theory) and upon crime prevention measures such as SCP and CPTED, which assume that crime is a response to opportunity and therefore removing the opportunity can reduce crime. These theories also place an emphasis upon the role of the environment in creating or impeding these opportunities. The principles of SBD fall largely into the following categories:

- Physical Security: SBD sets standards of physical security for each property and its boundaries.
- Surveillance: SBD estates are designed to achieve maximum natural surveillance without compromising the need for privacy.
- Access/Egress: SBD estates are designed to include a minimum number of access/egress points in an attempt to avoid unnecessary entry on to the estate by non-residents and potential offenders.

- Territoriality: In an attempt to achieve maximum informal social control, SBD draws upon Newman's principles of Defensible Space (Newman, 1973). If space has a clearly defined ownership, purpose and role, it is evident to residents within the neighbourhood who should, and more importantly who should not be in a given area.
- Management and Maintenance: SBD estates should have a programmed management system in place to maintain the area. This includes the removal of litter and graffiti.

As is highlighted in more detail in Chapter 2, there have been five published evaluations of the effectiveness of the SBD scheme (Brown, 1999; Pascoe, 1999; Armitage, 2000, Teedon *et al.*, 2009, 2010; Armitage and Monchuk, 2011), each concluding that SBD confers a crime reduction advantage. In addition to evaluations of the scheme as a whole, there is an abundance of literature to show that each of the principles upon which SBD is based works to reduce crime, disorder and the fear of crime – increasing physical security (Brown and Altman, 1983; Cromwell and Olson, 1991; Budd, 1999; Armitage, 2006a); minimising access (Bevis and Nutter, 1977; Rubenstein *et al.*, 1980; Taylor and Gottfredson, 1987; Van der Voordt and Van Wegen, 1990; White, 1990; Poyner and Webb, 1991; Matthews, 1992; Atlas and LeBlanc, 1994; Beavon *et al.*, 1994; Lasley, 1998; Mirlees-Black *et al.*, 1998; Rengert and Hakim, 1998; Zavoski *et al.*, 1999; Hakim *et al.*, 2001; Eck, 2002; Taylor, 2002; Nubani and Wineman, 2005; Yang, 2006; Armitage, 2006a; Farrington and Welsh, 2009; Armitage *et al.*, 2010; Johnson and Bowers, 2010); maximising territorial responses (Brown and Altman, 1983; Brown and Bentley, 1993; Armitage, 2006a); increasing surveillance (Reppetto, 1974; Winchester and Jackson, 1982; Brown and Altman, 1983; Taylor and Gottfredson, 1987; Van de Voordt and Van Wegen, 1990; Cromwell *et al.*, 1991; Armitage, 2000; Groff and La Vigne, 2001); managing and maintaining properties and surrounding space (Taylor and Gottfredson, 1987; Armitage, 2006a).

Aligning the agendas – sustainability via security

In an attempt to establish the extent to which the two agendas can be aligned in both policy and practice, research was conducted in England and Wales which involved a review of the key literature relating to the issues of sustainability and crime reduction, interviews

with key academics, police, designers and civil servants, and a review of eight case study sites across England and Wales which had experience in developing neighbourhoods which aligned the two agendas of sustainability and security. The results revealed that, whilst there are many synergies between the general aims of sustainability and security, there are also specific tensions or conflicts. Whilst it is important to highlight these as key issues to be resolved, it is important to state that none are irresolvable and that the key to aligning the two agendas, as is highlighted below, appears to be compromise and communication between the key stakeholders.

Orientation

Orientation refers to the positioning of the property within the development and the surrounding neighbourhood. Orientation is crucial for sustainability in terms of maximising sunlight and subsequent heat and energy. For security, orientation is important with regards to surveillance – ensuring that the rooms most utilised at key times of the day and evening are suitably positioned to allow residents to act as capable guardians. One of the problems identified through the interviews and case studies was that, whilst priority was given to ensuring that the south facing windows were large to maximise heat capture, little consideration was given to the security implications of having small north facing windows. The photo below (Figure 9.1) demonstrates this problem at one case study site. Even though the north facing windows were at the front of the property – overlooking the entrance to the property and the car parking area, because the promotion of sustainability had required that north facing windows should be small to avoid heat-loss – these front windows were so small that there was little possibility of surveillance of the front of the property. This problem was exacerbated by the fact that the south facing rooms, those with large windows to maximise heat capture, were allocated to rooms most likely to be used in daylight (the living room). This meant that the north facing windows served the bedroom and kitchen – rooms from which residents are unlikely to passively survey the area.

Deck access

Another tension identified was the use of decking supported by metal posts, a material/design selected by developers as a means of

Figure 9.1   North facing windows at Primrose Hill

maximising daylight and to reduce the use of less sustainable materials. One of the main concerns regarding this design was that the metal posts which ran from the ground floor to the first and second floor properties were being used by offenders to gain access to the properties and to avoid the need to enter through the more secure communal entrance. This lack of consideration for security at the design stage had led the Housing Association to seek retrofit solutions such as applying anti-climb paint to the metal posts.

In addition to the problems of access, the deck design was also acting to reduce surveillance from the properties and surrounding walkways to the car parking area. As the photo (Figure 9.2) highlights, the decking balconies were acting to block any surveillance of the car parking area and the entrance to the development. As the ALO highlighted: 'The presence of these [balconies] of course limits surveillance out anyway because even if you were in your bedroom looking out, this is like a shelf thing that covers most of the car park.'

An additional concern regarding the deck design was that it brings the public very close to the doors and windows of each property

Figure 9.2   Deck access blocking informal surveillance opportunities

and offers no semi-private space. The walkway, which is open to all residents, or those invited to the development by residents, passes directly in front of the front door and windows with no barrier or protection. This problem is compounded by the fact that the flats are designed back to front so that the windows which look out on to the decks, the car park and the road accessing the development are the bedroom and kitchen windows. As was highlighted above, these windows are small and do not allow sufficient surveillance over this walkway. They are also windows likely to be left open by residents (as a means of venting the kitchen/bedroom), and this has caused problems with burglars gaining access through these windows.

   As was highlighted by the Housing Association, the open decks were a key part of achieving sustainable design – maximising natural light, minimising the requirement for concrete and creating an open feel which would encourage exchanges between residents. Unfortunately, at this development the deck design had created security

problems through the use of metal support posts, the restricted surveillance and the creation of semi-public space directly adjacent to property boundaries.

Car parking

Car parking within residential developments was also a tension raised by several of the participants. Sustainable development aims to reduce the dominance of the car, to improve the street scene and to encourage residents to walk, cycle or use public transport. However, from a security perspective, cars are safest if located within a garage or on a driveway within the curtilage of the property. For one particular development, which was aiming to achieve both SBD and Home Zone status, car parking was an issue which the agencies found particularly difficult to resolve. As this comment illustrates:

> [The site] is a Home Zone, that means that the streets are places for kids to play and for people to walk and talk and cycle and not car dominated. When we said that we weren't going to allow cars to park outside people's front door but they were going to be slightly remote of people's houses to keep the streets free of cars, the police said, well you can't do that. We love what you are planning to do in terms of what you want, this interaction, but if people don't have a car in front of their house it will lead to car crime and people will come on and break into cars.

In order to meet the needs of both the Home Zone and SBD the police felt that all cars needed to be observable by the residents from their property. Therefore, if the residents could not physically see their car from their property, CCTV would be used to allow residents to view their vehicle remotely. As the following comment highlights, the police felt that cars parked out of sight of residents would be vulnerable to crime and, therefore, such a design solution would not meet the requirements of SBD.

> When we first started working on this application, SBD had never dealt with this [Home Zone] concept before so there was an awful lot of Dutch trading to get that achieved. The thing that we found the most difficult to resolve really was parking issues. What we tried to achieve was that the person whose car it was could see it

from their home – which is what people want isn't it? And I think we got up to about 75–80 per cent where we were able to achieve that and with about 20 per cent they couldn't – so they resolved that with a camera. So the person could switch onto a channel on their telly and see their car.

Another issue which was raised, and which is explored in more detail in Chapter 8, was the problems caused by designing residential developments with limited car parking spaces. In an attempt to avoid dominance by the car and to encourage residents to walk, cycle or use public transport, many UK policies have encouraged limiting the number of car parking spaces allocated to each dwelling – the argument being that, with limited car parking, residents would reduce their car use, and thus the number of cars which they own/use. Unfortunately, this design solution had resulted in disputes between neighbours regarding the allocation of car parking spaces for both residents and visitors.

Cycle storage

Part of the sustainability agenda is to move people away from solely relying upon car use, and to encourage people to use public transport and bicycles. However, to encourage the use of bicycles, safe, secure and convenient cycle storage is required. One tension identified between the desire to meet sustainability objectives and the need to maintain security was that whilst the UK's Code for Sustainable Homes awards two points for the provision of cycle storage within the boundary of a property, these two points are deducted should the cycle have to be carried through the house to enter or exit the boundary of the property. To reiterate, the two points awarded by the Code for Sustainable Homes for the provision of cycle storage can only be achieved if access from the cycle store to a public right of way is not through the dwelling. In effect, this means that to achieve those two points, developers of terraced properties have to include a footpath/alleyway to allow access to storage at the rear of the property. Rear access is not recommended by SBD and research suggests that the presence of a gate leading from a rear footpath into a rear garden is the environmental factor most likely to predict prior burglary amongst residential properties (Armitage, 2006a).

Lighting

One of the more common tensions identified by key stakeholders was that of lighting. Many highlighted how SBD is keen to maximise lighting, whilst sustainable development aims to minimise the energy used by lighting. One of the main tensions specifically arising from the lighting section of the Code for Sustainable Homes was that developers are awarded one point where security light fittings are designed for energy efficiency – with a maximum wattage of 150W and movement detecting control devices and daylight cut-off sensors or timers. However, where no security lighting is installed, a default of one point can also be awarded. Therefore, a developer who complies with the rigorous standards set out above would be awarded the same number of points as a developer who did not install any security lighting. In this instance, why would any cost-conscious developer opt to install security lighting?

Ecology

The issue of planting was raised on several occasions at case study site visits. Participants had very different views about planting, with ALOs often keen to ensure that the SBD requirement that shrubbery should not be higher than one metre should be complied with. Others felt that the shrubs and trees had a positive impact upon the area and should not be restricted in height. As this comment highlights, one participant felt that SBD always assumes the worst-case scenario – what can go wrong, rather than what is likely to go wrong.

> they [ALO] said: well, you can't have streets that have got lots of greenery and bushes on them, because people will hide behind them! So there is kind of a gap between liveability and SBD and often by the very nature SBD looks at the worse scenario and kind of takes its lead from places that have kind of gone wrong.

Connectivity

As was discussed in Chapter 6, one of the main concerns for those aiming to meet the needs of the sustainability and security agendas is connectivity and through movement – the desire to promote walking and cycling and limit the reliance upon the motor vehicle. One

of the concerns regarding this issue is that in promoting walking and cycling, the inclusion of footpaths and cycle-ways can also aid offenders in gaining entry to and exit from a development. However, although this issue was raised at all case study sites, from the perspective that it has *posed* a problem at the design stage, in practice this had not proved problematic and any potential problems had been resolved through communication between the key stakeholders. As was highlighted in Chapter 6, where security risks are considered at the pre-planning stage, connectivity can be designed into a residential development without increasing crime problems. Where footpaths are well used, wide, well lit and run at the front, as opposed to the side and rear of properties, they can be incorporated into a development without increasing the risk of crime and antisocial behaviour.

Synergies between Sustainability and Security

It should be highlighted that, as well as tensions, there were a large number of synergies between sustainability and security. One such example of mutual benefits was the points awarded (four credits) within the Code for Sustainable Homes for properties incorporating sound insulation into the dwelling. This can act to reduce the risk of noise nuisance and any associated risk of neighbour disputes. Another mutual benefit was the promotion of home working, which as well as reducing the use of motor vehicles also increases the presence of capable guardians throughout the daytime. Finally, several participants highlighted the benefits of large windows which, from a sustainability perspective, are desired to capture light and heat and therefore minimise the reliance upon energy, but from a security perspective can enhance surveillance of the surrounding areas as long as the rooms overlooking the public space are active – those likely to be used by residents during waking hours.

Summary

The aim of the research upon which this chapter is based was to identify tensions and synergies between maximising sustainability and also security within residential developments. The methodology involved an extensive review of the literature relating to both sustainability and security, consultation and visits to eight case study

sites to investigate practical problems (and successes) experienced in aligning the two agendas.

Participants were asked to scrutinise the two documents – the Code for Sustainable Homes and SBD New Homes Design Guide – in an attempt to identify potential and real pinch points between the aims of sustainable and secure development. In addition, practitioners were probed regarding problems they had faced, tensions they had identified and conflicts they had experienced when designing and developing residential developments. This methodology may overemphasise the negative, but the aim was to identify as many problems as possible, thereby allowing these issues to be addressed at both policy level – through amending policy and guidance, and in practice – ensuring that the guides are correctly interpreted and implemented on the ground.

Although very specific conflicts were raised relating to deck access, orientation, lighting, cycle storage, planting and car parking, no tensions were identified between the wider aims and principles of achieving sustainability and security. One of the key findings of the research was that problems identified by practitioners attempting to develop sustainable and secure developments were not necessarily conflicts between the principles of sustainability and security, but rather they related to issues of poor design and poor communication between key stakeholders in the design and development process. To elaborate, the research did not identify any features of sustainable design which would prevent a development from achieving SBD. Equally, no features of SBD were identified which would make it difficult to achieve a high rating on the Code for Sustainable Homes. Achieving SBD does not prevent a developer from achieving high levels of sustainability; achieving high levels of sustainability does not prevent a developer from achieving SBD. Developments which had failed to align the two agendas had failed because of poor processes – a lack of communication and consultation between key partners, not because a design feature which was essential for sustainability made it impossible to achieve a secure development (or vice versa). Common features of these developments were a lack of communication between the developer, planner and ALO/CPDA, a lack of flexibility by the ALO/CPDA and a reluctance to compromise. In contrast, developments which had met the requirements of both the Code for Sustainable Homes and SBD had ensured that the ALO/CPDA was

consulted at the concept/pre-planning stage, had excellent systems of communication (for example, basing the ALO/CPDA within the planning department) and had individuals who were able to see beyond their own remit – to understand the requirements of those working to a different agenda. As is highlighted by the following comment from an ALO at a case study site which achieved EcoHomes 'excellent' and SBD, the features of sustainable development do not necessarily have to increase security within a home; equally, the features required by SBD do not have to reduce a development's impact upon the environment. The main aim is to achieve both goals even if this requires some element of compromise.

> I don't necessarily think, you know, this idea of trying to save rainwater or making a property retain more heat, having better windows for heat conservation and that will make any contribution to security but I think what you have to do is adopt the opposite view and say, well it may not help, but it is certainly not hindering either. If all the rainwater is retained and they are using sustainable materials and things like that but you can still factor security in, we should all pat one another on the back and be pleased by that.

The specific tensions which were identified within the research can be resolved, but to do so, key individuals and agencies must ensure that policy is aligned and that partners on the ground are able to compromise in the pursuit of secure and sustainable developments. Although revisions should be made to the SBD and Code for Sustainable Homes, focus should also be placed on the processes involved, particularly those involved in achieving SBD. Problems of poor communication and a lack of flexibility between partners need to be addressed to ensure that sustainable and secure developments can be built. Although the production of guides and awards can go a long way towards ensuring that developments meet the aims of agendas such as security and sustainability, care must be taken to avoid a tick-box system where individuals become preoccupied with meeting set criteria, rather than thinking about the wider aims and principles. Whilst achieving SBD or Level Six on the Code for Sustainable Homes are the most appealing outcomes, letting the completion of checklists jeopardise the wider principles of building desirable places

to live is the least desirable outcome. The ultimate aim should be to build safe and secure developments which minimise the impact upon the environment, not building the most sustainable site which has given no thought to crime, or the most secure site which has given no thought to sustainability. The most important outcome is the production of a sustainable and secure development, not to achieve SBD at the expense of other factors.

10
Can Designing Out Crime Interventions Sustain Crime Reduction Benefits?

Introduction

This chapter presents the findings of an evaluation into SBD housing within West Yorkshire, England. The scheme is presented in detail in Chapter 2, alongside findings relating to its efficacy as a crime reduction measure. The study which forms the basis of this chapter focuses, not simply upon the effectiveness of the scheme, but also on whether the benefits can be sustained over a ten-year period (1999–2009). The rationale for including a second evaluation of the scheme is to focus not upon whether SBD can reduce crime and the fear of crime, but upon whether that benefit retains its impact. The factors upon which SBD is based include physical security measures such as locks, windows, doors and fencing, but also design features relating to the layout of a property and the development within which it is based, but which should be sustained over a longer period of time – arguably, the lifetime of the development.

Whilst this chapter presents a brief review of the methodology and findings of the original evaluation of SBD in West Yorkshire (Armitage, 2000) the focus is upon the updated evaluation which aims to establish whether crime and the fear of crime remain lower within like-for-like SBD (as opposed to non-SBD) residential developments.

Why update the 1999 evaluation?

Within Chapter 2, the findings from the original evaluation of SBD in West Yorkshire (Armitage, 2000) are presented in some detail. However, a brief recap of the methods and findings should assist the reader and place this chapter within context. The analysis within the original evaluation included three major strands. The first looked at police recorded crime and compared 25 matched pairs (25 SBD and 25 non-SBD developments) to establish whether there was a significant difference between the crime rates within these matched pairs. The second method utilised the same sample of 25 SBD and 25 non-SBD developments, but instead of looking at police recorded crime, this utilised a survey of residents who were personally asked about their experiences, fears and perceptions of crime and disorder (through face-to-face interviews). The final strand of the original evaluation looked at whether SBD was improving as a standard – were estates built more recently performing better than older estates?

Although the findings were extremely positive, one of the major weaknesses of the study (as time has progressed) is that the sample of estates included within the study no longer reflects the standard required to achieve SBD. The study began in 1999 and for estates to be included within the sample residents had to have been living within the developments for at least one year to ensure that there were sufficient crime data to validate the analysis. For this reason, developments built post-1998 were excluded from the sample. The problem which this poses in terms of the findings of the evaluation is that many changes were introduced to the SBD standard in 1999 and thus are not accounted for within the evaluation. A brief summary of those major changes is outlined in Table 10.1, the major change being the improved standards required for windows and doors introduced in 1999.

The period post-1998 also saw many changes in the way the process implemented SBD both within West Yorkshire and nationally. These changes included an increase in the number of ALO/CPDAs working within each police force, improvements in local and national planning policy to incentivise the SBD standard and (supported by these changes) a move towards pre-planning consultation as opposed to involvement at the planning application (or post-application) stage. This increased the likelihood that the original findings, although

Table 10.1   Changes in physical security standards for SBD (1989–1999)

Time period	Physical security standards
1989	SBD was launched in 1989 with window and door requirements based upon 'specification' as there were no specific standards for such products at this time. The windows section of SBD was very basic, with a requirement only for windows to be lockable (with a key). Requirements for doors mirrored those within the National House Building Council security section.
1992	In 1992, a National Technical Committee for SBD was formed. Window and door standards were still specification led at this stage.
Early 1990s	The first true 'performance' based standards (GGF 6.6: Specification for Improved Security, Part 1 Casement and Tilt and Turn Windows) was introduced in the early 1990s; however, this was not formally referenced as an SBD standard and only promoted to window manufacturers by a small number of ALOs.
1994	PAS 011: 1994 was adopted as a 'test' standard for SBD windows by the majority of police forces; however, it was never formally written into SBD requirements.
1997	GGF 6.6.2: Specification for Improved Security – Single Handed Residential Doorsets was published in 1997; however, again this never became a national SBD requirement, although it was utilised by some ALOs.
1999	The first major revision to SBD took place in 1999. This was the most significant change in terms of physical security as it signalled the end of specification led door and window requirements and the introduction of performance led requirements – PAS 24: 1999 and BS 7950: 1997. The introduction of these standards removed any subjectivity and ensured that a consistent level of security was being offered by manufacturers.

extremely positive, were not an accurate reflection of the current standard and were likely to be presenting a less favourable picture than a more recent sample might provide.

The findings from the original evaluation also revealed an interesting pattern which suggested that, even before the introduction of the improved standards, the performance of SBD had been improving over the period of the evaluation: 1994–1998. As a means of

measuring the extent to which the scheme was improving (the scheme was in its infancy and many practitioners and policy-makers were interested, not only in its performance as a crime reduction measure, but also in whether that performance was increasing as the scheme evolved) the burglary rates of developments built in 1994 through to 1998 were compared against their non-SBD matched pairs.

The results revealed a year on year improvement in the performance of SBD (see Figure 10.1). The mean burglary rate for SBD estates built in 1994 was 171 per cent of the burglary rate for non-SBD estates built in 1994. The mean burglary rate for SBD estates built in 1995 was 130 per cent of the burglary rate for non-SBD estates built in 1995. For estates built in 1996, the figure was 97 per cent, for estates built in 1997 the figure was 51 per cent and for SBD estates built in 1998, the mean burglary rate was 45 per cent of the burglary rate for the non-SBD matched pairs.

These results suggest that, until 1996, the SBD estates within the sample were actually experiencing more burglary than their matched pairs – in the case of estates built in 1994, almost twice as much. However, SBD estates built in 1998 were experiencing less than half of the burglary of their non-SBD counterparts – a vast improvement. Although there were major changes to the standards of physical security introduced in 1999, suggesting that between 1994 and 1998 the
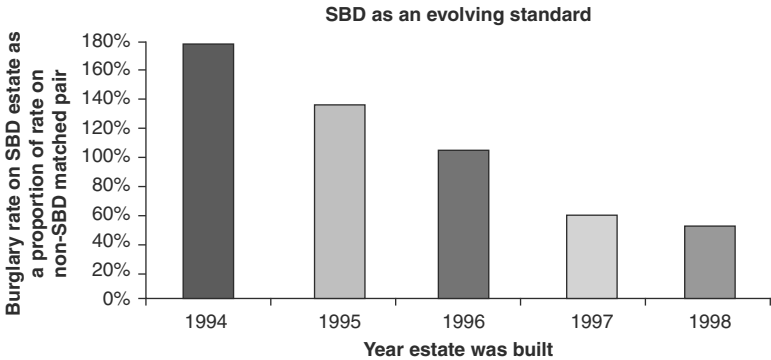
Figure 10.1   Burglary rate on SBD estates as a proportion of non-SBD matched pairs (1994–1998)

general standard of the scheme was relatively uniform, it is clear that the performance of SBD within West Yorkshire was improving over this five-year period. Without further detailed research to investigate the procedures implemented over that period, it is difficult to give a specific explanation for these improvements. However, the author suspects that the improvement in the performance of the scheme is likely to be linked to a combination of the following changes: an increase in ALO numbers – thereby allowing a more detailed assessment of schemes prior to awarding SBD status; an increasing recognition of the status of the award and, therefore, a pressure to ensure that standards were met; a greater understanding of the principles of the scheme amongst ALOs (even without the physical security changes) and, therefore, an improvement in their ability to ensure that the basic CPTED principles were met; and finally, the introduction of minor changes to the standard over that five-year period.

Given that the SBD scheme had improved so dramatically within that five-year period, there was a strong likelihood that (post-1999) this pattern would continue, or more likely (given the introduction of new standards to the physical security requirements in 1999), that the scheme would improve at a greater rate.

Evaluating the sustainability of crime reduction benefits

In an attempt to assess the long-term sustainability of any crime reduction impacts of the SBD scheme, the research utilised a variety of datasets. These included police recorded crime, self-reported crime (through a residents' survey) and visual audits. The focus of the study was to establish whether a more recently designed and built sample of SBD properties would show greater crime reduction benefits than the developments assessed for the original sample, but also to ascertain the extent to which the developments included within the original sample had continued to perform better than their non-SBD matched pairs. Below is a summary of the methods and datasets utilised within this research.

Analysis of police recorded crime: SBD versus West Yorkshire

The analysis of police recorded crime data included three separate samples. The first sample included the 16 SBD developments which had been built in West Yorkshire in 2006/2007 (there were only 16

SBD developments built in that year). The crime rates for this sample of 342 properties were compared with a non-SBD sample which included all properties within West Yorkshire, with crime rates for the whole of West Yorkshire. The rationale for selecting the 16 SBD developments built in 2006/2007was that these were the most recent SBD developments built within West Yorkshire – still allowing one complete year of crime data for the analysis. The analysis included the crime categories of assault, criminal damage, theft, burglary other, theft of a vehicle, theft from vehicle, burglary dwelling and 'other[1]', and the period of analysis was August 2007 to July 2008. Crime totals were converted into rates per 1000 properties and crime rates were compared for the SBD and non-SBD sample with further analysis of statistical significance presented.

Analysis of police recorded crime: same street analysis

The second sample took, from the 16 developments built in 2006/2007 (as above), the 11 developments which included a mix of both SBD and non-SBD properties. This included 11 developments containing 101 SBD and 354 non-SBD properties. Where developments included a mix of the two types of property, in some cases this was a large non-SBD development which, due to planning policy, had been required to include some SBD properties, or a non-SBD development which included a block of SBD apartments as part of the same development. For this sample, crime rates were analysed for all crime categories with the statistical significance of any differences presented. The time period of analysis was again August 2007 to July 2008.

Analysis of police recorded crime: matched pairs

The third sample included 16 SBD and non-SBD matched pairs. The SBD sample was the 16 developments built in West Yorkshire during 2006/2007. The non-SBD comparison developments were selected based upon location only – that is, they were the nearest non-SBD development to each of the 16 SBD developments. Although this updated study aimed to replicate the methodology used to create matched pairs in the original evaluation, changes in housing policy meant that this was no longer possible in 2009. The original evaluation created matched pairs which were as similar

as possible in terms of age, housing tenure and other environmental features. However, policy incentives and planning requirements meant that the vast majority of social housing built in 2006/2007 was built to SBD standards, meaning that finding SBD and non-SBD developments of the same housing tenure could not be achieved. Again, all crime categories were analysed for the time period August 2007 to July 2008. The analysis compared crime rates per 1000 dwellings with any statistical significance in differences presented.

The analysis of crime within the matched pairs sample also considered levels of repeat victimisation, comparing differences between SBD and non-SBD samples, but also assessing any differences between 1999 and 2009. Repeat victimisation is the recurrence of crime in the same places or against the same people. The Home Office definition states that repeat victimisation occurs 'when the same person or place suffers from more than one incident over a specified period of time' (Bridgeman and Hobbs, 1997, cited in Pease, 1998, p. 1). Repeat victimisation measures the concentration of crime – this being the average number of victimisations per victim (incidence divided by prevalence) – as opposed to incidence (the more common measure of crime), which measures the average number of victimisations per population at risk of victimisation.

Assessing the sustainability of crime reduction impacts

In an attempt to establish the extent to which developments analysed within the original evaluation had improved, deteriorated or remained the same over the ten-year period of 1999–2009, 2 of the original 25 matched pairs were randomly selected and crime rates were compared between 1999 and 2009.

Analysis of self-reported crime

As a means of gathering data on residents' experiences and perceptions of crime and disorder within their area, all residents living at the 16 SBD and 16 non-SBD matched pairs (342 SBD and 253 non-SBD residents) were invited to complete a survey. The survey was based upon both the BCS and the survey utilised within the 1999 evaluation to ensure that comparisons could be made. Unfortunately, although the survey was sent to 595 properties, only 68 residents returned the survey, giving a response rate of 11 per cent.

Visual audits

Visual audits took place at the 16 SBD and 16 non-SBD developments included in the matched pairs analysis. The audits were designed to measure visual signs of crime and disorder such as graffiti, broken glass, damaged street furniture and litter. The visual audits took place over a three-day period, with each matched pair (SBD and non-SBD) visited on the same day and at approximately the same time. Two researchers each independently completed the visual audit schedule for each of the developments with the scores allocated to each development representing the mean of the scores awarded by the two researchers. Although the researchers completed the visual audit schedule independently, discussions took place before leaving the site to ascertain whether scores differed. Where scores differed, the researchers discussed their independent views to establish whether this was a genuine difference of opinion or whether the assessment was incorrect. In terms of inter-rater reliability, of the 32 developments, the two researchers differed in their scoring at 12 sites. Of a total of 896 scores (28 factors multiplied by 32 developments), different scores were awarded on 20 occasions. At each of these, the difference between scores differed by no more than one (on a scale of zero to five).

Visual audit scores were compared both for each individual matched pair and for the SBD and non-SBD total samples. Scores were assigned on the basis of low being a positive and high being a negative; for example, vandalism to buildings would be scored as zero for no evidence of vandalism and five as a high level of vandalism. Therefore, a high overall score would represent a negative finding and a low score a positive finding.

How did SBD perform?

Police recorded crime data: SBD versus West Yorkshire

As was highlighted within the methodology section, the first section of the analysis of police recorded crime data involved comparing crimes within the SBD sample (SBD properties built in 2006/2007) with crimes across West Yorkshire as a whole. A total of 19,701 domestic burglaries were reported in West Yorkshire between August 2007 and July 2008; however, only two burglary dwellings were

committed against the SBD sample within this time period. This represents a rate of 5.8 burglaries per 1000 properties within the SBD sample and 22.7 (per 1000 properties) within West Yorkshire as a whole. The difference between burglary rates within the SBD and non-SBD samples were found to be statistically significant (Wilcoxon Signed Ranks Test $p < 0.01$).

Police recorded crime data: Same street analysis

The second strand of analysis looked at crime rates on developments that contained both SBD and non-SBD properties. A total of 105 crimes were committed within the same street sample between August 2007 and July 2008. Of these 105 offences, 93 were committed against non-SBD properties and 12 were committed against SBD properties. This equates to a rate of 262.7 crimes per 1000 households within the non-SBD sample and 118.8 crimes per 1000 households within the SBD sample. This difference in rates was statistically significant (Wilcoxon Signed Ranks Test $p < 0.05$). No burglary dwellings were recorded against the SBD properties within this sample; however, five were recorded against the non-SBD sample. With the exception of criminal damage, rates for all crime categories analysed were higher within the non-SBD sample. These findings are summarised in Table 10.2.

Police recorded crime data: Matched pairs analysis

For the matched pairs sample, a total of 44 crimes were committed within the SBD developments during the time period analysed; this equates to a rate of 128.7 per 1000 properties. Forty-two crimes were committed within the non-SBD sample, a higher rate of 166.0 per 1000 properties. The findings from this section of the analysis are less positive, and although the crime rate is slightly lower within the SBD sample (128.7 crimes per 1000 properties) as compared to the non-SBD sample (166 crimes per 1000 properties), this difference is not statistically significant (Wilcoxon signed ranks test = 0.570). When analysing the individual crime categories, although total crime, burglary dwelling and criminal damage were lower within the SBD sample, assault, burglary other and theft of and from vehicle were higher within the SBD sample (although none of these differences were statistically significant). Without further research using a larger sample of properties, it is not possible to say with any certainty why

Table 10.2 Crime categories recorded within the same street sample (August 2007–July 2008)

Crime type	Non-SBD		SBD		Significant difference
	No.	Rate	No.	Rate	
Assault	24	67.8	0	0.00	$p < 0.05$
Criminal damage	12	33.9	4	39.6	ns
Burglary other	7	19.8	2	19.8	ns
Burglary dwelling	5	14.1	0	0.00	$p < 0.05$
Theft from vehicle	7	19.8	0	0.00	$p < 0.05$
Theft of vehicle + TWOC	3	8.5	0	0.00	
Other	35	93.2	6	59.4	–
Total	93	262.7	12	118.8	$p < 0.05$

A strong, statistically significant correlation was identified between the proportion of SBD houses on a street and the rate of crimes recorded there (Spearman's rho -.529 $p < 0.05$). This correlation was negative, suggesting that the lower the proportion of SBD homes on a street the higher the rate of crime.

the results of the matched pairs analysis were less positive than those shown in the same street analysis. However, one possible explanation, which was alluded to above, is that in creating the matched pairs which were located within as close proximity as possible to each other, in most cases this meant comparing a social housing development (SBD) with an owner occupied development (non-SBD) these results are summarised in Table 10.3.

Repeat victimisation

As well as crime incidence, the evaluation also looked at levels of repeat victimisation to establish whether SBD was protecting against crime repeats. Although the original evaluation of SBD in West Yorkshire (Armitage, 2000) had shown positive findings regarding the performance of SBD as a crime reduction measure, the impact of the scheme on repeat victimisation appeared to be less straightforward, with levels of repeat burglary higher within the SBD sample. This finding suggested that, although SBD is more likely to prevent crime taking place, once the offender had found a weakness – either within the design of a property or in the resident residing within that property – they were exploiting that weakness and committing repeat burglaries at a rate higher than that experienced by the non-SBD matched pairs. At first glance these findings appear

Table 10.3   Number and rate of crimes recorded in the matched pairs sample (August 2007–July 2008)

Crime type	Non-SBD		SBD		Significant difference
	No.	Rate (per 1000 properties)	No.	Rate (per 1000 properties)	
Assault	7	27.7	17.0	49.7	ns
Criminal damage	12	47.5	8.0	23.4	ns
Burglary other	1	4.0	2.0	5.9	ns
Burglary dwelling	2	7.9	2.0	5.9	ns
Theft from vehicle	1	4.0	2.0	5.9	ns
Theft of vehicle + TWOC	0	0.0	3.0	8.8	ns
Other	19	75.1	9.0	26.3	ns
Total	42	166.0	44.0	128.7	ns

contradictory; however, once considered in more detail, they make intuitive sense and are supported by other criminological research (Ellingworth *et al.*, 1997; Ashton *et al.*, 1998). Offenders often select a target based upon external cues such as the ease of access and perceptions of risk and reward. However, once the offender has burgled the property, they can base their decision to reoffend upon internal cues such as lifestyle and wealth – supporting the Event Dependency explanation for repeat victimisation. Bearing this in mind, it was important for the updated evaluation to revisit the issue of repeat victimisation and to attempt to establish whether this finding was still valid or whether SBD had improved as a protective factor against repeat victimisation. Utilising the matched pairs sample, levels of repeat victimisation were analysed for total crime and individual crime categories.

The results revealed that repeat victimisation was again higher within the SBD sample, with 35.7 per cent of crimes against the SBD sample representing a repeat offence, as compared to 27.3 per cent of the crimes against the non-SBD sample. A closer scrutiny of the repeat victimisation data for the 2009 sample revealed that the main crime type impacting upon this increased level of repeat victimisation

was assault. Further analysis of total crime data – removing assault offences – revealed that whilst the percentage of crimes experienced which were repeat offences remained at 27.3 per cent for the non-SBD sample, the proportion of repeat victimisations within the SBD sample reduced from 35.7 per cent to 11.9 per cent. It was not within the scope of this study to conduct a detailed analysis of offender *modus operandi* to establish whether these assault offences were linked to an escalation of violence (due to the offender's frustration at being unable to break into the property). However, a detailed analysis of the *modus operandi* of assaults within the original study (Armitage, 2000) concluded that the higher rate of assaults could not be linked to escalation as there was no use of violence in burglary offences against the SBD sample, with violence used in 1 per cent of the burglaries against the non-SBD sample. Although this suggests that it is unlikely that the requirements of SBD are heightening the levels of assault, the recurrence of this finding suggests that additional interventions, focused upon offences against the person, should be implemented to supplement the situational measures incorporated within SBD.

Assessing the sustainability of crime reduction impacts

In an attempt to assess the sustainability of any crime reduction impacts of the SBD scheme, the analysis also included a comparison of crime rates on two randomly selected matched pairs that had been included in the original 1999 evaluation. This involved comparing the crime rates for the one-year period April 1999 to March 2000 with the one-year period August 2007 to July 2008. The extraction of data included all crime categories that took place on these developments within those one-year periods. It should be highlighted that the two matched pairs were selected without prior knowledge of performance and subsequent inspection of crime data revealed that both of the developments experienced very low levels of crime (for both time periods). The small numbers preclude analysis of statistical significance; however, the findings do present an indication of the long-term performance of SBD.

The analysis revealed that for matched pair one (see Table 10.4) the crime rate for the SBD and non-SBD matched pair in 1999/2000 was 71.43 crimes per 1000 properties. This represents just one crime on each development and an identical crime rate. The crime on the SBD development was a Taking without Owners' Consent (TWOC),

Table 10.4   Crime rates on matched pair one

Development	Number of properties	Number of crimes 1999/2000	Crime rate per 1000 in 1999/2000	Number of crimes 2007/2008	Crime rate in 2007/ 2008
SBD	14	1	71.43	1	71.43
Non-SBD	14	1	71.43	8	571.43

the crime on the non-SBD development was a theft of pedal cycle. Analysing the crime rates in 2007/2008 for the same matched pair revealed that, although the crime rate on the SBD development had remained exactly the same (71.43 crimes per 1000 properties, one crime), the crime rate on the matched pair had increased to eight crimes (571.43 per 1000 offences). The one crime which took place on the SBD development in 2007/2008 was again a TWOC; the crimes which took place on the non-SBD development were: Three criminal damage to dwelling offences, one criminal damage to motor vehicle, one interference with motor vehicle, one TWOC, one assault and one theft non-specific. The reader is reminded to treat these findings as indicative as the crime numbers for both samples, and for both time periods, are very small.

Table 10.5 displays the number and rate of crimes on matched pair two. The analysis revealed that the crime rate for the SBD development in 1999/2000 was 45.45 per 1000 properties (just one crime offence). On the non-SBD development, the crime rate was 178.57 per 1000 properties (five crimes). The crime on the SBD development was a damage to motor vehicle offence; the five crimes on the non-SBD development were: one burglary dwelling, one common assault, one TWOC and two damage to a dwelling offences. Analysing the crime rates in 2007/2008 for the same matched pair revealed

Table 10.5   Crime rates on matched pair two

Development	Number of properties	Number of crimes 1999/2000	Crime rate per 1000 in 1999/2000	Number of crimes 2007/2008	Crime rate per 1000 properties in 2007/2008
SBD street	22	1	45.45	3	136.36
Non-SBD street	28	5	178.57	6	214.29

that the crime rate on the SBD development increased, with three offences within the one-year period (a crime rate of 136.36 offences per 1000 properties). The crime rate on the non-SBD development also increased – to six offences (a crime rate of 214.29). The three offences on the SBD development were assault, criminal damage to a dwelling and other. The six offences on the non-SBD development were: one burglary dwelling, one theft of vehicle, one TWOC, one assault and two criminal damage to a dwelling offences.

Table 10.6 summarises the findings from the two developments. It is clear that, for each matched pair, the SBD development performs either better or the same as the non-SBD development for both time periods. In terms of performance over a ten-year period, for matched pair one, the SBD development has retained the same crime rate over the ten-year period, whilst the non-SBD development has increased from a rate of 71.43 (per 1000 properties) to 571.43 (per 1000). For matched pair two, the findings are nor as positive. Whilst crime is lower on the SBD sample for both time periods, the crime rate has increased at a greater level for the SBD development than the non-SBD development.

Self-reported crime

In addition to the analysis of police recorded crime, the research also involved the analysis of self-reported crime as measured by a residents' survey. The survey asked residents whether they had been a victim of certain crimes within the previous 12-month period, and

Table 10.6   Crime rates on SBD developments (1999–2009)

Development	Number of crimes 1999/2000	Crime rate per 1000 in 1999/2000	Number of crimes 2007/2008	Crime rate in 2007/2008
Matched pair one: SBD	1	71.43	1	71.43
Matched pair two: Non-SBD	1	71.43	8	571.43
Matched pair two: SBD	1	45.45	3	136.36
Matched pair two: Non-SBD	5	178.57	6	214.29

if so, how many times. The reader is reminded that, due to the low response rate of just 11 per cent, the sample size is small (68 respondents) and as such these findings should be treated with some caution.

The results of the survey (see Table 10.7) revealed that one SBD respondent had been a victim of domestic burglary within the previous year. This is compared to two respondents from the non-SBD sample. The proportion of SBD residents falling victim to this offence remained the same (3 per cent) between 1999 and 2009, whilst the proportion of non-SBD respondents experiencing a burglary fell from 8 per cent in 1999 to 6 per cent in 2009. Although the burglary rate was lower within the SBD as opposed to non-SBD sample, it should be highlighted that the 3 per cent rate was still higher than the average BCS burglary rate of 2.4 per cent.

Theft of vehicle revealed a similar pattern, with one participant experiencing this crime within the SBD sample, compared to two within the non-SBD sample. When comparing this finding with the responses from the 1999 evaluation, the results suggest that fewer SBD respondents had been a victim of theft of vehicle in 2009 (3 per cent) as compared to 1999 (5 per cent) even though the proportion of non-SBD victims remained the same (6 per cent). Theft from vehicle offences were experienced at a slightly higher rate, but again with a similar pattern. Two SBD respondents had been a victim of this crime within the previous year, as compared to six respondents from the non-SBD sample. Again, the percentage of SBD victims was higher in the 1999 evaluation (8 per cent) than the 2009 evaluation (6 per cent).

Visual audits

The final strand of analysis involved conducting visual audits on the 32 developments included within the matched pair analysis (16 SBD and 16 non-SBD developments). The first level of analysis involved presenting the total score for the whole SBD sample against the total score for the whole non-SBD sample. The audit measured 28 factors and each factor scored between zero and five – zero being the most positive score and five the least. The maximum (and most negative) score for each sample (SBD and non-SBD) would be 2240 (140 multiplied by 16 developments). The minimum score would be zero.

Table 10.7 Self-reported crime (1999–2009)

Crime category	Percentage of SBD respondents – 1999 (%)	Percentage of non-SBD respondents – 1999 (%)	Percentage of SBD respondents – 2009	Percentage of non-SBD respondents – 2009	Percentage of British crime survey respondents (07/08) (%)
Theft of vehicle	5	6	3% (1)	6% (2)	0.6
Theft from vehicle	8	6	6% (2)	17% (6)	3.4
Theft of bicycle	10	7	3% (1)	6% (2)	1.6
Burglary dwelling	3	8	3% (1)	6% (2)	2.4
Theft of property from outside dwelling	16	24	9% (3)	17% (6)	–

Table 10.8   Total scores for each of the 32 developments

Matched pair	SBD score	Non-SBD score
Pair one	**23.5**	23
Pair two	**22**	20.5
Pair three	17.5	**24.5**
Pair four	**28**	18
Pair five	24	**38**
Pair six	21.5	**21.5**
Pair seven	19	**24.5**
Pair eight	15	**19**
Pair nine	20	**39**
Pair ten	22	**26**
Pair eleven	24	**25**
Pair twelve	15	**25**
Pair thirteen	12	**18**
Pair fourteen	23	**25**
Pair fifteen	11	**19**
Pair sixteen	19.5	**22**

The total score for the SBD sample was 317; the total score for the non-SBD development was 388. This is a positive finding for SBD and suggests that, in relation to the disorder factors measured by the visual audit, SBD performs better than non-SBD.

When analysing the scores for each matched pair (see Table 10.8), the results revealed that, in general, the best performing estates were SBD developments, and the worst performing estates were non-SBD developments. Of the 16 matched pairs, for three pairs SBD performed worse than the non-SBD counterpart, for 1 pair the scores were the same and for 12 pairs SBD performed better than the non-SBD pair.

Summarising the findings

This chapter presents the findings of an evaluation of SBD housing within West Yorkshire, England. The study aimed to replicate, where possible, the original evaluation of SBD conducted in West Yorkshire ten years ago (Armitage, 2000) and to establish whether SBD has improved, maintained its performance or reduced its effectiveness as a crime reduction measure. The study was restricted by limited funding, and this is reflected in the sample sizes – particularly within

the self-reported crime section. The findings are presented alongside caveats regarding sample size and in many cases the reader is urged to treat the findings as indicative. It is hoped that, limitations aside, the findings of the study can be used to support the continued use of the SBD scheme and to highlight areas for improvement.

The first strand of the evaluation included an analysis of police recorded crime, comparing a sample of SBD developments built in 2006/2007 (16 developments) with (a) the rest of West Yorkshire, (b) non-SBD properties on the same street and (c) non-SBD matched pairs which were developments located as close as possible to the SBD development. The results were mixed, with the West Yorkshire and same street analysis revealing positive findings, yet the matched pairs analysis showed no statistically significant differences between the SBD and non-SBD samples.

When these findings were compared with the results of the 1999 evaluation, the results were positive, with the burglary dwelling rate for the SBD sample almost four times higher in the 1999 study than that revealed in 2009. Total crime rates were also much lower in the 2009 SBD sample (128.7 per 1000 properties) than that shown in 1999 (187.9 per 1000 properties).

Revisiting the crime data for two of the matched pairs utilised within the 1999 study revealed mixed findings. Although for both matched pairs the SBD development was performing either the same as or better than the non-SBD development for the two time periods 1999/2000 and 2007/2008, there was some concern regarding the sustainability of crime reduction within one of the matched pairs. Whilst for matched pair one the SBD sample sustained its crime reduction performance over the ten-year period (whilst the non-SBD development saw its crime rate increase), matched pair two did not perform as well. Although the crime rate was still lower within the SBD development, crime did increase within the SBD development at a greater rate than in the non-SBD development, raising some concern regarding the scheme's life cycle.

The original evaluation of SBD within West Yorkshire revealed positive findings, and many felt that there was little point reassessing the effectiveness of SBD, given that the research had shown SBD to be effective. However, to be complacent about the merits of SBD, or any crime prevention measure, would be to ignore the evolving

nature of crime and those who take part in it. As Ekblom (2002) suggests: 'Knowledge of what works becomes a wasting asset that needs constant replenishment' (p. 38). To ensure that SBD continues to evolve faster than criminals' abilities to overcome it, research with an improvement orientation is essential. The re-evaluation of SBD has shown that SBD has continued to reduce crime and the fear of crime, SBD developments have sustained their crime reduction benefits and continue to experience less crime than their non-SBD counterparts. Furthermore, the effectiveness of SBD developments built more recently has exceeded that shown in the original evaluation, with SBD developments outperforming their non-SBD counterparts in terms of crime reduction, visual signs of disorder and levels of fear amongst residents.

In terms of practical implications, there are several key recommendations which emerged from this research; these relate to repeat victimisation, management and maintenance and police recording practices. In the original evaluation, the benefits of SBD appeared to be restricted to preventing initial and not repeat victimisation. In this re-evaluation, SBD appeared to be protecting against repeat burglary – but not repeat assault. If SBD is to provide a complete crime reduction package, it must address this deficit by introducing measures to reduce repeat victimisation which extend beyond the limits of design of the environment. Two suggestions for addressing these weaknesses include ensuring that SBD estates are prioritised in the delivery of repeat victimisation packages (which are already delivered by many police forces including West Yorkshire Police). The second (directed at ACPO CPI) would be to incorporate repeat victimisation packages into SBD standards at a national level. The second recommendation relates to police recording practices, in particular the need to ensure that police forces keep up to date records of SBD applications (and progress beyond application) to allow such evaluations to be repeated (in West Yorkshire) or replicated (throughout England and Wales). The final recommendation relates to management and maintenance and is an issue that was also raised within the original evaluation. Although the vast majority of the 16 SBD developments showed little or no visual signs of disorder, for several there were many signs of vandalism, graffiti and litter – and in some cases, more so than the non-SBD matched pair. It is suggested that

West Yorkshire Police revisit the SBD estates shown to be performing poorly to establish whether the issues are simply related to management and maintenance (in which case housing associations should be involved) or whether retrospective design improvements would benefit the development.

Conclusion

And so to conclude this book on what has been a 15-year journey on the subject of designing out crime within residential housing – a topic to which I was introduced as a recent graduate as 'one of the less sexy areas of criminology', but one which, for me, has proved to be both an interest and a challenge. I prefer to view this subject as practical as opposed to unsexy! Its appeal lies in its simplicity (which some may view as basic or unsophisticated) and its ability to produce change both in the process of approaching crime reduction on the ground, and in the benefits it can produce, and has produced in terms of reduced crime, improved well-being, enhanced social and environmental sustainability, and ultimately a reduction in costs to society. Many have criticised this approach as disregarding the root causes of crime and as seeking a short-term solution to a deeper problem. I would beg to differ. Not only does designing out crime require, and therefore facilitate, a multi-agency approach to addressing the features which promote opportunities for crime, it also creates an environment which promotes safety and discourages criminal opportunities which have the potential to remain for decades to come. There is nothing short-term about this crime reduction approach. The consultation, planning, design and development process can take years, even decades, and the benefits will last for generations. This may not be rocket science, but as Ekblom (2011c) in an earlier contribution to this series, highlights, rocket science itself is actually 'dead simple – feed fuel and oxidant into a chamber, stand well back, ignite, apply Newton's laws of motion, and whoosh' (p. 279). With designing out crime we have a simple technique which

allows the opportunities for crime to be designed out of residential housing before the problems emerge. It creates an environment in which key agencies must work together to demonstrate and deliver their requirement to consider crime prevention, and it creates environments where people want to live and work, both now and in the future – the very definition of sustainable development (according to the Office of the Deputy Prime Minister, 2005).

If that sounds like a hard sell, it shouldn't. As a researcher working within this field I retain independence and much of my research has had an improvement orientation. I have seen this discipline evolve from one largely led by police who saw the approach as being common sense, yet had no independent evidence of its efficacy, to one where research has flourished. My original evaluation of the SBD scheme commenced in 1998 and was welcomed, particularly by the police, as confirmation of what they believed. It helped to support the promotion of the ALO/CPDA role both in quantity and authority, and this period saw agencies such as the Housing Corporation (now the Homes and Communities Agency) offer financial incentives for Registered Social Landlords who developed their housing to the SBD standards. It was a period of optimism, summarised by the statement made by Professor Ken Pease at an academic debate held at New Scotland Yard: 'There is now enough evidence to say that Secured by Design confers a crime reduction advantage' (Hodge, 2000, p. 24). His assertion was correct, yet the ensuing period was to see what I consider to be an unhelpful debate regarding the impact of individual design features on crime. As an independent researcher within this field I welcomed a more detailed investigation into which elements of SBD might be working to reduce crime. Indeed a large proportion of my thesis (Armitage, 2005) focused upon this specific area. My concerns, however, related more to the polarised positions which were developing and the way in which these messages were conveyed as black and white. Headlines such as: 'End of the Road for the Cul-de-Sac' (Fairs, 1998, p. 1), '*Culs-de-Sac* Hit the Skids' (Stungo, 1998, p. 2) and 'How Brookside Boom Helped the Burglars' (Summerskill, 2000, p. 16), based upon research conducted by Hillier and colleagues, portrayed the message that the approach taken by the police was wrong, that culs-de-sac were criminogenic and that the SBD scheme – which was reported as promoting this design – was flawed. Indeed the research upon which these headlines were based was both valid

and relevant; however, the representation of these findings was not. Hillier himself later (2004) declared that there had been a simplistic interpretation of his findings by journalists who preferred to present the case of '*culs-de-sac* versus through roads' whilst ignoring the 'difficult bits' (Hillier, 2004, p. 9). Unfortunately, whilst this clarified his position regarding the impact of road layout on crime, the representation of his findings had facilitated an environment which proved unhelpful for practitioners whose role it was to make decisions regarding road layout, and to advise planners and developers on how best to promote safe neighbourhoods. My view was not that this debate was unnecessary, but that it could have been presented with more concern for those tasked with the role of implementing these recommendations.

A positive which did emerge from this confusion was the recognition by the Home Office (tasked with developing policy to promote the reduction of crime) and CABE (tasked with promoting good design) that the picture had become unclear and that it was difficult to present good practice within this field whilst remaining unclear as to what impact certain features of residential design had upon crime. Research was funded to conduct a review of the available evidence, with an emphasis upon developments considered to be good practice examples in terms of design and architecture. From this emerged a body of evidence to assist practitioners that did not position one design feature against another, but rather emphasised the risks and benefits of specific designs and recommended methods to negate that risk should a certain design be preferred.

Whilst these debates were evolving so too was planning policy and guidance, and the period post-1998 saw significant changes in the consideration for crime prevention within such policy. Prior to 1998 there had been one planning document (*Circular 5-94: Planning out Crime*) which supported the need to consider crime within residential planning. This was a short document – just 11 pages, with little to support the means by which crime should be considered, other than recommending consultation with the police ALO/CPDA. Post 1998, planning policy and guidance placed an increasing emphasis on the role of crime reduction in supporting sustainable communities. This included the 2000 White Paper *Our Towns and Cities: The Future*, which recognised the link between design and crime, and recommended a review and re-write of *5/94*. Planning Policy

Statement 1: *Delivering Sustainable Development* (2005) saw *5/94* offi-
cially cancelled, and in 2004 *Safer Places: The Planning System and
Crime Prevention* was published. The Planning and Compulsory Pur-
chase Act (2004) encouraged local authorities to supplement their
core strategy with themed Supplementary Planning Guidance, and
many councils worked alongside their local police to produce Sup-
plementary Planning Guidance specific to crime prevention. This Act
also introduced Design and Access Statements, which were required
to demonstrate how crime prevention had been considered within
the design of a development, and in 2006, Planning Policy Statement
3: *Housing* emphasised the importance of crime prevention in hous-
ing design. It is important to highlight that each of these documents
represented and reflected research evidence, promoting the impor-
tance of crime prevention within the planning system from a variety
of perspectives including the promotion of environmental and social
sustainability, reduced crime, enhanced well-being and reduced costs
to society.

And so to 2012; what has changed within planning policy and
practice to facilitate the consideration of crime reduction? Inter-
estingly, as I conclude this book the planning system in England
and Wales has undergone some major changes, the most notable
being the Localism Act (2011) which saw the introduction of the
National Planning Policy Framework and the replacement of all
existing Planning Policy Statements – 44 in total, with a 159-page
document. There is little doubt that this move towards deregula-
tion and neighbourhood planning is designed to stimulate growth,
to reduce bureaucracy and to increase development. It remains to be
seen what impact this will have upon the consideration for crime
prevention within the planning system within England and Wales.
However, with the cuts in public spending (impacting upon planning
and police), there is little doubt that we are entering a period where
existing models of delivery are threatened, and where those imple-
menting crime prevention through environmental design (CPTED)
on the ground, and those supporting that delivery, will be required
to adapt both practice and process.

Whilst I would like to conclude this book by tracing the progress
which has been made within the field of designing out crime from
residential housing, I intend to devote the remainder of this chapter
to highlighting weaknesses, areas of improvement and, above all,

threats to the existing methods of delivery. These are not criticisms, but rather my observations of how designing out crime can improve, evolve and adapt to the changing environment.

Lack of flexibility

One area where designing out crime from housing has remained open to criticism is in the lack of flexibility in its principles and guidance as well as their application on the ground. Planners and developers often report examples of ALO/CPDAs rigidly applying standards, of failing to recognise the importance of other (non-crime related) agendas and of adopting an approach which assumes crime will occur without consideration for the local context. Whilst I can confidently state that my research with ALO/CPDAs has largely challenged this view, I have seen evidence of this inflexibility. One example was a development in the north of England where the planners had invited the local ALO to comment on potential crime risks. The ALO would not accept the proposal for shrubbery to exceed the recommended height stated in the SBD guidelines, and this rigid approach led the planner to report that he simply avoided communication with the ALO in any pre-planning consultation. Whilst standards and guidelines should be followed, there must be some flexibility to consider other priorities and to avoid stifling design creativity (this development went on to receive a CABE Building was Life award). As one ALO stated, as part of a research project on aligning the agendas of sustainability and security, 'At the end of the day I would rather take the council half of the way, than try and take them 100 per cent and finish with a zero.' His point was that there is more merit in producing a development on which crime prevention has been considered, where the ALO's views have been taken into account, yet that development does not quite meet all the requirements of the SBD standard, than in alienating the planners through a rigid approach which results in a failure to communicate and therefore no consideration for security. It is about finding a middle ground, and in the process educating and influencing planners as to the wider aims of designing out crime.

This lack of flexibility may, in part, relate to the agencies traditionally involved in the process of designing out crime, including police, security consultants and ex-police, whose professional background

and training focus upon the requirement to follow and not challenge instructions. It may also relate to a lack of confidence, training or experience amongst those carrying out this role that, in practice, leads to the rigid application of standards as opposed to adapting the design to fit a particular context. Either way, such inflexibility risks success and reputation and should be challenged.

Non-standardised delivery

Perhaps linked to the lack of professionalisation of the ALO/CPDA role at ground level, there is a concern regarding the considerable variation in the process of delivery, both nationally and internationally. Not only is there a difference in *who* delivers this role (in England and Wales it is predominantly warranted police, in the Netherlands civilians based within municipalities and in NSW security consultants), there is also a difference in *how* designing out crime is being applied. Some countries/regions have taken the approach of introducing legislation or building regulations to require the specific security standards within residential dwellings (Netherlands and Scotland), others have introduced legislation to require the consideration of crime risk (NSW) or incentivised the consideration for crime prevention with awards such as SBD (UK) and Police Label Secured Housing (Netherlands). Whilst it is understandable that the delivery will differ between countries, and even between states, there still remains a lack of consistency within countries such as England, which share the same legislation and regulations.

Failure to clarify confusion on specific CPTED principles

This criticism relates to the confusion which has surrounded one particular principle of CPTED – the impact of through movement and connectivity on levels of crime. The debate centres upon the benefits of facilitating movement within an area weighed against the risks of potentially criminogenic design. For those who advocate increased connectivity, the rationale does not necessarily relate to crime reduction. The primary purpose of designing connected developments is to ensure that people can get from A to B without the need for a vehicle, thus reducing carbon emissions and the visibility of the car, and to avoid the need for residents to take unnecessarily lengthy

routes. Whilst the cul-de-sac layout is favoured in the majority of the criminological literature on the subject, urban designers would argue that there are many negative features of this layout. It increases travel distance and therefore reliance upon the motor vehicle, it is an inefficient use of land and it increases the difficulty of ensuring that public transport can operate close to these residential properties. Whilst research will always present differing findings and consequently viewpoints, this debate has led to polarised and often exaggerated statements regarding the crime risk of culs-de-sac versus through roads. Not only has such simplification proved unhelpful for those tasked with reducing crime through the design and manipulation of the environment, it has also led to unnecessary confusion regarding a subject for which the academic evidence appears to be relatively unambiguous. Recent years have seen some clarification of the evidence, and it is hoped that the research presented throughout this book will further refine this debate.

Lack of clarity in scope

This is perhaps less of a criticism than a note of caution that the boundaries and scope of what designing out crime can achieve should be clarified. Whilst the main principles cover design, build and future management and maintenance of an area, the extent to which CPTED interventions can realistically influence so many factors is debatable. As Ekblom (2009) clearly highlights: 'There is a tendency to use the label CPTED indiscriminately to cover everything that aims to prevent crime in the built environment . . . this is not conducive to focused thinking' (Ekblom, 2009, p. 9). An example which highlights this is the principle of management and maintenance. The SBD scheme has historically stated that developments must have a programmed system in place to manage and maintain the area. Yet, unless this is social housing, how is this programme established, and more importantly, maintained? It appears to be a principle which fits well in theory, but cannot be consistently applied in practice. Many of the weaker SBD developments identified throughout my research have been those where management and maintenance have not been maintained. Whilst it is an essential element of designing out crime, programmes such as SBD must incorporate realistic and achievable standards for maintaining

a development, rather than presuming that such a system will fall into place.

Failure to align with other agendas

Although this criticism has begun to be addressed through work conducted by (amongst others) Cozens (2002, 2007), Pease (2009), Armitage and Monchuk (2009), the CPTED community has been very slow to adapt its focus to fit with contemporary issues such as social, economic and environmental sustainability. Whilst the two agendas of minimising crime and maximising sustainability may appear distinct, achievement of one (reducing crime) ultimately contributes to the other (maximising sustainability). Crime is carbon costly. This includes the carbon costs of police mileage in response to a crime, the replacement of stolen and damaged property, the health and other costs to victims in high crime areas, the costs of moving home in response to crime or fear of crime and the maintenance and refurbishment of void properties. Crime has a huge carbon footprint, and given the prominence which the carbon reduction agenda has been given in government policy, media attention, funding for research and the priorities of the general public, it would appear that there has been a missed opportunity to enhance the priority afforded to the importance of the consideration for crime reduction within the built environment.

Failure to innovate and adapt to change

The final criticism of designing out crime relates to the time it has taken to respond to the current social and economic environment both in terms of its model of delivery, the principles upon which it is based and its focus. For me, this is the biggest risk to this crime reduction approach, and one which could see a halt, or worse still, a reversal, of the progress made to date. The primary risk has been in the response to the current economic crisis which has seen cutbacks in public spending which have impacted upon agencies such as local authority planning departments and the police. In England and Wales we have seen ALO/CPDA numbers drop from 347 in January 2009 to just 196 in June 2012. Less evident but still damaging have been the cuts in roles such as the Force ALO, a role

which traditionally involved leadership, strategic decision-making and (in some cases) management. Where this role has been lost, there is little time for ALOs delivering their day-to-day role to liaise with local policy makers to influence local planning policy and decision-making. It may be that this still enables targets to be met on the ground, but it is the recognition for crime prevention within local policy which, in the long run, impacts on a greater scale. One reason for ALO/CPDAs to reluctantly accept this is that, should they pressure or lobby to influence policy to require the consideration of crime prevention within local planning policy, the huge cuts to resources would make it difficult, if not impossible, to meet these requirements. Whilst these changes to the existing model of delivery have been imposed upon local police forces, I have been disappointed in the failure of many to innovate and adapt their models of delivery to these changes. Of the 43 police forces within England and Wales, only one has adapted its model of delivery to not only survive these cutbacks but thrive and grow through innovation.

There has also been slow progress in research, policy and practice to adapt to the changing nature of crime, with the focus remaining on acquisitive crimes, whilst more common disorder issues have been sidelined. Recent research (Armitage *et al.*, 2010) highlighted the detrimental impact of some housing designs upon crime and disorder issues such as neighbour disputes. There is scope for more research to explore the role of housing design in influencing disorder and antisocial behaviour, and this is something which I hope to explore in 2013.

A final challenge to those working within this field is to explore methods of capturing and measuring the more subtle benefits of designing out crime. One which is of particular interest is the process by which designing out crime takes place within a local authority/police force. We can measure the number of properties accredited to SBD standard, we can measure the reductions in crime within properties built to the SBD standards as compared to those which are not, and we can measure changes in fear of crime in relation to housing design. But how do we measure the subtle impacts and changes such as the dissemination of knowledge between ALO/CPDA and architects, planners and developers? How do we measure the design decisions which were influenced at the pre-planning stage, and how do we measure the relationships established between key individuals

and agencies? It feels appropriate to end this book on this note because I see this as an underexplored area, and because I know there will be future publications from a colleague who has stood by my side throughout most of this research – metaphorically and literally (sorry, Leanne)! Her thesis (which I hope will be completed before this book is published) emphasises the importance of this issue in influencing policy and practice and I know it will influence many working within this field. My final thoughts, given the length of time spent working alongside ALO/CPDAs, planners, developers and architects, is that there has been much written about theory, principles and the effectiveness of designing out crime, yet the key to success, for me, relates to process – communication, compromise and common sense.

Notes

2 From Theory to Practice: Reducing Residential Crime through Design in Practice within England and Wales

1. UK police forces vary in size and population. An example is Cumbria (in the north of England) having a 2009 population of 495,000 and London Metropolitan Police having a 2009 population of 7,742,100. For interest, Greater Manchester had a population of 2,600,900 and West Midlands Police 2,638,700 (Home Office, undated).
2. Equivalent Consultants.
3. This was correct at the time of writing (April 2012).
4. These standards can be found at: http://www.securedbydesign.com/professionals/guides.aspx
5. Wilcoxon Test.
6. Wilcoxon Test.
7. There was no use of violence in burglaries against the SBD sample. However, violence was used in 1 per cent of burglaries against the non-SBD sample.
8. This difference verged on statistical significance – $p = 0.06$ (Pearson Chi Square).
9. The BCS is a victimisation survey conducted with residents (aged 16 and over) living in households in England and Wales. Although the findings of the BCS do not differentiate between SBD status, this figure provides an average response for all households within England and Wales and is a useful benchmark against which to compare SBD and non-SBD responses.
10. This difference was statistically significant $p = 0.05$ (Pearson Chi Square).
11. This difference was not statistically significant $p = 0.18$ (Pearson Chi Square).
12. Through interviews with Registered Social Landlords, quantity surveyors, architects and local authorities conducted in 1999/2000.
13. Several complexities of cost-benefit analyses cause the authors to urge caution regarding these figures. Firstly, economists would suggest that the additional costs of building to SBD have not taken account of discounting whereby spending £1000 today would cost 3.5 per cent more to society than spending £1000 in a year's time. Therefore, spending £1000 in 1999 costs £99.49 a year for 20 years. Similarly, spending £795 in 1999 costs £79.09 a year for 20 years. However, if the analysis is to take account of the changing costs of building to SBD, it must take account of the changing costs of crime. As ever more expensive technological devices become commonplace in the household, the average cost of a burglary is likely to rise dramatically over the next two decades.

3   From Theory to Practice: Consideration of Crime Prevention through Environmental Design within Policy and Guidance (England and Wales)

1. Armitage (2006) highlights the conflicts between the emphasis placed upon permeability within the Urban Task Force Report, and the principles of CPTED which highlight the need to restrict access and connectivity.
2. For the benefit of readers not from England and Wales, a Parish Council close to the author's place of work covers an area of 22 square miles, includes 12 villages and has a population of around 25,000 people. A Town Council is the same as a Parish Council; the difference is simply in the terminology used.
3. The Abu Dhabi Safety and Security Planning Manual was developed by a consortium including the University of Huddersfield, Central Saint Martin's, Llewelyn Davies and Scott Wilson.

4   International Perspectives on Planning for Crime Prevention

1. A sinuous cul-de-sac is defined as: property is located on a road which leads to a dead-end AND is non-linear in geometry so that there is little visibility down the road from the road to which it is connected OR the road is linear in geometry BUT the road to which you turn off to access the cul-de-sac is NOT a through road.
2. A linear cul-de-sac is defined as: property is located on a road which leads to a dead-end AND is linear in geometry so that there is visibility to the end of the cul-de-sac from the road to which you access the cul-de-sac AND the street is one turn off a through road.

6   The Impact of Road Layout on Levels of Crime and Fear of Crime

1. Integration being an indicator of how easily you can reach a specific line – the average number of spaces needed to pass through to reach a specific line for all axial lines in a system.
2. Statistically significant at one per cent level.
3. Although, unlike Armitage, 2006 and this CABE/Home Office study, a distinction was not made between true and leaky culs-de-sac.
4. Major roads connect cities, towns and the larger areas between them (Johnson and Bowers, 2010).
5. Local roads form the urban backcloth on which residential estates are built, and they facilitate easy travel between one local road to another. They are unlikely to be used for vehicular travel for anything other than local trips, but do connect neighbourhoods and allow travel within and between them (Johnson and Bowers, 2010).

6. Private roads are intended for use by residents alone and not for connecting places. Some of these will be culs-de-sac, some will be through roads (Johnson and Bowers, 2010).
7. Cul-de-sac carriageway, cul-de-sac driveway, through footpath, cul-de-sac front footpath and rear dead end footpath.
8. If space has more than 75 per cent of its adjacent dwellings front facing onto space, then it is constituted.
9. Distributed space is part of a through movement (pedestrian) system. For non-distributed space, you would have to retrace your steps to leave the area.
10. These photos should be credited to Leanne Monchuk and Ian Colquhoun.
11. These photos should be credited to Leanne Monchuk and Ian Colquhoun.
12. Other crimes included: arson, public order offences, dangerous dogs, harassment, theft from shops, non-specific thefts (e.g. metal thefts) and drug offences.

8 The Impact of Car Parking Design on Levels of Crime and Fear of Crime

1. Although the original project had a response rate of 47 per cent, the resources allocated to that study allowed for face-to-face interviews with residents (as opposed to a postal survey). The resources also allowed several visits to developments to revisit residents who had not been in at the time of the first visit. The study reported in this paper was considerably less well funded and, therefore, had to rely upon residents choosing to return the questionnaire (in a freepost envelope). The limited resources meant that a second sweep (to boost the sample size) was not possible.

10 Can Designing Out Crime Interventions Sustain Crime Reduction Benefits?

1. Pease (1998) explains repeat victimisation using two accounts – Risk Heterogeneity (Flags) and Event Dependency (Boosts). Risk Heterogeneity suggests that crime *flags* the people and places where crime was always likely to occur; for example, a property with poor levels of security which contains readily accessible, high value goods. According to this theory, the first, the second and the third crimes against this property could all be explained through the same enduring attributes. Event Dependency would argue that the first crime *boosts* the likelihood of later crimes. The fact that an offender did not take all valuable goods on the first visit, that they are now aware of the layout and the security measures within the property and that they can assume that the stolen valuable goods will be replaced through insurance increases the likelihood that the offender will return to offend against the property.

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