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**An Investigation of the Sustainability of Crime Prevention
in the Built Environment: Impact and Implementation
Factors**

MARK STOKES

**A thesis submitted to the University of Huddersfield in partial
fulfilment of the requirements for the degree of Doctor of
Philosophy**

December 2021

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Abstract

This case-study investigation (Yin, 2014) examines the long-term sustainability of Crime Prevention Through Environmental Design (CPTED) at seven high-rise tower blocks located in Nechells – a district of inner-city Birmingham. Constructed during the 1950s/early 1960s, three decades later major refurbishments included CPTED measures delivered by the Secured by Design (SBD) award incentivisation scheme. However, changes in central government funding caused different grades of CPTED to be used at the two sites. The investigation adopted the 5Is process model of crime prevention to analyse quantitative and qualitative data emanating from the study.

Significant findings can be grouped as follows. First, the potential conflict between security and fire safety requires careful/creative design, rather than compromise; necessity to consult the tenants/residents; and importance of victims' views. Second, knowledge of crime in high-rise tower blocks. Third, effectiveness of CPTED and SBD approaches; how the quality and durability of the entrance doors to each flat and ground floor communal entrance doors, produced an 89.2 per cent sustainable reduction in burglary over a near quarter century. Fourth, importance of the DOCO/CPTED practitioner role in seizing the once in a 30-year opportunity to get things right. Fifth, value of 5Is as a research tool and means of analysis over a unique 25-year timeframe. Ultimately, this investigation adds to the canon of existing research regarding the effectiveness of CPTED, SBD and as a means of analysis, the 5Is. It demonstrates the benefits of cross-agency partnership working (including with the tenants) and what works in practice at the coalface of practical application. It should also assist local authority and police managers to decide where to deploy resources.

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LIST OF ABBREVIATIONS

5Is	Intelligence, Intervention, Implementation, Involvement, Impact
ALO	Architectural Liaison Officer
ANPR	Automatic Number Plate Recognition
ASB	Anti-Social Behaviour
BCC	Birmingham City Council
BRE	Building Research Establishment
CCO	Conjunction of Criminal Opportunity
CCTV	Closed Circuit Television
CLAIMED	Clarify, Locate, Alert, Inform, Motivate, Empower, Direct
CPDA	Crime Prevention Design Adviser
CPT	Crime Pattern Theory
CPTED	Crime Prevention Through Environmental Design
CRO	Crime Reduction Officer
CSEW	Crime Survey for England and Wales
CSS	Case Study Site
DCLG	Department for Communities and Local Government
DOC	Designing Out Crime
DOCO	Designing Out Crime Officer
DOE	Department of the Environment
FCPO	Force Crime Prevention Officer
GJ	Geographical Juxtaposition
HA	Housing Association
LA	Local Authority
LPA	Local Planning Authority
ONS	Office for National Statistics
MO	Modus Operandi
PAT	Problem Analysis Triangle
PCPI	Police Crime Prevention Initiatives
PCSO	Police Community Support Officer
POP	Problem Oriented Policing

RAT	Routine Activity Theory
RCT	Rational Choice Theory
RSL	Residential Social Landlord
SARA	Scanning, Analysis, Response, Assessment
SBD	Secured by Design
SCP	Situational Crime Prevention
WMP	West Midlands Police

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Introduction

In the context of police led crime prevention initiatives, there exists a necessity for a thorough evaluation of Crime Prevention Through Environmental Design (CPTED) practices, together with the UK's Secured by Design (SBD) delivery mechanism. This is especially required in the context of vastly reduced police numbers, shrinking police budgets, perceived failure of the criminal justice system in dealing with crime and increased demand for policy-related research to identify 'what works' in practice. Since buildings have a service life of decades, the long-term sustainability of security is a significant, but unknown, consideration.

By using a case-study approach, this thesis seeks to identify the Impact and Implementation factors of crime prevention in the built environment. In particular, it aims to produce new and systematic knowledge that can influence the improvement of long-term sustainability. Using Ekblom's (2011a) 5Is framework, a process model of crime prevention, it will necessarily focus on the diverse tasks of Intelligence, Intervention, Implementation, Involvement and Impact. The seven inner-city tower four blocks that form the core of this thesis, were deliberately selected for this role. Those four of the case study site (CSS) were the first high-rise blocks (five storeys or more) to be built in Birmingham in the early 1950s and officially opened in 1954 by the then Minister for Housing and Local Government, Harold Macmillan. A five-minute walk away lie the three high-rise blocks that form the comparison site, constructed between 1959 and 1961.

By the late 1980s both the CSS and comparison were experiencing high levels of crime, and were already due for refurbishment (or demolition). Birmingham City Council (BCC) entered a partnership arrangement with West Midlands Police (WMP). This utilised a recently launched UK-wide police specialism delivered by Architectural Liaison Officers (ALOs – now known as Designing Out Crime Officers, DOCOs). Their primary role was to design out the opportunities for crime and anti-social behaviour (ASB) at new and refurbished developments within the built environment. This was achieved by making practical CPTED (Jeffery, 1971) recommendations delivered via the SBD (1989) award delivery mechanism. However, following a reduction in central government funding, during each refurbishment project different grades of CPTED were applied and it is this range of Intervention principles customised to context that this thesis will explore.

At the CSS, higher grade CPTED measures were installed including: high quality multi-point locking entrance doors to each of the 264 flats; fob-reader controlled, electronically-operated communal entrance doors; an on-site 24/7 staffed concierge scheme; and enclosing the grounds with brick walls, bespoke metal railing fencing and additional symbolic barriers (Shaftoe and James, 2004) to create defensible space and enhance territoriality (Newman, 1972). At the comparison a lesser grade of CPTED was incorporated – most significantly the addition of a second locking mechanism (a BS 3621 mortise deadlock) to the entrance doors of the 268 flats.

This thesis incorporates four distinct research aims, ones that have evolved over time and were a constant consideration during the course of the investigation:

- 1. Has there been a net reduction in police-recorded crime at the CSS compared to the comparison site?**
- 2. Has any such net reduction in police-recorded crime been sustained over a period of 25 years?**
- 3. What impact have the individual elements of design had on crime in the study area?**
- 4. Which (if any) specific crime prevention interventions can be shown to have impacted on reductions in crime and how effective were they?**

Structure of the thesis

Chapter One examines the geography of crime and its mechanisms, including Situational Crime Prevention (SCP), CPTED, SBD and the 5Is (Ekblom, 2011a). SARA (Scanning, Analysis, Response, Assessment – Eck and Spelman, 1987; Clarke and Eck, 2003) was considered as the means of investigation. However, the process model of crime prevention provided by the 5Is (Intelligence, Intervention, Implementation, Involvement and Impact) was selected because it breaks down the response phase of SARA into Intervention, Implementation and Involvement. Indeed, the 5Is permeate this investigation and were chosen as the most suitable means of analysis by which the effectiveness of the CPTED measures could be assessed – in terms of their durability and sustainability over the very long-term. Chapter Two provides a narrative history of The Four Towers (the CSS) and of Severn, Thames and Medway Towers (the comparison) from their construction, refurbishment and

through to the present-day major refurbishments. Whilst Chapter Three, Methodology details the case study approach and methods used in this investigation.

Chapters Four, Five, and Six answer the question ‘what happened next?’ They constitute the findings chapters with the following separate strands of investigation:

1. Examination of the quantitative police-recorded crime data covering an especially extensive 25-year time period.
2. Examination of the quantitative questionnaire and qualitative interview data obtained from a selection of tenants at both the CSS and comparison.
3. Examination of the qualitative interview data obtained from a selection of professionals involved in the refurbishment or management of the CSS, comparison, or similar high-rise tower blocks.

Chapter Seven, Discussion and Conclusion, identifies the key findings of this study and their contribution to existing knowledge. These can be grouped under specific themes. First, how the potential conflict between security and fire safety requires careful/creative design, rather than compromise; the necessity for consultation with the tenants/residents; and the importance of victims’ views. Second, knowledge of the types and frequency of crime that take place in high-rise tower blocks. Third, the effectiveness of the CPTED and SBD approaches in preventing crime; and how the quality and durability of the entrance doors to each flat and ground floor communal entrance doors, delivered an 89.2 per cent sustainable reduction in burglary over a near quarter century. Fourth, the importance of the DOCO/CPTED practitioner role in seizing the most often once in a 30-year opportunity to get things right. Fifth, the

value of 5Is as a research tool and means of analysis over an all but unique 25-year timeframe. Ultimately, this investigation adds to the canon of existing research regarding the effectiveness of CPTED, SBD and as a means of analysis, the 5Is. It demonstrates the benefits of cross-agency partnership working (including with the tenants) and of what works in practice at the coalface of practical application. As such, it should assist local authority and police managers to decide where resources should be concentrated.

The issues examined during the course of this investigation are reflected upon, including the case study approach and the considerable difficulties in conducting research over such a very long-term timeframe – together with the inherent limitations of the data. Chapter Seven concludes by identifying potential strategies, techniques and by making a number of recommendations relating to the durability and sustainability of both the CPTED and SBD approaches.

Finally, the epilogue addresses the motivations for conducting this investigation – primarily this author's perception of a diminishing corporate memory in police crime prevention, exacerbated by short-term performance culture, that preventing crime no longer mattered and how the contraction of the police service beginning in 2011, led to the role of DOCO being itself under threat in many forces. Far more positively, interviewing the tenants and professionals (and in person meetings with the supervision team) were the most enjoyable aspects of this study – confirming that working in partnership with the immensely supportive staff at Birmingham City Council meant that we DOCOs had improved the quality of life for those living in inner-city environments and beyond.

Chapter One

Literature Review

This opening chapter begins with analysis of the 5Is framework (Ekblom, 2002) and CPTED (Jeffery, 1971), these being the theoretical frameworks upon which this thesis is based. As a brief outline, 5Is is a process model of crime prevention similar to SARA (Eck and Spelman, 1987; Clarke and Eck, 2003) discussed below, but with enhanced detail. It also has the capacity to capture and manage practice knowledge in pursuit of replicating 'success-stories'. Furthermore, following extensive deliberation it was decided to use 5Is as the theoretical framework upon which to assess the effectiveness CPTED during the course of the investigation and indeed, constitutes the structure of this thesis.

Believed to be of key relevance to this investigation, SCP and the theories and frameworks that underpin both it and CPTED are examined. Namely: Routine Activity Theory (RAT – Cohen and Felson, 1979); Crime Pattern Theory (CPT – Brantingham and Brantingham, 1995); Rational Choice Theory (RCT – Cornish and Clarke, 1986); and the Conjunction of Criminal Opportunity (CCO – Ekblom, 2000). Discussion then turns to Guardianship (Cohen and Felson, 1979; Reynald, 2009) a key element of the theories. Followed by the relevance of Problem Oriented Policing (POP – Goldstein, 1979) and Problem-solving (Eck and Spelman, 1987). Finally, the history of high-rise housing in the UK is examined. All these elements are discussed because they are believed to be highly pertinent to this thesis.

The 5Is

The rationale for choosing the 5Is (Ekblom, 2011a) as the pre-eminent theoretical framework is fully detailed in Chapter Three, Methodology. Suffice to say, it is believed necessary to explain from the outset how 5Is provide the most comprehensive means of assessing all the elements identified at both the CSS and comparison site – including the presence and effectiveness of CPTED. Ekblom (2011a, p.83) describes how he developed the 5Is from the “preventive process”, a term first used in 1988 for the rational, “action research” (2011a, p.7) model of crime prevention. For Ekblom, 5Is “comprises five top-level task streams of the preventive process” (Ekblom, 2011a, p.85) and are set out under the following headings.

5Is: Intelligence

This includes gathering and analysing the nature, causes and negative consequences of a particular crime. The highly significant purpose of this exercise is to influence the crime prevention and community safety aims and priorities of the practitioners/organisations responsible for addressing such crime. Ekblom (2011a) uses Ratcliffe’s (2008) especially wide definition of intelligence which encompasses data, information, knowledge and intelligence as a specific kind of “...knowledge designed to generate and guide action.” (Ekblom, 2011a, p.164). The intention is to ensure that nothing of potential value is excluded from delivering the following types of intelligence and what they include.

General social/geographical context to the problem, including design, layout and management issues, demographic analysis and both historical and existing action.

Initiation and demand, as evidenced by audits, emergent problems, referral and intake processes – together with information concerning the actual crime problem. The latter will include definitional issues, action frameworks and aspects of the crime problem e.g. offender types; modus operandi (MO); businesses, homes or goods targeted; managers or owners; persons assaulted; physical and social context; crime and disorder background; timing of criminal events; recent or longstanding problem; and relevance of repeat victimisation.

Evidence of the problem is similarly instrumental in terms of crime pattern analysis; forecasting; analysis of risk and protective factors for offending; and interviews with actual or potential offenders. Know-how in data collection and analysis should include innovative solutions, difficulties and trade-offs. Whilst significant harmful consequences may be identified in immediate and wider effects, and specific consequences for further offending. The immediate causes, remote causes and risk factors for offending will include – on the offender side: criminality; lack of resources to avoid crime; readiness to avoid crime; readiness to offend; presence in a crime situation. And on the situational side: target person, property, service, etc; target enclosure; wider environment; absence of crime preventers; presence of crime promoters. Dynamic configurations may consist of lifestyles plus routine activities and scripts. Such issues are believed to highly pertinent to this thesis and thus their inclusion.

Remoter, area or higher-level causes might include criminal careers, networks, organisations, sub-cultures and markets, exclusionary processes and absence of

social capital/collective efficacy of a community to tackle the problem. Complex crime problems; risk and protective factors for offending (conditions in early life); needs of individual offenders/those at risk of offending; and evidence of causes should also be considered. Finally, aims and aim-setting at the planning stage will seek to examine the nature and priority of aims; nature and any consultation to set aims; and the nature of any climate-setting activities in respect of establishing acceptance/understanding the objectives, managing expectations, reconciling aims, etc.

5Is: Intervention

This element of 5Is encompasses the important delivery mechanisms including design and planning practical methods to block, divert, or weaken the causes of future and ongoing crime, or mitigating harm already done. It provides focus by combining local evidence from intelligence and generic evidence/ knowledge of what works in practice. Ekblom (2011a) describes how Intervention itself can also be divided into a number of sub-headings. These will include those in place prior to project commencement – either focused on crime prevention, or relevant actions with wider aims. Whilst the overall Intervention strategy will consist of aims; summary and explanation of the contribution of individual Interventions; overview of judicial, para-judicial, civil, or judicial institutional context; and the design process for the overall Intervention strategy. Organisational context and the working structure of Interventions (more specifically, structure and the significant contributions to Intervention mechanisms), constitute other important considerations – ones highly relevant to this study. Describing the actual Interventions forms two further sub-headings: content – including aim, method, principles, and their necessary

integration. And design principles – the requirements to capture process; idea generation, iterations, pilots and consequent improvements; issues of co-design with end users; risks and trade-offs; and finally, undesirable ‘system failure’ consequences.

5Is: Implementation

This component of 5Is covers the practical and management tasks necessary to deliver the Intervention methods (e.g. recruitment, training and management). More specifically, the master list of Implementation headings includes: the institutional and organisational contexts e.g. institutional settings; organisational arrangements; important recent or current transitions; and infrastructure such as training, guidance and data systems. Further headings set out by Ekblom (2011a) are mode of delivery – whether the action is a project, service, or capacity-building alone like training. And targeting – whether the problem, behaviour or condition within the aim of ecological level of action; or targeting strategy, be it the basis or principle of selection, coverage, or targeting issues such as widening the net. Additional headings are devoted to tailoring the generic Interventions; lifestyle(s) of action; the basic execution process (including process, outputs and practical Implementation issues including solution; plus management, planning and organisational issues such as the setting of aims and objectives, development of informational capacity, quality assurance of operations, risk management, structures of internal and external management, and finally change management and wider issues of adaptive capacity.

5Is: Involvement

Intertwined and intrinsic to Implementation, is the Involvement of other people and agencies to appreciate, accept, undertake, share or support the tasks, roles and responsibilities involved in the Implementation of preventive Interventions, or by otherwise providing a receptive climate. Headings which fall under the category of include communication "...which pervades the Involvement task stream..." (Ekblom, 2011a, p.250); together with Intelligence actions to guide and support Involvement processes; and demand – be it initiation (which might ordinarily constitute Intelligence, but conceptually is sited under Involvement) and recruitment of crime prevention for another aim e.g. economic regeneration. Partnership can be divided into two forms: first, structural issues which includes its outcome purpose; operational, strategic or providing infrastructure; composition of agencies; geographical scope; pooling of resources; governance issues; and the partnership environment. And second, process issues such as practical creation; creation and maintenance; handling boundaries; which 5Is tasks the partnership completes; partnership operations; tactical and strategic working relationship; sustainability; and dismantling or disengagement of the partnership.

Mobilisation is another multi-faceted element of partnership based on the CLAIMED framework (clarify, locate, alert, inform, motivate, empower, direct). The mnemonic CLAIMED involves "...factors which alert, motivate and empower designers to undertake design against crime; or more likely, unfortunately, those which lull, deter or disable them from doing so." (Ekblom, 2011a, p.233). More specifically, what they are and what sort of entity; what roles they play; why they were selected for the role; how they became aware of their potential role; how informed; motivated;

empowered; directed; sustained; and where appropriate, why their mobilisation was curtailed. Multiple mobilisations include Implementation chains; systems of Involvement; gateway mobilisations; conflicts, constraints and ethical issues; and outreach issues.

There are five remaining Involvement headings, each of which has a direct relevance to this thesis. Consultation – covers with whom; about what issues; by what methods and media; and during which parts of Intervention planning and delivery.

Accountability – with whom, internally or externally; specific issues; by what methods and media; and during which parts of Intervention planning, delivery and review.

Building collaborative capacity – pre-partnership activity, including the targeting of specific communities, agencies and groups. The wider climate of opinion in which the action was implemented – whether it was locally hostile/suspicious or supportive/accepting); awareness, expectation and interest; public attitudes and beliefs about crime, offenders and community safety. Risks and blockages to and from

Involvement – the chances of failure including raising/dashing expectations, stigmatisation, breakdown of trust and conflict exacerbation.

5Is: Impact – and process evaluation

The equivalent of the ‘assessment’ phase of the SARA process (see below), Impact and process evaluation encompass harvesting evidence of the effectiveness of preventive action (Interventions). This can then be used to improve performance; guide continuation, expansion and replication; accountability; and transfer into the ‘collective evidence base’ – highly relevant in the context of assessing CPTED

Interventions. Under the final 'I' of Impact evaluation (which in summary asks, did it work?) fall seven headings, each containing multiple sub-headings. Self-evidently, Impact is of special relevance to this thesis. Beginning with aims (as Intervention and their causal connection with outputs). This is followed by the context of evaluation – whether internal or external; independent or not; formative or summative; routine or a one off for example realistic; orientation (Impact, process, or both); and issues relating to a climate of understanding amongst stakeholders.

Methodology of evaluation constitutes: approach – theories of change, experimental, qualitative, realistic; design – methodological quality such as the Maryland scale, before/after and action/control; basic parameters, including intermediate and ultimate output measures; statistical testing; problems, issues, trade-offs and resolutions. Implementation and Involvement overview can be used for failures and successes in both Implementation and Involvement – more specifically, the outputs achieved, ingredients and causes of any failures e.g. absence of security standards.

Results of Impact evaluation include: any significant change in intermediate or ultimate outcome measures; whether this can be attributed to prevention outputs; were such effects confined to sub-sets; adaptive reactions such as displacement or diffusion of benefits; how the Intervention worked; the ingredients essential to or boosted Impact; any harmful side-effects; beneficial side-effects; the size and cost-effectiveness of the 'gross attributable change'; how these changes translated into benefits; durability and sustainability of the Impact; whether no significant change

was due to failure of Impact evaluation, Implementation and Involvement; how the Intervention met aims and targets – again, did the CPTED measure work?

Wider performance/selection measures cover: questions of response and scalability to crime/safety of the action; prioritisation of community safety action; accurate targeting on needs of the victim/wider safety; the policy aims to tackle; timescale of Implementation; and legitimacy or acceptability of the preventive actions. Finally, learning on evaluation methodology addresses whether an inconclusive evaluation was attributable to a failure of design or execution; and how this adds to our learning within evaluation methodology.

Criticism of the 5Is most often relates to its complexity. Because, compared to the RAT (Cohen and Felson, 1979) triangle and crime triangle (or PAT – problem analysis triangle, Clarke and Eck, 2003), the 5Is is complex – and with good reason. Indeed, Ekblom repeatedly asserts, crime is itself complex and cannot be reduced to simple three-sided geometric forms. Ekblom challenges the ‘Not rocket science’ claim (Read and Tilley, 2000) and assiduously observes: “What is difficult are the detailed, practical engineering and control systems required to reach the sky alive and not plough into a nearby hillside. Just like crime prevention.” (Ekblom, 2011a, p.279).

In this context, a focused realistic discussion concerning the issues pertaining to causal and Intervention mechanism and research methods, should naturally adopt the strongest and most appropriate research framework. On this basis and despite

their links with CPTED principles rather than the 11Ds (Ekblom and Hirschfield, 2014), PAT and the 25 techniques of situational prevention (Cornish and Clarke, 2003), the 5Is are considered the most appropriate form of holistic analysis for this investigation. Indeed, the 11Ds is mechanism-oriented and already tested by considering the Intervention mechanisms.

This decision to adopt the 5Is is based on the belief that it is best suited in this study for detailing (by way of Intervention, Implementation, Involvement and the causal mechanisms underlying each) the constraints, enablers, failures, issues and problems associated with the practical process of crime prevention and Conjunction of Criminal Opportunity (CCO – Ekblom, 2001). CCO provides a multi-faceted crime analysis tool, consisting of 11 proximal causal pathways of crime and 11 counterpart principles and by default a more complex model than that of the PAT or crime triangle, one with manifest detail, integration and potential application.

Ekblom (2011a) observes how the 5Is resemble and are both compatible and better than the SARA (Clarke and Eck, 2003) process synonymous with problem-solving and problem-oriented policing/partnerships (POP – Goldstein, 1979). Where they differ is that in the 5Is, Intelligence covers both the Scanning and Analysis elements of SARA, whilst the ‘amorphous’ Response phase of SARA is further sub-divided into Intervention, Implementation and Involvement. Similarly, Impact is the equivalent of Assessment. Therefore, it can be argued that the 5Is has improved upon SARA – even though the latter has ‘market dominance’. This is important because both SARA and the PAT are relatively simple frameworks that necessarily do not reflect

the “rich complexity of preventive action” (Ekblom, 2011a, p.86). The 5Is develops SARA to provide systematic and detailed analysis, together with design of Intervention, Implementation and Involvement options.

5Is can be described as an action-oriented knowledge management and application framework, one that focuses on the work of ground level practitioners. However, it can also assist delivery managers and policy makers in reaching their aims and objectives. And most pertinent to this thesis, 5Is has great potential as a research tool for assessment and evaluation. For practitioners, 5Is tasks aim to combine evidence and experience of the crime problem and consequently should assist to:

- Identify and clarify the crime and community safety problems, plus the causes or risk factors they are attempting to prevent (e.g. residential burglary)
- Search and select appropriate good practice from the body of existing knowledge and experience e.g. SBD (see below)
- Replicate the preventive process, adapting (where necessary) to the specific problem, causes or risk factors and context e.g. recommending enhanced security measures where the crime impact statement/crime pattern analysis suggests these are necessary
- Innovate intelligently, especially where there is no well-documented and well-evaluated volume of good practice examples e.g. in the absence of a specific SBD design guide. Such innovation should be based on tested theoretical principles e.g. via CCO Interventions, and plausible practice knowledge.

At this functional delivery level, 5Is framework is largely concerned with capturing, assessing, consolidating and sharing good practice with fellow practitioners.

However, for policymakers it should also assist in assembling and organising the knowledge that connects policy to practice through delivery – together with the selection and design of policies so that they can be delivered at acceptable cost, timescale and risk.

5Is is essentially a process model of crime prevention and community safety. A structured series of tasks (and purpose) is involved in this process and every task requires management/planning and performance dimensions. Unfortunately, there is an inherent ‘messiness’ about action (putting decisions into practice) many of which are detailed in this thesis:

- Convoluting Implementation chains e.g. a residential development may have been sanctioned by the local authority (LA) housing department, but its sister architecture, planning, highways and other departments may require additional measures be incorporated
- Parallel actions under the different 5Is e.g. identifying and responding to a specific crime issue would fall under the Implementation heading, whereas researching the causes of the crime counts as Intelligence
- The 5Is procedures can act on each other, thus in developing a partnership, Involvement may have the purpose of pooling Intelligence; whilst Intelligence actions may be undertaken to help identify those partners to involve
- Combining reproducible and interchangeable action elements with progressive detail to support customisation and innovation
- Feedback – in designing and trialling methods of Intervention and Involvement
- Initiation of action (tasks) may take place at different points in the cycle. For example, POP approaches begin with Intelligence. Design-based solutions

commence even earlier e.g. an application for an SBD award ideally should be made at the development's concept stage.

5Is aims to facilitate the systematic capture and transfer of knowledge (Ekblom, 2011a) another important consideration in the context of this thesis. Familiarisation with the 5Is involves investing in more complexity in how we structure our knowledge and know-how to enable improved thinking, communication and action in the reality of immense complexity of real-life prevention.

Indeed, Ekblom quotes Brown and Scott's (2007, p.45) observation

“...organizational memory about particular interventions can be short, and there can be a danger that mistakes made in implementation are repeated time and again because the response knowledge is not disseminated.” This is particularly significant at a time when experienced police employed CPTED practitioners (DOCOs) have left the service, taking their knowledge with them and with little evidence of a corporate memory. See also the Epilogue to this thesis.

Crime Prevention Through Environmental Design (CPTED)

Jeffery (1971) advocated a cross-discipline approach to reducing crime. Indeed, he disagreed with conventional criminological causal explanations of (such as poverty or employment), arguing that more attention should be given to the behavioural, biological, political, psychological and social explanations. Jeffery's inclusion of social explanations is somewhat contradictory. Nevertheless, more than half a century later this cross-discipline approach appears eminently logical – albeit at the time such ideas were generally perceived as avant-garde, if not revolutionary

thinking. According to Robinson (1996) Jeffery's CPTED concept emerged from his experiences with a rehabilitative project for juveniles in Washington D.C. By using the behaviourist learning theory of Skinner (1953), CPTED stressed the role of the physical environment in the development of pleasurable and painful experiences for the offender and capacity to alter behavioural responses: "Jeffery 'emphasized' material rewards and the use of the physical environment to control behaviour" (Jeffery and Zahm, 1993, p.33).

CPTED aims to reduce crime through design and manipulation of the built (and on occasion the natural) environment – removing the crime opportunity (Clarke and Mayhew, 1988) so that the crime itself will not occur. To achieve this, its primary focus is on designing out the opportunities for crime at the concept or planning stages for a development. Nevertheless, many Interventions are made post-construction, usually in the wake of an emerging or perceived crime problem – including counter terrorism design (NaCTSO, 2017). There are a range of formulations by different authors e.g. Crowe (2000), Ekblom (2011b), Armitage (2013), Cozens (2016), albeit the links to those SCP theories have never been formalised or adopted in the CPTED canon – and this is one of the limitations of CPTED as currently practised/written. Furthermore, one study reported:

The findings also revealed a discrepancy between the emphasis placed upon each component by DOCOs and by burglars. Whilst all DOCOs referenced *surveillance, movement control* and *defensible space*, only 70% referenced *physical security* and 30% *management and maintenance*. This aligns with

burglars to some degree... but burglars appear to place a greater emphasis on *physical security*... (Armitage and Monchuk, 2017, pp.16-17).

Alternative definitions of CPTED also exist. For example:

The proper design and effective use of the built environment can lead to a reduction in the fear and 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. (Crowe, 2000, p.46).

Crowe's definition is concise (perhaps overly so) but does include elements of Intervention, Involvement and Impact (Ekblom, 2011a). However, it does not explain the constituent parts of CPTED, or the mechanisms that will achieve it.

Ekblom (2011a) and Cozens (2014) contend that CPTED ideas have been oversimplified (a far more complex set of variables is at work) causing the former to redefine CPTED to include security – (meaning perceptions of safety and an absence of crime, ASB and fear of crime) and contextually appropriate design. Security is relevant because it adds a strong (if not necessarily sustainable dimension) to CPTED elements. Similarly, contextuality broadens the perspective and helps to determine the measures present or required in a given situation. In addition, there is the possibility of intervening at different stages between pre-planning and post-construction: Consequently, the Ekblom (2011b) definition states:

Reducing the possibility, probability and harm from criminal and related events, and enhancing the quality of life through community safety; through 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, 2011b, p.4).

Unsurprisingly, Ekblom's CPTED definition encapsulates all 5Is elements of Intelligence, Intervention, Implementation, Involvement and Impact.

Similarly, the Armitage (2013) definition includes elements of social and environmental sustainability: "...design, manipulation and management of the built environment... to enhance sustainability through the process and application of measures at the micro (individual building/structure) and macro (neighbourhood) level." (Armitage, 2013, p.23). Compare this to Cozens' updated definition that concentrates on: "...analyzing and assessing crime risks in order to guide the design, management and use of the built environment (and products) ... public health, sustainability and quality of life." (Cozens, 2014, p.21). Not only has this definition expanded to encompass 'products' and 'the fear of crime', it now also includes the promotion of public health, sustainability and fear of crime.

Whilst the addition of sustainability and fear of crime seems justifiable (this is arguably natural CPTED territory), the inclusion of the others (especial 'public health') is not – although it could be argued that CPTED's concentration on crime and security should not be made in isolation and must be undertaken in coordination with and addressing wider, quality of life considerations (enhanced Involvement). Nevertheless, the Cozens (2014) definition appears especially all-embracing. This is highly problematic and not simply due to CPTED's roots as a constituent part of SCP. The extension threatens to dilute the core elements of CPTED, whilst simultaneously over-reaching its purpose and function. And perhaps of greatest relevance, much of what is contained within the expanded version of CPTED is already occupied by the SCP description. Consequently, the Ekblom and Armitage definitions appear more credible in that, whilst extending the scope to include causal contributions and interactions that are not vulnerability led (together with the especially important issue of sustainability), they do not trespass into subject areas that ordinarily are not understood to be within the remit of crime prevention. And perhaps most importantly from an investigative viewpoint, they include elements from all 5Is.

Independently (yet simultaneous to the development of Jeffery's ideas) the architect and urban planner Oscar Newman was producing his own CPTED theories – which both authors later accepted as near identical. Newman (1972) can be identified as applying much of Jacobs (1961) thinking about the criminogenic capacity of the built environment. And whilst he was also influenced by social and behavioural scientists like Hall (1959), Wood (1961), Angel (1968), Sommer (1969) and of course Jeffery

(1969; 1971), his holistic concept of 'defensible space' (as a means of controlling crime) was very much delivered from an architectural viewpoint. Indeed, Poyner (1983) contends that in the UK Newman's ideas were viewed by architects as primarily applicable to combatting vandalism. Whereas Cozens and Love (2015) contend that Newman 'operationalised' Jacobs' theories into practical application.

Jeffery (1976) accepted Newman's work on defensible space (1972) as the basis of modern CPTED, not his own work' (Cozens and Love, 2015, p.2). Andresen (2010) believes this was because Jeffery's work necessitated long-term investigation, whereas Newman's ideas were easier to appreciate and apply. However, whilst this may be true in respect of Newman's concepts of defensible space, natural surveillance and territoriality, an extensive literature search indicates that those of geographical juxtaposition and image and milieu (see below) are rarely given more than passing reference – although it might be suggested that the latter have morphed into image management and maintenance.

Cozens and Love (2015) report how CPTED has also been accepted by the United Nations (United Nations Human Settlements Programme 2007) and by numerous governments across the globe (Ekblom et al., 2013; Cozens, 2014). Most recently, CPTED has achieved its own international standard as ISO 22341:2021 (2021) adopted in the UK as BS ISO 22341. This includes a 'framework for CPTED' with environmental context of crime and security risk; basics of CPTED; and general principles for CPTED, influencing the overall 'CPTED process'. However, the general principles are somewhat different from the core principles originally described by

Newman (1972, 1973) see below. Whilst its 'CPTED strategies' introduce six for 'physical CPTED' and four for 'social CPTED' – drawing directly on first and second generation CPTED concepts (see below) yet simultaneously introduces new and potentially confusing language - see Monchuk, Pease and Armitage (2018). Consequently, ISO 22341 might be accused of exhibiting the capacity for poor and vague definition of CPTED, a theme discussed later in this chapter.

Poyner (1983), Cozens *et al* (2005) and Montoya *et al* (2016) set out the core principles of CPTED which Armitage (2013) described as physical security, surveillance, movement control, management and maintenance and defensible space. Cozens *et al* (2005) and Cozens and Love (2015) list the 'The Seven First Generation CPTED Concepts' (2015, p.4) as: territoriality, surveillance, maintenance, access control, target hardening, legitimate activity support and image management. However, to date there appears to have been little attempt to group these under separate headings and this may help explain the apparent confusion amongst DOCOs (see below). For the purposes of this investigation, 5Is does not detail the specifics of a crime prevention/security Intervention. It simply contends an Intervention is anything that blocks, deflects, or weakens one or more causes of criminal events and thus reduces the risk, so that such instances are less likely or harmful consequences are reduced.

Ultimately, a more limited definition of CPTED is preferred – one that includes the following three core sub-headings (subsequently discussed in detail). Physical security 'target hardening' measures (Newman, 1972; 1973; 1996) – including doors and door security, windows and glazing, perimeter security walls, fencing, hedges

and gates and defensive planting; Technological Innovations – including all forms of lighting, fob-reader controlled door entry systems, intruder alarms, CCTV (closed circuit television), ANPR (automatic number plate recognition) and fogging agents. Environmental elements – to include defensible space, natural surveillance, territoriality, geographical juxtaposition, image, milieu, symbolic barriers and permeability/movement.

The constituent elements of CPTED are discussed and evaluated in the following sub-chapters. They have been chosen for detailed discussion as determined by their perceived relevance to the tower blocks under investigation. Indeed, these elements are believed to be instrumental in making the legitimate user feel safer (reducing the fear of crime), whilst simultaneously causing the potential offender to perceive the opposite and feel at risk, together with causing a range of practical difficulties in committing their crimes.

Before discussing these elements, it is necessary to be aware that the core principles and concepts of CPTED often overlap and on occasion are ill-defined. Indeed, Ekblom describes territoriality, activity support and target hardening as “vaguely defined” (2011a, p.1). Whilst through the testimony of victims and offenders, Armitage and Monchuk, (2017) highlight the lack of clarity concerning CPTED. Monchuk, Pease and Armitage (2018) discuss the language issues of CPTED and how these may influence the credibility of the Designing Out Crime (DOC) discipline when applied practically in the built environment. Collectively, these

CPTED shortcomings provide additional justification for this thesis using the 5Is analytical framework, to investigate the two sites chosen for analysis.

Core principles of CPTED

The core principles of CPTED used in this thesis are those originally set out by Newman (1972, 1973). These include his core concept of defensible space and its design elements of territoriality, surveillance, building image and juxtaposition of residential with other areas. Such CPTED elements are equally 5Is Interventions (Ekblom, 2011a).

CPTED concepts: Defensible space

Newman (1972) views defensible space as the creation of buildings and their surroundings that assist occupiers (originally residents) in dissuading offenders.

Newman argued that the physical design of a neighbourhood can increase or reduce residents' belief in control of the environment in which they reside. He can be seen to develop the themes of Jacobs (1961) and Jeffery (1971) and describes how:

“...defensible space is a model for residential environments which inhibits crime by creating the physical expression of a social fabric that defends itself.” (Newman, 1973, p.84).

He asserts that the defensible space elements have a common purpose in providing a safe, productive and well-maintained living space. The aim is that a potential criminal perceives such an environment to be under the control of its residents and

as a result, he or she will be easily recognised. Newman also contends that defensible space will be immediately apparent (visual environmental cues, Rapoport, 1982) to both lawful users and those with no right of access, thereby indicating who had a legitimate reason to be there. CPTED measures can be used to reinforce defensible space – although the use of ‘symbolic barriers’ (see below) is the preferred option, rather than resort to purely physical barriers. He observes this is partly: “...target hardening – the traditional aim of security design as provided by locksmiths.” (Newman, 1972, p.73).

Newman also contends that instead of delegating all security issues to the police, people must also protect themselves as a community. For Newman, defensible space is a collective term for a series of mechanisms (Interventions): real and symbolic barriers; strongly defined areas of influence; and improved opportunities for surveillance. Taken together, these are expected to provide the residents with control (Involvement) over their environments. He also set out four characteristics (Interventions) of defensible space (1972):

1. Territoriality – the capacity of the physical environment to create perceived zones of territorial influence
2. Surveillance – the capability of physical design to provide surveillance opportunities for residents/agents
3. Image and Milieu – the ability of design to influence perception of a project’s uniqueness, isolation and stigma
4. Geographical Juxtaposition – the influence of geographical juxtaposition with ‘safe zones’ and the security of adjacent areas.

During the subsequent two decades Newman continued to develop the concept, first adding the 'Five Principles' for creating defensible space' (Newman, 1976):

1. Assignment to different types of occupier environments that are bespoke to needs and aspirations in the context of their backgrounds, family size, age makeup, income, lifestyles and social activities
2. Territorial definition of space that affords different resident types and their rights as occupiers. However, this should not act as a barrier towards residential neighbours coming from different backgrounds and consequently the aim is to celebrate difference, whilst simultaneously fostering tolerance
3. Interior design of dwellings should work in harmony with exterior vulnerability, in order to maximise surveillance opportunities. For example, the windows of those rooms most regularly occupied (kitchens and living rooms) most often known as 'active rooms' (Armitage, 2013) should overlook main entrance doors, public areas, car parking, etc.
4. Locating dwelling entrances into city/urban streets in order to extend residential territoriality into the public environment and thereby influence same
5. Following Newman's concerns with image and milieu, ensuring building design for the least able in society does not define and stigmatize them as such. For example, social housing has often been of poor-quality design and construction, thereby increasing the vulnerability and isolation of tenants (Power, 1997). And as Mawby (2001) reminds us, crime and especially burglary target the poorest in society.

Newman contends a hierarchy of living and community spaces exists. Those housing developments that incorporate territoriality are said to have the strongest deterrents to criminal activity. This influences the way housing is grouped and how space is laid out to prevent crime. Crucially, he suggests that in such an environment people should not only challenge unusual behaviour, but feel it is their duty to do so. And the fear of this should be a powerful deterrent to criminals. Similarly, for Schneider and Kitchen (2002) encouraging residents to feel attached to that environment should nurture a willingness to take control and defend it.

Newman has been criticised for his methodological weaknesses (Bottoms, 1974; Mawby, 1977). Indeed, defensible space has been described as: “a rat’s nest of intertwining hypotheses.” (Rubenstein *et al*, 1980, p.6). Furthermore, in much of the early work claiming to be CPTED a deficiency of evidence appears to exist. Cozens (2014) contends that defensible space is difficult to measure and define. Nevertheless, it was Cozens *et al* (2005) who extended the CPTED definition to include the seven principles of defensible space: territoriality, access control, surveillance, target hardening, image and activity support. In the context of this thesis, this is relevant because not only does it point to the deficiencies of CPTED, by default it once again reinforces the decision to use 5Is as the analytical framework.

CPTED concepts: Territoriality

One of his four characteristics of defensible space (and potential Intervention, Implementation and Involvement), Newman defined territoriality as: “The capacity of

the physical environment to provide opportunities for residents and their agents to exert the impression of ownership and control over their environment.” (1972, p.43). More specifically: “Territoriality involves the human emotion/response to the space which people define as their own.” (Armitage, 2013, p.23) and prima facie evidence of Involvement. Territoriality is claimed to promote social control through increased designation, ownership and influence over space. In such an environment, strangers and intruders stand out and legitimate users more likely to challenge their presence. Furthermore, the use of communal entrance doors, walls, hedging, fencing, gates, paving and surface treatments, vegetation, lighting and signage/notices (including such relatively minor elements as a house name) have the capacity to reinforce territoriality. In this context, territoriality utilises the human motivation to ‘control’ any space that they believe belongs to them and/or over which they have control. This can be achieved through adoption and management, or ownership in law.

The objectives of territoriality can also be achieved in existing locations by assigning space to designated users (Involvement). The contention is that a well-maintained environment exudes an atmosphere of care and legitimate activity, as supported by ‘Broken Windows’ theory (Wilson and Kelling, 1982). This can be achieved through the provision of soft landscaping, such as properly tended garden areas. Real and symbolic barriers also have a role in reinforcing territoriality, suggesting activities like ball games should be restricted to well-defined private areas. However, evidence supporting the effectiveness of symbolic barriers is sparse (Shaftoe and James, 2004). Signage can be displayed at location entrances, where necessary. Whilst outdoor seating should be located where it is under the territorial control of specific residents (or businesses willing to accept that role) and not where it might act as a

“crime generator” or “crime attractor” (or potentially of ASB) Brantingham and Brantingham, (1993, 1995).

Cozens *et al* (2005) and Cozens and Love (2015) reflect Newman’s (1972) understanding of territoriality as a separate entity from that of defensible space. However, as Armitage (2013) contends, a more concise description of CPTED principles might perceive them to be inextricably linked – in that the creation (Intervention and Implementation) of defensible space aims to produce territorial control over that space.

Guardianship

From the perspective of RAT, Cohen and Felson (1979) argued that a crime would only occur in the absence of a capable guardian. Whilst Eck (1994) incorporated place managers and handlers within the umbrella of guardianship. Felson (1995) pointed to the spectrum of responsibility associated with such roles in the residential environment and over time evolved the concept and perceived all such guardians as control agents (Felson, 2006). However, detailed examination of the concept of guardianship is a far more recent phenomenon and contains lessons for practical application in real world situations.

Reynald (2010) describes a capable guardian as the “critical actor” in preventing crime and sets out “three critical dimensions of capable guardianship.” (2010, p.1): willingness to act; capacity to detect possible offenders; and being willing to actually intervene if necessary. She contends that capable guardianship is critical to

victimization and how previous research (Miethe and Meier, 1990; Coupe and Blake, 2006) had demonstrated a correlation between reduced guardianship and higher victimization. Reynald suggests property crime was lower at homes with higher intensity of directly observable guardianship during the daylight. (Reynald, 2009). Such guardianship intensity is the product of monitoring by available guardians – control agents within RAT (Felson, 2006).

Willingness to act will be influenced by a range of factors, including physical ability, protective tools and incident seriousness. Similarly, the capacity of guardians to separate potential offenders (suspicious behaviour) from those with no criminal intent is an important skillset – often compromised by resort to stereotypes in offender identification. Ultimately, a willingness to intervene when required is a key mechanism of guardianship (instead of simply calling the police) and is presumed in much of the existing literature (Reynald, 2010). However, she has developed four types of guardianship: invisible guardian, available guardian, capable guardian and intervening guardian (Reynald, 2010).

Most importantly, guardianship can strengthen the extent to which residents exert control and thereby reinforce territoriality over their space (Newman, 1972). One final observation, whilst guardianship has been incorporated into CPTED, this is not the case with the other PAT elements of place managers and intimate handlers – thereby pointing to the limitations of CPTED as a means of analysis.

CPTED concepts: Access control

Access control (Intervention and Implementation) refers to the design of buildings and the space they occupy, to actively prevent entry by those with no right of access

It aims to:

1. Limit the capacity of offenders to realise it is a potential target.
2. Increase the difficulty for offenders to gain access, exit and navigate within the premises they have decided to target.
3. Increase the physical difficulty of gaining access to their target.
4. Increase the psychological difficulty of entering and moving within the target premises without feeling they are being watched.
5. Deny offenders any excuse to be within the target premises, whilst simultaneously maximising the confidence of legitimate occupiers to challenge those without such right of access.

Armitage contends that 'access control' is too limited a definition and should be described as "limitation of access, egress and through movement" (2013, p.25).

Indeed, it could be argued that 'access control' appears more accurate a reference to the actual dwellings (or other premises) and their curtilage; whereas 'permeability/movement' might better describe the estate layout beyond that of the dwelling boundaries. Such permeability of the built environment and its capacity to produce criminal opportunities, was not identified by the original proponents of CPTED. Indeed, 'urbanists' (her self-description) like Jacobs believed that 'movement' would produce increased "eyes upon the street" (1961, p.35) and this in turn would reduce crime. In reality, the reverse appears to often take place as

detailed by Johnson and Bowers (2010). And there are also the examples of horse race meetings, fun fairs, busy transport interchanges, etc., where the sheer volume of people provides anonymity for offenders – regardless of the number of eyes (see Cozens *et al*, 2019).

The crime opportunity afforded by a highly permeable built environment, will cause concern from a CPTED perspective. Furthermore, it might be thought that following the development in the UK of many ‘sink estates’ (Blair, 1998) during the 1950s, 60s and 70s, where such permeability facilitated so much crime, that mistake would not be repeated – and certainly not so soon. Moreover, the rationale for their inclusion is now most usually based on grounds of sustainable transport links – that is to say, persuading people to walk or bicycle rather than drive motor vehicles. However, and in contrast, this ignores the potential carbon saving and therefore long-term sustainability elements of CPTED and SBD, detailed by Pease (2009).

There now exists a range of convincing research data and further evidence that points to the efficacy of minimum entry/exit and limited movement/permeability: Brantingham and Brantingham (1975, 1993, 2008); Bevis and Nutter (1977); Brown and Altman (1983); Newlands (1983); Greenberg and Rohe (1983); Beavon (1984); Taylor and Gottfredson (1987); Cromwell *et al* (1991); Poyner and Webb (1991); Armitage (1999); Rengert and Wasilchick (2000); Wiles and Costello (2000); SURF Centre (2002); Poyner (2006); Armitage and Monchuck (2009); Johnson and Bowers (2010); Armitage (2013).

Furthermore, Beavon et al (1994) reported a correlation between increased accessibility and burglary risk. Whilst Poyner called for “proper consideration” (2006, p.4) of the issue of permeability, in view of New Urbanism’s desire for unrestricted permeability and hostility to the cul-de-sac as a design feature of the built environment (Cozens, 2008). Manifestly in-depth research of permeability (culs-de-sac and burglary risk) was delivered by Johnson and Bowers (2010). They begin with the premise that crime is concentrated in space (Eck *et al*, 2005) and then concentrate on the role of permeability in facilitating crime. CPT (Brantingham and Brantingham, 1981, 2008) supports the notion that permeability and crime risk are linked. And Armitage (2007) found that homes located on main roads were at greater risk from burglary – whilst those in culs-de-sac were at least risk. However, where the cul-de-sac included a ‘leaky’ (interconnecting) footpath the risk of crime was unsurprisingly, much greater.

In comparison, the concept and methodology known as Space Syntax provides an alternative perspective. Hillier and Shu (2000) and Shu and Huang (2003) concluded that risk of burglary is twice as high in culs-de-sac than it is on permeable through roads. Despite this assertion, culs-de-sac were thought to be: “...very safe places’ if linear and part of a larger system of linear roads...” and “when combined together to form hierarchical systems of interconnected culs-de-sac, they can become extremely vulnerable.” (Hillier, 2004 p.39). Nevertheless, he subsequently acknowledged that the early research did not differentiate between ‘leaking’ and true culs-de-sac.

On which theme, Johnson and Bowers (2010) used data from one police district in the Merseyside force area covering 56.8 square km and 118,161 homes. They determined this contained 10,760 street segments, producing 11.94 homes per segment. Police recorded burglary data was used for the period April 1998 to March 2002 (four years). A majority of the culs-de-sac in the study area were connected to around three others and to ensure misidentification as through roads did not take place, each was identified manually. Two types of cul-de-sac were identified:

1. Linear culs-de-sac – off through roads with linear geometry
2. Sinuous (curving) or isolated culs-de-sac – non-linear with little visibility down the cul-de-sac

The aggregate results, in terms of burglaries per 1,000 homes per annum, disclosed that the lowest risk of burglary was in culs-de-sac and private roads. Indeed, the rate of burglary on major roads was three times that of private roads and more than twice that in sinuous culs-de-sac. Furthermore, the risk is higher in linear culs-de-sac than in sinuous or hierarchical types. The Johnson and Bowers research suggests that linking a street section to another major road increases the burglary risk by 8%, and to three other such roads by 26%. Whilst both forms of linear and sinuous cul-de-sac would appear: "...to be associated with a statistically significant reduction in the expected count of burglary". (Johnson and Bowers, 2010, p.18). The findings demonstrate that connectedness is linked to increased burglary risk – in line with Bevis and Nutter (1977), Beavon *et al.* (1994).

The authors conclude that for future policy decision-making and because movement/permeability may lead to increased risk of burglary, it should be limited to that necessary to facilitate local journeys and sustainable transportation. Moreover, 'true' culs-de-sac (rather than 'leaking' culs-de-sac) are arguably a beneficial design feature and should be encouraged. Other research results of special note include: how increased housing density appears to have had a positive effect on crime; burglary is higher in areas with higher levels of ethnic heterogeneity; and a small positive link between levels of unemployment and burglary association. But in summary, the authors conclude that their results support the hypothesis that increased movement/permeability is inherently associated with burglary risk.

The findings of Wiles and Costello (2000) describe the relatively short travelling distances of opportunistic offenders, both in England and North America – thereby contradicting a commonly held belief that increased mobility leads criminals to travel further to commit crime, especially into affluent suburbs and rural areas. Moreover, the authors report how the overwhelming majority of offenders tend to commit crime within the areas in which they reside or socialise. Their main conclusions include:

- The vast majority of offender movements are relatively short
- Most travel associated with crime is largely not motivated by planning to offend and is much more dependent on opportunities becoming available during normal routines, rather than long-range search patterns
- When offenders travel to commit crime, it remains overwhelmingly local
- Long-range crime is mainly to places with strong connections to the offender's home location

- There was little evidence that offenders' travelling to commit crime was significantly increasing over time, or of new travel opportunities being exploited. (Wiles and Costello, 2000, p.v.)

Much of the previous research relating to offender travel comes from North America. Wiles and Costello (2000) detail how in general these distances do not appear to vary by time of day or year. However, such distances did increase with age (and by extension, criminal experience). For residential burglary, average travel distances were very low (averaging approximately two miles) and therefore walkable from the offender's home address.

'The new opportunity theories', Felson and Clarke (1998) including RAT, CPT and RCT point to known offenders committing high volume crime, dominated by opportunistic offending during routine and limited travel patterns. Indeed, Wiles and Costello (2000, p.45) "...feel confident in asserting that generally, high volume crime is a highly localised phenomenon, especially for offences like residential burglary and criminal damage." Meanwhile, Al Kahtani (1996) discovered similarly short travelling distances ('crime travel footprint') amongst offenders in Saudi Arabia – thereby suggesting an international pattern of offending behaviour.

Ultimately, it might be expected that the overwhelming majority of offenders do not travel long distances to commit crime. Long range travel requires knowledge, confidence, skills and resources – talents which many offenders do not possess. And as in nature, human endeavour seeks to minimise effort (conserve energy).

Houghton (1992) describes how offenders often live in poorer social housing containing a surplus of suitable targets ('impacted crime areas'). This facet of criminal behaviour, where victims are often poorer than offenders (localised victimization), is especially disheartening.

Of perhaps most crucial importance, having established that a high proportion of offenders travel relatively short distances to commit crime, it might be suggested enhanced movement/permeability assists their target selection – in that they will pass more properties suitable for burglary (more crime opportunities) within their 'crime travel footprint' (or 'opportunity radius') in a shorter distance and space in time. This will be especially true where they are travelling to the enclosure and/or target on foot – which may be especially relevant to this investigation.

CPTED concepts: Surveillance

The manner in which an area can be designed to maximise the capacity for suspicious activity to be seen, is known as surveillance (Intervention). Two axes of surveillance can be identified: natural to technological; and informal to formal.

Natural/informal surveillance is displayed by residents, shoppers, passing pedestrians, cyclists or motorists. Whereas formal surveillance refers to the actions of the police, security guards and employees. As noted above, in RAT, those who intervene on either an informal or formal basis, are often referred to as 'capable guardians.' Technological surveillance is most often used as a reference to CCTV, although it could also include lighting, intruder alarm installations and biometric applications such as facial recognition.

CPTED concentrates on maximising the opportunities for informal/natural surveillance – the surveillability (Ekblom, 2011b) causing an apparent perception amongst offenders that they are being watched. In conventional dwelling design this is achieved by ensuring: main entrance doors face the street; habitable ‘active’ rooms, such as the kitchen or lounge overlook the street; and that vegetation and high walls do not obscure sightlines (Implementation and Involvement). As with territoriality, the overall rationale is that legitimate users recognise suspicious behaviour and are then confident to either challenge it directly, or report it to an agency like the police. Furthermore, surveillance has a dual purpose in both its operational task of alerting legitimate users, whilst simultaneously creating the perception amongst potential offenders that their actions are being watched.

References to informal/natural surveillance pepper design briefs, perhaps because unlike the other CPTED elements they have attracted little critical commentary. Unfortunately, the likelihood (or not) that there are sufficient “eyes upon the street” Jacobs (1961, p.35) or movement generation to provide any credible capacity for informal/natural surveillance is rarely considered – and has parallels with Reynald’s (2009) guardian intensity discussed above. Nor is there a guarantee that human witnesses to suspicious or offending behaviour will act (Intervention) on what they see and either intervene in person or make contact with the concierge, security guard or the police. Jacobs (1961) and Newman (1972) both maintained that in an environment where what are now described as CPTED elements are maximised, residents would be more willing to intervene. However, their ideas often appear to be deficient of evidential support.

Subsequent research that encompassed interviews with convicted burglars indicated that surveillance and their being seen were highly influential elements in their decision making: Repetto (1974); Brown and Bentley (1993); Nee and Meenaghan (2006). Winchester and Jackson (1982) researched residential burglary offences in the Kent police area and reported that occupancy, surveillance and access opportunities were important determinants when criminals were selecting targets. They concluded that properties overlooked by neighbouring ones experience less crime (and more crime where the reverse was true) – also the verdict of Van de Voordt and Van Wegen (1990); Armitage (2006, 2011).

Macdonald and Gifford (1989) interviewed 44 convicted male burglars and used 50 photographs of different forms of housing, displaying a range of environmental cues involving surveillance. The burglars were then asked to arrange the photos in terms of poor, moderate, or good burglary targets. The surveillance opportunities emanating from the properties proved to be a good indication of their attractiveness to burglars. Secluded homes were especially favoured, whereas corner plots and those with good visibility or overlooked by neighbours, far less so. Whilst Cromwell et al (1991) discovered that properties located in close proximity to a stop sign, traffic lights, commercial business establishment, park, church or busy road are more attractive to offenders. This apparent contradiction with Jacobs' "eyes upon the street" (1961, p.35) is also evidenced by Winchester and Jackson (1982) and Groff and La Vigne (2001) who found that properties located on a main road experience more crime – thereby challenging Hillier and Shu (2000) and Shu and Huang (2003).

Groff and La Vigne (2001); Van de Voort and Van Wegen (1990); Welsh and Farrington (2008) all conclude that properties located in areas with poor street lighting experience increased levels of crime. Whereas, Hearnden and McGill (2004) interviewed convicted burglars and discovered that belief of there being goods within the property worth stealing, was the most important consideration. Amongst 72 respondents, only 35 thought the 'type of property' important. Moreover, the fear of being seen came very low on the list of offenders' concerns – not surprising when their primary motivation was to steal goods to sell and finance their drug addiction – a finding that supports RCT. Armitage (2006) also concluded that properties visible from nearby footpaths experience more crime: as do those located within viewing distance of traffic lights. Whilst Reynald (2009) deduced that increased levels of surveillance lead to enhanced levels of guardianship activities. Technological innovations as substitutes for guardianship are a crucial part of this investigation and discussed below. Nevertheless and of seminal importance, Armitage (2007) contends that: "...the current debate surrounding the criminogenic features of permeable design has diverted practitioners' attention from the immediate task of reducing crime." (Armitage, 2007, p.140).

CPTED concepts: Image and milieu

Image and Milieu was the term originally used by Newman (1972), repeated by Cozens and Love (2005) and refers to the capacity of the physical design of a development to deliver a sense of security (Intervention). This has since evolved into CPTED's 'image maintenance/management', Cozens and Love (2015) – albeit there

is a subtle difference, in that it is the post-construction propensity of the building or space not to be marred by damage, vandalism, graffiti or litter that is considered – together with the absence of a negative social reputation. In practice, this means that descriptions like ‘sink estate’ (Blair, 1998) will not be incurred – on the proviso that the development has avoided a spiral of decay and/or otherwise attracted unwanted stigma and thereby come to be known as a problem area.

It can be plausibly argued that image is relevant on two levels. First, by delivering a sense of security residents will feel more inclined to intervene and if not challenge and report offending or ASB – or at least report it to place managers or the police (Involvement and Implementation). Second, and with a direct reference to the ‘Broken Windows’ theory of Wilson and Kelling (1982), those contemplating crime or ASB will be less likely to commit such acts in an area that exudes the impression that people care and are more likely to be watching (and reporting) such behaviour (Involvement from all parties).

There now exists a considerable canon of research evidence that supports the physical condition and ‘image maintenance/management’ of the built environment and how this influences crime and fear of crime. This includes Lynch (1960); Newman (1973); Perlmutt (1982); Eck (2002); Kraut (1999); Ross and Mirowsky (1999); Ross and Jang (2000). Moreover, vacant premises may constitute ‘crime magnets’ which in turn has a resonance with Brantingham and Brantingham’s (1993; 2008) concept of ‘crime attractors’. Furthermore, SBD’s approach to management

and maintenance has also changed during the past decade, in that there are no longer references to such issues in design guides like Homes 2019 (SBD, 2019).

CPTED concepts: Geographical Juxtaposition

The fourth of Newman's (1972) concepts was originally restricted to adjacent or proximal land use. Cozens, Love and Davern (2019) concur with Armitage (2018) in saying CPTED needs to continually evolve, citing an absence of discussion relating to Geographical Juxtaposition (GJ) despite its extended value in comprehending "crime issues stemming from influences at a variety of levels of remoteness from the crime location (2019, p.2). In the Conjunction of Criminal Opportunity, Ekblom (1997) set out the relevance of "remote" and "immediate" causes/precursors of crime. Whilst Groff and McCord (2010) assert close proximity to a crime generator (Brantingham and Brantingham, 1993) will experience more crime. Cozens, Love and Davern (2019) suggest Newman (1972) erroneously saw defensible space as part of GJ, which they contend has four forms: Micro (at the crime location); Proximal (proximal/contiguous to the crime location); Meso (proximal to most distant areas); and Macro (remote influences). Existing literature concentrates on SCP factors: physical situation at the crime location, but not the physical factors beyond. They argue CPTED suffers from the wrong belief that busy places are always safe, citing "eyes upon the street" (Jacobs, 1961, p.35). However, she accepted wider influences on crime: "bars and indeed all commerce...draw strangers and the strangers do not work out as an asset at all" (Jacobs, 1961, p.41). And states "I hope no reader will try to transfer my observations into guides as to what goes on in towns little cities, or in suburbs which still are suburban" (Jacobs, 1961, p.26). Cozens (2015) highlights how policy support for high density, mixed-use developments in the USA, UK,

Australia and beyond provides the potential for planning policies to exacerbate crime.

Cozens, Love and Davern (2019) propose an extended spectrum of GJ that will:

- Identify new ways external elements impact on crime in a given area
- Suggest new theories of geographical/spatial effects on crime
- Review and develop comprehension of how traditional CPTED operates
- Confront planning archetypes and how they impact on crime prevention
- Enhance paths between urban planning, CPTED, environmental criminology

Their trawl for GJ within 423 reference works published 1968-2019, found only 14 items (3.31%) against 127 (30%) referencing defensible space. Yet, GJ confronts CPTED application to mixed-use development, permeability, urban consolidation, New Urbanism and image management – the latter in conjunction with GJ being “most offensive to architects and planners” (Newman, 1972, p.115). Bowers (2014, p.390) suggests that, “land use and crime are inextricably linked is both intuitively plausible and well-evidenced”. Indeed, Jeffery had previously written how CPTED lies “within the framework of total urban planning” adding “it does little good to target harden a convenience store located in a major urban area, while ignoring the development of a major highway a block away, or a large low-cost housing development several blocks from the store.” (1999, p.2). For Cozens et al (1999, p.256) GJ was an “important, if currently vaguely conceptualized, design issue”. Cozens et al (2001) developed a “new integrated model of defensible space.” Following which, Cozens and Hillier (2012) and Cozens (2014, 2016) restated the

importance of GJ. Cozens and Van der Linde (2015) convincingly argue that CPTED surveys should include measurement of GJ land uses (many UK-based DOCOs would contend they were already doing so); and as additional criteria in conducting CPTED street audits (Cozens and Babb, 2018). Ultimately, Cozens (2016) perceives GJ as a powerful unifying idea of how crime and environment are related.

Mixed-use development includes a large width of approaches, but there is no evidence to suggest it encourages more use or provides “eyes upon the street” (Jacobs, 1961) to reduce crime. The opposite view holds that mixed-use reduces citizens’ perception of space ownership: “homogenous residential neighbourhoods have lower rates of crime than mixed-use neighbourhoods.” (Anderson et al, 2013, p.711). whereas, non-residential use combined with less informal social control, create more crime (Stucky and Ottensmann, 2009). To be specific: bars and liquor stores – suffer more assaults and violent crime; transit-related sites – increased crime risk and geographical distribution of crime; subway stations, nearby hotels and motels – street robberies; fast food restaurants, convenience stores, pawn shops – greater opportunities for offenders to congregate; schools – more violent crime and property crime; banks – risky facilities; playgrounds and parks – crime attractors; public housing projects – higher crime. Similarly, non-use/dereliction is associated with higher crime and “contagion” (Skogan, 1990). “It was striking to discover how consistent the findings indicate that mixed land use... is associated with higher levels of crime” (Savage and Souris (2008, p.9). Chang (2011) asserts how crime rates are lowest in residential only areas. Whilst Anderson et al (2013, p.756) contend that “Jacobs had it backwards... residential parcels reduce crime in commercial areas.”

Bernasco and Block (2011) found busy sites containing crime generators/attractors (Brantingham and Brantingham, 1993) possessed an increased risk of robbery that decayed with distance – for example bars, clubs, fast food restaurants, off-licenses, grocers, petrol stations, laundromats, pawn shops, general stores. Such locations satisfied the 80:20 rule: 20 per cent of facilities will generate most crime risks. With bars, violent crime radiated out to approximately 400 feet – Ratcliffe (2011). Whilst subway stations were especially criminogenic, with increased crime extending for up to 1200 feet (Groff and Lockwood 2014). Within the orbit of CPT (Wilcox and Eck, 2011) suggest contextual clustering of facilities alongside or near major roads provide crime opportunities. Indeed, Cozens (2011) described the “criminogenic potential of the existing environment.” Whilst Anderson et al (2013) posit a limited understanding of specific micro-level details of crime, land use and necessity for CPTED audits – because development may directly or indirectly cause crime.

Urban consolidation and densification indicate RAT (Cohen and Felson, 1979) and CPT (Brantingham and Brantingham, 1981, 2008) are inextricably connected to GJ. Ackerman and Rossmo (2015, p.238) contend “density and location of crime opportunities and the various ways offenders interact with their environment strongly affects offender travel behaviour” – more specifically relatively short travel distances. GJ may influence local crime risks: dilution and concentration; malign or benign displacement of crime; behavioural modification; motivation/demotivation; distribution of crime ops; nodes acting as crime attractors/detractors/facilitators/enablers/precipitators/absorbers/radiators/reducers; offender density; paths and accessibility; edges; and presence of capable guardians. Most practitioners would echo Crowe’s (1991) contention that crime assessment prior to making CPTED recommendations

is integral to the CPTED process. Yet many guidelines make no such reference. The process of CPTED has been constantly restated by Atlas (2008), Cozens (2016), Cozens and Love (2017). Crime and CP operate as a complex system, but using GJ when conducting crime risk assessments provides better comprehension of nearby crime risks to identify crime types likely to take place and which CPTED methods will be most effective and if necessary, extend and implement in the surrounding area.

GC identifies positive and negative feedback loops, previously missing from CPTED and environmental criminology studies. Cozens, Love and Davern (2019) contend it provides a basis to include, analyse and develop CPTED methods that contain feedback loops at micro, meso and macro levels. For example, the routine activities and crime opportunities within residential suburbs and night time economy districts. Crime types permeate boundaries – important for GJ as such boundary effects may increase crime, or produce protective effects. GJ helps reveal feedback loops and an improved understanding of the criminological dynamics in creating enhanced CPTED solutions. Feedback of positive crime risk indicates higher crime. Whereas, feedback of positive CPTED may cause lower crime and a diffusion of benefits – AKA “benign displacement” or “halo effect”. Whilst negative risk feedback suggests crime may be stabilizing – as is often the case over time. Furthermore, feedback effects suggest a necessity to extend CPTED interventions beyond the site in question.

Cozens, Love and Davern (2019) also contend that GJ may improve understanding of CPTED concepts, for example: territoriality, surveillance (and sousveillance), image management, access control, activity support and target hardening – which

like access control, is based on the GJ of two kinds of space: safe, secure with legal resources and functions; spaces with increased inclination towards crime risks that potentially threat lawful operations and enterprise. It can be perceived as the GJ of a physical structure between these two space types “that has high costs to cross” (2019, p,14). For example, high security doors between the potential criminal and target enclosure or; spray-based DNA property marking systems.

The authors also propose “Four New Principles of CPTED” (2019, p.14). First, GJ as a basis and explanation of crime and crime prevention issues. Without GJ, crime will not take place (virtual GC in respect of cyber-crime). Second, GJ is inversely proportional to the CPTED measures applied; all crime risk issues are GJ crime risk issues, with those closest to the target having the greatest effect, unless ones further away possess enhanced attractiveness e.g. scrapyards and metal theft. Third, distance benefits may be realised if crime opportunities are masked. “Surveillance obscuration” can enhance GJ distance and diminish capacity for crime. The authors suggest hiding valuables in a car’s boot, or minimising knowledge about where valuable items are stored. Fourth, CPTED surveillance can be divided into obscuring crime opportunities; and enhanced visibility of crimes taking place, such as locating ‘active’ rooms (e.g. kitchens and lounges) in order to overlook public space.

CPTED continues to evolve: 1st Generation CPTED (Jeffery, 1971); 2nd Generation (Saville and Cleveland, 1997) and multiple examples claiming to be 3rd Generation CPTED (UNICRI, 2011; Gamman and Thorpe, 2012; MIT SENSEable Lab, 2013; Mihinjac and Saville, 2019). A significant CPTED revolution perceives it constructing

interventions cognizant of location and crime risk – thus the relevance of GJ (Cozens, 2016; Cozens and Love, 2017). And as Crowe (2000, p.6) states “CPTED is a process, not a belief system.” Endorsed by Atlas (2008) and Cozens (2016), such evolution includes “evidence-based principles, designs and interventions” (2019, p.16) with research evidence justification and relevant local data. Continuing review of CPTED theory indicates a necessity that each location’s crime conditions be analysed separately, in order to produce bespoke CPTED interventions to deliver crime reduction (Cozens and Love, 2017). There is a need for closer interaction between CPTED, environmental criminology and urban planning. Indeed, GJ challenges current wisdom and planning policy in the USA, UK and Australia that repeatedly and wrongly assumes busy locations are invariably safe locations.

According to Armitage (2018), prosocial design “recognizes the offender is very likely to be part of our community and that perhaps enhancing an offender’s emotional or moral attachment to an area may reduce their desire or inclination to commit crimes within the community.” Despite distinct parallels with the application of restorative justice, many CPTED practitioners still apply what are now out of date guidelines, a one-size fits all checklist of supposed CPTED good practice. Whereas, GJ can assist in designing, using and managing prosocial locations more efficiently, whilst simultaneously minimizing or even eliminating environments where however inadvertently, opportunities for crime and ASB have been incorporated.

CPTED measures

This study has decided to group these measures under three specific headings: target hardening, technological innovations and environmental elements. All three can be identified at the two sites analysed in this investigation – and their individual effectiveness in preventing crime, fear of crime and ASB is encapsulated within the research aims.

Physical security target hardening

The expression physical security ‘target hardening’ was first used by Newman (1972) and is often reduced to either ‘physical security’ or ‘target hardening’ – the preferred term throughout this thesis. It includes the original or retrofit incorporation of doors, windows, glazing, security ironmongery, fencing and other physical structures designed to increase the difficulty for offenders to gain access to the premises. A case can also be made for the inclusion of ‘defensible planting’ under this heading – as it is in this study.

Budd, (1999); Tilley *et al* (2011); Grove *et al* (2012); and Tseloni *et al* (2017) report how exterior door and window locks are installed on individual dwellings to withstand attack. Armitage (2013) charts the rise of security standards for exterior doors and windows – beginning in 1989 with the launch of the UK police crime prevention initiative SBD. In the absence of security standards, SBD relied on ‘specification’ for most of the first decade of its existence. And whilst PAS 011: 1994 was adopted as a test standard for SBD windows in the same year, it was not until 1999 and simultaneous with the reorganisation of SBD that the performance standards of PAS

23 and 24: 1999 for doorsets and BS 7950: 1997 for windows, were introduced. The distinction between specification and performance (ensured through certification) is important, because a door may claim to meet the requirements of the former, when in fact it fails the certification necessary for the latter. PAS 24 now applies to both doors and windows and has been joined by a number of others operated by different testing houses e.g. LPS 1175 and 2081; STS 201 and 202. Designed to deny access to offenders, this is the category most likely to attract the inappropriate description of 'fortress society' (Ekblom, 2011a).

Farrell *et al* (2011) articulated the 'security hypothesis' as an explanation for the reduction in vehicle crime that began in the early 1980s – in the USA; early 1990s in Australia, England and Wales. This specifically related to inclusion of central locking, immobilisers and alarms. Tseloni *et al* (2017) developed this same hypothesis to investigate and explain the reduction in residential burglary that began in England and Wales during the mid-1990s. Described as the 'international crime drop' by Van Dijk *et al* (2012) and Tonry (2014), Tseloni *et al* (2017) concluded that "combinations of the most effective devices (door and window locks plus security lighting)" (2017, p.1), led to a decline in forced-entry burglaries. Amongst a wide range of research material, the authors drew on repeated editions of the British Crime and the Crime Survey for England and Wales (CSEW), for example Office for National Statistics (ONS, 2013). This includes asking a sub-sample of victims about their crime experience.

Unfortunately, expecting victims to know what security failing caused their burglary to take place is not a guaranteed route to accuracy. Certainly, as a police DOCO for 30 years, this author's experience was that the use of retrospectively fitted additional door or window locks had negligible effect in preventing burglary by moderately determined offenders – as evidenced at the comparison site in this investigation. Nevertheless, Tseloni et al (2017) adds to a growing body of evidence in support of the crime drop and security hypothesis across a range of different crime types. Door and window security is a key measure at both sites investigated in this thesis and fully detailed in Chapter Two.

Technological innovations

As one of the trio of specific physical Intervention CPTED headings, technological innovations covers a burgeoning number of applications. A generation ago these would have been limited to little more than electrically-powered lighting – primarily in the form of street lighting but also including security lighting. However, in recent decades the number of categories has expanded dramatically – often as substitutes for guardianship (Reynald, 2009) including electronically controlled, fob-reader, access-controlled door entry systems; 24/7 staffed concierge control rooms operating localised CCTV, caller identification and electronic door entry systems.

Evidence regarding the effectiveness of lighting in preventing crime has featured in studies by Ramsay and Newton (1991); Painter (1994); Farrington and Welsh (2002). Whilst the evolution of intruder alarms means visual corroboration is now often provided by CCTV (closed circuit television). Beginning with localised security

applications, over the past three decades public area surveillance by CCTV cameras expanded dramatically across the UK and the country has had a pathbreaking role internationally (Key Note Market Intelligence, 2014; Welsh and Farrington, 2008). CCTV has also been increasingly used in residential environments – albeit less so by residential social landlords (RSLs) in external areas (Gill *et al*, 2005).

Environmental elements

The environmental elements of CPTED fall outside the headings of target hardening and technological innovations. As such, they relate to the environment beyond that of the target or enclosure e.g. the external landscape outside the building and how those areas are managed. Consequently, many of these environmental elements will be synonymous with the CPTED concepts detailed previously in this chapter and more specifically: defensible space, territoriality, surveillance, activity support, image and milieu and geographical juxtaposition. The reason for reordering these generally accepted CPTED elements under this specific heading, is that it assists in both their categorisation and thereafter a systematic analysis of their effects by way of the 5Is.

Situational Crime Prevention (SCP)

For the purposes of this thesis, SCP is especially relevant because a majority of the Interventions prescribed and Implemented at both sites investigated, fall within this heading. As a 5Is Intervention, the SCP approach is predicated on reducing opportunity through measures directed at highly specific forms of crime. These seek to manage, design, or manipulate the immediate environment in as systematic and permanent a way as possible; and make crime more difficult and risk-associated, or

less rewarding and excusable – as judged by a wide range of offenders (Clarke, 1997). More succinctly, SCP consists of “four important components” (Roach, 2006, p.28): a RAT (Cohen and Felson, 1979) theoretical basis, heavily influenced by RCT (Cornish and Clarke, 1986); action research methodology; the twenty-five techniques of situational prevention (Cornish and Clarke, 2003); together with a litany of evidence-based research emanating from practical application in the built environment.

Consequently, SCP aims to modify the immediate conditions in which crimes are committed or pre-empt crime events, by removing or reducing the opportunities (Tilley, 2009). And not just crime events. Clarke and Mayhew (1988) report how the domestic change in England and Wales from coal gas (with its inherent painless, soporific and poisonous qualities) to methane between 1958 and 1977, reduced the number of suicides from 2,637 to 8 – roughly 50 per cent of all suicides to 0.2 per cent. Moreover, this simultaneously led to a reduction in all suicides of some 25 per cent during the same timeframe – from 5,298 to 3,944 (Felson and Clarke, 1998). Most importantly and on the basis of the previous figures, it can be deduced that a quarter of all potential suicide victims (1,242 people) were not displaced into choosing another means of taking their lives. Mayhew *et al* (1976) stress the power of opportunity in determining behaviour and describe how for both offenders’ and victims’ crime opportunities vary according to age. Clarke (1995) distilled the elements contained in his definition of SCP into the ‘Twelve techniques of situational crime prevention’. Following the challenges of Wortley (2001) regarding ‘excuse removal’ and ‘provocation reduction’, these were subsequently expanded to become the ‘Twenty-Five techniques of situational prevention’ (Cornish and Clarke, 2003).

Perhaps the most important facet of SCP is that it is the overarching framework under which other crime prevention theories can be located, for example RAT (Cohen and Felson, 1979); RCT (Cornish and Clarke, 1986); CPT (Brantingham and Brantingham, 2008) and CPTED. On occasion, SCP measures can lead to certain types of crime being all but eliminated: 'safe-cracking' (due to much stronger safes equipped with electronic, time delay locking systems); lock-picking (many locking systems now incorporate measures to prevent this MO, such as those present in BS 3621 five lever mortise deadlocks); and obscene phone calls (the advent of the '1471' caller identification system) – see Felson and Clarke (1998). However, in the majority of instances situational measures only affect cost, effort and reward at the margins. This is a reference to the proportion of potential offenders for whom expected benefits would have previously exceeded expected costs (risk and effort) but who will not now commit the offence due to the reduced balance of expected benefits to costs – Tilley (2009).

However, not only are the twenty-five techniques limited to SCP measures: there are other restrictions. For example, they concentrate on the offender's decision-making and capacity to be provoked, rather than including the preventer's perspective. Plus, only a single causal mechanism is attributed to each element, which under-estimates the inherent preventive effect of such techniques. This may also inadvertently suggest there is only one solution to a given problem and indeed, deny the capacity to comprehend the extent to which each of the risk-effort reward mechanisms is working in a certain situation.

Underpinning theories

The following sub-chapters include those theories believed to be of most importance to this thesis. The first three were described by Felson and Clarke (1998) as ‘the new opportunity theories.’ Indeed, the authors went on to detail the ‘ten principles of opportunity and crime’ in which they assert that: “...no single cause of crime is sufficient to guarantee its occurrence; yet opportunity above all others is necessary and therefore has as much or more claim to being a root cause.” (Felson and Clarke, 1998, p.1). Nevertheless, criticisms such as victim blaming, relative deprivation and a failure to address the root causes of crime, whilst considered to provide additional (if not alternative) explanations, are not believed to deliver the location specific validity of the following theories. Furthermore, there is also the capacity to fall into the trap of “theoretical fragmentation” (Ekblom, 2011, p.25) together with the ongoing failure to integrate these underlying theories.

Routine Activity Theory (RAT)

Often perceived as the most all-embracing theory (a meta-theory) in crime science, RAT (Cohen and Felson, 1979) has been further developed and extended by Felson (2002, 2018). RAT has had a major influence on criminological thinking, primarily because it contradicts the dominant assumption that links social problems with crime. If there is such a link, what could explain how in the UK (for example) between 1921 and 1991 there was an upward curve in the number of crimes committed, yet simultaneous to this timeline poverty decreased? The answer proposed is that progress (be it socio-economic, technological, and/or political) assists in causing crime and creates new crime opportunities.

Cohen and Felson (1979) contend that for a crime take place, three elements must coincide. RAT aims to explain the changing supply of the following elements:

1. Likely offender – sometimes the terms ‘motivated offender’ or ‘potential offender’ are used – in that given the opportunity any of us might commit or be tempted to commit a crime, whilst even professional/career/travelling criminals do not commit crime all the time. However, ‘sufficiently likely offender’ better describes this element as it incorporates offender capability/resources as stated in the original.
2. Suitable target – meaning a person, product, building, vehicle, etc. Suitability depends on the context e.g. not all criminals are robbers and thus what is suitable for one criminal is not to another. Now regularly described as ‘suitable enough target’.
3. Absence of a Capable Guardian – originally, someone who was able to protect the suitable target (the absence of guardianship). The overall title of Absence of ‘sufficiently capable guardianship’ is now often used (Reynald, 2009 – see above). For example, since the 1970s bus services in the UK have increasingly operated without conductors – with the expectation that the bus driver will perform both roles. However, as the driver will be concentrating on their primary role, it can be argued that he or she is not a sufficiently capable guardian in respect of activities elsewhere on the bus e.g. graffiti.

The absence or presence of an ‘intimate handler’ and ‘place manager’ (Felson, 1986, 2018) as a variation on the capable guardian element, has since been added

to the equation. For example, whilst a bus conductor could be regarded as a capable guardian, a disapproving mother, father or other guardian might fulfil the role of 'intimate handler' in respect of the potential actions by their child. RAT was further developed by Clarke and Eck (2003) to produce a more advanced PAT – also known as the 'crime triangle'). This has now evolved to become two triangles, the first inside the second. The three sides of the first triangle translate as target/victim, offender and place. Those of the second, outer triangle as guardian, handler and manager. The PAT can be justifiably understood to be closely related to RAT.

At the practical level, RAT suggests it is necessary to influence (remove) any of these three elements to prevent the crime from taking place (Andresen and Farrell, 2015). Nevertheless, in a practical setting it might be contended it is desirable to influence more than one side of the PAT where the aim is to engineer an absolute block, rather than a simple reduction in risk. A primary criticism is that as a macro-level theory of crime and victimization, RAT fails to identify offenders or explain how they become motivated (like much of Crime Science). However, in its defence RAT is increasingly being applied to micro-level explanations. Jeffery (1993) argued that RAT is simply a description of crime, not an explanation. Whereas Akers and Sellers (2004) contend RAT implies victims can be blamed for crimes committed against them. Ekblom and Tilley (2000) suggest a further refinement in RAT would include an assessment of the potential offender's capabilities. Furthermore, Ekblom (2011a) convincingly observes how there has been little attempt to integrate these different theories within CPTED. Indeed, he contends that elements like surveillance and territoriality: "...have surface simplicity, but in fact confusingly overlap" (2011a, p.25).

Rational Choice Theory (RCT)

Whilst other approaches are concerned with the distant causes of crime (social and individual sources of criminality), RCT concentrates on the immediate considerations (underlying mechanisms) that cause an offender to decide to commit, or not commit a crime in a given situation. However, it also includes the first level of decision making – deciding whether a crime is something that person is prepared to commit. The original authors of RCT, Cornish and Clarke (1986, 2008) suggested a theory of action that underpins the choices available to the offender in the commission of crime. These choices take account of the risk, effort and potential reward of their criminal conduct.

Tilley (2009, p.110) describes RCT as “weak”, meaning the rationality exhibited by the criminal is very limited. The offender does not systematically consider all the possible options for his actions, but he does take at least a passing interest in the potential risk, effort and reward of his crime. For Cornish and Clarke, such behaviour is not driven by external factors and consequently there is the capacity to alter the conditions in which the choices are made to: “...produce preventive benefits at the margin” (Tilley, 2009, p.110). Tilley describes this as the fraction of potential offenders for whom the situation would have previously led to benefits exceeding costs (risk and effort) who will not now commit the crime because of the reduced balance of benefits to costs. Cornish and Clarke (1986, 2008) contend that the commission of a crime will usually involve a series of actions involving decisions made at each point along the timeline. Cornish (1994) coined the term ‘crime script’

to describe the individual elements of this series of actions taken by the offender along the timeline. In the context of this investigation, the crime script is important because a dwelling in a high-rise tower block necessitates a particular variant.

For example, in the crime of residential burglary the crime script might be as follows:

- Preparation: acquire jemmying implements and select co-offenders
- Entry: enter the neighbourhood
- Gain access into the tower block (the 'outer enclosure')
- Pre-condition: search for suitable unoccupied properties
- Instrumental precondition: identify and select a dwelling
- Instrumental initiation: disable any alarm system
- Instrumental actualization: break into the dwelling
- Doing: stealing items
- Post-condition: note the address for a repeat attack
- Exit: walk away from the scene.

Furthermore, Cornish suggests that Interventions at any of these points (disrupting the crime script) have the capacity to prevent the crime from taking place, either per se or by making the crime more difficult, risky, or by reducing the reward. Pascoe and Topping (1997) detail the decision-making processes of the individual burglar. Whilst Clarke (1999) emphasises the 'pinch-point' concept to establish the most practical and cost-effective stages to intervene along the crime script. And in a related vein, invented the 'CRAVED' mnemonic (concealable, removable, available, valuable, enjoyable, disposable) to describe: "...those target characteristics

important when contemplating theft and when seeking to conceal or dispose of goods.” (Clarke, 1999, p.23). Cornish and Clarke (2003) contend that RCT is a constituent part of how SCP measures can influence offending behaviour. Thus, it is not so much the offender’s choices they want to affect, as his sheer ability to commit the crime. Ekblom and Tilley (2000) had previously made this same point, albeit with an alternative and deeper analysis of the concept.

In a similar vein, Laycock (1985, 1997) investigated property marking campaigns in three Welsh villages and the necessity for (ongoing) publicity. She discovered that reductions in residential burglary were due more to the publicity campaign, rather than the actual property marking. In reality, the vulnerability of offenders was not increased – but their perceptions made them believe that following the property marking campaign they were at far greater risk of being apprehended. This is reflected in Clarke’s incorporation of perception into the techniques of SCP.

Furthermore, there is a cross-reference with the ‘anticipatory benefits’ identified by Smith, Clarke and Pease (2002) where perception of risk by the offender is of seminal relevance. In essence, anticipatory benefits are noted to take place once a crime prevention initiative is announced, but before the measures are put in place.

The authors contend that potential offenders misjudge the publicity when the initiative is announced, and highlight a number of studies where such ‘diffusions of benefit’ have been found – rather than ‘crime displacement’: Ross (1973) compulsory blood testing causing a reduction in failing to stop after a road traffic collision; Poyner *et al* (1985) reduction in theft of cars; Tilley and Hopkins (1998) reductions in non-domestic burglary; Armitage *et al* (1999) reductions in vehicle and property crime.

Crime Pattern Theory (CPT)

CPT (or the Geometric Theory of Crime) is relevant to this investigation, because of the high concentrations of crime across the two sites – and the manner in which they subsequently reduced. Environmental Criminology can be traced back 200 years (Burgess, 1925). More recently, CPT owes its origins to the work of Brantingham and Brantingham (1981, 2014) and aims to explain the geographical distribution of crime by examining the routine activities and ‘awareness spaces’ (see below) of offenders. Crime is generally understood to cluster at specific geographical locations according to the availability of suitable targets (Sherman et al, 1995). In addition, Brantingham and Brantingham (1995) contend that certain locations will act as either ‘crime generators’ – a magnet to numerous people without prior criminal motivation who come across an irresistible crime opportunity, e.g. a parked van with its rear doors wide open to reveal an array of high value goods; cargo ship beached during a storm). Or ‘crime attractors’ – ones that lure motivated offenders to known crime opportunities (e.g. pick-pockets to a horse racecourse meeting).

Lynch (1960) asserts that we all appreciate and use our knowledge to navigate through our main zones of activity – where we reside, socialise, shop, are educated or work. We do this courtesy of our ‘mental maps’ of five spatial elements: paths (including roads, transport lines); edges (walls, fencing, hedges); districts (neighbourhoods); nodes (focal points such as bus and train stations, shopping centres and other hubs); and landmarks (physical structures). In Environmental Criminology these zones are described as ‘activity nodes’ and the routes between

them as 'travel paths'. Frank et al (2011) describe how the interaction with our own environments is predictable. As a rule, this activity space is determined by age, gender, residential location (rural, suburban, urban), personal mobility and socio-economic status. Activity space possesses cross-discipline application and is used in criminology, geography, public health and transportation. Furthermore, we each possess some knowledge of the places we visit beyond our usual activity space – known as 'awareness space' (Brown *et al*, 1977) and subject to a concept known as 'distance decay'. This translates as meaning the further away you travel from your activity space, there is a consequent reduction (decay) of knowledge about the more distant areas within your awareness space.

CPT contends that higher rates of crime will be experienced at the 'edges' of such awareness space, where the offender is not recognised (anonymity). For example, housing that backs onto interconnecting ('leaking') public footpaths, canal towpaths, or clusters of shops. Furthermore, crime will more readily occur at certain times and locations within offenders' awareness spaces. Attractiveness, accessibility and crime opportunities in an area are reported to influence target selection by offenders (Bernasco and Luykx, 2003) and apply to different offender age groups (Groff, 2005). In this context, the actual location where offenders reside (see Wiles and Costello, 2000) combined with knowledge of their activity space, awareness spaces and the location of potential targets therein, is highly influential in determining offending behaviour – and by extension CPTED preventive interventions.

Activity nodes and travel paths are intrinsic elements of CPT and can be applied to our daily activities: when we leave the home, travel to educational establishments or work, shop, visit friends or recreation venues. During a normal day our travel paths will take us from and to several activity nodes, before most often returning to the first – home. Some activity nodes attract large numbers of people (e.g. recreation venues) whilst others (like the home) relatively few. The ‘pull’ of such venues is further amplified by what are described as ‘spatial temporal transitions’. For example, a horse racecourse is likely to generate very little crime on days when no meeting is taking place. Similarly, Bromley and Nelson (2002) report, alcohol-related crime in the city of Worcester displayed distinct ‘spatial temporal transitions’. Concentrations of such crime or ‘hotspots’ (Sherman, Gartin and Buerger, 1989) peaked around midnight. However, once these venues had closed alcohol related crime was concentrated in the suburbs and close to residential areas. This research seems eminently logical and appears to reflect such behaviour in cities and towns across the UK and beyond.

Roads, footpaths, bridleways, cycleways, canal towpaths, etc. constitute the travel paths between our activity nodes. Moreover, over time these individual routine travel patterns reinforce our activity space and awareness spaces. And what is true for us is equally true for offenders. The target selection patterns of serial rapists were investigated by Alston (1994) who discovered that initial contact with victims was often made close to routine travel paths. Whilst Rengert (2004) reported an offender’s journey to crime will consist of three elements: a starting location (usually their home); direction of travel; and the distance to the crime location.

Directionality is location specific and usually determined by offenders' activity nodes and travel paths – as described by Brantingham and Brantingham (1981, 2008). The contention is that if the offender's criminal activities take place along a single trajectory, directionality is strong. As an example, Rengert and Wasilchick (1985) reported that in the instance of burglary, they discovered a strong directional preference towards the offender's place of work – or along the travel paths between home and work activity nodes. Once again, this research appears highly credible and because human endeavour will most often minimise effort to maximise reward, it is also what might be expected.

Similarly, in their Sheffield-based research, Baldwin and Bottoms (1976) found that 24 per cent of recorded crime took place inside a half mile radius from the city centre. Bottoms (2017) logically contends that this results from routine activities. He also suggests that the 'street segment' for such crime might include other forms of activity area. Weisburd, Groff and Yang (2012) used the street segment as a means of analysing high concentrations of crime in Seattle. More specifically, they defined such activity areas as including residential streets, arterial streets and walkways/stairs connecting streets. This has a potential relevance to this investigation with its analysis of crime, fear of crime and ASB in high-rise tower blocks (arguably the equivalent of a street segment) most especially when there is none, or minimal control over those entering the blocks. Similarly, Bottoms (2017) details the re-emergence of offender residences (from its origins in the Chicago School of Sociology) to work in parallel with the opportunity tradition in crime science

to form what he describes as 'social spatial criminology' (Bottoms, 2017, p.1). The work of Brantingham and Brantingham (1981) in describing how offenders prefer to commit crime within their awareness space, provides considerable support for Bottoms (2017) contention. Indeed, he states: "That is, in fact, precisely what empirical studies have found..." (Bottoms, 2017, p.8). Namely, a disproportionate number of offenders' crimes are committed close to where they live. However, Bottoms' greatest praise is afforded to Weisburd, Groff and Yang's (2012) attempt to incorporate both opportunity and social disorganisation in socio-spatial criminology e.g. how an area with a high level of resident offenders will most often also exhibit a high number of offences.

Ekblom (2011a) points to the failure to integrate RCT, RAT and CPT and to describe how their constituent parts work together. For example, the relationship between opportunity and offending behaviour (Gottfredson and Hirschi, 1990). Similarly, in pursuit of the perception and anticipation of crime occurrence: "...under what circumstances do perceived effort and perceived risk merely add in their influence in discouraging and deterring criminal behaviour, and when do they interact to produce unique, emergent patterns?" (Ekblom, 2011a, p.42). Furthermore, Wright and Decker (1994) interviewed 105 active burglars in St Louis, Missouri and discovered that beyond their rationale of target selection, execution, searching a dwelling and disposal of stolen goods: "That the burglars often offend in the own neighborhoods also undercuts the value of measures designed to create an illusion of occupancy while residents are away from home." (Wright and Decker, 1994, p.208). Thankfully, the illusion of occupancy is of little relevance to the majority of high-rise flats.

Ekblom's concerns ultimately led to his production of the Conjunction of Criminal Opportunity (CCO – Ekblom, 2001, see below). However, he was not alone in voicing such questions and seeking the widest spectrum of “Rational Choice Theory-Plus mechanisms” (Ekblom, 2011a, p,135). For example, Wikstrom (2005) articulated the now widely accepted view that self-control and moral choice should be included amongst the range of offender motivations. Indeed, Wikstrom's Situational Action Theory (SAT, 2005) is a rival and more traditional theoretical framework to CCO and a competing model on the causes of criminal events – not a process model. SAT also includes causal mechanisms and is more specific about the different elements and how they interact to cause criminal events, but is a much narrower and precise theoretical formulation. Furthermore, CCO covers a broader range of ecological and psychological principles – now discussed.

Conjunction of Criminal Opportunity (CCO)

CCO (Ekblom, 2001) provides a more complex model than the PAT (Clarke and Eck, 2003) as a framework for causes and Interventions within crime prevention. In this context, CCO has additional scope, integration and detail and provides a mechanism map of 11 proximal causal pathways of crime, together with 11 counterpart principles of Intervention designed to subdue those causes. CCO draws on RAT, RCT and CPT. ‘Entities’ include crime targets (inherently criminogenic persons or objects – Target enclosures (safes, buildings and gated compounds situated in a wider environment – shopping mall, park, housing estate, etc). This is an important distinction, because in (for example) the crime of residential burglary, Ekblom is differentiating the dwelling that is being broken into (the target enclosure) from that which is stolen e.g. cash or jewellery. However, an early decision was made not to

use CCO in this investigation because in combination with the 5Is it might appear too author specific.

Implementation of CPTED:

Role of the Police DOCO

Historically, and as Newman (1972 – an architect by profession) observes, architects paid relatively little attention to the security aspects of the buildings they designed. Indeed, and through much repeated personal witness as a DOCO over three decades, architects continue to receive minimal if any security training during their degree courses and subsequent professional development. This may provide an explanation (at least in part), why certain types of building were increasingly targeted for burglary during the 1960s, 70s and 80s – dwellings in particular (Mawby, 2001). Nevertheless, the physical security of the individual home and thereby, its capacity to provide a safe environment free of occupants' concerns relating to crime, fear of crime and ASB, lies at the core of this thesis.

In the United Kingdom (UK), for more than half a century the police have played a major role in SCP Interventions and their Implementation – Ekblom's (2011a) second and third 'Is'. When first established in the mid-1960s, these Crime Prevention Officers (CPOs) were largely occupied with making recommendations in respect of simple target hardening measures e.g. improved quality door locks, window locks, bolts, door chains, etc. However, two decades later their remit had expanded (and roles diverged) to embrace the full range of CPTED Interventions. With the launch of SBD in 1989, a specialist function was to encourage the house-building industry to seek and attain the SBD award. Originally knowns as ALOs or CPDAs (Crime

Prevention Design Advisers), after a series of name changes, those who deliver this specialist crime prevention service are now known as DOCOs throughout most UK police forces. In terms of 5Is, DOCOs can be seen as agents who deliver – courtesy of the SBD delivery mechanism and POP (see below) the element of Intelligence (to architects, developers, planners, etc.) in order to encourage Intervention, Implementation, Involvement and undertake basic Impact assessments.

Police sponsored situational crime prevention initiatives owe their ancestry to the Willink Royal Commission on the Police (1962), the Police Act, 1964 and the Cornish Committee on the Prevention and Detection of Crime, (Home Office,1965). The latter recommended that each police force appoint a Force Crime Prevention Officer (FCPO) of inspector or chief inspector rank. Two years later the Home Office Standing Committee on Crime Prevention was established, with a remit to devise new strategies for delivery of crime prevention by not just the police service, but by society as a whole. However, as the 'Prevention of Crime' was a core principle devised in 1829 by one of the first two joint Commissioners of the Metropolitan Police, Sir Richard Mayne (Reith, 1956), it might be presumed (although evidence has not been discovered) that ad hoc advice in relation to (for example) the provision of improved quality key-operated locks, stronger doors, safes and bars on windows was being provided by police officers from the inception of their role.

Another element of the Standing Committee on Crime Prevention was the establishment of the Home Office Crime Prevention Centre. This was located at Staffordshire Police Headquarters in 1972 – but subsequently moved to Easingwold in 1996 and was closed in 2004 when the National Police Improvement Agency

assumed responsibility for all police training. Training is now delivered by the Police Crime Prevention Academy (PCPA), a division of Police Crime Prevention Initiatives and the managers of SBD. FCPOs met nationally on a bi-monthly basis (personal witness) until the late 1990s. According to one former FCPO (interviewed in 2018), during the mid-1980s they were influenced by the seminal works of Jacobs (1961), Jeffery (1971) and Newman (1972) in embracing CPTED. As a result, these FCPOs recommended the creation of a new specialist role of ALO – which this author occupied between 1992-2011 and as a DOCO until the present day. From the outset, the Metropolitan Police (whose crime prevention training was delivered separate to the rest of policing in England and Wales at Hendon Police College) chose to use a different Crime Prevention Design Advisor (CPDA) title.

When these roles were first established in the mid-1980s, the individuals performing this CPTED function were almost all serving police officers who had attended both the Crime Prevention/Reduction and Architectural Liaison/Designing Out Crime courses – a career progression. The one exception was Greater Manchester Police who have always employed unsworn police staff recruited from the professions of the built environment for this purpose (Monchuk, 2011). However, following the publication of Home Office Circular 114/83 (1983) with its instruction to release police officers from roles where the power of arrest was not required (Garland, 1996); and the option to recruit lower paid police staff (Newburn, 2003; HMIC, 2004), the number of serving police officers in the discipline has reduced each year. Indeed, this author can testify how when he entered the discipline in 1992 all 24 members of his training course at the Home Office Crime Prevention Centre, Stafford were white male officers nearing the end of their service (Weatheritt, 1986). Only in 2020 was

the gender (and ethnicity) imbalance reversed with eight of the 12 course members women, four men and two from BAME (black and minority ethnic) communities.

This rapidly advancing change can be identified in the gender makeup of those DOCOs and Crime Reduction Officers (CROs) attending the 2020 annual Atlas Training Event (for continuing professional development). Amongst these, 109 (61%) were men and 69 (39%) women. However, the evolution to police staff delivering the DOCO function may present difficulties in those circumstances where a police officer's experience adds credibility to their decision-making (Schneider and Kitchen, 2007). Compare this to Minton (2009) who contends there is no place for the police in the design and development process, especially when it results in the fortification of the built environment. However, no evidence is provided in support of this statement – one that contradicts the overall remit of DOCOs to reduce both crime and the fear of crime which a fortress-like environment would compromise.

At the turn of the millennium, it was generally believed within the police crime prevention discipline that there were approximately 500 DOCOs practising, or at least trained and still employed by the police services of the UK. Wootton et al (2009) suggested that by 2009 the total number for England and Wales was 347. However, within months that figure had fallen to 305 (University of Salford and University of Huddersfield, 2009) which also reported 21 per cent of all police forces had 2 or fewer DOCOs in post. Armitage (2016) concluded the total number had contracted to 137 – with a threat to the sustainability of Implementation and Involvement at the local level, in terms of the provision of CPTED advice and

recommended Interventions. However, as of autumn 2020 this investigation has established that following the creation of the PCPA there are now 199 DOCOs working across the UK – 172 with a responsibility in respect of residential premises.

Following a recommendation by the police Crime Prevention Design Group (CPDG, 2016), Stephen Watson, Chief Constable of South Yorkshire Police and National Police Chiefs' Council lead on crime prevention, wrote to his fellow chief constables across the UK asking that for reasons of consistency, they use the descriptive name DOCO. This has now overwhelmingly taken place. However, in Northern Ireland they are still known as CPDAs and in Greater Manchester Police as Design for Security Consultants. Across the UK more than 50 per cent of those delivering the DOCO function are now police staff, rather than police officers).

According to Monchuk, Pease and Armitage (2018) the DOCOs role is to:

- Deliver CPTED advice (Intelligence) to planners
- Review planning applications and assess the extent to which a development may provide opportunities for crime and disorder and how these might be eliminated in the plan
- Comment on plans after their submission to the Local Planning Authority (LPA) and recommend that an application be approved, amended or refused (Intelligence, Intervention, Implementation and Involvement)
- Liaise with architects and other designers at the concept stage in order that CPTED measures are incorporated (Intervention, Implementation and Involvement).

Such concept stage consultation is especially rare and DOCOs are most often made aware of the intended development after the planning application is submitted to the LPA (Wootton et al 2009; Armitage, 2011). Early-stage consultation has the capacity to avoid later objections by the DOCO based on crime issues (Colquhoun, 2004; Schneider and Kitchen, 2007; Wootton *et al*, 2009). Furthermore, the later and greater a number of changes are specified by the DOCO, the greater the expense for the developer (Monchuk, 2011), which might otherwise be expected to act as an incentive for early-stage engagement by the applicant.

Secured by Design (SBD)

One of the key responsibilities of the DOCO is delivery of the SBD award scheme. Indeed, the necessity for a developer to seek if not attain the SBD award e.g. by the former Homes and Communities Agency (HCA) mandate, has increasingly been the reason for consultation with the DOCO – and may help to explain the repeated late stage engagement by applicants. It remains the case that outside the GMP force area, the SBD service is delivered free of any additional financial charge made by the police force in whose area the development is located (Armitage, 2013). An application (together with the relevant plans) is made by the architect or developer for the SBD Award. Following analysis by the DOCO of the relevant crime detail for the location in question, together with examination of the submitted plans (Intelligence and Involvement), DOC amendments (Intervention) are agreed with the applicant. The development is then built, towards the end of which process a final site inspection is conducted (Involvement and Implementation). Any remedial

elements are then corrected and providing these requirements are met, the SBD award certificate is conferred.

A similar process is followed in Greater Manchester, but with two major differences. First, following negotiations with all ten LAs in their force area, a financial levy (calculated on the number of dwellings and/or size in terms of square metres occupied by the proposed development) is placed on each SBD application – and collected on their behalf by the relevant LA. Second, prior to construction the local Design for Security Consultant (DOCO) produces a ‘crime impact statement’ (Intelligence, Involvement and Implementation) for the project concerned (Monchuk, 2011; Armitage, 2013). In theory (if not always in practice) delivery of the SBD award will follow the ‘preventive process’ (Ekblom, 1988). Based on ‘action research’ or ‘operational research’ procedures first applied in the crime field by Wilkins (1997), this has since been developed through POP (Goldstein 1979, 1990) and the problem-solving approach devised by Eck and Spelman (1987).

The SBD award system is a UK police-delivered crime prevention initiative, one that rewards (incentivises) developers who build to an agreed minimum standard of CPTED based security measures (set out in the relevant design guide e.g. Homes, Commercial, New Schools, Hospitals) with an SBD award certificate. The SBD service is delivered by the aforementioned DOCO who has geographical responsibility (usually courtesy of the police force that employs them) for the location in which the development is to be built. More succinctly: “Secured by Design is a UK based award scheme... which aims to encourage the building industry to design out

crime at the planning stage” (Armitage, 2013, p.38). Devised during 1988 and originally launched in just the south-east region of England the following year, by 1992 SBD had been rolled out across the whole of the UK, including the Channel Islands and Isle of Man. Three decades later, SBD is owned by all the UK police services and managed through the corporate body PCPI.

The original publicity material for the SBD award describes how it had been created by: “...Senior Crime Prevention Officers...” and “...The Association of Chief Police Officers and the Home Office Crime Prevention Unit are fully backing the campaign.” (SBD, The Concept, 1989, p.2). Within that original marketing material, both the illustrations (detached houses) and the text indicate the intended audience of this Intervention was primarily the private, for sale house-building industry. Similar nuances can be identified on the front cover of ‘Safer by Design – CPTED’ in New South Wales (2001); and repeatedly within ‘Designing Out Crime, A Practical Guide’ (Strathclyde Police, 1994). Nevertheless, from the beginning it was refurbishment of existing LA owned housing stock and housing association (HA) new build projects by such residential social landlords (RSLs) that dominated the award process for UK urban police force DOCOs (Involvement and Implementation, personal witness). It appears that only during the past decade have private, for sale house builders become actively involved in achieving the SBD award for their developments – often because the physical security standards required have merged with those of SBD and the economic costs reduced dramatically, see Davis Langdon (2006, 2010); Teedon *et al.* (2010); Pease and Gill (2011) below.

The original SBD design guidance for new homes (1989) was joined by SBD Commercial (1992) and almost simultaneously, SBD Refurbishment (1992). The latter was published with application to existing residential developments (all but exclusively owned by LA housing departments and HAs) that were being refurbished as part of a process to extend their original lifespan. SBD Refurbishment was a short, (and therefore limited) five pages document which included the sub-headings Estate Design; Physical Security; Flats; Security Lighting. Intruder Alarms and Smoke Detectors; and Major refurbishments. Physical Security repeated the specification contained in New Homes Security Scheme (1989). However, it also contained the following qualifications:

- The main entrance to flats should be provided with an entry-phone system plus electrical release of the lock
 - The front doors to individual flats to be to the same specification as for front doors, with such internal variation as may be required by the Fire Regulations.
- (SBD Refurbishment, 1992, p.2)

The RSLs are credited with being supporters of SBD since its inception – a situation that predates the HAs being mandated to seek the award by the then Housing Corporation (Implementation and Involvement). However, it could be argued that financial incentives for the adoption of SBD can be identified in the Housing Corporation's Design and Quality Standards (2007) and English Partnerships' Quality Standards (2007), where all new homes requiring Social Housing Grants had to adhere to the levels of security included in the Core Performance Standards and Recommendations Annex. One contention that supports the necessity for such

incentivisation is that unlike fire regulations, there is no legal sanction for a failure to incorporate crime prevention measures. Changing behaviour to prevent crime: an incentive-based approach (Home Office, 2006) details numerous incentivisation themes (Intervention and Impact).

A further explanation for this dichotomy between the private and public sectors, might be that the RSLs have a wider duty of care for their tenants and a vested interest in the sustainability of their housing stock (currently under scrutiny in the wake of the Grenfell Tower fire disaster of June 2017). Unlike the private for sale housebuilders, they are responsible for the wider sustainability/maintenance environment of their individual projects/properties in the short, medium and long term. Furthermore, and as Armitage and Everson (2003) suggest, developers of private for sale housing are concerned that mention of security will 'put people off', because potential buyers will worry that such housing is located in a high crime area.

The success (Impact) of SBD in terms of its adoption by LA housing departments (Involvement) was immediate. Indeed, by the end of 1991 every police service in England, Scotland, Wales, Northern Ireland, the Channel Islands and the Isle of Man had at least one DOCO in post with demand for SBD advice and certification for the award the greatest motivation. This demand most often originated from within the LAs, especially their housing departments. Faced with finite resources and increasing maintenance costs, it appears this part of local government was highly receptive to a police-managed initiative (Intervention, Involvement and Implementation) that promised (and subsequently delivered, Impact) benefits in

terms of reduced crime, less damage and by extension, higher occupancy rates – fewer ‘voids’ (empty dwellings – a more specific Impact).

SBD demands that various types of building design (most especially dwellings) will meet specified minimum standards of physical security, surveillance and access/egress (Cozens, Pascoe and Hillier, 2004; Armitage, 2013). For housing these are currently set out in SBD – Homes 2019. A number of different standards listed in the design guide for external doors and windows (including all door furniture and attack resistant glass), together with further requirements such as security lighting, fencing, gates and for multi-occupancy dwellings, mail delivery and electronic door entry systems. To ensure such products meet the security standards listed, SBD insists they are examined to far more exacting standards (e.g. in delaying an offender’s access into a building) at independent testing houses such as the Building Research Establishment (BRE), Loss Prevention Board and Warrington Research Laboratories. Only then are they allowed to use the marketing logo ‘Police Preferred Specification’.

SBD commissioned the construction consultants, Davis Langdon, to investigate the additional capital costs of building a home to SBD standards (Intelligence). For the report, Securing the Nation (2006), Davis Langdon estimated these at between £480-£740, depending upon the specific type of dwelling. However, four years later they reduced these estimates to between £70 and £240 per dwelling, primarily due to the falling costs of security hardware (Davis Langdon, 2010). More specifically, a two-bedroom ground floor apartment was estimated as the most expensive to secure

at £240. A four-bedroom detached house, £200. Three-bedroom semi-detached house or two-bedroom terrace house, £170. Whilst a two-bedroom upper floor apartment, £70. These figures represented the difference to install security products (most especially main entrance doors that meet one of the standards specified and attack resistant glazing), in accordance with SBD requirements.

Teedon *et al.* (2010) and Pease and Gill (2011) also investigated the building costs of incorporating SBD requirements and collectively these studies demonstrate a narrowing over time in the difference between ordinary security measures and those required by SBD (costs of Implementation). This reduction in the financial expense of SBD is now well documented. Furthermore, a number of building site managers have stated (personal witness) that because it is both an SBD and Building Regulations (2015) requirement to install PAS 24 (or other standards detailed in SBD – Homes 2019) main entrance doors and windows for the 30% of social housing often required in any medium or larger housing development, it is as cost-effective to specify the same for the 70% that are private, for sale dwellings. However, whilst the target hardening measures and technological innovations (most especially security lighting and CCTV) are emblematic of this apparent convergence of costs between SBD and non-SBD security measures, the environmental elements of CPTED are most often planning considerations and usually far more difficult to influence (Implementation).

Following the Department for Communities and Local Government (DCLG) Housing Standards Review (2015) and the example of Scotland, in 2015 door and window

security were incorporated into the England Building Regulations. However, whilst in Scotland and Wales SBD remains a mandatory requirement for all social housing, in England the then HCA (since 1 January 2018, Homes England) abandoned such a requirement – and that remains the current situation. Nevertheless, despite such frustrations, reductions in the financial costs of target hardening and technological innovations measures (combined with the inclusion of exterior doors and windows within Building Regulations) can be objectively assessed to have greatly assisted in securing such dwellings – providing the building inspectors appreciate the necessity to ensure the necessary documentation exists to satisfy the required standards and certification. See also Chapter Seven, Discussion and Conclusion.

There now exist some six separate pieces of independent, authoritative research that in general terms, attest to the effectiveness of SBD in preventing, or at the very least considerably reducing the risk of crime, ASB and the fear of crime: Brown, 1999; Pascoe, 1999; Armitage, 1999; Teedon and Reid; (2009); Armitage and Monchuk (2009); Jones *et al* (2016). See Table 1 below. Following the publication of the first five evaluations (Intelligence and Impact), Armitage concluded: “...SBD confers a crime reduction advantage.” (Armitage, 2013 p.43). Naturally, the evaluation methodology differed significantly across all six studies.

Brown (1999)

In July 1993, SBD became a requirement of Tai Cymru (the then Welsh Office) for grant aid in respect of social housing development within the principality. Brown (1999) reports how four years later Tai Cymru was requesting evidence as to how

their adoption of SBD standards was leading to reductions in crime. This was the motivation for Brown (1999) to conduct a study of 9,173 homes (1,682 SBD HA dwellings and 7,491 non-SBD) in the Gwent Police area of South Wales, for the two-year period 1 April 1996 – 31 March 1998. See Table 1 below. He reported a 40 per cent reduction in burglary and vehicle crime for the SBD projects, whilst instances of criminal damage contracted by a quarter: SBD properties: "...suffered a burglary and vehicle crime rate of at least a third of that suffered by non-SBD properties and two thirds the rate of criminal damage" (Brown, 1999, p.58).

This quantitative research analysis was conducted by using a series of automated and manual search programs of HA properties with recorded crime (Brown, 1999, p.23). This disclosed 91,240 crimes, 41,788 of which were found to be those of burglary, vehicle crime and criminal damage. The results were then triangulated with those of semi-structured interviews from focus groups and compared with other, parallel research being undertaken by the BRE. Set against the numbers of SBD and non-SBD dwellings, this disclosed a higher incidence of burglary per thousand dwellings in seven out of eight forms of MO: entry through door; breaking glass; forced or springing locks; insecure windows; walk-in burglary; duplicate key; other methods. The one exception was 'bogus callers' – which it could be argued is a specialist form of burglary unlikely to be prevented by physical security target hardening measures like stronger doors and windows – although secure communal entrance doors do appear to be effective by denying such offenders access to the building as a whole.

However, where surveillance was limited, there was also some evidence of temporal displacement – from daylight to night-time hours. This evaluation was based on police-recorded crime figures, structured interviews with tenants, architects, HA managers and police officers. Results from the qualitative interviews mirrored the quantitative analysis, indicating that fear of crime and quality of life were higher on the SBD estates.

Pascoe (1999)

On behalf of the BRE, Pascoe (1999) investigated approximately 5,000 dwellings on ten housing estates that had been either built or refurbished to SBD standards. His research incorporated surveys and focus groups with local residents, and disclosed both a perceived and real (confirmed by the crime statistics) crime reduction advantage, attributable to the Impact of SBD. See Table 1. More specifically, Pascoe concluded and recommended that SBD could be enhanced by: improving street lighting; controlling and reducing access through streets and making streets appear more private; reviewing the criteria for the physical quality and fitting of target hardening measures and their performance over time; and controlling/developing facilities for youth and advising on the housing management of tenants including the vetting of prospective tenants and eviction of anti-social/criminal tenants.

Armitage (1999)

Armitage's (1999) mixed methodology evaluation (Impact) of SBD housing estates in the West Yorkshire Police area concluded that: "...total crime fell by 55 per cent relative to the pre-SBD period." (Armitage, 2013 p.45). This included reductions of

50% in burglary and 25 per cent in car crime, together with no displacement of crime. Her research also evidenced considerable reductions in the fear of crime and much increased community awareness on those same SBD estates. The evaluation included: a broad-based analysis; a more detailed analysis; and a residents' survey – all of which involved housing built or refurbished prior to 1998. The broad-based analysis compared crime and disorder on 25 SBD estates to 25 non-SBD estates. The crime comparison went back to when the SBD award was conferred for new build properties; and before and after for refurbished schemes (only two in the overall analysis). See Table 1.

The broad-based analysis assessed 1558 SBD dwellings and 1453 non-SBD dwellings. Dividing the crime rates by the number of dwellings, revealed a crime rate of 0.55 per dwelling on the SBD estates and 0.62 on the non-SBD estates. However, this difference between crime rates on SBD as compared to non-SBD estates was "...not statistically significant at the level of 0.05, 5% (0.444)." (Armitage, 1999, p.38). In the more detailed analysis, 25 SBD estates and 25 non-SBD estates were compared. These were ordered as matched pairs on the basis of housing age, location, HA-owned and environmental/physical characteristics. The mean rate of crime per dwelling on the SBD estates was 0.63 (403 offences divided by 660 properties). Whilst on the non-SBD estates the figure was 1.19 (612 offences divided by 522 households). The crime rate was weighted according to the number of properties on each estate and by utilising ANOVA (Analysis of variance between means – Cox, 2006). This revealed that crime levels per dwelling for the SBD sample were far lower than the non-SBD sample and that this difference was:

“...strongly statistically significant at the level of 0.05, 5% (0.008).” (Armitage, 1999, p.13).

Of the 36 crime categories, only six registered higher instances of crime on the SBD as compared to the non-SBD estates. And most significantly, residential burglary on the SBD estates measured 0.16 offences per dwelling, compared to a figure of 0.35 (more than twice as high) on the non-SBD estates. Similar differences were disclosed for the offences of attempt burglary, theft of motor vehicle, theft and attempt theft from motor vehicle and theft other (non-specific target thefts). For the residents' survey, 10 addresses from each of the 25 SBD and 25 non-SBD estates were visited, providing a potential 500 responses. This produced an average response rate of 47% consisting of 45% from SBD properties and 55% non-SBD. Most importantly, the residents' survey aimed to assess the extent to which: “...the actual and perceived levels of crime and disorder differed from non-SBD respondents and the general population as a whole (as revealed by the British Crime Survey)” (Armitage, 1999, p.13).

It therefore provided a counter-balance to the police provided crime data. Indeed, whilst the 1996 British Crime Survey (BCS) disclosed that 6.3% of respondents had been burgled in the previous year, the Armitage evaluation revealed that 2.9% of SBD respondents (less than half the national average) and 8.4% of non-SBD respondents (33% higher than the national average) had been burgled during the same time period. This suggests the SBD residents were experiencing burglary at less than half the rate of the BCS residents. Moreover, the non-SBD residents were

also experiencing burglary almost three times higher than the SBD respondents. However, whilst 1.2% of BCS respondents had been burgled more than once within the previous year, 1.9% of SBD respondents and 1.5% of non-SBD had been burgled more than once during the previous 12 months. These figures point to higher rates of repeat victimisation on particular estates and at particular addresses. And from a 5Is perspective, this study (Impact) produces Intelligence that could significantly influence future Intervention, Implementation and Involvement.

Teedon and Reid (2009)

The authors conducted a before-after, action comparison design study (Impact) regarding the effectiveness of SBD endorsed doors and windows, on Glasgow HA developments of the same socio-demographic category. This reduction of the analytical scope to a mere two design features, appears somewhat limiting – even if entry via doors and windows is generally understood to constitute the overwhelming instances for the means of access by burglars. Furthermore, these are also the sole two elements incorporated within the separate Scotland, Wales and England building regulations.

By default, Teedon and Reid (2009) and Teedon *et al* (2010) do not include all the other physical security, technological innovation and environmental elements CPTED measures. Nor does it take account of other variables e.g. changing demographics, residents' employment, or how the activities of a single prolific burglar can seriously skew the resulting statistics – thereby producing limited Intelligence. Nevertheless, by using 2,028 dwellings in the SBD sample (and 14,185 non-SBD

properties) the study disclosed a reduction in total housebreaking (the Scottish title for residential burglary) crime of some 61 per cent for the SBD properties, compared to a 17 per cent reduction in the control area. Attempted housebreaking with intent fell by 80 per cent; housebreaking with intent to steal by 50 per cent and theft by housebreaking by 55 per cent. Collectively, SBD can be judged to have delivered a statistically significant reduction in housebreaking. And there was also a reported indication of a 'diffusion of benefits' to the non-SBD sample dwellings. This Impact study therefore produced Intelligence that is highly relevant in terms of the forms of Intervention, Implementation and Involvement necessary at future developments. See Table 1.

Armitage and Monchuk (2009)

For their 2009 investigation, Armitage and Monchuk returned to the earlier West Yorkshire research to repeat and extend the previous investigation – taking into consideration the enhanced security requirements now demanded by SBD as it in turn had evolved – a long-term Impact study. Apart from the provision of recorded crime data (Intelligence), this research was conducted independently of West Yorkshire Police. Moreover, it disclosed even greater long-term reductions in recorded crime (on occasion as high as 60 per cent) and far reduced fear of crime – when compared to both the force area and non-SBD estates. Their study:

...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. (Armitage and Monchuk, 2009, p.73).

The research methodology involved three separate samples of police-recorded crime data. The first compared figures for 342 properties on the 16 SBD developments, with crime rates for the whole of West Yorkshire during the period August 2007 to July 2008. The second, SBD and non-SBD properties located on the same street – possibly the result of national planning policy mandating a mixture of for sale and social housing. This produced a sample of 101 SBD properties and 354 non-SBD properties. Whilst the third sample compared crime rates on the original 16 SBD developments as ‘matched pairs’ with properties on 16 nearby non-SBD developments. This last element aimed to replicate, as far as was practicable, the matched pairs used in the evaluation by Armitage (1999). See Table 1.

In total, figures for eight types of recorded crime category were analysed: assault, criminal damage, theft, burglary other (non-residential), theft of motor vehicle (including TWOC – taking without owner’s consent and commonly known as ‘joy riding’), burglary dwelling, theft from motor vehicle and ‘other’ crime. In addition, the research included visual audits (conducted by two Huddersfield University field-workers) measuring visible signs of crime and disorder (categorised under the headings of people, buildings, signs of neglect, general environmental features and control signals) on all 16 SBD and 16 non-SBD developments. Scores were

recorded for each matched pair and for both the SBD and non-SBD samples. Once again, the results were “extremely positive” (Armitage and Monchuk, 2009, p.77).

Three quarters of SBD developments scored more positively (in respect of visual signs of disorder such as litter, graffiti and vandalism) in the matched pairs analysis; whilst the scoring for the 16 SBD developments indicated lower signs of visual disorder for this sample. Residents’ surveys of 342 SBD and 253 non-SBD residents (595 in total and taken from the 32 matched pairs) were also conducted. Described as ‘self-reported crime’ and using a template based on a combination of the BCS and that used during the 1999 research, this was hand-delivered to residents on both the 16 SBD and 16 non-SBD matched pair estates, where they were asked to comment on their perceptions and experiences of crime.

Amongst the findings, perhaps the most emphatic was how the burglary rate was 74.5 per cent higher on the non-SBD estates (2009, p.6). Furthermore, 3 per cent of SBD respondents had been the victim of domestic burglary during the previous 12 months, compared to 6 per cent of non-SBD respondents. However, in the Armitage (1999) study a decade previously, the figures had been 3 per cent SBD and 14 per cent non-SBD. Similar positive responses for SBD over non-SBD responses were generally recorded for ‘feelings of safety’ and ‘worry about crime and disorder’.

Consequently, the Armitage and Monchuk (2009) investigation is the most rigorous and long term of the studies concerning the effectiveness of SBD and by extension, its Impact can be judged to have produced Intelligence of the greatest validity in terms of the lessons learned for future Intervention, Implementation and Involvement

in both new build and refurbishment of all forms of housing. It should also be noted that the studies of Armitage (1999) and Armitage and Monchuk (2009) were found to be particularly relevant to this thesis and of a higher methodological rigour than the other studies considered. This assists in explaining the extended detail afforded to this study compared to the others, as part of this investigation.

Jones *et al* (2016)

The two-year Impact study conducted by Jones *et al* (2016) investigated the effects of installing new doors and windows manufactured to SBD standards at RSL projects in Nottingham. This was delivered as part of Nottingham's 'Secure, Warm, Modern' scheme and a constituent part of the 'Decent Homes' programme. Results showed that on the Bells Lane and Broxtowe estates, residential burglaries fell by 42%, compared to a 21% reduction across the rest of the city where no secure doors and windows were installed. See Table 1. Following installation, Nottingham City Homes recorded 62 fewer burglaries per year, whereas the city average was only 33 fewer burglaries per annum. Prior to the work commencing, a third of survey respondents said they felt unsafe when alone in their home at night. Whilst after completion no one expressed such concerns. Jones *et al* (2016) therefore produced Intelligence that echoed the findings of Teedon and Reid (2009) with an Intervention involving the target hardening of doors and windows. However, they both fall methodologically short of the gold standard set by the research of Armitage (1999); and Armitage and Monchuk (2009).

More recently, Sidebottom, Armitage and Thomson (2017) undertook a systematic review of all the published research studies relating to the effectiveness of SBD. Of the 300 studies considered, only 27 were judged eligible for consideration in terms of the evidence each presented and amongst these, just seven included quantitative data. Of the seven, most concentrate on social housing and suffer from considering the results over a very short time period – certainly true of the above, with the exception of Armitage (1999) and Armitage and Monchuk (2009) – as previously described.

Turning to criticism of SBD, a repeated observation is that it is a design solution which by default is creating a ‘fortress society’ (Whattam, 2011; Minton, 2009). Nor is this simply a criticism of the architecture involved. Rather, it also implies that the manifestation of SCP initiatives like SBD in the built environment, translates into higher levels of physical security that will result in an uglier and more fortress like appearance. However, as one of the core aims of SBD is to reduce the fear of crime, this accusation of building a fortress seems either misplaced, or SBD is being ‘irrational’ – its actions inconsistent with its goals. Indeed, throughout its more than three decades existence, SBD’s promotional material and design guides indicate that it has never recommended the use of barbed wire, razor tape, high-pitched screeching alarms, gated communities, or a rash of visually (and audibly) fortress like Interventions. Whereas, security exhibitions bristle with such technology.

	Brown (1999)	Pascoe (1999)	Armitage (1999)	Teedon & Reid (2009)	Armitage & Monchuk (2009)	Jones <i>et al</i> (2016)
SBD development	N/A	10	25	N/K	11	N/A
Non-SBD development	N/A	N/A	25	N/K	11	N/A
No. of SBD dwellings	1,682	5,000	1,558	2,028	101	N/K
No. non-SBD dwellings	7,491	N/A	1,453	14,185	354	N/K
Survey method	Analysis of crime data and interviews	Resident surveys and focus groups	Mixed methodology	Analysis of crime data; interviews residents' focus groups and key stakeholders	Analysis of police and self-report crime data, vis' audits & matched pairs	Analysis of crime data and residents' perceptions
SBD limitations	No	No	No	Doors and windows only	No	Doors and windows only
Crime total	91,240	NK	NK	NK	NK	NK
Burglary	Yes	Yes	Yes	Yes	Yes	Yes
Attempt Burglary	Yes	Yes	Yes	Yes	Yes	Yes
Theft	Yes	Yes	Yes	No	Yes	Yes
Drugs	Yes	Yes	Yes	No	Yes	Yes
Vehicle crime	Yes	Yes	Yes	No	Yes	Yes
Criminal damage	Yes	Yes	Yes	No	Yes	Yes
Overall Conclusion	SBD delivered a reduction of 40% in Burglary and other crime reductions	Residents' perceived & recorded levels of crime reduced	SBD delivered a 66.6% and 50% reduction in crime on two separate estates	SBD delivers a 61% reduction in Burglary compared to 17% for non-SBD dwellings	SBD delivers a strongly & statistically significant reduction Burglary 74.5% higher in non-SBD sample	42% reduction in Burglary

Table 1: Research studies of SBD compared

Minton and Aked (2012) assert that SBD standards have spread throughout the built environment and offered: "...a solution to the problem of crime and fear of crime in poor places which did not have to deal with the more complex causes of poverty" (Minton and Aked, 2012, p.16). However, Clarke (2012), citing the tension between mainstream criminology and crime science, contends that SCP is about cutting the Gordian knot – establishing that which works and is deliverable in a practical environment. Furthermore, these are as much cultural/value-based positions whose conflict cannot be resolved by a purely academic approach, although research and attention to the widest range of costs and benefits might go some way towards clarifying the dispute – and thereby protecting residents/tenants.

Armitage (2013) describes how SBD has now been emulated in both The Netherlands and Abu Dhabi, United Arab Emirates. She describes how the Dutch version is less prescriptive than in the UK. Yet it demands reassessment at least every ten years. This may avoid perhaps the most powerful criticisms of UK SBD: post award deterioration and the failure to maintain the standards that were necessary to achieve the original award. A useful comparison here might be with that of the Safer Parking 'Park Mark' Award operated by PCPI and the British Parking Association. Representatives from both organisations (DOCOs and Development Managers) conduct annual inspections of those car parks and bus stations signed up to the scheme and their recommendations must be complied with for the award to remain valid. And, it is the car park operators who pay for this service. Furthermore,

this investigation suggests that providing CPTED measures of sufficient quality and inherent durability are installed, long-term sustainability is all but guaranteed.

Other criticisms relate to the capacity of SBD to stifle creativity and 'designing down' to those specific SBD security measures. Ekblom (1997) details the apparent 'arms race' between crime and crime prevention methodology. For example, what was historically a 'smash and grab' robbery committed on foot, has developed (in the wake of armoured glass, roller shutters and intruder alarms being installed) into the 'ram raid' using at least one motor vehicle to execute the attack (sometimes with a second 'getaway car'); and 'car key burglary' – where the advent of vehicle alarms and immobilisers means that those intent on stealing the motor vehicle break into the house (often at night) in order to steal car keys and then the vehicle. Similarly, Ekblom (2012) advocates the encouragement of variety, adaptability, design freedom, performance standards, etc. Such ideas are especially profound if the aim is to prevent repeat MO across a range of dwellings, where the same failing door and window systems have been installed; the ongoing problem with protruding euro-cylinder door locks; or with a particular make and model of motor car where a design flaw has been identified – for example externally hung spare wheels and easily accessible catalytic converters.

There is also the issue of transferring UK attitudes to crime and ASB (and delivered in SBD mandatory requirements), to countries holding a different system of beliefs and responses. For example, in the UK and North America, graffiti is often perceived as the crime of criminal damage. Whereas, in The Netherlands and much of

mainland Western Europe it is more often appreciated (or at least tolerated) as street art (Hushen, 2008).

Problem Oriented Policing/Partnerships (POP) and Problem Solving

It is generally accepted that partnership working (known amongst the health professions as collaborative working) will deliver improved and more sustainable results across a whole field of human endeavour. The growth of new professions, institutions and further specialisms has led to cross-discipline failures of communication that highlighted the necessity for such partnership working. Indeed, over recent decades this has been compounded by high profile instances of ineffective partnership working – especially issues of child safety amongst the 'caring' professions.

Compare this to SBD – perhaps the best researched and evidenced example of POP (in terms of effectiveness), which for more than three decades has utilised partnership working to improve the safety and security of buildings by encouraging architects, builders, developers, planners and RSLs to incorporate CPTED measures through its police led award scheme – possibly the most successful delivery mechanism for POP in the UK (if not the world) and demonstrating all 5Is working together: Intelligence, Intervention, Implementation Involvement and Impact.

SBD might be more appropriately described as one of problem anticipation, rather than reacting to a revealed crime pattern through remedial design modification. Nevertheless, CPTED and SBD have been used increasingly in recent decades from amongst a canon of Interventions under the banner of problem-solving (Clarke and

Eck, 2003) with the aim of delivering POP. At the heart of such a debate lies the logical maxim that prevention is better than cure – a homily as true in respect of crime as it is in medicine. And whilst SBD can be identified as problem anticipation when applied to the design of new housing or other buildings (most especially on greenfield, undeveloped land), this thesis is concerned with how CPTED and SBD were used to prevent crime following the refurbishment of two existing locations where in recent history, crime had increased considerably.

This investigation has found very little evidence of UK policing being actively involved in the delivery of SCP prior to the recommendations of the Willink Commission (1962) and wholesale reorganisation of policing following the Police Act (1964). Thereafter, whilst the foundations of SCP were being embedded across UK policing, partnership working between these early force-based crime prevention departments and (for example) local government might be best described as ad hoc.

Goldstein (1979, 1990) recommended that rather than organisational efficiency, the police should focus their finite resources on a range of key areas important to the public including problem reduction, elimination, better handling or lessening; identification and attendance to multiple interests in a problem; and evaluation. In the UK, POP can be first identified in Home Office Circular 8/84 (1984) and detailed in Home Office Crime Prevention Centre Preventive Policing Skills (1991). However, Read and Tilley (2000) describe how from 266 responses, 42% of the POP initiatives were deemed to have been failures by the police force concerned. Moreover, in 40% of UK schemes, the police were the sole partner – suggesting two fifths of respondents did not understand the rationale that enables POP to work. Another

concern was the 95% who reported the police were the major partner. However, it could be argued that such a high percentage might be expected when the police are the primary agency seeking success – for which purpose SCP, CPTED and SBD are both effective delivery mechanisms and strategies.

The desire to reduce domination of the partnership process by the police is well detailed e.g. Bullock, Erol and Tilley (2006) who provide an overview of best practice and the evolution of POP. Indeed, since the mid-1990s the Home Office have used the slightly different description, Problem Oriented Partnerships (Home Office POP Conference, 1996). This is not an instance of devaluing the role of the police, but as with Section 17 of the Crime and Disorder Act 1998 (see below), an encouragement for partner agencies and stakeholders to accept their role as part of the corporate approach to crime prevention and community safety (Morgan Report, 1991; Moss and Pease, 1999). The key conditions through which effective partnership working can deliver highly positive results, include a necessity for “particularly motivated individuals” (Read and Tilley, 2000; Bullock, Erol and Tilley, 2006, p.15). Too many partnerships are said to exist in name alone. However, where the potential for such obstacles as indifference, career protection and inappropriate professional behaviour are overcome, the rewards can be immense – especially for the communities served. Goldstein (1997) subsequently produced a 'Hierarchy of Levers' designed to influence partners concerning their role in the POP process. These range from producing advice leaflets through to taking civil action in the courts.

In particular, POP places great emphasis on “evidence-based policy and practice” (Tilley and Scott, 2012) perhaps the highest form of 5Is Intelligence. Unfortunately, scrutiny of many POP projects has identified the absence of such evidence and in particular, the rarity of the full Implementation of POP principles – even amongst the highest quality projects. Similarly, evaluation (Impact) is often an infrequent commodity. The immediacy of dealing with crime, fear of crime and ASB might provide a token excuse for such lapses. However, the serial nature and lack of improvement over time (Bullock, Erol and Tilley, 2006) suggests something more serious. Namely, a culture unwilling to accept that POP demands holistic engagement (Involvement), rather than a pick and choose mentality (Goldstein, 2003).

In the UK, an extremely well-known POP example remains the Kirkholt Burglary Reduction Project. Established in the wake of exceptionally high levels of residential burglary (24.6 per cent in 1985) on the Kirkholt estate in Rochdale, Greater Manchester, the Kirkholt project (Pease, 1991) used coordinated measures (Interventions) including: property post-coding; removing coin-payment gas and electricity meters; upgrading physical security ‘target hardening’ measures; Home Watch; Cocoon Neighbourhood Watch; and computerised monitoring and evaluation. Impressive reductions in residential burglary (first 40 per cent and ultimately 76 per cent) were achieved, especially in respect of repeat victimisation.

Meanwhile, a number of statutory instruments effectively incentivise RSLs to seek and attain the SBD award for each of their new build and refurbishment housing

projects. For example, Section 17 of the Crime and Disorder Act 1998 states: “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” (UK Government, 1998). Failure to comply with Section 17 may attract legal liability in the form of a breach of a statutory duty in private law, or judicial review under the doctrine of *ultra vires* (Bullock, Errol and Tilley, 2006). However, whilst the LA planning and housing departments (thereby covering council housing stock) have always been subject to Section 17 (and from 2002 primary care trusts; 2003 fire and police authorities), until 2006 it did not offer any additional incentive to either the HAs or developers building homes for sale. In 2006 the Police and Justice Act partly changed this situation by bringing all the RSLs within the scope of Section 17. However, and despite this extension of Section 17 to many other bodies, evidence of its effectiveness over more than two decades appears to be especially slim and has yet to merit the description “a wolf in sheep’s” clothing (Moss and Pease, 1999).

On a related theme, over the past quarter-century national planning policy and guidance has repeatedly changed. This began in 1994 with Department of the Environment Circular 5/94, Planning Out Crime (1994), itself superseded by Safer Places: the Planning System and Crime Prevention (DCLG and Home Office, 2004) in which the role of DOCO (ALO in the actual text) was detailed for the first time and Planning Policy Statement 1: Delivering Sustainable Development (DCLG, 2005). Both the latter were repealed and replaced by the National Planning Policy Framework and National Planning Policy Guidance (DCLG, 2013). During the early years of the Twenty-First Century, a raft of strategy and other policy documents can

also be identified in Supplementary Planning Guidance, Securing the Future (DCLG, 2005) and the Code for Sustainable Homes (DCLG, 2008 – repealed in 2015). Moreover, the majority of this guidance applied to all forms of housing, private for sale and RSL – although much was subsequently repealed at the behest of large private developers.

Problem-solving can be viewed as a delivery mechanism for POP. Eck and Spelman (1987) operationalised problem-solving through development of the SARA ‘preventive process’ (Ekblom, 2011a). SARA distils Clarke’s (2005) five stage, SCP action research model: collection of data (scanning); examining situational conditions (analysis); systematic study of the means to block opportunities; and implementing the most promising; (response); monitoring results (assessment). Nevertheless, the actual incidence of problem-solving (and POP) “...is probably best described as pockets of isolated good practice which tend to be associated with highly motivated individuals.” (Kirby and Reed, 2004; Bullock, Erol and Tilley (2006, p.17).

Zahm (2005) has attempted to merge conventional POP and SARA with CPTED, by concentrating on the stakeholder perspective and developing an Implementation plan. However, it is constrained by the limitations of SARA – most especially at the response stage. This is where the 5Is (Ekblom, 2011b) provides a more structured and holistic response – using its task streams of Intelligence, Intervention, Implementation, Involvement and Impact to ensure POP, CPTED and (where appropriate) SBD work together more effectively.

High-rise housing

“Homes fit for heroes” had been a rallying cry for British troops returning home at the end of the First World War, one on which prime minister David Lloyd George promised to deliver in a speech given the day after the armistice. He actually said “Habitations fit for the heroes who have won the war.” (Lloyd-George, 1918) and appointed the Paymaster General and architect by profession to enquire into the state of housing and produce The Tudor Roberts Report (1918). One of the most interesting conclusions of the Tudor Roberts Committee was how it acknowledged the advantages of different types of housing and of not restricting an estate to one social class. Minister for Health, Dr Christopher Addison, piloted the Housing Act (1919) through parliament. His ‘Addison Act’ saw the construction of 213,000 new homes by 1923 – although this figure fell far short of the half million originally promised. Subsequent Housing Acts in 1924 and 1930 led to a total of 1.1 million new houses being constructed between the world wars. However, this number was insufficient to satisfy demand, a situation intensified by the subsequent economic depression of the 1930s.

Within the study of architecture, the origins of high-rise living are most often attributed to world-renowned architects such as Le Corbusier and Mies van der Rohe. Power (1997) observes it was Le Corbusier who particularly advocated the concept of mass, high-rise housing. However, Nuttgens (1989) cites Robert Matthew (architect to London County Council following the Second World War and subsequently Professor of Architecture at Edinburgh University) who believed Walter Gropius (founder of the Bauhaus design movement) was instrumental via his text *The New Architecture and the Bauhaus* (Gropius, 1936). Gropius advocated ten-

storey, slab-like apartment blocks, suggesting these would maximise both living space for residents and sunlight. Indeed, he argued that both prime living conditions and a city's improved urban character could be achieved, providing there was a fixed angle of light between the blocks of 30 degrees. This would in turn increase residential capacity by 40 per cent: "In short, the higher the blocks the greater the space and the better the Sunlight." (Nuttgens, 1989, p.69).

The first high-rise blocks to be built in the UK date back to 1934. The Isokon Building (or Lawn Road flats) in Hampstead and where the author Agatha Christie once resided. Followed by the eight-storey high Highpoint 1 (1935) and Highpoint 2 (1938) in Highgate, both of which were designed by the Russian émigré architect Berthold Lubetkin – more famous for the penguin enclosure at Regents Park Zoo.

Interestingly, all three developments were constructed to very high standards in north London and contained exclusively private, for sale flats. Le Corbusier visited Highpoint 1 and described it as conforming to his concept of "the vertical garden city" (Architectural Review, 1936, pp.9-10; Montes Serrano and Casariego, 2014, p.51). These buildings are of immense architectural importance and were highly influential with the Modernist Movement and amongst younger architects.

During the Second World War, accurate figures concerning the number of homes destroyed in bombing raids by the Luftwaffe over the UK were not recorded.

Richards (1953) suggests that more than one million homes were destroyed or damaged. Whereas, Nuttgens (1989) contends in excess of 200,000 homes were destroyed and at least 2 million damaged. Unsurprisingly, there was a considerable demand for new housing following that war. Between 1945 and 1951 during the

Atlee Labour government, 807,000 social housing dwellings were built, 180,000 private-for-sale and 28,000 for HAs – together with the 157,000 ‘prefabs’ (pre-fabricated bungalows) constructed at the very end of the war and with a ten-year life expectancy. However, few of these new homes were high-rise. That began after 1951 when Churchill’s Conservative government increased the home building targets, explaining in part the recourse to high-rise development and the construction of the seven tower blocks that lie at the heart of this investigation.

Political ambition, credibility and targets encouraged the boom in construction during the decades following the Second World War (Dunleavy, 1981).

Dynamic postwar politicians often cut their teeth on ‘mass’ housing programmes. Scale, speed and minimal decent standards were the essentials of success. The style of ‘mass’ housing quickly became part and parcel of the programmes – large estates, high- and medium-rise blocks, industrialised construction, uniform layout, replicated units, compact flat building and high technology. (Power, 1997, p.37).

Nevertheless, amongst LA council owned housing, high-rise never amounted to more than 6.5 per cent of the total number of dwellings built (Nuttgens, 1989). And indeed, the construction of these high-rise dwellings took place during a twenty-year period that began in the early 1950s and finished in the early 1970s. Crucially. “The housing of the fifties and sixties was not the product of theoretical studies; it was essentially a pragmatic solution for definable problems.” Nuttgens (1989, p.70). That pragmatism was caused by a shortage of land and the need to build quickly, if demand was ever to be sated – themes that remain constant up to the present day.

Back in the 1950s for every property built there were 30 tenant family applicants (Nuttgens, 1989). Furthermore, The London Plan (Abercrombie and Forshaw, 1943) suggested a housing density of 135 people per acre would deliver improved living conditions, superior facilities and open space for recreation and health.

Despite this, it appears to have been the architect community that drove the high-rise solution to housing, heavily influenced by pre-war developments such as the aforementioned Highpoints 1 and 2. However, as Nuttgens poignantly observes:

...high buildings are suitable – and may even be the best kind of dwelling for the well-to-do. They are costly to construct and require much care and maintenance. Ideally, they need staff to control them and to ensure, at the very least, that the lifts work. The mistake was to apply this to housing for the ordinary working man – houses promoted and maintained by local authorities, always short of money, always trying to economise. (Nuttgens, 1989, p.73).

High-rise housing was also celebrated by local councillors and by officials like borough engineers: fewer roads were required and there were additional cost savings in terms of the provision of utilities (Jones, 2002). 'System building' provided the construction method – one that utilised prefabricated techniques and was primarily fast. However, the financial cost of initial machinery investment was high and could only be recovered with large scale repetition. This also helps to explain why so many tower blocks across the UK (and beyond) possess the same near identical appearance.

Furthermore, one commentator observes:

...under this system any mistake was disastrously replicated and required large sums to eradicate later. The whole mass high-rise housing phenomenon was in part a product of that problem – a replicated form, identical in concept if not in exact detail, in order to facilitate endless repetition resulting in tumbling costs and built-in effects. Power (1997, pp.57-58).

Speed and the demand for new housing stock therefore can be identified as primary motivations in building high-rise blocks – with the bonus that higher densities required less land (Jones, 2002). Consequently, construction companies competed with each other to secure these lucrative contracts.

The role of central government is another important consideration. High-rise homes were encouraged and championed by both Conservative and Labour governments, with the Department for Housing and Local Government providing grants, because tower blocks cost more than conventional two storey houses – perhaps *the* most important fact ignored by those who advocated high-rise housing. Indeed, Jones (2004) details how the Housing Subsidies Act (1956) created a payment escalator determined by the height of the building and maximised at six-storeys or more. These subsidies were “...a critical enabling factor in causing the high-rise boom.” (Jones, 2004, p.12). Indeed, the number of high-rise dwellings increased from 8,000 in 1956 to a zenith of over 44,000 in 1966. The irony is that without this ‘progressive height subsidy’ conventional “cottage style housing” – the pejorative description used by senior civil servants to dismiss low density housing (Jones, 2004, p.13) of lower economic cost. Then (as now) central government feared urban sprawl and wanted

to encourage LAs to build housing on brownfield sites. In this regard, cities like Birmingham were already setting the high-rise example as part of its slum clearance programme. However, across the UK York was one of the very few cities to decline such funding and refuse to build high-rise dwellings, thereby suggesting that such attractiveness was not universal. The issue was further complicated by Secretary of State for Housing and Local Government, Harold Macmillan's, introduction of his 'People's House' which included specific minimum dimensions for rooms.

The earliest concerns regarding the efficacy of tower blocks related to their suitability for children. A repeated theme is the absence of 'somewhere to play', although this author can recall as a child in the mid-1960s visiting his grandmother in the Ladywood district of Birmingham and playing on the swings and slides constructed simultaneous to that of the new tower blocks. For children residing in the block, such facilities were hardly immediate (lift or stairs and multiple doors to negotiate in order to access same) and unsuitable for very young children, unless their parents accompanied them. Physical and psychological effects on children were also identified, and on both pregnant and young mothers – feeling cut-off, isolated and lonely. In addition, building and moving to peripheral estates broke up both communities and extended families. Lifts frequently broke down and remained so for extended periods of time. Noise from fellow tenants together with other forms of ASB and crime were also frequently reported. Many of these issues are detailed in the seminal text by Young and Willmott (1957) – *Family and Kinship in East London*.

Nuttgens (1989) contends that even during the 'tower block boom' many architects were concerned about the social-context of high-rise housing – yet opted for

pragmatism. Minoru Yamasaki, architect of the Pruitt-Igoe high-rise scheme in St Louis, Missouri, dismissed such concerns claiming he was restricted by economic cost. Constructed in 1954 and containing 2870 flats in 31, 11-storey tower blocks, within two years occupancy peaked at 91 per cent (Jencks, 1984) and Pruitt-Igoe began its descent into worldwide notoriety. It is also one of the estates with which Newman (1973) is most associated – in terms of critical commentary. With occupancy rates below 70 per cent, Pruitt-Igoe was demolished between 1972-1976 having become symbolic with crime, poverty and racial segregation (Ramroth, 2007).

Coleman (1985) applied Newman's (1972) ideas and concluded that in the UK there was a link between RSL estate design (especially high-rise housing) and social problems – including crime. Using her 'Design Improvement Controlled Experiment' (DICE) as a template, she was allocated £50 million funding by the DOE for the refurbishment of a number of 'sink' (Blair, 1998) estates across England. However, in Birmingham only the Nazareth estate in Longbridge attracted such funding. And there were no aerial walkways whose removal Coleman had recommended at any location in the city – unlike in the London boroughs where Coleman (1992) had concentrated much of her research. Furthermore, three decades later attributing blame to architectural design whilst dismissing poverty and the effects of a dysfunctional property market, might appear somewhat simplistic.

In the UK a festering hostility towards high-rise housing reached its denouement in 1968, with an accidental gas explosion in an eighteenth floor flat at the Ronan Point tower block in London. 'Progressive collapse' meant that every room beneath it fell to the ground. Four people died and 17 were injured. Furthermore, when the

subsequent enquiry report was eventually published, it found that construction methods were flawed due to inadequately researched national policy guidelines. As one observer describes, “Concrete became the main building medium, partly because it was vaunted as being long-lasting, if not indestructible.” Power, 1997, (p.58). However, across Europe the use of concrete revealed early signs of decay including ‘spalling’ (AKA ‘concrete cancer’) caused by chemical reaction between the concrete and internal steel reinforcements. Concrete also turned grey and lost its original pristine white appearance, as extolled by Le Corbusier (1947). Eventually, this caused (at least in part) the eventual recourse to the use of cladding with potentially lethal effects – as evidenced at Grenfell Tower, London in 2017.

In retrospect, the effects of the Ronan Point collapse in 1968 marked the end of the high-rise construction boom. Indeed, one former advocate had already written in the *Architectural Review* under the heading *The Failure of Housing*: “More slums are likely to be built in the next five years than in the next twenty.” (Taylor, 1967. p.345). Whilst across the UK high-rise flats were becoming difficult to let with tenants voting with their feet. This culminated in 1979 when only 21 years after construction, Birkenhead District Council demolished the six-storeys high blocks of unlettable flats at Oak Gardens and Eldon Gardens – believed to be the first LA to take such action.

The economic costs of building high-rise, combined with construction methods that were technically deficient and an unwillingness of people to reside in them, meant many blocks would not survive. In 1970 the incoming Conservative government endorsed new cost controls that no longer favoured high-rise and high-density housing. Instead, the Department of the Environment (DOE) limited density for new

housing to the range of 70-100 rooms per acre – that for families at the lower end of this scale.

During the 1980s, high-rise blocks were being demolished or their role reassigned. Nuttgens (1989) observes how towards the end of that decade, across the UK 54 tower blocks had been converted into sheltered housing schemes. Camrose Tower (less one mile from the CSS and comparison, and a project on which this author provided CPTED advice and processed through to SBD award status), was one such block with the ground floor converted into a community area and a warden employed – much to the immense satisfaction of the elderly residents and which continues to this day. Another significant innovation was the adoption of the “caretaker or concierge role” (Nuttgens, 1989, p.94). One of the first examples of this French-style version of the traditional British caretaker (providing enhanced guardianship), took place at the 18-storey high Gloucester House, in Kilburn, London. The employment of the first such caretaker at that location, was recommended by the tenants’ association. She is reported to have transformed the block, making it both graffiti and crime-free and ensuring the lifts always worked. However, this was only a stay of execution. Gloucester House was demolished in 2018 and the site is now being redeveloped into predominantly five- storey, high-density housing.

As head of housing at London County Council and Greater London Council between 1959 and 1974, Kenneth Campbell argued that high-rise housing failed due to three factors: poor lift maintenance; the inability to find new homes for couples once they had their first child; and the slow speed of management and maintenance. Moreover, there is no universal distaste for high-rise housing – as the aforementioned tenants

at Camrose Tower in Birmingham can testify. Unfortunately, hostility developed in the social housing tower blocks and can often be attributed to alienation, vandalism and crime (Newman, 1996; Power, 1997). In addition, these tower blocks were built at a time when deference to expert opinion was still the norm in UK society. Only when tenants' associations (as at Gloucester House above and at the CSS in this investigation) were consulted and a 'buy-in' obtained, were genuine and sustainable improvements delivered.

Another perspective contends that in retrospect, high-rise housing cannot be blamed as "the product of architectural egotism or of an artistic and technological dream." Nuttgens (1989, p.95). The original proponents believed it provided the answer to an enduring housing crisis and cite the reality that for many tenants, high-rise delivered a great improvement when compared to the slums from which they were rehoused and were "...grateful and excited at the break it offered from previous poor conditions." (Power, 1997, p.59). The problems came from building quickly, failing to thoroughly research the construction methods, or deliver the amenities originally promised. However, the brutalist architectural style of many blocks, standing like bleak monoliths in a barren landscape, meant they were often regarded by many of the tenants as emblematic of a dystopian, Orwell-inspired nightmarish future and anything but home. Furthermore, the greater proportion of those 1.1 million conventional homes built between the wars survive to this day. As an economic investment, they have massively out-performed the post-Second World War alternatives – especially high-rise housing.

Compared to other European countries (France, Germany, Denmark and Ireland) only in France was a similar proportion of social housing constructed in the form of high-rise blocks (Power, 1997). Furthermore, there were other similarities with the UK, including high turnovers of tenants – most especially those with young children. High-density and forced communality resulted in neighbour disputes, made worse by mixing poorly assimilated groups from mixed-ethnicity backgrounds. Similarly, as in the UK there were ongoing maintenance issues. And ‘clumsy’ design elements were another constant, in particular: multiple entrances, excessively long corridors and external decks. Oversized blocks necessitated forced sharing and a dominant experience of anonymity. Whilst amongst ordinary non-residents there was strong disdain, if not hostility for this form of housing (Towers, 2000).

The European and US (Newman, 1996) experience was also identical to that of the UK in other multiple ways. For example: open spaces were unattractive, under-used, poorly supervised, and badly maintained; underground car parks, internal corridors, enclosed entrances, lift shafts and staircases provided ample attack and escape routes for those intent on ASB and criminal behaviour; whilst burglary, vandalism and the fear of crime were endemic (Power, 1997). The Housing Subsidy Act 1956, acted as an incentive for LAs to build even higher than 20-storeys and a symposium on high-rise flats was described as: “an unprecedented example of professional support for a particular building form” and that it “exercised a decisive influence on virtually all the major housing authorities’ architects departments” (Dunleavy, 1981, p.135). Of additional interest, Power (1997) reports that many architects, especially those in the public sector, believed that their ruling body, the Royal Institute of British Architects, no longer represented their views.

Industrialised construction began in 1962-3, but remained far more expensive than conventional housing types. It also provided opportunities for poor workmanship culminating in the partial collapse of Ronan Point in 1968, only two months after construction was completed. However, the Housing Subsidies Act, 1967 had already removed treasury support and with it the end of high-rise housing construction by the RSLs.



Figure 1: Repeat robbery location: sinuous footpath with poor surveillance opportunities between the recently refurbished Queens and Home Towers at the CSS in 2020

Chapter Two

The case study site (CSS) and comparison site

Birmingham context

Following the Second World War and as reflected across much of the UK, an insatiable demand for housing existed in Birmingham. Since the stewardship of Joseph Chamberlain as mayor during the 1870s, Birmingham had a national reputation for establishing public utilities in respect of gas, sanitation and water – the latter piped from the Elan Valley in mid-Wales (Gehrke, 2016). As early as 1875 Chamberlain had been a proponent of slum clearance (Marsh, 1994). However, 70 years later that was still work in progress, a situation exacerbated by Luftwaffe bombing raids during the Second World War.

After 1945 the city council's architects worked within Herbert Manzoni's Public Works Department. Then in 1951, AG Sheppard Fiddler, was appointed to become Birmingham's first independent architect (Jones, 2002). Sheppard Fiddler was mainly concerned with estate layout and his influence can be identified on the Lyndhurst estate in Erdington, with its emulation of London County Council Architects Department's mixed housing (including high-rise) Alton estates in Roehampton.

The CSS and comparison site tower blocks were constructed during the early years of Birmingham's high-rise programme when 10-15 storeys were considered sufficient. However, following the Housing Subsidy Act 1956 (see Chapter One) the next wave of construction provided "...scope for municipal pride to swell upward."

(Jones, 2002, p.3). As a result, during the 1960s tower-blocks of 20-22 storeys were constructed in the Birmingham districts of Lee Bank, Highgate, Ladywood, Bromford Bridge and the Priory Road Estate opposite Edgbaston Cricket Ground. There was a desire to go even higher, following an explorative visit to Chicago by the then chairmen of the House Building and Housing Management Committees. However, just two 32 storey tower blocks were built: The Sentinels at Holloway Head in the city centre. Furthermore, they were completed after the Housing Subsidies Act 1967 had scrapped the 'progressive height subsidy' and the Ronan Point disaster in 1968. Birmingham's final housing development that featured tower blocks was located at Chelmsley Wood on the eastern edge of the city. However, even at that location high-rise never amounted to more than 17% of all new housing and many of those blocks have now been demolished.

Identification of the CSS and comparison site

It was all but impossible to identify two entirely comparable groups – the CSS and comparison site in this instance, it being highly unlikely that such a pair of locations would be perfectly matched. Nevertheless, in the context of this investigation the selection proved to be relatively easy. The refurbishment of the CSS tower blocks is believed to have been the first high-rise scheme in the UK to be processed through to and achieve SBD awards – one for each block. Moreover, because the quality of the CPTED measures recommended and incorporated during their refurbishment was of an exceptionally high grade (intensity – and not known to have been replicated to such a level at any other location across the UK), they appeared to be an obvious choice for analysis. Furthermore, on completion they attracted national publicity, a ministerial visit by the late Baroness Blatch and for many years were

perceived and broadcast as the 'gold standard' of SBD amongst the police community of DOCOs. Having identified the CSS, the next task was to choose the comparison. The SBD awards for the CSS were conferred by the then Chief Constable, Sir Ron Hadfield, on 29 April 1993 and in a ceremony organised by this author. Even before that date, consultation had begun with police DOCOs concerning the next high-rise refurbishment project to be undertaken by BCC: Severn, Thames and Medway Towers – the comparison site.

In addition to being located in the same inner-city district as the CSS, the comparison tower blocks also lay adjacent to each other, with little more than the Nechells Parkway dual carriageway (itself a major route into and out of Birmingham city centre) separating the two sites. This area had been heavily bomb-damaged during the Second World War and was also subject to slum clearance in the 1950s, during which decade construction commenced of both the CSS and comparison. The total number of dwellings at each site (264 and 268 respectively) was also a determining factor in providing a close approximation between the two. However, the real attraction of the comparison site lay in the standard of CPTED measures incorporated during the refurbishment process. Due to financial stringency, these were the barest minimum necessary (a lesser grade of CPTED) to achieve an SBD award. As a result, the existing front doors to each flat were not replaced and merely augmented with a second key-operated lock. In these circumstances, comparing the police-recorded crime for the CSS with that of the comparison, should constitute an especially valid subject for investigation. Results indicating the level of CPTED 'treatment' required to produce and maintain a reduction in crime, would also prove to be highly useful – especially in terms of cost-effectiveness.

The four CSS blocks were the first to be built in Birmingham, designed by SN Cooke and Partners and constructed around a steel frame to an extremely high (and financially expensive) standard. This included a Garchey waterborne waste disposal system and oil-fired central heating plant located in the basement of Home Tower. According to one source they: "...represent Birmingham tower blocks at their best. Indeed, following a major refurbishment programme and security measures installed ten years ago, the blocks are still among the best in Birmingham." (Jones, 2002, p.2) They were officially opened on 5 February 1954 by the then Minister for Housing and Local Government, Harold Macmillan (an engraved commemoration stone in Queens Tower marks the occasion). He became prime minister five years later in 1959 – the same year in which construction began on the three comparison blocks. They were completed in 1961 and fully occupied that same year.

Unfortunately, by the late 1980s high-rise social housing like that at the CSS and comparison, were experiencing high levels of crime and ASB never foreseen by the original proponents of this form of living – world-renowned architects like Le Corbusier, Gropius and Mies van der Rohe. The flats had become difficult to let, with many tenants residing for less than 12 months. Annual residential burglary figures were high and at the CSS went well into double figures per block (see Chapter Six). Unoccupied flats with no tenants were repeatedly targeted and executed by way of their unique fire-escape stairwells. And there was also a murder committed at South Tower. Consequently, the area in which both the CSS and comparison are located might be described as a "crime friendly neighbourhood", Town and O'Toole (2005).

TIMELINE OF EVENTS RELEVANT TO CSS & COMPARISON	
Case study site (CSS) constructed	1951-1953
CSS officially opened by Housing Minister Harold Macmillan	1954
Comparison site built	1959-1961
West Midlands Police appoint first Architectural Liaison Officers (DOCOs)	1986
Launch of Secured by Design as national police CPTED delivery initiative	1989
Refurbishment of CSS	1989-1992
Refurbishment of comparison site	1993-1995
Department of the Environment Circular 5/94 Planning Out Crime launched	1994
Housing Corporation mandates Housing Associations to seek SBD certification	1994
Circular 5/94 replaced by PPS1 and Safer Places	2005
£400,000 upgrade of CCTV at the CSS	2006
DCLG launches Code for Sustainable Homes	2007
Flat entrance doors and communal entrance doors at comparison replaced	2008
National Planning Policy Framework replaces PPGs and PPSs	2013
SBD National Building Approval (NBA) launched	2015
Building Regulations incorporate PAS 24 doors and windows	2015
HCA repeals requirement for SBD for social housing in England	2015
Grenfell Tower fire disaster takes place with loss of 76 lives	2017
DCLG becomes the Department for Housing, Communities & Local Government	2018
Homes and Communities Agency becomes Homes England	2018
Grenfell Tower Inquiry begins hearing evidence	2018
Second major refurbishment of CSS takes place	2018-2020
SBD Homes 2019 design guide launched	2019
Second major refurbishment of comparison site begins	2020

Table 2: Timeline of construction, refurbishment and Interventions

In the search for potential contextual/confounding influences on crime and other issues at the CSS and comparison, background reading was used to ascertain whether any non-crime prevention actions were undertaken by local government or other agencies at either or both sites during the time span studied. For example, Coleman (1985, 1992); Jones (2002, 2004); and Towers (2000); all of which are considered in Chapter One.

The CSS

Queens, Home, High and South Towers constitute the CSS and are located in Duddeston Manor Road, Nechells. Twelve-storeys high, all four are identical in appearance with (until 2019) the original brick cladding on the exterior facades. There are two lifts and two internal staircases within each tower, although 'compartmentation' (meaning each block is divided into two separate halves) limits this to a single lift and staircase serving each half of the block. Their stretched X-shaped layout is reminiscent of the 'cluster block' that was popular with Modernist architects after the Second World War. Moreover, round porthole style windows and white tubular railings on the roofs mean The Four Towers portray a distinctly Art Deco(ish) style, combined with nautical imagery. Proposed in 1950 and constructed between 1951 and 1953 (see Table 2) six blocks were originally planned. However, failure to purchase the necessary land explains why South Tower is isolated away from the other three. Had the extra two towers been built, this would have solidified the group in the pattern of a number '7' rather than the triangle shown by the satellite view in Figure 8 on page 355. Nevertheless, The Four Towers were credited with positive reviews and the Modern Movement supporting editor of the *Architectural Review* described them as having a "vigorous" silhouette (Richards, 1954).

Because high-rise public housing was a relatively new concept in 1950s Britain, the design of these flats was revolutionary in a number of respects. For example, it was believed necessary to include additional internal fire-escapes within each block. This was achieved by way of an enclosed staircase (five per block – one at each corner and a fifth in the centre of the tower – see Appendix 7) adjacent to each flat's external balcony and providing a further escape route to the ground. In the below photograph (Figure 2 on page 132) the route of these fire-escapes is marked by the aforementioned round porthole style windows. See also Figure 4 on page 152. There is no evidence that these fire-escape staircases have ever been used for their allotted purpose. However, following the Grenfell Tower tragedy in North Kensington, London in June 2017, fire safety and escape from such high-rise tower blocks have taken on new-found and highly justifiable prominence and urgency. Another feature at The Four Towers and one that subsequently became the norm in cities across the UK and further afield, was the total movement/permeability caused by a failure to develop the surrounding 'brown-field' land, which in turn originated from the unmarked wells that were capped and grassed over during the slum clearance (an unknown number of which may have been inaccurately recorded). As a result, subsequent attempts to develop this land have proved to be problematic and financially expensive.

Such was their perceived success as a housing strategy, that over the next quarter-century BCC (one of the largest LAs in Europe) went on to build a total of 464 high-rise tower blocks (Jones, 2002), although none of them replicated the multiple, balcony-linked fire-escape system witnessed at The Four Towers.



Figure 2: High and Queens Towers at the CSS in 2017

Intelligence/demand at the CSS

In practical terms, during the late 1980s there already existed at the CSS an organised and effective campaigning group of residents known as The Four Towers Tenants' Association. They repeatedly petitioned elected members and the city council to invest in refurbishing the blocks and also reduce both the crime and ASB taking place – only to be told time and again there was no funding available. In this last regard, tenants who had resided at the CSS for at least three decades repeatedly (see Chapter Five, Findings: Tenants' perceptions of crime, ASB, safety and security) mention two women who were instrumental in the tenants' association,

both of whom have since passed away. These two women can thus be identified as “particularly motivated individuals” (Read and Tilley, 2000; Bullock, Erol and Tilley, 2006, p.15). Their efforts assisted in ensuring that BCC Housing Department sought CPTED advice from the police and incorporated such elements during the 1989-92 refurbishment programme.

By the late 1980s/early 1990s, the majority of tower blocks built by BCC Housing Department had either reached or were fast approaching their original projected lifespan of thirty years. Furthermore, whilst some tenants at both the CSS and comparison site had exercised their ‘Right to Buy’ (Grant, 1992) under the Thatcher governments’ flagship housing policy, there was very little finance available to build new LA owned social housing or refurbish existing dwellings. This may suggest an essential strategy for all development programmes – and more especially refurbishments like that at the CSS and comparison, where the residents remain in situ long after completion and by which time the project managers, builders and all those involved in service delivery have moved to new projects. Namely, that it would seem to be an essential element of sustainability to encourage active participation by the residents/tenants. Because as Morris (1996) recommends, long term solutions require the support of the community. Similarly, residents must be engaged by local officials who in turn should be encouraged and supported in taking a longer term, problem-solving approach to incidents and solutions (Brassard, 2003). At the comparison site there is no record that there ever existed a tenants’ association or other body that could have been consulted.

In 1989, the central government DOE launched a bidding process for local LAs known as 'Estate Action Funding' (Local Government and Housing Act, 1989). Under this heading, LAs in England and Wales (similar schemes existed in Scotland and Northern Ireland) were asked to bid for central government funding to refurbish their existing social housing located within blighted inner-city areas. BCC was successful in securing £4 million for the refurbishment of The Four Towers – including measures to reduce crime and ASB. The key departments within BCC involved in utilising the £4 million awarded, were Housing, Planning and Architecture and the Landscape Practice Group. Furthermore, the timing of this investment appears to have been especially fortuitous, in that the announcement coincided with the creation of the SBD award scheme (see Chapter One).

Estate Action funding required a commitment to eliminate crime and ASB. As a consequence, an ad hoc symbiosis evolved into partnership working between the aforementioned council departments (most especially Housing), West Midlands Police (WMP) DOCOs (an ALO police inspector and ALO sergeant at that time) and The Four Towers Tenants' Association – who initiated and maintained their interest in the refurbishment process including the inclusion of CPTED measures, the overwhelming majority of which were similarly specified as process elements under SBD guidelines. This partnership working began a decade before Section 17 of the Crime and Disorder Act (1998) made it a statutory responsibility and eight years before Saville and Cleveland (1997) discussed the theme of community consultation as a requirement of 'Second Generation CPTED'. Or of 'Third Generation CPTED' as described by Gamman and Thorpe (2012) plus others. Between 1989 and 1992, the partnership worked collaboratively to design out crime and ASB at the CSS.

Nevertheless, it is important to note that 'The Four Towers' were not selected for refurbishment as a result of following a systematic approach such as the 'hot-spots' and 'hot wards' analysis identified by Bennett and Durie (1999) when studying residential burglary in Cambridge. Close to four decades after construction the primary motivation at the CSS was the necessity for physical refurbishment. Nevertheless, and in accordance with Estate Action funding guidance crime, fear of crime and ASB were perceived by all partners as contributory factors.

In 1993 when it was decided to refurbish the comparison, Estate Action funding remained in existence. However, financial constraints were far tighter than four years earlier and explain the reduced funding for CPTED measures. This is relevant for assessing process/outcomes between the CSS and comparison, together with any divergence of sustainability between the two. Furthermore, BCC Housing Department naturally initiated the refurbishment programme and controlled the finances, albeit under central government direction. And it provided the leadership role in this project. Their willingness to listen to the tenants, police DOCOs and incorporate the recommended CPTED and SBD measures, demonstrates the practical application of the problem-solving (more problem prevention in this context) and POP approach, with the police also providing the necessary crime pattern analysis (evidence/Intelligence) to justify expenditure on the security elements recommended. In a similar vein, acknowledgement also needs to be made of the Involvement of other "highly motivated individuals" (Kirby and Reed, 2004; Bullock, Erol and Tilley, 2006, p.17) within BCC Housing Department (most especially the Area Housing Manager and Senior Architectural Technician), Planning and Architecture Department (including the Landscape Practice Group) and WMP

DOCOs, in ensuring the refurbishment was a success – in terms of reductions in crime, fear of crime and ASB (albeit there is no evidence of a post-occupancy evaluation immediately thereafter or, for example, five or ten years later other than the ad hoc audits described in Chapter Three, and those conducted by this author prior to the SBD award ceremonies).

CPTED and SBD in practice at the CSS

In terms of CPTED at the CSS, Interventions recommended by the DOCOs included a heavy emphasis on higher grade measures covering: target hardening (Newman, 1972); technological innovations; and environmental elements. As a delivery process, SBD demanded a minimum standard of security was demonstrably incorporated and appropriately matched to the context. In real terms, this was well exceeded at the CSS – in practice, a higher intensity of CPTED measures were employed. See Table 3. It should also be noted that SBD is a process model for Intervention and as such, should not be confused and kept separate from the actual CPTED measures – a repeated failing within descriptions of SBD.

Target hardening measures included: high quality 'Mul-T- Secure' front entrance doors to each of the individual flats; windows and balcony doors constructed of double-glazed PVC-u units; metal railings/grilles and gates on all the ground floor balconies to prevent access into the integral fire-escape system (see Appendix 7) by those intent on burglary; and high standard communal entrance doors at ground floor level. Similarly, all ground floor windows contained two panes of glass, that on the

inside (to maximise safety) of laminated safety glass, which has a proven potential to be of crucial importance in preventing residential burglary.

Technological innovations included: installation of CCTV cameras in vandal proof housings within the interior communal areas and lifts; electromagnetically-operated communal entrance doors at ground level, activated by a fob-reader controlled entry system for residents; and the 24/7 staffed concierge presence located in security offices on the ground floor of Queens Tower, linked via an intercom to each flat. This was both a revolutionary and unique innovation by BCC Housing Department.

Electric lighting of internal communal areas, the grounds and car parks was upgraded to produce a minimum average illumination of 12 Lux – the level recommended by SBD as necessary for surveillance and deterrence in external areas when the award was first launched (SBD, 1989).

At the time of the 1989-92 refurbishment, considerable concern existed (and continues to this day) regarding the privacy and civil liberty aspects of CCTV cameras (especially those in public areas) and recorded images. In retrospect, it might be viewed as a mistake to limit the CCTV coverage to the ground floor internal communal areas and lifts. Because, once through the communal entrance doors ('tail-gating' legitimate callers is generally understood amongst security professionals worldwide to be the usual means of gaining access at both residential and commercial venues) unwanted visitors could not be tracked through the building. Nevertheless, despite a £400,000 upgrade of the CCTV system in 2006 (which included colour cameras, extension to cover all landing areas and digital recording),

there remains no external CCTV coverage of the grounds or car parks, other than by the fob-reader and door-caller system (which incorporates a CCTV camera).

Personal witness indicates that this situation is the norm at the overwhelming number of residential areas across the UK – be they social housing, private rented sector or owner-occupied.

When the refurbishment of the CSS was completed in 1992, there was an expectation that its revolutionary 24/7 staffed concierge might be replicated at Birmingham's high-rise tower blocks as they were in turn refurbished. However, due to funding issues, it was never repeated at any other location. Then in April 2015, the 24/7 staffed concierge facility at the CSS was itself closed – almost certainly on a permanent basis. This decision was made by BCC Housing Department as a result of central government changes to the way in which housing benefit was paid (it could no longer be deducted at source). The closure of the concierge caused a spate of complaints from the tenants. Nevertheless, all CCTV and door entry monitoring is now managed from a remote site, central station control room covering the majority of high-rise blocks and schools across Birmingham.

BCC's Landscape Practice Group were actively involved with the DOCOs in designing the CPTED environmental elements that were incorporated at the CSS and comparison – albeit once again to a lesser grade of CPTED. This included aesthetically decorative but highly functional brick walls and metal railing fencing, together with symbolic (psychological) barriers in the form of brick pillar gateposts and painted steel gates (that are never closed); changes in road surface texture and

colour; and soft landscape planting of trees and shrubs – of specific maximum growth heights to ensure they would not become barriers to natural surveillance. All these features were designed to define public, semi-public, semi-private and private defensible space (Newman, 1972) around the blocks; encourage territoriality; and deny movement/permeability for those with no legitimate reason to be present.

Following completion of the refurbishment in 1992, WMP conferred their first major SBD awards. At the SBD award ceremony held in 1993, the then Chief Constable, Sir Ron Hadfield, presented the awards (one for each tower) and as part of his speech made the following observation:

We now appreciate that the built environment can have a positive or negative influence on criminal acts and the introduction of the police driven concept of 'Secured by Design' is now becoming widely accepted and like a weather front, it is spreading north from its birthplace in the south east of England. (Hadfield, 1993).

Thereafter, all parties waited to see the results – especially the effects on crime.

The comparison site

The comparison site consists of Severn, Thames and Medway towers located in Cromwell Street, Nechells and a five-minute walk from the CSS. They were built by the construction company Wates between 1959 and 1961. See Table 2. However, whilst the comparison towers were erected less than a decade after the CSS, the

design of these three identical 15 storey blocks (each 47 metres high and containing a total of 90, 88 and 90 flats respectively) is radically different. See Figure 3.



Figure 3: Severn, Medway and Thames Towers – the comparison site in 2017

Indeed, their original off-white coloured, bare concrete, monolith ‘Brutalism’ style can be identified in similar high-rise social housing built across Britain, Europe, the countries of the former Soviet Union and North America during the 1960s and 1970s.

The comparison blocks were refurbished in 1993/5. However, unlike the CSS there was no organised tenants’ association with which the housing department could liaise and thereby solicit their views. Furthermore, four years after the DOE had authorised considerable funding for the refurbishment of the CSS, at the comparison

only the minimum CPTED measures necessary to ensure compliance with SBD guidelines was invested. Sadly, during the early years of the award:

...window and door requirements (were) based upon 'specification' as there were no specific standards 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. Armitage (2013, p.183).

Three decades later, SBD continues to act as a minimum standard. However, successive enhancements in the minimum specified standards and certification demanded, mean that it is now massively advanced in terms of the quality and robustness of the security measures required. Moreover, local crime conditions enable the DOCO to demand a higher security specification for doors and windows. Nevertheless, this only partly explains the massive reduction in financial investment made at the comparison, in contrast to the CSS. It appears that because the CSS was one of the very first schemes to be processed through both Estate Action and SBD, funding for all requested security measures received DOC approval. The fact that the CSS had been officially opened by Harold Macmillan in 1954 may also have had some influence (see Chapter Six). However, four years later financial stringency meant that funding was markedly reduced – a common theme of central government investment, bidding rounds and support in recent decades. As a result, no 24/7 staffed concierge was introduced at the comparison (or indeed at any other high-rise block in Birmingham); only a very limited, non-monitored CCTV system was

installed; no electronic communal door entry system; and perhaps most importantly, no new main entrance doors to each of the individual flats. Nevertheless, their stark appearance was 'softened' by way of painting the block exteriors in different pastel shades.

CPTED Interventions recommended by the DOCO (this author) included the same high-quality target hardening (Newman, 1972) measures; technological innovations; and environmental elements as had been recommended at the CSS. However, it was explained by Housing Department staff that financial constraints meant only the minimum required to achieve an SBD could be afforded. Indeed, it appears (although written evidence to corroborate this statement has not been located) the DOE had used the then SBD homes basic level security guidelines to calculate what was required to ensure compliance, but at minimum financial cost. Consequently, having established that the entrance door to each flat was in good condition, a minimum of 44mm thick and that it contained either none or 6.4mm thick laminated glazing, the only other requirement at the comparison site was for two independent locking systems – a surface mounted rim-latch (most often already installed) one third of the distance from the top of the door) and a mortise deadlock (installed one third of the distance from the bottom) – or vice-versa. The aim of these two locks was to spread the load should the door come under attack. In addition, windows were replaced with double glazed units – on the ground floor one pane of which was laminated safety glazing (a BCC Housing Department requirement). See Table 3. However, even before the refurbishment was complete, the additional security elements on the main entrance doors to the individual flats proved to be too weak and residential burglaries continued – often it was subsequently claimed (although no tangible evidence to

support these claims has been located) committed by drug abusers residing in the same tower block.

Similarly, the technological innovations introduced represented a much-reduced version of those at the CSS. For example, there was no 24/7 staffed concierge. Instead, the door entry control system was linked (like that of many other high-rise tower blocks that were refurbished in the mid-1990s) to a central control room with no communication to individual flats. A very basic CCTV system was also installed, covering just the ground floor communal areas, producing monochrome pictures and merely recorded images during the years immediately following refurbishment. Nevertheless, and as at the CSS, electrical lighting of the internal communal areas, the grounds and car parks was upgraded to produce an average minimum level of illumination of 12 Lux.

BCC's Landscape Practice Group ensured that a raft of CPTED and SBD environmental elements (of a lesser quality to those at the CSS), were similarly included around the comparison site tower blocks. Semi-public defensible space was created using minimal fencing and changes in road surface texture and colour. Surveillance opportunities utilised the windows from the flats overlooking external areas and the few CCTV cameras monitoring internal areas. Territoriality was extended from the blocks to include the now semi-enclosed grounds, which in turn restricted at least in part access and movement/permeability.

INSTALLED DURING REFURBISHMENT	CASE STUDY SITE	COMPARISON SITE
INTERNAL		
New Mul-T-Point front doors to each flat	YES	NO
New windows with laminated glass	YES	YES
Installation of intruder alarms	NO	NO
Grilles fitted to ground floor balconies & gates	YES	N/A
New ground floor communal entrance doors	YES	YES
Fob-reader access-controlled entrance system	YES	YES
CCTV inside tower blocks	YES	YES
24/7 staffed concierge	YES	NO
EXTERNAL		
CCTV outside tower blocks	NO	NO
Enhanced security lighting	YES	YES
Use of external symbolic barriers	YES	YES
Creation of defensible space	YES	YES
Creation of territoriality	YES	YES
Maximisation of surveillance opportunities	YES	YES

Table 3: CPTED and SBD measures used at the CSS and comparison site

CPTED and SBD at the CSS and comparison site

SBD is heavily influenced by CPTED for the security standards it demands are incorporated into any new build or refurbished homes scheme. However, and as previously indicated, it is a minimum standard and this helps to explain the original disparity in the security elements employed at the CSS, when compared to the comparison site and how an SBD award was nevertheless conferred on all seven blocks at both sites. A quarter-century later, the SBD minimum standard is now far higher, having evolved through a number of periodic revisions and as the technical standards for the numerous security elements have themselves been updated.

The greatest difference in target hardening concerns the front doors to the individual flats at both sites. At the comparison and in similar refurbishments across the city during the mid-1990s, the existing front doors were merely reinforced with the addition of a second locking mechanism – most often a five-lever mortise deadlock complying with standard BS 3621. Whereas, at the CSS, new high-quality doors were installed – ones where the frame, door and door furniture (the ‘doorset’) were constructed as a single entity in the factory. The latter took place almost a decade before this became a mandatory requirement of the new security standard PAS 24 (BSI, 1999) and its incorporation within SBD minimum standards.

However, the inclusion of frame armour and hinge bolts in these doorsets at the CSS might be described as ‘over-engineering’ – or “over-fortification” (Armitage, 2013, p.109) meaning that the level of security they afforded was unnecessarily excessive. Quite apart from the high level of financial cost for these high security doors, a

greater concern relates to how excessive security has the capacity to compromise safety. Complaints from specialist police departments like the former WMP Drugs Squad were made, regarding their inability to force open these doors to effect arrests and secure evidence. More importantly, West Midlands Fire Service voiced their concerns about how they were delayed in gaining access and that even their hydraulic jacks could not circumvent the frame armour. Indeed, in the wake of the 2017 Grenfell Tower tragedy, fire safety concerns that were manifest when the tower blocks of the CSS were designed, have now returned to their original and rightful high level of prominence.

In this context, the fact that each CSS and comparison tower block were able to achieve an SBD award might attract particular interest – especially when this represented a wide spectrum in the range and quality (intensity or ‘dosage’ of the CPTED measures installed and the levels of subsequent crime – see Chapter Four). However, in the context of the earliest years of SBD (1989-1992) when the setting of process standards was in its infancy (SBD was launched in 1989) and before the majority of present-day crime science research had been conducted and published, a dispassionate observer might conclude that the application of CPTED (most especially at the CSS) was excellent. Subsequent SBD design guides (e.g. SBD – Homes 2019) demonstrate how SBD is constantly evolving and improving.

At the CSS, the pedestrian gates at the multiple entrances to each tower block are designed to be left permanently open and therefore deliberately symbolic. Similarly, the walls and metal railing fencing can be easily climbed. And the changes in road

surface colour and texture are purely cosmetic. The value of such symbolic (psychological) barriers, especially in what was an inner-city high crime area, is open to considerable debate regarding their effectiveness (Shaftoe and James, 2004).

Over the past quarter-century, partial refurbishments have followed the major ones of the early 1990s at both the CSS and comparison. For example, new PAS 24 entrance doors to the individual flats were installed at the comparison in 2008; and a £400,000 upgrade of the CCTV and communication systems at the CSS in 2006. However, the criminogenic design (sinuous/curving and snake-like, resulting in poor surveillance opportunities) of a public footpath between Queens and Home Towers, leading to a bus stop and pedestrian crossing on Nechells Parkway (see Figure 1 on page 124), has never been addressed. This despite it acting as a repeat location for robbery over three decades. Nevertheless, the pedestrian subway that predated the surface-level crossing close to this location was removed in 1999 – primarily because it was acting as a crime generator (Brantingham and Brantingham, 1993, 2008) and increasing fear of crime. Whilst the fourth CSS block, South Tower, is located in an isolated position, a quarter of a mile (400 metres) away from the other three, albeit adjacent to a row of shops and Duddeston train station. Meanwhile, there is no evidence to suggest it has generated more crime or ASB than its siblings.

As detailed above, at the time of refurbishment the CPTED target hardening measures installed at the CSS were of a far higher quality than those at the comparison site. In addition to the lower levels of recorded crime at the CSS, those that might be directly attributed to such target hardening (most especially the main

entrance door to each flat) can be similarly identified in research into the effectiveness of SBD by: Brown (1999); Pascoe (1999); Armitage (1999); Teedon and Reid (2009); Armitage and Monchuk (2009); Jones et al (2016). Likewise, the CPTED technological innovations installed at the CSS were of a higher specification than those introduced at the comparison. Evidence of the effectiveness of such measures as fob-reader, access-controlled communal door entry systems and 24/7 staffed concierge cannot be sourced. However, there is now a bank of research relating the effectiveness of lighting in reducing crime and the fear of crime (Welsh and Farrington, 2008). Whereas, that pertaining to CCTV is far from conclusive in terms of its preventive role, as detailed by Gill *et al* (2005).

The CPTED environmental elements incorporated at both the CSS and comparison site are now almost identical – in that access and movement/permeability through the grounds of all seven tower blocks are partially restricted. Van der Voordt and Van Wegen's (1990) Delft Checklist; and Armitage's (2006) Burgess Checklist both highlight through movement as a: "...key factor associated with both burglary and crime-prone homes." Armitage (2013, p.131). Similarly, Taylor (2002) maintains that increased neighbourhood permeability leads to more crime. However, this was not the case immediately post-refurbishment. At the CSS and over three decades a partial denial of such access and movement/permeability (delivered by brick walls, metal railing fencing and ceremonial gates) has produced semi-public space. But at the comparison site there was limited funding available for such perimeter protection, much of which was only installed retrospectively and after the turn of the century following complaints from the tenants of Severn, Thames and Medway Towers.

Future developments and long-term sustainability

On a sad note, the formerly active and instrumental Four Towers Tenants Association ceased to exist in 2006. This was apparently due to a number of causes, (primarily key tenants/members having passed away) and it reflects the changing nature of inner-city areas like Nechells in Birmingham and in cities and towns across the UK – in terms of age profiles, ethnicity and perhaps an ability/willingness to act in a community/guardian role. Such sustainability issues are addressed in Chapter Seven, although these are more Involvement/mobilisation factors, together with a wider Implementation/Involvement context. It also demonstrates how “particularly motivated individuals” (Read and Tilley, 2000; Bullock, Errol and Tilley, 2006, p.15) have their own individual life expectancy. This sustainability issue, the replacement of enthusiastic/charismatic starters marries with the 5Is concept of Involvement/mobilisation.

The closure of the 24/7 staffed concierge and transfer to a centralised control room covering multiple locations (including schools) in 2015, produced tensions. However, at least the potential for that most insidious form of property crime, distraction burglary (one where the elderly or other vulnerable groups are targeted) remains non-existent: no such MO was identified amongst the known 120 police recorded burglaries committed at the CSS and comparison during the quarter-century under analysis. Nevertheless, Thornton et al (2003) describe how ethnic minority communities report higher levels of worry about crime. This is relevant because when the CSS was refurbished between 1989 and 1992, the tenants occupying the

flats were overwhelmingly white British. Indeed, with the exception of the repeatedly mentioned and 'leading light' members of the Four Towers Tenants' Association (one an Italian lady) the makeup of that association represented such heterogeneity. Whereas, in 2016 during the door-to-door questionnaire phase of this research project, it became apparent that a large proportion of the tenants at both sites are new British citizens – many of them those who have been granted asylum from countries such as Eritrea, Ethiopia and Somalia.

The Grenfell Tower legacy

A unique feature of the CSS tower blocks and not currently known to exist anywhere else in the UK or beyond, are the five (per block) enclosed fire-escapes. These are accessed via a door from each flat's balcony – one at each corner of the block serving one flat per storey; and a fifth in the centre serving two flats per storey (see Appendix 7). These have never been known to be used for their purpose as evacuation routes and indeed, for more than six decades were generally perceived as an element of 'over-engineered' (unnecessarily excessive) fire safety. There are, after all, two internal staircases and two lifts per block, albeit should one lift break down the internal design of each tower means there is no automatic capacity for tenants on one side of the block (33 flats) to use the lift (or staircase) on the opposite side (a further 33 flats). Furthermore, during the 1980s these same fire-escapes became notorious as attack and escape routes for residential burglary – especially of void flats (the proportion of which numbered in excess of 30 per cent) where the copper piping and electrics were especially targeted.

However, the perceptions of such ‘over-engineering’ have hopefully changed since the Grenfell Tower, Kensington, London fire disaster of June 2017 when 72 people lost their lives. Had Grenfell Tower (and it would appear virtually all other high-rise tower blocks in the UK) been designed in the same manner as the CSS, there would have been multiple opportunities for escape. Admittedly, the 1989-92 refurbishment did not include any element of cladding. But in any event, having in effect your own private fire-escape accessed from the balcony empowers tenants to make their own decisions in terms of escape. This points to the highly pertinent “troublesome trade-offs” (Ekblom, 2008, p.210) of safety versus security – and how in the opinion of this author safety must always be prioritised over security (see Chapter Seven).

During the 1989-1992 refurbishment, the use of these fire-escape staircases to execute residential burglary was all but eliminated through the installation of metal grilles and gates to secure all four ground floor balconies per block. In addition, new balcony doors (complying with the then BS 8213-4:1990 standard) and windows (BS 7950) for each flat were installed. After 1992 relatively few burglaries (12 in 18 years) were executed via this MO (detailed in Chapter Four) and in order to do so it can be presumed that offenders must have gained access from the balcony of another flat (Chapters Five, Six and Appendix 7). Furthermore, void flats were all but non-existent post refurbishment when the flats were then perceived as highly desirable and maximum occupancy resumed.

Between 2018 and 2020, the latest major refurbishment of the CSS took place producing a high quality and distinctly Post-Modern white and battleship grey

appearance to the exterior of each block. In 2020 work began on the same process at the comparison. Both of these most recent refurbishments have been conducted by Wates – the company that originally constructed the comparison 60 years ago.



Figure 4: Home Office Minister, Baroness Blatch and Head of Housing at Birmingham City Council, Councillor Marge Bridle, inspect Queens Tower at the CSS in 1993. Note in the background the then recently installed metal grilles and gates protecting the ground floor balcony and internal fire-escape staircases, indicated by the round porthole style windows.

Chapter Three

Methodology

This chapter details the methods employed in this investigation. It provides a rationale as to why specific approaches were used, adapted and evolved, and explains why certain methods were selected instead of others. In addition, the methodology describes the potential and real limitations associated with research covering an extended, extremely long-term timeline and most especially the sourcing and accumulation of police-recorded crime data from different systems for a period covering close to a quarter-century. Having maintained research diaries throughout this investigation, the author increasingly adopted the reflexivity practices advocated by Holland (1999) and Finlay (2002) to challenge his own subjectivity (personal, interpersonal and contextual). Kelly *et al*'s (2017) concept of 'embodied reflexivity' can be identified within the methodological reflexivity described in this chapter – most especially recourse to the case study approach. Where considered necessary, further information regarding these methods is set out under the appropriate sub-headings.

Choice of study design

The main focus of this study was concerned with investigating the quantitative and qualitative Impact of CPTED and SBD Interventions on crime at seven inner-city tower blocks. In the perfect Impact evaluation of a crime prevention initiative, a high degree of internal, construct and statistical validity might be expected. The study would therefore demonstrate that the Interventions had an effect on the desired outcome – sustained reductions in crime. The randomised controlled trial (RCT) was

not a viable option in this study, due to an insufficient number of areas and absence of assignment of control groups/areas. Quasi-experimental evaluation was considered in terms of appropriate design. However, there were potential issues relating to the absence of statistical data before and after the CPTED and SBD interventions were applied; and how both sites had received such treatment ('contamination' – inevitable over such a long time-frame) via different grades or intensity of CPTED and SBD being employed. This also alludes to how the 5Is provided a more nuanced means of assessing the effectiveness of particular CPTED measures, particularly those that fall under the headings of target hardening and technological innovations.

Moreover, whilst quasi-experimental evaluation (Campbell and Stanley, 1963) is assessed at Level 3 on the Maryland Scientific Methods Scale (Farrington et al, 2002), threats to validity means that the geographical area used as the comparison needs to be similar in nature, size, layout and crime problems to the target ('action') area AND free of the CPTED and SBD Interventions – which unfortunately was not the case with the comparison site chosen (or available) for this investigation.

The research methodology was chosen on the basis of a range of factors associated with the data that could be used for analysis, as constrained by the complexities in calculating and determining the causes of whether crime patterns had been affected by Interventions such as CPTED and SBD. In a practical setting, such experimentation is extremely difficult due to the likelihood of the comparison site receiving at least some degree of treatment (customised types of CPTED) as had happened prior to this study taking place. Furthermore, this issue was compounded

by the sheer length of time (almost a quarter century) over which analysis was being conducted.

As a result of all these considerations, it was decided to adopt a case study approach (Yin, 1984, 2014) using mixed methods. These included: quantitative analysis of police-recorded crime data for an extended period of close to 25 years; quantitative analysis of tenants' questionnaire data; qualitative analysis of tenants' extended interview data; and qualitative analysis of professionals' extended interview data. However, it was believed necessary to distinguish between the research design (case study) and the data (crime data, questionnaires, interviews, historical information). This perspective has been used to organise investigation and analysis, concentrating on Intervention, mechanism, context and Implementation. Whilst simultaneously focusing on its application via approaches to causation of/Intervention in crime via various existing frameworks: CCO, 11Ds, PAT, 25 techniques of SCP and the process model of 5Is.

Three elements occupied the first two phases of research: identifying key areas for investigation; devising the research aims; and completing the outline programme of research. The deficiency of evidence concerning the sustainability of the effectiveness of CPTED and SBD over the very long-term (in excess of 25 years) was implicit. As detailed in Chapter One, only one study, Armitage and Monchuk (2009) had investigated the longer-term durability of effectiveness. Durability/sustainability studies are arguably deficient across the whole range of crime prevention Interventions (Ekblom, 2011a). This deficiency is especially important in the built environment where ongoing investment in new and refurbished housing is

substantial; and insecure design and construction of housing can lead to a legacy of crime lasting for decades. A detailed review of the existing literature confirmed this to be the case and pointed to the necessity for new research in this arena – especially in view of the multi-billion sterling investment being made in new and refurbished housing programmes, witness the then Chancellor of the Exchequer’s commitment to build 300,000 homes annually (Hammond, 2017).

The research aims detailed in Chapter One remain a coherent package and cover Intervention, Implementation and Involvement issues at both the CSS and comparison. Taking into account the issue of assessing one set of CPTED Interventions with another, the CSS was identified due to its perception by DOCOs as the ‘Rolls Royce’ of RSL refurbishment projects in terms of the grades of CPTED invested – not just in Birmingham, but nationally and indeed internationally. This higher grade of CPTED is especially evident in respect of: the quality of the doors installed to each individual flat; the fob-reader, access-controlled communal entrance doors; and the 24/7 staffed concierge – elements originally missing at the comparison. However, this does not answer questions regarding why the crime reductions at the CSS may have been sustained for more than a quarter-century. Analysis and comparison of the crime statistics provides only part of the picture. Consequently, a detailed examination of the two sets of Interventions, their Implementation contexts and Involvement activity is necessarily required.

Eckblom (2011a) contends there is a context of causation/Intervention and context of Implementation/Involvement. CPTED is a ‘tunable’ or ‘customisable’ Intervention –

i.e. the Intervention principles are customised to context via an Implementation/ Involvement process. Therefore, any focused realistic discussion involving causal and Intervention mechanism and research methods, might naturally adopt the strongest and most appropriate research framework. As a result, and despite their links with CPTED principles rather than the 11Ds, PAT and the 25 techniques of situational prevention, the 5Is were considered the most appropriate form of analysis for this study. Indeed, the 11Ds is mechanism-oriented and already tested by considering the Intervention mechanisms.

One of the key research aims was to investigate the mechanisms whereby CPTED and SBD might influence crime. With the 5Is chosen as the research framework, it was envisaged that the quantitative analysis (supported by the qualitative) would provide an Impact evaluation of the CPTED and SBD Interventions employed at both the CSS and comparison. However, it soon became apparent that investigating different crime types would be especially problematic over the very long-term (approximately 25 years). For example, burglary might be relatively straightforward as it relates to a specific target enclosure. However, the precise location of a robbery, assault or vehicle crime might be assigned to the victim's address at the CSS or comparison, even though the offence had taken place elsewhere. Such deficiencies became apparent even prior to detailed analysis of police records. Furthermore, an increase in car ownership meant tenants at both the CSS and comparison had increasing difficulty in finding a parking space within the confines of their block and often parked in the street.

The 18 years of crime data for both the CSS and comparison was analysed by calculating year on year percentage changes for indexed crime rates. This was further converted into rates for comparison purposes by another denominator – the number of households at the CSS and comparison site. Thus, at the CSS the rate was calculated by dividing by 264; at the comparison by 268. Additional analysis involved repeating the same exercise for each of the four tower blocks at the CSS and three at the comparison.

Case study approach

Following extensive research, consultation, deliberation, and evolution, it was decided the overall design would follow a case study approach (CSR – Yin, 1984, 2014) utilising mixed methods. Yin defines CSR as “an empirical inquiry that investigates a contemporary phenomenon (the ‘case’) in depth and within its real-world context” (2014, p.16). He contends that “Readability, credibility and concern with confirmability all matter” (2014, p.192). Whilst, improved reliability and validity will demonstrate how when “the process has been given careful attention, the potential result is the production of a high-quality case study” (2014, p.199). CSR consists of six elements: the plan, design, preparation, data collection, analysis and reporting. It thereby constitutes an all-encompassing model including design, data collection techniques and specific approaches to data analysis

For these purposes, Yin champions the logic model – one that “stipulates and operationalizes a complex chain of occurrences or events over an extended period of time” (2014, p.155) using qualitative and quantitative case study data – all highly pertinent to this investigation. Indeed, he contends that “Case study research has a

functional and legitimate role in doing evaluations” (2014. p.219) and can be used to capture the complexity of a case including the exploration of contextual conditions and temporal changes, for example the near quarter century timespan of this investigation. Consequently, following due reflection CSR appeared the most appropriate method for conducting this study and will be perceived as satisfying Yin’s desire for high quality CSR demonstrating “engagement, enticement and seduction” (2014. p. 206) and “enthusiastically” conducted.

In pursuit of this CSR approach, the following practical measures were employed. These in turn fall into two distinct categories: methods of sampling and methods of data collection. This investigation began by identifying the key areas for research (the research aims) and more specifically, its emphasis on the elements of sustainable crime prevention. From the outset, SCP, CPTED and the 5Is were identified as the preeminent means by which the case study approach would be conducted. In particular, the holistic nature of the 5Is with its inclusion of Intelligence, Intervention, Implementation, Involvement and Impact was believed especially attractive as a framework for investigation (see below).

The study programme

The study programme was outlined and over time continuously evolved. It began with extensive reading of the existing canon of research in the fields of SCP and CPTED in particular. Indeed, it was the apparent deficiencies in the latter (Ekblom, 2011a) that led to the 5Is being chosen as the means of analysis. Investigation then commenced on the literature review and thereafter, assembling the potential sources of quantitative and qualitative data. These included a desire for:

- Police recorded crime data – for the years 1988-2014 for both the CSS and comparison
- Questionnaires – completed by the tenants at the CSS and comparison
- Face to face extended interviews – with a sample of tenants at the CSS and comparison
- Face to face extended interviews – with a sample of professionals involved in the original refurbishments or with the Implementation and management of CPTED and SBD at the CSS and comparison.

Thereafter, statistical analysis of the police-recorded detailed crime data would take place. This could then be matched against the tenants' quantitative questionnaire data and both the tenants' and professionals' extended interview qualitative data.

5Is

The 5Is are examined in detail in Chapter One. But to recap in brief, Ekblom (2011a) describes how they developed from the 'preventive process'. Ekblom (1988) used this term to describe the rational, 'action research' model of crime prevention. The 5Is ('top-level task streams' of the crime prevention process) Interventions are:

- Intelligence – gathering and analysing the nature, causes and negative consequences of a particular crime, in order to influence the crime prevention and community safety aims and priorities of the practitioners/organisations addressing same
- Intervention – design and planning practical methods to block, divert or weaken the causes of future and ongoing crime, or mitigating harm already

done. It provides focus by combining local evidence from Intelligence and generic evidence/knowledge of what works in practice

- Implementation – the practical and management tasks necessary to deliver the Intervention methods (e.g. recruitment, training and management).
- Involvement – intertwined with Implementation, the Involvement of other people and agencies to appreciate, accept, undertake, share or support the tasks, roles and responsibilities involved in the Implementation of preventive Interventions, or by otherwise providing a receptive climate

- Impact – harvesting evidence of the effectiveness of the preventive action.

This can then be used to improve performance; guide continuation, expansion and replication; accountability; and transfer into the ‘collective evidence base’.

This decision to adopt the 5Is was made because it is best suited for detailing (by way of Intervention, Implementation, Involvement and the causal mechanisms underlying each) the constraints, enablers, failures, issues and problems associated with the practical process of crime prevention. Application of the 5Is permeates this study and is both an organising concept and the theoretical framework on which to analyse and present the findings. In particular, this includes how professionals (like the architects, DOCOs, housing department officials, concierge staff, planners, etc) undertook their roles – including Implementation and Involvement. But it also demonstrates how CPTED and SBD can be used to promote or restrict the activities of ‘agents’ (most especially offenders) and enhance the security of entities e.g. target enclosures like the flats and tower blocks. Much of this detail emanated from the interviews with tenants and professionals and is recorded in this thesis as qualitative evidence (see Chapters Five and Six).

Research methods timeline

Table 4 below details the research methods timeline. The table sets out the individual research aims and the methods used to achieve each one. This began with the Intelligence phase of the 5Is: extensive reading of a broad spectrum of relevant material, to establish the research strands necessary for the study and commence work on the literature review. There then followed a period of identifying, sourcing, requesting and securing police-recorded crime data for both the CSS and comparison, before scoping an outline methodology.

The primary activity during the following period of investigation was the devising, repeated re-editing, testing on friends and colleagues, then distributing the tenant questionnaires to each one of the 532 flats at both the CSS and comparison, in pursuit of the collection of survey data. This was followed by authoring the tenants' interview schedule and identifying for interview those professionals involved in the refurbishment projects, or otherwise engaged with CPTED/SBD, or housing management. Thereafter, a number of key processes took place during the following year of study: knocking on doors of each flat for the purpose of completing the tenant questionnaires; identifying those tenants and professionals willing to take part in the extended interviews; and conducting same with tenants and professionals selected to be interviewed at length.

RESEARCH PHASE	TIMELINE	RESEARCH AIM	METHOD
Phase 1	April 2012 – March 2013	Beginning work on the Literature Review	Establishing the strands of research necessary for study
Phase 2	April 2013 – March 2014	Developing research aims Identifying the CSS and comparison site	Liaison, research and site visits
Phase 3	April 2014 – March 2015	Collecting police crime data Scoping outline Methodology	Police crime data requested & supplied and preliminary analysis conducted
Phase 4	April 2015 – March 2016	Devising and delivering tenant questionnaires. Identifying tenants and professionals to be interviewed	Delivering by hand 534 questionnaires to be returned by post Devising interview schedule for tenants & professionals
Phase 5	April 2016 – March 2017	Completing tenant questionnaires Completing interviews with tenants and professionals	Conducting door-to-door questionnaires Conducting interviews with tenants
Phase 6	April 2017 – March 2018	Identifying and sourcing additional crime data Testing hypotheses in relation to research questions Answering research questions and drawing conclusions	Interviewing professionals Attempting to source earlier crime data Analysing existing crime data
Phase 7	April 2018 – November 2018	Incorporating 1992-1994 recorded crime data for CSS which came to light at a very late stage	Late receipt crime data analysed from a 5Is perspective and included in thesis

Table 4: Research methods timeline

The penultimate period of study was occupied with identifying and attempting to secure earlier crime data covering the years of the actual refurbishments (1989-96); testing and answering the research aims; and drawing conclusions. Finally, the research extension was devoted to work on completing the thesis with the achieved aim of submission by 30 November 2018. During this period, it was also considered important to incorporate crime data and analysis for the three years 1992-1994 solely for the CSS and that had been produced at relatively late notice. These final stages of the investigation encapsulated the Impact and process evaluation of the 5Is.

Sample selection

Identifying two entirely comparable sites containing high-rise tower blocks (the CSS and comparison) is all but impossible – it being highly unlikely that such a pair of locations will be perfectly matched. Furthermore, following a review of all the remaining tower blocks, there was a desire to select the CSS and comparison as a pair and for a number of specific compatibility reasons. First, a desire to choose two sites that had existed since the beginning of the high-rise boom in the 1950s. Second, relatively close proximity to each other geographically in order to reduce differences caused by their separate locations. Third, a similar total of dwellings in each. And fourth, ideally one site where CPTED measures had been incorporated, whereas there should be an absence of CPTED Interventions at the second.

In reality, when this investigation began in 2012 it was impossible to locate any site that had not received at least some grade of CPTED. Those that might have been

appropriate for this purpose had all been demolished by that time. Consequently, the decision to choose these particular sites was made with the following rationale: refurbishment at the CSS had used a far higher grade of CPTED than was mandated by SBD. Whereas, at the comparison the CPTED measures were of a lesser grade, yet still met the SBD minimum standards. Furthermore, both sites occupy what was in the 1950s a Second World War bomb-damaged and slum clearance location within the Duddeston and Nechells Redevelopment Area.

Selection of the CSS

The CSS is described extensively in Chapter Two. But in brief, The Four Towers – consisting of Queens, Home, High and South Towers were constructed between 1951 and 1953 and were the first such high-rise blocks built in Birmingham and amongst the earliest in the UK. By the late 1980s they required urgent refurbishment. A causal element of the latter was the incidence of crime and ASB then present in all four blocks. As a direct consequence, BCC Housing, and Planning and Architecture departments consulted the newly created posts of DOCO within WMP and decided to incorporate CPTED measures as part of the high calibre refurbishment process. This was the first known occasion in the UK that CPTED measures had been deliberately incorporated into a high-rise, RSL refurbishment project. These higher grade CPTED measures included: new and far stronger entrance doors to each flat, incorporating multi-point locking, hinge bolts and frame armour; laminated safety glass in all ground floor windows; new security grilles and gates to all ground floor balconies; fob-reader, access-controlled main entrance doors to each block; a 24/7 staffed concierge service; and the incorporation of CPTED environmental elements to the grounds surrounding each block. These measures far exceeded the minimum

standard required by SBD at that time. Furthermore, because this refurbishment took place between 1989-1992 and immediately following the launch of the SBD award in 1989, The Four Towers were also the first high-rise blocks to receive such an accolade anywhere in the UK.

Selection of the comparison site

When the comparison was chosen, more than half of Birmingham's original 464 blocks of six or more storeys (Jones, 2002) had been demolished and all those remaining had received at least some degree of customized CPTED treatment over the previous decades. After considerable research, a comparison site of three tower blocks was chosen – largely because they were the closest approximation to a CPTED-free location. Indeed, as a police DOCO the author of this thesis had worked on the refurbishment of the comparison between 1993-1995 when they had received the minimum level of CPTED treatment necessary to achieve an SBD award.

The comparison blocks are located all but adjacent to the CSS, but on opposite sides of the Nechells Parkway dual carriageway – a major route into and out of Birmingham city centre. The three comparison tower blocks, Severn, Thames and Medway) were constructed between 1959-1961 and were subject to a major refurbishment during 1993-1995. Once again, crime and ASB were contributory elements in necessitating that work. Severn, Thames and Medway towers had similarly received an SBD award each. However, the CPTED treatment at the comparison site was far less intensive than that at the CSS. And to add further complication, during the course of this study it became apparent that over the subsequent quarter-century, BCC Housing Department had found it necessary to

install additional CPTED measures. As far as could be ascertained, the differential grading decisions had nothing to do with differential crime levels and therefore, could not be considered as confounding the evaluation design.

For example, whilst the CSS consists of four tower blocks and the comparison site three, the total number of flats at each site (264 and 268) represents a very close approximation. Similarly, construction of all seven blocks began in the 1950s – albeit at either end of that decade. Both the CSS and comparison had been built and continue to be managed by the same RSL (BCC Housing Department). And the first major refurbishment of each took place in the early 1990s – which included the wide disparity in the grades of CPTED invested at the two separate locations and the major impetus for this thesis. This is all fully detailed in Chapter Two. Most importantly and the ultimate reason for choosing the CSS and comparison as a pairing, whilst they had both received SBD awards, they lay at opposite ends of the spectrum in terms of the grades of CPTED treatment each had received. The inherent weaknesses in this selection were the facts that each site had received both CPTED treatment and SBD awards – it proving to be impossible to identify an ‘uncontaminated’ comparison. However, these weaknesses delivered some unexpected positive outcomes – as detailed in the findings’ chapters.

Sampling

A key method employed in this study involved selection and interview of tenants from both the CSS and comparison site; together with professionals involved in the refurbishment of the CSS and/or comparison, their management, or in the CPTED and SBD processes. All the tenants selected for interview had without exception

completed the door-door questionnaire, conducted by the researcher by knocking on the doors of each of the 532 flats at both sites. This followed a very poor response to the postal questionnaire – detailed below. The results of the successful door-to-door questionnaire and extended interview exercises, are detailed in Chapter Five.

Tenants' sampling for interview

To ensure the results of this study possess adequate external validity, it was important that the tenants and professionals subsequently interviewed were selected in an appropriate way. For this purpose, a number of sampling techniques were employed:

- Snowball sampling – a non-probability sampling technique whereby existing subjects recruit/suggest future subjects from amongst their peers/former peers. In this investigation this was useful in identifying and interviewing some of the professionals
- Convenience sampling – a non-probability sampling technique where subjects are selected according to their accessibility and proximity to the researcher. This applied to all the tenants questioned and interviewed and to the majority of professionals interviewed.
- Opportunity sampling – a non-probability sampling technique that uses the knowledge and experience of the researcher to identify the sample. Especially relevant in this investigation where the researcher used his own contacts involved in the refurbishments of the CSS and comparison.

Non-probability or purposive sampling was used for the qualitative tenant interviews (22 in total), where participants were selected because of their willingness to be

questioned and relevance of their length of tenancy, location of their flat within the block and crime experience (if any).

However, before this sampling took place, it was necessary to first complete the tenant questionnaires. Following a failed exercise in postal questionnaires, this was achieved by knocking (often repeatedly over a period of 12 weeks duration) on the entrance doors to each of the 532 flats at the seven tower blocks of the CSS and comparison. As a result, 286 tenant questionnaires were completed for all seven CSS and comparison tower blocks: 148 at the CSS; 138 at the comparison site. Unoccupied flats and those tenants unwilling to respond to the questionnaire are not represented in these figures. This produces a response rate of 56.06 per cent at the CSS; 51.49 per cent at the comparison – and slightly lower than at the CSS. A breakdown of the age categories of tenants, household size and length of tenancy is provided in Chapter Five. Furthermore, it is believed this demonstrates how these findings form a sample in a particular situation at a particular time and are representative, or typical of all tenants at both the CSS and comparison.

Professionals' sampling for interview

In the first instance, the majority of professionals were selected by the researcher with the knowledge that they worked in the relevant sector and were interested and willing to be interviewed (convenience sampling). Three were recommended by other professionals (snowball sampling). All twelve were evenly divided (four each) on the basis of their having considerable experience in one of the following three disciplines: Involvement in the refurbishment of the CSS and/or comparison site; as DOCOs; or management of a high-rise housing scheme.

Crime categories investigated

For the purposes of this thesis, six different crime categories were originally identified as appropriate for investigation: residential burglary, robbery, assaults and woundings, vehicle crime, criminal damage and 'other' crime. However, over time the categories have expanded to include the following:

- residential burglary, non-residential burglary, aggravated burglary and attempts
- robbery, assault with intent to rob and theft from the person
- assaults, woundings, GBH (grievous bodily harm) and homicide
- all forms of vehicle crime
- criminal damage and arson
- all 'other' recorded crime.

Hereafter, these categories are known simply as burglary, robbery, assaults, vehicle crime, criminal damage and 'other' crime.

The rationale for choosing these six categories has a number of strands. First, to include all recorded offences that come under the substantive heading. Second, such inclusivity assists in rebutting any claim that important categories of offence (e.g. attempts) have been missed. Third, all six crime categories were now deliberately and sufficiently wide to ensure that no 'masking' was taking place. 'Masking' refers to where a substantive crime is recorded under a less serious heading and thereby the incidence of the former is reduced. Historically, 'masking' can be traced back to the creation of the Metropolitan Police in 1829. Police Commissioners and Chief Constables were repeatedly called before their 'Watch

Committees' (consisting of Justices of the Peace and elected councillors) to explain (and if necessary, negate) increases in crime. Consequently, from the very outset there was often an incentive to record crime under a lesser category (Radzinowicz and Hood, 1968); Stevenson, Cox and Channing (2017).

Investigating the 18 years' crime data set and more specifically, analysing the MO information supplied by WMP, minor questions could be asked in four of the six crime categories. However, in the second (robbery – including theft from the person) there were a few instances of force being used or threatened (thereby constituting the crime of robbery) and yet the recorded classification was that of theft from the person – a less serious offence that does not feature in the crime data after 2003.

For the purposes of this thesis, the overall aim was to provide a wide spectrum of crime types – not limited solely to those most susceptible to the CPTED and SBD approaches e.g. property crime. Similarly, there was a desire that the data should provide a large enough number of offences to permit both a detailed crime analysis and realistic measurement of changes at both the CSS and comparison.

The limitations associated with the analysis of these offences, are magnified by the accuracy of the recorded crime data for the offence in question. As the original data supplied by WMP covered a time period of 18 years, consideration was necessarily given to repeated changes in definition, Home Office accounting rules, police beat designation and the recording of such information during these near two decades. Nevertheless, such changes in recording can be expected to have affected both the CSS and comparison to a near equal extent. It should also be noted that once the

onsite 24/7 staffed concierge at the CSS went live in November 1992, its immediate presence may have encouraged a greater willingness to report crime by those tenants residing within its four tower blocks.

Those crime types that were not specifically examined (primarily because the incidence of each was relatively small) include: bilking (making off without payment), driving offences, drug dealing/cultivation, firearms offences, fraud, handling stolen goods, harassment, kidnapping, possessing offensive weapons, racially-aggravated offences and sexual offences. These offences are, however, included under the sixth category heading of 'other' crime.

Data sets used and harvesting

The data sets used and harvesting can be split into four distinct parts: the police-recorded crime data; questionnaires for the 532 households at both the CSS and comparison; interviews with a cross-section of the 286 tenants who had opened the door and agreed to answer the questions posed in the questionnaires; and interviews with a cross-section of professionals involved in the refurbishments or subsequent management of the CSS or comparison, or with the application of CPTED or SBD on social housing refurbishment projects. Local BCC Housing Department officials indicated that access to email by tenants at both the CSS and comparison, was especially low. Consequently, and knowing that e-mail surveys have response rates lower than postal surveys, this method of soliciting tenants' responses was rejected.

Police-recorded crime data

A request was made to WMP for recorded crime data covering the period 1988–2014 (thereby including the period pre- and post-refurbishment). It asked that all crime data held in respect of the CSS and comparison be included and anonymised, with the exception of the actual flat numbers – requested in order to facilitate whether ground floor flats (or those on any specific floor) were being targeted by offenders. Data fields included: full location details, offence, date of the offence, date reported, police crime reference number, MO, description, category description, property stolen, make, model and colour (for motor vehicles) and crime status.

The data provided by WMP amounted to a total of 1,404 recorded offences covering the 18 years period 1997 through to 2014 at both the CSS and comparison site. However, WMP were unable to provide data for the period 1988-1996 as requested, stating that such data was no longer available. There were subsequent suggestions that this data might still be held on an older hard drive. However, with the exception of three years of crime data covering the period 1992-1994 at solely the CSS and which came to light at late notice, the earlier crime data has never materialised.

Police crime data coming to light at late notice

Crime data came to light at relatively late notice for the CSS alone and covering the essential years 1992-1994 – when the refurbishment was being completed and the two years immediately thereafter. This data had been produced as an assessment of the effectiveness of SBD at the CSS by the local police DOCO and at the request of the sub-divisional commander. The hard copy is dated 7 November 1994 and was

produced in the linked-page printer format that was the norm during the mid-1990s. Most importantly, it includes all the same criteria headings included in the 18 years of recorded crime data originally provided by WMP. Namely: crime reference number, offence description, date(s) and time(s) of offence, MO, (injury sustained – for assaults where provided) and property details (where appropriate).

Tenant questionnaires

The self-completion tenant questionnaire was originally considered the most appropriate means of harvesting data from a large constituency – 532 tenant households. Such questionnaires are generally perceived as less time consuming and more cost-effective than telephone or face-to-face interviews. Self-completion also permits anonymity, increased openness and encourages participation and honesty – especially where sensitive issues (for example being a victim of crime) are being discussed. However, they are also prone to reduced control over the question order, individual context and respondents misunderstanding the questions.

The first draft followed extensive background reading, including assessment of the existing research and review of methodological recommendations for conducting such surveys. Questions considered relevant were adopted and amended, in order to make them more appropriate for the investigation. In addition, the questionnaire was deliberately designed to produce anonymised information (no names, gender, or ethnicity questions posed), whilst simultaneously maximising the information produced in terms of tenant history, experience of crime, fear of crime and ASB. In view of the notable differences between the CSS and comparison (in particular a

higher grade of CPTED measures installed at the former – most especially the front entrance doors to each flat, communal entrance doors and 24/7 staffed concierge scheme), questions were simple, straightforward and closed, with predetermined response sets predominantly used. A 5-point Likert scale (Trochim, 2007) was utilised for most closed questions, ranging from ‘strongly agree’ to ‘strongly disagree’ and with a neutral ‘neither agree or disagree’ central point. In addition, a few open-ended questions were included to ensure the questionnaire would capture more specific in-depth data in respect of crime in the area.

To enhance content validity, this draft questionnaire was subject to a piloting process. Consequently, in addition to repeated recommendations from the SV team, a hard copy of the questionnaire was given to a cross-section of 11 colleagues of the researcher, asking for their observations. Confidentiality of their answers was assured and each was encouraged to raise any pertinent issues regarding the research, content or structure of the questionnaire. All 11 responded, delivering highly relevant suggestions (especially in relation to simplifying the language used) many of which were incorporated into successive redesigns of the questionnaire. This piloting exercise helped to ensure the questions were clear, meaningful and designed to maximise the production of measurable responses, with the overall purpose of enhanced content validity. Furthermore, this directly influenced the style of questioning that was ultimately adopted for the extended, one-to-one interviews (see below). The final version of the questionnaire was then printed for distribution (see Appendix 1).

To ensure guarantee of receipt, the questionnaire was delivered by hand with the researcher visiting each of the 264 flats in the four tower blocks at the CSS and the 268 flats in the three blocks of the comparison. Each questionnaire was accompanied by a consent form and postage paid return envelope, addressed to the PGR office at the university, together with an introductory letter – again carefully edited with the aim of attracting the reader’s interest and response. This letter included a brief précis concerning the investigation, before setting out confidentiality issues, questionnaire completion and postal return. Copies of the covering letter and consent form are provided as Appendices 3 and 4.

Self-completion questionnaires are generally perceived to engender low response rates and indeed, such a threat was the pre-eminent concern during this part of the investigation. Nevertheless, it came as a great disappointment that at both the CSS and comparison, this produced a very poor response rate with only 18 (3.4 per cent) completed and returned. Consequently, advice was sought from the SV team who suggested that because of the passage of time, including both ‘phases’ would give data from two very distinct time periods that could influence opinions about crime and safety. It was therefore necessary to repeat the exercise courtesy of an in person, flat-to-flat ‘knocking on doors’ exercise. This advice was accepted and the necessary arrangements made and authority sought from BCC Housing Department.

With an additional question added to the schedule (in respect of their knowledge of the SBD award – see Appendix 2), the flat-to-flat questionnaire phase was undertaken over a 12-week period during the spring of 2016 – a highly demanding

exercise involving repeated visits to the tower blocks and individual flats. These visits always took place on weekdays and during daylight hours, to ensure tenants were put at ease – an issue reinforced by university identification being displayed and shown to each tenant household. Those questioned were either the first person to open the door or a member of the household who self-nominated. This resulted in 286 questionnaires being completed producing an overall response rate of 53.8 per cent (56.06 and 51.49 per cent combined). Perhaps more importantly, the tenant questionnaires completed as a result of knocking on the doors to each flat led to the identification of those tenants willing to be further interviewed at length. None of the original 18 returned questionnaires had yielded a positive response to this question.

During this flat-to-flat questionnaire phase, the same covering letter was given to each tenant, informing them that their responses would be treated in strictest confidence and they could not be traced from the answers provided. This procedure was repeated during the following interview phases and with both the tenants and professionals (see below). In accordance with ethical considerations and regulations, the names of interviewees have been kept confidential and those quotations that appear in this thesis and derived from the interviews are fully anonymised.

A database was established on a secure, standalone and non-networked computer to permit storage of the research data. This database included repeatedly updated SPSS (Statistical Package for the Social Sciences) and Microsoft Office Excel files, in which the harvested data was inputted. Used primarily for the quantitative

statistical analysis, these recording systems also provided thematic analysis of the answers provided by the tenants and professionals.

Having established their age category, length of tenancy and size of household, the tenants' perceptions of safety and security inside their flats, in the communal areas, grounds and surrounding streets were also solicited – together with their willingness to venture out at night and the forms of transport used (including car ownership). They were asked to rank in terms of perceived effectiveness the physical security systems installed in their tower blocks: entrance doors and windows; ground floor fob-reader, access-controlled, electronically operated communal entrance doors; CCTV system; security guards; and 'other' (their suggestions). The tenants' perceptions of crime in the local area, in the inner-city district of Nechells and Birmingham as a city were also asked. Finally, their willingness to be further interviewed at length was solicited.

Potential biases in those who agreed to respond might take a number of forms. For example: for many of the tenants their command of spoken English was poor; those from distinct cultural or religious backgrounds might be unwilling to answer the door, especially where gender (either theirs or that of the questioner/interviewer was an issue); or those traumatised by crime experiences may have been unwilling to be interviewed or indeed respond to callers at the door.

The actual breakdown of questionnaire responses was as follows:

CSS (66 flats per block)

Queens Tower – 38 questionnaires completed (57.6%)

Home Tower – 39 questionnaires completed (59.1%)

High Tower – 36 questionnaires completed (54.5%)

South Tower – 35 questionnaires completed (53.0%)

Comparison site (90, 88 and 90 flats per block)

Severn Tower – 46 questionnaires completed (51.1%)

Thames Tower – 47 questionnaires completed (53.4%)

Medway Tower – 45 questionnaires completed (50.0%)

The results of this flat-to-flat tenant questionnaire phase produced valuable results that led to the following courses of action:

- Data used to populate the SPSS and excel spreadsheets
- Identifying those tenants willing to be further interviewed
- Complementing the subsequent responses given in both the tenants' and professionals' interviews.

All completed questionnaires were given an identifying code before being inputted and analysed using SPSS. Numerical data were analysed using descriptive statistics (frequencies, cross-tabulations and correlations). In contrast, the qualitative data was subject to a coding frame and thematic analysis. Further information in respect of results analysis and emerging findings is provided in Chapter Four, Crime Analysis.

Tenants' interviews

A specific question contained in the tenant questionnaire asked whether they were willing to be further interviewed at length and in more detail. In total, 22 tenants at

both the CSS and comparison were further interviewed – although more than twice that number (56) had originally volunteered for this purpose. Consequently, the 22 were selected on the basis of representing a cross-section (in terms of age, household size, length of tenancy, location of their flat within the block; experience of crime and/or ASB); and as tenants from across all seven tower blocks.

In a similar vein (albeit a lesson learnt from first piloting the questionnaires amongst a group of friends and colleagues), a semi-structured style of interviewing was adopted – as set out in the interview schedule (see Appendix 5). This meant that whilst new information provided during the previous questionnaire phase now influenced the style and type of questions asked, their overall number was reduced in order to improve the flow of information – one that permitted the interviewees to deliberate and expand on their responses.

The invitation to be interviewed was made by phone – the individuals in question having provided their contact details when they volunteered to be further interviewed. Prior to the interview each participant was given an information sheet (see Appendix 3) that: introduced the researcher; explained the purpose and nature of the research including their selection; confidentiality issues; length of the interview; that it would be recorded; brief description of the study; research aims; methods used; and envisaged outcomes. The purpose of the written consent form (see Appendix 4) was also explained to each tenant interviewee, which they were then asked to sign immediately prior to the interview commencing.

In practice, male tenant interviewees were willing to be interviewed inside their flats on a one-to-one basis. However, and with the researcher/interviewer being male, female tenants were less amenable to being interviewed alone. To mitigate this situation, the offer was made to meet in a neutral environment, or that they be interviewed when a relative or friends of theirs were present. Prior to the interview, each tenant was informed that they could withdraw at any point. All interviews were audio recorded electronically (with the prior consent of the interviewee) and it was further explained how a subsequent transcript would be completed, together with the university's policy on the length of time such transcripts would be kept prior to destruction, as set out in the consent form. At no point did the researcher disclose that he was a retired police officer.

Professionals' interviews

The professionals were selected for interview, largely on the basis of previous and/or existing personal contact, and their roles in relation to the CSS or comparison site. Other professionals were identified through snowball sampling and similarly known to be or had been operating in the fields of architecture, planning, housing management, CPTED and SBD. Many of these professionals appeared (and repeatedly claimed) to be far more objective if not "liberated" from their former career restraints. They too were provided with the information sheet and asked to sign the interview consent form (see Appendices 3 and 4). As with the tenant interview schedule, a less prescriptive, semi-structured style of interview schedule (see Appendix 6) was adopted and for the same purpose: to enable all the professionals to speak for themselves and without hindrance.

The Professionals	Professional Background
Number One	Former housing professional
Number Two	Former architect
Number Three	Former housing surveyor
Number Four	Former housing manager
Number Five	Former police DOCO
Number Six	Former police DOCO
Number Seven	Former police DOCO & manager
Number Eight	Former police DOCO
Number Nine	Former housing manager
Number Ten	Former planner
Number Eleven	Former housing manager
Number Twelve	Former housing professional

Table 5: Roles of Professionals interviewed

In total, a series of 12 semi-structured face-to-face interviews were conducted with these professionals. All had been involved with the refurbishment of the CSS and/or comparison, or were DOCOs, or involved in the subsequent management of the two sites (see Table 5 above). Each interview was audio recorded electronically with the participant's consent, in order to permit a more free-flowing style. A transcript of each recording was subsequently created in hard copy, written form and the original digital recording immediately destroyed thereafter.

In both the questionnaire and interview phases the researcher's previous experience in interviewing offenders, police officers and witnesses (both in the UK and abroad), proved to be highly beneficial in this part of the investigation. In particular, the ability to put the interviewee at ease and acting as a neutral arbiter, whilst simultaneously avoiding leading questions, interviewer bias and being prepared to listen – often with deliberate pregnant pauses. This permitted the interviewee to speak freely, without prompting or hindrance and solicited inordinate additional detail and information.

Analysis conducted

Located at the heart of this study lie four separate caches of information obtained for analysis: the quantitative recorded crime data supplied by WMP in respect of both the CSS and comparison; the quantitative information provided by the tenants at the CSS and comparison during the questionnaire phase of this study; the qualitative responses provided by the tenants at the CSS and comparison selected for extended interview; and the qualitative responses provided by the professionals involved in the refurbishment or subsequent management of the two sites, or as a DOCO who had worked on similar refurbishment projects.

Crime analysis

A key element of this study is the analysis of recorded crime data supplied by WMP and covering 18 years between 1997-2014 at both the CSS and comparison. Such data was provided in an anonymised format with no tenant or gender details.

However, and as requested it does include the flat number, crime as recorded, dates and times of commission together with the full MO description. In addition (albeit at late notice), three years of detailed recorded crime information covering the period

1992-1994 came to light – but only for the CSS. This data is considered to be of great importance because it includes the final year of refurbishment (1992) at the CSS and charts the sudden drop in crime as the front doors to each flat were installed, the fob-reader electronically-operated communal entrance doors activated and the 24/7 staffed concierge went live – together with the two following years during which the sustainable effectiveness of the crime prevention measures can be assessed.

Thematic analysis

A series of themes can be identified as emanating from the interview transcripts. These are examined in depth within chapters five (tenants) and six (professionals). For the purposes of this methodology, a number of repeated themes can be identified across the interview transcripts. These include: higher grade CPTED at the CSS; lower grade CPTED at the comparison; value of the Four Towers Tenants' Association; association with former prime minister Harold Macmillan; over-engineering of the Mul-T-Secure doors; durability of the communal entrance doors; value and loss of the 24/7 staffed concierge at the CSS; minimum standard SBD; necessity to feel safe not only within the individual flat, but also in the communal areas and grounds; importance of being able to get out of the flat in an emergency; reliability of the lifts and other services within the block; and council ownership of the blocks.

Validity issues

Shadish, Cook and Campbell (2002) illustrate a number of internal validity threats including:

- Causal order – where there is a debate as to which came first: Intervention or outcome?
- Differential attrition – figures for the experimental area (the CSS in this thesis) are ‘lost’ at the comparison site
- History – an event simultaneous with that of the Intervention causes the effect
- Instrumentation and testing – measuring the outcome or changes to it
- Maturation – when the pre-existing tendency continues
- Regression to the mean – where post-application, natural fluctuations are mistook as resulting from the Intervention
- Selection – where the result reflects pre-existing differences between (in this study) the CSS and comparison.

Internal validity issues: selection, history and maturation

Changes in crime rates over time may result from factors other than the introduction of CPTED and SBD. Three major threats to the internal validity of the findings within this investigation were considered: selection, history and maturation. The ‘selection’ of the comparison site was not perfect, because (as previously detailed) similar ‘treatment’ had been applied at both locations – and was periodically reapplied. The ‘history’ effect forms another threat. An event other than CPTED and SBD may have taken place during the period under study and thereby influenced the outcome (the crime rates). Indeed, the incidence of crime might be influenced by other factors for example:

- Policing initiatives e.g. high visibility policing, targeted police operations, or other changes in policing tactics such as increased use of ANPR, or ‘stop and search’ under PACE (Police and Criminal Evidence Act, 1984)

- Economic and social factors e.g. higher or lower levels of unemployment; increased prices for commodities such as food, fuel or vehicles; local regeneration schemes; large sporting events; etc.
- Home Office and local changes in recording practices and counting rules for certain types of offences
- Improved vehicle design incorporating new forms of security such as car alarms and immobilisers, reducing the theft of same or producing new forms of MO e.g. 'car key burglary'.

Maturation

Maturation can be identified as another potential threat to validity, where the reduction or increase simply reflects a continuation of pre-existing trends for the crimes being analysed. Steps taken to minimise these issues/threats include: awareness that the selection processes for the CSS and comparison were not perfect; that during such a long history of analysis, other events and Interventions were inevitable and their Impact considered; a similar necessity to consider the effects of maturation; and cross reference with local and national crime trends.

Construct validity issues: police crime data

Construct validity refers to the degree to which a test measures what it claims, or purports to be measuring. The main threat it faces involves the accuracy of police-recorded crime data and its adequacy in reflecting the true rate of crime. Police-recorded crime statistics are generally accepted to act as a good measure of trends in well-reported crimes. However, they do not include crimes not so reported or where the police choose not to record them. The 2007/08 British Crime Survey

suggested as much as 58% of all crime is not reported to the police. And whilst 93% of theft of motor vehicles are likely to be reported (for insurance purposes), levels of reporting for assaults (including domestic violence) measured an especially low 35% during this investigation (2007-08 British Crime Survey). The quality of the crime data recorded by the police provides another issue. Chapter Four, Crime Analysis, discusses the reason for merging the offence of robbery with that of theft from the person into a single crime category – on the basis that many of the former (a serious crime) are occasionally classified as the latter (far less serious). Indeed, according to the Guardian (2014) the UK Statistics Authority was so concerned that following its review of police data it removed its ‘gold standard’ status.

In addition, ‘the dark figure of crime’ (Biderman and Reiss, 1967) includes that which is unreported or otherwise unknown and questions the effectiveness and efficiency of official recording systems. For a crime to be recorded requires three elements: a person who knows it has been committed; reporting to the relevant authority; and accepted by that authority as having contravened the law (Coleman and Moynihan, 1996). If any of these three elements are missing or fail, the crime will go unrecorded. Nevertheless, according to Mosher (2002) public awareness of crime rates may encourage the public to report crime.

Findings

Each phase of this investigation has been conscious of the necessity to produce evidence regarding the effectiveness of the CPTED and SBD approaches – using the 5Is as the research framework. Analysis of the crime data alone (whilst valuable) is insufficient – and thus the desire and necessity to assess this in the context of the

quantitative and qualitative data emanating from the tenant questionnaires and the interviews with both tenants and professionals. Furthermore, use of the 5Is enables a more detailed and nuanced analysis of the CPTED measures employed at the CSS and comparison.

This case study approach includes three 'findings' chapters: Crime Analysis; Tenants' questionnaire and interview data; Professionals interview data. The higher grade CPTED measures employed at the CSS, are compared to the originally lesser grade at the comparison – with measurable results in terms of the reduction in police-recorded crime achieved across a broad range of crime categories and burglary in particular. Furthermore, following refurbishment completion, all seven tower blocks satisfied the minimum criteria necessary to achieve SBD awards.

Ethical considerations

This research investigation has been conducted in a manner that complies with standard ethical procedures. For this purpose, these include: those authored by the University of Huddersfield's SREP; British Society of Criminology's Code of Ethics for Researchers in the Field of Criminology (2006); and British Psychological Society's Ethical Principles for Conducting Research with Human Participants (2014). Such requirements included: obtaining informed consent from all those who took part; relaying information about how they could withdraw from the project at any time of their choosing; handling all information provided in strict confidence and anonymity; and reporting on the subject matter responsibly. No special health and safety or sensitivity issues were understood to exist in relation to those taking part – the police, LA personnel, or the public.

Prior to conducting this investigation, the researcher had gained full approval from the University of Huddersfield's School Research Ethics Panel (SREP). His application detailed the proposed methods used in the study, together with a covering account of the aims and objectives of the investigation. The application also included draft letters of invitation, questionnaires, interview schedules and consent forms. Collectively, the aim was to satisfy the SREP that those chosen to be questioned and interviewed would not suffer unnecessary invasions of privacy, leading questions, or labelling.

From the very outset of this investigation, the researcher was conscious of the necessity to ensure data was collected, analysed and stored in accordance with the requirements of relevant legislation and other procedures. These included the Human Rights Act (1998), Data Protection Acts (1998 and 2018), Public Interest Disclosure Act (1998), General Data Protection Regulation (2018) and other restrictions relating to information sharing.

WMP required a Data Processing Agreement was put in place in order to facilitate the sharing of police-recorded crime data (including personal data) and to comply with the Data Protection Act 1998. All such personal data was securely stored (encrypted and password protected), analysed and in due course will be destroyed – in accordance with the data sharing protocols agreed with the Data Protection Officer at WMP. On completion of the thesis, all police data will be destroyed as required. Other data will be stored securely for five years before being destroyed.

Having entered the police crime prevention discipline and become a DOCO in 1992, the researcher was the longest serving practitioner and manager in these disciplines in UK policing when he retired in 2011 following 33 years' service and maintained subsequently in near identical professional roles. Consequently, he is only too aware that his advocacy of CPTED and SBD demonstrates an automatic bias in favour of these approaches – and this despite the fact that recommendations made in respect of the 1989-92 refurbishment of the CSS predate his Involvement in the discipline. As a consequence, he has attempted to maintain a critical, detached and reflective observation of CPTED and SBD during the course of this investigation – witness his questioning of the supposed evidence of the effectiveness of these approaches, beginning in the Introduction and maintained throughout this thesis.

Additional issues

It also became apparent early during the door-to-door tenant questionnaire process detailed previously, that requiring tenants to nominate (and grade) a fifth security element for inclusion was too confusing. Consequently, the category of 'least important' does not appear in Tables 59 and 60 in Chapter Five below. Nevertheless, tenants often nominated a fifth element – especially at the CSS where 'return of the local 24/7 staffed concierge system' was repeatedly mentioned.

Mobilisation of the tenants was self-generated at the CSS. Consequently, consultation, accountability and the ability to build collaborative capacity were self-evident at the CSS. Whereas, at the comparison the absence of an organised group meant attempts to motivate and consult the tenants proved very difficult. In the context of important practice knowledge, the existence of a body representing the

tenants is both highly advantageous and points to the risks and blockages encountered at the comparison where no such group existed (Brassard, 2003).

Context of evaluation points to this investigation being an external, independent, and one-off academic exercise. Whilst the methodology of evaluation indicates this is a qualitative, action-comparison investigation using police-recorded and tenant self-reported crime data, together with both quantitative and qualitative data obtained from those tenants and professionals interviewed at length.



Figure 5: Following the 2018-2020 major refurbishment of the CSS, all the balconies are now enclosed and protected at ground floor level by outward-opening fire-doors. The location of the internal fire-escape staircase is indicated by the round porthole style window.

Chapter Four

Crime Analysis

This first of the three ‘findings’ chapters, Crime Analysis, is devoted to an examination of the police-recorded crime data. It involves a detailed study covering an especially extensive timeframe of close to 25 years for the period 1992-2014. Nevertheless, in this and the subsequent findings chapters, the research aims will remain at the forefront of the investigation.

Crime data methodology used in the current study

As detailed in Chapter Three, Methodology, this investigation uses a case study approach (Yin, 1984, 2014) based on the 5Is (Ekblom, 2011a), comparing measures of crime in each of the four CSS tower blocks, with those of the three blocks at the comparison site. The overriding aim of this study has been to explore whether CPTED principles Implemented via the SBD process would lead to sustainable reductions in crime. In this context, indications within the crime data for identification would include:

1. Reductions in crime following the refurbishments of the early 1990s.
2. Different levels of reduction at the CSS and comparison. These might be attributable to varying standards of target hardening, technological innovation and/or environmental elements employed at each location. Or, a poor match between Intervention and location i.e. poor Intelligence/Intervention process; or poor Implementation/Involvement – all difficult to isolate and distinguish almost three decades later.

3. A crime preventive effect that was long term despite the presence of adaptive offenders, changing technology, the wearing-out/limited maintenance of physical security, complacent tenants, etc.

Data used in the study

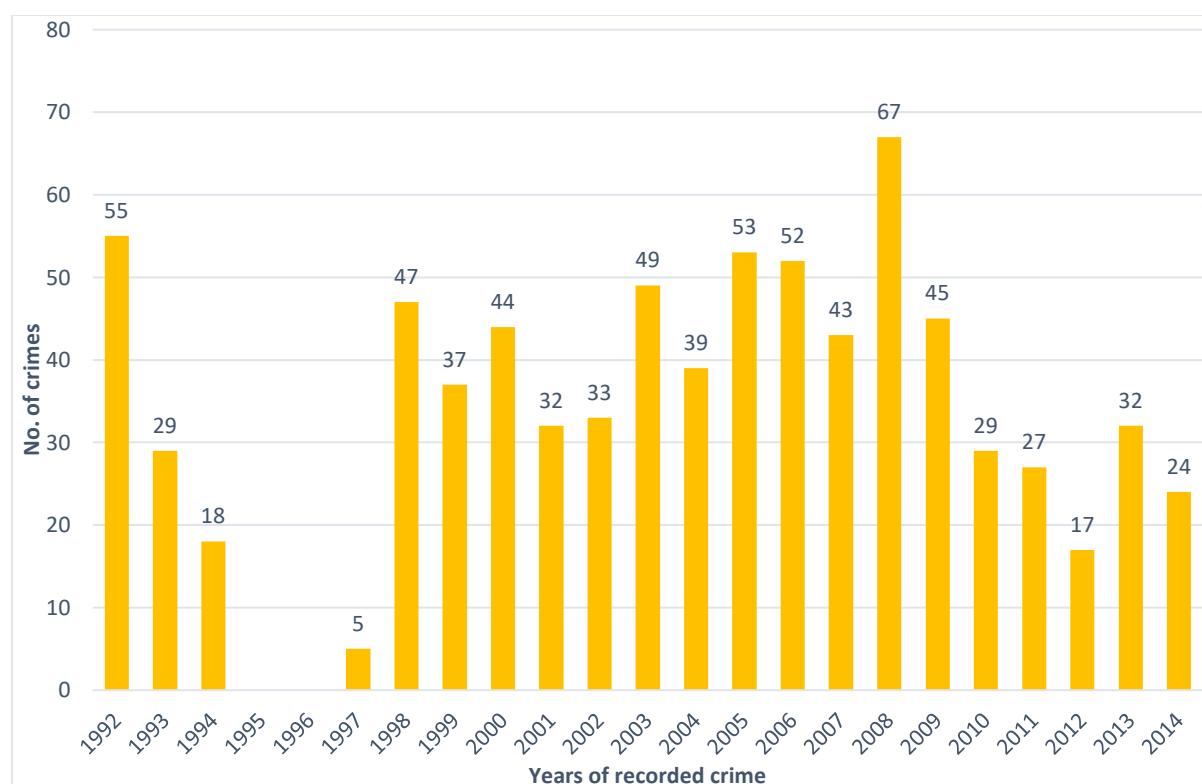


Table 6: Police-recorded crime totals p.a. at CSS 1992-1994 and 1997-2014

The recorded crime data supplied by WMP covers much of a quarter-century timeframe. Chronologically, this begins with data for the years 1992-1994 – albeit in respect of the CSS alone (see Table 6 above). That data was only came to light towards the end of this investigation, but is considered to be of great value. This is because it charts the high level of recorded crime, particularly residential burglary, immediately before and after the refurbishment was fully completed (and understood to have been even higher before work commenced in 1989). Furthermore, it details

how burglary was all but eliminated once the higher grade CPTED doors to the flats and electronically-operated communal entrance doors had been installed – together with the on-site, 24/7 staffed concierge going live. It therefore sets the scene for the pattern of police-recorded crime and analysis for the following quarter-century.

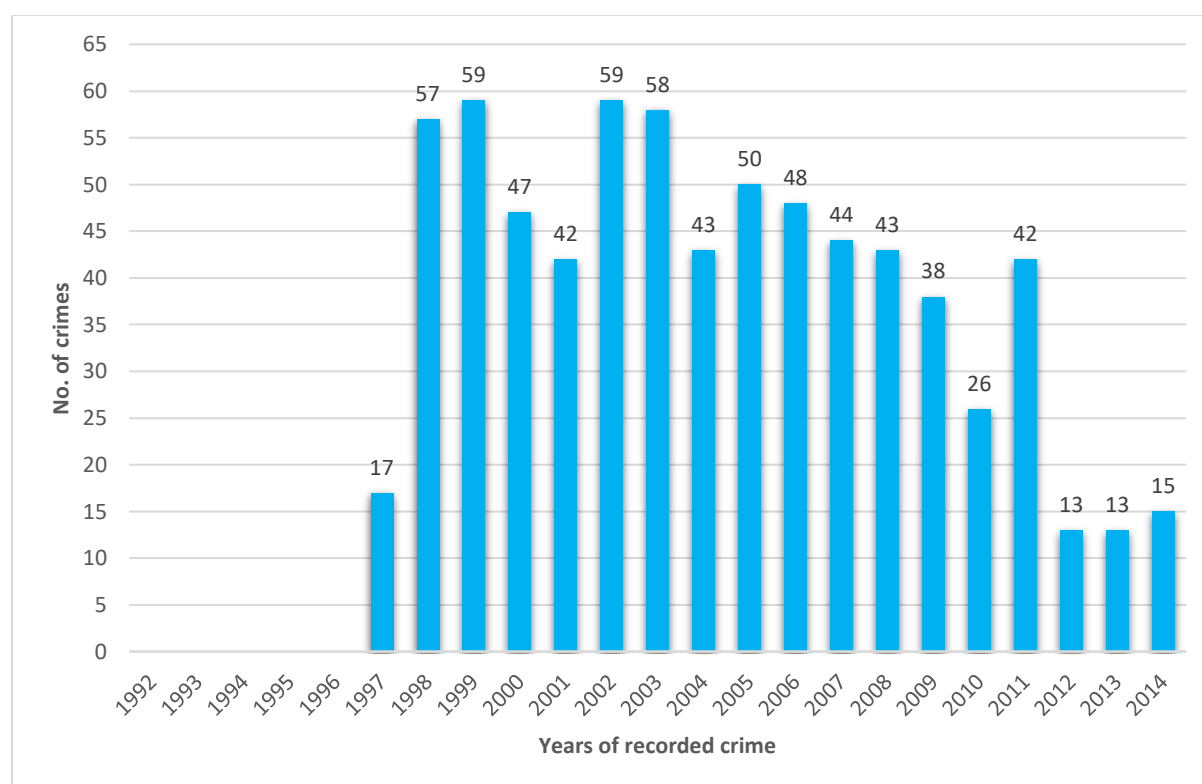


Table 7: Police-recorded crime totals p.a. at comparison 1997-2014

The bulk recorded crime data supplied by WMP for both the CSS and comparison (see Table 7 above) covers a considerable 18-year time-frame, but only commences in 1997 – five and two years respectively after completion of the CPTED and SBD Interventions at those two sites. The explanation given by the police for the absence of such data prior to this period, was that it had been recorded on an older hard drive that had not been used since 1996. This issue was highlighted by WMP when the data request was first made – albeit there had been repeated indications that it might

be located. Nevertheless, it was presumed that the data covering the years 1988-1996 would remain undiscovered and analysis would be limited to the 18-year, post-refurbishment timeframe – and supplemented by the 1992-1994 data for the CSS alone.

As a result, data analysis in this chapter comprises two distinct Impact sections. First, a quantitative analysis of the crime data for the CSS for the years 1992-1994. This period spans the months prior to completion of the refurbishment in 1992 through to post-refurbishment in 1993 and 1994. Second, a quantitative analysis of the police-recorded crime data covering the 18 years from 1997 to 2014 in respect of both the CSS and the comparison. The analysis is then used to consider whether the CPTED/SBD Interventions delivered a sustainable Impact that can be identified over these 21 years and whether sustainability was in greater evidence at the CSS which initially received the higher-grade Intervention. Most importantly, it is acknowledged that challenges within the available data over an unusually long timespan for crime prevention research, meant that this investigation was essentially one of exploratory, hypothesis generating and not hypothesis testing.

Following considerable deliberation, six different crime categories were chosen for this thesis. Burglary – essentially residential, although aggravated burglary, non-residential burglary and all attempts were included to ensure no ‘masking’ was taking place (meaning, crimes being recorded under a less serious classification). Robbery and theft from the person (once again a realised fear of ‘masking’ – see below). Assaults, woundings, GBH and homicide. All forms of vehicle crime. Criminal damage and arson. And all ‘other’ recorded crime. ‘Other’ crime types (examined as

a collected group under this heading) include: bilking (making off without payment or gasoline drive-offs), driving offences, drug possession/dealing/cultivation, firearms offences, fraud, handling stolen goods, harassment, kidnapping, possessing offensive weapons, racially-aggravated offences and sexual offences. The overall aim was to provide a wide spectrum of crime types – ones not limited to simple property crime which is widely perceived as most susceptible to the SCP, CPTED and SBD approaches. An additional aim was that the data should provide a large enough sample of offences to permit both an accurate analysis of patterns and measurement of the changes, at both the CSS and comparison.

The limitations attached to the analysis of these offences are highlighted in Chapter Three, Methodology – particularly regarding the accuracy of the recorded crime data for the offence in question. As the data supplied by WMP covers periods of three and 18 years, consideration was necessarily given to changes in definition and the recording of such information during this near quarter-century. Indeed, in April 1998 new Home Office Counting Rules (HOCR, Home Office, 1998) were introduced, followed in April 2002 by the National Crime Recording Standard (NCRS, Home Office, 2002) and subsequently repealed in 2015. Nevertheless, there was an expectation that changes in recording would affect both sites in an equal manner – especially over the 18-year time period.

1992-1994: Analysis of CSS police-recorded crime data

The recorded crime data (Intelligence) for the years 1992-1993 indicates (Impact) a considerable reduction in crime took place between 1992 and 1993 (see Table 8). This coincides with completion of the refurbishment at the CSS – most especially the

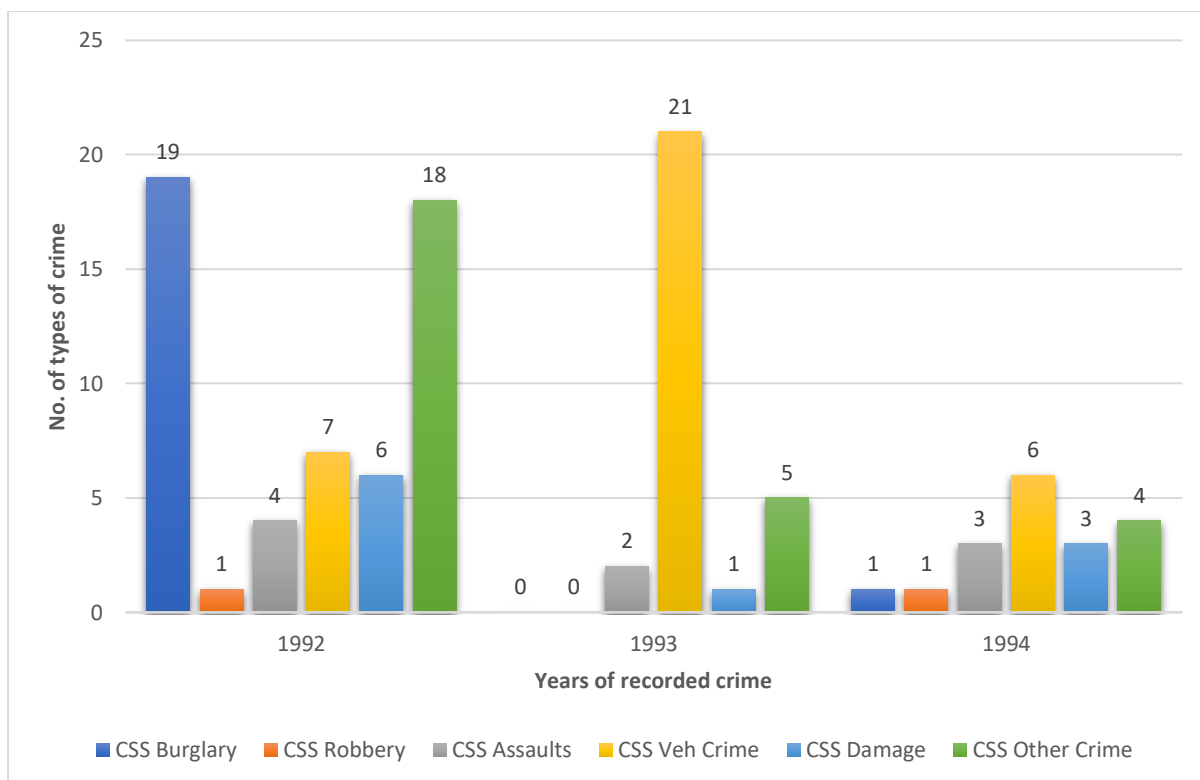


Table 8: Police-recorded crime as totals by crime category p.a. at CSS 1992-1994

installation of the new entrance doorsets to each of the 264 individual flats, electronically-operated communal entrance doors, and the 24/7 staffed concierge going live. Furthermore, with no burglaries committed in 1993 and just a single attempt in 1994, a pattern of sustainable crime prevention appeared to have begun.

Identification of the CSS and comparison is discussed in Chapter Three. But to briefly recap, the four tower blocks of the CSS (264 flats) are located on the opposite side of the Nechells Parkway dual-carriageway to the three comparison blocks (268 flats – 532 in total). Both sites had been refurbished within three years of each other: 1989-1992 and 1993-1995 respectively and therefore provided a close approximation. However, the fundamental difference and the key issue that warranted further investigation, was how the CSS blocks had received a higher

grade of CPTED measures when they were refurbished, compared to those at the comparison.

The baseline conditions and changes in the aforementioned offence categories following completion of both refurbishment projects, were analysed by calculating yearly crime counts and rates – as well as percentage changes from year to year. The analysis included recorded crime data provided by WMP, used to produce crime counts and identify temporal changes in the level of crime at the CSS and comparison tower blocks, based on the number of flats in each block. There are, however, limitations in using residential populations to calculate crime rates, especially in respect of vehicle crime. Vehicle concentrations can differ from those of populations, and it is more problematic to create estimates for vehicles – magnified over the extremely long timeframe under analysis. This study recognised such limitations and presumed the same level of vehicle ownership per household across both the CSS and comparison, in order to generate crime rates. For each crime type, mean crime rates were calculated for the individual blocks at the CSS and comparison for each of the 18 years under investigation. This enabled exploration of changes over time and of differences in those changes between the two sites.

Offences prevented as a result of the CPTED and SBD Interventions, could be produced by proposing the counter-factual view: namely, what would have happened to the offences under scrutiny if CPTED and SBD had not been applied during the refurbishment processes? However, CPTED Interventions had in fact been applied at both the CSS and comparison – albeit with different intensity, quality and appropriateness pertaining to their year of installation, maintenance and renewal. As

a result, the lower grade CPTED incorporated at the comparison complied with the minimum requirement of SBD. Whereas, the higher grade CPTED at the CSS far exceeded SBD requirements for high-rise dwellings in the early 1990s (SBD, 1989).

In this context, the lower grade CPTED incorporated at the comparison albeit necessary to achieve an SBD award, is interpreted as being associated with the baseline of expected crime outcomes over time against which to compare the 'special' Intervention (detailed in Chapter Three) at the CSS. Under this approach, the expected number of offences at the CSS is generated by applying the changes in incidence of offending (per crime category) at the comparison during the evaluation time period, to the starting value of the incidence at the CSS tower blocks.

The recorded crime data indicate that a sharp fall in recorded crime took place in the final quarter of 1992 and was maintained throughout 1993, 1994 and during the 18 years between 1997 and 2014. The incidence of crime was much lower in all seven blocks (but especially at the CSS) when compared to the totality of the surrounding area – the WMP D Division as it was known until 1998 and the geographical area of north-east Birmingham in which both the CSS (action) and comparison blocks are located.

Quantitative analysis of police-recorded crime data: CSS 1992–1994

As previously indicated, the 1992-1994 police-recorded crime data for the CSS is considered to be of significant importance – in that it provides raw material to explore the link between the level of crime recorded prior to refurbishment being fully completed; the level of such crime during the two years immediately thereafter; and

Crime Type	Year	Queens Tower	Home Tower	High Tower	South Tower	CSS Total
Burglary	1992	0.0152 (1)	0.1061 (7)	0.0909 (6)	0.0758 (5)	0.0720 (19)
	1993	(0)	(0)	(0)	(0)	(0)
	1994	(0)	(0)	0.0152 (1)	(0)	0.0038 (1)
Robbery	1992	(0)	(0)	(0)	0.0152 (1)	0.0038 (1)
	1993	(0)	(0)	(0)	(0)	(0)
	1994	0.0152 (1)	(0)	(0)	(0)	0.0038 (1)
Assaults	1992	0.0152 (1)	0.0152 (1)	0.0152 (1)	0.0152 (1)	0.0152 (4)
	1993	(0)	0.0152 (1)	(0)	0.0152 (1)	0.0076 (2)
	1994	0.0152 (1)	0.0152 (1)	0.0152 (1)	(0)	0.0114 (3)
Vehicle crime	1992	0.0455 (3)	0.0455 (3)	(0)	0.0152 (1)	0.0265 (7)
	1993	0.0758 (5)	0.0909 (6)	0.0758 (5)	0.0758 (5)	0.0795 (21)
	1994	0.0303 (2)	0.0156 (1)	0.0469 (3)	(0)	0.0227 (6)
Criminal damage	1992	0.0152 (1)	(0)	0.0758 (5)	(0)	0.0227 (6)
	1993	(0)	0.0152 (1)	(0)	(0)	0.0038 (1)
	1994	0.0152 (1)	0.0303 (2)	(0)	(0)	0.0114 (3)
'Other' crime	1992	0.1212 (8)	0.0909 (6)	0.0303 (2)	0.0303 (2)	0.0682 (18)
	1993	0.0152 (1)	0.0303 (2)	0.0152 (1)	0.0152 (1)	0.0189 (5)
	1994	0.0152 (1)	0.0152 (1)	(0)	0.0303 (2)	0.0152 (4)
(No. crimes in brackets)						
Total recorded crimes:		26	32	25	19	102

Table 9: Crime incidence in six categories at the CSS tower blocks for the three years 1992-1994

the subsequent pattern of criminal behaviour – as evidenced in the 18 years of data for both the CSS and comparison. More specifically, the data covers the seminal years of 1992 (19 recorded burglaries) during the final quarter of which refurbishment of the CSS was completed), 1993 (no recorded burglaries) and 1994 (one recorded burglary). Any benefits emanating from the CPTED measures incorporated between 1989-1992 are investigated in the recorded crime data. Sadly, these crime data do not include the three comparison tower blocks, somewhat diminishing its value, but not eradicating it – especially because comparison refurbishment was not completed until 1995.

The crime analysis was conducted for 102 offences reported at the CSS during the three years 1992, 1993 and 1994. Table 9 above details the yearly police-recorded crime totals for the six categories of offence at the CSS. This produces the following incidence of crime. In 1992: burglary, 0.0720; robbery, 0.0038; assaults, 0.0152; vehicle crime, 0.0265; criminal damage, 0.0227; 'other' crime, 0.0682. In 1993: burglary, 0; robbery, 0; assaults, 0.0076; vehicle crime, 0.0795; criminal damage, 0.0038; 'other' crime, 0.0189. And in 1994: burglary, 0.0038; robbery, 0.0038; assaults, 0.0114; vehicle crime, 0.0227; criminal damage, 0.0114; 'other' crime, 0.0152. However, the rates are small and variations over time could reflect no more than random fluctuation (Boyle, 2016). In addition, they do not illustrate the considerable reduction in reported crime that began once the refurbishment was completed: in 1992, 55 recorded crimes; in 1993, 29 (47.3 per cent reduction); and in 1994, 18 (67.3 per cent reduction compared to 1992). Consequently, whilst the average annual incidence of police-recorded crime for the three years is 0.1288 crimes per dwelling per year, when broken down into specific years the results are:

0.2083 crimes per dwelling per year in 1992; 0.1098 in 1993; and 0.0682 in 1994 – thereby demonstrating a considerable downward trend post-refurbishment.

1992-1994: CSS Burglary

The pre-eminent crime and the one most often associated with the incorporation and effectiveness of CPTED measures and the SBD award, is that of residential burglary (Armitage, 1999). Analysis of the 19 recorded crimes of residential burglary, non-residential burglary and attempt burglary (hereafter simply referred to as ‘burglary’) that took place during 1992 is illuminating – especially because during the whole 12 months of 1993 not a single such crime was reported (100 per cent elimination). And in 1994 just a single attempt (94.4 per cent reduction). See Tables 8 and 9 above and Table 10 below).

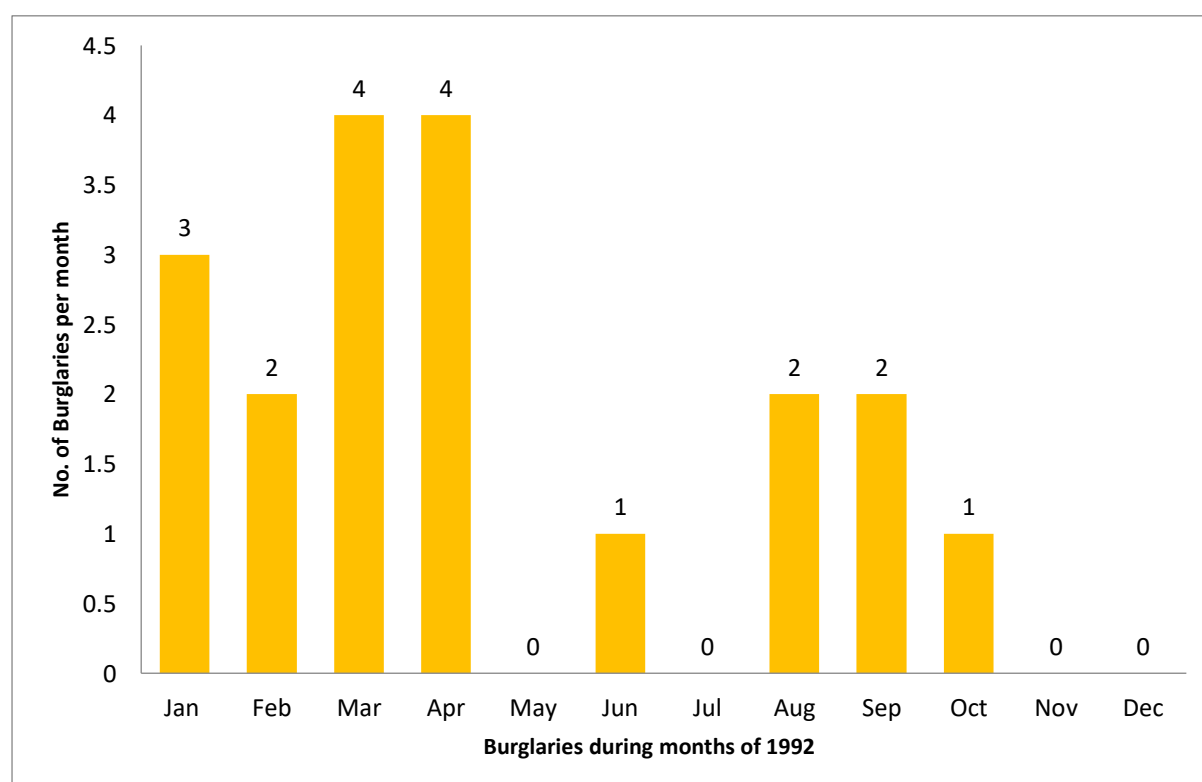


Table 10: Police-recorded burglaries per month at the CSS tower blocks during 1992

Of the 19 burglaries recorded in 1992, only one took place at Queens Tower, with the remainder fairly evenly split across the other three blocks: Home, seven; High, six; and South, five. Mining down into these data for 1992, the detailed MOs provide extensive detail. Three of the offences relate to non-residential burglaries: of a chained storage area on the ground floor in Home Tower; the refurbishment workers' Portakabin in the grounds of Queens Tower; and of the concierge office itself in Queens Tower (in August) before it went 'live' on a 24/7 basis in November. Two of the remaining 16 offences were attempt residential burglaries. Whilst amongst the 14 substantive residential burglaries there is repeated reference to the entrance doors to each flat being 'forced', 'smashed', 'kicked-in', 'catch released' or 'insecure' (eight in total). Use of the word 'insecure' means that no physical force was used and often denotes that the door was left unlocked (personal witness as a police officer for 33 years). No aggravated burglaries were reported during the entire study period.

Furthermore, because these residential burglaries took place during the months of January-October 1992, this reflects the documented BCC Diary of Works (1992) that shows how replacing the main front entrance doors to each of the individual flats at all four CSS blocks (beginning with Queens Tower – one recorded burglary during 1992) was not completed until the final quarter of that year. Indeed, after October 1992 no credible forced-entry burglaries via the new Mul-T-Secure entrance doors (to each flat) are recorded at the CSS in any of the subsequent years for which recorded crime data has been provided (21 years' worth of accumulated data). And in November 1992 the 24/7 staffed concierge also went live. This is a significant finding in terms of the thesis remit regarding both durability (of the security measures

employed, specifically the new entrance doors to each flat) and sustainability over the very long-term – in excess of 25 years as detailed below.

1992-1994: CSS Robbery

For the purposes of this study, the offences of robbery and theft from the person have been merged under a single offence category (hereafter simply referred to as 'robbery'). This is to ensure that the former has not been classified as the latter (when in fact force was used) and thereby missed from the total number of recorded robberies. Only when reading through the MO descriptions does it appear that a very small number of robberies were erroneously classified in this way. Whereas in reverse, assaults, woundings and GBH are often classified at the higher level of seriousness (including attempted murder), because should an individual be charged with the offence 'plea bargaining' (downgrading) remains common practice (33-year career-long personal witness) once the case gets to court. Other than as previously described, this investigation has not attempted to eliminate these inconsistencies and therefore such limitations need to be taken into consideration.

However, for the three years 1992-1994, no thefts from the person were recorded by the police as taking place at the CSS and just two robberies – one in 1992 and one in 1994, producing an incidence of 0.0038 robberies per dwelling in each of those years (see Tables 8 and 9 above). Analysis of the MO description indicates that the robbery in 1992 took place 'in the street' outside South Tower and that the offender: "Thrust object into back of IP (injured party) stole property from IP's rear trouser pocket and escaped into the tower block." Similarly, whilst the 1994 robbery is attributed to a specific address inside Queens Tower, the MO description reveals:

“Offender approached IP (injured party) and husband in street snatched handbag from IP’s shoulder knocking IP into husband who fell and cut his head on floor.” As no further information is provided (and no offender arrested) it can only be presumed that the address provided is that of the two victims and not the location of the crime. Furthermore, in view of the precise locations provided within the recorded crime data, it could be argued that neither of these two robberies should be attributed to the CSS. This issue of the absence of precise offending location details is addressed and reflected upon in Chapter Seven, Discussion and Conclusion.

1992-1994: CSS Assaults

Mirroring the previous crime category of robbery, this broad offence heading was established for the purpose of ensuring all forms of assault were included – together with a single instance of homicide. Nevertheless, sexual offences were deliberately excluded on the basis that they constitute an entirely separate offence category with a different array of causes. They are instead included under ‘other’ crime. Similarly, threats and threatening behaviour are excluded as legally, actual physical contact constitutes an assault and that otherwise, the category would become too much of a catch-all and unwieldy. Consequently, this heading includes common assault, assault occasioning actual bodily harm; wounding (with or without intent) GBH and homicide. Hereafter, this category is referred to as ‘assaults’.

Analysis of the crime data indicates that during this three-year period, nine such offences were recorded for the CSS: four in 1992, two in 1993 (50 per cent reduction) and three in 1994 (25 per cent reduction). See Tables 8 and 9 above. Under this heading, recorded offences are evenly distributed across the blocks with

no more than one offence per block in any year. There is no apparent pattern/connection between these offences. In 1992, the most serious of the four recorded crimes was a murder that resulted from injuries sustained during a domestic dispute between the occupants and within their flat in South Tower. This is the only homicide recorded in any of the crime data provided by WMP. The remaining three offences consist of a wounding with intent committed inside a flat at Queens Tower. An assault occasioning actual bodily harm within a flat at Home Tower and a further assault committed on the car park at High Tower. The two offences in 1993 involve a family assault occasioning actual bodily harm inside a flat at South Tower; and a wounding with intent at Home Tower. Whilst in 1994 the three recorded offences consist of a wounding with intent inside a flat at Queens Tower; an assault occasioning actual bodily harm at Home Tower; and a further such assault on a victim leaving High Tower.

1992-1994: CSS Vehicle crime

This constitutes another broad offence category, deliberately created in order that all incidents of vehicle crime could be captured. Types of crime included under this heading are theft and attempt theft of motor vehicle, taking without the owner's consent (TWOC or 'joy riding'), theft and attempt theft from motor vehicle, vehicle interference and criminal damage to motor vehicle. It was presumed that the cars are parked in the designated car parks for each of the CSS tower blocks, although on occasion the location description indicates that the vehicles were left in the street outside the block. As a descriptive detail and unlike the ground floor communal areas and lifts of the CSS blocks post-refurbishment, there is no external CCTV coverage at any of these car parking areas – a deliberate policy decision by BCC Housing

Department and maintained across the city on all its social housing developments
See Chapters Five and Six for extensive commentary on this issue.

Vehicle crime is the only category demonstrating a sizeable (albeit temporary) increase at the CSS, post-refurbishment (see Tables 8 and 9 above). In 1992 such offences numbered seven; twenty-one in 1993 (200 per cent increase – and the reverse to the total elimination of burglary at the CSS in that same year); and in 1994, fell back to six. The high level of vehicle crime in 1993 (the first whole year following completion of the refurbishment and incorporation of the CPTED measures), attracts immediate interest. These 21 crimes are evenly distributed across the CSS. However, 13 are coded as 'TDA' (Take and Drive Away or TWOC) five of which took place on the car park at Queens Tower. The remaining offences include: one theft of motor vehicle and one attempt; four thefts from motor vehicle and one attempt; and one criminal damage to motor vehicle. Most importantly, this incidence does not take account of actual car ownership per dwelling. And although such a question was contained in the tenant questionnaire used in 2016 (see Appendix 2) this was posed more than two decades after the crime recorded in this sub-chapter had taken place and therefore has little if any relevance.

In view of the large increase in vehicle crime during 1993, causal association/ interpretation might suggest the burglars responsible for the 19 recorded offences in 1992 (and none in 1993) had been displaced into vehicle crime. However, no evidence to support such conjecture could be discovered.

1992-1994: CSS Criminal damage

This is another deliberately broad offence category, designed to include all forms of criminal damage (with the exception of damage to vehicles which is covered under the previous heading) together with arson and arson with intent to endanger life.

Analysis of the crime data reveals that ten such offences took place at the CSS between 1992-1994. More specifically, six offences (five at High Tower) in 1992; one in 1993 (83.3 per cent reduction); and 3 in 1994 (50 per cent reduction). See Tables 8 and 9 above.

Closer analysis of this data reveals there are no instances of arson during the three years in question. Those of criminal damage demonstrate no pattern of behaviour apart from the 5 offences that took place at High Tower in 1992 – which again appear unrelated. Meanwhile, the one recorded offence at Queens Tower during 1992 might have been more accurately recorded as an attempt residential burglary, with the following MO contained within the WMP-supplied crime data: ‘Went to 6th floor flat, inserted screwdriver type instrument into Chubb lock, damaged lock mechanism, damage value £30’.

1992-1994: CSS ‘Other’ crime

This category of ‘other’ crime includes all recorded offences not covered within the five categories above. ‘other’ crime includes a wide spectrum ranging from possession of cannabis via bilking (making off without payment), driving offences, drug dealing/cultivation, theft of gas, handling stolen goods, and sexual offences. However, this grouping falls short of that for the years 1997-2014 which is far more extensive – because new offences have been added to those that are ‘recordable’

combined with the capacity for a more diverse spectrum of offending behaviour over 18 years. Such 'other' offences totalled 27 or 26.47% of all offences recorded at the CSS (see Tables 8 and 9 above). In 1992 'other' crimes numbered 18; in 1993, five (72.2 per cent reduction); and in 1994, four (77.8 per cent reduction). These police-recorded crimes were not examined in detail, either because their incidence was relatively small and/or a need to concentrate on a limited number of high-volume crime types – not necessarily those believed to be most susceptible to the CPTED and SBD approaches.

1992-1994: CSS summary of recorded crime

The considerable reduction in recorded crime at the CSS coincided with completion of the refurbishment and the higher grade CPTED Interventions that were installed at this location. In particular, by November 1992 the Mul-T-Secure doors to each individual flat had all been fitted and the 24/7 concierge system went live (including the two-way intercom system to and from the fob-reader, access-controlled communal entrance doors) and individual flats – fully detailed in the narrative Chapter Two). From that point onwards and with the exception of vehicle crime (in 1993) all other crime categories began to fall considerably. However, and as previously stated, the absence of crime data for the comparison site over this period means that whilst these findings are suggestive of a substantial fall in crime at the CSS (and provide no evidence of a selection/regression effect), they do not constitute hard evidence. Nevertheless, they go against the trend of increased residential burglary across the city of Birmingham during the early 1990s and which did not begin to fall until two years later. Of greatest significance, the police-recorded crime data for the totem offence of burglary was all but eliminated. Moreover, with

the 24/7 concierge now operational it might have been expected more crime would have been reported.

1997-2014: Analysis of CSS and comparison police-recorded crime data

As previously indicated, a key element of this case study approach involves analysis of the 1,459 police-recorded offences from across the CSS and comparison sites.

Tables 11 and 12 below set out for the CSS 1992-1994 and comparison respectively, the annual totals across six crime categories for the years 1997-2014.

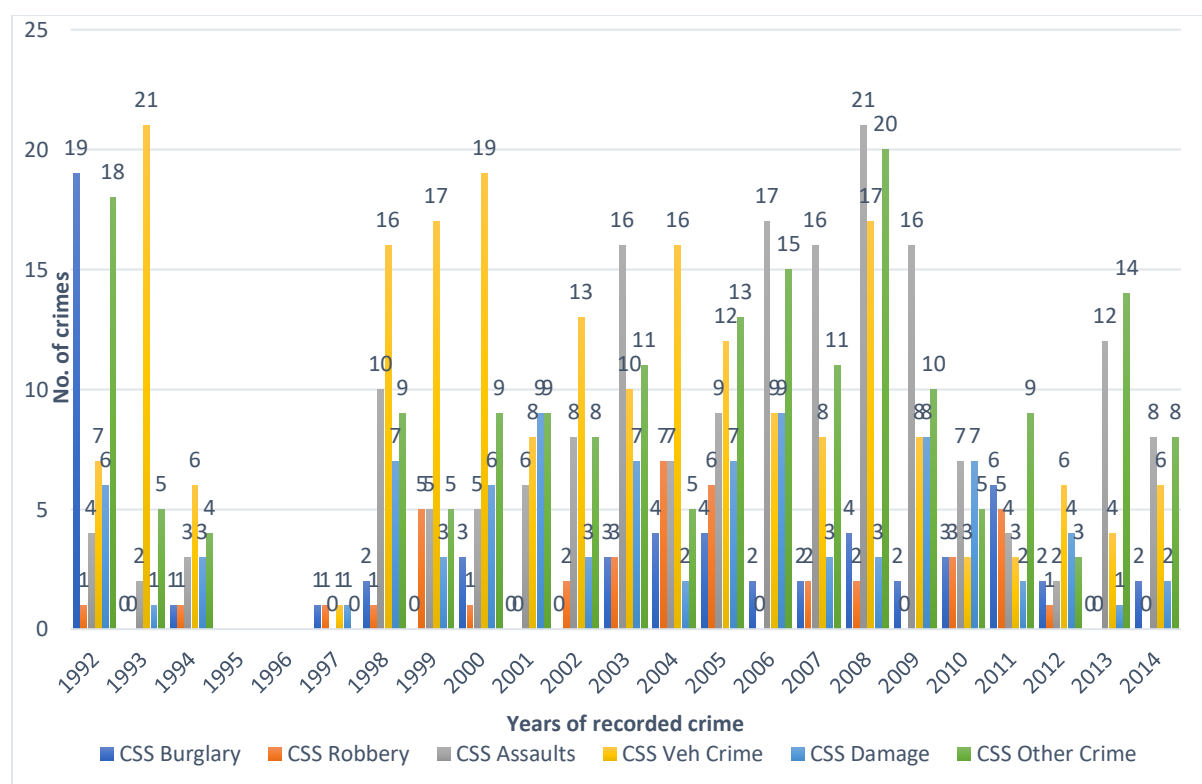


Table 11: Police-recorded crime totals across six categories at the CSS 1997-2014

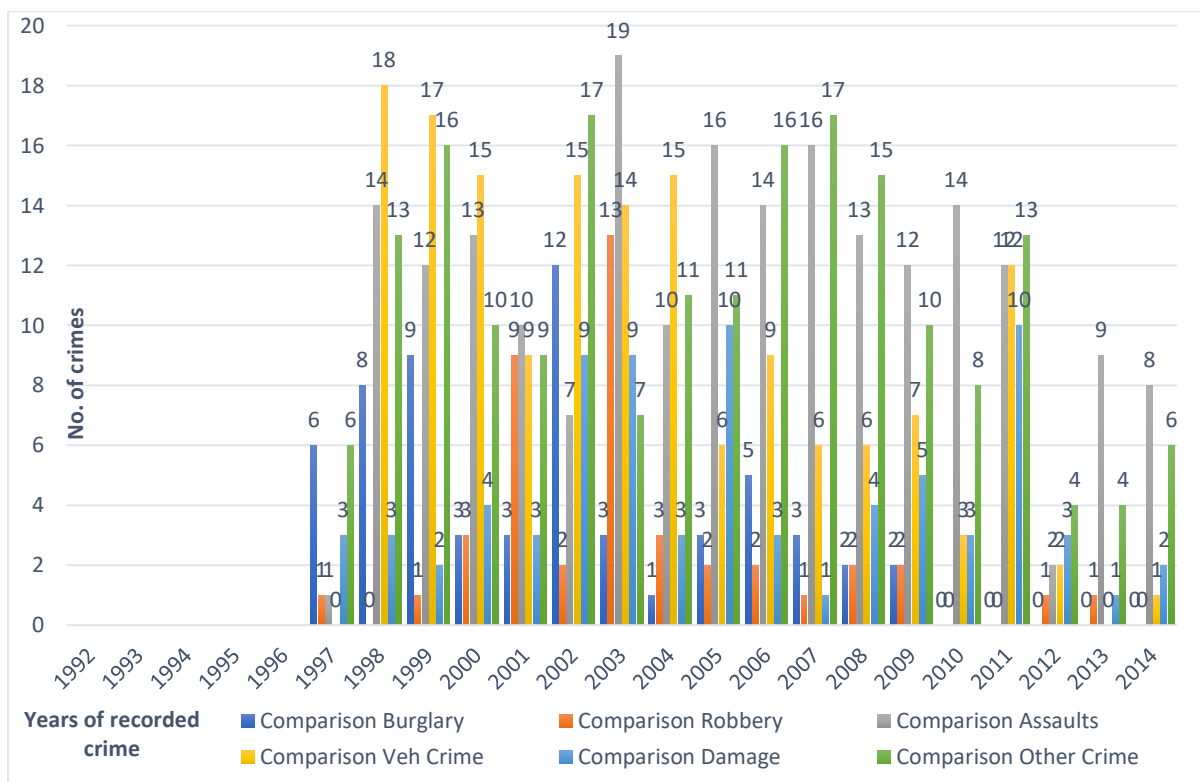


Table 12: Police-recorded crime totals across six categories at the comparison 1997-2014

Tables 11 and 12 provide some degree of nuance to Tables 6 and 7, albeit producing a complex picture. Consequently, Tables 13-20 below tease out the detail by addressing each of the six crime categories over 18 years at both the CSS and comparison. The three years of data 1992-1994 for the CSS are included in Table 11 in order to provide context for the later figures.

1997-2014: CSS and comparison burglary

Table 13 below includes the burglary totals at both the CSS and comparison for the 18 years 1997-2014. For the first 22 years following refurbishment, burglary at the CSS never totalled more than 6 police-recorded crimes per year – with an average of 1.9 burglaries p.a. Whereas, between 1997-2009 at the comparison, the totals ranged between 1 and 12 crimes per year, average 4.6 burglaries p.a. Thereafter, the rate of burglary at the comparison plummeted to zero and during the final five

years (2010-2014) no such crimes were recorded by the police. However, 6 burglaries were recorded at the CSS during 2011 – the highest annual total during the 22 years post-refurbishment.

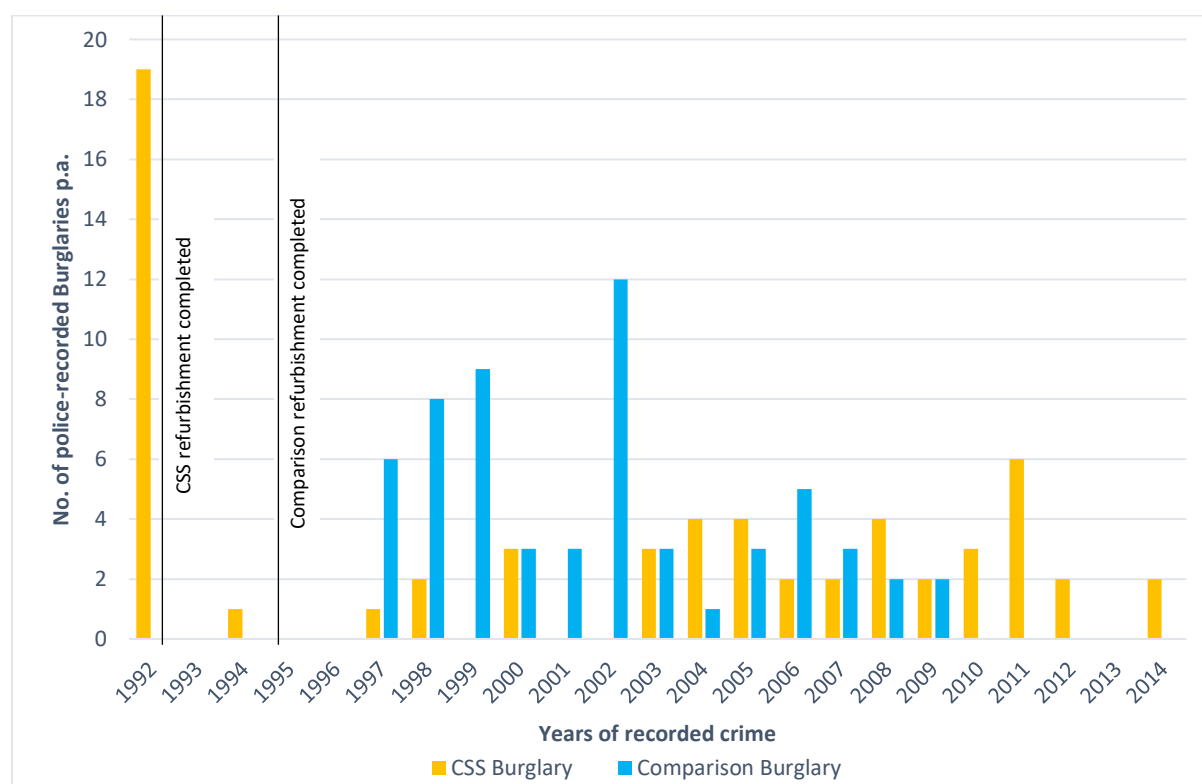


Table 13: Police-recorded Burglary totals p.a. at CSS and comparison 1992-1994 and 1997-2014

In greater detail, during the early years of analysis, burglary was especially infrequent at the CSS – relative to the comparison. In total, 40 such offences were recorded producing an incidence of 0.0084 burglaries per dwelling per year. At the comparison site the figure was 60 offences with an incidence of 0.0124 burglaries per dwelling per year. In this context, the ratio of incidence – produced by taking the CSS incidence and using the comparison incidence as the divisor (0.0084 divided by 0.0124) is therefore 0.6774. And because this figure is less than one it demonstrates that the incidence is higher at the comparison.

Mining down still further into the crime data, there are additional differences in the incidence of burglary taking place on a tower-by-tower basis. Once again, these are small differences and as such cannot be distinguished from random fluctuation. Nonetheless, they are suggestive. For example, at Queens Tower the lowest figure for any block (CSS and comparison) of seven burglaries (0.0059 burglaries per dwelling per year) was recorded over the 18-year timeframe. A potential explanation for this low incidence might relate to the 24/7 staffed concierge enquiry desk and control room located on the ground floor of Queens Tower. Its sheer presence may have produced additional guardianship (Cohen and Felson, 1979; Reynald, 2009). Indeed, monitoring the CCTV cameras, two-way audio communication and electronic control of the communal entrance doors at all four CSS blocks, might have assisted in this regard. However, at all CSS locations, ground floor flats appeared to be more prone to being burgled – especially at Queens Tower and thereby contradicting the value of such immediate guardianship. Of the seven burglaries recorded for this block, four were committed against ground floor flats close to the 24/7 staffed concierge offices during the years 2005, 2008, 2009 and 2012. This represents a higher incidence than at any other tower – CSS or comparison. But once again and considering that these are very small crime figures, this may be attributable to random fluctuation.

At the comparison site, the total of 60 burglaries over 18 years is precisely 50.0 per cent higher than at the CSS and produces an incidence of 0.0124 crimes per dwelling per year. Once again, yearly fluctuations can be identified and as with all the crime categories, there is a consistently higher (and unexplained) incidence of burglary at Thames Tower (27 burglaries). Following the 1993-1995 refurbishment,

at the comparison burglaries numbered between zero and 12 (in 2002) recorded offences per year. Other years of high incidence were 1997 (six offences), 1998 (eight) and 1999 (nine). However, from 2007 (three offences) onwards the incidence all but mirrored that at the CSS and during the final five years of 2010-2014, no burglaries were recorded in each of those years. This may be attributable to new PAS 24 standard compliant front entrance doors having been installed during 2008 (see Figure 7 on page 312) and the comparison blocks now being linked to a central station type control room from where the communal entrance doors were linked and opened – as replicated at the majority of Birmingham’s remaining tower blocks.

Burglary incidence at the CSS, comparison, Birmingham, England and Wales

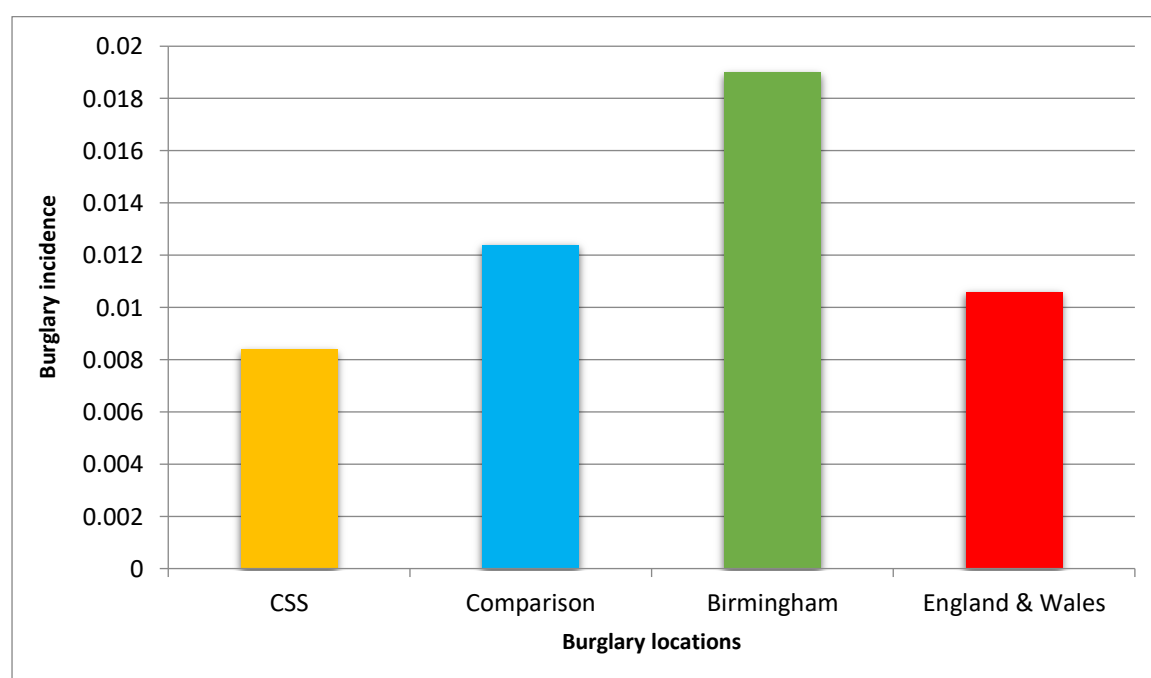


Table 14: Average incidence of Burglary per dwelling p.a. 1997-2014 at the CSS, comparison, across the City of Birmingham and in England and Wales. Figures obtained from ONS data

Table 14 sets out the average incidence of residential burglary at the CSS, comparison, across Birmingham, England and Wales over 18 years. The incidence is especially noteworthy, as over 18 years this was lower at the CSS than at the

comparison, in Birmingham as a whole, and across England and Wales. And whilst the comparison had a higher incidence than in England and Wales, it too recorded far fewer burglaries than across the City of Birmingham.

Forced-entry burglaries

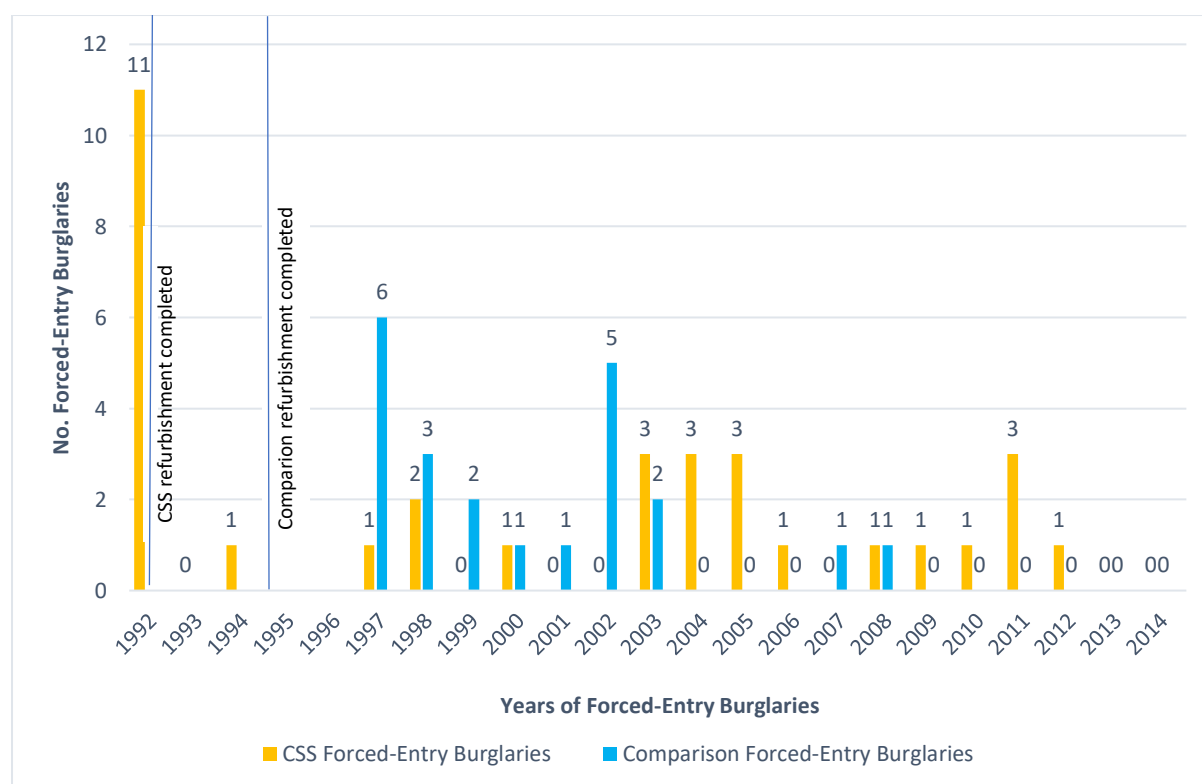


Table 15: Police-recorded Burglary totals p.a. at CSS and comparison 1992-1994 and 1997-2014

However, the most prominent difference between the CSS and the comparison in the context of burglary, concerns the use of force to gain entry (see Table 15 above). At the CSS and during the whole 18-year time period, incidents of forced-entry are limited to the windows of ground floor flats (7 burglaries in 18 years) and balcony windows/doors (12 burglaries in 18 years). The MO descriptions ‘use of key’, ‘insecure door’, or ‘means unknown’ are detailed. Nevertheless, access to the balconies can only be gained from the flats via the unique fire-escape system. This suggests that offenders are themselves residents in the CSS blocks, or have been

allowed access to the balcony-to-balcony linked fire-escapes by tenants (see Appendix 7). Once more, these are very small numbers and consequently the caveat of random fluctuation is again raised. Most importantly, forced-entry of the new Mul-T-Secure front entrance doors (complete with multi-point locking, hinge bolts and frame armour) to each of the 264 flats at the CSS, appears in the MO description of three recorded burglaries, but with no credible explanation.

At the comparison, forced-entry is described in 19 residential burglary MOs. Of major interest, where force was used the description usually includes how the door was broken through with 'bodily force', 'kicking' or 'use of a screwdriver' or similar jemmying instrument. An explanation for this important difference might relate to those same Mul-T-Secure entrance doors at the CSS which proved to be physically durable and not subject to poor maintenance over the following 23 years. And simultaneous to completion of installing these new doors, the 24/7 staffed concierge went live – controlling all visitor access into the CSS blocks by way of electronic release of the ground floor communal doors, audio intercom link and CCTV cameras. Installed prior to the advent of the PAS 24 standard in 1999, the new balcony doors and windows at the CSS proved to be less durable in preventing burglary – although the metal grilles and gates on the ground floor balconies denied access to the fire-escape staircases by those attempting entry from outside the blocks. In contrast, at the comparison only a second key-operated lock (most often a BS 3621 mortise deadlock) was added to the existing 44mm thick wooden doors. This proved to be ineffective in preventing access, and examination of the crime data discloses that the forced-entry of these doors was a much-repeated MO until the doors were replaced.

1997-2014: CSS and comparison Robbery

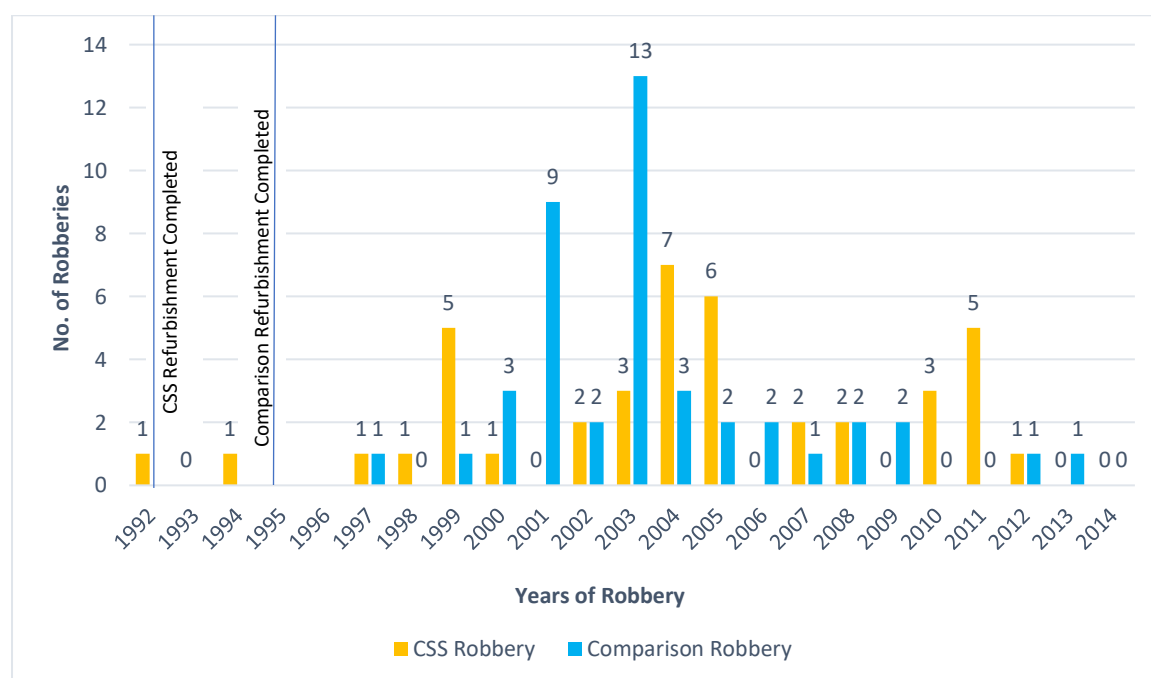


Table 16: Police-recorded Robbery totals p.a. at CSS and comparison 1992-1994 and 1997-2014

As previously explained, for the purposes of this study the offences of robbery, theft from the person, assault with intent to rob and attempts have been merged into a single category. Under this heading, 82 offences were recorded by the police as taking place at both the CSS and comparison site, during the 18 years for which data was provided (see Table 16 above). Further analysis of these figures indicates the recorded offences are closely divided between the CSS (37 offences) and comparison (45 offences). In terms of offences per dwelling, for the 264 flats at the CSS, this produces a figure of 0.0078 robberies and thefts from the person per dwelling p.a. Whereas, for the 268 dwellings at the comparison, the figure is a marginally higher at 0.0093 such offences per dwelling p.a. The ratio of incidence is therefore 0.8387.

However, these last figures need to be understood in the context of particular caveats. For example, grouping these offences in this way means that a 'snatch' or similar MO where no force or threat of force (essential elements for the offence of robbery) will nevertheless be included in this category of robbery. And second, unlike the crime of residential burglary, robbery and theft from the person are not automatically related to the confines (the target enclosure) of a specific flat. They may take place: on the landing outside; in other communal areas like the stairs, lifts or reception; in the grounds, car park or in the adjacent streets – information often missing from the recorded crime MO description. Nevertheless, they are most often recorded against a specific flat number – especially where the victim is also a tenant of that flat. As previously indicated, this issue of precise offending location details is further discussed in Chapter Seven, Discussion and Conclusion. Further analysis of the crime data suggests that over 18 years at the CSS, 12 offences (always of 'Robbery Personal Property') took place inside a flat; 11 on the stairs, lifts or landing areas; 11 at the entrance or in the lobbies; 6 in the grounds; 12 in the car parks; 4 in the surrounding streets; and for the remaining 26 there is insufficient detail to identify the exact location.

At the CSS, robbery remained consistently low (Impact) between 1992 and 1994 (no more than one offence in each of those years). Between 1997 and 2014 this pattern was largely repeated, except in 1999 (five recorded offences), 2004 (seven) and 2005 (six). In 2001, 2006, 2009, 2013 and 2014 no robberies were reported. At the comparison site, there was a similar pattern of low incidence (no more than three recorded offences in a single year) with the exception of 2001 (nine offences) and

2003 (thirteen). Thames Tower recording the highest number of offences (20, ten of which took place in 2003). The total at Severn was 12 and Medway 9 offences. With the higher incidence at the comparison, analysis of the MO detail reveals that 10 offences can be specifically associated as having taken place within a flat; 7 on the stairs, lifts or landing areas; 3 at the entrance or in the lobbies; 3 in the grounds; 6 in the car parks; 1 in the surrounding streets; and for the remaining 15 there is insufficient detail to identify the exact location. On occasion, perpetrators displayed particular violence or threat of violence during the attack (four instances of actual GBH, 11 threatened). But in the overwhelming majority of instances, victims were either pushed to the ground, or had their property snatched from them – by an assailant on roller blades on one reported occasion! The theft of the victim's mobile phone increasingly features (as these became a more commonplace possession at the beginning of the twentieth century) in the description of robbery or theft from the person, in respect of the bulk crime data from 1997-2014.

One issue emanating from the detailed crime analysis under this heading, is the identification of repeated 'hot-spots' (Brantingham and Brantingham, 1995) and 'pinch-points' (Clarke, 1999) most especially the car parks (when people approach, leave or sit in their vehicles; at the communal entrances into the blocks; in the lobby areas; and on the landings immediately outside the flats. At the CSS, one particular hot-spot is the snaking (sinuous) public footpath with poor sight lines between Queens and Home towers that leads to and from a bus stop (see Figure 1 on page 124). Tenants repeatedly stated it was a repeat location for robbery, although this footpath rarely features in the crime data provided. Meanwhile and perhaps surprising in view of its isolated location away from the other three blocks and

adjacent to a group of shops and railway station (Duddleston), over 21 years the CSS South Tower suffered just four police-recorded robberies.

1997-2014: CSS and comparison Assaults

As previously described, this broad offence heading includes all forms of assault apart from sexual offences. Nor are threats and threatening behaviour included. This heading does include common assault (22.9% of all assaults); assault occasioning actual bodily harm (62.5%); wounding/GBH (with or without intent - 10.8%). See Table 17 below. Analysis of the crime data indicates that over an 18-year period, 169 offences were recorded for the CSS. Whilst at the comparison the figure is 202 offences (19.5 per cent higher). In terms of offences per dwelling, for the 264 flats at the CSS, this produces an incidence of 0.0356 assaults per dwelling, per year. Whereas, for the 268 flats at the comparison, the incidence is 0.0419 such offences per dwelling per year. This in turn produces a ratio of incidence of 0.8496.

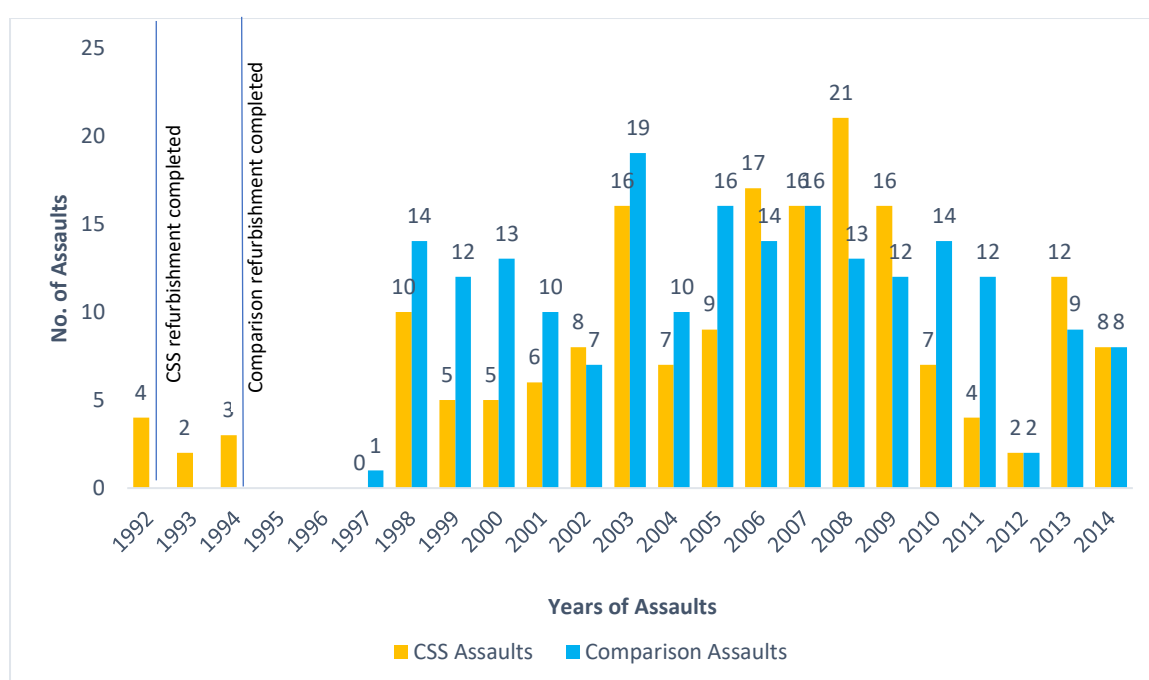


Table 17: Police-recorded Assaults totals p.a. at CSS and comparison 1992-1994 and 1997-2014

At the CSS, analysing the location and MO data for each recorded offence, discloses that at least 108 (63.9 per cent) of these assaults took place inside a flat. By contrast, those occurring on the stairs, lifts, landing areas, entrances or in the lobbies, grounds, car parks, or in the surrounding streets numbered 28 (16.6 per cent) in total over 18 years. However, for the remaining 36 (21.3 per cent) recorded offences, the location and MO details are insufficient to determine exactly where the assault took place. Furthermore, at least 87 (51.5%) are domestic-violence related. Indeed, this last figure is almost certainly much higher: it is just that the domestic relationship between the victim and assailant cannot always be discerned from the anonymised details contained within the police-recorded crime data supplied. As a result, it was impossible to be certain about the offender/victim relationship in 33 (19.5 per cent) of recorded assaults; or be location-specific about 40 (23.7 per cent). Once again, this issue of the absence of precise offending location details is addressed and reflected upon in Chapter Seven, Discussion and Conclusion.

Like at the CSS, the majority of such assaults at the comparison, 118 (58.4 per cent) took place inside a flat – ascertained from a combination of the address provided and MO descriptions. Similarly, those recorded as occurring on the stairs, lifts, landing areas, entrance or in the lobbies, grounds, car parks, or the surrounding streets, numbered a relatively small 33 (16.3 per cent) in total. From the MO data supplied, at least 86 (42.6 per cent) can be attributed to domestic violence – which at both sites all but exclusively takes the form of male-on-female assault, there being very little comment to the contrary within the narrative. However, in a further 50 (24.8 per cent) offences an absence of MO detail meant it was impossible to establish

whether these related to domestic violence. The specific location of 52 (25.7 per cent) of assaults could not be ascertained from the crime data provided. Meanwhile and as distinct from instances of robbery and theft from the person, the only real measurable hot-spot (Impact) location for assaults, woundings and GBH, was inside the flats.

Further scrutiny of the crime and MO data indicates that weapons included bodily force (punching, slapping, kicking and stamping), broken bottles, knives, a mug and on one occasion the victim being subject to burning. Nevertheless, from the anonymised crime data supplied by WMP it was sometimes impossible to discern an accurate distinction between those that relate to domestic-violence and those that do not, or the characteristics of either.

1997-2014: CSS and comparison Vehicle Crime

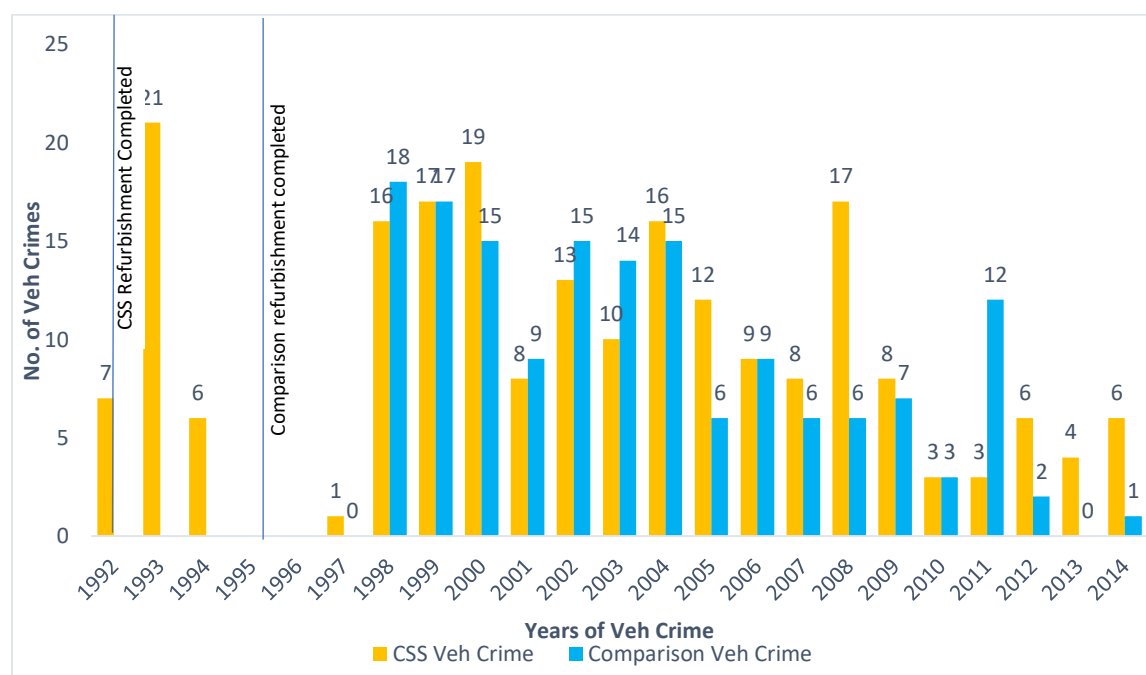


Table 18: Police-recorded Vehicle Crime totals p.a. at CSS and comparison 1992-1994 and 1997-2014

Vehicle crime constitutes another broad offence category including theft of motor vehicle, taking without the owner's consent (TWOC or 'joy riding'), theft from motor vehicle, attempt theft from motor vehicle and criminal damage to motor vehicle.

Analysis (Impact) of the crime data indicates that the figures disclose a higher rate of incidence at the CSS than the comparison. More specifically, at the CSS, 185 offences recorded over 18 years produces an incidence of 0.0389 of offences per dwelling per year, for each of the 264 flats. Whilst at the comparison, 168 offences produce an incidence of 0.0383 offences per dwelling per year, for each of the 268 flats. The ratio of incidence is therefore 1.0157 and confirms that vehicle crime was higher at the CSS following refurbishment – 21 recorded offences in 1993. Falling back in 1994 (one offence) and 1997 (zero offences), double figure totals were recorded in eight years: 1998 (16), 1999 (17), 2000 (19), 2002 (13), 2003 (10), 2004 (16), 2005 (12) and 2008 (17). At the comparison, double figure totals for vehicle crime were recorded in six years: 1998 (18 offences), 1999 (17), 2000 (15), 2002 (15), 2003 (14), 2004 (15) and 2011 (12). However, in this crime category the total number of offences over 14 years was lower at the comparison. See Table 18.

These crime totals are further complicated by vehicle ownership per flat – estimated at 29.2 per cent of all households for the CSS and 26.5 per cent for the comparison (information gleaned from the tenant questionnaires examined in Chapter Five). As such ownership and security features would change repeatedly over an extended time period (commented on in Chapter Six), together with the inclusion of crimes committed against vehicles parked in the surrounding streets, this is a highly difficult crime category about which to make authoritative judgements.

1997-2014: CSS and comparison Criminal Damage

Of the five specific crime categories under investigation, only burglary and robbery disclose a lower incidence than criminal damage. Analysis of the crime data (see Table 19 below) suggests a slightly higher incidence at the CSS compared to the comparison site, with 70 offences recorded for the former and an almost identical 67 at the latter. In terms of offences per dwelling, for the 264 flats at the CSS, this

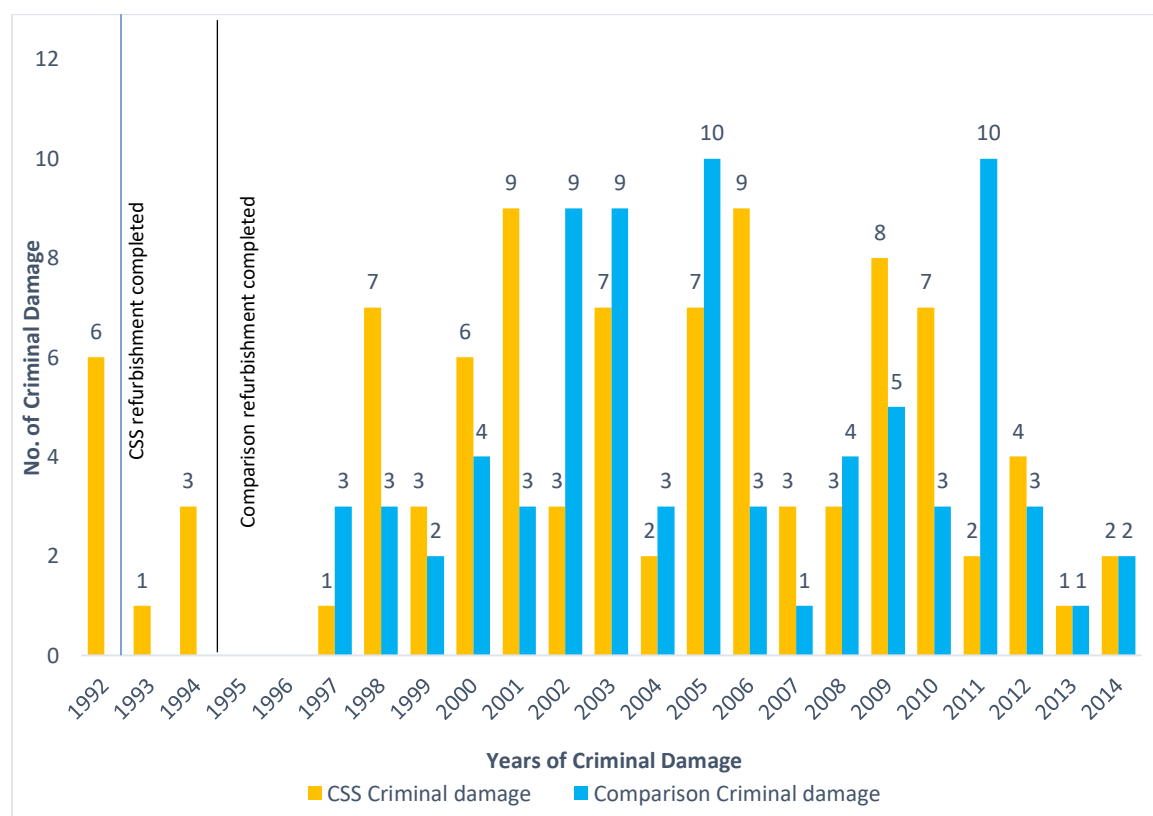


Table 19: Police-recorded Criminal Damage totals p.a. at CSS and comparison 1992-1994 and 1997-2014

produces an incidence of 0.0146 offences of criminal damage per dwelling per year. Whilst for the 268 dwellings at the comparison, the figure is 0.0138 such offences per dwelling per year. This in turn delivers a ratio of incidence of 1.058. Deeper analysis indicates the overwhelming number of offences, 99, are recorded as taking

place either immediately outside or within the individual flats. The remaining 38 offences occurred in the communal areas or immediately outside the blocks.

Amongst the 22 offences of arson, these are equally divided with 11 of each taking place at the CSS and comparison. However, 13 of the total involve unattended vehicles in the car parks and are therefore excluded from this category and appear instead as vehicle crime. Of the remaining nine, 4 took place at the CSS (producing an incidence of 0.0008 arsons per dwelling per year) and 5 at the comparison (0.0010 arsons per dwelling per year), including one each of the most serious offence of arson with intent to endanger life. Nevertheless, in excess of 90% of the offences under this heading relate to simple criminal damage – primarily windows

1997-2014: CSS and comparison 'Other' crime

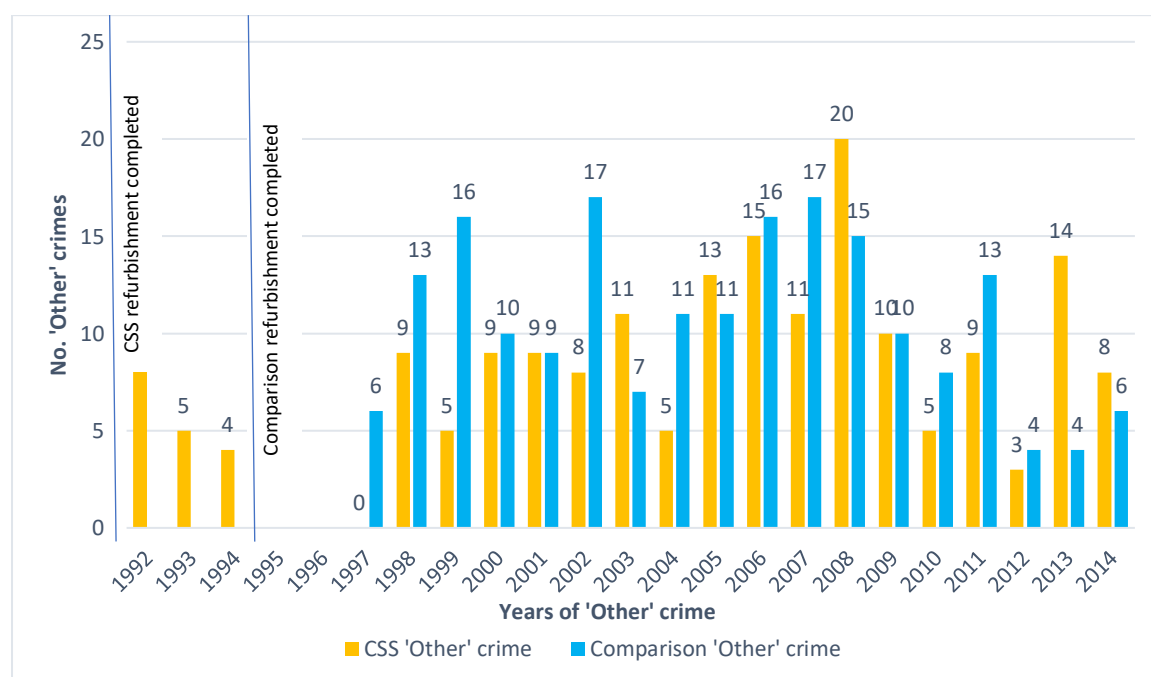


Table 20: Police-recorded 'Other' crime totals p.a. at CSS and Comparison 1992-1994 and 1997-2014

being smashed, graffiti and doors being kicked and damaged (overwhelmingly recorded as committed inside the blocks).

The category of 'other' crime (see Table 20 above) embraces all recorded offences not included in the previous five categories. This includes a more extended range than those at the CSS between 1992-1994 – due to a greater scope over 18 rather than 3 years and changes in both Home Office Counting Rules (1998) and the introduction of the National Crime Recording Standard (2002). Consequently, recorded offences range from possession of cannabis (9 offences) via bilking (making off without payment), driving offences, drug dealing/cultivation, firearms offences, fraud, handling stolen goods, harassment, kidnapping, possessing offensive weapons, racially-aggravated offences, sexual offences. 'other' offences total 361 of all those recorded. They were not examined in detail, either because their incidence was very small and/or due to the need to concentrate on a limited number of high-volume crime types – those believed to be most susceptible (or potentially susceptible) to the CPTED and SBD approaches. With a total of 160 'other' offences at the CSS the incidence is 0.0337 per dwelling per year. Whilst, 201 such offences at the comparison provide an incidence of 0.0417. This produces a ratio of incidence of 0.8082.

Double figure instances of 'other' crime were recorded at the CSS in 1992 (18 crimes) and in seven of the 18 years between 1997-2014 years: 2003 (11), 2005 (13), 2006 (15), 2007 (11), 2008 (20), 2009 (10) and 2013 (14). At the comparison, double digit figures were recorded in 10 years, the highest (17) in both 2002 and

2007. Nevertheless, in the final three years single figures were recorded (Impact) in 2012 (4), 2013 (4) and 2014 (6 recorded 'other' crimes).

Accumulated data comparisons: 1992-1994 and 1997-2014

Table 21 below brings together the yearly police-recorded crime figures for the six offence categories, to produce accumulated totals for both the CSS and comparison over 18 years. Visually and with the notable exception of burglary, crime totals at both the CSS and comparison appear very similar. However, despite no burglaries being recorded at the comparison during the final five years under analysis, the 18-year total number of offences is 50 per cent higher than at the CSS. Conversely, had the crime analysis examined the first five years of 1997-2001 (7 recorded burglaries at the CSS, 29 at the comparison) the difference would have been more than 400 per cent higher at the latter.

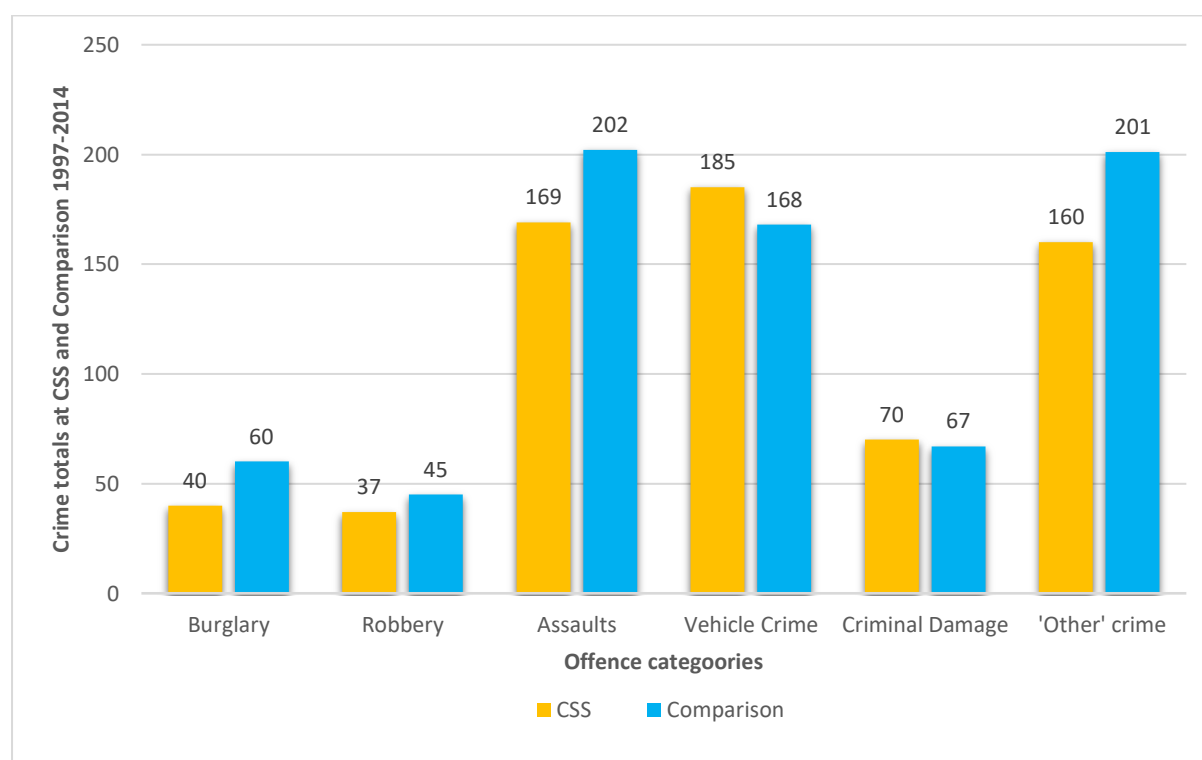


Table 21: Crime totals at the CSS and comparison for the 18 years 1997 - 2014

In two of the crime categories, vehicle crime and criminal damage, there is a higher incidence at the CSS. Vehicle crime: 185 at the CSS; 168 at the comparison site. And criminal damage: 70 such instances at the CSS; 67 at the comparison. With the crime category of robbery, the difference is relatively slight: 37 recorded crimes at the CSS; 45 at the comparison. There is a significant (slightly more than 25 per cent) difference in 'other' crime: 160 crimes at the CSS; 201 at the comparison. Less so in respect of assaults: 169 at the CSS; 202 at the comparison. But it is the focal crime of burglary that demonstrates the greatest difference, albeit based on relatively small accumulated crime totals over 18 years.

How has crime changed at the CSS and comparison during the period of interest?

Having been presented with the 1992-1994 police-recorded crime data for the CSS, it was possible to chart the considerable reduction in police-recorded crime that appears to have begun during 1992 immediately after CSS refurbishment was completed. Analysis of this crime data indicated the reduction began during the final quarter of 1992, became established in 1993 and in full effect by 1994. Furthermore, this reduction can be identified across five of the six police-recorded crime categories (as detailed above) with the notable exception of vehicle crime. The latter demonstrated a marked increase (tripled from 7 to 21 reported crimes) during 1993, before falling back to slightly below its 1992 level in 1994. However, the key crime indicator is that of burglary (see Tables 13-15 above). From 19 recorded offences in 1992, this fell to zero in 1993 followed by one attempt burglary in 1994. The subsequent average of 1.05 offences p.a. over 20 years delivers an 89.2 per cent

reduction in burglary compared to the 1992 total. Sadly, no such data has been obtained to reflect what happened at the comparison site during and immediately after its refurbishment in 1995. But given general evidence of the effectiveness of SBD-based Interventions (e.g. Armitage, 1999 and especially Armitage and Monchuk, 2009) it is reasonable to assume that a similar reduction may have taken place.

The data indicates that crime decreased substantially at the CSS following completion of the refurbishment in 1992. And that during the subsequent 22 years, this reduction was largely sustained. Unfortunately, no such data has been discovered for the years of refurbishment at the comparison (1993-1995) and the 1997-2014 data does not commence until two years thereafter. Nevertheless, examination of this data discloses a 12.9 per cent higher level of police-recorded crime at the comparison from 1997 through to 2014. Indeed, until 2005, the rate of burglary at the comparison was all but 180 per cent higher than at the CSS (53 reported crimes compared to 19), after which the difference levelled off as periodic enhancements of the CPTED measures at both sites were implemented. And between 2010-2014 there were no police-recorded burglaries at the comparison, compared to 13 at the CSS. Questions then arise as to how and why the reductions were brought about and then sustained at the CSS? Why reductions at the comparison were originally lower? And the extent to which this can be attributed to the different grades of CPTED measures incorporated through the delivery mechanism of SBD at both sites?

As a potential explanation for the crime drop at the CSS, the higher grade of CPTED measures implemented at the CSS – in excess of the minimum standards required by the recently launched (1989) SBD award scheme, is highly plausible (see The Crime Drop and Security Hypothesis, Farrell *et al*, 2011; and Tseloni *et al*, 2017). This is especially true in respect of the absence of forced-entry by way of the new Mul-T-Secure main entrance doors to each individual flat that were installed during 1992. Indeed, the block-by-block sequence of installation can be plotted against the reduction in burglary that took place during that year, resulting in no burglaries taking place during the final two months of 1992. Furthermore, during the 1997-2014 time frame the forced-entry of these same entrance doors appears in the MO description of three recorded offences, yet with no credible explanation. These top-of the range doors were of steel-framed, composite construction fitted with multipoint locking systems, hinge bolts and frame armour that repeatedly defied the efforts of the fire service and specialist police departments to gain entry. Five attempt burglaries detail their effectiveness. Indeed, after 27 years of durability, they were only replaced in 2018/2019 during the most recent refurbishment process.

What does appear is burglary executed via the balconies and accessible by means of the previously detailed unique emergency fire-escape system. Prior to the door and window standards PAS 24 and BS 7950 being specified by SBD in 1999 (Armitage, 2013 and personal witness), balcony doors and windows had been replaced with uncertificated (and by twenty-first century standards) less secure PVCu units. Twelve burglaries executed by way of these balcony doors and windows were recorded at the CSS during the same 18-year time period.

The electronically-operated communal entrance doors (with each tenant being provided with a fob-access key) were another more intensive/higher grade form of CPTED measure incorporated at the CSS. Moreover, electronic control of these doors was also managed from the onsite offices and control room of the new 24/7 staffed concierge scheme that went live in November 1992. Its remit included controlling access to visitors (assisted by CCTV cameras and two-way intercom link) and denying entry to those with no legitimate reason. By extension, this might be expected to reduce the capacity for criminal activity by non-residents and therefore, could plausibly be observed as contributing to the reduction in crime. Furthermore, qualitative testimony by the tenants (see Chapter Five) supports this hypothesis. However, the CCTV cameras did not extend to the external areas, including the car parks and may assist in explaining why vehicle crime increased considerably more at the CSS in 1993, fell back as much in 1994 and amongst all the recorded crime categories has demonstrated the greatest incidence (Impact) during the 18-year period – higher than at the comparison site over the same timeline.

Effects of specific CPTED measures at the comparison

As detailed extensively in Chapter Three, Methodology, from amongst the 213 remaining tower blocks in Birmingham (BCC, 2017), it was impossible to identify a comparison that had first, not been refurbished in the 1990s; and second, at the same time received at least some CPTED treatment. However, it was known how during the 1993-1995 refurbishment of the comparison, those blocks had received a lower grade (Intervention and Implementation) of CPTED. In particular: no 24/7 staffed concierge was established; no fob-reader, access-controlled door entry system was installed; and the front doors to each of the 268 individual flats were not

replaced. Instead, a second locking system (most often a five-lever mortise deadlock to the standard BS 3621) was fitted to each door. These measures were sufficient to comply with the minimum standard required at that time to attain an SBD award – a requirement by BCC Housing Department since SBD was launched in 1989 (personal witness). However, in hindsight perhaps it was inevitable that this lower grade CPTED could plausibly be understood as contributing to less effective crime prevention.

The higher incidence of burglary at the comparison, when compared to the CSS, is detailed above. However, this was not consistent over time and having reached a highpoint of 12 recorded offences in 2002, reduced and between 2010-2014 no offences were recorded. This took place in the wake of new entrance doors to each individual flat at the comparison being installed in 2008. Furthermore, whilst there were five forced-entry burglaries via the front door at the comparison in 1997, thereafter, this MO became increasingly less common with the last such (attempted) offence taking place early in 2008.

Indeed, whilst the comparison suffered a higher incidence of burglary over the 18 years under analysis, from 2010 onwards the incidence was consistently lower at the comparison, when compared to the CSS. It must, however, be remembered that these are very small figures and consequently, the warning of insufficient statistical resilience a constant challenge. The remaining five crime categories appear to be less affected by CPTED Interventions. Assaults, in particular increased between 1997 and 2009, however, this was almost certainly because common assault was only created a statutory offence in 1988 (Criminal Justice Act, 1988); changes in Home Office Counting Rules (1998); and the introduction of the National Crime

Recording Standard (2002). Even more significantly, from 2011 onwards the police services of the UK pivoted increasingly towards offences based on threat, risk, harm and vulnerability. Vehicle crime has proved to be one of the most enduring crimes at both the CSS and comparison, with offences at each location only reducing from 2011 onwards. Perhaps this is symptomatic of the relatively low socio-economic status of the tenants, translating into their ownership of older vehicles with poorer security. And whilst the environmental elements of CPTED (most especially the creation of defensible space and territoriality) were incorporated at both the CSS and comparison (albeit to a similarly lower grade of CPTED at the latter), there was no external CCTV surveillance at either site.

Alternative explanations to the CPTED and SBD effects

Regardless of the CPTED and SBD Interventions employed at both the CSS and comparison, there are a number of confounding factors that could have contributed to the identified changes in crime rates e.g. changes in the age, gender and/or household size of tenants; employment/unemployment of tenants; and benefits payments. Indeed, in 2015 the latter (when the deduction of housing benefits at source was changed to payments made directly to the tenants) was a reason used to justify closure of the onsite 24/7 staffed concierge scheme at the CSS, due to fears that it could no longer be funded (see Chapters Two, Five and Six). Furthermore, because there exists an indication that the trend in reduced levels of crime began before the years for which crime data had been supplied for example Farrell *et al*, (2011); Tseloni *et al*, (2017) it could be argued that the changes are due to other factors. The following paragraphs explore the challenges of investigating this further.

Data provided by the Office for National statistics (ONS, 2018) indicate that police-recorded burglary in England and Wales reached its highpoint in 1992/1993, which all but coincides with reductions at the CSS. However, at the CSS (and increasingly over time at the comparison) a lower level of burglary was sustained over the 18-year time frame. Aggregated across the city of Birmingham both are lower than the average rate of residential burglary (see Table 14 above). Perhaps most importantly, the incidence of residential burglary was consistently lower at the CSS until 2009. And of greatest significance, a 'credible' MO of forced-entry via the main entrance doors to each flat, though recorded, is highly unlikely to have taken place. Furthermore, it is now known that following the considerable cuts to police funding that began in 2011, residential burglary was thereafter regularly recorded over the telephone and without a police officer or PCSO (police community support officer) visiting the scene. More specifically, amongst the 40 residential burglaries recorded at the four tower blocks of the CSS (264 flats in total), over a period of 18 years, the findings from this part of the analysis were significantly different to those of the comparison (268 dwellings, 60 offences of burglary, 50 per cent higher).

Nevertheless, these figures are relatively small, originating from seven tower blocks containing a total of 532 dwellings. A more extensive investigation would necessarily examine the recorded crime data from the remaining 213 tower blocks (BCC, 2017) in Birmingham and as this research project has discovered, it has proved impossible to secure such bulk crime data for the years prior to 1997. Even if such data could be located, its reliability is often questionable and subject to realignment of police area boundaries, changes in the law, Home Office Counting Rules (1998), the introduction of the National Crime Recording Standard (2002) and reporting procedures.

Moreover, because more than half the tower blocks in Birmingham have been demolished during the past three decades (many due to compounding crime issues), ignoring the crime data from those blocks would have the tendency of skewing the more favourable results from those remaining 213.

As previously indicated, changes in crime rates over time may be due to factors other than the introduction of CPTED and SBD Interventions. The crime reduction outcomes, for example, may have benefited as a result of 'high visibility policing' by police officers and/or PCSOs that ran alongside and regardless of CPTED and SBD. Consequently, the effects of DOC Interventions, changes in policies, increased or decreased unemployment or changes in the imprisonment or release of prisoners, may have had a contributory effect in reducing crime at both the CSS and comparison.

Returning to the research aims of this investigation, it is also necessary to research the counterfactual inference, namely: would the crime have decreased differentially without the CPTED and SBD Interventions at the CSS, relative to the comparison? OR both relative to the rest of Birmingham? As previously detailed, there is a major problem in this hypothesis, in that both the CSS and comparison had experienced CPTED and SBD Interventions – albeit of different grades/intensities. Indeed, when this study began in 2012, two decades had passed since a programme had begun (at the CSS) to refurbish those high-rise tower blocks BCC had decided not to demolish. As part of those refurbishments, the tower blocks had received at least some CPTED treatment. Fortunately, the level of 'contamination' at the comparison was known in that only the barest minimum of CPTED treatment necessary to

achieve a SBD award had been applied during the 1993-1995 refurbishment. In particular, the front doors to the flats at the comparison had not been replaced and their security merely augmented through the installation of a second key-operated five-lever mortise deadlock – which the tenants reported as highly ineffective.

Finally, despite an original intention, it was soon realised that this study did not have the capacity to investigate displacement of crime and diffusion of benefits (Johnson, Guerette and Bowers, 2014) at either or between the CSS, comparison site and surrounding area – largely due to the access to data and complexities of such an undertaking. Nevertheless, this study is aware of making inferences about the main effect e.g. displacement from the action area leaking crimes into the comparison area and how that could mimic an Impact effect. Furthermore, because its primary interest lies in the sustainability of crime prevention at specific sites, displacement of crime/diffusion of benefits is an important issue that future research could address.

Measuring change relative to the comparison

During the majority of years under analysis, the level of recorded crime (as detailed above) at the CSS was more often lower than at the comparison. This was especially true in relation to burglary, although during the final five years of analysis (2010-2014) the comparison consistently out-performed the CSS in terms of zero recorded burglaries over five years at the former. Consequently, and mindful of these very small figures, the total number of recorded burglaries at the CSS (40) was both smaller than the comparison (60) and lasted in excess of 20 years (if the data for 1993 and 1994 is included) when compared to the incidence of burglary in 1992.

This indicates that over the 18-year timeframe, there were exactly 50 per cent more burglaries recorded by the police at the comparison.

Nevertheless, to describe this as a 'sustained' reduction is far more problematic. It may simply mean, staying at the level reached immediately after the Intervention had its initial effect. However, if the only element preventing the comparison from demonstrating a similar pattern of reduction (albeit of two years less duration because refurbishment took place later) is a spike in burglary in one particular year, the role of the comparison is itself questionable. To further complicate matters, between 2010-2014 when the comparison outperformed the CSS in terms of burglary reduction, this may be attributable to the new PAS 24 standard compliant entrance doors that were installed at each comparison site flat in 2008 and the offsite central station style of electronic concierge. Once again, this points to the difficulties in identifying a comparison that received no CPTED Intervention, especially over the very long-term. This was addressed in Chapter Three, Methodology and once again in Chapter Seven, Discussion and Conclusion.

In respect of the remaining five crime categories, the crime analysis is less emphatic. Over 18 years, vehicle crime and criminal damage exhibit slightly higher totals at the CSS than the comparison. Whereas, assaults and 'other' crime (categories generally believed to be less susceptible to CPTED and SBD interventions), recorded higher totals at the comparison than the CSS. However, due to changes in Home Office (1998; 2002) definition and recording of both assaults and 'other' crime, these crime categories expanded considerably from three years before the turn of the century. As

a result, perhaps it is wise not to conclude a great deal from these numbers – especially in the context of the very long-term.

Ultimately, the Impact analysis points to a crime reduction benefit of 89.2 per cent in respect of police-recorded burglary being sustained at the CSS over a 23-year timeline (if the figures for 1993 and 1994 are included and presuming there was no exceptional increase during 1995 and 1996 for which no data is available). To at least some extent, this reduction can be attributed to the CPTED and SBD Interventions incorporated during the 1989-1992 refurbishment – most especially the new front entrance doors to the individual flats. However, given the problems with the lower grade CPTED at the comparison and number of potential factors that could have influenced crime levels, the results in respect of the other five crime categories are inconclusive and should be treated with caution.

Emerging issues and limitations in the data analysis

This chapter provides the results of an analysis exploring changes in the levels of crime and their MO after the Implementation of CPTED and SBD measures, at seven tower blocks located in the inner-city district of Nechells, Birmingham. Results indicate that the 1989-1992 introduction of CPTED and SBD Interventions coincided with a significant and sustained reduction in burglary at the CSS, compared to the comparison. However, it does not necessarily follow that CPTED and SBD interventions were the drivers behind the changes in respect of the other five recorded crime categories. When examined more closely, those changes were varied across both the CSS and comparison tower blocks and over time, which

provides support to the consideration that at least in part changes were due to other factors as detailed previously.

A further consideration is how the onsite 24/7 staffed concierge in operation throughout these 18 years at the CSS, provided a conduit for the recording of crime. Whereas, at the comparison such a facility never existed and as one professional explained when interviewed (see Chapter Six), the overwhelming majority of the tenants could not afford home contents insurance which thus became an additional potential reason not to report crime. If this was an accurate hypothesis, it would lead to less crime being reported by tenants at the comparison.

As detailed earlier in this chapter, additional police-recorded crime data was also discovered for the years 1992-1994 at the CSS alone – but not for the comparison. The absence of data prior to 1992 at the CSS and before 1997 at the comparison, is discussed in Chapter Three, Methodology. A similar discussion concerned the issue of ‘contamination’ at the comparison – in that those blocks had themselves during the 1993-1995 refurbishment experienced the minimum intensity of CPTED necessary to attain an SBD award for each block.

A major problem encountered by this study (and the majority of investigations exploring the effects on crime) is the attribution of change to the intervention (Shadish, Cook, and Campbell (2002). Declaring that reductions in recorded crime were the direct result of introducing CPTED and SBD Interventions, is highly unscientific and evidence deficient. Furthermore, changes in crime and crime trends may be the result of ‘limitations to experiment’ e.g. a poorly chosen or contaminated

comparison, or to changes in the recording of crime. Indeed, there exists a wide spectrum of other factors that might cause changes in crime rates, most especially during the course of a very long period under investigation – as was inherent within this study.

Furthermore, numerous Interventions lie outside the scope of police responsibility. For example, non-crime central or local government initiatives e.g. urban regeneration. Or macro-economic issues, like those that followed the collapse of the banks in 2008 and the consequent recession causing economic downturn, factory closures, higher unemployment, etc. Changes in legislation regarding scrap metal dealers, number plates and number plate providers and improved security measures for vehicles, are believed to have influenced the level of auto crime. Crawford et al. (2005) believed this decreased the opportunities for theft of motor vehicles. However, a few years later an apparent lack of vigilance on the part of vehicle manufacturers appears to have fuelled the increase in a new type of burglary where offenders have decided to break into people's homes to steal the keys (often easily cloned electronic ignition 'keys') before driving away in the now stolen vehicles – also known as 'car key burglary' (see Farrell *et al.*, 2011).

Car key burglary has not been identified at either the CSS or comparison, most probably because it would be difficult for car thieves to associate a parked car with any particular dwelling in a tower block. And perhaps of even greater significance, because the residents of such dwellings do not have the financial means to purchase the makes and models of brand-new cars most often targeted by such thieves. On a similarly positive note, none of the crime data examined for either the CSS or

comparison refers to 'distraction burglary' – where (most often) one offender talks to the householder at the front door, whilst a second enters, searches and steals items from the dwelling. With a single entrance door to each flat and electronically-operated communal entrance doors this would be a difficult offence to commit at either site. And this may have also contributed to the absence of any incidence of aggravated burglary (where the offender is equipped with a firearm, imitation firearm, explosive or weapon of offence) in the police-recorded crime data covering 21 years.

Summary of findings

This first of the findings chapters has been devoted to an in-depth Impact analysis of police-recorded crime data (raw Intelligence within the 5Is) for the years 1992-1994 at the CSS alone and 1997-2014 at both the CSS and comparison. The bulk dataset covers an especially long timeframe of 18 years. However, sadly it does not include the years when the refurbishments (in 5Is terms, Intelligence guided Interventions necessitating Implementation and Involvement by BCC council officers, architects, contractors and DOCOs), were taking place at the CSS (1989-1991) and comparison (1993-1995). The earlier data does include the final year of refurbishment at the CSS (1992) and provides some indication of the high levels of crime being committed at both sites prior to refurbishment.

Ultimately, this chapter illustrates that describing a preventive connection (the Impact) between CPTED and SBD with actual crime prevented, is not easy to achieve. The level of difficulty is intensified in being unable to isolate the effectiveness of specific CPTED and SBD Interventions, during a period of months or years. Furthermore, and by their very nature, CPTED and SBD tend to deliver

measurable results in the medium to long-term. Consequently, attributing preventive value to (for example) main entrance doors or windows (let alone security lighting or defensive planting) is inherently difficult – albeit in some part possible in the instance of this study due to its analysis over the very long term. However, this longevity also causes its own problems, in terms of data collection and the extended capacity for contamination caused by external Interventions.

In contrast, Pawson and Tilley (1997) indicate that a more effective approach might be to concentrate on how any reductive effect may have been engineered e.g. enhanced security provided by the high quality, top of the range Mul-T-Secure individual entrance doors at the CSS, compared to simply augmenting with new security hardware the existing doors at the comparison tower blocks. And indeed, the incidence of burglary at the CSS when compared to the comparison (especially at the latter during the first decade post-refurbishment) lends support to the value of the technically superior (and more durable) multi-point locking doors and the ‘Domestic burglary drop and the security hypothesis’ (Tseloni et al, 2017).

Finally, the different architectural styles of the two sites are also worthy of consideration – in the context of any potential influence on crime and interaction with the CPTED measures Implemented and SBD delivery process. The four CSS tower blocks appear redolent of the 1950s architectural style (if not pre-Second World War 1930s), whereas those of the comparison have the ‘brutalist’ look of the 1960s – even following their mid-1990s refurbishment that attempted to ‘soften’ their aesthetic appearance. It is possible to speculate that this may have made a difference to the sustainability of Impact, if not the intensity, quality and

appropriateness of the CPTED Interventions that it was possible to recommend and how effectively they could be implemented and maintained. Research of the effects (on residents, offenders and service providers) regarding the appearance ('look') of buildings would be an interesting avenue to explore.

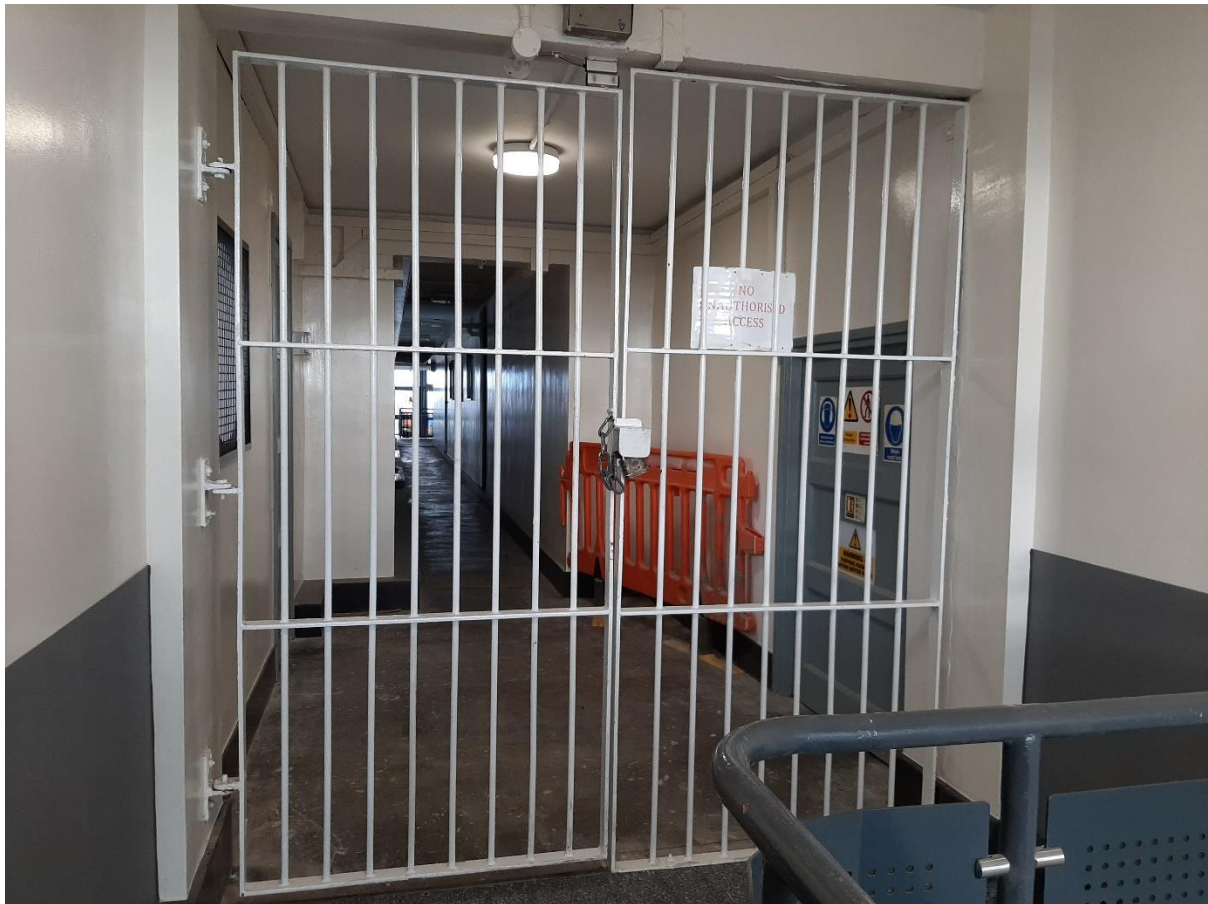


Figure 6: Gated-off connecting corridor on the twelfth storey of each CSS tower block. These gates were installed during the 1989-1992 refurbishment at the request of the Four Towers Tenants' Association to prevent use of the connecting corridors by anti-social elements. They are unlocked by the caretakers when one of the lifts on either side of the block breaks down. And do not compromise fire safety, because each side of the block incorporates compartmentation with its own staircase, lift and access to the unique emergency fire-escape staircases that serve each flat.

Chapter Five

Findings: Tenants' perceptions of crime, ASB, safety and security

Chapter Four provided analysis of the police recorded crime in respect of the CSS and comparison site. This second findings section chapter examines both the quantitative data gathered from the 286 tenant questionnaires (out of a potential 532 flats) and the qualitative data gleaned from the subsequent responses provided by those 22 tenants chosen and who agreed to be interviewed at length.

Quantitative analysis of tenants' questionnaire data

The methodology is detailed in Chapter Three. But to recap and in brief, the questionnaire was designed to solicit tenants' experiences of crime, ASB, safety and security as a resident of their tower block. Additional questions addressed their perceptions of safety inside the home, internal areas of the tower block, external areas, surrounding streets, the district of Nechells and Birmingham as a whole. The draft questionnaire was repeatedly revised and redesigned in order to improve its comprehension and ease of understanding by the tenants. Before being distributed, it was piloted courtesy of eleven colleagues of the researcher (all of whom had an involvement with DOC) and following which further amendments were incorporated.

The original delivery by hand for self-completion produced a poor response rate of only 3.4 per cent. Consequently, the exercise was repeated courtesy of a much repeated 'knocking on door exercise' that delivered an overall response rate of 53.8 per cent – 148 questionnaires (56.06 per cent) completed at the CSS; 138 (51.49 per

cent) at the comparison. As a result, quantitative data was provided to compare and assess against the police-recorded crime data examined in the previous chapter. This was believed necessary in order address the 'dark figure of crime' – Coleman and Moynihan (1996); Walsh and Hemmens (2014) and the debate relating to the difference between police-recorded crime and (in the context of this investigation) tenant self-reported crime.

The questionnaire was deliberately designed to address the research questions, namely: has there been a net reduction in recorded crime at the CSS compared to the comparison site? Has any such net reduction been sustained over a period of 25 years? What impact have the individual elements of design had on crime in the study area? Which (if any) specific crime prevention interventions have influenced reductions in crime and how effective were they?

Qualitative analysis of the tenants' extended interview data

Once again detailed in Chapter Three, 22 of the tenants providing answers to the questionnaire had also volunteered, were selected from a larger sample and agreed to be further interviewed at length. The interviews were digitally recorded with the permission of the interviewee and a written transcript subsequently made. Qualitative analysis of the tenants' interviews reveals a wide and diverse variety of opinions in respect of crime, ASB, safety and security issues at both the CSS and comparison. Some themes are specific to either the CSS or comparison e.g. the loss of the 24/7 staffed concierge at the former; and for many years post-refurbishment the poor-quality entrance doors at the comparison. Statements taken from these in-depth

interviews also assist in illuminating both the police-recorded crime data and the tenant questionnaire data.

Crime categories

As detailed in Chapter Four, Crime analysis, six different crime categories were chosen for this research project. The first of these was burglary – essentially residential, although non-residential burglary, aggravated burglary and attempts were included to eliminate any ‘masking’ effects (meaning, crimes being recorded under a less serious classification). The second category was robbery – including assault with intent to rob and theft from the person. Assaults – including common assault, assault occasioning actual bodily harm, woundings, GBH and homicide became the third. Whilst all forms of vehicle crime was the fourth chosen crime category. Criminal damage – including arson constituted the fifth. And all ‘other’ recorded crime the sixth – offences which individually numbered smaller totals. Hereafter, these six crime categories are simply referred to as burglary, robbery, assaults, vehicle crime, criminal damage and ‘other’ crime.

Five of these six crime categories were deliberately chosen because they provided a spectrum of offences – ones not limited to simple property crime which is often perceived as more susceptible to the SCP, CPTED and SBD approaches. An additional aim was that the data categories should provide a large enough sample of offences, to permit both analysis of patterns and measurement of those changes that took place over time at both the CSS and comparison.

Description of sample

This section covers the three headings of household size (number of persons living in each flat); tenant age-range (of the person being questioned); and the length of tenancy at each flat.

Tenants' household size

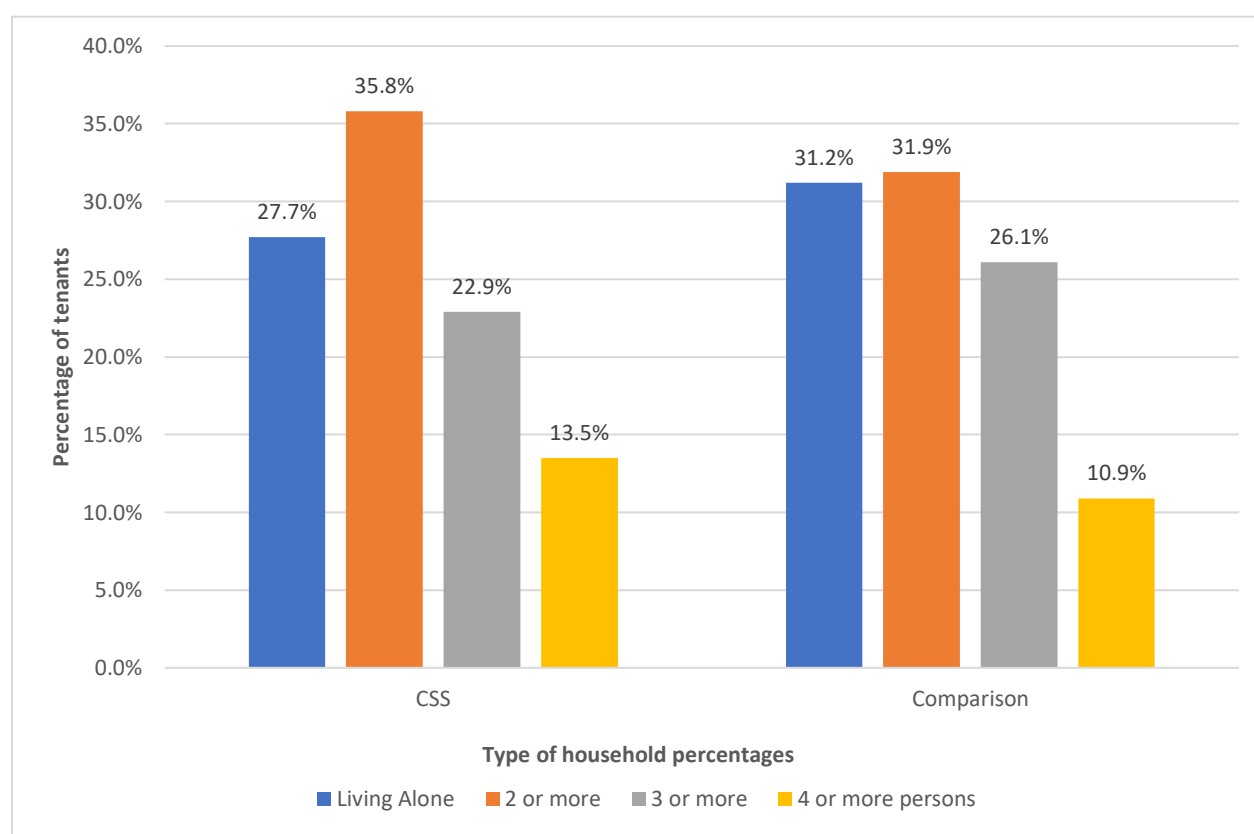


Table 22: Tenants' household size at both the CSS and comparison – percentage at each site

Table 22 illustrates the household size of tenants residing at the CSS and comparison when the questionnaire exercise was completed in 2016. At the CSS 27.7 per cent (41) tenants lived alone, at the comparison 31.2 per cent (43); at the CSS 35.8 per cent (53) lived in a two-person household, at the comparison 31.9 per cent (44); at the CSS 23.0 per cent (34) lived in a three-person household 26.1 per

cent (36); and at the CSS 13.5 per cent (20) lived in a four-person household 10.9 per cent (15) at the comparison. As indicated throughout this investigation, these figures are based on the 286 questionnaire responses and demonstrate tenant households that were largely similar in number at both sites. Tenants were not questioned about the actual number and makeup of children in their household.

Tenants' age-range

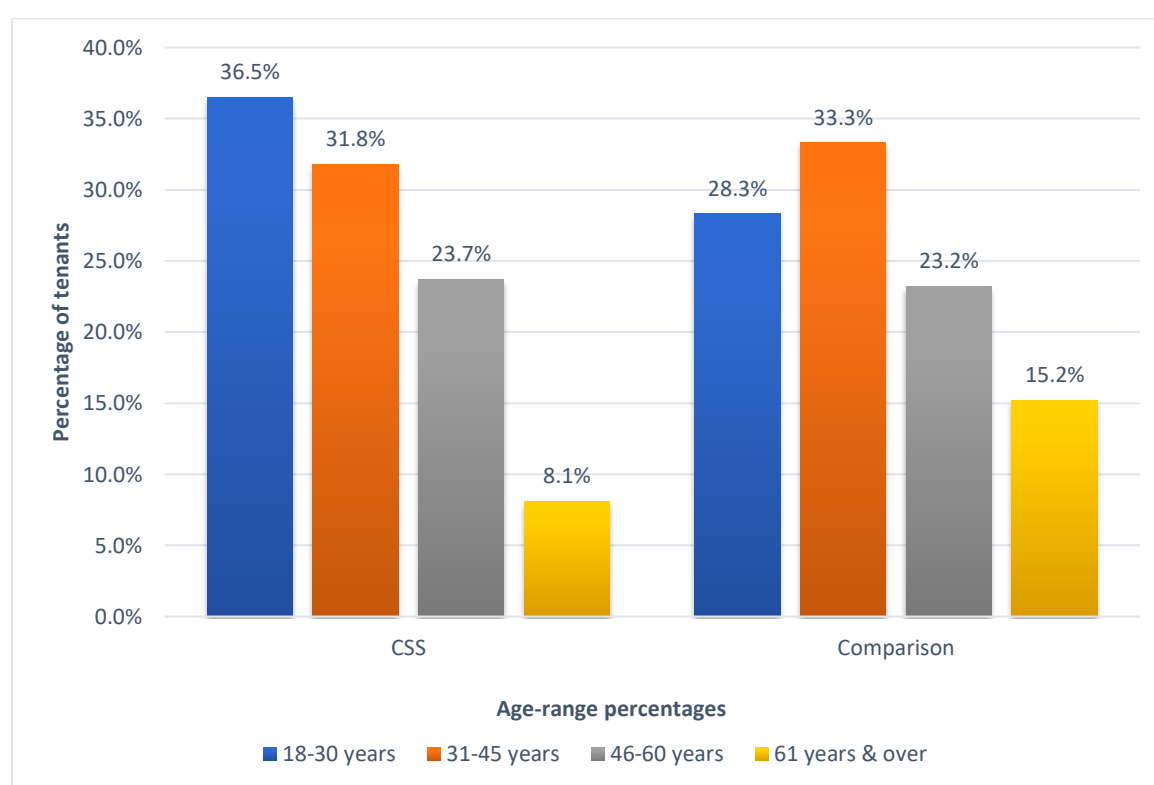


Table 23: Tenants' age-range at both the CSS and comparison – percentage at each site

Table 23 sets out the tenant age-range (of the person being questioned) as follows: 36.5 per cent (54) at the CSS, and 28.3 per cent (39) at the comparison were 18-30 years of age; 31.8 per cent (47) at the CSS and 33.3 per cent (46) at the comparison were between 31-45 years of age; 23.7 per cent (35) at the CSS, and 23.2 per cent (32) per cent at the comparison between 46-60 years of age; whilst 8.1 per cent (12)

at the CSS and 15.2 per cent (21) at the comparison were aged 61 and over. Consequently, it can be seen that the number of tenants aged 61 years and over questioned at the comparison was 75 per cent higher at the comparison. Whereas, the number of those questioned between 18-30 at the comparison was 72.22 per cent of those at the CSS. No one under the age of 18 appears in these statistics because no such individual was interviewed on ethical grounds of legal propriety.

Tenants' length of residency

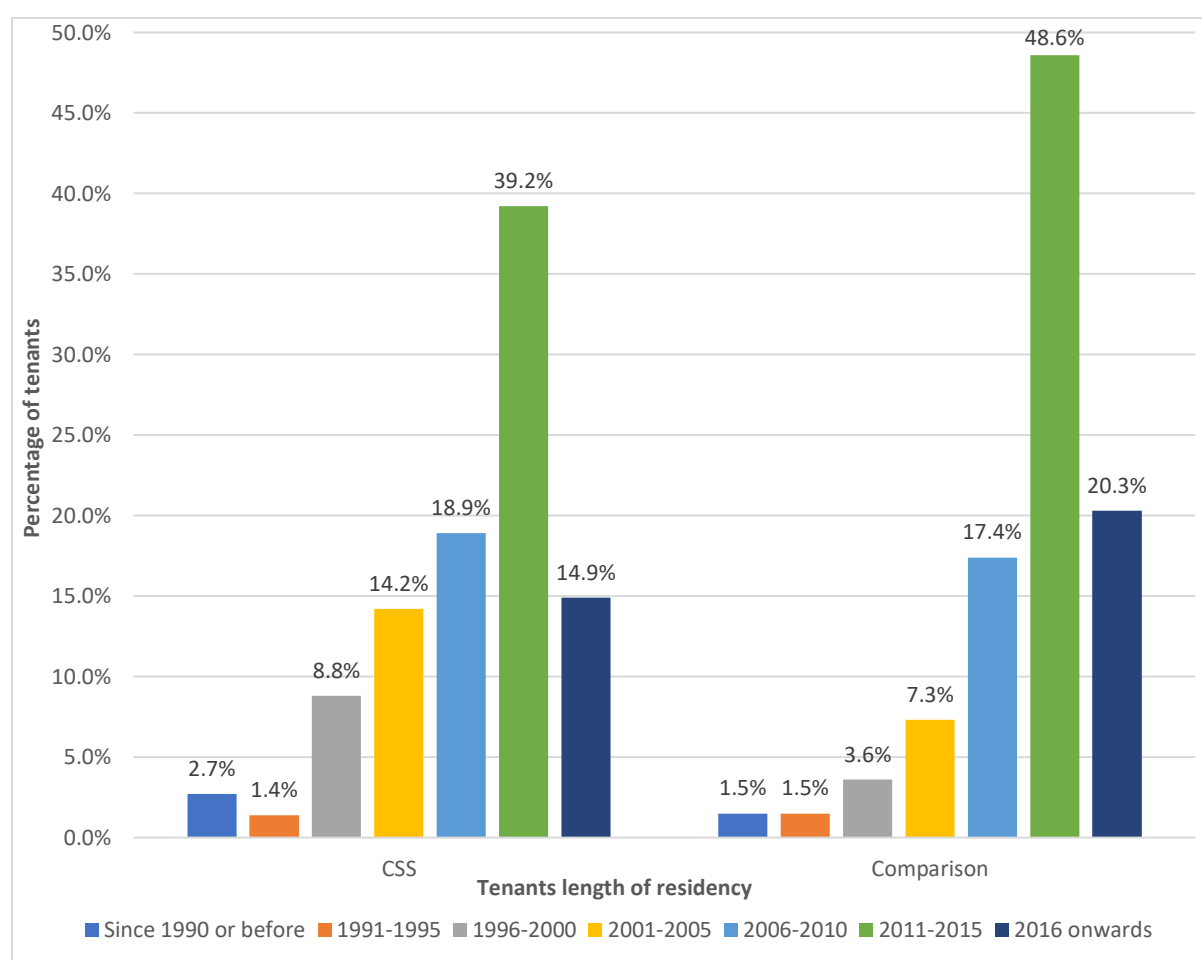


Table 24: Length of tenancy at both the CSS and comparison – percentage at each site

Table 24 details the length of tenancy. Unsurprisingly, more than three decades later only 2.7 per cent (4) of the tenants questioned at the CSS, and 1.5 per cent (2) at the comparison had moved into their flats during 1990 or in the years before; 1.4 per cent (2) at the CSS and 1.5 per cent (2) at the comparison, had taken up occupancy between 1991-1995; 8.8 per cent (13) at the CSS, and 3.6 per cent (5) at the comparison, had moved in between 1996-2000; 14.2 per cent (21) at the CSS, and 7.3 per cent (10) had been a tenant at the comparison since between 2001-2005; 18.9 per cent (28) at the CSS, and 17.4 per cent (24) at the comparison, had taken up residency between 2006-2010; 39.2 per cent (58) at the CSS, and 48.6 per cent (67) at the comparison, between 2011-2015; and 14.9 per cent (22) at the CSS, and 20.3 per cent (28) at the comparison in 2016 and thereafter. Comparing the two sites, perhaps the greatest difference is that at the CSS 27.0 per cent (40) of those questioned have been long-term tenants since 2005 or earlier; whereas at the comparison the figure is 13.8 per cent (19) – less than half.

Tenants' experience of crime and ASB

As outlined in Table 25 below, during the 18 years between 1997 and 2014 amongst the 286 questionnaire responses from tenants, 21.6 per cent at the CSS and 31.9 per cent at the comparison said they had been the victim of crime or ASB whilst a tenant at their flat. By extension, 78.4 per cent and 68.1 per cent had not been victims. Amongst the victims, 43 reported the crime had occurred inside that dwelling; 4 in the communal areas (ground floor area, staircases, lifts or landings); 29 in the grounds (including the car parks); and 16 had been the victim of ASB. It

should be noted that these figures are based on the memory/perception of the individual tenant at the time the questionnaire was completed.

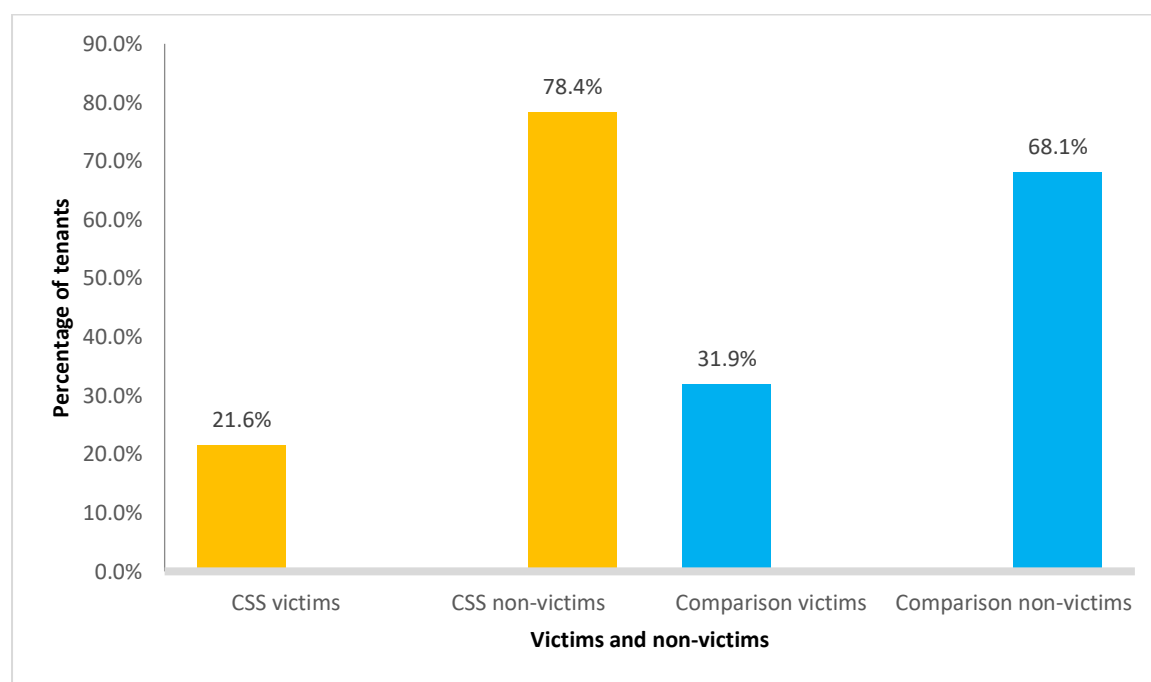


Table 25: Tenants' overall experience of crime at both the CSS and comparison – percentage at each site

Closer analysis indicates that the ratio of CSS to comparison victims to be as follows: inside the flat 15:28 (34.9 per cent at the CSS, 65.1 per cent at the comparison); within the communal areas 0:4 (all at the comparison); and in the grounds 17:12 (58.6 per cent at the CSS, 41.4 per cent at the comparison. Overall, on the basis of those tenants completing the questionnaire, those at the CSS experienced 42.1 per cent of all crime, whilst those at the comparison experienced 57.9 per cent – or almost half as much again as at the CSS.

Burglary

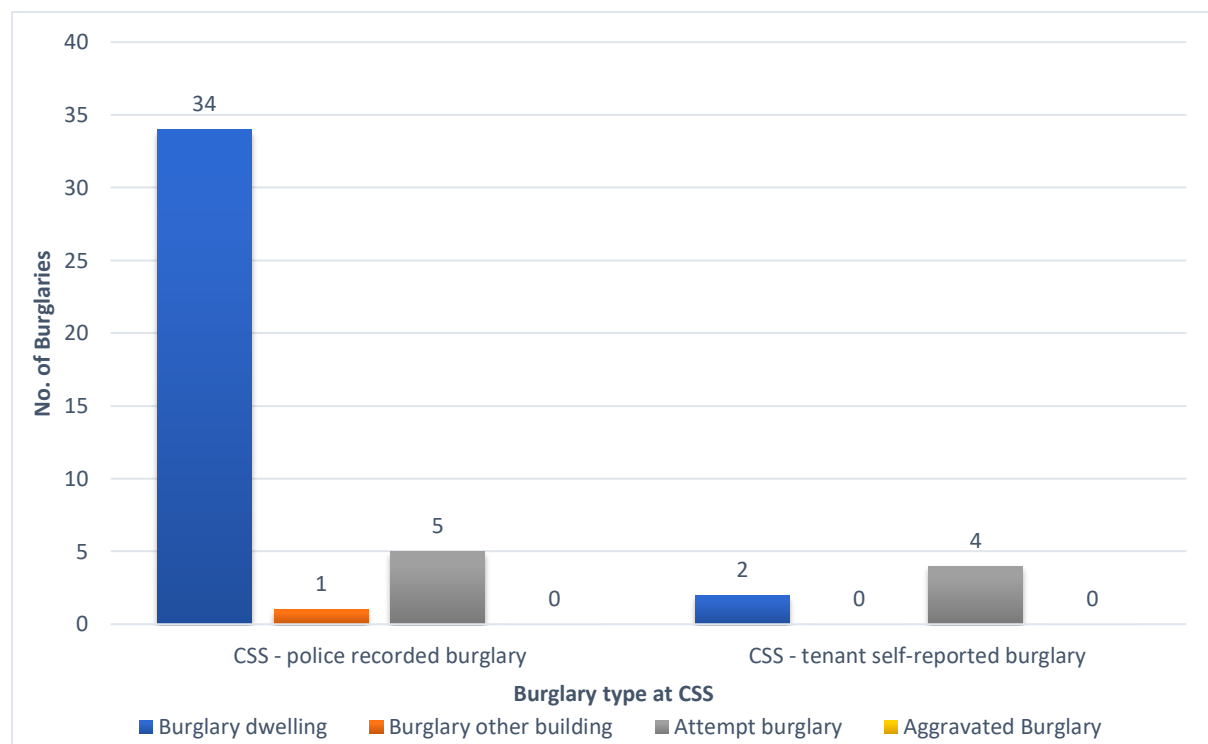


Table 26: Police-recorded burglary and tenant self-reported burglary at the CSS 1997-2014

Police data suggests that 100 residential burglaries were reported to and recorded by the police across the two sites during the 18 years from 1997-2014 (see Tables 26 and 27). This amounts to 7.1 per cent of all recorded offences. Of the 100 burglaries, 40 were reported as having taken place at the CSS (40 per cent) producing an incidence of 0.0084 crimes per dwelling per annum; compared to 60 at the comparison – 60 per cent and an incidence 0.0124. Analysis of this crime data indicates 85 per cent of these 100 offences were residential burglaries (34 at the CSS and 51 at the comparison). Non-residential burglaries accounted for a further 1 offence at the CSS and 3 at the comparison. Attempted burglaries, 5 offences at the CSS, 6 at the comparison. Perhaps of highest significance, over the whole 18-year

time period there were no examples of aggravated burglary – where the offender uses a firearm, imitation firearm, explosives or weapon of offence.

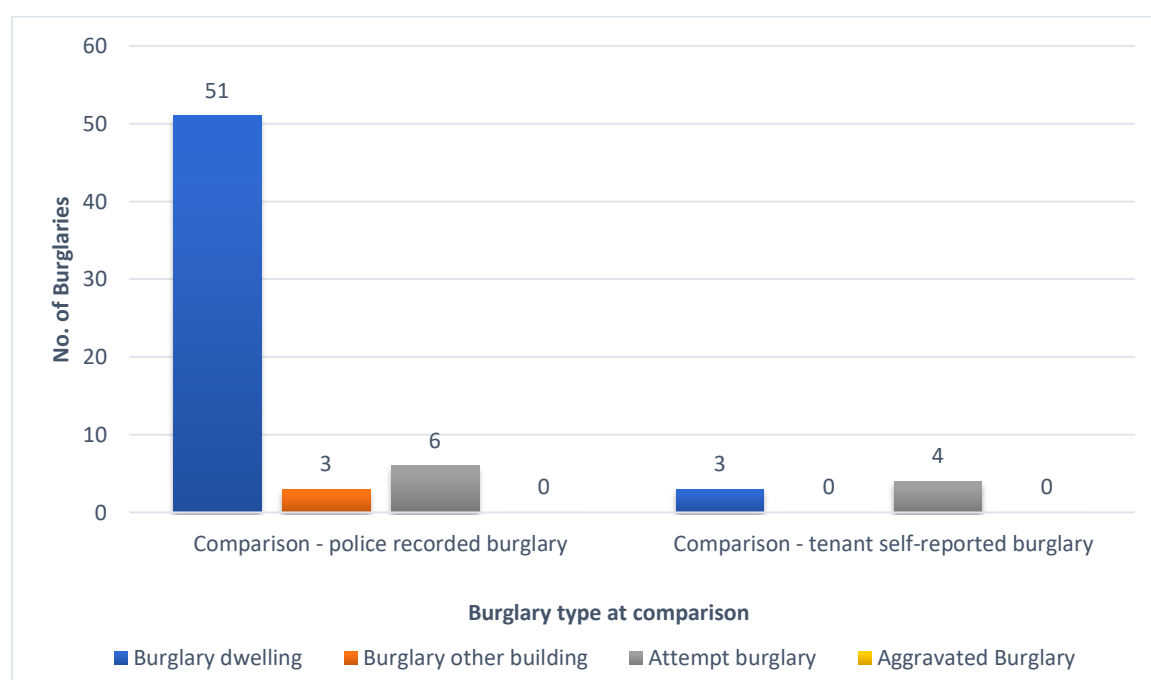


Table 27: Police-recorded burglary and tenant self-reported burglary at the comparison 1997-2014

Setting these figures against the tenants' questionnaire data indicates similar rates of under-reporting of burglary and attempt burglary at both the CSS (6 offences over 18 years) and comparison (7 offences over 18 years) with 13 tenants stating they had not reported the crime to the police. The most obvious explanations for this disparity might include (either individually or in combination): an unwillingness to report such crimes; lack of confidence in the police to investigate such crimes; absence of insurance; knowledge that the property stolen was itself the proceeds of crime; a belief that attempt burglary did not warrant such report (they had been lucky in escaping the substantive offence being committed. Also worth of note, none of the tenants questioned at either site mentioned being a repeat victim of burglary.

The ratio of 2:3 (CSS to comparison) burglaries in the police reported crime data, was therefore not replicated in the self-reported crime found in the tenant questionnaires. However, because the figures for these tenant-reported burglaries number less than one such offence per site per year, the capacity to draw objective conclusions is somewhat limited. Furthermore, two of the tenants (of more than 15 years' residence) interviewed at length were both victims of burglary – one a ground floor tenant at the CSS, the other at the comparison. The CSS tenant observed: "I thought my windows were locked, but they managed to get in and steal my valuables. Reported it to the concierge and the police arrived in an hour." (Interviewee no. T1). Whereas, the tenant from the comparison stated:

I couldn't afford insurance so there was no point in reporting it to the police. I was also pretty sure who'd broken into my flat and he's not a nice person. He didn't steal much, but then I haven't got much, have I? (Interviewee no. T20).

Robbery

During the 18 years 1997-2014, police-recorded crime data for both the CSS and comparison indicates a total 82 crimes of robbery and thefts from the person had been reported (see Tables 28 and 29 below). These break down into the marginally different 37 at the CSS (45.1 per cent) and 45 (54.9 per cent) at the comparison producing an incidence of 0.0078 and 0.0093 such crimes per dwelling per annum respectively – in total 5.8 per cent of all such police-recorded crime over 18 years. Without exception, these offences appear to have taken place outside the blocks –

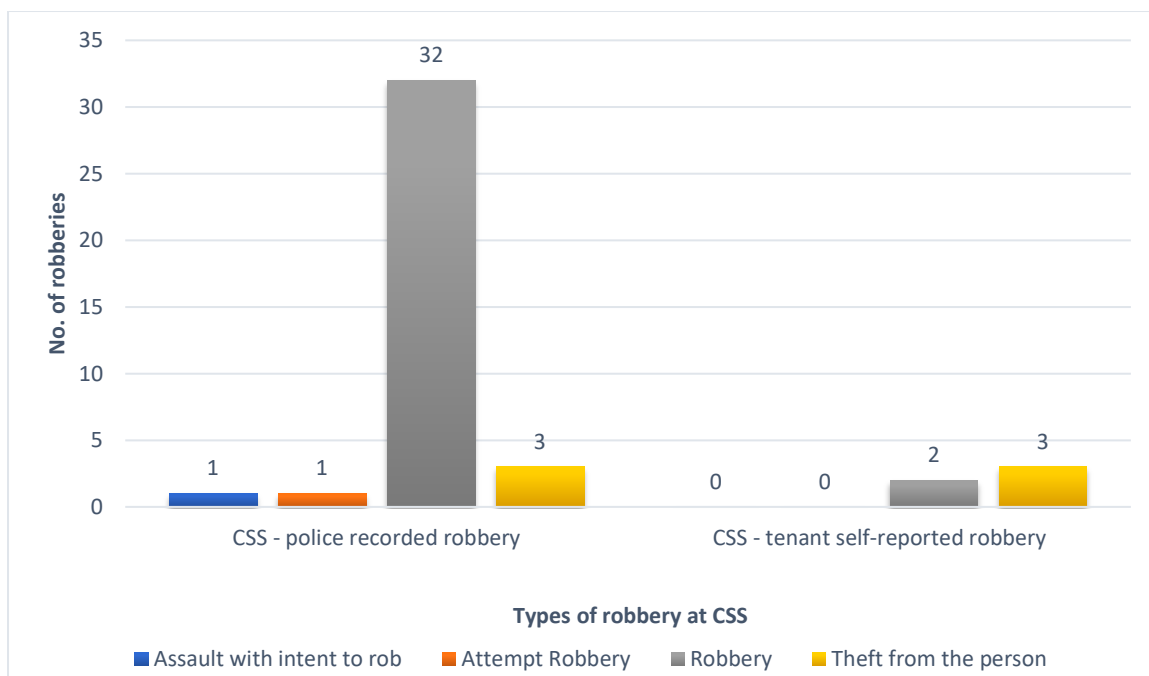


Table 28: Police-recorded robbery and tenant self-reported robbery at the CSS 1997-2014

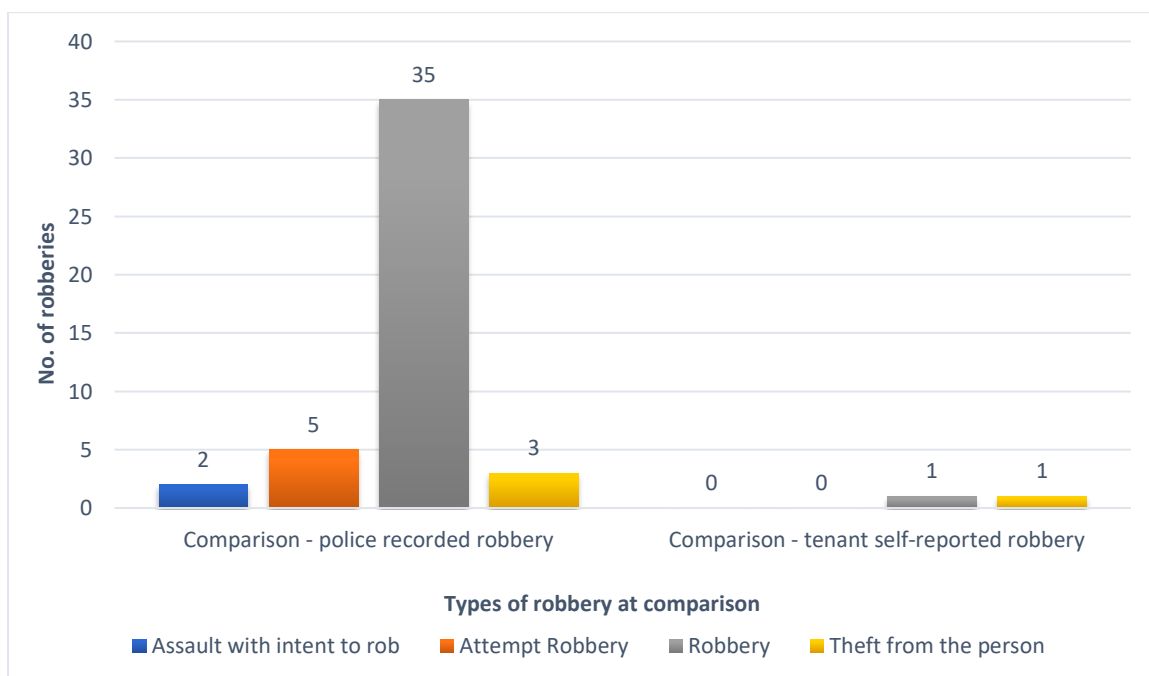


Table 29: Police-recorded robbery and tenant self-reported robbery at the comparison 1997-2014

either in the grounds or in the surrounding streets. 'Appear', because in a minority of instances the detail contained in the crime report MO is insufficient to identify the

exact location. The tenant victims questioned who self-reported were able to specify the location of their robbery and theft from the person. However, these amounted to just five from the CSS and two at the comparison. All seven disclosed that these offences had taken place outside the tower block – either in the grounds or immediately adjacent streets or footpaths. Only one from each site was interviewed at length. The CSS victim described: “I was walking from the bus-stop just as it was getting dark. He came up behind me, snatched my handbag and pushed me to the ground, before running off. I was too frightened to call the police.” (Interviewee no. T2). Whereas, the comparison victim recalled: “I was walking through the car park talking on the mobile when the bastard grabbed it out of my hand and gave me a load of abuse.” (Interviewee no. T15).

Assaults

As with the previous robbery crime category, reference to assaults includes a spectrum of offences: assault occasioning actual bodily harm); common assault; various offences of wounding; GBH and homicide (see Tables 30 and 31 below). However, assaults rarely featured in the responses provided by the tenants questioned and interviewed – 8 at the CSS and 20 at the comparison (less than 7.5 per cent of the total of police-recorded assaults for both sites). This causes a potential concern in that as detailed in Chapter Four, Crime Analysis, following new Home Office counting rules the number of police-recorded assaults (many it can be inferred from the MO data relating to domestic violence at both the CSS and comparison site) increased considerably. As a consequence, it might be presumed that none of those subject to such assault were prepared to speak freely when

interviewed – or have moved, or that some of those questioned were particularly reticent in this especially serious and difficult to investigate subject area.

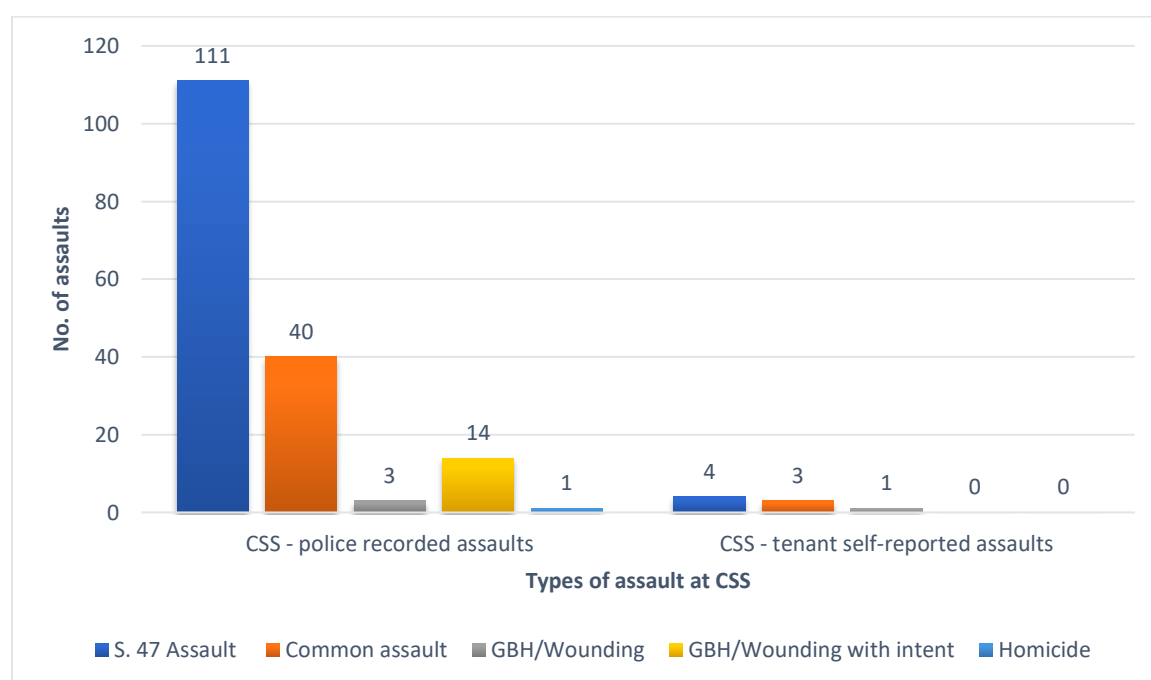


Table 30: Police-recorded assaults and tenant self-reported assaults at the CSS

Furthermore, the number of assaults over 18 years totalled 371 – 169 at the CSS (45.6 per cent, producing an incidence of 0.0356 crimes per dwelling per annum); 202 at the comparison (55.0 per cent, producing an incidence of 0.0419) with assaults accounting for 26.1 per cent of all police-recorded crime at the seven tower blocks. This is the largest single crime category, yet it is not reflected in the concerns raised by the tenants in the questionnaires or in the extended interviews. On closer inspection, 245 (66 per cent) of these offences related to Section 47 assault (ABH) and until common assault was made a statutory offence by the Criminal Justice Act 1988, the lowest grade that would appear in crime statistics. Under this heading would fall bruising and cuts – but not wounds, broken bones, or GBH (these accounting for 40 (10.8 per cent) offences amongst the total number under this

‘assaults’ heading. Nevertheless, the absence of commentary amongst the tenants’ questionnaire and interview data raises multiple issues – and this despite the researcher adopting a semi-structured, open-ended style of interviewing where the interviewee is encouraged to speak freely – as detailed in Chapter Three.

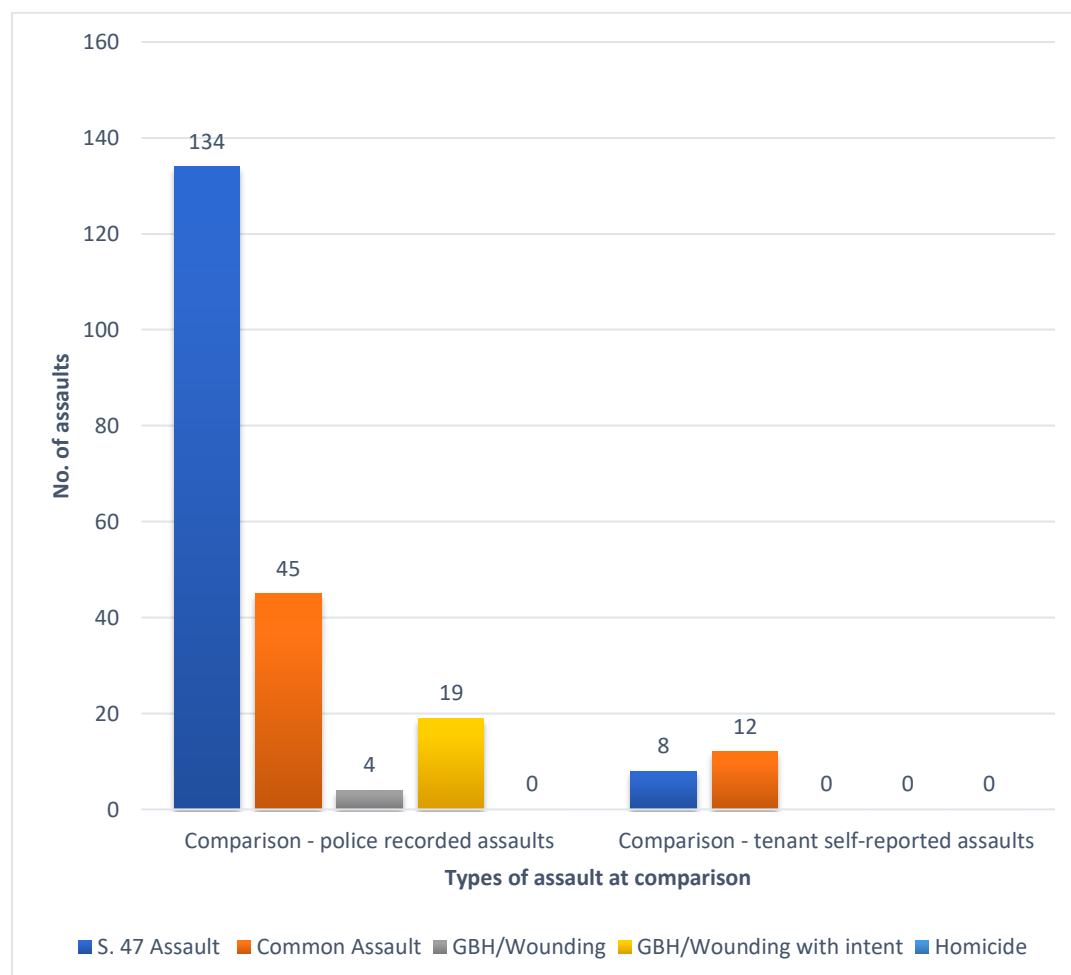


Table 31: Police-recorded assaults and tenant self-reported assaults at the comparison

In addition to the earlier potential explanation that many of these assaults may relate to domestic violence with an inherent reticence to talk about such crimes, as with the previous category of ‘robbery’ such is the manner of crime reporting that it does not

necessarily follow the offence took place at the victim's home address. Furthermore, 371 assaults divided over 18 years works out at 20.6 crimes per year and an average incidence across both sites of 0.0387 per dwelling per year.

Vehicle crime

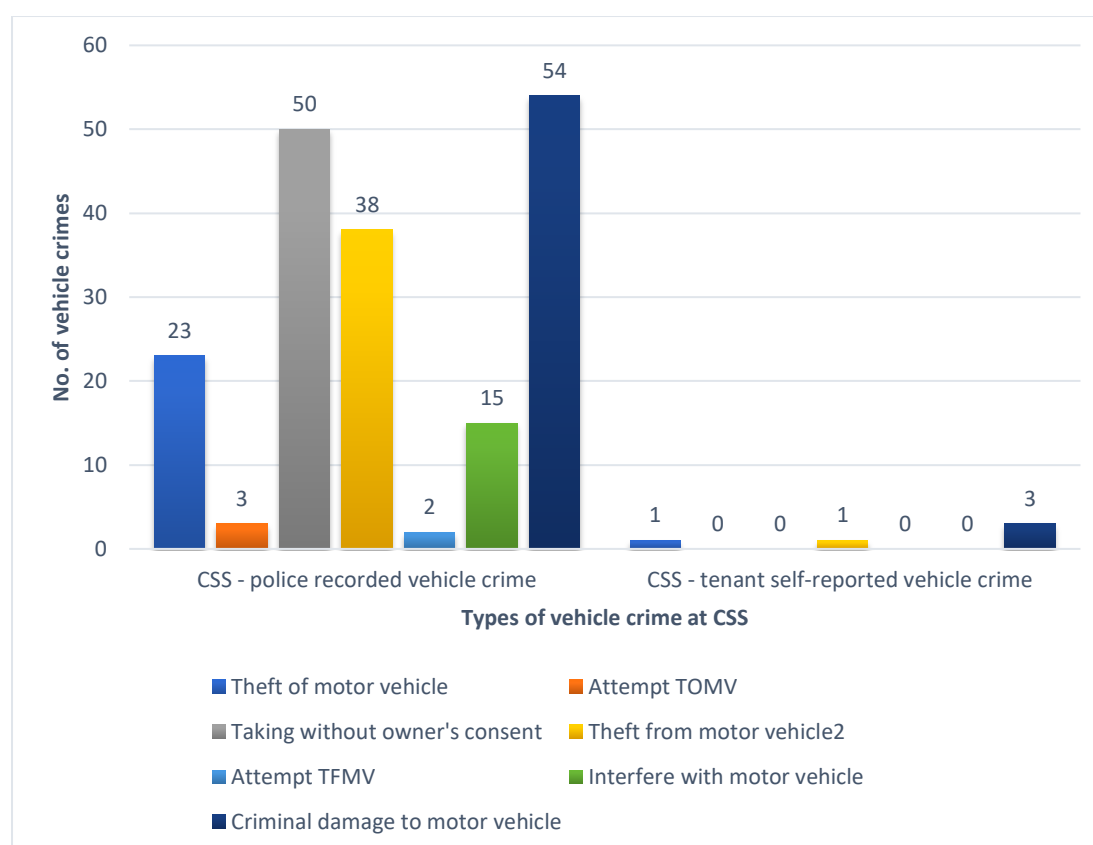


Table 32: Police-recorded vehicle crime and tenant self-reported vehicle crime at the CSS

Tables 32 and 33 set out police-recorded and tenant self-reported vehicle crime at the CSS and comparison. At both sites, less than one third of tenants questioned during 2016 owned a vehicle – estimated at 29.2 per cent for the CSS and 26.5 per cent for the comparison. At the CSS, five of the tenants questioned said they had been the victim of vehicle crime: one theft of motor vehicle (never recovered); one

theft from motor vehicle; and three criminal damage to motor vehicle offences. At the comparison the total was seven: one theft of motor vehicle; one taking without owner's consent (TWOC); three thefts from motor vehicle; and two offences of criminal damage to motor vehicle.

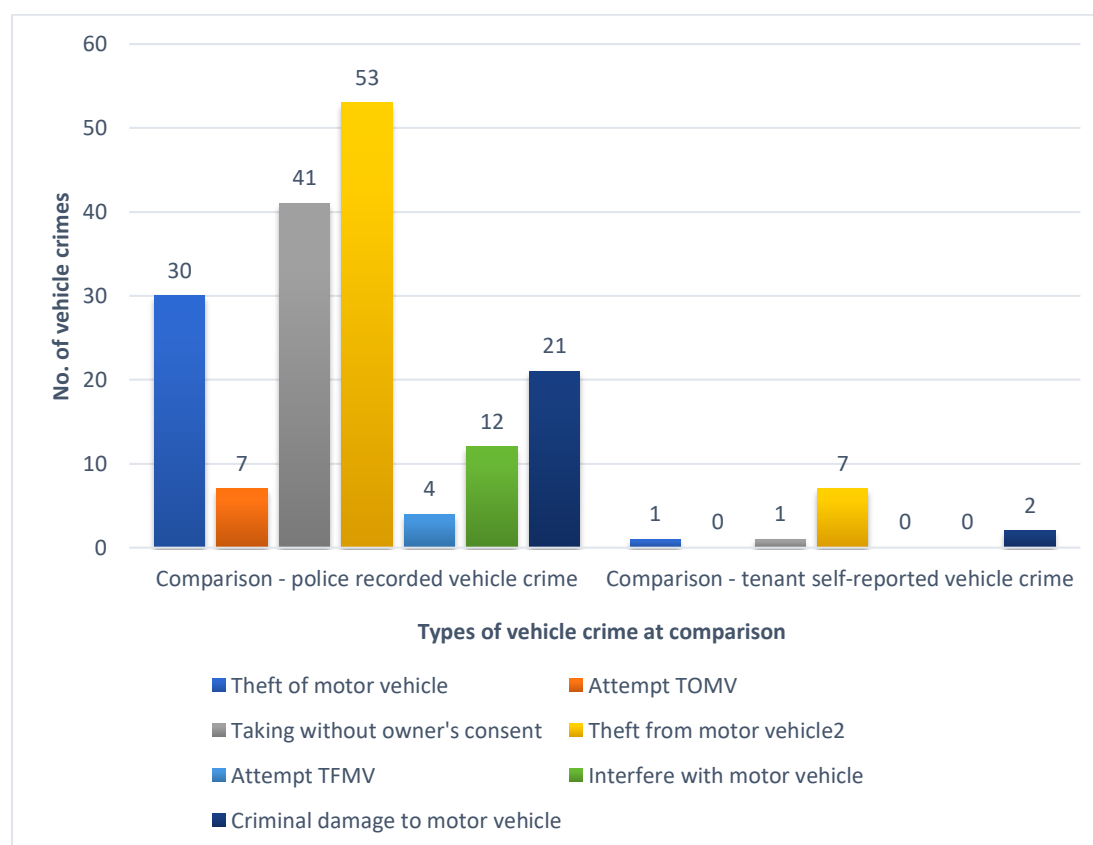


Table 33: Police-recorded vehicle crime and tenant self-reported vehicle crime at the comparison

Vehicle crime was one of only two crime categories examined where there was a higher incidence at the CSS (185 offences, 52.4 per cent, incidence 0.0389 crimes per dwelling per annum) than at the comparison (168 offences, 47.6 per cent, incidence 0.0348). This was especially the case at the CSS during 1993 – the year after the refurbishment (including the incorporation of higher grade CPTED measures to and within the tower blocks) was completed. In that year 22 vehicle

crimes were recorded as having taken place at the CSS, producing an incidence of 0.0833. However, during the 18 years between 1997-2014 some 353 vehicle crimes were recorded by the police as taking place at the combined locations – 91 of which were TWOC offences, 53 thefts of, 91 thefts from and 75 criminal damage to motor vehicles. However, only 5 of those questioned at the CSS and 11 at the comparison fell into the category of self-reported crime. Of significant importance, with so few householders who could trace their tenancy back to the years of refurbishment, perhaps it was unsurprising that none of the tenants interviewed at length were vehicle owners at that time. This points to a number of key issues in conducting such a study over the very long-term: changes in tenants' occupancy, their demographics, and (in this instance) vehicle ownership – because it appears an increasing proportion of tenants became car owners over time.

In this last regard a tenant since 1985 at the CSS observed when interviewed at length:

When I first moved here very few people owned a car. And after all that refurbishment work there were plenty of empty spaces to park in, whereas now there are so many they park everywhere. (Interviewee no. T5).

A similar observation was made by a tenant resident at the comparison since 1989:

People used to park wherever they could. There just weren't enough spaces. But things got better when they put fencing round the grounds and made the car park bigger. (Interviewee no. T19).

This last statement also alludes to the reality of how the 1993-95 refurbishment at the comparison was not a single, one-off event frozen in time. Subsequent measures, for example erecting fencing around the grounds, extending the car parks and installing new entrance doors to each of the flats and communal entrance doors at the comparison have taken place over the following two decades.

Criminal damage

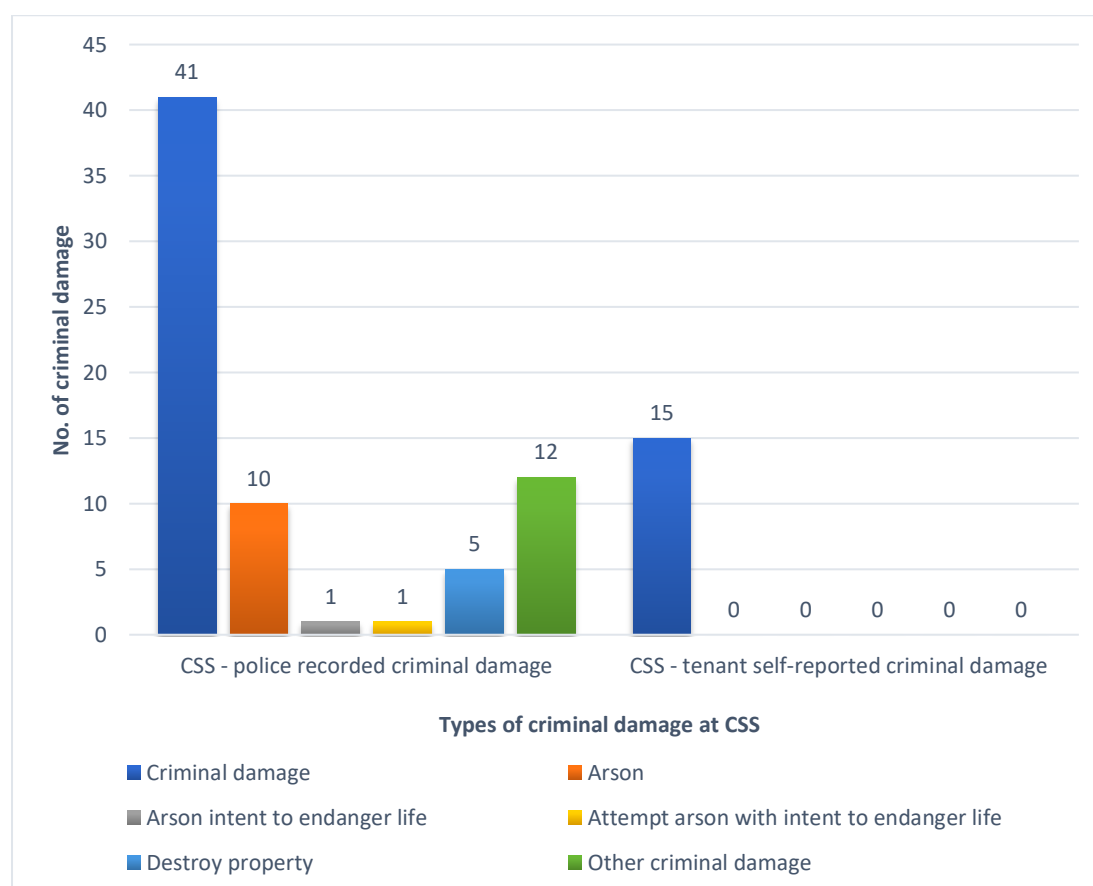


Table 34: Police-recorded criminal damage and tenant self-reported criminal damage at the CSS

Tables 34 and 35 illustrate police-recorded and tenant self-reported criminal damage crime at the CSS and comparison. Tenants questioned and interviewed at both sites made repeated references to such criminal damage taking place – largely in the form

of graffiti to the internal walls and doors. Indeed, analysis of the recorded crime data indicates that over the 18 years between 1997-2014, 137 such offences were reported to/recorded by the police – 70 at the CSS (51.1 per cent, producing an incidence of 0.0147 crimes per dwelling per annum) and 67 at the comparison (48.9 per cent, incidence 0.0139). These include 22 instances of arson, 11 at each site.

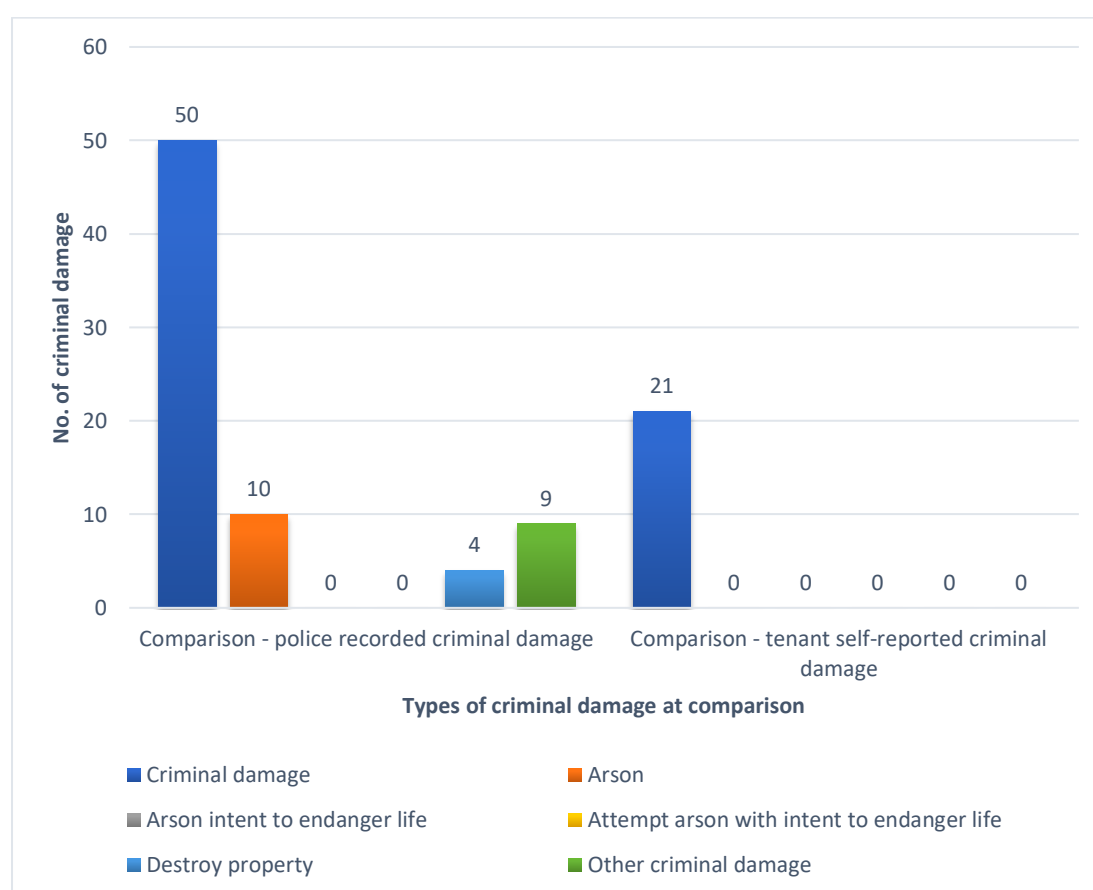


Table 35: Police-recorded criminal damage and tenant self-reported criminal damage at the comparison

Amongst the tenants questioned and interviewed at both the CSS and comparison, criminal damage was the one category that indicated the greatest disparity between the police-recorded and tenant-reported crime statistics. Once again, tenant self-reported crime was low with 15 CSS tenants and 21 at the comparison stating, when

questioned, they had been either the victim of criminal damage or had witnessed same (one at the comparison on more than three occasions). As one CSS tenant described when interviewed:

You just know the council and police won't be interested in graffiti or petty vandalism, so what's the use in reporting it? It was different when we had the concierge. They used to get onto it straight away and ensure the doors (communal entrance doors) were kept locked. But now anyone can get in and damage the place. (Interviewee no. T11).

A tenant at the comparison had a more nuanced explanation for their decision not to report criminal damage:

There are so many problems living here. A little bit of vandalism is the least of our worries. In any case, there's nothing for the kids to do so no wonder they damage the place – and they don't live here. (Interviewee no. T16).

'Other' crime

Tables 36 and 37 below set out police-recorded and tenant self-reported 'other' crime at the CSS and comparison. The category of 'other' crime covered all recorded and tenant-reported crime not included under the previous five headings. Amongst the 361 police-recorded offences, the largest number was for theft other (122 offences), followed by theft in a dwelling (58 offences), drugs offences (54), harassment (45), sexual offences (33), racially-aggravated offences (19), threats to kill (18), handling or receiving stolen property (10) and all other offences – all single figure totals at both sites (115). More specifically, 160 'other' offences at the CSS (44.32 per cent, producing an incidence rate of 0.0337 offences per dwelling per

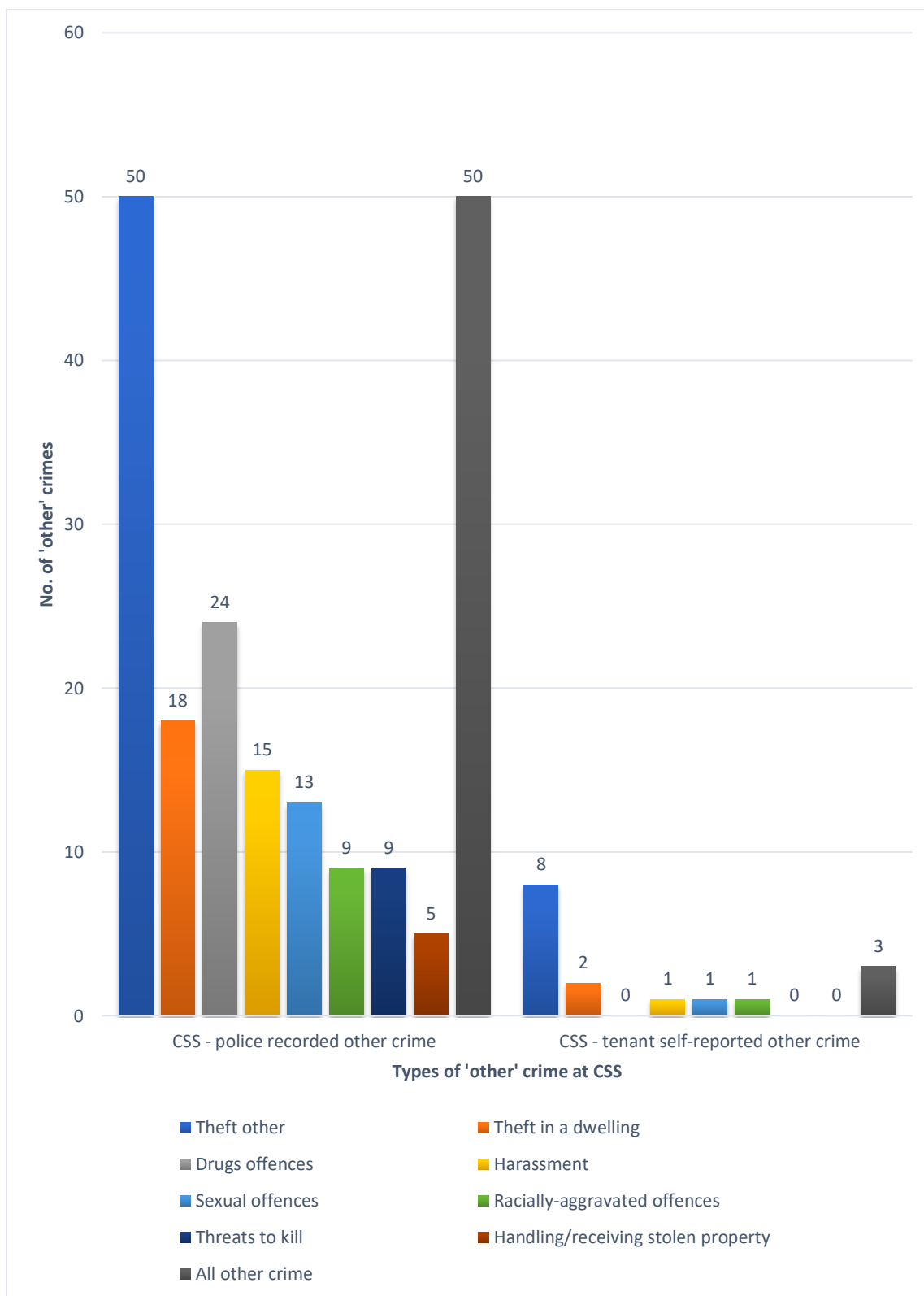


Table 36: Police-recorded 'Other' crime and self-reported 'Other' crime at the CSS

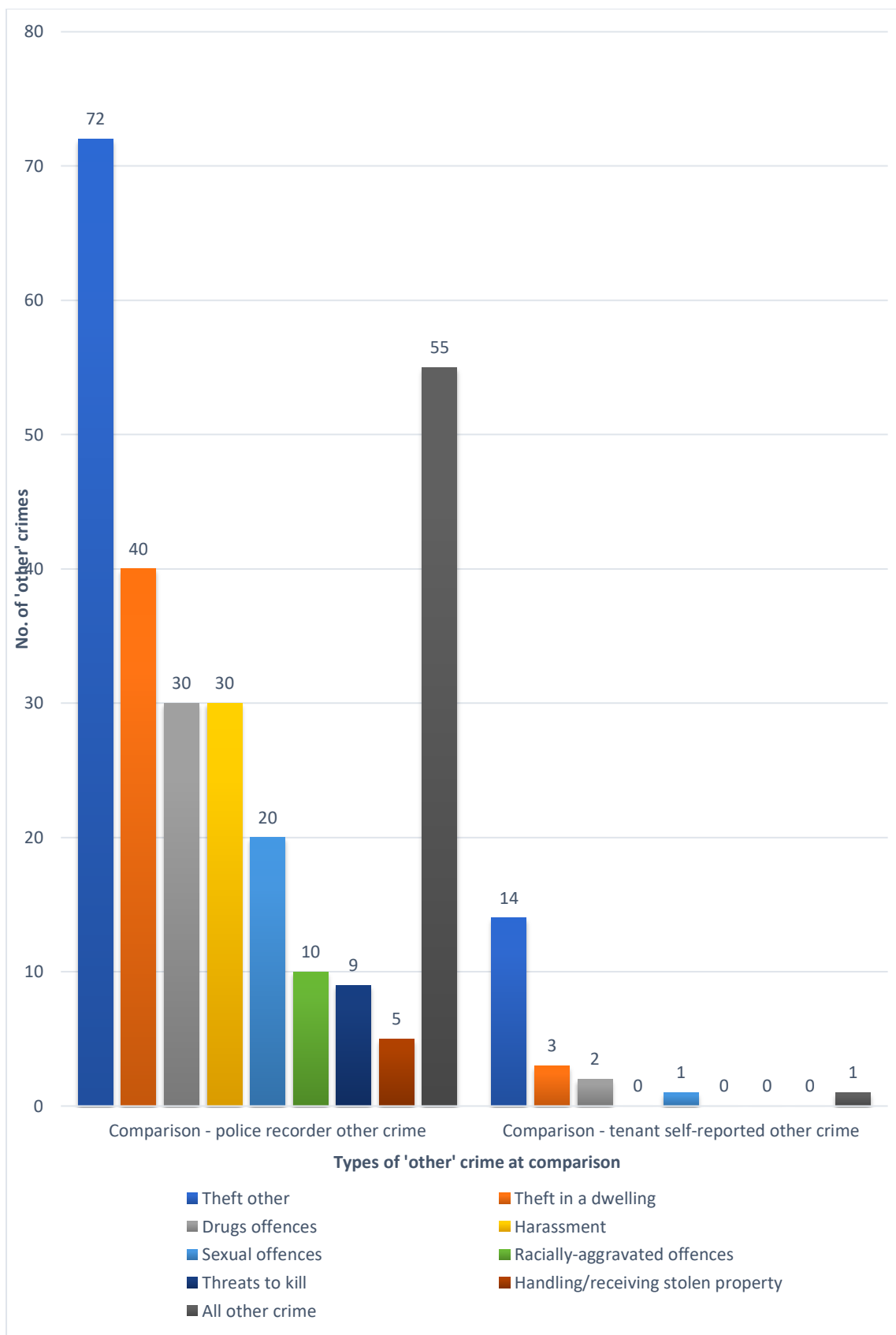


Table 37: Police-recorded 'Other' crime and self-reported 'Other' crime at the comparison

annum); and 201 at the comparison (55.68 per cent, incidence 0.0417) were recorded by the police. However, tenant reported crime at the CSS accounted for only 16 offences and 21 at the comparison (less than 2.5 per cent in total). Furthermore, 8 (exactly 50 per cent) of these tenant-reported offences at the CSS; and 14 (66.6 per cent) at the comparison fell under the headings of theft. And perhaps of greatest importance, because 'other' crime covers such a wide spectrum of offences even under largest category of theft other, 122 police-recorded offences amount to 0.97 offences per tower block per annum. It is therefore difficult at best to draw any conclusions from this extremely low level of recorded criminality.

Summary across all crime categories

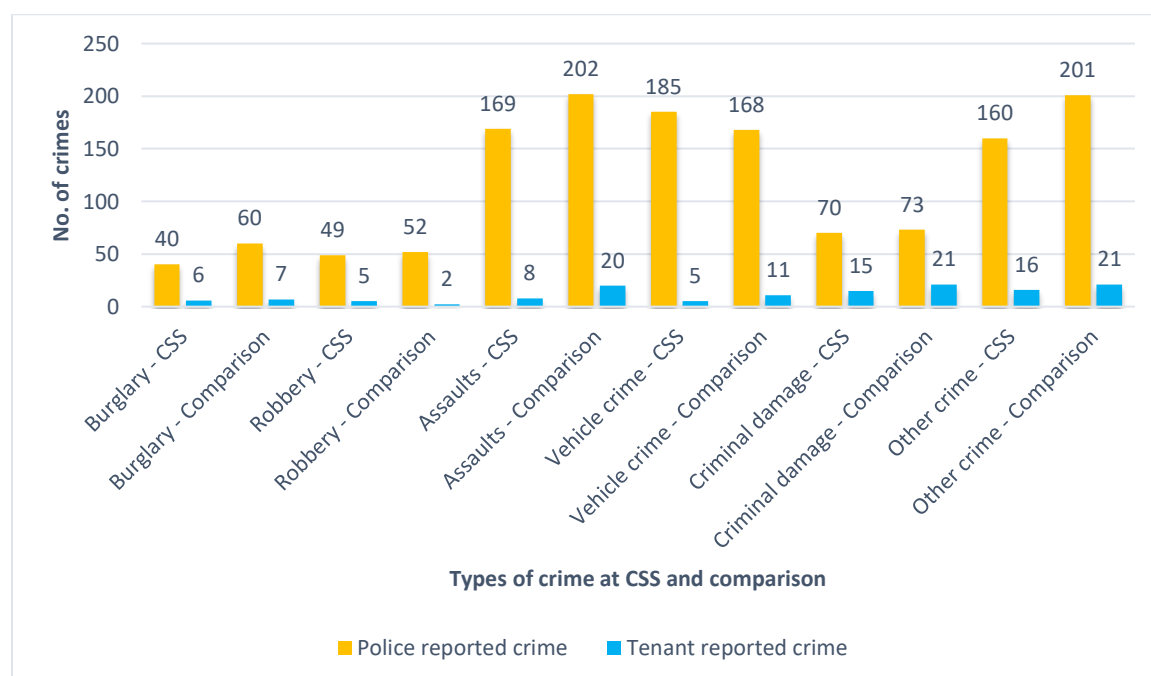


Table 38: Police-recorded crime compared to tenant self-reported crime at CSS and comparison, 1997-2014

Table 38 above demonstrates how the two highest crime categories (in terms of police-recorded offences) are assaults (169 at the CSS, 202 at the comparison) and vehicle crime (185 at the CSS, 168 at the comparison). However, in these two crime categories tenant-reported crime does not account for more than 4.7 per cent at the CSS and 9.9 per cent at the comparison. Whereas, under the crime category of burglary (40 recorded offences at the CSS, 60 at the comparison), 5 tenant-reported offences at the CSS amounts to 12.5 per cent and 2 at the comparison, 3.3 per cent.

Differences between the police-recorded and tenant-reported crime totals can be attributed to a number of different causes. Chief amongst these are that 148 questionnaires were completed for the CSS and 138 at the comparison, producing an overall response rate of 53.76 per cent – little more than half of all existing tenants at both sites. Those tenants questioned and interviewed may also have been unwilling to revisit the memory of specific crimes where they had been the victim. Or simply forgotten (or didn't know) that they or someone other than her or himself in their household had been the victim of a crime reported to the police. But perhaps the greatest cause pointing to an apparent unwillingness to report crime at the comparison, was the long-term absence of community representation and the 24/7 staffed concierge – as existed at the CSS for 24 years. As one long term tenant at the CSS and a resident since before the 1989-92 refurbishment observed:

When we had the tenants club (Four Towers Tenants Association) there was a real community spirit with (names redacted). But that's been long gone. And when they closed the concierge... There's no one to tell about what's happening. I now feel very cut off and lonely. (Interviewee no. T10).

ASB

Within the tenant questionnaire (see Appendices 1 and 2) ASB was an element within questions 7 and 4 respectively relating to the tenant's experience of crime. Out of 268 tenants questioned, only 16 reported to have been victims of ASB – evenly distributed with 8 at the CSS and 8 at the comparison (5.4 and 5.8 per cent respectively). Furthermore, all 16 did not self-report as victims, although 2 at the CSS and four at the comparison described the ASB as being abused verbally. The remaining 10 instances all related to noise – either from neighbours or persons whom they described as not being tenants of the tower block. And whilst the police are not mandated by the Home Office to record ASB, these figures can be set against those within the Crime Survey for England and Wales (CSEW). Indeed, during the six years March 2012 to March 2018 experience of ASB fluctuated between 27 per cent and 33 per cent amongst those questioned (CSEW, 2020). Potential explanations for this disparity in experience of ASB by tenants at the two sites and nationally might include: different perceptions; world-weariness; unwilling to complain; avoidance behaviour by rarely venturing out; and enhanced tolerance.

Nevertheless, amongst the 22 tenants who were interviewed at length, each of them comments on issues than can be interpreted as ASB – often verging on criminal behaviour. For example, a tenant of 12 years residency at the CSS observed:

I've had a noisy neighbour upstairs ever since I moved in. When we had the concierge I used to tell them and he would turn the music down for a few days. But since the concierge closed there's no one to tell except the control room and they don't do anything. (Interviewee no. T11).

A tenant of 15 years at the comparison commented:

When we moved in we knew this wasn't paradise... we just wanted a home.

But everyone keeps themselves to themselves. There's the noise and bad

language... And you daren't complain for fear they would take it out against

you or my wife. (Interviewee no. T17).

Tenants' perceptions of crime

Issues concerning the fear of crime and safety were constantly repeated during both the questionnaire and extended interview stages of this research project.

Perceptions of crime in the Nechells area in which their block was located compared to the City of Birmingham as a whole, revealed that only 2.0 per cent (3) of the tenants at the CSS (see Table 39) and none at the comparison (see Table 40) when

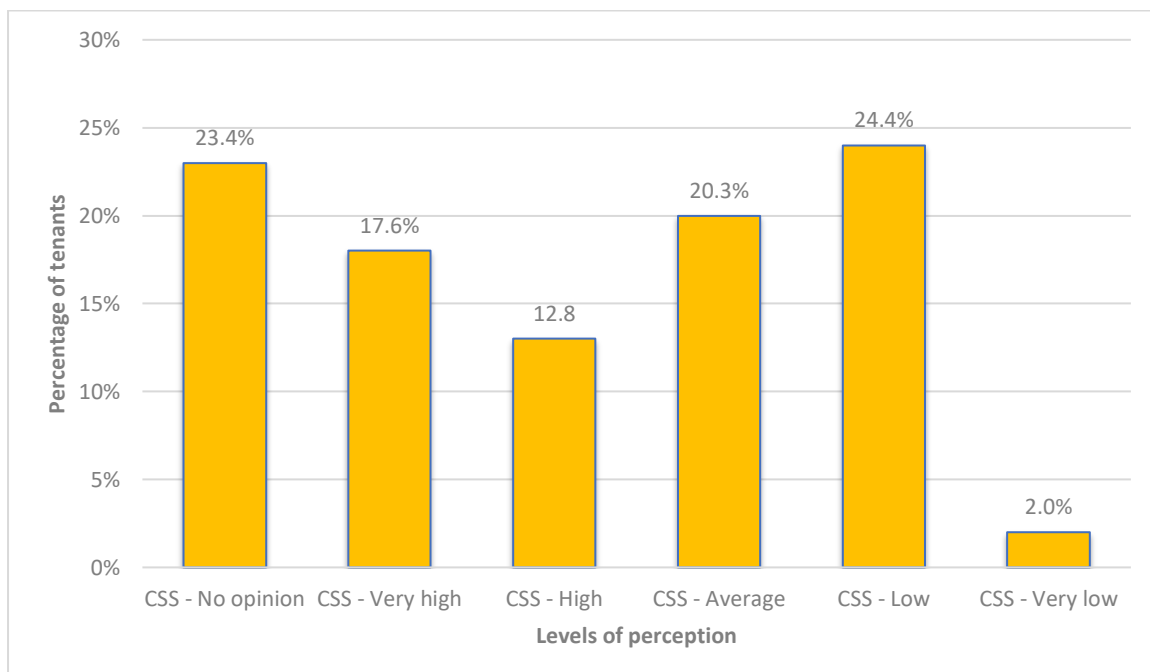


Table 39: CSS tenants' perceptions of crime in Nechells compared to rest of Birmingham

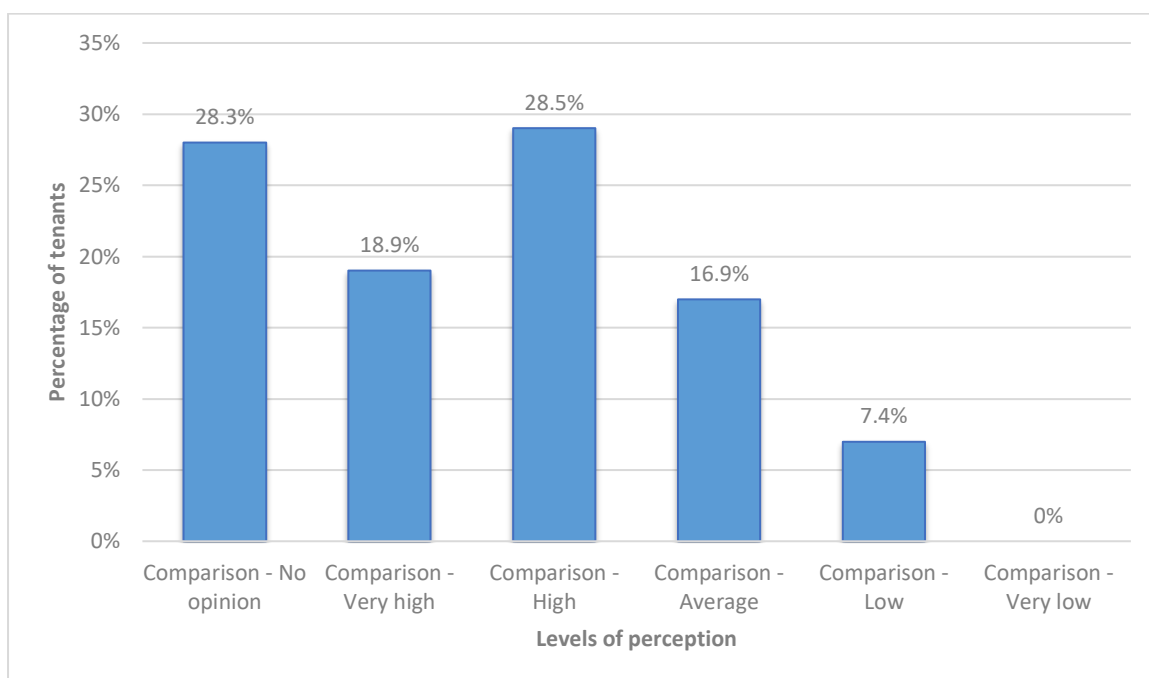


Table 40: Comparison tenants' perceptions of crime in Nechells compared to rest of Birmingham

questioned thought that crime was 'very low'. Whereas 17.6 per cent (26) at the CSS and 18.9 per cent (26) at the comparison believed crime to be 'very high'. However, 12.8 per cent (19) at the CSS and 14.0 per cent (40 and more than twice as many) thought that crime was 'high'. Furthermore, collectively the categories for 'average', 'low' and 'very low' indicate that 46.7 per cent (69) of tenants at the CSS and less than half that number, 23.3 per cent (33) at the comparison were of the opinion that crime was 'average' or 'low' in Nechells compared to other parts of Birmingham. All these percentages are based on the total number of 286 tenants who responded during the questionnaire phase.

One of the comparison tenants when subsequently interviewed at length observed:

"These days I feel very safe inside my flat, but I don't think Nechells is a safe district compared to many other parts of the city." (Interviewee no. T21).

Tenants' perceptions of prevalence of specific crime types

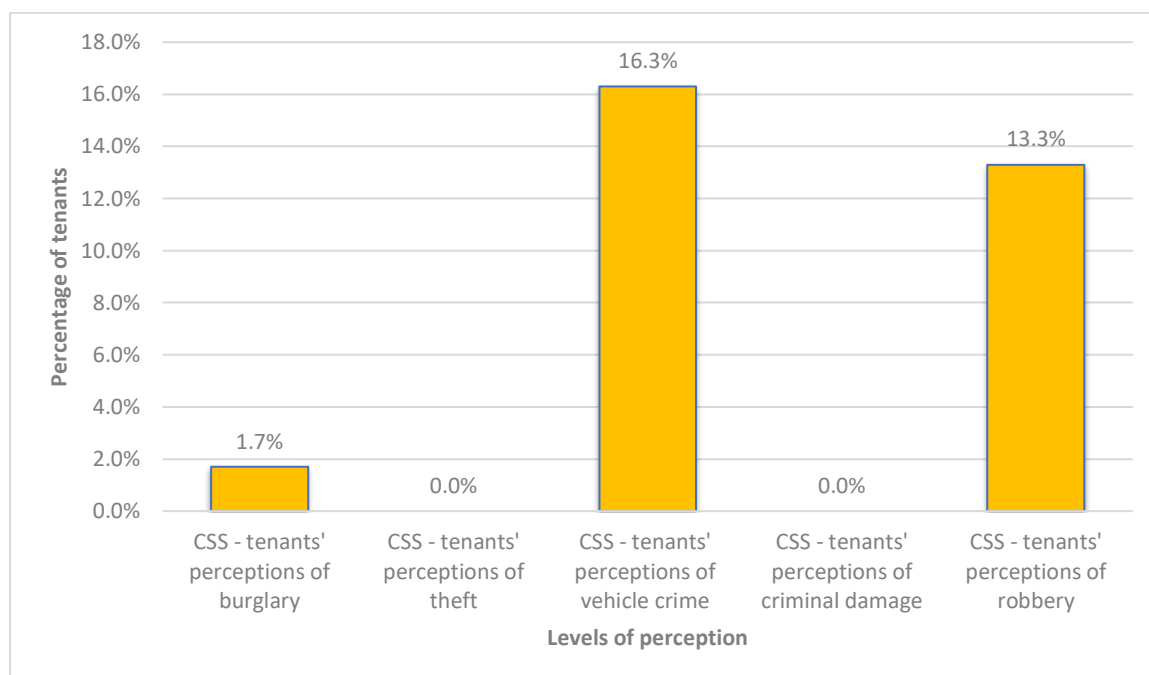


Table 41: CSS tenants' perceptions of prevalence of specific crime types

Tables 41 and 42 indicate how at both the CSS and comparison, less than one third of all tenants (44 at the former, 28 the latter) were prepared to express an opinion as to the prevalence in Nechells of five specific crime types: burglary, theft, vehicle crime, criminal damage and street robbery (muggings). Amongst those tenants willing to rank these offences, street robbery and vehicle crime were believed to be especially high. Indeed, opinion was almost equally divided between the two sites that street robbery and vehicle crime were the most common crime types, with vehicle crime rated higher than street robbery (16.3 per cent compared to 13.3 per cent) of tenants at the CSS; whilst the reverse was disclosed (8.9 per cent compared to 7.3 per cent) at the comparison. Burglary was consistently judged to come third, with theft and criminal damage placed as occupying either fourth or fifth position.

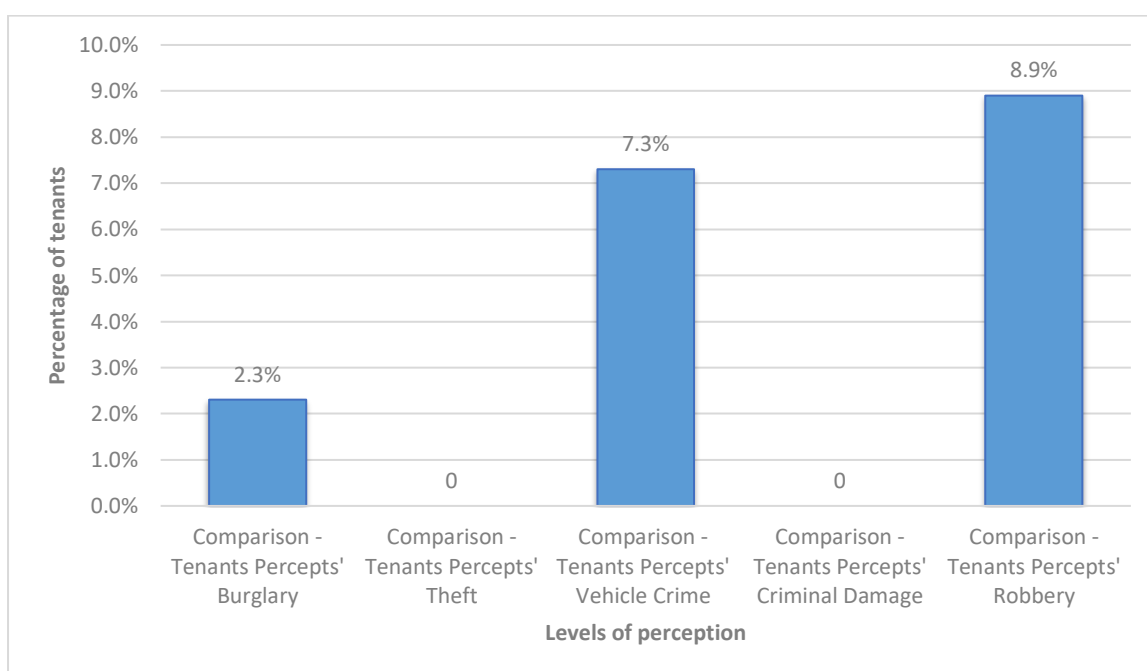


Table 42: Comparison tenants' perceptions of prevalence of specific crime types

Tenants' own experiences of crime may have had some effect on their perceptions of same – especially at the CSS with its higher figure of police recorded vehicle crime relative to the comparison. For example, a long-term resident at the CSS (and former member of The Four Towers Tenants Association) whilst never a car owner herself expressed the following opinion when interviewed at length: “Four cars have been burnt out on the car park behind my flat, so I’d say vehicle crime was especially bad ‘round here.” (Interviewee no. T7). Whereas a tenant at the comparison observed: “It’s being mugged that I worry about – especially when it’s dark. After I park my car the walk to my flat is always an ordeal.” (Interviewee no. T16).

Tenants' perceptions of changes in crime over time in Nechells

Tables 43 and 44 below describe how identical percentages of tenants at both the CSS and comparison had no knowledge regarding changes in crime over time in the

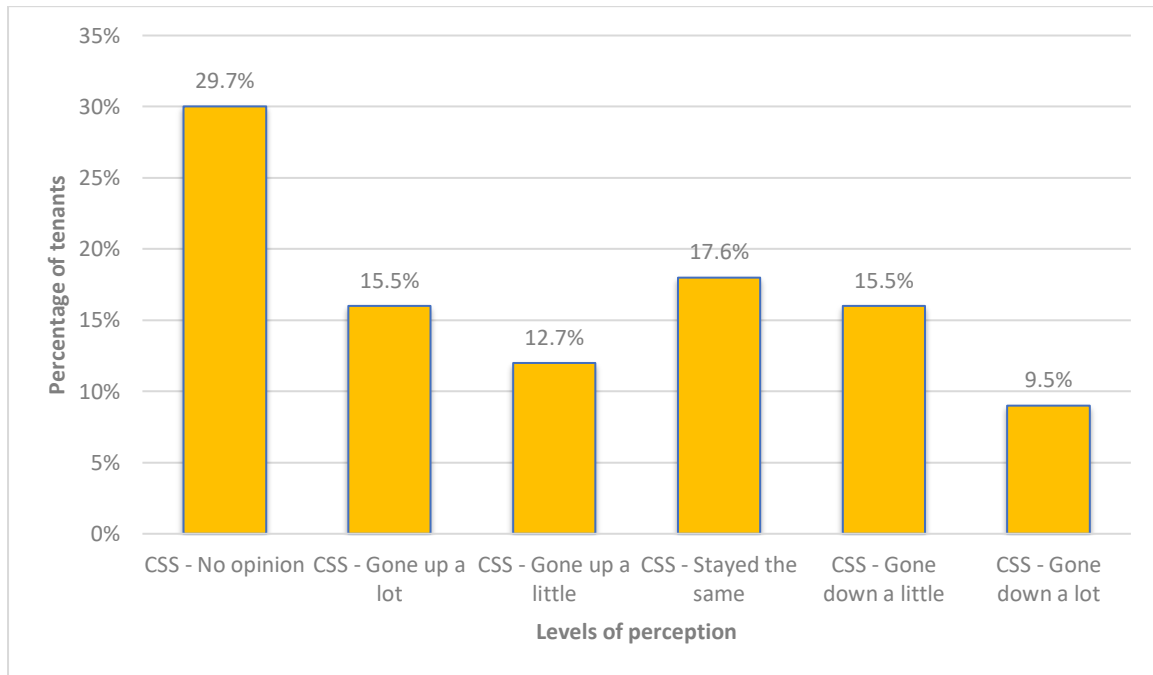


Table 43: CSS tenants' perceptions of changes in crime over time in Nechells

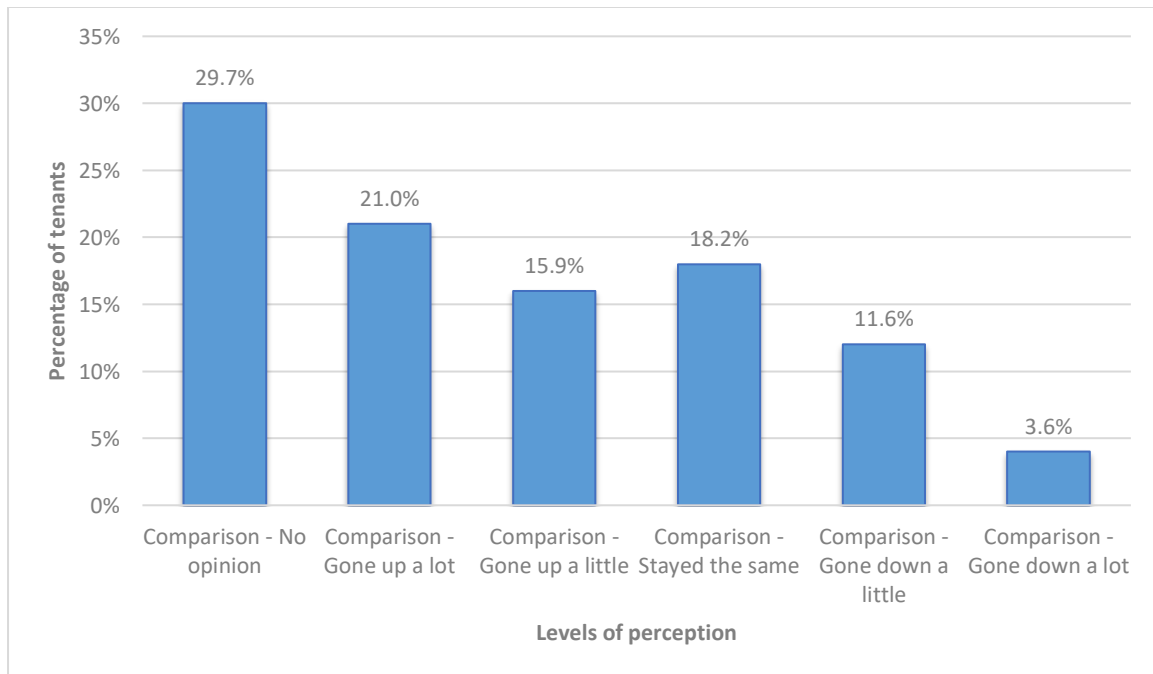


Table 44: Comparison tenants' perceptions of changes in crime over time in Nechells

Nechells area of Birmingham: 29.7 per cent (44) at the at the CSS and 29.7 per cent (41) at the comparison. Conversely, At the CSS an identical number of tenants, 15.5 per cent (23) believed crime had 'gone up a lot' or 'gone down a little'. Indeed, at the CSS exactly 25 per cent (37) believed crime had 'gone down a little' or 'gone down a lot'. Whereas, at the comparison 36.9 per cent believed crime 'had gone up a lot' or 'gone up a little'. Whilst, only 15.2 per cent (21 – almost half as many as at the CSS) were of the opinion that crime had 'gone down a little' or 'gone down a lot'.

During the extended interviews, this disparity between the responses provided by tenants at the CSS and comparison can be similarly identified. For example, the following judgement was made by a tenant who had been resident at the CSS for more than 20 years:

When I first moved here... yes in the 1980s, crime was very bad. That was until the new doors and the concierge changed things for the better. But in any event, crime around here is a lot less now than it used to be.

(Interviewee no. T7).

Compare this to a statement made by a tenant of more than 15 years residency at the comparison: "I don't think crime has changed here that much since we moved in, but if it has it's gone up... especially cars getting broken into." (Interviewee no. T20). Meanwhile, a fellow comparison tenant, but of close to three decades duration observed:

This is a much safer place than it ever used to be. Anyone who moans these days should have lived here when I moved in. Some people are never happy and they'll always complain. But I know there's much less burglary here than there used to be. (Interviewee no. T22).

Nevertheless, the questionnaire responses point to a pattern of opinion across these tenants' perceptions, with those at the comparison in general believing that crime issues are worse – relative to those questioned at the CSS.

Tenants' perceptions of safety and security

Tenants were questioned on a range of perceptions of safety issues including: safety inside their flat; safety of their flat when they went out; safety within the communal areas, grounds (including the car park to their tower block) and surrounding streets; and when going out after dark by way of a range of different transportation methods.

Tenants' perceptions of safety and security inside their flat – during the day

See Tables 45 and 46 below for responses to a question asking how safe and secure tenants felt inside their flats during the day, 61.5 per cent (91) at the CSS felt 'very safe'; 35.1 per cent (52) 'safe'; 1.4 per cent (2) 'neither safe or unsafe'; 1.4 per cent (2) 'unsafe'; and 0.7 per cent (1) 'very unsafe'. At the comparison, 0 felt 'very safe'; 5.8 per cent (8) 'safe'; 45.6 per cent (63) 'neither safe or unsafe'; 34.8 per cent (48) unsafe; and 13.8 per cent (19) 'very unsafe'. More pertinently, at the CSS 96.6 per cent of tenants felt either 'very safe' or 'safe', whereas at the comparison the figure was only 5.8 per cent. Conversely, at the CSS only 2.1 per cent of tenants felt either 'unsafe' or 'very unsafe', whereas at the comparison the was figure 48.6 per cent. These figures suggest a significantly higher perception of safety by tenants at the CSS when inside their flat during the day, when set against the comparison. This disparity is especially surprising in view of the absence of burglary at the comparison in the police recorded crime figures for the years 2010-2014 (see Chapter Four). A

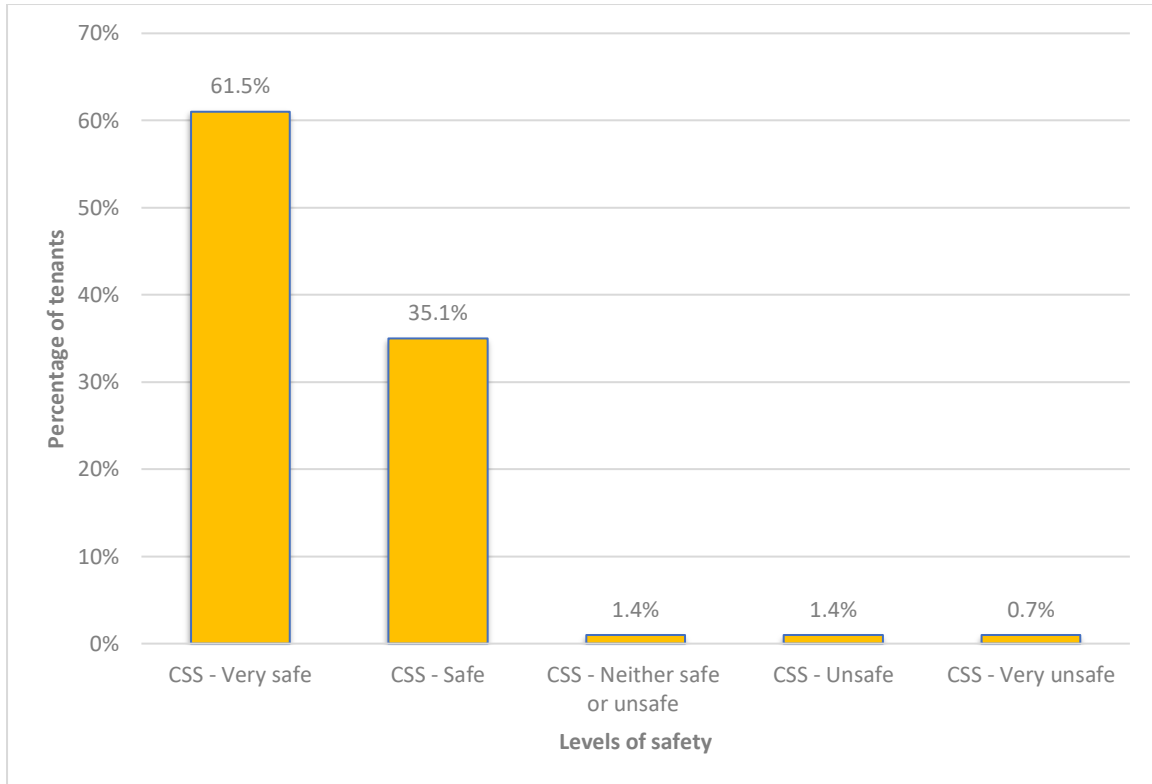


Table 45: CSS tenants' perceptions of safety and security inside their flat – during the day

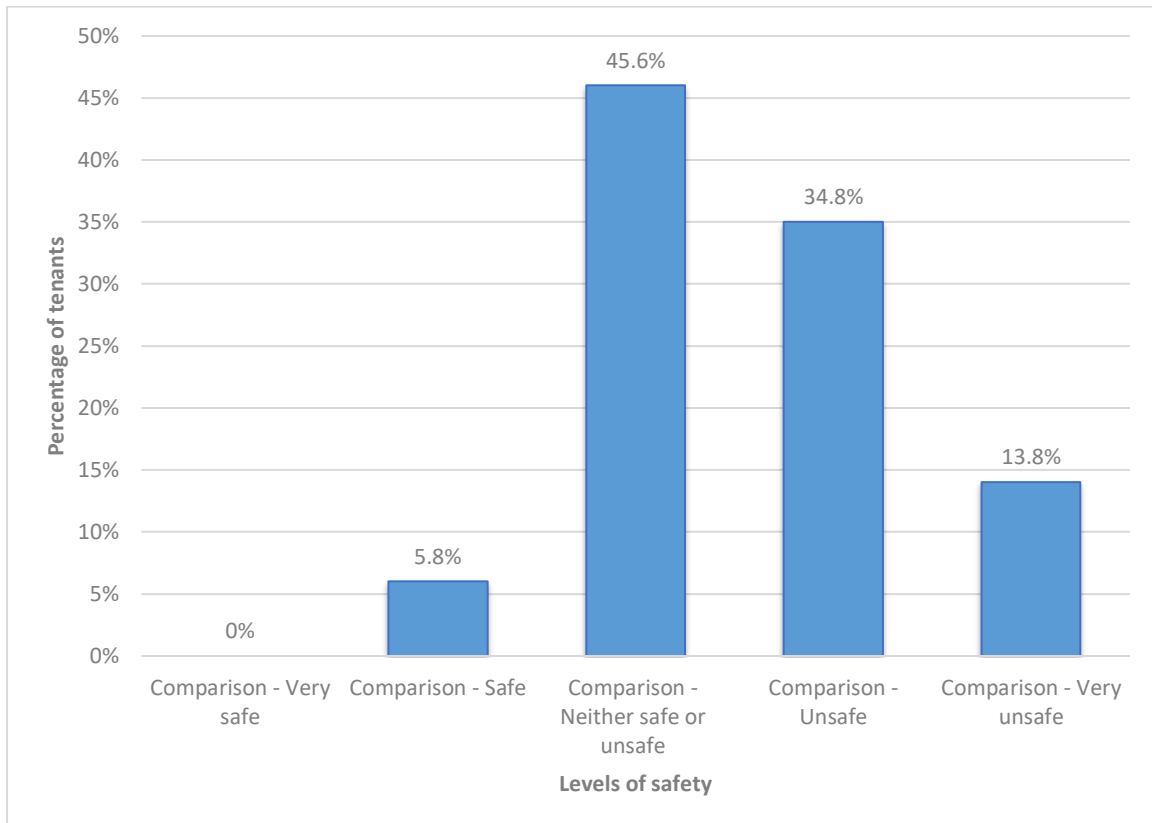


Table 46: Comparison tenants' perceptions of safety and security inside their flat – during the day

potential explanation might be identified in the following statements provided by tenants subsequently interviewed at length. At the CSS: “I’ve always felt safe inside my flat... well ever since the big makeover, twenty-odd years ago.” (Interviewee no. T6). Whereas at the comparison a tenant observed: “This isn’t a safe area and that makes you think your flat isn’t safe – however good the doors and windows the council have fitted.” (Interviewee no. T21).

Tenants’ perceptions of safety and security inside their flat – during the night

The next question asked the tenants how safe they felt inside their flats during the night (see Tables 47 and 48 below). At the CSS, exactly 50 per cent (74) felt ‘very safe’; 41.9 per cent (62) ‘safe’; 6.1 per cent (9) ‘neither safe or unsafe’; 1.4 per cent

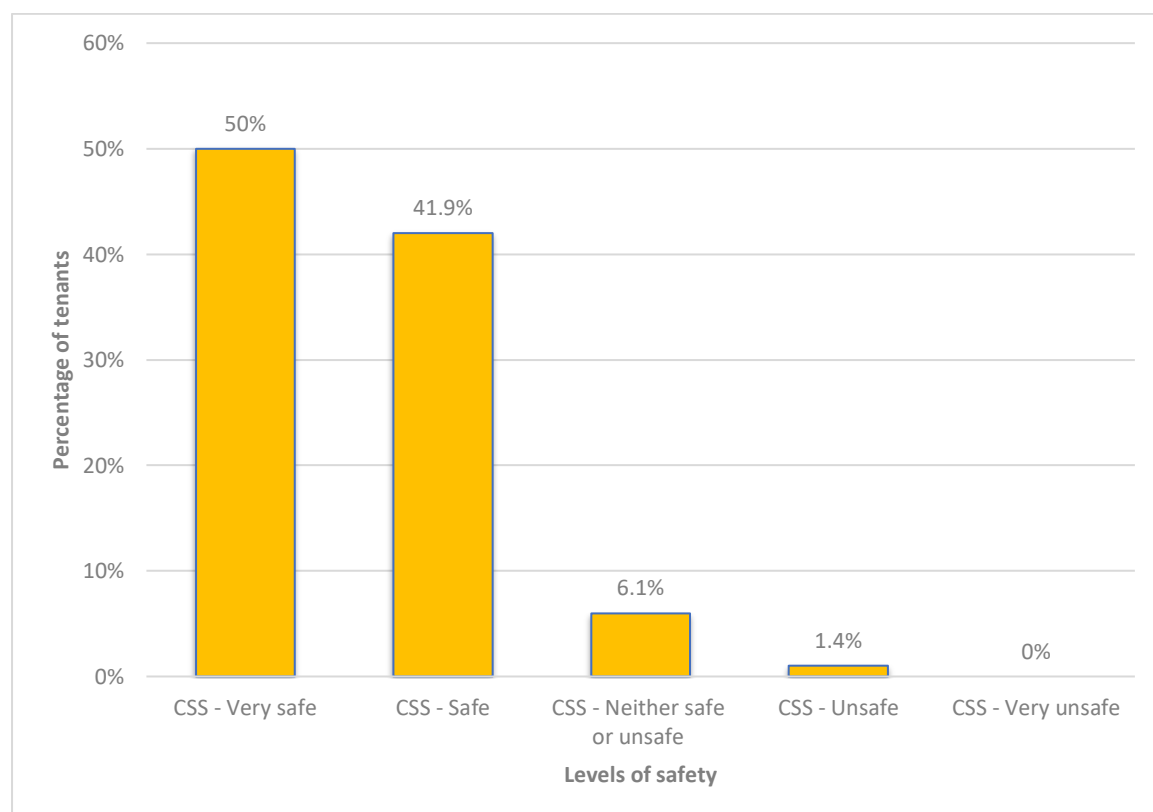


Table 47: CSS tenants’ perceptions of safety and security inside their flat – during the night

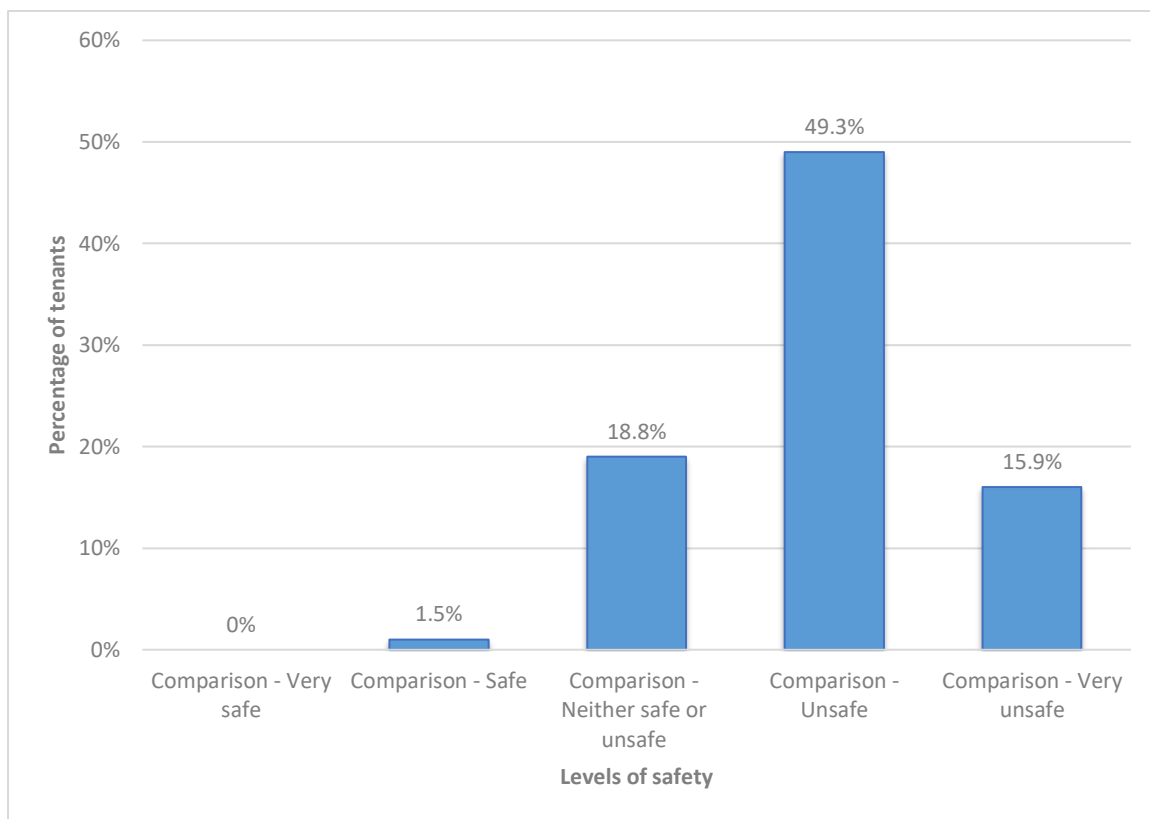


Table 48: Comparison tenants' perceptions of safety & security inside their flat – during the night

(2) 'unsafe'; and no tenant claimed to feel 'very unsafe' inside their flat at night. At the comparison, no tenant felt 'very safe'; 1.5 per cent (2) said they felt 'safe'; 18.8 per cent (26) 'neither safe or unsafe'; 49.3 per cent (68) unsafe; and 15.9 per cent (22) 'very unsafe'. These figures broadly reflect the findings in respect of tenants' feelings of safety during the day. For example, at the CSS 91.9 per cent (136) of tenants felt either 'very safe' or 'safe' at night. Whilst at the comparison 65.2 per cent (90) of tenants felt either 'unsafe' or 'very unsafe'.

Once more these responses suggest a significantly higher perception of safety by tenants inside their flat at the CSS, when compared to the comparison – at night in this instance. And again, some explanation for this disparity can be identified in the

responses of those tenants who agreed to be interviewed at length. One tenant at the CSS who had been resident for more than a decade observed: “Day or night I always feel safe once inside my flat. I know the door is very good and no one can get in.” (Interviewee no. T11). But compare this to a comparison site tenant of less than five years residency: “We was so happy to get a flat, but have never felt happy... you know safe here. Night or day, there’s no difference. The building isn’t safe.” (Interviewee no. 15).

Tenants’ perceptions of safety and security of their flat when they go out

Tenants were also asked about their perceptions of the safety and security of their flat when they went out (see Tables 49 and 50 below). Once again, CSS tenants consistently felt safer about leaving their flat than those at the comparison. More specifically, at the CSS 60.1 per cent (89) tenants felt ‘very happy’; 30.1 per cent (45) ‘happy’; 6.1 per cent (9) ‘neither happy or unhappy’; 2.0 per cent (3) ‘unhappy’; and 1.4 per cent (2) ‘very unhappy’. At the comparison, 11.6 per cent (16) of tenants were ‘very happy’; 14.5 (20) ‘happy’; 44.2 per cent (61) ‘neither happy or unhappy’; 20.3 per cent (28) ‘unhappy’ and 9.4 per cent (13) ‘very unhappy’. Taken together, 90.5 per cent of tenants at the CSS were either ‘very happy’ or ‘happy’ about the safety and security of their flat when they were out, compared to 26.01 per cent (36) at the comparison. Whereas, 3.4 per cent (5) tenants at the CSS were ‘unhappy’ or ‘very unhappy’, compared to 29.7 per cent (41) at the comparison.

A longstanding tenant at the CSS provided the following explanation during their extended interview:

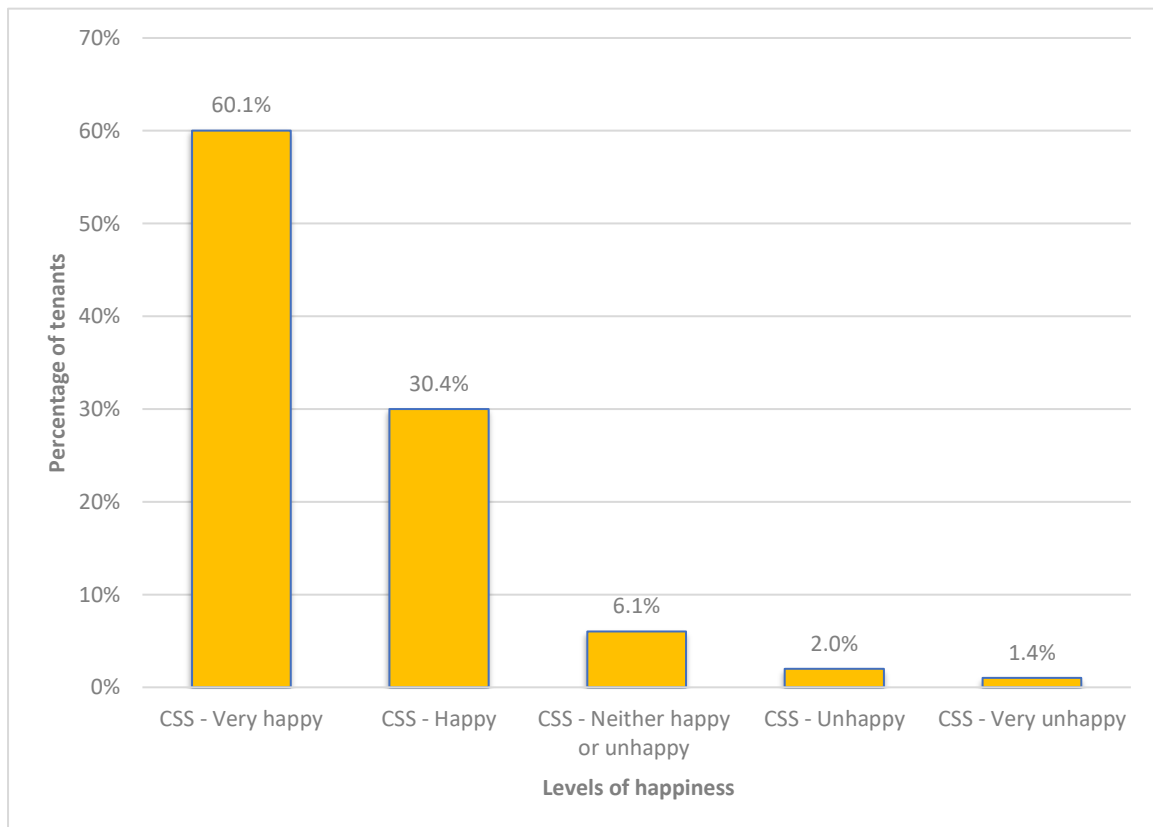


Table 49: CSS tenants' perceptions of safety and security of their flat – when they go out

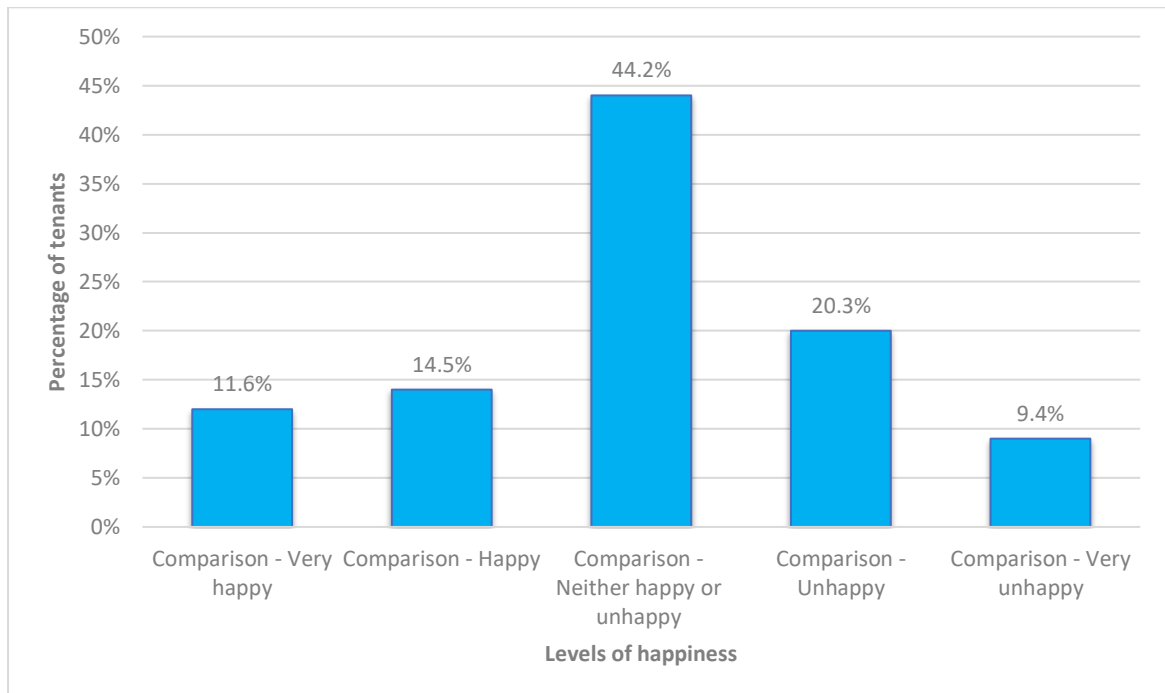


Table 50: Comparison tenants' perceptions of safety and security of their flat – when they go out

I never felt safe in my flat before the makeover (refurbishment): there were so many break-ins before then. But after that I've always been happy living here. And it means that when I go out and lock the door, I know my things are safe. (Interviewee no. T3).

But compare the above to the following observation made by a tenant of less than 20 years duration at the comparison, similarly interviewed at length: "Once the new door (front entrance door) to the flat was fitted I knew things were much better. But I still worry the flat will get broken into and I'll lose everything again." (Interviewee no. T13)

Tenants' perceptions of safety and security in the communal areas

Tables 51 and 52 below set out how inside the communal areas (ground floor, stairs, lifts and landings) of their tower block, at the CSS 22.3 per cent (33) of tenants questioned felt 'very safe'; 47.3 per cent (70) 'safe'; 22.3 per cent (33) 'neither safe or unsafe'; 6.1 per cent (9) 'unsafe'; and 2.03 per cent (3) 'very unsafe'. At the comparison, no tenants felt 'very safe; 2.9 per cent (4) 'safe'; 7.3 per cent (10) 'neither safe or unsafe'; 61.6 per cent (85) 'unsafe; and 28.3 per cent (39) 'very unsafe'. Consequently, at the CSS 69.6 per cent (103) of tenants felt either 'very safe' or 'safe' in the communal areas – compared to 2.9 per cent (4) at the comparison. Whilst conversely, at the comparison 89.9 per cent (124) of tenants felt 'unsafe' or 'very unsafe' in the communal areas – compared to 8.1 per cent (12) at the comparison. These figures suggest a much higher perception of safety and security by tenants inside the CSS communal areas, compared to the comparison.

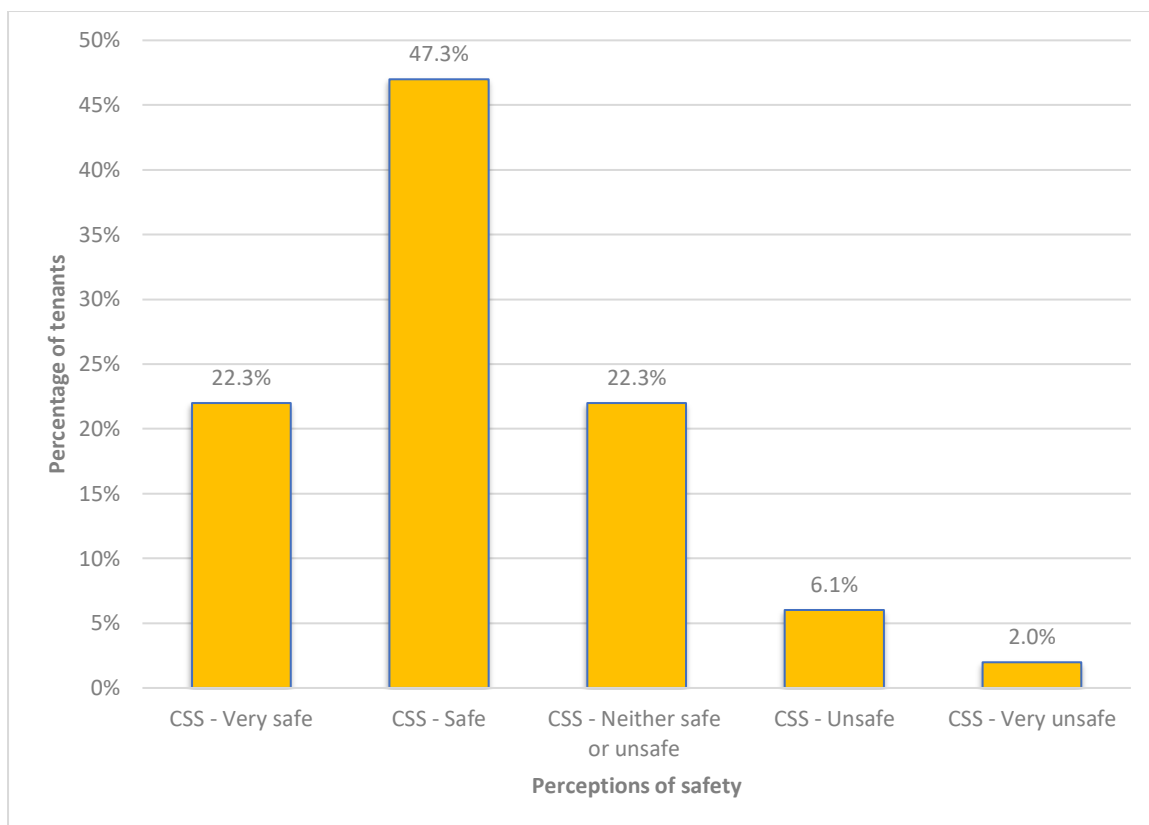


Table 51: CSS tenants' perceptions of safety and security – in the communal areas

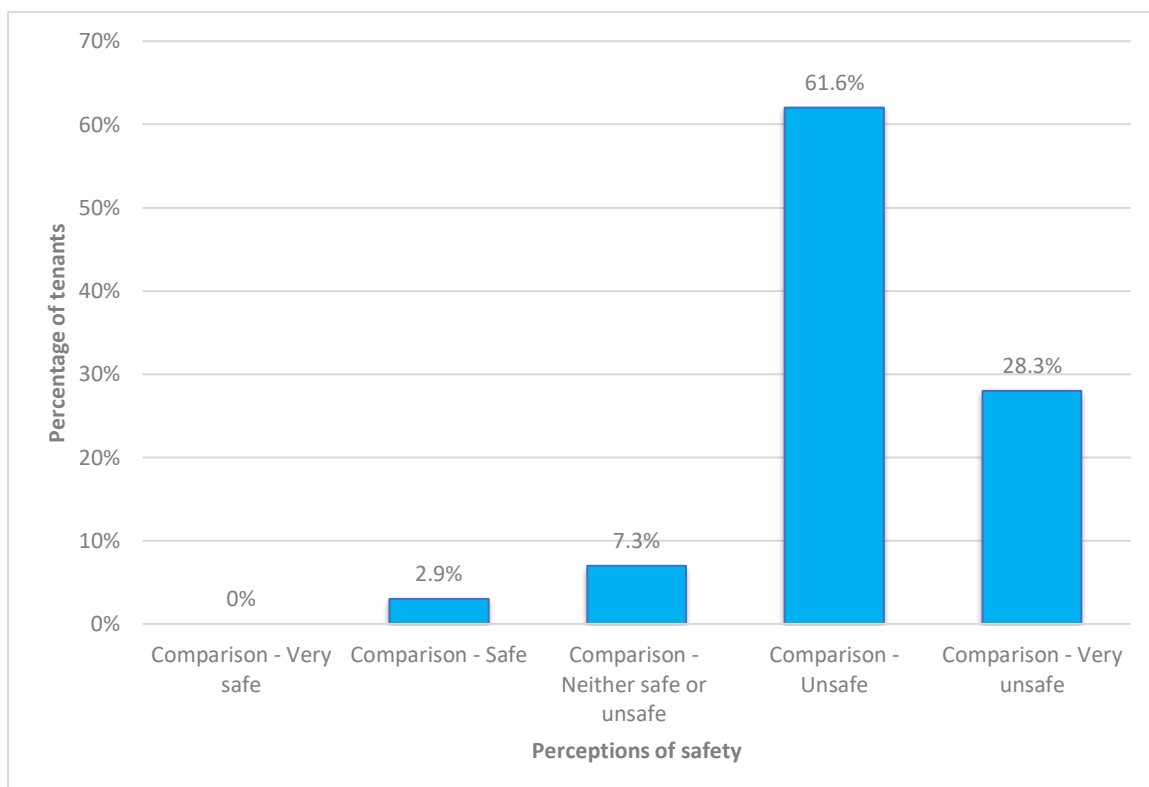


Table 52: Comparison tenants' perceptions of safety and security – in the communal areas

At the CSS a much-repeated opinion was well demonstrated in the statement made by a female tenant interviewed at length:

When we had the concierge, we had the occasional problem with youths on the landings. But since the concierge has gone, it happens all the time. I never use the stairs and won't go in the lift if there's someone else in there – unless they're a woman. I just don't feel safe anymore. (Interviewee no. T4).

Three of the tenants interviewed at the CSS commented on how the connecting passageway on the twelfth-storey of each block had been gated (see Figure 6 on page 243) at the request of The Four Towers Tenants' Association during the 1989-1992 refurbishment (Intervention, Implementation and Involvement). As one very long-term tenant described:

We used to have a lot of problems with kids taking the lift to the top of one side of the block, using that passageway to cross over to the opposite side and then using the other lift or the stairs to come down. It was fun for them, but the noise and banging for the rest of us was a real pain. When they gated it off and the concierge started, those problems stopped. But what people forget is that each side of the block is a separate tower with only one lift and one staircase on each side. (Interviewee no. T9).

Meanwhile, a longstanding tenant at the comparison observed:

I've never felt safe inside my block. Outside you can see all around you, even at night. But in here... It's always a relief when I get inside my flat and lock the door, or when I get outside the block. (Interviewee no. T18).

Tenants' perceptions of safety and security in the grounds

In the external areas (the grounds including tower block car parks), at the CSS 14.9

per cent (22) of all tenants felt 'very safe'; 39.9 per cent (59) 'safe'; 35.1 per cent (52) 'neither safe or unsafe'; 8.8 per cent (13) 'unsafe'; and 1.4 per cent (2) 'very unsafe'. Whereas, at the comparison, no tenants felt 'very safe'; 0.7 per cent (1) 'safe'; no tenants 'neither safe or unsafe'; 56.5 per cent (78) unsafe; and 42.8 per cent (59) 'very unsafe' (see Tables 53 and 54 below). Of greatest interest, at the CSS 54.7 per cent (81) of tenants felt either 'very safe' or 'safe', compared to only 0.7 per cent (1) at the comparison. Whilst 99.3 per cent (137) of comparison tenants felt 'unsafe' or 'very unsafe', compared to 10.1 per cent (15) of tenants at the CSS.

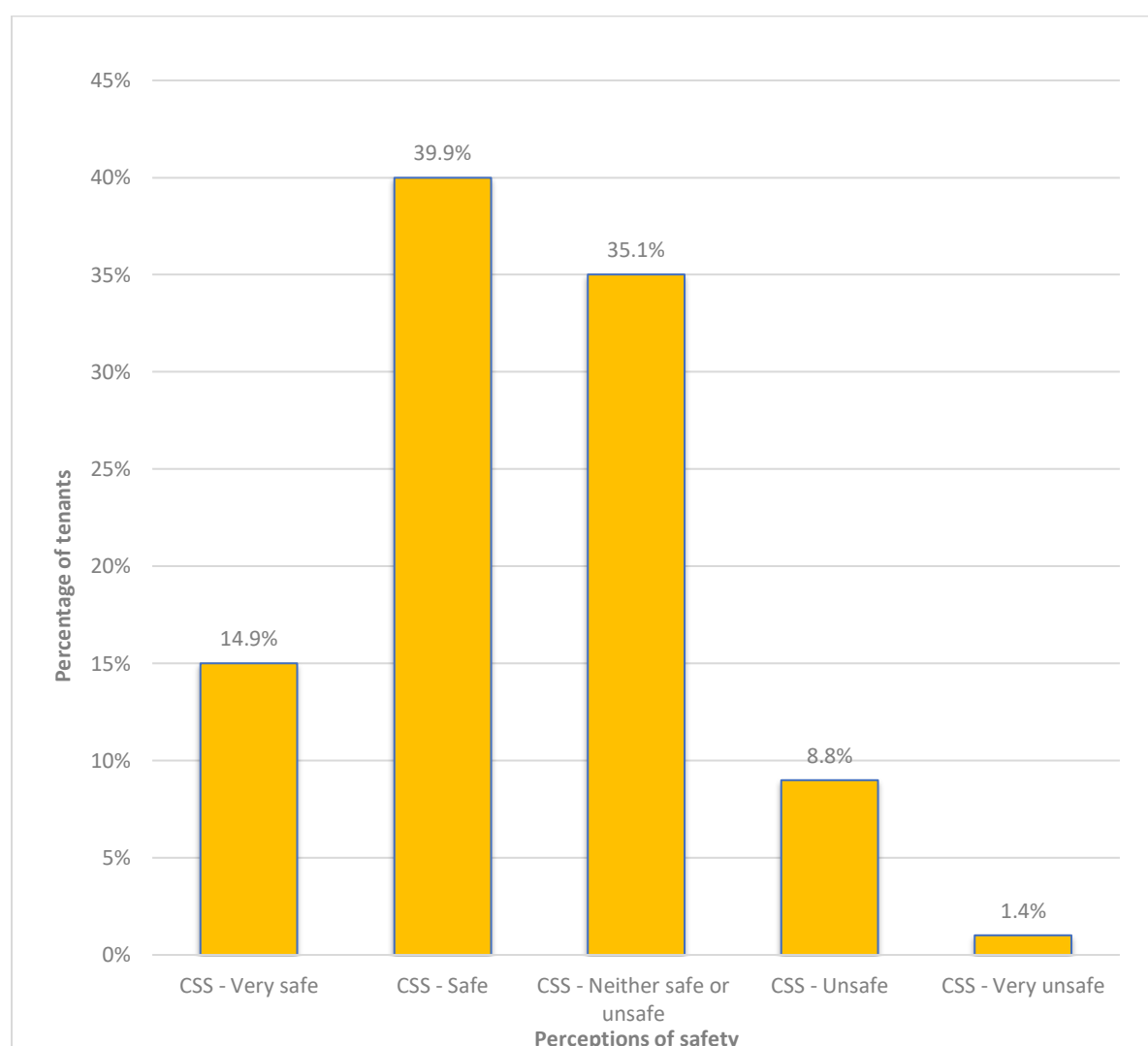


Table 53: CSS tenants' perceptions of safety and security – in the grounds outside the tower block including the car park

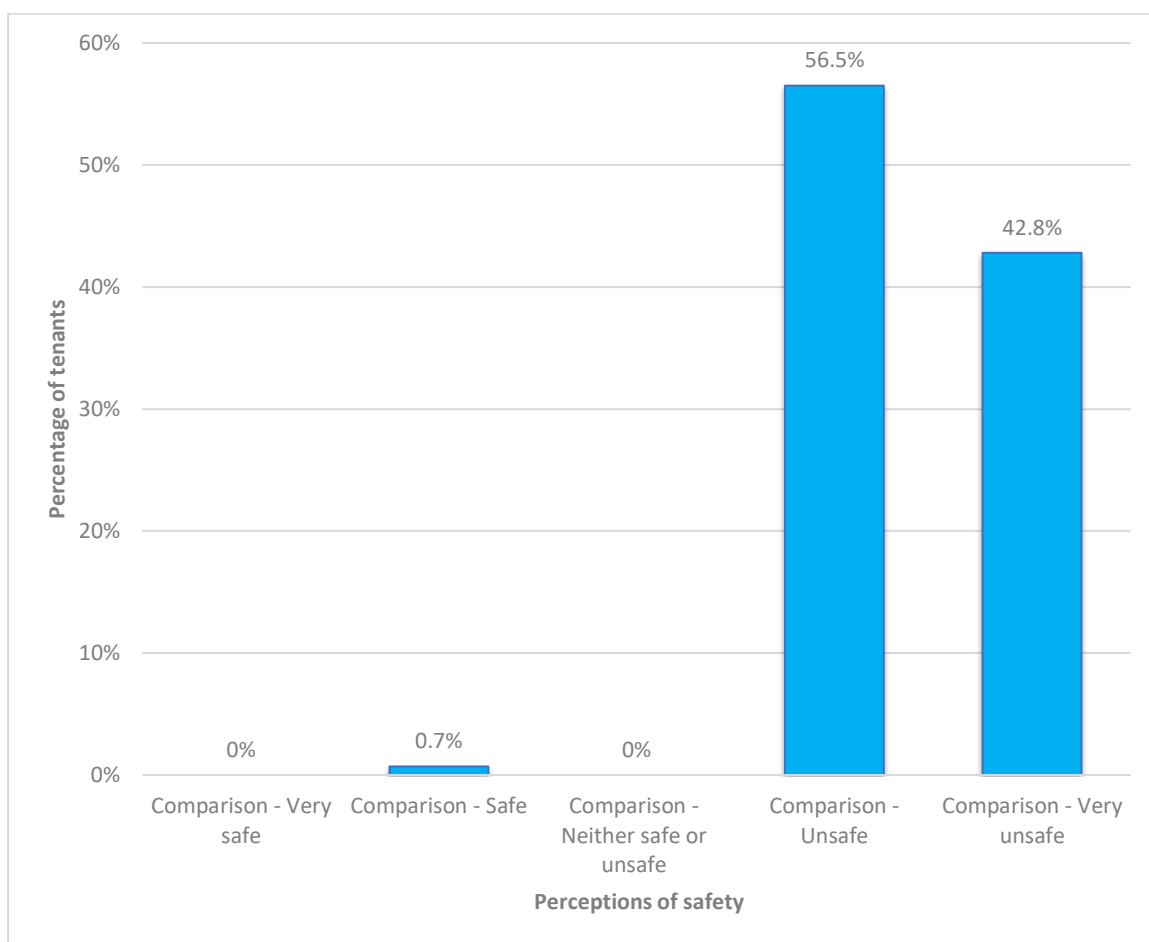


Table 54: Comparison tenants’ perceptions of safety and security – in the grounds outside the tower block including the car park

These figures once again suggest a higher perception of safety inside the grounds and car parks at the CSS, compared to the comparison. Indeed, the issue of safety and security in the grounds and car-parks of the tower blocks was repeatedly referred to in the extended interviews with 22 tenants from both sites. A CSS tenant of less than five years residency commented: “I’m very grateful for having my own flat. But don’t feel safe when I go outside the flat – especially in the grounds. And when it gets dark, I always stay inside.” (Interviewee no. T12).

Similarly, a tenant resident at the comparison for more than 20 years remarked:

When they fenced in the car-parks I thought that improved things. But... it may be good for the cars... to stop them from getting robbed. But it doesn't make me feel any safer. If anything I now feel trapped. (Interviewee no. T15).

Tenants’ perceptions of safety and security – in the surrounding streets

Tenants were also questioned regarding their perceptions of safety and security when in the surrounding streets (see Tables 55 and 56 below). At the CSS 9.5 per cent (14) tenants felt ‘very safe’; 30.4 per cent (45) ‘safe’; 39.2 per cent (58) ‘neither safe or unsafe’; 16.9 per cent (25) ‘unsafe’; and 4.1 per cent (6) ‘very unsafe’. At the comparison, no tenants felt ‘very safe’ or ‘safe’; 2.2 per cent (3) ‘neither safe or unsafe’; 45.7 per cent (63) ‘unsafe’; and 52.2 per cent (72) ‘very unsafe’. Of seminal interest, at the CSS 39.9 per cent (59) of tenants felt either ‘very safe’ or ‘safe’ (a lower figure than in the previous safety questions). Whereas, at the comparison none

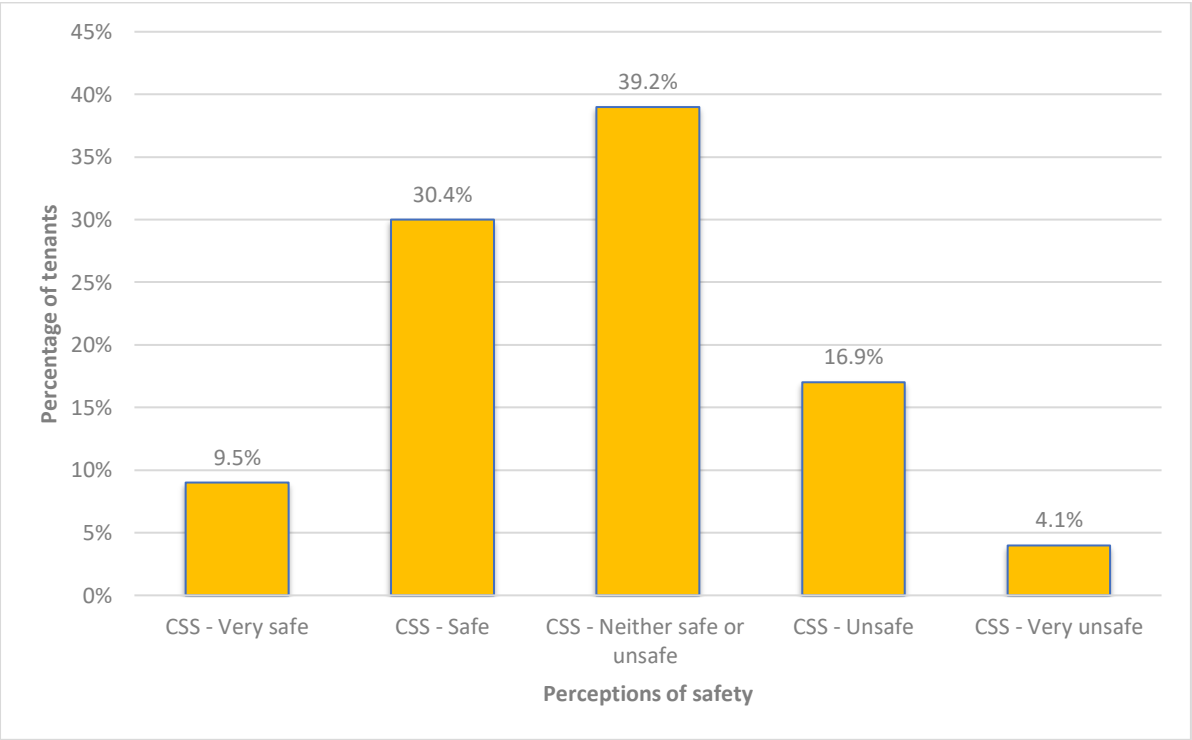


Table 55: CSS tenants’ perceptions of safety and security – in the surrounding streets

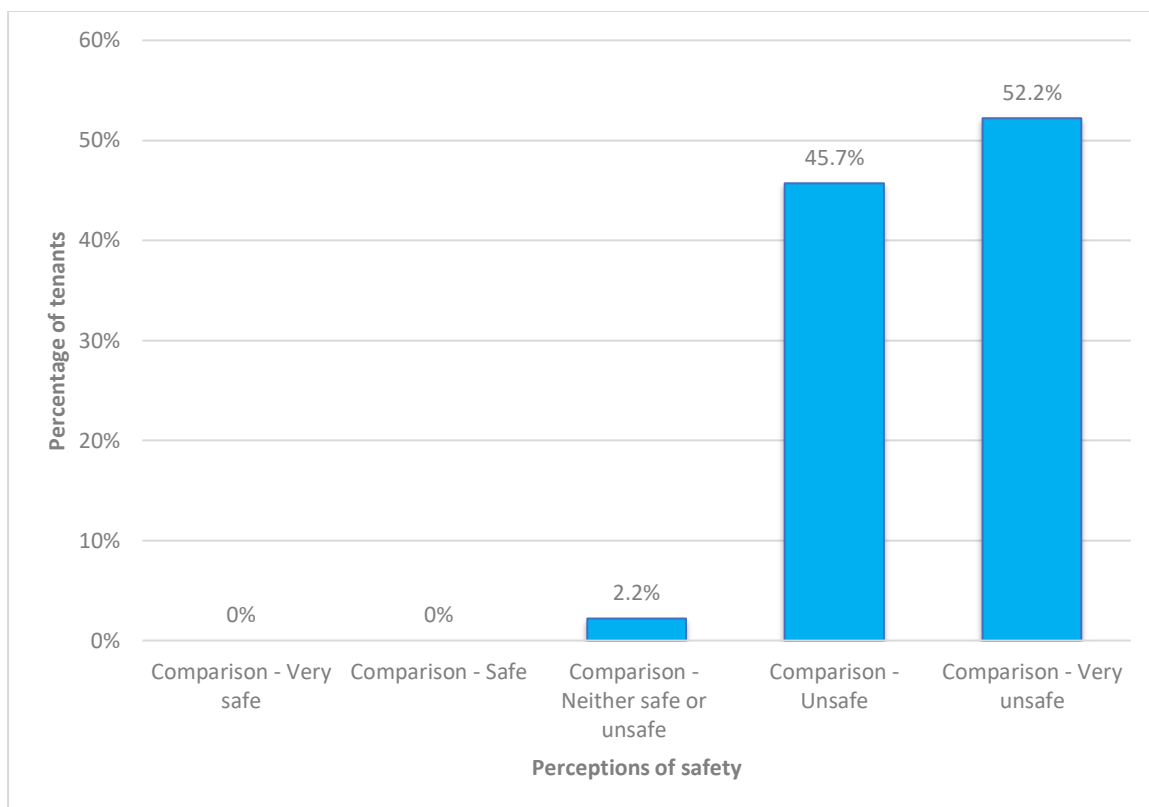


Table 56: Comparison tenants’ perceptions of safety and security – in surrounding streets

of the 138 tenants questioned felt ‘very safe’ or ‘safe’. Conversely, at the comparison 97.8 per cent (135) felt ‘very unsafe’ or ‘unsafe’, compared to 20.9 per cent (31) at the CSS. These figures suggest not only a higher perception of safety and security in the surrounding streets at the CSS, compared to the comparison: they also point to decreasing feelings of safety and security the greater the distance tenants are from their home. Furthermore, this difference is increasingly more pronounced with tenants questioned at the comparison, compared to those at the CSS. The view of one comparison tenant interviewed was even stronger: “This is a very dangerous area in which to live. I only ever go out by car and if I could get a move to a flat in another area, I’d jump at it. My flat’s lovely, but it’s in the wrong part of the city.” (Interviewee no. T19).

Tenants' willingness to go out after dark

A more complex question asked about tenants' willingness to go out after dark on foot, bicycle, private car, taxi, bus, 'other' – by train being the sole response to 'other' (see Tables 57 and 58 below). Going out after dark on foot: at the CSS, 3.4 per cent (5) of tenants said they did so 'frequently'; 28.4 per cent (42) 'occasionally'; 26.4 per cent (39) 'almost never'; and 41.9 per cent (62) claimed to 'never' go out on foot after dark. At the comparison the figures were 2.9 per cent (4) 'frequently'; 16.7 per cent (23) 'occasionally'; 31.9 per cent (44) 'almost never'; and 48.6 per cent (67) 'never'. Going out after dark by bicycle produced the lowest figures across all these transport categories: at the CSS, 1.4 per cent (2) said they did so 'frequently'; 2.0 per cent (3) 'occasionally'; no tenants said 'almost never'; whilst 96.6 per cent (143) said they 'never' went out by bicycle at night. At the comparison no tenants went out by bicycle 'frequently'; 2.9 per cent (4) said they did so 'occasionally'; none said 'almost never'; and 97.1 per cent (134) claimed to 'never' go out by bicycle after dark.

Going out after dark by private car produced the highest number of positive responses at both sites. At the CSS, 12.2 per cent (18) of tenants said they did so 'frequently'; 18.2 per cent (27) 'occasionally'; 14.9 per cent (22) 'almost never'; and 54.7 per cent (81) answered that they 'never' went out by such means. At the comparison the figures were 4.3 per cent (6) 'frequently'; 21.0 per cent (29) 'occasionally'; 15.2 per cent (21) 'almost never'; and 59.4 per cent (82) tenants answered that they 'never' went out by private car after dark.

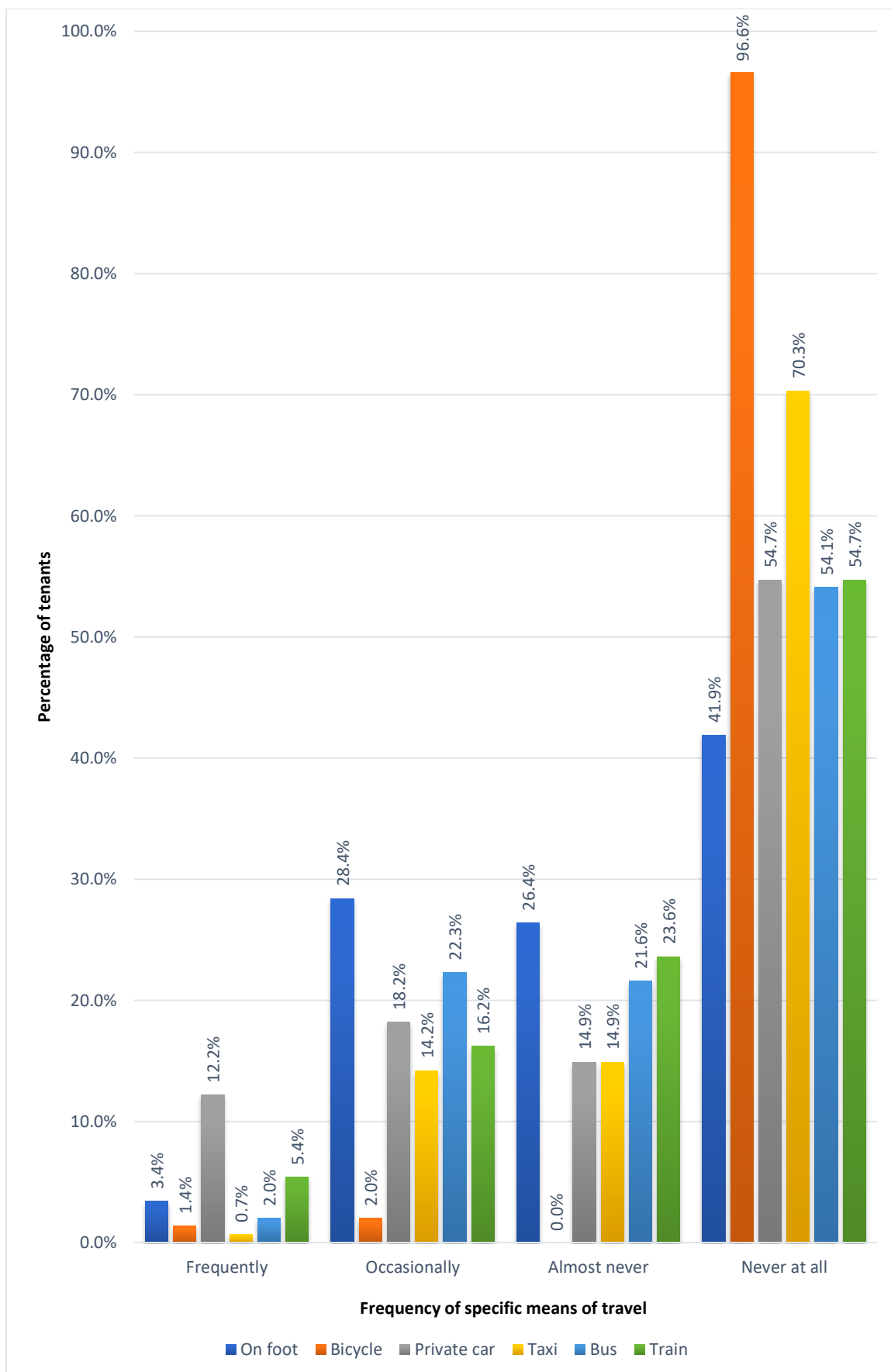


Table 57: CSS tenants' willingness to go out after dark by specific means – as percentages

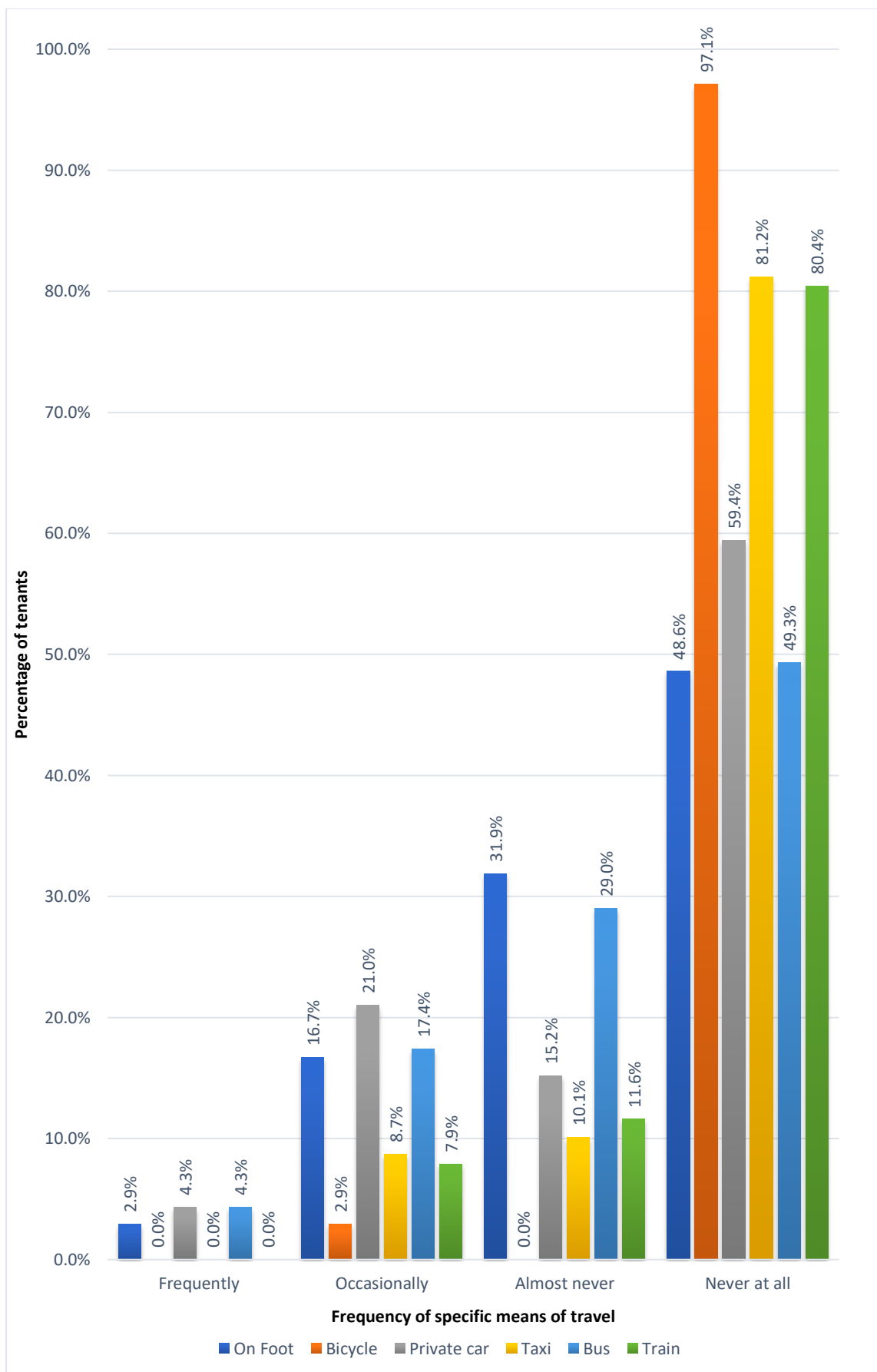


Table 58: Comparison tenants' willingness to go out after dark by specific means – as percentages

Going out after dark by taxi. At the CSS, 0.7 per cent (1) tenants said they did so 'frequently'; 14.2 per cent (21) tenants 'occasionally'; 14.9 per cent (22) 'almost never'; and 70.3 per cent (104) said they 'never' went out by taxi after dark. At the comparison, no tenants replied 'frequently'; 8.7 per cent (12) 'occasionally'; 10.1 per cent (14) 'almost never'; and 81.2 per cent (112) 'never'.

Going out after dark by bus. At the CSS, 2.0 per cent of tenants (3) said they did so 'frequently'; 22.3 per cent (33) 'occasionally'; 21.6 per cent (32) 'almost never'; and 54.1 per cent (80) claimed they 'never' went out after dark by bus. At the comparison, 4.3 per cent (6) tenants said they 'frequently' went out after dark by bus; 17.4 per cent (24) 'occasionally'; 29.0 per cent (40) 'almost never'; and 49.3 per cent (68) answered that they 'never' went out by bus after dark.

Going out after dark by train. At the CSS, 5.4 per cent (8) tenants went out 'frequently' by train after dark; 16.2 per cent (24) 'occasionally'; 23.6 per cent (35); 'almost never'; and 54.7 per cent (81); observed that they never went out after dark by train. At the comparison no tenants said they did so 'frequently'; 7.9 per cent (11) 'occasionally'; 11.6 per cent (16) 'almost never'; and 80.4 per cent (111) tenants claimed to 'never' go out by train after dark.

Supplementary questions asked tenants whether they went out after dark less than they wanted to; the reason why; and whether they were afraid to go out during the day. At the CSS, 33.1 per cent (49) answered that they did not go out after dark. And at the comparison 46.4 per cent (64). However, at both sites less than half of these tenants replied that this was due to a fear of crime. Indeed, a majority of tenants at

both sites stated this was because of a lack of finances/no desirable venue to attend. None of the tenants questioned said they were afraid to go out during the day.

Once again, the qualitative responses emanating from the extended interviews provided additional explanatory information – in this instance why tenants appeared to be unwilling to go out during the hours of darkness. At the CSS, tenants since 1971, a wife and husband couple (now in their late 60s) occupying an eleventh floor flat, were suffering horrendous issues with damp and water seepage from the roof: most of their furniture was covered in clear polythene to protect it. Despite this ordeal and suffering a criminal damage attack back in 1981, they felt ‘very safe’ in their flat during daylight hours and ‘neither safe or unsafe’ at night. However, as lifetime residents of Nechells they now suffered a fear of crime and the husband provided the observation: “We used to walk to and from my sister’s place at the Fox (public house) but not anymore. It isn’t safe on the streets.” (Interviewee nos. T8 and T9).

Both the questionnaire and interview data from these tenants supports the contention that however safe they may feel within their flat, once outside their perception of safety is manifestly diminished. Indeed, three of those interviewed at length made reference to the sound of screeching tyres coming from the surrounding streets throughout the night. The concerns of these tenants can be identified in the response of one comparison site resident:

I lie in bed at night and can hear the boy racers screeching round in the surrounding streets. It keeps me awake, but I’m also aware it reminds me this isn’t a safe part of town. Sometimes I get out of bed and watch the idiots in their cars. They’re just so selfish. (Interviewee no. T14).

Nevertheless, another tenant, a long-term resident of 41 years at the CSS, gave a far more positive perspective:

I'm very happy living here, always have been and I know many others are too. It's when they get outside that they get frightened... I used to be young, immature, playing loud music. I didn't get it then, but now I understand how it's unfair to the other tenants. (Interviewee no. T7).

Tenants' perceptions of security measures

Tenants were questioned and asked to assess (in descending order of importance) the following security elements: security staff; CCTV; fob-access controlled door entry system; door and window security; another security element of their suggestion. At the CSS, 140 of the 148 tenants questioned were prepared to grade the security elements listed. Whereas at the comparison the figure was 131 of the 138. Those not prepared to grade such elements in order of importance explained they possessed insufficient knowledge about these. It also became apparent early during the door-to-door questionnaire process, that requiring tenants to nominate (and grade) a fifth security element for inclusion was too confusing. Consequently, the category of 'least important' does not appear in Tables 59 and 60 below. Nevertheless, tenants often nominated a fifth element – especially at the CSS where 'return of the local 24/7 staffed concierge system' was repeatedly mentioned.

Security staff

The issue of security staff (contracted company staff in marked vehicles who visited the blocks on periodic occasions) generated considerable comment from the tenants

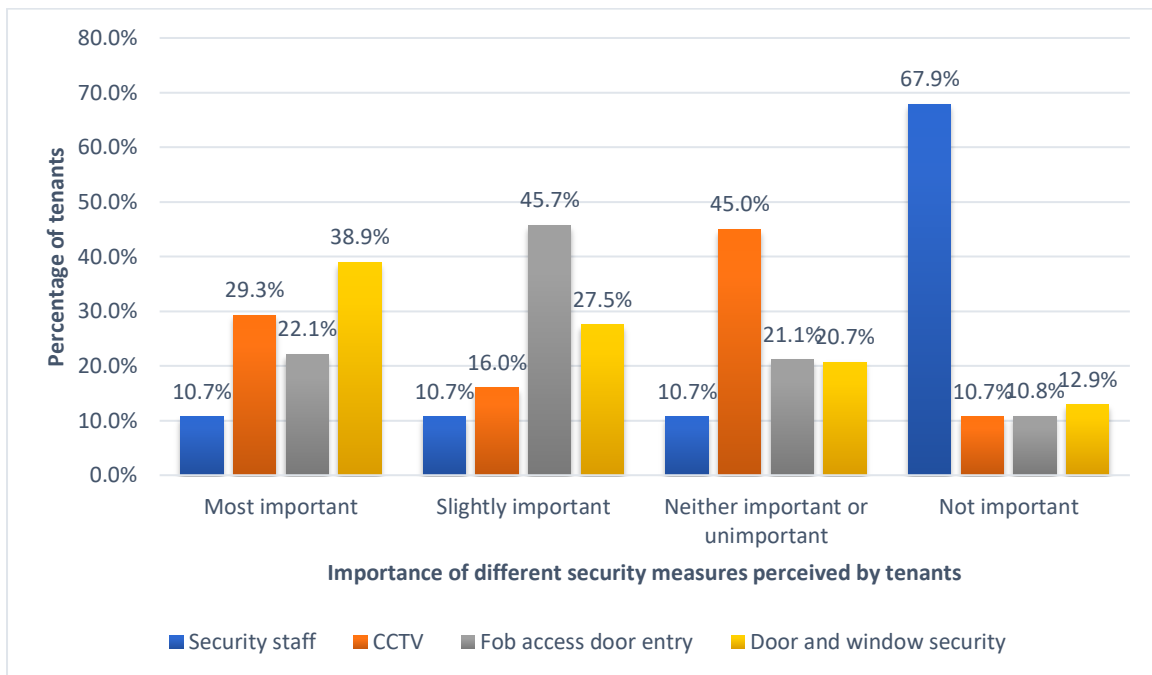


Table 59: CSS tenants' perceptions of security measures at their tower block

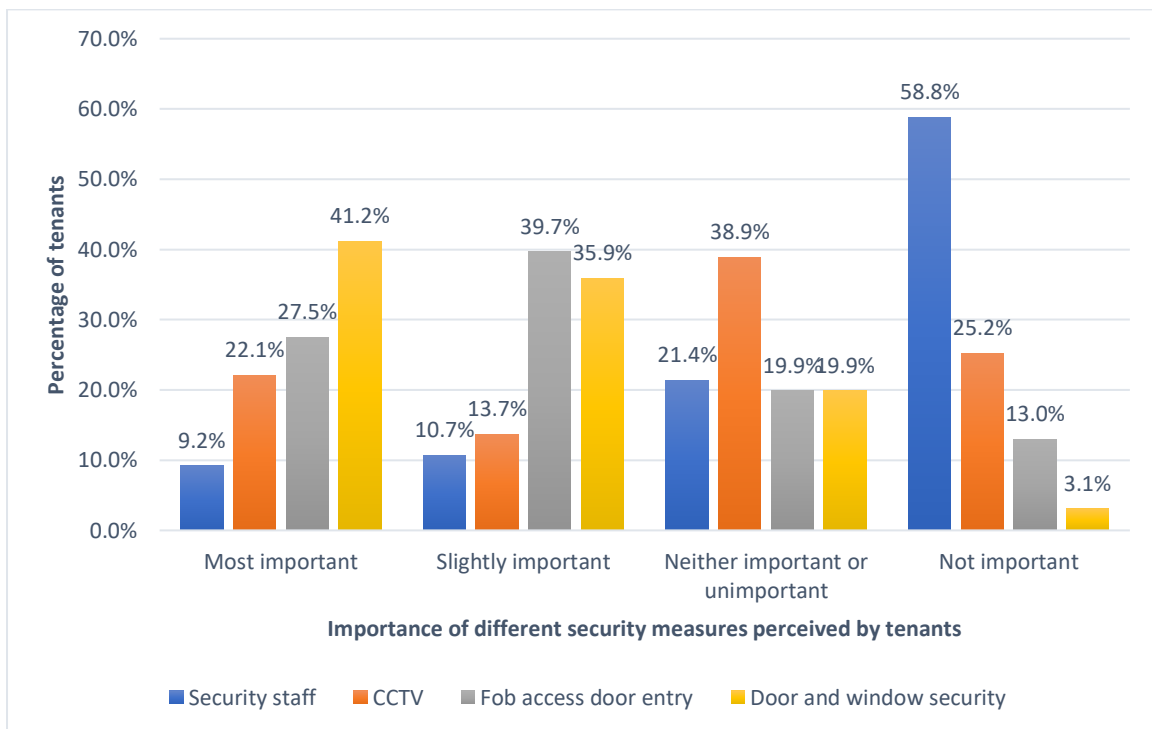


Table 60: Comparison tenants' perceptions of security measures at their tower block

at both sites, during the questionnaire and extended interview phases. Indeed, a repeated statement made by tenants was that they had never seen these guards visit their tower block. There was a broadly similar perception of such security staff by tenants at both sites. For example, when questioned only 21.4 per cent (30) of tenants at the CSS and 19.9 per cent (26) at the comparison believed security staff to be the 'most important' or 'slightly important' security measure. Whereas, 67.9 per cent (95) at the CSS and 58.8 per cent (77) at the comparison thought security staff were 'not important'. These figures indicate the lowest level approval for any of the security measures suggested during the questionnaire process.

Explanations for this apparent absence of confidence in security staff can be identified amongst those 22 tenants who were interviewed at length. For example, one tenant and a former security guard himself (albeit not at the CSS, comparison, or any other LA location) observed:

Having been in security I know how you have to make your points and swipe your ID-pass. There's no such points here and when they visit they just have a quick walk through the ground floor lobbies and bin room then leave.

(Interviewee no. T12).

Whilst a comparison tenant observed:

I've seen their van in the car park and one of the security guards walking round the block. But they don't really do anything except I suppose flying the flag – their being here that is. Don't think they have much of a deterrent effect. Interviewee no. T18).

CCTV

Since April 2015, CCTV systems at both the CSS and comparison have been linked to BCC's 24/7 offsite control room. At the CSS, 29.3 per cent (41) of tenants thought CCTV was the 'most important' or 'slightly important' of security features. Whilst 45.0 per cent (63) believed CCTV to be 'neither important or non-important'. At the comparison, 22.1 per cent (29) thought CCTV was the 'most important' or 'slightly important' security feature. Whereas, 38.9 per cent (51) believed it to be 'neither important or unimportant.' A further 25.2 per cent (33) tenants were of the opinion that CCTV was 'not important' – compared to 10.7 per cent (15) at the CSS.

Once again, tenants' responses during the extended interview phase provided potential explanations for the diverse opinions at both sites. One tenant at the CSS observed when interviewed at length:

Things have got a lot worse since we lost the concierge. They used to keep all the video recordings, but since it closed if anyone's attacked the police always seem to say the cameras didn't record it or they can't find it.

(Interviewee no. T8).

Another long term CSS tenant offered the following opinion: "I could never understand why the council didn't put CCTV cameras in the grounds and car parks. So many cars have been nicked or damaged over the years." (Interviewee no. T6). Whilst at the comparison a tenant since the turn of the century commented: "What we need here is a proper CCTV system that covers inside and outside the block. If criminals thought they'd get caught crime would go down." (Interviewee no. T16). Indeed, in answer to a supplementary question asking what single additional security feature tenants would like to see installed at their tower block, 8.6 per cent (12) at

the CSS and 11.5 per cent (15) at the comparison expressed a desire for CCTV cameras covering the external areas of the block – including the car parks.

Fob-reader controlled communal entrance door system

Both the CSS and comparison tower blocks employ electronically-operated, electromagnetic communal entrance doors on the ground floor which are opened by a fob-reader system. In general terms, both systems work efficiently. However, when questioned the tenants repeatedly referred to how these doors could be propped open with a stone or brick, or were prone to tail-gating or threatening legitimate tenants and visitors, and thereby defeat such measures. More specifically, at the CSS 67.8 per cent (95) of the tenants when questioned thought the fob-reader controlled communal entrance door system was either ‘most important’ or ‘slightly important’; compared to an all but identical 67.2 per cent (84) at the comparison. Whereas, 10.8 per cent (18) of the tenants at the CSS and 12.0 per cent at the comparison believed this measure was ‘not important’.

Tenants were also critical that when they forgot their fob card, they and their visitors were repeatedly kept waiting at the communal entrance doors after calling an operator at the off-site control room. The overarching contention made by tenants was that in the private sector, there would be no such delay and requested a video and audio connection between callers at the ground floor main entrance doors and the individual flats. They did not believe it was equitable that RSL tenants should be treated in an inferior way, a point similarly remarked upon by some of the professionals during the course of their interviews (see Chapter Six). Indeed, the professionals explained that the primary reason for not permitting tenants to allow

visitors to enter their block by electronic door release, was tenants being intimidated by those with criminal intent. This was echoed by tenants at both sites who stated that the system facilitated entry by those with criminal or anti-social behaviour in mind and with no right or reason to be granted access.

One CSS tenant, when interviewed at length, described the fob-reader door entry system as follows:

You can't get anyone in the control room (wherever it is in Brum?) to answer the intercom. I've had visitors waiting outside the block 40 minutes to get an answer. If they won't answer the intercom, what chance is there they're watching the cameras. (Interviewee no. T7).

Whilst at the comparison one tenant observed: "Why can't we let in our own visitors? People won't come and visit me because they know they'll be waiting for ages. If we owned these flats, I'm sure we'd be treated better." (Interviewee no. T17).

Other concerns relate to how the communal entrance doors could be "yanked open" (the precise expression used by five of the 12 CSS tenants interviewed at length) courtesy of those strong enough to do so. The following response was typical of those who commented on this issue: "When they were first installed the entrance doors were very good. But over time I think the magnets have worn out and now they can be yanked open by a strong man, or a strong woman." (Interviewee no. T2).

Meanwhile, another CSS tenant remarked:

The front door is the most important way of keeping out unwanted visitors. Those doors are very good. But I've seen young guys pull open the main entrance doors (communal). They aren't very good and over time they've

lost their strength. And the bin store doors are always being left open and you can get into the whole block when that happens (Interviewee no. T1).

The fear of being 'tail-gated' into the block was also mentioned by tenants from both sites during the questionnaires and extended interviews. As one CSS tenant observed: "I'm always on my guard about being followed into the block. I had a friend who was mugged at the entrance to her block and I'm frightened it might happen to me." (Interviewee no. T8).

Flat entrance doors and window security

Entrance doors to each individual flat and window security scored heavily at both the CSS and comparison. Indeed, at the CSS 38.9 per cent (53) of the tenants and at the comparison 41.2 per cent (54) described these as the 'most important' security element – in both instances the highest figures for any such feature. Moreover, when the figures for 'most important' and 'slightly important' are added together, the total at the CSS is 66.4 per cent (93) of tenants and at the comparison 77.1 per cent (101). Those tenants who believed door and window security to be 'not important' totalled 12.9 per cent (18) at the CSS, but only 3.1 per cent (4) at the comparison. Yet again, observations made by the tenants who were subsequently interviewed at length provided descriptive detail for these figures. One long term CSS tenant resident since before the 1989-92 refurbishment commented: "Once the new front door was fitted, I felt really safe in my flat – and have done ever since." (Interviewee no. T4).

Like the professionals who were interviewed (see Chapter Six) the tenants believed in the value of target hardening both the individual entrance doors to each flat and

the ground floor communal entrance doors. One tenant, who had been a tenant at the CSS for 41 years put it succinctly:

The ground floor public doors are the first line of defence. But once you lock your own door you know you're safe. No one can get in. But then, I've never suffered from crime, but I've known many who have." (Interviewee no. T5).

The standard of security of these new doors at the CSS exceeded that of PAS 24 published seven years later in 1999. However, once installed there were repeated complaints from the West Midlands Fire Service and specialist police departments like the former Drug Squad, that even their hydraulic jacks could not overcome and open the front doors to an individual flat at the CSS. As another tenant observed: "If anything, these doors have been too good. There was that time when what's his name left the gas on and even the firemen couldn't get in. The explosion blew out all the windows." (Interviewee no. T4). This points to a potential over-emphasis on security at the expense of safety. Nevertheless, this level of security also helps to explain how over close to a quarter-century, no credible forced-entry burglary was committed by way of these same top of the range Mul-T-Secure doors.

At the comparison, amongst those tenants who recalled the 1993-1995 refurbishment (2 out of 10 interviewed at length) both expressed the view that the security of doors remained an issue until new PAS 24 front entrance doors to each flat were installed during 2008. As one tenant at these tenants observed: "The doors (main entrance door to each flat) were rubbish until they were replaced about ten years ago. We were always getting robbed." (Interviewee no. T14). By "robbed" the

interviewee is referring to burglary, but as Mawby (2001) observes victims' perceptions of the crime of burglary will vary – both nationally and internationally.

However, a tenant of less than 10 years at the comparison was far more explicit: “I wish I could lock the door from the inside with a key. That way I would feel really safe.” (Interviewee no. T21). This last opinion was repeatedly expressed by tenants to the author when he was working as a DOCO on low level developments (five storeys high or less) across the West Midlands. To have acquiesced to such tenants' requests would have breached Fire Regulations – where the dwelling entrance door is accessed from a corridor or landing).

Window security was an issue at both the CSS and comparison, but only in respect of ground floor flats at both sites (and balcony windows at the CSS). Police recorded crime indicates that 6 burglaries of ground floor flats took place at the CSS during the 18 years between 1997 and 2014. This low number of burglaries may result from BCC Housing Department's policy (adopted and practised during the refurbishment of the CSS) of insisting that all replacement windows include one pane of laminated safety glass – with its inherent security capabilities.

Another security element: return of onsite 24/7 staffed concierge at the CSS

A unique element of the questionnaire process was that tenants were asked to nominate another security element to the four that were detailed. Amongst the 148 tenants questioned at the CSS, 41.2 per cent (61) requested that the bespoke 24/7 staffed concierge be reinstated. Indeed, amongst the 12 tenants from the CSS who were interviewed at length, the near identical expression used (on occasion

forcefully) by ten of their number was “Bring the concierge back”. The two tenants interviewed who did not express this view had been in residence for less than 18 months and consequently, never witnessed the concierge scheme in operation. Furthermore, the 24/7 staffed concierge element had been deliberately excluded from the list of response options in order to rebut any suggestion of the researcher ‘leading’ the tenants.

When it first began operation in November 1992, the onsite 24/7 staffed concierge scheme at the CSS might have been perceived as a model for future RSL housing projects across the city and beyond. However, it is not known to have been replicated in the same high-quality format elsewhere (including the comparison), largely on grounds of financial cost (see Chapter Six). At the CSS, funding came from a levy placed on the rents paid by tenants. In 2015, changes to the manner in which housing benefit were paid directly to tenants rather than the RSL, meant that the onsite concierge scheme was reported to be financially unviable and it closed in March in that year. The CSS, comparison and overwhelming majority of the 213 (BCC, 2017) remaining tower blocks (and schools) across Birmingham, are now connected to an offsite control room from which visitor access via the communal entrance doors is controlled intercom links.

Another security element: CCTV cameras to cover the grounds of the tower blocks – including the car parks

After the bespoke 24/7 staffed concierge (specific to the CSS) the second most often nominated additional security measure (from tenants at both sites) was extension of the existing CCTV systems to cover the grounds surrounding the tower blocks –

including the car parks. At the CSS 7.4 per cent (11) of tenants recommended this; 13.0 per cent (18) at the comparison. As one CSS tenant observed: “I don’t understand why the council never put CCTV cameras in the car parks. Surely it would help stop cars getting broken into?” (Interviewee no. T5). Whilst a tenant at the comparison commented: “We’re told CCTV cameras stop crime, so how come there are no cameras outside and in the car parks?” (Interviewee no. T18).

Another security feature: CSS balcony-linked fire-escape system

As part of the 1989-92 refurbishment of the CSS, each ground floor balcony was secured with metal grilles and a gate to ceiling height, plus both new doors and windows installed between each balcony and the fire-escape staircase.

Nevertheless, the security of the balconies at the CSS and the five internal fire-escape staircase system within each tower block, was an additional concern of tenants. When questioned, only 6.1 per cent (9) of CSS tenants made reference to this issue – although three of those subsequently interviewed at length commented on same. In particular, one longstanding tenant observed:

About 20 years ago, but after the refurb, I know that someone tried to get into my flat via the balcony. They must have used the fire-escape stairs to get onto my balcony, but all they managed to do was damage the door handle. (Interviewee no. T10).

Another CSS tenant commented:

I know people have got onto my balcony time and again. Items have been moved and the door damaged, but they never got in. What gets me is how they got into the fire-escape staircase? They may be other tenants, but I think it's more likely they got someone else to let them in.” (Interviewee no. T6).

Another security feature: multiplicity of concerns

Tenants at both the CSS and comparison when questioned and interviewed at length, made reference to numerous other perceived security concerns – but only in very small numbers (no more than on 5 at both sites). These included: alarms on ground floor windows; electrically operated gates into the car parks; additional external lighting; video intercom link from their flat with callers at their tower block; and security of the refuse bin storage room doors.

Agency involvement

Within the questionnaires there was no specific question relating to tenants' perceptions of the police, BCC or any other social agency. However, within the 22 extended interviews the incidence of such observations (most especially in relation to crime and ASB) was far greater from tenants at the CSS than the comparison. In the context of the overall lower levels of recorded crime at the CSS, this may indicate a higher expectation regarding the role of social agencies (and the police in particular) in preventing and detecting crime and ASB. As one long term tenant (more than 20 years) at the comparison described: "The problem is that a lot of people in these blocks don't bother reporting crime to the police. They haven't got insurance and they don't see the point." (Interviewee no. T20).

Only two of the tenants questioned and one of those interviewed was previously aware of police Involvement and the SBD award system. However, as a tenant at the CSS for more than 30 years, she was not alone in expressing a highly positive response when interviewed:

I remember the award ceremony when the Chief Constable came and then there was the visit by that lady minister from the government. I think the police and the council have done a really good job here. It's not perfect, but then where is? (Interviewee no. T3).

Six of the tenants interviewed raised the issue of vetting future tenants wishing to reside in their tower block. This was an unexpected response, although it was also raised by the professionals during their interviews (see Chapter Six). One comparison site tenant eloquently described the issue (considered by Pascoe, 1989) as follows:

People move into their flat and we don't know anything about their background. It's only when the flat next door is broken into that your suspicions are raised. Thankfully, that hasn't happened (I think) since the new doors were fitted, but it still makes you worry. We should have some say in who comes to live here. (Interviewee no. T22).

Summary of findings

As detailed in Chapter Two, all seven towers were recipients of SBD awards (Intervention and Involvement) during 1993 at the CSS and 1995 at the comparison. Consequently, the perceptions of the 286 tenants questioned and 22 interviewed at length provide descriptive and interpretive detail to the crime analysis. Furthermore, two separate trajectories can be discerned. At the CSS, once the refurbishment was completed at the close of 1992 the tenants were the beneficiaries of a higher grade of CPTED safety and security system (most especially in terms of burglary reduction) that has largely been sustained for close to a quarter-century. Nevertheless, in

recent years there have been indications that the measures installed between 1989-92 have lost their preventive value. According to the tenants, chief amongst these has been the removal after 23 years of the bespoke 24/7 staffed concierge system and its replacement with a remote, offsite 24/7 staffed central station control room serving multiple tower blocks and other facilities. At the comparison, tenants in residence at the time of the 1993-95 refurbishment largely concurred that in the years immediately thereafter, it had failed to deliver the improvements in security which (living in close proximity) they knew had been achieved at the CSS. In particular, they were critical of the additional security measures (Intervention and Implementation) employed on the front entrance doors to the individual flats.

As with the previous findings chapter, Crime Analysis, using the 5Is to analyse the tenants' quantitative and qualitative data produces a wide spectrum of interpretative information that can be used to draw conclusions – most especially about what works and does not work (in terms of durability and sustainability) over the very long-term. Furthermore, whilst the quantitative questionnaire data adds substance from the perspectives of both victims and potential victims, the qualitative responses take this a stage further and assist in teasing out the underlying descriptions and opinions that accompany both the tenants' quantitative data and crime analysis contained in the previous chapter.

Under the heading of Intelligence – the tenants' quantitative and qualitative data provide geographical and social context to the issues of crime, fear of crime and ASB at both sites. Much of this information is specific to the design and layout of the seven tower blocks. Similarly, descriptive detail concerning the crime problem has

been produced relating to crime and offender type, MOs, flats targeted, crime scripts, pinch-points, immediate and wider physical and social contexts. Much of the crime evidence emanates from the previous chapter. Nevertheless, this has been expanded courtesy of tenants' self-reporting and their perceptions of crime, ASB, safety and the effectiveness of physical security measures. Immediate causes can be identified at the comparison where key elements of the 1993-95 refurbishment (most especially by not emulating the CSS and replacing the front entrance doors to each flat) failed to secure the target enclosures. However, such Intelligence also points to potential conflicts contained within the police-recorded crime data. For example, in the context of residential burglary, tenants' questionnaire data and extended interview observations will almost certainly relate to a specific flat. And whilst vehicle crime can be presumed to have occurred in the car parks or immediately adjacent streets, robberies, assaults and criminal damage may have taken place elsewhere and some distance (perhaps many miles) away from the flat.

Intervention – lies at the core of this investigation and can be most especially identified in the different grades or intensity of CPTED applied (Implementation and Involvement) during the respective refurbishments of the two sites. This feeds into the overall Intervention strategy, but whilst both refurbishments can be perceived as having met the minimum standards required by SBD at that time (the statement of correlation), in reality there was a conflict and the lesser standard of CPTED at the comparison meant it did not enjoy the immediate and sustained reduction in crime witnessed at the CSS. In particular and as a specific Intervention, at the comparison the aforementioned entrance doorsets to each individual flat failed to secure the target enclosure and prevent both burglary and other crime. Furthermore, at the

comparison there was no tenants' association, and no 24/7 staffed concierge was established as part of the refurbishment process – an absence of Intervention, Implementation and Involvement. Much of the perceived explanation for the latter is detailed in the following Findings Chapter Six – Professionals' perceptions of crime, ASB, safety and security.

Implementation – of the CPTED measures can be identified in operating as a partnership between BCC Housing, Planning and Architecture departments, WMP DOCOs and at the CSS alone – The Four Towers Tenants Association (institutional and organisational contexts). Furthermore, these organisational arrangements had no legal remit (unlike for example fire regulations) and when work began to refurbish the CSS in 1989, police DOCOs had existed for little more than four years – together with specific training for this role (delivery and infrastructure). Under this Implementation heading several other issues can be identified. For example: targeting the problems of crime, fear of crime and ASB at both sites and tailoring (inaccurately as it subsequently transpired) to their perceived needs; lifecycles of action (SBD remains an 'off-the-shelf' Intervention with no time-related threshold of return inspection); basic execution process – CPTED Implemented via SBD; management, planning and organisational issues – all of which can be reduced into consultation, CPTED advice, negotiation, incorporation of same and the SBD awards conferred.

Involvement – communication between the aforementioned parties was intrinsic to the partnership working that led to the incorporation of CPTED measures at both sites. In each instance, Intelligence actions can be identified in reported commentary

from The Four Towers Tenants Association at the CSS, and their demand that preventive measures be initiated. As a result, partnership working was structurally firmer at the CSS (council, police and tenants' association) compared to the comparison where there was no organised Involvement by the tenants. Similarly, whilst mobilisation of the tenants was self-generated at the CSS, at the comparison the absence of an organised group meant that attempts to motivate and consult the tenants proved very difficult and impossible to sustain (see Chapter Six which also discusses multiple-mobilisation of the council and police professionals). Likewise, consultation, accountability and the ability to build collaborative capacity were self-evident at the CSS. In the context of important practice knowledge, the existence of a body representing the tenants is both highly advantageous and points to the risks and blockages encountered at the comparison where no such group existed.

Impact evaluation – as described in Chapter Four, no Impact analysis that could withstand academic scrutiny is known to have been conducted at either the CSS or comparison post-refurbishment. Indeed, the 1992 crime data for the CSS that was discovered towards the end of this investigation, results from an ad hoc Impact analysis conducted at the request of the local police superintendent in 1994 and long after the SBD award ceremony took place. Consequently, this investigation amounts to the nearest equivalent of an Impact evaluation – albeit conducted almost a quarter-century after the refurbishments took place.

Under the heading of aims, it should be recalled that refurbishment of both sites was conducted for a number of reasons – primarily relating to the age of all seven tower blocks and the necessity to replace old and worn-out fittings. Crime at both locations

was perceived by the tenants (and professionals) as being facilitated by such worn out measures like the entrance doors. Context of evaluation points to this being an external, independent, and one-off academic exercise. Whilst the methodology of evaluation indicates this is a qualitative, action-comparison investigation using police-recorded and tenant self-reported crime data – together with qualitative data obtained from those tenants and professionals interviewed at length.

The Implementation of Involvement overview details both the successful measures and the causes of failure. In the first category, higher grade target hardening (in terms of preventing crime and reducing the fear of crime) was repeatedly evidenced as effective. At the CSS and following a 26-year life span, high quality main entrance doors were being replaced in 2018/2019. Whereas, at the comparison, the addition of a second locking mechanism proved to be ineffective and the doorsets to each flat had to be replaced in 2008. In a similar vein, tenant responses indicate that protecting ground floor windows and balconies is equally important.

Results of Impact evaluation disclose a significant reduction in burglary at the CSS, with the comparison playing catch-up a decade later when new doors were installed and other security measures incorporated. At the CSS there was a potential adaptive reaction by offenders, in that whilst residential burglary was all but eliminated, vehicle crime increased. Nevertheless, new entrance doorsets (factory constructed door, frame and security hardware) to each flat can be identified as both boosting Impact and designing in long term durable and sustainable crime prevention. Wider performance/selection measures indicate that the emphasis on high quality and appropriate target hardening delivers the greatest benefits in respect of residential

burglary – less so with other forms of property crime committed outside the dwelling and with minimal effect in respect of assaults and other offences against the person, wherever they take place. And from the tenants' perspective, the preventive action appears to have possessed high legitimacy. Indeed, the overwhelming majority of tenants questioned and interviewed demanded higher levels CPTED measures be



Figure 7: Ground floor communal entrance door at Medway Tower, comparison site, controlled by fob-reader electronically-operated opening system and with both audio and video link to offsite control room.

installed. Turning to learning and evaluation methodology, this findings chapter in particular is subject to the extremely long time period that this research project covers. For example, very few of the tenants who were living at either the CSS or comparison more than a quarter-century before, remained in residence.

Nevertheless, whilst evidence relating to numerous 5Is elements are now lost to time, many have been identified. Indeed, their discovery and identification points to the immense value of the 5Is as a template for investigation and analysis over the very long-term.

Chapter Six

Findings: Professionals' perceptions of crime, ASB, safety and security

This is the third of the 'Findings' chapters and examines (in the context of the research aims of this investigation) the qualitative data provided by the 12 professionals who were interviewed at length. Each of these had been involved with: the actual refurbishment processes; delivery of CPTED treatment via the SBD award system; or subsequent management of the CSS or comparison site. Consequently, as with the tenants who were interviewed at length the aim was to solicit description and perceptive commentary that would illuminate and provide interpretive detail of the crime analysis provided in Chapter Four.

Qualitative analysis of professionals' extended interview data

Given some uncertainty over the range of issues that could emerge during the professionals' extended interviews and because it would be difficult to predict the specific topics or direction of discussion, it was decided that (as with the tenant interviews), those with the professionals would be conducted on a semi-structured basis. This permitted a more open style of questioning, one where the interviewee was encouraged to volunteer information, in order to provide a more holistic/inclusive representation of events at the two sites and beyond of the issues posed.

Compared to the qualitative data gleaned from the tenants' interviews, qualitative analysis of the professionals' interviews reveals a sharper focus on crime and safety issues at both the CSS and comparison. This may result from their access to systematically collected and analysed police crime statistics, council repair reports, incident logs, etc. Furthermore, a repeated theme across this group was the necessity to invest in security measures in order to protect the safety and wellbeing of both the tenants and the properties that they were occupying. With occupancy rates prior to refurbishment of less than 70% (three of the interviewees quoted this figure without prompting), there was a tangible fear that the exodus of tenants from these tower blocks might reach a point where maintaining them would become untenable – as was reported to have happened elsewhere in the city (mentioned by those same three professionals). Indeed, over the past quarter-century more than 250 of these high-rise blocks across Birmingham have been demolished on economic grounds (with crime a contributory factor) – statistics confirmed by nine of those interviewed. As of August 2020, 213 tower blocks remain with another ten in the clearance and demolition programme (BCC, 2017).

The process of selection is detailed in Chapter Three, Methodology. But in essence, 12 'professionals' were selected for interview on the basis of a number of factors: their willingness to be interviewed; Involvement with the refurbishment process at the CSS and/or comparison site (four); Involvement with or knowledge of delivering the SBD award system (four); subsequent management of the CSS or comparison tower blocks (four). All became available for interview during the course of this investigation, or (in two instances) were recommended by those already selected (snowballing). By deciding to interview the same number of professionals from each

of these three categories, the objective was to solicit a cross-section of experience and opinion from different professions.

The interviews took place over a 12-month period spanning 2017 into early 2018. The majority (ten) of these professionals had by that point retired and consequently, most of interviews were conducted in their homes or at a neutral location. Before commencing, each interviewee was first given an information sheet (see Appendix 4) explaining the background to the research project; the importance of their contribution; confidentiality, ethical guidelines; their right to withdraw at any point; and university rules relating to the storage of the data provided, retention and disposal. The interviews were digitally recorded with the permission of the interviewee and a written transcript subsequently made. And whilst a semi-structured style of interview took place, the researcher was ever mindful of the need to satisfy the research aims.

Crime categories

As detailed in Chapter Four, Crime analysis, six different crime categories were chosen for this investigation. The first of these was burglary – essentially residential, although non-residential burglary, aggravated burglary and attempts were included to eliminate any ‘masking’ effects (meaning, crimes being recorded under a less serious classification). The second category robbery – including assault with intent to rob and theft from the person. Assaults – common assault, assault occasioning actual bodily harm (ABH – S.47 assault), woundings, GBH and homicide became the third. All forms of vehicle crime constituted the fourth. Whilst criminal damage –

including arson became the fifth. Finally, all 'other' recorded crime was the sixth category – offences which predominantly numbered far smaller totals. Throughout these findings chapters the six crime categories are simply referred to as burglary, robbery, assaults, vehicle crime, criminal damage and 'other' crime.

The first five of these six categories were deliberately chosen to provide a spectrum of offences – ones not limited to property crime which is most often understood as more susceptible to the SCP, CPTED and SBD approaches. A secondary aim was that the data categories should provide a large enough sample of offences, to permit both analysis of patterns and measurement of the changes that took place over time at both the CSS and comparison.

Professionals' perceptions of specific crime types and ASB

The 12 professionals interviewed were asked and encouraged to volunteer their own perceptions of crime, ASB, safety and security. The first such area of interest was that of burglary. Police-recorded crime data (detailed in Chapter Four) indicates that 100 residential burglaries were reported to and recorded by WMP across the two sites during the 18 years from 1997-2014. This amounts to 7.1 per cent of all recorded offences. Of these 100 burglaries, 40 were reported as having taken place at the CSS compared to 60 at the comparison. Further analysis of these crime data indicates that 85 per cent of these 100 offences were residential burglaries (34 at the CSS and 51 at the comparison). Non-residential burglaries accounted for a further 1 and 3 offences respectively. Attempted burglaries, 5 and 6 offences respectively. And perhaps of greatest significance, over the whole 18-year time period there were

no examples of the especially serious crime of aggravated burglary – where the offender uses a firearm, imitation firearm, explosives or weapon of offence.

One of the repeated themes running through the interviews with these professionals, was the absence of knowledge in respect of what was physically required to prevent a crime like burglary, during the late 1980s and 1990s. Even the experienced CPTED practitioners (all former police DOCOs) volunteered that the knowledge base at that time (compared to the present) was very poor. The content of the Home Office Crime Prevention Centre Police Architectural Liaison Manual of Guidance (1987) tends to confirm that lack of a firm evidence base. Consequently, in light of the large volume of crime taking place at the CSS, the higher grade CPTED ‘target hardening’ installed was perceived as necessary to prevent “as much crime as possible.” (Interviewee no. P9). One former housing professional observed:

Back in the late 80s, once the Housing Committee had decided to refurbish instead of demolishing the tower blocks, we realised the necessity to prevent crime – especially burglary. As I remember, The Four Towers were beset by burglary with void flats in particular a much-repeated favourite. We also knew the police now had new crime prevention specialists in this field – the ALOs (DOCOs) and that was important because (let’s be honest) we had no specialist knowledge of what would prevent burglaries. (Interviewee no. P1).

This absence of what would prevent residential burglary (and other crime) was confirmed by a now retired architect: “We were very much reliant on the police, not just for crime data, but for their knowledge of what crime prevention measures would work in practice.” (Interviewee no. P2). However, a former Force Crime Reduction Manager and DOCO explained:

Looking back, we were fumbling in the dark. Oscar Newman’s opinions had reached the Home Office Crime Prevention Centre in Stafford, but there was no clear understanding of concepts like defensible space and territoriality, or of how to incorporate them in practice. That was left to the individual ALO or CPDA (DOCO) who often met with hostility to Newman’s ideas from their partners in local government. In the end, simple ‘tick the box’ target hardening was often the only measure on which we could all agree.

(Interviewee no. P7).

If nothing else, this suggests a degree of compromise by all parties concerned.

A retired DOCO of more than 12 years’ experience in the role provided a different perspective:

Preventing domestic burglary was the key priority of our role – as you can see in the SBD award. I think it was also very effective in preventing other types of property crime... but much less so with offences against the person.

I’d say I’m proudest about the hundreds if not thousands of burglaries we

prevented – ‘we’ because this was what they now call partnership working and we built up some great working relationships with architects, planners and many of the councillors and officers who worked for BCC. (Interview no. P5).

Police-recorded crime data for both the CSS and comparison illustrates how 82 crimes of robbery and thefts from the person had been reported over the 18-year timeframe. Collectively, these amount to a marginally different 37 at the CSS (45.1 per cent) and 45 (54.9 per cent) at the comparison. Together, these total 5.8 per cent of all police-recorded crime over 18 years. These offences appear to have taken place outside the blocks – either in the grounds or in the surrounding streets.

‘Appear’ – because in most instances the detail contained in the crime report MO is insufficient to identify the exact location. Unlike many tenants who confused robbery (theft or attempted theft with force or threat of force) with burglary – for example “My flat was robbed” (meaning ‘burgled’, interviewee no. T1) all twelve professionals understood the difference between these different crimes. And all four former DOCOs interviewed appreciated the nuances between robbery and theft from the person (together with the reporting discrepancies) detailed in Chapter Three, Methodology. Nevertheless, one former housing surveyor explained:

Inside the tower blocks we were concerned about robberies taking place – not in the actual flats, but in the communal areas like the hallways, stairs, lifts and landings. The Tenants Association were very strong on this point.

That’s why BCC installed CCTV cameras in the ground floor areas, in the lifts

and secured the counter of the concierge control room in Queens Tower.

(Interviewee no. P3).

Amongst the former DOCOs a greater concern related to robberies committed outside the blocks – in the grounds, car parks and beyond. In particular, a sinuous (curving and snake-like) public footpath separates two of the blocks at the CSS and leads to a bus stop on the Nechells Parkway dual carriageway (see Figure 1 on page 124) on the opposite side to which are located the three blocks of the comparison. Three of the former DOCOs commented on this footpath and one observed:

There used to be a pedestrian subway beneath Nechells Parkway, but it became a crime generator and perhaps more importantly, generated fear of crime. It was removed at the turn of the century and replaced by a pair of pedestrian crossings. However, the adjacent public footpath between Queens and Home Towers (CSS) then became a repeat location for robbery. I'm not sure if we were consulted over its design, but it suggests not: it has a curving design and you cannot see from one end to the other – poor surveillance. (Interviewee no. P6).

The total number of police-recorded assaults measured more than three times those for burglary and robbery – with 169 at the CSS and 202 at the comparison. Assaults were never voluntarily mentioned by any of the 12 professionals interviewed. When questioned on this issue, one of the former housing professionals explained:

Because assaults don't constitute property crime, don't think we believed our security measures would prevent assaults – but thinking about it this was before we appreciated the full extent of domestic violence and how it exists across all levels of society. (Interviewee no.12)

On the same theme one of the former DOCOs observed:

When SBD was first launched, I don't think anyone imagined it had much of a role in preventing assaults. That was 30 years ago and we now realise CPTED can be a part of many crime reduction strategies. The most obvious of these recently has been Domestic Violence Sanctuary Rooms, yet they've only been around for about ten years and as yet they don't exist in all local authority areas. (Interviewee no. P8)

Vehicle crime was one of only two categories examined where there was a higher incidence at the CSS (185 offences over 18 years) than at the comparison (168 offences over 18 years). Amongst this total of 353 vehicle crimes recorded by the police as taking place at both sites – 100 of these were TWOC offences, 53 thefts of, 88 thefts from and 83 instances of criminal damage to motor vehicles. However, whilst it is generally accepted that vehicle ownership has increased over time, when the tenants were questioned in 2016 it was calculated that less than one third at each site owned a car: 29.2 per cent at the CSS and 26.5 per cent at the comparison. Consequently, at the time of their respective refurbishments, car

ownership would have been far lower – as evidenced by the following statements made by the professionals. First, a former housing manager:

Car ownership at these seven tower blocks and across the city has increased and the size of the car parks has often followed suit. Tenants don't like having to park on the streets, but there's no guarantee that their cars are any safer in the grounds. (Interviewee no. P11).

Whilst one of the DOCOs remarked:

Thirty years ago, few tenants at these high-rise tower blocks owned a car and even now they can't afford brand new models with top-notch security. It's hardly surprising that these cars have been regularly stolen over the years – the majority I see by joy-riders. (Interviewee no. P6).

Analysis of the recorded crime data indicates that between 1997-2014, 137 offences of criminal damage were reported to the police – 70 at the CSS (51.1 per cent) and 67 at the comparison (48.9 per cent). In addition, 25 instances of arson were recorded by the police during this period. Amongst the professionals, the following observation from a former housing surveyor is inciteful:

The greatest problem with damage, criminal or accidental, is the cost of its repair. Once the capital-spend had been used to refurb the blocks, there was rarely any revenue funding for maintenance issues. So, for example, within months of the refurb' of The Four Towers (CSS) being completed,

there was a road accident in which the bespoke metal fencing at Home Tower (CSS) was badly damaged. To my knowledge, once it had been decided that the damage did not constitute a danger, it was left unrepaired. (Interviewee no. P3).

It should be noted that until the late-1980s, it was Home Office policy that damage under £20 in value would be recorded on a 'Minor Damage Form' (personal witness as a serving police officer between 1978-2011). However, it was not that unusual for attempt burglaries to be classified as 'Minor Damage' and thereby escape official reporting to the Home Office. After the Minor Damage Form was abolished, there were repeated instances of crime managers using an alternative subterfuge to disguise attempt burglaries. Indeed, three of the four former DOCOs volunteered this information without prompting – one with the following description:

During my police career I experienced a number of times when a crime manager would instruct that an obvious attempt burglary (for example, door lock on an exterior door badly damaged by a screwdriver or chisel, or a broken window) was not to be 'crimed' (recorded). On one occasion, the excuse given was the damage had been caused by a stone flicked up by the wheel on a passing car. This always seemed to happen when the burglary figures were considered to be too high. Looking back, these were rare instances – probably because they were the talk of the nick for months

afterwards. (Interviewee no. P5).

'Other' crime includes all police-recorded crime not included under the previous five headings. Amongst the 361 police-recorded offences, the largest number was for theft other (122 offences), followed by theft in a dwelling (58 offences), drugs offences (54), harassment (45), sexual offences (33), racially aggravated offences (19), threats to kill (18), handling or receiving stolen property (10) and all other offences – without exception single figure totals at both sites (115). Collectively, 160 'other' offences were recorded for the CSS (44.32 per cent); and 201 at the comparison (55.68 per cent). This produces an average incidence of 0.04 crimes per dwelling per year. These crime figures engendered the following response from a former planner:

It's only when you see those crime numbers that you realise how much crime was all but inevitable. But then I suppose over 18 years and for what, 532 flats a crime rate of less than four hundredths per year is remarkably low. (Interviewee no. P10).

One of the retired DOCOs took a similar view, but with a different nuance:

Those figures demonstrate the true extent of 'other' crime. To police colleagues who've been dismissive of the DOCO role, I've argued for many years past the following: yes, we cannot design out all the opportunities for crime. But there is now enough independent evidence that shows we can prevent a lot of crime from taking place. And here's the important point – that

allows those same colleagues more time to concentrate on investigating those offences it has been impossible to prevent. (Interviewee no. P7).

The professionals took a largely dispassionate view of ASB, albeit with four of their number using the same description of “preparatory acts to crime.” As indicated in the previous chapter, because the police are not mandated by the Home Office to record ASB, one of the indices to set this against are the figures contained within the Crime Survey for England and Wales. One of the former LA professionals observed:

We knew this was a high crime area and that’s where we targeted our efforts. In such circumstances ASB is a secondary concern. I know that sounds unfair but it’s the reality. That said, you’d always hope that the investment made in preventing crime would also help to prevent ASB. (Interviewee no. P4).

The former DOCOs held similar views, epitomised in the following comment:

First and foremost, our role was to design out crime opportunities – most especially those that facilitated domestic burglary. However, there’s a natural overlap between crime and ASB. So, for example with tower blocks if you can prevent entry into the blocks by those with no right of access, that will reduce ASB by children and young people who are not residents and treat the place as somewhere to hangout, create noise, commit acts of graffiti, minor damage, small fires, etc. (Interviewee no. P8).

Professionals' perceptions of changes in crime over time

Mirroring the manner in which the tenants were questioned and interviewed regarding their general perceptions of crime in the Nechells area and beyond, the professionals were similarly asked for their opinions on such issues. In general terms, they each commented how they believed property crime to be much lower now, compared to three decades before. And once again, when interviewed the questioning had been geared to answer the research aims of this investigation.

Eight of the twelve professionals (two thirds of those interviewed and incidentally, a similar proportion to that of the tenants questioned) stated they had no real knowledge of specific crime types within the Birmingham district of Nechells in which the CSS and comparison are located. Each of the four who were prepared to comment did so with the caveat that they no longer possessed an inside knowledge of crime in the area. The sole former housing professional prepared to comment observed:

The refurbishment of The Four Towers (CSS) was very much the jewel in the crown and when finished, the Tenants Association informed us time after time that burglary and crime in general had fallen there. Severn, Thames and Medway Towers (comparison site) were nowhere near as successful and we put that down to the flat doors and the fact that there was no staffed concierge. (Interviewee no. P1).

One of the former DOCOs offered his view on vehicle crime at the CSS and the potential for displacement of crime:

It's interesting that whilst residential burglary all but disappeared as a crime type at The Four Towers (CSS), vehicle crime increased considerably and it would seem simultaneously. I used to call that crime displacement, but now know better. All the same, it's an interesting phenomenon and there may be a link. (Interviewee no. P7).

Compared to the tenants, all twelve professionals appeared to collectively possess a more objective opinion about the changes in crime over time in Nechells and beyond, as reflected in police-recorded crime data. For example, and as previously indicated all the professionals believed that the level and extent of property crime had significantly reduced in recent decades. More succinctly, a former architect described:

It's well documented that property crime has reduced considerably over the last twenty-plus years. But what about domestic violence and the like? I'd expect the number of assaults and woundings to have gone up a lot during that time – because that's what I read in the quality press. (Interviewee no. 2)

Whereas and without prompting, two of the former DOCOs made reference to the 'security drop hypothesis' in respect of motor vehicles, Farrell *et al* (2011); and domestic burglary, Tseloni *et al* (2017). One of these DOCOs commented:

Looking across your six crime categories I would expect most of the property

crime offences to have reduced over the past 30 years – even in Nechells which as you know had a reputation as a high crime area. That security hypothesis work of Graham Farrell, ‘Machi’ Tseloni and their teams supports this and now I think about it, may help explain why vehicle crime at The Four Towers increased. Those tenants couldn’t afford cars with alarms and immobilisers and so were easy to break into and steal. (Interviewee no. 8).

Professionals’ perceptions of safety

Once again, the professionals were interviewed and questioned on the same subject area as the tenants. None of the professionals had ever resided in the Nechells area of Birmingham and as they each readily admitted, their perceptions of safety came from previous experience of working there. And again, whilst a semi-structured style of interview was followed, the researcher was always aware of the necessity to answer the research aims.

The professionals unanimously believed that making tenants both safe and feel safe inside their flats had been a key priority. Indeed, there was a general agreement that the partnership working delivered mutual benefits to all those involved and most importantly, had led to increased safety and security for the tenants at all times of the day and night. However, none of the professionals held a rose-tinted view of the reality for tenants living in the blocks – as the following observation from a former housing manager explains:

I used to speak with tenants at The Four Towers (CSS) every day and they generally felt safe inside their flats. However, they also had a bird's-eye view of the surrounding streets. Many complained they were repeatedly woken in the middle of the night by screeching tyres. It gets to them and many were frightened to go out at night – and for some even during the day. Across the dual-carriageway at Severn, Thames and Medway it was even worse. They never had the concierge and I knew some were frightened to leave their flats at any time of day. (Interviewee no. P9).

At the CSS the majority of tenants felt safe inside their flats (both during the day and night) whereas at the comparison the reverse was true. One DOCO observed:

We didn't know then but do now, how with the proper front entrance doors you can make the residents safe when inside their flats. The problem starts when they venture outside onto the landings, stairs, lifts, reception, grounds, car parks, or surrounding streets. And without the concierge the fear of crime increases. That may be why so many residents regret the demise of the concierge. (Interviewee no. P8).

These remarks demonstrate how in terms of community safety, making people feel safe in their own homes is only part of the process. They also need to feel safe when they leave their homes and perversely, with a bird's-eye view of events in the surrounding streets there is a potentially heightened capacity for an increased fear of crime.

The description 'communal areas' refers to the ground floor entrance hallways/lobby areas (including the internal bin stores), staircases, lifts and landings. Those professionals that expressed a view believed these areas were not as safe as the flats themselves, located behind another layer of security – their individual front doors. However, as a form of semi-private space (dependent upon the ground floor exterior doorsets), one retired housing manager described the paradox as follows:

At The Four Towers (CSS) when the concierge system was running, I'd have said that safety inside the blocks was pretty good. But then, I didn't live there and only ever visited in daylight hours. Now that the concierge has closed I'd feel a lot more concerned. And at Severn, Thames and Medway (comparison) until they installed proper security on the communal entrance doors, I never felt safe inside those blocks. (Interviewee no. 9).

One of the former DOCOs provided a similar perspective:

Describing the communal areas as semi-private space is all very well, but safety issues therein are dependent upon the security of the main entrance doors into the blocks. The on-site 24/7 concierge ensured trespass was kept to a minimum. But now it's managed from a remote site control room... (Interviewee no. 5).

On the spectrum of spatial definitions, post-refurbishment the grounds surrounding the tower blocks (which includes the car parks) might be described as semi-public space. Each of the tower blocks at the CSS is now surrounded by brick walls and metal railings that assist in distinguishing between public and semi-public space – thereby reinforcing territoriality (Newman, 1973). Similar, if less aesthetic and effective treatment took place at the comparison. However, A retired housing professional provided another historical viewpoint:

Prior to refurbishment the area around these tower blocks was a very bleak landscape, because between the road and the building there was usually nothing more than grass. The Landscape Practice Group attempted to soften the appearance by planting trees and shrubs and through the use of walls, fencing and ceremonial gates. I think this worked and those metal rose arbours at The Four Towers blocks, are covered in flowers each June. That said, I wouldn't describe the grounds as safe – especially at night.

(Interviewee no. 1).

One of the now retired DOCOs offered a slightly different perspective:

I've never thought that the grounds of these high-rise blocks feel safe at night. If anything, despite the enhanced lighting, the soft landscape planting, new walls, railings and gates provide plenty of cover for criminal activity and directly raise the fear of crime. (Interviewee no. 6).

As detailed in Chapter Five, a larger proportion of tenants at the CSS consistently felt safer than those at the comparison – inside their flats, in the communal areas, the grounds and in the surrounding streets. A similar disparity can be identified across the perceptions of the professionals when comparing these different locations at the two sites. Furthermore, and perhaps unsurprisingly, the professionals expressed a general lack of confidence in respect of safety in the streets surrounding both the CSS and comparison. One retired housing manager described their perceptions in the following terms:

I'll be honest, I wouldn't want to live in that area and if I had to, I'd be very loathe to go out onto the streets – especially at night. The irony is that I genuinely believe crime in general has gone down in Nechells and across Birmingham. But the news has plenty of stories about gun crime, drugs and gang violence and you'd always worry about the safety of your family.

(Interviewee no. 4).

One of the former DOCOs agreed:

The days when coppers lived on the streets they policed are long gone. Even when I was a sprog (probationary constable) there were no resident beat officers in Nechells: there were police houses, but they were all sold off in the 1980s. And safety on the streets around the two sites? I'd be very wary about travelling on foot during daylight hours, let alone at night! (Interviewee no. 6).

Professionals' perceptions of specific security measures

Once again, the professionals repeated much of the praise and similarly, many of the concerns of the tenants in respect of specific security measures. Inevitably, these opinions were based on the perceived effectiveness of the measure volunteered by the professional, or suggested by the researcher. And once more, the need to satisfy the research aims of this investigation were of paramount concern.

The provision of security staff generated a wide spectrum of commentary – much of it negative. Furthermore, as one of the former housing managers observed, it is necessary to define the different types of security staff and their role:

I would distinguish between permanent, on-site security staff – like those employed by BCC at The Four Towers 24/7 staffed concierge control room. And those contracted staff who roam from location to location across the city. The former... much admired by the tenants because they were locally based and knew each other. Whereas the latter, who I'm sure are very good people, seem to spend much of their time driving between these locations and consequently, rarely seen by the tenants or have the time to build up any kind of relationship with them. (Interviewee no. P11).

One of the former DOCO's held a similarly inciteful view:

The provision of security staff is not a CPTED measure is it and thereby lies the problem. Like 'high visibility policing' the necessary number of

security staff cannot be maintained in any one location and they're reduced to 'fire-fighting' as new crime and ASB hotspots develop across the city. Nor do they have the long-term sustainability of the best CPTED measures – a situation made worse by rebidding exercises, new contracts and constantly changing staff in these traditionally poorly paid roles. (Interviewee no. P7).

As detailed in Chapter Two, the provision of CCTV at the CSS and comparison have followed different paths during and since refurbishment in the 1990s. At the CSS, each block was equipped with internal CCTV cameras linked to the on-site 24/7 staffed concierge system. However, at the comparison the refurbishment only included an unmonitored, standalone CCTV system producing monochrome images that were recorded in situ within each block. The CCTV systems at both sites were subsequently upgraded and from April 2015 all images produced monitored from BCC's remote site central control room. A former LA housing professional remarked:

Confidence in the concierge scheme was all but universal amongst the tenants and as recently as 2006 the Housing Committee approved a £400,000 upgrade. Admittedly, this didn't mean the cameras were extended to cover the grounds and car parks, but all the landings could now be surveilled, colour images produced and all of this was recorded digitally. (Interviewee no. P11).

However, the viewpoint of a former DOCO added a different perspective:

CCTV is all very well, but it isn't the magic bullet cure that many imagined 30 years ago. I remember going to public meetings where the residents were clamouring for CCTV. But when I asked them who would monitor the cameras the room went silent – especially when I pointed out how it wouldn't be the police. (Interviewee no. P8).

In response to tenants' worries regarding the ground floor, fob-reader, access-controlled, electro-magnetic communal entry doors at both the CSS and comparison site, five of the professionals echoed those concerns. More specifically, how the doors could be "yanked open" (see Chapter Five) by those strong enough to do so; the placing of a small stone between the edge of the door and its frame (to prevent it from closing fully and locking); or being 'tail-gated' into the block. One former housing professional summed up the frustrations of many tenants and professionals at both sites:

The communal entrance doors are the first line of defence. Since the demise of the concierge, tenants are rightly concerned that those with no right of entry are getting into the blocks by using force to pull open these doors or otherwise gain entry, like threatening other tenants. (Interviewee no. P12).

Whilst a former DOCO observed:

As a young copper I remember how the tower blocks across the city (and presumably the country) were highly insecure. There was never any security

to the ground floor communal doors and that's why crime was rife. After the flats were refurbished we witnessed a big reduction in crime, but more often than not it didn't last due to tail-gating, that use of a stone or brick, or the door mechanism breaking down. (Interviewee no. P5).

This illustrates how one security measure can compensate for inadequacies of another, but this only becomes apparent when the former is removed. Arguably, the whole package is necessary to maintain/sustain Impact.

The former DOCOs provided crucial information in relation to target hardening, especially in respect of doors and windows. The PAS 24 standard for doors (and eventually windows) was not launched until 1999. Thereafter, the door/window frame, laminated safety glazing/double glazed unit and door/window furniture (including multipoint locking systems) were constructed as a holistic entity at the factory and brought to site in that form. This all but eliminated the capacity for poor door and window assembly (and durability), which facilitated burglary through use of jemmying type instruments like a screwdriver, chisel or spade. Doors and windows meeting these standards immediately became a mandatory requirement of SBD. Consequently, the opinions of the former police DOCOs in relation to the main entrance doors and windows installed prior to these standards, provide inciteful observations:

The difference between flats and conventional housing types is profound.

Normally, with flats all you need to get right is their entrance door – the exception being ground floor flats where the windows are also important.

With conventional housing it was the rear door that was the weakest link: those of the 2XG design with a plywood panel in the lower half were notorious for facilitating burglary... Once the PAS 24 standard came in, our job was made far easier. Because the combination of multi-point locking and laminated safety glass (plus factory manufacture) meant it took considerable effort, time and noise to get through those doors and windows. As a result, the number of domestic burglaries plummeted. (Interviewee no. P7).

Another retired DOCO provided additional historical commentary relevant to the CSS and comparison site:

You have to remember The Four Towers and Severn, Thames and Medway were refurbished many years before the launch of PAS 24. In retrospect, you were very lucky to get those top of the range Mul-T-Point doors installed at The Four Towers. However, at Severn, Thames and Medway finances were tight and the council most often kept the existing doors and merely added – usually a BS 3621 five-lever mortise deadlock. This complied with SBD minimum requirements and reduced burglaries. However, it didn't eliminate them and opportunists soon realised that with sufficient force they could still get through those doors. And of course, the great irony is that BS 3621 was developed to prevent the lock from being

‘picked’ or through the use of a skeleton key. Our burglars were never that sophisticated, preferring sheer brute force. In fact, most often they simply kicked in the door. (Interviewee no. P6).

This last statement illustrates the limited sustainability of a security measure that turned out to have relied on *perceived* deterrence, rather than a fundamentally effective and durable physical mechanism to defeat the burglars. Whilst the final element illustrates that knowing the capabilities, limitations and typical MO repertoire of burglars at the time of selecting/designing the security measures – Intelligence in 5Is process terms (Ekblom, 2011a) are important in achieving durability. This in itself opens a potential new debate regarding durability and sustainability. The former relates to the ability of CPTED measures to maintain their effectiveness over an allotted timespan – close to 30 years with the ‘Mul-T-Secure’ doors at the CSS, thereby delivering long term sustainability in terms of reduced crime.

The downside of a simplistic approach to durability/sustainability, can be identified in the narrow task of durably resisting burglary, but which by the same token caused problems of fire safety and law enforcement. Three of the professionals made reference to how if anything, the security of the entrance doors to each flat at the CSS was too secure – an opinion succinctly described by a former housing surveyor (and corroborating an incident detailed by a tenant in Chapter Five):

Once the refurbishment was finished, we had repeated instances of those entrance doors being too secure. On one occasion the fire service were

called when a tenant deliberately left the gas on and stated he was going to take his own life. Even their hydraulic jacks couldn't get past the hinge bolts and frame armour and after 30 minutes the flat exploded and all the windows were blown out. (Interviewee no. P3).

Whilst one of the now retired former DOCOs observed:

We received repeated complaints from specialist police departments (like the drugs squad) stating they couldn't affect a quick entry to make an arrest and secure evidence at The Four Towers. That said, a detective from one of the surveillance units had no problem in gaining entry. He wouldn't show us how, but no damage was caused to the door. (Interviewee no. P5).

The 24/7 on-site staffed concierge at the CSS (1992-2015) can be seen as instrumental in the Implementation/Involvement/Impact of sustainability at that site. And as a specific element of the bid, a former architect observed:

The 24/7 concierge scheme really attracted the attention of the DOE. Much was made of how concierges were highly effective in Parisian blocks. But I think what really swung it was how the Tory Housing Minister back in the early 50s, one Harold Macmillan, had officially opened The Four Towers (CSS) in 1953 (1954 in fact). Civil servants brought that to the notice of the Conservative minister at the DOE in 1989 or 1990. (Interviewee no. P2).

On the basis of this statement, a fair assessment might conclude that the conditions for Implementation were a one-off coincidence with an apparent political dimension. However, a retired housing manager commented:

In retrospect, the concierge scheme at The Four Towers was always going to be a one-off. It was paid for by way of a levy on the rents, which for the vast majority of tenants meant housing benefits deducted at source. This was an unsatisfactory arrangement and central government wouldn't allow it to be repeated. The final death knell fell in 2015 when central government stopped housing benefits deducted at source and that meant the concierge was no longer financially viable. (Interviewee no. P4).

This last statement implies that the concierge became unsustainable because the financial context supporting it (deducting housing benefits at source) changed. Moreover, this points to the economic instability of certain types of CPTED interventions. Target hardening measures of sufficient quality and durability have the capacity to deliver sustainable crime prevention for the anticipated lifetime of the project – as with the entrance doors to the individual flats at the CSS. Whereas technological innovations like CCTV will require periodic investment and updating. And 24/7 staffed concierge schemes necessitate constant revenue funding.

The official opening of the newly refurbished tower blocks of the CSS in 1993, coincided with central government's newfound confidence in CCTV as a deterrent to crime (Ditton and Short, 1998). Birmingham's city centre public area CCTV system

was one of only three such schemes in England at that time – the others being Kings Lynn and Newcastle-upon-Tyne (Brown, 1995). However, whilst the city's Housing Department were persuaded to incorporate CCTV cameras within the four blocks as part of the 24/7 staffed concierge scheme, it was decided there would be no external CCTV coverage. It might be argued that this compromised sustainability across the whole site (albeit only vehicle crime appears to have been immediately affected – see Chapter Four). Furthermore, the fact that the absence of a particular security measure at the CSS was associated with a higher crime level than that at the comparison, makes it less likely CSS crime would have reduced and is an instance of regression to the mean. One former DOCO observed:

I'm not surprised the level of crime in the car parks at The Four Towers is higher than at Severn, Thames and Medway. The council should have extended the CCTV system to cover the car parks. Without it, vehicle crime was inevitable, especially when potential thieves couldn't get inside the tower blocks. (Interviewee no. P5).

However, the previous observation fails to take account of the privacy and civil liberties concerns of the late 1980s – ones that remain valid to this day. They are eloquently made by an interviewee who was a housing professional at the time of both the CSS and comparison site refurbishments:

Back in the early 90s there was quite a bit of hostility to CCTV... this was before the murder of James Bulger. Just putting CCTV cameras inside the

blocks was a radical decision by councillors and the Housing Committee. And there was much criticism thereafter of the very few LAs across England who installed CCTV cameras in outdoor residential areas. (Interviewee no. P12).

The unique and enclosed (an integral and internal part of the building) balcony-to-balcony linked fire-escape staircases (five per tower block) at the CSS were also repeatedly mentioned by the professionals during their interviews. These are the only ones ever incorporated within any of Birmingham's 464 tower blocks (Jones, 2002) and not known to exist at any other location in the UK or beyond. According to four of the professionals, by the late 1980s these same fire-escapes were a repeated access point for burglary (see Appendix 7). As one of the retired DOCOs explained:

During the 1980s, opportunist burglars knew that the insecure fire-escapes gave them direct access to the balconies. Before refurbishment the windows and doors on these were metal framed, single glazed units of very poor quality and inherently insecure. They could be easily forced and burglars deliberately targeted the many vacant flats to steal the boilers and copper piping. (Interviewee no. P6).

During the 1989-1992 CSS refurbishment, the ground floor balconies were secured with steel grilles/gates and the metal framed windows and balcony doors replaced with ones of PVCu construction. However, as these predated the aforementioned standard PAS 24, the security of these balcony doors and windows contributed to

almost a third (12 out of 40) burglaries over the subsequent quarter-century. As one former housing surveyor explained:

Dr X headed our Materials Working Group for a decade during the 1990s.

However, we relied on standards that looking back, were inferior to the ones introduced in later years. The PVCu windows and balcony doors at The Four Towers (CSS) were a classic example in this regard. That said, once the ground floor balconies had been secured it can only be presumed that those breaking into the flats by way of the balcony doors or windows were either other tenants, or had been given access to the fire-escape system by tenants. (Interviewee no. P3).

Whilst displacement and diffusion of benefits are not within the scope of this thesis, were burglars (and other offenders) to conduct tactical displacement i.e. discover other vulnerabilities and change MOs to exploit these, that would invariably compromise the sustainability of the Intervention.

Much of the research conducted during the course of this investigation took place before the Grenfell Tower tragedy in June 2017. However, a former housing manager had during the course of their interview made reference to the multiple fire-escape system at the CSS:

During the planning stages for the refurbishment, the future of the unique fire-escape system at The Four Towers had come under consideration. We

knew that it was facilitating a lot of crime. However, the design of each block with a single lift and staircase in each of its two parts, meant the five fire-escapes per block would have to be maintained. That's why the best solution was to use railings on the ground floor balconies to prevent access into the enclosed fire-escape staircases. (Interviewee No. 4).

The persistence of Implementation/maintenance of the security measures was thus dependant on the persistence of the fire-escapes which had actually created the vulnerability. The lifetime of the fire-escapes was in turn a legacy of the fundamental architecture of the buildings. However, this points to a critical issue – namely that of the conflict between issues safety and security. Until the Grenfell Tower tragedy, the fire-escape systems at the CSS were generally perceived as an anachronism. That attitude must surely have changed after June 2017 – and continues to evolve.

Each of the twelve professionals interviewed made highly favourable comments regarding the value of partnership working. Two of the most pertinent are now provided. One of the former DOCOs (who had also been a force crime reduction manager) observed:

Partnership working is very much in vogue these days. But compared to 30 or 40 years ago we've come on in leaps and bounds. People forget how the professions used to keep themselves to themselves. They behaved like the medieval guilds protecting their own little niche – and the police service was no different. Back in the mid-80s the creation of the ALO/CPDA (DOCO) role

was one of the first examples of the police service reaching out to other professions – like architects and planners. And when DOE Circular 5/94 was published in 1994 there was no going back, except... (Interviewee no. P7).

A former architect provided the following especially relevant response to the previous statement:

As a young architect back in the 60s I can recall speaking to a police sergeant and asking him what design features he found helpful. His answer was recessed doorways and he explained that at night they were the perfect spot to watch what was going on in the street, without being noticed yourself.

However, these days I don't think the police DOCOs would agree about recessed doorways. My bigger point is I remember the sergeant's advice because we had no professional contact with the police regarding building design and crime prevention until the late 1980s. (Interviewee no. P2).

Professionals' highlighted concerns

The professionals also referenced a number of issues considered to be pertinent to this investigation. For example, unrepaired damage was mentioned by all four former DOCOs. This also points to how revenue funding is a basic Implementation dimension of sustainability (Ekblom, 2011a). And the necessity for DOCOs to think about the financial sustainability of their proposals. The following observation was

typical of the responses from across the professionals and their disciplines, albeit here made by a former DOCO:

I'm pretty sure we hadn't heard of Broken Windows theory at the time of The Four Towers and Severn, Thames and Medway refurbishments. However, I recall saying to council officials how they needed to ensure there was sufficient revenue funding to keep the projects in pristine condition once they were finished. To their credit, they always said that that would be difficult to achieve. (Interviewee no. P6).

Meanwhile, a former housing manager observed:

Revenue funding, even for serious issues, had always been tight. I like to think we were always aware that if an area looked run down, that would encourage people to think the same and behave accordingly. We just didn't call it Broken Windows theory. (Interviewee no. P4).

Three of those interviewed also confirmed that financial constraints were all but non-existent in respect of refurbishment at the CSS, thereby helping to explain the higher grade CPTED elements that were incorporated at that location – in contrast to the comparison. One of the professionals, a former architect, provided the following reflection in respect of the CSS:

Because this was the first scheme we submitted to the DOE, we included costings based on the highest quality products – like those Mul-T-Secure

front doors. We were all pleasantly surprised when they were approved.

(Interviewee no. P2).

Compare the above response in respect of the CSS, to one about the comparison:

By 1993 the financial regime was much tighter. The DOE had got wind of how Secured by Design didn't require the high-quality entrance doors used at The Four Towers. That's why we just added an extra lock to the existing doors – with the agreement of the police, although a few years later the doors had to be replaced because the flats kept getting broken into and the tenants were justifiably complaining. (Interviewee no. P3).

The CPTED environmental elements and symbolic barriers were also repeatedly remarked upon by the professionals. A former DOCO observed:

We've always known that these symbolic barriers were the weakest tool in the tool-chest – in terms of effectiveness. And at both The Four Towers and Severn, Thames and Medway, this has been borne out in respect of vehicle crime. No real defensible space was created, because the gates are purely symbolic.... and the changes in road surface colour and texture in the car parks don't seem to have had any deterrent effect. (Interviewee no. P8).

Drawing down from the 5Is, in the above instance by 'effectiveness' the DOCO is referring to basic Impact, not sustainability of Intervention (the measure's causal

mechanisms still work); Implementation (e.g. maintenance, funding); Involvement (people still use the locks, etc); and ultimately Impact (the effect on crime continues). This is contextual change, but can it be said to have curtailed sustainable Impact? This is difficult to contend, since the original car parks were never secure. Moreover, there appears to be no Impact/sustainability on crime or the fear of crime in the above statement. Meanwhile, a former planning professional commented:

I think the planting of shrubs and trees softened the immediate landscape and if nothing else, created an environment where fear of crime had been reduced. That might be a false sense of security, but it's a vast improvement on how it looked before. (Interviewee no. P10).

A previous observation, about how the absence of a higher grade of CPTED at the comparison during its refurbishment, had immediate implications in terms of facilitating crime, was echoed by four more professionals. Furthermore, one of these (a former DOCO and manager) also provided a highly significant prognosis concerning the very long-term:

In this designing out crime role you soon realised how there was a once in a 30 years chance to get things right. Once the development was built that was it. The only exception to that rule I discovered was counter-terrorism HVM (hostile vehicle mitigation) measures, but even then the financial costs were all but prohibitively expensive. (Interviewee no. P7).

Summary of findings

As discovered within the previous findings' chapters, using the 5Is to analyse the professionals' qualitative responses produces a vault of interpretative data that can be utilised to make recommendations in respect of the most durable and sustainable CPTED measures over the short, medium and very long-term. Use of the 5Is also assisted in satisfying the research aims of this investigation. Moreover, these qualitative responses produce authoritative commentary and understanding of the crime analysis and tenants' data contained within the two previous chapters.

Within the task stream of Intelligence, the professionals' qualitative data provides interpretative commentary regarding crime, fear of crime and ASB at both sites. Furthermore, all twelve professionals were able to draw upon their experience of working in districts across the city and beyond. More specifically, the four who were former DOCOs utilised their 30 plus years as serving police officers. Whereas the eight LA professionals possessed a wealth of experience from their career-long work across a swathe of different specialisms in local government and elsewhere. The professionals' perceptions of crime, ASB, safety and the effectiveness of physical security measures add to this Intelligence. At the comparison, immediate causes can be identified with the 1993-95 refurbishment – in particular the failure to replace the front entrance doors to each flat (as had been done at the CSS) which meant the target enclosure was insufficiently secured. Intelligence also alludes to the accuracy of the information contained within the police-recorded crime data. For example, residential burglary will always relate to a specific flat. Similarly, vehicle crime would be expected to have taken place in the car parks or immediately adjacent streets, whereas robberies, assaults and criminal damage may originate at locations away

from the flat. Unlike the tenants, the professionals (and the former DOCOs in particular) were aware of such discrepancies and the dynamics of specific crime types.

As part of the task stream of aims, the refurbishment of both sites was undertaken largely due to the age of all seven tower blocks and the necessity to replace fittings (doors, windows, heating and refuse disposal in particular – see Chapter Two) whose durability had expired. Professionals (and tenants) at both sites believed that crime was being facilitated by such worn out measures as warped and insecure entrance doors. Context of evaluation points to this investigation being an external, independent, and one-off academic exercise. Whilst the methodology of evaluation indicates this is a qualitative, action-comparison investigation using police-recorded and tenant self-reported crime data, together with qualitative data obtained from those tenants and professionals interviewed at length.

Chapter conclusion

Addressing the observations made by the professionals, three overriding aspects of evaluation become apparent: intensity, quality and appropriateness. Their commentary overwhelmingly supports the belief that a higher grade of CPTED was employed at the CSS, thereby satisfying the aspects of intensity and quality. But was it appropriate? If anything, the over-engineered front entrance doors at the CSS suggest that measure was not appropriate. And by common opinion, at the comparison the security of the doors was very poor post-refurbishment and therefore similarly inappropriate. Consequently, the lesser grade of CPTED also fails the tests

of intensity and quality. Interestingly and despite the wide disparity in the backgrounds of these professionals (policing, CPTED, housing, planning, architecture, surveying) repeated common themes emerge, ones that will be picked up in the next and final findings chapter. These include:

1. How three decades ago, knowledge of the effectiveness of CPTED Interventions was limited – even amongst those (like DOCOs) with the delivery role.
2. This absence of knowledge extended to the infrequency of opportunities to incorporate CPTED measures – described by some of the professionals as “a once in 30 years opportunity to design out crime”.
3. All the professionals agreed on the validity of Broken Windows theory (Wilson and Kelling, 1982) although those from the LA disciplines were far more circumspect as to how this could be achieved.
4. Unusually, financial constraints were minimal at the CSS. Whereas at the comparison they were in contention from the outset – thereby reinforcing the perception of a lack of consistency across many SBD projects during the 1990s.
5. It was appreciated that the 24/7 staffed concierge was financially unviable once central government changed the system of housing benefit payments.
6. Whilst the council’s arguments for restricting CCTV coverage to the internal areas of the CSS and comparison were generally understood, amongst a majority of professionals there was a belief that the cameras should have been extended to include the external areas – most especially the car parks.
7. Those professionals (five of the twelve) who expressed an opinion believed that the greatest disparity between the target hardening measures employed

at the CSS, when compared to the comparison site, related to the entrance doors to the flats. Indeed, the difference between the Mul-T-Secure doors installed at the CSS and minimal additional security at the comparison was repeatedly described as the widest disparity.

8. Another consistent criticism was of the over-engineered (“fortressification” – Cozens and Love, 2015) security elements to the entrance doors of the flats at the CSS. Essentially, some of these measures were considered to be unnecessary – especially the inclusion of hinge bolts and frame armour.
9. In direct contrast, the communal entrance doors were generally believed to be of too poor a quality (at least in terms of durability) and facilitated ‘tail-gating’ of legitimate tenants and visitors, by those with no right to enter the blocks.
10. Multiple and inconsistent observations were expressed regarding the fear of crime, including the notion that the security inherent to residing within a secure flat at the CSS, increased the fear of crime when outside.
11. There was a general consensus that prior to refurbishment, the balcony-to-balcony fire-escape system at the CSS had facilitated crime and thus the necessity to ensure that the security of same was improved to prevent such use in the future.
12. It was acknowledged that evidence for the effectiveness of CPTED environmental elements and symbolic barriers was weak. This was especially the case in the car parks where vehicle crime was persistent.
13. Pedestrian footpaths were problematic, providing hot-spots for criminal activity. And whilst the pedestrian subway was removed, the public footpath performed an identical hot-spot role (a potential issue of micro displacement).

Qualitative evidence emanating from the professionals' interviews has a natural interplay with the research aims of this project and the effect on crime following the refurbishments of the early 1990s. As with the two preceding 'Findings' chapters, the views expressed in these interviews largely support the other findings: recorded crime data; tenants' questionnaire data; and tenants interview qualitative data. However, the professionals possessed a greater understanding of the limitations of CPTED Interventions and how three decades before, the evidence and knowledge base relating to the effectiveness of such measures was especially limited. Nevertheless, there was a general perception that crime had reduced (more so at the CSS than the comparison) following the refurbishments and the encouragement to incorporate CPTED measures incentivised by way of the SBD award system. The increased reduction at the CSS was attributed to the higher grade of target hardening included – most especially the individual flat and communal entrance doors and (to a lesser extent) the on-site, 24/7 staffed concierge service.

Most importantly, whilst a long-term crime prevention effect was identifiable at the CSS, once new entrance doors to each flat were installed at the comparison, long term sustainable reductions were identified, described and expected at both sites. Statements contained within the professionals' interviews overwhelmingly support the concept and delivery of long-term durability and sustainability of the crime prevention effect at both the CSS and subsequently, at the comparison site. In terms of the original construction and refurbishment of both the CSS and comparison over the past 70 years, this equates at the macro level with support for police-led crime prevention and government action to design out crime opportunities.



Figure 8: Satellite view of the CSS – a visual triangle formed by the X-shaped High, Queens and Home Towers at the top of the picture, South Tower at the bottom

Chapter Seven

Discussion and Conclusion

This investigation aimed to establish the effectiveness of CPTED (Jeffery, 1971) measures when applied via the SBD mechanism during the refurbishment of high-rise tower blocks and thereby, assist decision makers regarding what works in terms of durability and sustainability of these Interventions over the very long-term (in excess of 25 years). It began by examining the previously published literature and research findings in this subject area, in order to establish the current body of knowledge and the gaps in what we know. With the notable exception of Armitage and Monchuk (2009), investigation of the crime reduction benefits of CPTED Interventions over a sustained time period, was found to be especially rare. For example, the canon of research into the effectiveness of the police-operated SBD award system has tended to examine little more than before and after crime comparisons of no more than a few years duration: Armitage, 1999; Brown, 1999; Pascoe, 1999; Teedon and Reid, 2009; Jones et al., 2016. And as the literature review disclosed, there is an absence of material relating to high-rise tower blocks – the focus of this investigation.

Consequently, it was decided to embark upon a case study approach testing the effectiveness of SCP (Mayhew et al., 1976), CPTED and SBD (1989) Interventions employed at both sites. SARA (Clarke and Eck, 2003), was considered as the means of analysis. However, the 5Is were chosen on the basis they provided the most rigorous means of investigation and as its author describes "...reflecting the

requirement to handle the rich complexity of preventive action” (Ekblom, 2011a, p.86).

For this Impact study, the investigation utilised two sets of high-rise tower blocks located in inner-city Birmingham – the CSS and the comparison. Construction of these sites began at the start and close of the 1950s respectively and each was subject to major refurbishment in the early 1990s. During those refurbishments, CPTED measures were necessary (determined by Intelligence) and deliberately included (Intervention) following advice from the recently created police DOCOs (Implementation and Involvement). However, due to a combination of changes in the funding structure and SBD’s minimum standards, different grades of CPTED were incorporated at each site. In particular, new, very high-quality multi-point locking entrance doors to each flat were installed at the CSS. Whereas, at the comparison a simple additional locking mechanism (most often a BS 3621 five lever mortise deadlock) was fitted to the existing entrance door of each flat. The premise of this study and its research aims, was that the higher grade of CPTED would lead to sustainable crime reduction. Whereas, the lesser grade would not. As far as could be ascertained, the differential grading decisions had nothing to do with different crime levels and therefore, could not be considered as confounding the evaluation design.

When SBD was first launched in 1989, the accompanying award marketing and estate design material (1989) included pictures of detached houses – suggesting the award was aimed primarily at the private-for-sale house-building sector.

Paradoxically, the recession of the early 1990s and a general indifference to security

by the private sector (and house-buyers) meant that across the UK the primary source of demand came from the LAs (most often refurbishment of existing council-owned RSL housing); and the HAs (new build RSL-owned housing). SBD quickly adapted to satisfying this demand with police DOCOs providing the service. However, despite specific training for the role, police understanding of CPTED was in its infancy and SBD minimum requirements were (in hindsight) set too low. As one now retired DOCO describes:

Looking back, we were fumbling in the dark. Oscar Newman's opinions had reached the Home Office Crime Reduction Centre in Stafford, but there was no clear understanding of concepts like defensible space and territoriality, or how to incorporate them in practice. (Interviewee no. P7).

Nor were there in place the standards and certification for doors and windows that would eventually yield (over time) high quality products at reasonable financial cost.

Answering the four research aims

Four research aims permeate this investigation: Has there been a net reduction in recorded crime at the CSS compared to the comparison? Has any such net reduction been sustained over a period of 25 years? What Impact have the individual elements of design had on crime in the study area? Which (if any) specific crime prevention Interventions have Impacted on reductions in crime and how effective were they?

1. Has there been a net reduction in recorded crime at the CSS compared to the comparison?

Initial enquiries with WMP had indicated that it would be possible to obtain police-recorded crime data for a 25-year timeframe at both the CSS and comparison. This data was necessary to scrutinise the preventive practice and its outcomes. However, due to a change in computer hard drives only 18 years of data were supplied for both sites, covering the years 1997-2014. This still amounts to a considerable wealth of material – 1,404 detailed recorded crimes. Nevertheless, the data do not commence until five years following completion of refurbishment at the CSS and two years at the comparison.

Fortuitously, hard copy additional police crime data was subsequently discovered for the years 1992-1994, albeit for the CSS alone. This data is of instrumental importance because it covers the final year (1992) of refurbishment at the CSS. Assessed in conjunction with the manual of works, it charts how burglary was all but eliminated towards the end of 1992 as the process of installing the entrance doors to each flat was completed and the on-site, 24/7 staffed concierge began operating – including control of the ground floor communal entrance doors and fob-reader entry system. All told, this delivered a sustained reduction in burglary over 21 years of 89.2 per cent at the CSS! Furthermore, this near elimination of burglary at the CSS is replicated in the crime data for 1993, 1994 and in the bulk crime data covering the 18 years 1997-2014. Compare this to “Worry about burglary peaked in 1993 in England and Wales” – Mawby (2001, p.16). in contrast, the crime data indicates an unexplained increase in vehicle crime outside the tower blocks in 1993, which simplistically some might attribute to crime type displacement (burglary to auto-

crime), although no evidence has been discovered to support such conjecture. And whilst vehicle crime offences reduced in 1994, this is one of only two crime categories where there is a higher incidence at the CSS than at the comparison during the years 1997-2014. Of crucial importance, between 1997-2014 (18 years) there were 40 police-recorded burglaries at the CSS, compared to 60 at the comparison – exactly 50 per cent higher.

Issues with finding a CPTED-free comparison site are detailed in Chapter Three, Methodology. However, the lesser grade CPTED measures employed at the comparison are reflected in the subsequent police-recorded crime data for the period 1997-2014 – most especially in relation to burglary compared to the CSS. Once the new entrance doors to each flat were installed at the comparison in 2008, followed by fob-reader access-controlled communal entrance doors, the incidence of burglary fell and overtook (no reported burglaries) the reductions at the CSS during the final five years of analysis. Consequently, that the comparison had initially received a lesser grade of CPTED has benefitted this investigation, in that only when higher grade measures (flat entrance doors and communal entrance doors) were installed did it replicate the crime reduction success previously witnessed at the CSS alone.

Subsequent updates in the constantly evolving and improving minimum standards required by SBD (most recently SBD Homes 2019), indicate this issue was resolved by the turn of the century when the standard PAS 24 (1999) was launched.

Nevertheless, it is a salient point that target hardening measures must be of sufficient quality and durability if they are to deliver sustainable crime prevention over

25 years. At the CSS that was certainly true of the entrance doors to each flat – perhaps less so the communal entrance doors as evidenced in the qualitative evidence provided by both the tenants and professionals (see Chapters Five and Six). Furthermore, the 24/7 staffed concierge became unsustainable because the financial context supporting it (deducting housing benefits at source) changed. The economic instability of certain types of CPTED measure is therefore self-evident, producing a spectrum of projected life-expectancy. Thus, target hardening measures of sufficient quality and durability have the capacity to deliver sustainable crime prevention for the anticipated lifetime of the project – more than 25 years in the instance of those entrance doors to the individual flats at the CSS. Whereas, technological innovations like CCTV will require periodic investment and updating. Whilst 24/7 staffed concierge schemes and security guarding necessitate constant revenue funding and decision-making to continue operation. Developing such a spectrum of CPTED durability might be a worthy subject for future investigation.

2. Has any such net reduction been sustained over a period of 25 years?

Following on from the previous section, the Mul-T-Secure entrance doors to each flat at the CSS were installed in 1992 and only replaced in 2018/2019 during the most recent major refurbishment. Furthermore, whilst personal witness during the questionnaire phase indicated less than 10 per cent were demonstrating visible signs of wear, their 27 years of durability had demonstrated how they had been an important element in delivering sustainable crime prevention over the very long-term – at least in respect of residential burglary. More precisely, over 18 years 40 police-recorded burglaries at the CSS and 60 at the comparison. Whereas at the CSS and

during the crucial year of 1992 (immediately before refurbishment was completed) 19 burglaries were recorded. Perhaps most importantly, the replacement doors are PAS 24:2016 compliant, but without the hinge bolts and frame armour elements criticized of their predecessors – on grounds of safety, emergency access and exit.

The rarity of forced-entry burglary at both the CSS and comparison (once the existing insecure doors had been replaced), suggests the combination of secure flat entrance doors and fob-reader, electronically-operated communal entrance doors has delivered much of the sustainable crime reduction witnessed at both sites, following installation. The one crime type that appears impervious to the CPTED treatment is that of assaults, which increased exponentially during the study period. There are a number of explanations for this, including changes in the law, Home Office recording rules and police recording policies and practices. The advent of common assault as a recordable offence has also influenced the apparent increase of such crimes. Nevertheless, the limitations of CPTED are demonstrated by this crime type, especially when the assault takes place within the home and may be attributable to domestic violence. Wherever possible, CPTED Interventions should be developed to prevent these assaults. The advent of domestic violence sanctuary rooms (SBD, 2019) illustrates how with sufficient target hardening and technological innovation measures, the victims of domestic violence can continue to live in their homes – should they wish to.

3. What impact have the individual elements of design had on crime in the study area?

There exists an inherent difficulty in differentially attributing Impact to various individual Interventions. Nevertheless, amongst the CPTED Interventions introduced at both sites, the greatest Impact might be attributed to target hardening measures. In particular, the entrance doors to individual flats at the CSS and also at the comparison, once the existing doors were replaced (post-refurbishment) in 2008. Furthermore, the security of the fob-reader activated, electronically-operated communal entrance doors (target hardening and technological innovations) provided an added layer of security. In addition, a host of other CPTED elements were Implemented at either the CSS or both sites. The most contentious of these (in terms of its closure in 2015) was the much lauded on-site, 24/7 staffed concierge system at the CSS alone. For 14 years it acted as an immediate place management service (in terms of the PAT) and was much admired by the tenants before closure by BCC on grounds of cost. From April 2015 both sites were linked to an off-site 24/7 control room. However, even before this move, crime rates at both the CSS and comparison had all but converged, suggesting the concierge was having no additional crime reducing effect at the CSS.

Similarly, internal CCTV cameras were installed within the blocks at both locations and periodically enhanced. However, they were never extended to cover the external areas e.g. the car parks, and tenants interviewed at both sites were dismissive about their value – in terms of prevention and detection capacity. During the 2018-2020 refurbishment of the CSS, many of these cameras were removed. Indeed, LAs often

can no longer afford the revenue costs of maintaining town and city centre CCTV systems and have been switching off their cameras over the past decade.

Furthermore, as Gill et al. (2005) reported, the preventive value of public area CCTV was not well-evidenced. Least effective (in terms of evidence) are the CPTED environmental elements – in respect of the grounds and car parks outside the blocks. In these areas, there is no quantitative or qualitative evidence that supports the creation of semi-public defensible space, territoriality, surveillance (Newman, 1972, 1973) or symbolic barriers (Shaftoe and James, 2004).

One of the retired DOCOs interviewed described symbolic barriers as “the weakest tool in the tool-chest” (interviewee P8). Indeed, the police-recorded crime data, tenants’ quantitative and qualitative data, together with the professionals’ qualitative data, tends to confirm this. Once again, the quality of these CPTED measures as employed at the CSS is of a higher grade (and more aesthetically pleasing) than at the comparison. But this appears to have had no crime reduction effect. If anything, possibly the very opposite effect in terms of the incidence of vehicle crime and criminal damage at the CSS – both higher than at the comparison.

One solution is how in theory, the grounds and car parks could become semi-private defensible space (Newman, 1972) were the walls and fencing that at present surround the blocks made secure and electronically-operated pedestrian and vehicle gates installed. This has happened at privately-owned developments in London, Birmingham and in many other cities around the world. However, there currently exists in the UK some degree of hostility to such ‘gated communities’, by those who

believe such restrictions on personal movement should not be permitted. The judgements of the Planning Inspectorate are also illuminating in this regard. Without such perimeter protection vehicle crime is likely to continue and likewise, crimes of assault and robbery on tenants when leaving/before entering the blocks.

Sadly, CPTED measures cannot prevent crime committed within the home by members of that household. Nevertheless, the entrance doors to each flat at both the CSS and comparison now meet the requirements of the SBD Sanctuary Scheme (2019) for when one partner has been legally excluded from the home.

Consequently, should a CSS or comparison victim of domestic violence be referred to the sanctuary scheme, these doors already meet the necessary standards.

Finally, and the second CSS-specific security measure that can be seen to have been highly effective in reducing burglary, relates to the balcony-to-balcony linked fire-escapes (see Appendix 7). Both the tenants' and professionals' qualitative data confirms that prior to refurbishment, access to the five emergency staircases within each block had been a repeat MO for burglary. This is an important aspect of design trade-offs/conflicts (Ekblom, 2011a). During the 1989-92 refurbishment the balconies to the four ground floor flats within each block had been secured with decorative metal grilles and gates to prevent easy access. During 20 years of available data, 12 burglaries were recorded by the police as having taken place by this same MO – presumably committed by fellow tenants of that block, or permitted access by same, as no additional forced access was reported. During the most recent refurbishment, all the balconies have been fully enclosed with PAS 24:2016 windows and now form

an integral part of the building – together with a secure, outward opening fire door at ground floor level and adjacent to each of the separate fire-escapes at each block (see Figure 5 on page 191).

4. Which (if any) specific crime prevention interventions have impacted on reductions in crime and how effective were they?

The SBD award (1989) was specifically developed as a delivery mechanism for incentivising the prevention of residential burglary. Despite the caveat regarding the difficulty in differentially attributing Impact to various individual Interventions, amongst the CPTED Interventions introduced at both sites, it might reasonably be suggested that specific target hardening measures delivered the greatest Impact. In particular, this investigation indicates how in high-rise tower blocks this might be achieved by ensuring the entrance door to each flat is of a sufficient security standard. In addition, the windows of ground floor flats (or other easily accessible windows) also need to meet such a security standard. Moreover, security could be further enhanced if the communal entrance doors to each block meet the necessary security standard. With these two layers of CPTED protecting the target enclosure (individual flat) and using PAS 24 as the minimum-security standard for doors and windows, residential burglary can be reduced to a minimum in high-rise tower blocks.

Indeed, according to Ekblom (2011a) evidence that a particular measure whilst installed was not used, or that components were broken and not fixed, is acceptable as 'causal mechanism-type diagnostic evidence'. In this study, the Mul-T-Secure entrance doors to each CSS flat demonstrate both durability and sustainability over

the very long-term (in excess of 25 years). Consequently, the absence of credible evidence relating to forced-entry burglary via these doors, is especially convincing.

Limitations and further research

This case study approach investigated the different grades (or intensity) of CPTED measures introduced at the CSS and comparison during their major refurbishments in the early 1990s. These were then examined in the context of the police-recorded crime data, tenants' quantitative data and both the tenants and professionals' qualitative data. Consequently, this in-depth investigation produced a large dataset of information, although there were inherent limitations in its scope and with the original research aims. For example, it soon became apparent that investigating crime displacement and diffusion of benefits was too ambitious.

Similarly, and as repeatedly described in Chapter Four, Crime Analysis, whilst offences of residential burglary can be directly attributed to a specific address contained in the police-recorded crime report, such accuracy is repeatedly missing in the records of offences such as robbery and assaults. Consequently, it is extremely difficult to make pertinent recommendations with the aim of preventing offences within these crime categories. This in turn calls for greater accuracy in the recording of precise crime location details when the offence is recorded by the police.

More positively, gathering oral testimony as evidence to either corroborate or qualify the quantitative crime data and tenant questionnaire responses, has been realised courtesy of the 22 extended interviews with tenants and 12 with professionals. And

in conjunction with the police provided crime data, covering a period of 18 years for both the CSS and comparison (together with three years of earlier crime records for the CSS alone), this has enabled the study of CPTED measures delivered by the SBD award incentivisation scheme over the very long-term and (as originally suspected) in the face of considerable practical and statistical challenges. A similarly favourable conclusion concerns the longevity of this investigation (in terms of the period covered) and demonstrates how over the previous 30 years, SBD has become an effective incentive to RSLs and (increasingly over the past decade) even the private, for sale house-building sector – personal witness. Without SBD raising the profile of home security at central government level (together with, repeated independent academic assessment), poor quality doors and windows for all forms of housing might still be the norm.

Nevertheless, throughout this investigation, repeated common (and potentially compromising) themes have emerged. Perhaps the most pre-eminent of these has been the difficulty in conducting an investigation over the very long-term – in excess of 25 years on this occasion). The unavailability of the full dataset of statistical information has been the greatest hurdle – with repeated intimations that it might have been discovered at some stage. And because in the twenty-first century such data is now held on regularly replaced and upgraded computer hard drives, accessing such information is often extremely difficult. Add to this information sharing protocols, data protection concerns and the complications surrounding the bureaucracy of management approval, these collectively make the investigator's task especially arduous. Similarly, the absence of police-recorded crime data for the years 1988-1991 and 1995-1996 at the CSS; and 1988-1996 at the comparison

means that it has been impossible to check the veracity of ‘anticipatory benefits’ (Smith, Clarke and Pease, 2002) despite substantial conjecture amongst those questioned and interviewed that these had taken place at the CSS once the refurbishment was announced in 1989. And even at the CSS there is a break in the continuity of the crime data for the years 1995-1996.

Another issue relating to the very long-term was the impossible task of identifying a comparison that had received no CPTED treatment. All of the tower blocks that would have best suited such a role had been demolished – 251 in Birmingham over the past 30 years (Jones, 2002). The remaining 213, soon to become 203 as ten more have now been identified for demolition (BCC, 2017) each received at least a lesser grade of CPTED. Indeed, the comparison fell into this category during its 1993-1995 refurbishment, but thereafter additional target hardening measures had been incorporated, including new entrance doors to each flat in 2008. Unsurprisingly, its pattern of recorded crime then reflected that of the CSS. This all tends to confirm Ekblom’s (2011a) description of how in the real world, research is often “messy”.

One of the themes repeated during the extended interviews conducted with the professionals (detailed in Chapter Six), was the absence of revenue funding once a development project is completed. From a 5Is perspective this is especially relevant in the context of the Implementation/Involvement of sustainability. And where damage is left unrepaired for more than two decades, it demonstrably concurs with Broken Windows theory (Wilson and Kelling, 1982). On a related theme, one of the key motivations for conducting this investigation has been a perceived absence of

corporate memory within police, LAs and other agencies as to what works and doesn't work in a practical setting. This failure has probably existed since many of these organisations were established. However, following the financial crash of 2008 and subsequent contraction of all these bodies, in many disciplines corporate memory may have all but disappeared – especially where it might suggest that certain functions are mandatory and must be delivered.

At the outset of this investigation, a major concern had been the diminishing number of police DOCOs. Armitage (2016) put this number at 137. However, as part of this study the author has been able to establish that as of autumn 2020, there were 199 DOCOs in the UK – 172 of them with a remit that includes dwellings. As a result, the number of DOCOs can be seen to be increasing from the nadir of four years previously – partly as a result of Professor Armitage's research and PCPI (who also manage SBD) taking over responsibility for the training of DOCOs and establishing the Police Crime Prevention Academy. The decision made by SBD to place door and window security within the English Building Regulations (2015) also provides some resilience, in ensuring that at least a basic level of security should be maintained when dwellings are built or refurbished. However, this presumes that Building Inspectors fully understand the necessity to check both standards and certification. Furthermore, reducing domestic security arrangements to just a pair of concerns (door and window security) ignores how best practice should treat DOC and CPTED as a holistic package of measures. And with evidence-based policing (Sidebottom, 2017) now the dominant mantra within the police services of the UK, a fully-trained and experienced DOCO should be perceived as a considerable asset by colleagues and all levels of management – in effect a staff officer for crime prevention.

Philosophically, there is one further point – addressed in Chapter Five. Namely, that making tenants feel safe inside their own homes is only part of the equation – especially if that sense of safety means they are even less likely to venture out. The real role for all social agents like architects, developers, DOCOs, developers, housing officers, planners, police officers, surveyors, etc., is to deliver a safe and secure environment within and external to the dwelling. Nevertheless, that should not be perceived as a justification for inaction in securing the homes of everyone in society, including those who reside in what are by general consent hostile external environments, during at least some time of the day.

There is also the Grenfell Tower legacy and the potential conflict between fire safety over security. At the CSS, some elements of target hardening, put in place between 1989-1992 (for example frame armour and hinge bolts on the doors), in retrospect can be perceived as compromising safety. However, the multiple fire-escape system within each block now appears especially forward-thinking and a lesson to future generations who want to build high.

Contribution to knowledge

This investigation has produced a number of key findings which are now detailed.

1. Potential conflict between safety and security

The potential conflict between security and fire safety issues requires careful/creative design to enable both – rather than compromise. In that regard, this author is mindful of the Grenfell Tower disaster in 2017 and how as a young police officer throughout the 1980s and early 90s, regularly policed what were then First Division football matches. Heavily influenced by the Bradford City fire disaster in 1985 and Hillsborough disaster of 1989, he would instinctively check the exit gates at the Coventry City ground were unlocked and transferred this primacy of safety attitude when he became a DOCO in 1992.

2. Knowledge of crime in high-rise tower blocks

In this thesis, analysis of recorded-crime data, tenants' quantitative and qualitative data, and professionals' qualitative data helps to satisfy a previous absence of knowledge about crime in high-rise tower blocks. Furthermore, amongst the six crime categories analysed at both sites, residential burglary appears to be most susceptible to CPTED interventions – as demonstrated by the SBD research detailed in Chapter One.

3. Analysis over a 25-year timeframe

The uniqueness of this investigation in examining crime, fear of crime and ASB over a quarter- century timeframe (including issues of durability and sustainability) and addressing the problems encountered. The latter include: the extremely long timeframe of analysis; limitations of the data supplied in terms of its quality of detail,

missing data and issues with human memory/recall amongst those questioned and interviewed.

4. Effectiveness of CPTED and SBD

This thesis concludes that over the very long-term, CPTED measures can deliver at inner-city, high-rise tower blocks substantial and sustainable reductions in crime – most especially property crime and burglary in particular. This is achieved by using the target hardening, technological innovations and environmental elements of CPTED to deny access by trespassers to both the individual flats and the tower block itself. In particular, analysis confirms the effectiveness of CPTED measures when delivered via the constantly evolving and improving SBD award system.

5. Security of entrance doors to each flat and communal entrance-doors

This investigation confirms that the entrance doors to each flat and ground floor communal entrance doors must be of sufficient quality (and durability) to deliver sustainability in terms of crime reduction over the very long-term. Furthermore, examination of the police-recorded crime data, supplemented by the tenants' quantitative and qualitative data, and professionals' qualitative data, suggests that securing each flat is the most important requirement in terms of both preventing crime and making tenants (potential victims) feel safe and secure.

6. Significance to senior LA and police managers and to DOCOs, planners and housing officers of partnership working and what works in practice

The thesis details the benefits of partnership working, enabling senior LA and police managers to assess where resources should be concentrated. It also demonstrates what works in practice. Ultimately, the needs of victims of crime and ASB should be at the forefront of all such decision-making.

7. Desirability of consulting the tenants/residents

The prior existence of The Four Towers Tenants' Association points to the Involvement of a such a consultative group. This thesis demonstrates that such consultation led to more sustainable results at the CSS. Consequently, tenants/residents' Involvement should be intrinsic to the partnership approach – wherever possible and appropriate.

8. Effectiveness in reducing residential burglary

Amongst the six crime categories examined, this investigation concludes that residential burglary in high-rise blocks is most susceptible to CPTED and SBD Interventions – delivering a sustained reduction over 21 years of 89.2 per cent at the CSS. And no instances of the more serious offence of aggravated burglary at either site. However, as previously discussed in Chapter Four and this chapter, greater precision in recording the exact location where the offence took place would assist in making recommendations that may help in preventing crimes such as robbery and assaults – and most especially domestic violence.

9. Number of DOCOs

This investigation has ascertained that following a decreasing number of police DOCOs across the UK since the turn of the century, reaching a nadir of 137 five years ago (Armitage, 2016), their number has now increased. Indeed, as of summer 2020 there were 199 DOCOs across the UK, 172 of whom deal with residential premises. DOCOs are necessary to ensure the kind of Interventions installed are well-evidenced and appropriate to problem and context i.e. professionally working through a process model such as 5Is, to deliver sustainable crime prevention over a period in excess of 25 years.

10. Once in 30-year opportunity to get things right

One of the former police DOCOs interviewed made a highly pertinent comment:

In this designing out crime role you soon realised how there was a once in a 30 years chance to get things right. Once the development was built that was it. The only exception to that rule I discovered was counter-terrorism HVM (hostile vehicle mitigation) measures, but even then the financial costs were all but prohibitively expensive. (Interviewee no. P8).

This investigation illustrates how failing to get it right at the comparison site, meant that less than a decade later the entrance doors to each flat had to be replaced. Nevertheless, BCC has demonstrated how for more than three decades it has worked in partnership with WMP DOCOs in the service of their tenants. The most recent major refurbishment of the CSS was completed in 2020 (see Figure 9 on

page 377) and work on the comparison begun – by Wates the original construction company six decades before. This will give both sites a further 30 years of life and as such the CSS should now reach its centenary anniversary.

11. 5Is as a research tool

This investigation has demonstrated that the 5Is has performed extremely well as a means of research – systematically identifying both the overview, and the details of the preventive process and guiding the researcher in bringing these to light and assessing their quality. Its holistic approach means that the capacity to miss data or nuances that are of seminal importance are minimised. Ultimately, thanks to 5Is this investigation adds to the canon of existing research regarding the effectiveness and the Implementation process of CPTED and SBD.

12. Victim's perspective

Finally, and from the perspective of a shared humanity, perhaps most importantly there is the plight of victims living in such blighted inner-city environments. The following observation was made by one of the comparison site tenants interviewed at length and who's flat had been burgled:

I couldn't afford insurance so there was no point in reporting it to the police. I was also pretty sure who'd broken into my flat and he's not a nice person. He didn't steal much, but then I haven't got much, have I? (Interviewee no. T20)

The pathos contained in this statement explains why such victims, tenants of high-rise tower blocks, deserve to be heard and both their safety and security concerns

addressed. This also includes regular updates by the police in the aftermath of being a victim of crime.



Figure 9: Queens Tower reborn again following the 2018-2020 refurbishment

EPILOGUE

The original motivation for conducting the investigation and writing this thesis dates back to my 34-years' service with West Midlands Police. Towards the end of that career there was a growing realisation concerning an absence of past experience in the corporate memory. During the early years of this century, that situation was exacerbated by short-term performance culture and a perception that preventing crime no longer mattered. Consequently, specialisms like crime prevention and Designing Out Crime did not fare well. And following contraction of the police service beginning in 2011, the role of DOCO itself was under threat in many forces.

When this investigation began in 2013 it was envisaged that obtaining crime data would be a relatively easy task. However, such naivety was the first indication of the perils that lie in wait when conducting research over the very long-term – in excess of 25 years on this occasion. A computer hard-drive for the earlier data could not be located and consequently, the bulk crime Intelligence covers only(!) 18 years at both sites. However, three years of hard copy data for 1992-1994 albeit solely in respect of the CSS, was subsequently discovered and proved to be of crucial importance.

In summary, this has been a very hard project – and a labour of love. Interviewing the tenants and professionals (and in person meetings with the supervision team) became the most enjoyable aspects – confirming an earlier realisation that working in partnership with the immensely supportive staff at BCC, we DOCOs had improved the quality of life for those living in such inner-city environments. If you have read this far, I hope you too have enjoyed the experience.

THE UNIVERSITY OF HUDDERSFIELD

School of Human and Health Sciences – Applied Criminology Centre

TENANT QUESTIONNAIRE

Unique Identifier: XX11

Name of research student: Mark STOKES u1278143@hud.ac.uk

Title of study: An investigation of the sustainability of crime prevention in the built environment: impact and implementation factors

In plain English, this research project is trying to see what useful lessons can be learnt from the refurbishment of your tower that took place almost 25 years ago. The study seeks to assess how crime prevention measures (like stronger front doors and windows, security lighting, staffed concierge, CCTV, etc.) make tenants like yourself feel safe and secure in the home, and their effectiveness over a very long time period – 10-25 years.

You do not have to complete any of the following questions, although your co-operation in this regard will help in the accuracy of the research conclusions. If you would prefer not to answer a specific question, please write 'prefer not to say'.

1. Would you like to volunteer to be interviewed regarding your experience of living in the high-rise tower block?
2. Your age. Please tick:

18-30 ()

31-45 ()

46-60 ()

60-70 ()

Over 70 ()

3. How many people live in your household? If you are the sole occupant, please state 'living alone'.....
4. Were you living at this address during the refurbishment in the early 1990's?.....
5. If your answer to Question 4 was 'Yes', did you move out during the refurbishment that took place in the early 1990's?.....
6. How long have you been a tenant at this address.....
7. Have you been the victim of crime or anti-social behaviour since living at this address?.....
8. If your answer to question '7' above was yes, was the crime one of the following and when and where was it committed?
 - a. Burglary?.....
 - b. Criminal Damage?.....
 - c. Theft?.....
 - d. Vehicle Crime?.....
9. If applicable, was it reported to the Concierge of your tower block?.....
10. Was the crime reported to the police.....
11. What was the result (if any) of the police investigation?.....
12. Are you aware of any CCTV recording of that crime being committed?.....
13. How safe do you feel when inside your flat? Please choose from and tick: 'Very Safe' ()
 'Safe' ()
 'Neither Safe or Unsafe' ()
 'Unsafe' ()
 'Very Unsafe' ()
14. How safe do you feel when inside the communal areas of the tower block – on the ground floor, in the lifts, staircase, landings? Please choose from and tick:

'Very Safe' ()

'Safe' ()

'Neither Safe or Unsafe' ()

'Unsafe' ()

'Very Unsafe' ()

15. How safe do you feel when go out and leave the tower block? Please choose from and tick:

'Very Safe' ()

'Safe' ()

'Neither Safe or Unsafe' ()

'Unsafe' ()

'Very Unsafe' ()

16. How safe do you feel when you go out that your flat is safe, secure and will not be broken into whilst you are away? Please choose from and tick:

'Very Safe' ()

'Safe' ()

'Neither Safe or Unsafe' ()

'Unsafe' ()

'Very Unsafe' ()

17. Do you go out after dark? Please tick: No () or Yes ()

18. If you answered 'No' to Question 16, why don't you go out after dark?

.....
.....
.....

19. What do you think is the most important element in ensuring your safety as a tenant living in your flat? Please choose from and rank in order of importance. For example, if you think 'Concierge' the most important CCTV , number it '1':

Concierge ()

CCTV ()

Fob Access Door Entry System ()

Security of the front Entrance Door to your flat ()

Other () please specify.....
.....

20. If you own a car or other motor vehicle, how safe do you think it is to park that vehicle in the car park outside your tower block? Please choose one and tick:

'Very Safe' ()

'Safe' ()

'Neither Safe or Unsafe' ()

'Unsafe' ()

'Very Unsafe' ()

21. What single additional security feature do you think would improve your feelings of safety? For example, please choose one:

CCTV in the outside and parking areas ()

Electronically-operated vehicle and pedestrian gates ()

Security guards in the grounds ()

Other () please specify.....
.....
.....
.....

22. How would you describe the level of crime in the area around your tower block?
Please choose one of the below options:

Very High ()

High ()

Medium ()

Low ()

.....
.....
.....

23. What do you think is the most common forms of crime in your area? Please number
in order of importance?

Burglary ()

Theft ()

Vehicle crime ()

Criminal Damage ()

Robbery ()

24. Please provide the contact details you are willing to share with the researcher
(home/mobile telephone number and/or email address).....

.....
.....

25. Do you have any other comments?.....

.....
.....

I hereby consent to the information and any data I have supplied being used in the
production of a research thesis being written by Mark Stokes.

I understand that all such information and data will be anonymised so that it cannot be
attributed to myself.

Signed.....

(date).....

THE UNIVERSITY OF HUDDERSFIELD

School of Human and Health Sciences – Applied Criminology Centre

31 August 2016

TENANT QUESTIONNAIRE

Unique Identifier:

Name of research student: Mark STOKES u1278143@hud.ac.uk

Dear Tenant.

I am studying for a PhD degree at Huddersfield University and my interest is in how the architecture and management of buildings relates to crime. The questions I am going to ask provide an opportunity for you to tell me about your views and experiences of being a tenant in this tower block.

Ultimately, this research project is trying to see what useful lessons can be learnt from the refurbishment of your tower that took place almost 25 years ago. The study seeks to assess how crime prevention measures (like stronger front doors and windows, security lighting, staffed concierge, CCTV, etc.) impact upon feelings of safety and their effectiveness over a very long time period of 10-25 years.

You do not have to answer any of the following questions, although your co-operation in this regard will help in the accuracy of the research conclusions. If you would prefer not to answer a specific question just tell me, 'prefer not to say'. I can assure you that when the PhD is published, no identifiable details of the people who answered the questions will be given. I will store contact addresses only until the research is finished, at which point the list will be securely deleted. Can I take it that you are happy to proceed on this basis?

Yes () No ()

If you have any questions or concerns, please contact the Research Office at Huddersfield University, (01484 473223). If you want to contact me for any reason please do so on the email mark.stokes@hud.ac.uk

Many thanks.

Mark Stokes

Postgraduate Research Student

1. Your age:

18-30 ()

31-45 ()

46-60 ()

61-70 ()

Over 70 ()

2. How many people live in your household?

Living alone ()

2 ()

3 ()

4 or more ()

3. In what year did you move into your flat? ()

4. Have you been the victim of crime or anti-social behaviour since living at this address – either inside your flat, within the tower block, or in the grounds surrounding the tower block?

Yes () No ()

5. If the answer to '4' was yes, how often were you the victim, was the crime one of the following, when and where was it committed and to whom was it reported?

Crime Type	How Many Times?	Year Took Place?	Reported to Concierge? Yes	Reported to Concierge? No	Reported to Police? Yes	Reported to Police? No
Never a Victim						
Burglary (your flat broken into)						
Criminal Damage						
Theft						
Vehicle Crime						

6. How safe do you feel when inside your flat?

	During the Day	At Night
'Very Safe'	()	()
'Safe'	()	()
'Neither Safe or Unsafe'	()	()
'Unsafe'	()	()
'Very Unsafe'	()	()

7. How safe do you feel when inside the communal areas of the tower block – on the ground floor, in the lifts, staircase, landings? Please choose from and tick:

'Very Safe' ()

'Safe' ()

'Neither Safe or Unsafe' ()

'Unsafe' ()

'Very Unsafe' ()

8. Is anywhere particularly unsafe? Please specify.....

9. How safe do you feel when you go outside the tower block and enter the grounds (the area surrounding the tower block but not the streets)?

'Very Safe' ()

'Safe' ()

'Neither Safe or Unsafe' ()

'Unsafe' ()

'Very Unsafe' ()

10. How safe do you feel when you leave the grounds of your tower block and enter the surrounding streets?

'Very Safe' ()

'Safe' ()

'Neither Safe or Unsafe' ()

'Unsafe' ()

'Very Unsafe' ()

11. When you go out how happy do you feel that your flat is safe, secure and will not be broken into whilst you are away?

'Very Safe' ()

'Safe' ()

'Neither Safe or Unsafe' ()

'Unsafe' ()

'Very Unsafe' ()

12. Do you go out after dark? Please select from the following that apply to you:

	Frequently	Occasionally	Almost Never	Never At All
On Foot				
Bicycle				
Private Car				
Taxi				
Bus				
Other (please specify)				

13. Do you go out after dark less than you want to? Please select.

Yes () No ()

14. If you don't go out after dark, please specify why. Is it due to a fear of Crime? And are you afraid to go out during the day, if so why?

.....

15. What do you think are the most important elements in ensuring your safety as a tenant living in your flat? Please grade the following security elements.

Safety element	Most important	Slightly important	Neither important or not important	Not important	Least important
Security Staff					
CCTV					
Fob Access Door Entry System					
Door and Window Security					
Another element that makes you feel safe: please detail.....					

16. If you own a car or other motor vehicle, how safe do you think it is to park that vehicle in the non-designated parking bays outside your tower block?

'Not applicable/don't own a car' ()

'Very Safe' ()

'Safe' ()

'Neither Safe or Unsafe' ()

'Unsafe' ()

'Very Unsafe' ()

17. What single additional security feature do you think would improve your feelings of safety in the grounds around your tower block? Please choose one:

CCTV cameras outside the tower block and in the parking areas ()

Electronically-operated vehicle and pedestrian gates ()

Security guards in the grounds ()

Other () please specify.....
.....
.....
.....

18. How would you describe the level of crime in the Nechells area compared to other parts of Birmingham? Please choose one of the below options:

Very High ()

High ()

Medium ()

Low ()

19. What do you think are the most common forms of crime in the Nechells area outside the grounds of your tower block? Please number in order of importance?

Burglary ()

Theft ()

Vehicle crime ()

Criminal Damage ()

Robbery ()

20. Do you think that crime in the Nechells area has changed over time? Please select the one with which you most agree.

Gone up a lot ()

Gone up a little ()

Stayed the same ()

Gone down a little ()

Gone down a lot ()

21. Are you aware of the Secured by Design Award Scheme? Yes () No ()

22. Did you know your tower block won an SBD award in 1993 or 1995?

Yes () No ()

23. Do you have any other comments?.....

.....
.....
.....

24. Are you willing to volunteer to be interviewed in a bit more depth about your experience of living in the high-rise tower block? If yes, can you please provide your contact details (address, home phone, mobile phone and email)

.....
.....
.....

I hereby consent to any of the information I have supplied being used in the production of a research thesis being written by Mark Stokes. I understand that anything I have said will be published in an anonymised form and that I will not be identifiable from this information; and that after the research has been completed and published any contact details about me will be securely destroyed.

Tenant to tick here () or sign.....

THE UNIVERSITY OF HUDDERSFIELD

School of Human and Health Sciences – Applied Criminology Centre

TENANT/PROFESSIONAL INFORMATION SHEET

Unique Identifier:

Name of research student: Mark STOKES u1278143@hud.ac.uk

Dear Tenant/Professional

I am studying for a PhD degree at Huddersfield University and my interest is in how the architecture and management of buildings relates to crime. The questions I am going to ask provide an opportunity for you to tell me about your views and experiences of being a tenant in this tower block.

Ultimately, this research project is trying to see what useful lessons can be learnt from the refurbishment of your tower that took place almost 25 years ago. The study seeks to assess how crime prevention measures (like stronger front doors and windows, security lighting, staffed concierge, CCTV, etc.) impact upon feelings of safety and their effectiveness over a very long time period of 10-25 years.

You do not have to answer any of the following questions, although your co-operation in this regard will help in the accuracy of the research conclusions. If you would prefer not to answer a specific question just tell me, 'prefer not to say'. I can assure you that when the PhD is published, no identifiable details of the people who answered the questions will be given. I will store contact addresses only until the research is finished, at which point the list will be securely deleted. Can I take it that you are happy to proceed on this basis?

Yes () No ()

If you have any questions or concerns, please contact the Research Office at Huddersfield University, (01484 473223). If you want to contact me for any reason please do so on the email mark.stokes@hud.ac.uk

Many thanks.

Mark Stokes

Postgraduate Research Student

Title of Project

**An investigation of the sustainability of crime prevention in the built environment:
impact and implementation factors**

INTERVIEW CONSENT FORM

I(interviewee's name) understand that I am being asked to participate in an interview that forms part of Mark Stokes' postgraduate research project at Huddersfield University.

I have been provided with some background information regarding this research project and the types of questions I can expect to answer. I understand the interview will be conducted in person and that it will be of approximately one hour's duration.

I understand that my participation in this interview is completely voluntary and I am free to decline to participate or withdraw at any time without giving a reason. I understand that any information I provide will be kept confidential, used only for the purposes of completing this research project and will not be used in any way that could identify me. All interview responses, notes, and records will be kept in a secured environment. The raw data will be destroyed by the researcher within two years of the completion of the research project.

I understand that the results of this interview will be used solely in Mark Stokes' research project and none of the information I provide will be published, in any form that can be attributable to me.

I have read the information above. By signing below and returning this form, I am consenting to participate in this interview.

Interviewee name (please print):.....

Signature:

Date:

Please keep a copy of this interview consent form. If you have other questions about your involvement in this research project, please contact me at u1278143@hud.ac.uk

Thank you for agreeing to participate in this research project.

Mark Stokes

u1278143@hud.ac.uk

THE UNIVERSITY OF HUDDERSFIELD

School of Human and Health Sciences – Applied Criminology Centre

TENANTS INTERVIEW SCHEDULE

Unique identifier:

Name of research student: Mark STOKES u1278143@hud.ac.uk

Title of study: An investigation of the sustainability of crime prevention in the built environment: impact and implementation factors

Can I just check the following details:

1. Your occupation?.....

2. Your age range?.....

3. The size of your household?.....

4. For how many years have you been a tenant at the tower block in question?.....

6. What was your perception of the level of crime at the tower blocks/immediate vicinity when you first moved here? Please choose one of the below options:

Very High ()

High ()

Medium ()

Low ()

7. What do you think were the most common forms of crime in your area when you first moved there? Please number in order of importance?

Burglary ()

Theft ()

Vehicle crime ()

Criminal Damage ()

Robbery ()

8. What has been your perception of the level of crime at the tower blocks/ immediate vicinity since you first moved here? Please choose one of the below options:

Very High ()

High ()

Medium ()

Low ()

9. What do you think have been the most common forms of crime in your area since you first moved there? Please number in order of importance?

Burglary ()

Theft ()

Vehicle crime ()

Criminal Damage ()

Robbery ()

10. What is your perception of the level of crime at the tower blocks/immediate vicinity at the present time? Please choose one of the below options:

Very High ()

High ()

Medium ()

Low ()

11. What do you think are now the most common forms of crime in your area? Please number in order of importance?

Burglary ()

Theft ()

Vehicle crime ()

Criminal Damage ()

Robbery ()

12. Have you or any family member been the victim of a crime since you moved into your flat?

13. If the answer to '12' above is 'Yes' enquire into the nature of that crime(s), when, where and how they were committed – mindful of the potential need to refer the complainant to the Victim Support Service or other social agency if such support was not previously given or is now required again.

14. If the answer to '12' above is 'No', are they aware of friends or neighbours in the tower block who have been the victim of crime?

15. What is your perception of the level of crime that has been present at the tower blocks/immediate vicinity since the process of refurbishment?

16. Do you believe that refurbishment was more cost-effective than knocking it down and rebuilding it?

17. Do you think that the open plan layout of the tower blocks causes crime and anti-social behaviour?

18. Do you think that the refurbishment and security measures employed 25 years improved matters?

19. Which physical security elements do you believe have proved to be the most effective in the long term?

Concierge ()

CCTV ()

Fob Access Door Entry System ()

Security of the front Entrance Door to your flat ()

Other () please specify

20. If you were involved as a member of the refurbishment project team now, what elements would you do differently?

21. Are you or have you been a member of a Tenants Association, any social network/neighbour relations at the tower block? If the answer is 'Yes' please detail.

22. Were you/are you aware of the police involvement in crime prevention at your tower block and the Secured by Design Award system? If yes please elaborate.

23. Are you aware of any other crime reduction interventions? If yes please detail.

24. Do you believe that the police should be involved in Designing Out Crime from the built environment?

25. Did you ask to move to your tower block or were you given no other option?

26. Are you happy being a tenant in the tower block? And if not, where would you like to move to?

27. What is your relationship with the management of your tower block?

THE UNIVERSITY OF HUDDERSFIELD

School of Human and Health Sciences – Applied Criminology Centre

PROFESSIONALS INTERVIEW SCHEDULE

Unique identifier: XX11

Name of research student: Mark STOKES u1278143@hud.ac.uk

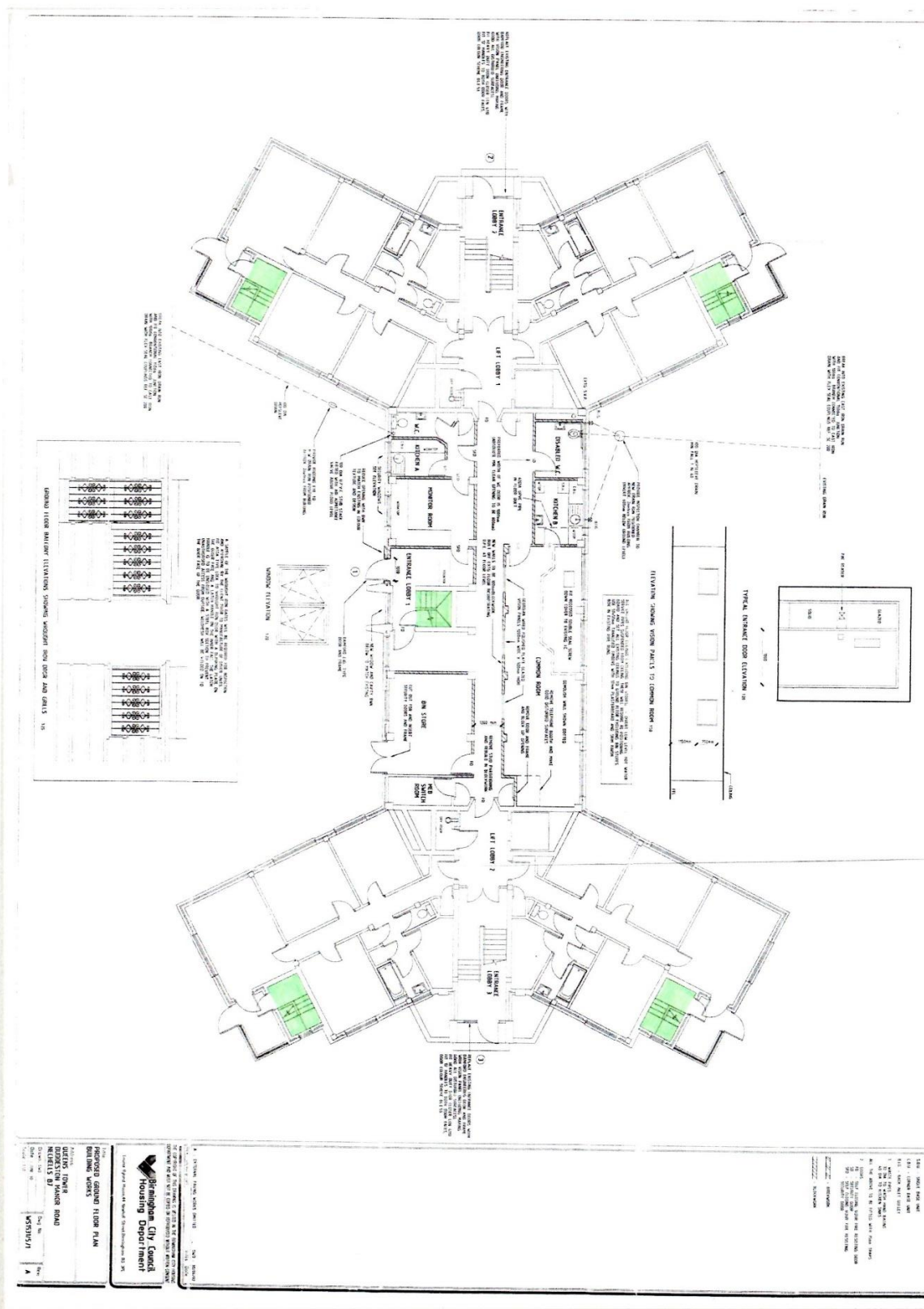
Title of study: An investigation of the sustainability of crime prevention in the built environment: impact and implementation factors

1. Your Position/Job Title/Description
2. Were you actively involved in or aware of in the refurbishment programme(s) of the high-rise tower blocks located within the City of Birmingham during the late 1980/early 90's?
3. If 'Yes' to '2' above, what was that role? Full description required.
4. If 'No' to 2 above what has been your subsequent role? Full description required.
5. What is your perception of the level of crime, the different crime types and the patterns of crime that were present at the tower blocks and in their immediate vicinity prior to the process of refurbishment?
6. In your opinion, was the level of crime a significant issue in making the flats difficult to let?
7. What is your perception of the level of crime, the different crime types and the patterns of crime that have been present at the tower blocks and in the immediate vicinity during the years since the process of refurbishment?

8. Do you believe that refurbishment was more cost-effective than a complete rebuild?
9. To what extent do you believe that the original layout of the buildings hampered the refurbishment process?
10. Do you believe that the refurbishment, physical security measures and management processes adopted 25 years ago have proved to be durable in the short, medium and long term?
11. Which physical security elements do you believe have proved to be the most effective in the long term? (pause for their response) eg: Staffed Concierge, CCTV, Fob-operated Communal Door Entry Systems, Main Front Entrance Doors to each flat, Lighting
12. If you were involved as a member of the refurbishment project team now, what interventions, tasks and roles would you do differently?
13. Do you consider that the tenants' views or reputation of safety at the tower blocks and in the surrounding area was improved post refurbishment?
14. Were you/are you aware of police involvement and the Secured by Design Award system?
15. Which external agencies do you believe should be involved in Designing Out Crime from the built environment?
16. Would you be prepared to reside in one of the flats within the tower blocks?
17. Do you have any further comments regarding the refurbishment of the high-rise tower blocks?
18. Do you have any suggestions as to any other individuals who you believe should be interviewed?

APPENDIX 7

Queens Tower ground floor plan: the five fire-escape staircases shown in green



References

- Abercrombie, L.P. and Forshaw, J.H. (1943) *County of London Plan*. Macmillan and Company.
- Ackerman, J. and Rossmo, K. 2015. How Far to Travel? A Multilevel Analysis of the Residence-to-Crime Distance. *Journal of Quantitative Criminology* 31: pp.237–62.
- Akers, R.L. and Sellers, C.S. (2004): *Criminological Theories: Introduction, Evaluation and Application* (4th ed). Roxbury Publishing Company.
- Al-Kahtani, S. (1996) *Travel to Crime Distances of Burglars in Saudi Arabia*, Unpublished PhD thesis: University of Manchester.
- Alston, J.D. (1994) *The serial rapist's spatial pattern of target selection*. Unpublished PhD thesis: Simon Fraser University.
- Anderson, J., MacDonald, J., Bluthenthal, R. and Ashwood, J.S. (2013) *Reducing Crime by Shaping the Built Environment with Zoning: An Empirical Study of Los Angeles*. University of Pennsylvania Law Review 161: pp.699–756.
- Andresen, M. (2010) 'The Place of Environmental Criminology.' in *Classics in Environmental Criminology*, edited by M. Andresen, P. Brantingham and J. Kinney, 5-28. Simon Fraser University.
- Andresen, M. A. and Farrell, G. (2015) *The Criminal Act: The Role and Influence of Routine Activity Theory*. Palgrave Macmillan.
- Angel, S. (1968) 'Discouraging Crime Through City Planning.' Working Paper No. 75. University of California Press.
- Armitage, R. (1999) *An Evaluation of Secured by Design Housing Schemes throughout the West Yorkshire area*. The Applied Criminology Group, The University of Huddersfield.
- Armitage, R. (2006) Predicting and Preventing: Developing a Risk Assessment Mechanism for Residential Housing. *Crime Prevention and Community Safety: An International Journal*, 8. (3), pp.137-149.

Armitage, R. I. (2007) Sustainability Versus Safety: Confusion, Conflict and Contradiction in Designing Out Crime. In Farrell, G., Bowers, K., Johnson, S. and Townsley, M. (eds.) *Imagination for Crime Prevention: Essays in Honour of Ken Pease. Crime Prevention Studies*, Vol. 21, pp. 81-110. Willan.

Armitage, R. (2011) *The Impact of Connectivity and Through-Movement within Residential Developments on Levels of Crime and Anti-Social Behaviour*.

Huddersfield: University of Huddersfield, Available at: eprints.hud.ac.uk/id/eprint/13592/1/1/Briefing_Notes_-_The_Impact_of_Connectivity.pdf Accessed 27 April 2018.

Armitage, R. (2013) *Crime Prevention Through Housing Design: Policy and Practice*. Palgrave Macmillan.

Armitage, R. (2016) Crime Prevention Through Environmental Design. In: *Environmental Criminology and Crime Analysis*. R. Wortley and M. Townsley (Eds.) London: Routledge.

Armitage, R. (2018). *Urban Design and Crime—Pro-Social Design Would Reduce Crime*. Available online at: <https://www.hud.ac.uk/news/2018/july/pro-social-design-reduces-crime> (accessed on 19 September 2019).

Armitage, R. and Everson, S. (2003) Building for Burglars? *Crime Prevention and Community Safety: An International Journal* 5, 15-25. University of Huddersfield: Applied Criminology Group.

Armitage, R. and Monchuk, L. (2009) *Re-evaluating Secured by Design (SBD) Housing in West Yorkshire*. University of Huddersfield.

Armitage, R., Monchuk, L. and Rogerson, M. (2011) It Looks Good, But What is it Like to Live There? Assessing the Impact of Award Winning Design on Crime. *Special Volume of European Journal on Criminal Policy and Research*, 17 (1), pp.29-54.

Armitage, A. and Monchuk, L. (2017) What is CPTED? Reconnecting Theory with Application in the Words of Users and Abusers. *Policing: A Journal of Policy and Practice*, pax004, <https://doi.org/10.1093/police/pax004> Policing.

Atlas, R. (2008) *21st Century Security and CPTED: Designing for Critical Infrastructure Protection and Crime Prevention*. Taylor & Francis Ltd.

Baldwin, J., Bottoms, A.E. and Walker, M.A. (1976) *The Urban Criminal: A Study in Sheffield*. Tavistock Publications.

Beavon, D.J. (1984) *Crime and the Environmental Opportunity Structure: The Influence of Street Networks on the Patterning of Property Offences*. Master's thesis, Simon Fraser University.

Beavon, D.J.K. *et al* (1994) The Influence of Street Networks on the Patterning of Property Offences. In R.V. Clarke (ed.) *Crime Prevention Studies*, Volume 2. Criminal Justice Press, 115-148.

Bennett, T. and Durie (1999) *Preventing Residential Burglary in Cambridge: From Crime Audits to Targeted Strategies*. Police Research Series, Paper 108. Home Office Policing and Reducing Crime Unit.

Bennett, T. and Wright, R. (1984) *Burglars on Burglary*. Gower.

Bernasco, W. and Block, R. (2011) Robberies in Chicago: A block-level analysis of the influence of crime generators, crime attractors, and offender anchor points. *Journal of Research in Crime Delinquency* 48: pp.33–57.

Bernasco, W. and Luykx, (2003) Effects of Attractiveness, Opportunity and Accessibility to Burglars on Residential Burglary Rates of Urban Neighborhoods. *Criminology*, 41, 981-1001.

Bevis, C. and Nutter, J.B. (1977) *Changing Street Layouts to Reduce Residential Burglary*. Paper presented at the annual meeting of the American Society of Criminology.

Biderman, A.D. and Reiss, A.J. (1967) On Exploring the “Dark Figure” of Crime, in *The ANNALS of the American Academy of Political and Social Science*. Sage journals.

Blair, T. (1998) expression used by then Prime Minister. In Campkin, B. (2013, p.99) *Remaking London: Decline and Regeneration in Urban Culture*. I.B. Tauris.

Birmingham City Council (1992) *The Four Towers: Diary of Works*. Birmingham City Council.

Birmingham City Council (2017) Council to fit sprinklers in tower blocks
[https://www.birmingham.gov.uk/news/article/89/council to fit sprinklers in tower blocks](https://www.birmingham.gov.uk/news/article/89/council%20to%20fit%20sprinklers%20in%20tower%20blocks) Accessed 28 November 2017.

Bottoms, A.E. (1974) Book Review of Defensible Space. *The British Journal of Criminology*, 14, p.203-206

Bottoms, A.E. (2017) Crime Specifics, Offender Residences, and Social Change: Developing *The Criminology of Place*. *Jerusalem Review of Legal Studies*, Vol. 15, No. 1 (2017), p.1-11

Bowers, K. (2014) Risky facilities: Crime radiators or crime absorbers? A comparison of internal and external levels of theft. In *Journal of Quantitative Criminology* 30: pp. 389–414.

Boyle, T. (2016) *Annual Injury Incident Rate as a Key Performance Indicator – Random fluctuation and statistical significance*. Hastam. Accessed online 24 June 2018. <https://www.hastam.co.uk/annual-injury-incident-rate-as-a-kpi-random...>

Brantingham, P.J. and Brantingham, P.L. (1975) 'The Spatial Patterning of Burglary', *The Harvard Journal*, 14, 2, p.11-23.

Brantingham, P.J. and Brantingham, P.L. (1981) 'Notes on the geometry of crime', in Brantingham, P.J. and P.L. *Environmental Criminology*. Sage.

Brantingham, P. and Brantingham, P. (1993) 'Nodes, Paths and Edges: Considerations on the Complexity of Crime and the Physical Environment.' *Journal of Environmental Psychology* 13: 3-28.

Brantingham, P.J. and Brantingham, P.L. (1995) 'Notes on the geometry of crime', in Brantingham, P.J. and P.L. *Environmental Criminology*. Sage.

Brantingham, P. and Brantingham, P. (2008) Offender Mobility and Crime Pattern Formation from First Principles. in, *Artificial Crime Analysis Systems: Using Computer Simulations and Geographical Information Systems*, edited by L. Liu and J. Eck pp. 193-208, Idea Press.

Brantingham, P. and Brantingham, P. (2014) 'Crime Pattern Theory', in R. Wortley and L. Mazerolle (eds) *Environmental Criminology and Crime Analysis*. Willan.

British Crime Survey (2007/08) *Home Office Statistical Bulletin. 2007/08 British Crime Survey (England and Wales) Technical Report Vol. 1*, Home Office.

British Psychological Society (2014) *Ethical Principles for Conducting Research with Human Participants*. British Psychological Society.

British Society of Criminology (2006) *Code of Ethics for Researchers in the Field of Criminology*. British Society of Criminology.

British Standards Institute (1997) *BS 7950: 1997. Specification for enhanced security performance of windows for domestic applications*. BSI.

British Standards Institute (1999) *PAS 24-1:1999: Enhanced security performance requirements for door assemblies. Single and double leaf, hinged external door assemblies to dwellings*. BSI.

British Standards Institute (1999) *PAS 24-1:2016: Enhanced security performance requirements for door assemblies. Single and double leaf, hinged external door assemblies to dwellings*. BSI.

British Standards Institute (2017) *BS 3621:2017 Five Lever Mortise Deadlock Specification*. BSI.

Bromley, R.D.F. and Nelson, A.L. (2002) Alcohol-related crime and disorder across urban space and time: Evidence from a British city. *Geoforum*, 33, 239-254.

Brown, L.A., Malecki, E.J. and Philiber, S.G. (1977) *Awareness space characteristics in a migration context*. *Environment and Behavior*, 9(3), p.335-348.

Brown, J. (1999) *An Evaluation of the Secured by Design Initiative in Gwent, South Wales*. Unpublished MSc. Dissertation, Scarman Centre for the Study of Public Order, University of Leicester.

Brown, B.B. and Altman, I. (1983) Territoriality, Defensible Space and Residential Burglary: An Environmental Analysis. *Journal of Environmental Psychology*, 3, p.203-220.

Brown, B. and Bentley, D. (1993) Residential Burglars Judge Risk: The Role of Territoriality. *Journal of Environmental Psychology*, 13, p.51-61.

Brown, R. and Scott, M. (2007) *Implementing Responses to Problems*. Problem Oriented Guides for Police. Problem-Solving Tools Series No. 7. Centre for Problem-Oriented Policing.

Budd, T. (1999) *Burglary of Domestic Dwellings. Findings from the British Gas Survey. Issue 4/1999*. Home Office.

Bullock, K., Errol, R., and Tilley, N. (2006) *Problem-oriented Policing and Partnerships: Implementing an evidence-based approach to crime reduction*. Willan.

Burgess, E. W. (1925) The Growth of the City, in R.E. Park, E.W. Burgess and R.D MacKenzie (eds.) *The City*. University of Chicago Press.

Campbell, D.T. and Stanley, J.C. (1963) *Experimental and Quasi-Experimental Designs for Research*. Rand McNally.

Chang, D. (2011) Social crime or spatial crime? Exploring the effects of social, economic, and spatial factors on burglary rates. *Environment and Behavior* 43: pp.26–52.

Clarke, R.V. (1995) Situational Crime Prevention. In Crime and Justice Vol. 19, *Building a Safer Society: Strategic Approaches to Crime Prevention*, p.91-150. University of Chicago Press.

Clarke, R.V. (1997) 'Introduction', in R. Clarke (ed.) *Situational Crime Prevention: Successful Case Studies*, 2nd edn. Harrow and Heston.

Clarke, R.V. (1999) *Hot Products: Understanding, Anticipating and Reducing Demand for Stolen Goods*. Police Research Series 112. Home Office.

Clarke, R.V. (2005) *Research Models and Methodologies*. HDR Seminar Series, Faculty of Commerce, Spring Session 2005.

Clarke, R.V. (2012) 'Opportunity makes the thief. Really? And so what?' published in *Crime Science Journal* 2012, 1:3. Accessible via <http://www.crimesciencejournal.com/content/1/1/3>

Clarke, R.V. and Eck, J. (2003) *Become a Problem Solving Crime Analyst in 55 Small Steps*. Jill Dando Institute, University College London.
www.jdi.ucl.ac.uk/publications/manual/crime_manual_content.php

Clarke, R. and Mayhew, P. (1988) *The British Gas Suicide Story and its Implications for Prevention*, in Michael Tonry and Norval Morris (eds.), *Crime and Justice: A Review of Research*, Vol.10, Chicago University Press.

Clarke, R.V. and Weisburd, (1994) Diffusion of Crime Control Benefits: Observations on the Reverse of Displacement. *Crime Prevention Studies*, ed. Ronald V. Clarke, Vol. 2. Criminal Justice Press.

Cohen, L. and Felson, M. (1979) Social change and crime rate trends: a routine activity approach. *American Sociological Review*, 44, p.588–608.

Coleman, A. (1985) *Utopia on Trial: Vision and Reality in Planned Housing*. Hilary Shipman.

Coleman, A. (1992) The Dice Project', in 'High Rise Housing', *Housing and Town Planning Review*. National Housing and Town Planning Council.

Coleman, C., & Moynihan, J. (1996). *Understanding crime data: haunted by the dark figure*. Open University Press.

Colquhoun, I. (2004) Design Out Crime: Creating Safe and Sustainable Communities, in *Crime Prevention and Community Safety: An International Journal* 2004, 6 (4), p.57-70.

Cornish, D. (1994) The Procedural Analysis of Offending and its Relevance for Situational Prevention, in *Crime Prevention Studies*, Vol.3, edited by R.V. Clarke. Lynne Rienner.

Cornish, D. and Clarke, R.V. (1986) Understanding Crime Displacement: An Application of Rational Choice Theory. *Criminology*, 254, p.933–947.

Cornish, D and Clarke, R. (2003) 'Opportunities, precipitators and criminal decisions: a reply to Wortley's critique of situational crime prevention', in *Crime Prevention Studies* Vol. 16. Criminal Justice Press.

Cornish, D. and Clarke, R. (2008) 'The rational choice perspective' in R. Wortley and L. Mazarolle (eds.) *Environmental Criminology and Crime Analysis*. Willan Publishing.

Coupe, T. and Blake, L. (2006) 'Daylight and Darkness Targeting Strategies and the Risks of being seen at Residential Burglaries.' *Criminology* 44 (2): p.431-464.

- Cozens, P.M. (2008) New Urbanism, Crime and the Suburbs: A review of the Evidence. *Journal of Urban Policy and Research* 26(3), pp.1-16.
- Cozens, P. (2011) Urban Planning and Environmental Criminology: Towards a New Perspective for Safer Cities. *Planning Practice and Research* 26: pp.481–508.
- Cozens, P. (2014) *Think Crime! Using Evidence, Theory and Crime Prevention through Environmental Design (CPTED) for Planning Safer Cities*. Praxis Education.
- Cozens, P. (2015) Crime and Community Safety: Challenging the Design Consensus. In *Routledge Handbook of Planning for Health and Well-Being*. Barton, H., Thompson, S., Grant, M. and Burgess, S. Routledge, pp.162–77.
- Cozens, P.M. (2016) *Think Crime! Using Evidence, Theory and Crime Prevention through Environmental Design (CPTED) for Planning Safer Cities*. Praxis Education.
- Cozens, P. and Babb, C. (2018) *What's Up on Beaufort Street? Exploring Crime, Traffic Risks and Crime Prevention through Environmental Design (CPTED)*. Available online at: <https://inglewoodonbeaufort.com/2018/12/03/inglewood-cpted-report> (accessed on 22 September 2021).
- Cozens, P., Hillier, D. and Prescott, G. (1999) The Sustainable and the Criminogenic. The Case for New-Build Housing Projects in Britain. *Property Management* 17: pp. 252–61.
- Cozens, P. and Hillier, D. 2012. Revisiting Jane Jacobs 'Eyes on the Street' for the 21st Century: Evidence from Environmental Criminology. In *The Urban Wisdom of Jane Jacobs*. Sonia Hirt and Diane Zahm (eds.) pp. 196–214. Routledge.
- Cozens, P., Hillier, D. Prescott, G. (2001) Crime and the Design of Residential Property. Exploring the Perceptions of Planning Professionals, Burglars and other Users. *Property Management* 19: pp.222–48.
- Cozens, P. and Love, T. (2015) A Review and Current Status of Crime Prevention through Environmental Design (CPTED), *Journal of Planning*, pp.1-20.
- Cozens, P. and Love, T. 2017. Crime Prevention through Environmental Design (CPTED) Introducing and Learning from the “Dark Side” *Oxford Research Encyclopaedia of Criminology and Criminal Justice*. Available online at:

<http://criminology.oxfordre.com/view/10.1093/acrefore/9780190264079.001.0001/acrefore9780190264079-e-2> (Accessed on 24 September 2021).

Cozens, P., Love, T. and Davern, B. (2019) Geographical Juxtaposition: A New Direction in CPTED. *Social Sciences*, 2019, 8, 252. Accessed on 8 September 2021 at: <https://www.semanticscholar.org/paper>

Cozens, P.M., Pascoe, T., and Hillier, D. (2004) Critically Reviewing the Theory and Practice of Secured by Design (SBD) for Residential New-Build in Britain. *Crime Prevention and Community Safety: An International Journal*. Vol. 6, No. 1, pp.13-29.

Cozens, P., Saville, G. and Hillier, D. (2005) Crime Prevention through Environmental Design (CPTED): A Review and Modern Bibliography. *Property Management*, 23, pp.328-356.

Cozens, P. and Van der Linde, T. (2015). Perceptions of Crime Prevention through Environmental Design (CPTED) at Australian Railway Stations. *Journal of Public Transportation* 18: pp.73–92.

Crawford, A., Lister, S., Blackburn, S. and Burnett, J. (2005) *Plural Policing: the mixed economy of visible patrols in England and Wales*. The Policy Press.

Cromwell, P., Olson, J. and Avary, D. (1991) *Breaking and entering: an ethnographic analysis of burglary*. Sage.

Crowe, T. (1991) *Crime Prevention through Environmental Design: Applications of Architectural Design and Space Management Concepts*. Butterworth-Heinemann.

Crowe, T. (2000) *Crime Prevention Through Environmental Design: Applications of Architectural Design and Space Management Concepts*. 2nd Edition. Butterworth-Heinemann.

Davis Langdon (2006) *Capital Costs of Secured by Design Accreditation*. Report commissioned by ACPO CPI Limited. ACPO Secured by Design.

Davis Langdon (2010) *Capital Costs of Secured by Design Accreditation*. Report commissioned by ACPO CPI Limited. ACPO Secured by Design.

Department for Communities and Local Government (2005) *Planning Policy Statement 1 (PPS1): Delivering Sustainable Development*. DCLG.

Department for Communities and Local Government (2008) *The Code for Sustainable Homes: Setting the Standard in Sustainability for New Homes*. DCLG.

Department for Communities and Local Government (2015) *Housing Standards Review – Security: Final Implementation Impact Assessment*. DCLG.

Department for Communities and Local Government and Home Office (2004) *Safer Places: the Planning System and Crime Prevention*. DCLG and Home Office.

Department for the Environment (1994) *DofE Circular 5/94 Planning Out Crime*. Department for the Environment.

Dunleavy, P. (1981) *The Politics of Mass Housing in Britain, 1945-73: a study of corporate power and professional influence in the welfare state*. Clarendon Press.

Eck, J.E. (2002) Preventing Crime at Places. In L.W. Sherman, D.P. Farrington, B.C. Welsh, D. Layton MacKenzie (Eds.) *Evidence Based Crime Prevention*. Routledge.

Eck, J., Chainey, S., Cameron, J.G., Leitner, M. And Wilson, R.E. (2005) *Mapping crime: understanding hot-spots*. National Institute of Justice.

Eck, J.E. and Spelman, W. (1987) *Solving Problems: Problem Oriented Policing in Newport News*. Police Executive Research Forum.

Eckblom, P. (1988) *Getting the Best out of Crime Analysis*. Crime Prevention Unit Paper 10. Home Office.

Eckblom, P. (1997) 'Gearing up against Crime: a Dynamic Framework to Help Designers Keep up with the Adaptive Criminal in a Changing World', *International Journal of Risk, Security and Crime Prevention*, 2/4: p.249-265.

Eckblom, P. (2001) *The Conjunction of Criminal Opportunity: A Framework for Crime Prevention Toolkits*. UK Crime Prevention website.

<http://webarchive.nationalarchives.gov.uk/20100413151441/http://www.crimereduction.gov.uk/learningzone/ccofull.doc>

Eckblom, P. (2002) 'Towards a European Knowledge Base' and 'The Five Is: Experimental Framework for a Knowledge Base for Crime Prevention Projects', in *European Crime Prevention Conference 2002*, Vol. 1: p,62-97. Danish Crime

Prevention Council.

www.designagainstcrime.com/web/towards_european_k_base.pdf

Eckblom, P. (2007) 'Making Offenders Richer', in G. Farrell, K. Bowers, S. Johnson and M. Townsley (eds) *Imagination for Crime Prevention: Essays in Honour of Ken Pease*. Crime Prevention Studies, 21. Criminal Justice Press.

Eckblom, P. (2011a) *Crime Prevention, Security and Community Safety Using the 5 I's Framework*. Palgrave Macmillan.

Eckblom, P. (2011b) Deconstructing CPTED and Reconstructing It for Practice, Knowledge, Management and Research. *European Journal on Criminal Policy and Research*, 17, p.7-28.

Eckblom, P. (2012) 'Happy Returns: ideas brought back from situational crime prevention's exploration of design against crime', in Farrell, G. and Tilley, N. (eds) *The Reasoning Criminologist: Essays in Honour of Ronald V. Clarke*, pp.163-198. Crime Science Series. Willan.

Eckblom, P., Armitage, R., Monchuk, L. and Castell, B. (2013) "Crime Prevention through Environmental Design in the United Arab Emirates: A Suitable Case for Reorientation?" *Built Environment* 39 (1): pp. 92–113.

Eckblom, P. and Hirschfield, A. (2014) Developing an alternative formulation of SCP principles – the Ds (11 and counting) *Crime Science* 2014, 3.2
<http://www.crimesciencejournal.com/content/3/1/2>

Eckblom, P. and Tilley, N. (2000) 'Going equipped: criminology, situational crime prevention and the resourceful offender', *British Journal of Criminology*, 40(3): p.375-98.

English Partnerships (2007) *Quality Standards*. London: English Partnerships.

Farrell, G., Tilley, N., Tseloni, A. and Mailley, J. (2011) The Crime Drop and the Security Hypothesis, in the *Journal of Crime and Delinquency*. First published, 22 February 2011.

Farrington, D.P., Gottfredson, D.C., Sherman, L.W. and Welsh, B.C. (2002) Maryland Scientific Methods Scale. L.W. Sherman, D.P. Farrington et al (eds.) *Evidence-Based Crime Prevention*. p.13-21. Routledge.

- Farrington, D. and Welsh, B. (2002) *Effects of Improved Street Lighting on Crime: A Systematic Review*, Home Office Research Study No. 251. Home Office.
- Felson, M. (1986) 'Routine Activities, Social Controls, Rational Decisions, and Criminal Outcomes.' In D. Cornish and R.V.G. Clarke (eds.), *The Reasoning Criminal*. Springer-Verlag.
- Felson, M. (1995) 'Those Who Discourage Crime' *Crime Prevention Studies*, 4. Criminal Justice Press.
- Felson, M. (2002) *Crime and Everyday Life* (3rd edition). Sage.
- Felson, M. (2006) *Crime and Nature*. Willan.
- Felson, M. (2018) *Policy Levels for Situational Crime Prevention*. The Annals of American Academy of Political & Social Science. Vol. 679 issue:1, 2018, p.198-201.
- Felson, M. and Clarke, R. (1998) *Opportunity Makes the Thief: Practical Theory for Crime Prevention*, Police Research Series Paper 98, Home Office.
- Finlay, L. (2002) 'Outing the Researcher: The Provenance, Principles and Practice of Reflexivity', *Qualitative Health Research* 12(4): 531-545. Sage Journals.
- Fleming, R. and Burrows, J. (1986) *The case for lighting as a means of preventing crime*. Home Office Research Bulletin, 22, p.14-17. Home Office.
- Frank, R., Dabbaghian, V., Reid, A., Singh, S., Cinnamon, J. and Brantingham, Patricia. (2011) Power of Criminal Attractors: Modelling the Pull of Activity Nodes. *Journal of Artificial Societies and Social Simulation* 14 (1). Simon Fraser University, Canada; Indian Institute of Technology Kanpur. Accessed online on 3 October 2018 at <http://jasss.soc.surrey.ac.uk/14/1/6.html>
- Gamman, L. and Thorpe, A. (2012) *The Korean Experience - 3rd Generation CPTED?* Lecture given to the Designing Out Crime Association at Central St Martins, London, on 21 March 2013.

Gehrke, J.P. (2016) A Radical Endeavor: Joseph Chamberlain and the Emergence of Municipal Socialism in Birmingham. *The American Journey of Economics and Sociology*. Vol. 75, Issue 1.

Gill, M., Spriggs, A., Allen, J., Argomaniz, J., Bryan, J., Hemming, M., Jessiman, P., Kara, D., Kilworth, J., Little, R., Swain, D. and Waples, S. (2005): *The Impact of CCTV: Fourteen Case Studies*, Home Office Online Report. Home Office www.homeoffice.gov.uk/rds/pdfs05/rdsolrl505.pdf

Goldstein, H. (1979) Improving Policing: a Problem-Oriented Approach, *Crime and Delinquency*, April, p.235-58.

Goldstein, H. (1990) *Problem-oriented Policing*. McGraw-Hill.

Goldstein, H. (1997) 'The Pattern of Emerging Tactics for Shifting Ownership of Prevention Strategies in the Wave of Change in Policing: Their Implications for both Environmental Criminology and the Police'. Paper presented at the sixth *Annual Seminar on Environmental Criminology and Crime Analysis*, National Police Academy, Oslo.

Goldstein, H. (2003) 'On Further Developing Problem-Oriented Policing: The Most Critical Need, the Major Impediments, and a Proposal', in J. Knutsson (ed.) *Mainstreaming Problem-Oriented Policing*. Crime Prevention Studies, 15. Criminal Justice Press.

Greenburg, S. and Rohe, W.M. (1983) 'External Solutions to Neighborhood-based Problems: A Critical Review of the Relationships between Fear of Crime, Bystander Surveillance, and Changes in the Crime Rate.' *Victimology* 5: 133-51.

Groff, E.R. (2005) *The Geography of Juvenile Crime Place Trajectories*. Master's Thesis. University of Maryland.

Groff, E.R. and La Vigne, N.G. (2001) Mapping an Opportunity Surface of Residential Burglary. *Journal of Research in Crime and Delinquency*, 38(3), 257-278.

Groff, E. and Lockwood, B. (2014). Criminogenic Facilities and Crime across Street Segments in Philadelphia: Uncovering Evidence about the Spatial Extent of Facility Influence. *Journal of Research in Crime and Delinquency* 51: pp.277–314.

- Groff, E. and McCord, E. (2011) The Role of Neighborhood Parks as Crime Generators. *Security Journal* 25: 1–24.
- Gropius (1936) *The New Architecture and the Bauhaus*. MIT Press Limited.
- Grove, L., Farrell, G., Farrington, D. and Johnson, S. (2012) *Preventing Repeat Victimisation: A Systematic Review*. The Swedish National Council for Crime Prevention.
- Guardian (2014) Police crime figures lose official status over claims of fiddling <https://www.theguardian.com/uk-news/2014/jan/15/police-crime-figures-status-claims-fiddling> Accessed on 22 February 2018.
- Hall, E. (1959) *The Silent Language*. Fawcett.
- Hammond, P. (2017) UK Government commitment to build 300,000 homes annually. *Andrew Marr Show interview on 19 November 2017*. BBC News online, accessed 4 January 2018.
- Hearnden, I. and McGill, C. (2004) *Decision-making by house burglars: Offenders' perspectives*. Home Office Research Findings 249. Home Office.
- Her Majesty's Inspector of Constabularies (HMIC) (2004) *Modernising the Police Service: A Thematic Inspection of Workforce Modernisation – The Role, Management and Deployment of Police Staff in the Police Service of England and Wales*. HMIC.
- Hillier, B. (2004) Can streets be made safer? *Urban Design International*, p.31-45.
- Hillier, B. and Shu, S. (2000) Crime and Urban Layout: The Need for Evidence, in Ballintyne, S., Pease, K. and McLaren, V. (eds.), *Secure Foundations: Key Issues in Crime Prevention, Crime Reduction and Community Safety*. Institute of Public Policy Research.
- Holland, R. (1999) *Reflexivity*. Sage Journals.
- Home Office (1965) *Report of the Cornish Committee on the Prevention and Detection of Crime*. Home Office.
- Home Office (1983) *Home Office Circular to Chief Officers of Police 114/83*. Home Office.

Home Office (1984) *Crime Prevention, Home Office Circular 8/84*. Home Office.

Home Office (1996) Problem Oriented Partnerships (POP) Conference, held at the Metropole Hotel, Birmingham.

Home Office (1998) *Home Office Counting Rules*. Home Office.

Home Office (2001) *Crime Prevention Toolkits*. Home Office.

Home Office (2002) *National Crime Recording Standard*. Home Office.

Home Office (2006) *Changing behaviour to prevent crime: an incentive-based approach*. Home Office Online Report 05/06. Home Office.

Home Office Crime Prevention Centre (1987) *Police Architectural Liaison Manual of Guidance*. HOCRC

Houghton, G. (1992) *Car Crime in England and Wales: The Home Office Car Theft Index*; Crime Prevention Unit Paper 33. Home Office.

Housing Corporation (2007) *Design and Quality Standards*. The Housing Corporation.

Hushen, A. (2008) *Graffiti versus Street Art*. Presentation given at the 'Safe and Secure Transport' seminar organised by E-DOCA (European Designing Out Crime Association) in Amsterdam, 9 May 2008.

International Standards Organisation (2021) *International Standard ISO 22341:2021 Security and resilience – Protective security – Guidelines for crime prevention through environmental design*. ISO.

Jacobs, J. (1961) *The Death and Life of the Great American Cities*. Random House.

Jeffery, J. (1969) 'Crime Prevention and Control through Environmental Engineering.' *Criminologica* 7:35-58.

Jeffery, C. Ray (1971) *Crime Prevention Through Environmental Design*. Sage Publications.

Jeffery, C. Ray (1976) 'Criminal Behaviour and the Physical Environment' *The American Behavioural Scientist* p.20-25.

- Jeffery, C.R. (1993) Obstacles to the development of research in crime and delinquency. *Journal of Research in Crime & Delinquency*, 30: p.491-497.
- Jeffery, C.R. 1999. CPTED, Past, Present and Future. *International Crime Prevention through Environmental Design Newsletter*. Volume 3, pp. 1–8. Available online: <http://www.cpted.net/resources/Documents/ICA%20Resources/Newsletters/PerspectivesV03I7April%202000.pdf> (accessed on 20 September 2021).
- Jeffery, C. and Zahm, D. (1993) Crime prevention through environmental design, opportunity theory and rational choice models. In *Routine Activity Theory and Rational Choice. Advances in Criminological Theory*, Vol. 5, edited R.V. Clarke and M. Felson. Transaction Publishers.
- Jencks, C. (1984) *The Language of Post-Modern Architecture*. Rivoli.
- Johnson, S. and Bowers, K.J. (2010) Permeability and Burglary Risk: Are Cul-de-Sacs Safer? *Quantitative Journal of Criminology*, 26(1), p.89-111.
- Johnson, S.D., Guerette, R.T. and Bowers, K. (2014) Crime displacement: what we know, what we don't know, and what it means for crime reduction. *Journal of Experimental Criminology*, Volume 10, Issue 4, p.549-571, Springer Link.
- Jones, P. (2002) *Bigger is Better? Local authority housing and the strange attraction of high-rise 1945-70*. Urban Morphology Research Group, University of Birmingham, 2002.
- Jones, P. (2004) Paying the price for high hopes: UK public sector high-rise and the Housing Subsidies Act, 1956. *Planning History 2004*. Vol. 26 Nos. 1 & 2.
- Jones, A., Burns, P., Edwards, R. and Bray, N. (2016) *Nottingham's Secure, Warm, Modern scheme: Decent Homes programme*. Nottingham Trent University.
- Kelly, M., de Vries Erich, J., Helmich, E., Dornan, T. and King, N. (2017) *Embodied Reflexivity in Qualitative Analysis: A Role for Selfies*. University of Huddersfield.
- Key Note Market Intelligence (2014) *Market Report 2014 Closed-Circuit Television*. Key Note Ltd.
- Kirby, K. and Reed, D. (2004) *Developing a Problem-oriented Organisation*. Association of Chief Police Officers.

Kraut, D. (1999) 'Hanging out the No Vacancy Sign: Eliminating the Blight of Vacant Buildings from Urban Areas.' *New York University Law Review* 74:1139-77.

Laycock (1985) *Property Marking: A Deterrent to Domestic Burglary?* Crime Prevention Unit Paper 3. Home Office.

Laycock (1997) 'Operation Identification, or the power of publicity?' in R. Clarke (ed.) *Situational Crime Prevention: Successful Case Studies*, 2nd edition. Harrow and Heston.

Le Corbusier, (1936) *The Vertical Garden City*. Architectural Review 1936, January, p.9-10.

Le Corbusier, (1947) *When the cathedrals were white*. Reynal and Hitchcock.

Lloyd-George, D. (1918) To make Britain a fit country for heroes to live in." David Lloyd George (Earl Lloyd-George of Dwyfor) 1863-1945. Speech at Wolverhampton, Nov. 23, 1918, quoted in The Times, Nov. 25, 1918. (The Oxford Dictionary of Modern Quotations" by Tony Augarde).

Lynch, K. (1960) *The Image of the City*. MIT Press.

Macdonald, J.E. and Gifford, R. (1989) Territorial cues and defensible space theory: The burglar's point of view. *Journal of Environmental Psychology* 37, p.165-183.

Marsh, P.T. (1994) *Joseph Chamberlain: Entrepreneur in Politics*. Yale University Press.

Mawby, R.I (1977) Defensible Space: A Theoretical and Empirical Appraisal. *Urban Studies*, 14, p.169-179.

Mawby, R.I. (2001) *Burglary*. Willan.

Mayhew, P., Clarke, R.V., Sturman, A. and Hough, M. (1976) *Crime as Opportunity*. Home Office Research Study No. 34. Home Office.

Mayne, R. and Rowan, C. 'Nine Principles of Policing – 1829', in *A New Study of Police History by Charles Reith* (1956). Oliver and Boyd.

Miethe, T.D. and Meier, R.F. (1990) 'Criminal opportunity and victimization rates: A Structural choice theory of criminal victimization.' *Journal of Research in Crime and Delinquency* 27: p.243-266.

Mihinjac, M. and Saville, G. (2019) Third-Generation Crime Prevention through Environmental Design (CPTED). *Social Sciences* 8: p.182.

Minton, A. (2009) *Ground Control: fear and happiness in the 21st Century City*. Penguin.

Minton, A. and Aked, J. (2012) *'Fortress Britain': high security, insecurity and the challenge of preventing harm*. Prevention Working Party. New Economics Foundation.

MIT SENSEable Lab, 3rd generation CPTED and the eco-friendly city: Accessible at: <https://www.safegrowth.org/blog/3rd-generation-cpted-and-the-eco-friendly-city>
Accessed on 12 November 2021.

Monchuk, L. (2011) The Way Forward in Designing Out Crime? Greater Manchester Police Design for Security Consultancy. *Safer Communities: a Journal of Practice, Opinion, Policy and Research*, 10(3), p. 31-40. Emerald Group Publishing.

Monchuk, L., Pease, K. and Armitage, R. (2018) *Is It Just a Guessing Game? The Application of Crime Prevention through Environmental Design (CPTED) to Predict Burglary*. Huddersfield University: Department of Behavioural and Social Sciences, School of Human and Health Sciences.

Montes Serrano, C. and Casariego, F.C. (2014) Le Corbusier en Londres, 1938. In *EGA Revista de Expression Grafica Arquitectonica*. July 2014. ResearchGate.

Montoya, L., Junger, M. and Ongena, Y. (2016) *The Relation between residential property and its surroundings and day-and-night-time residential burglary*, in *Environment and behaviour*, 48(4), p.515-549.

Morgan, J. (1991) *Safer Communities: The local delivery of crime prevention through the partnership approach*. Home Office.

Mosher, C.J., Miethe, T.D. and Phillips, D.M. (2002) *The Mismeasure of Crime*. Sage.

Moss, K. And Pease, K. (1999) 'Crime and Disorder Act 1998, Section 17: A Wolf in Sheep's Clothing', *Crime Prevention and Community Safety*, 1 (4): p.15-19.

NaCTSO (National Counter-Terrorism Security Organisation (2017) *Protecting Crowded Places*. NaCTSO.

Nee, C. and Meenaghan, A. (2006) Expert Decision Making in Burglars. *British Journal of Criminology*, 46, p.935-949.

New South Wales Police (2001) *Safer by Design: CPTED in New South Wales*. NSW Police.

Newburn, T. (2003) *The Handbook of Policing*. Willan.

Newlands, M. (1983) *Residential burglary patterns in a Vancouver neighbourhood*. Unpublished honor's thesis, Department of Criminology. Simon Fraser University.

Newman, O. (1972) *Defensible Space: Crime Prevention Through Urban Design*. Macmillan.

Newman, O. (1973) *Defensible Space: People and Design in the Violent City*. Architectural Press.

Newman, O. (1976) *Design Guidelines for Creating Defensible Space*. National Institute of Law Enforcement and Criminal Justice, Law Enforcement Assistance Administration. U.S. Dept. of Justice.

Newman, O. (1996) *Creating Defensible Space*. Rutgers University, Centre for Urban Policy Research.

Nuttgens, P. (1989) *The Home Front*. BBC Books.

Office of the Deputy Prime Minister (ODPM) and Home Office (2004) *Safer Places: the Planning System and Crime Prevention*. HMSO.

Office for National Statistics (2013) Crime in England and Wales, year ending December 2013. Statistical Bulletin, 24 April 2014.

http://www.ons.gov.uk/ons/dcp171778_380216pdf Accessed 21 March 2018

Office for National Statistics (2018) Overview of burglary and other household theft: England and Wales.

<https://www.ons.gov.uk/peoplepopulationandcommunity/crimeandjustice/articles/overviewofburglaryandotherhouseholdtheft/englandandwales> Accessed 22 February 2018.

Office for National Statistics (2020) Methodology note on the possible order effect on responses to questions on anti-social behaviour from changes in the Crime Survey

for England and Wales. <https://www.ons.gov.uk/peoplepopulationandcommunity/crimeandjustice> Accessed 24 June 2020.

Painter, K. (1994) The impact of street lighting on crime, fear and pedestrian street use. *Security Journal*, 5, p.116-124.

Pascoe, T. (1999) *An Assessment of the Police's Secured by Design Project*. Watford: Building Research Establishment.

Pascoe, T. and Topping, P. (1997) Secured by Design: Assessing the Basis of the Scheme. *International Journal of Risk, Security and Crime Prevention*, 2(3), p.161-173.

Pawson, R. and Tilley, N. (1997) *Realistic Evaluation*. Sage.

Pawson, R. and Tilley, N. (2004) *Realistic Evaluation*. British Cabinet Office.

Pease, K. (1991) The Kirkholt Project: Preventing Burglary on a British Housing Estate, in the *Security Journal* 2, p.73-77.

Pease, K. (2009) The Carbon Cost of Crime and Its Implications. Report prepared for ACPO CPI. <http://www.securedbydesign.com/professionals/publications.aspx>. [Accessed 16 February 2016]

Pease, K. and Gill, M. (2011) *Direct and Indirect Costs and Benefits of Home Security and Place Design*. Perpetuity Research and Consultancy International Ltd.

Perlgut, D. (1982) *Crime Prevention and the Design Management of Public Developments in Australia: Selected Case Studies*. Criminology Research Council.

Power, A. (1997) *Estates on the Edge: The Social Consequences of Mass Housing in Northern Europe*. Macmillan Press Limited.

Poyner, B. (1983) *Design against Crime: Beyond Defensible Space*. Butterworth.

Poyner, B. (2006) *Crime Free Housing in the 21st Century*. Jill Dando Institute of Crime Science, UCL.

Poyner, B., Helson, P. and Webb, B. (1985) *Layout of Residential Areas and Its Influence on Crime*. Tavistock Institute of Human Relations.

Poyner, B. and Webb (1991) *Crime Free Housing*. Butterworth.

- Radzinowicz, L. and Hood, R. (1968) *A History of the English Criminal Law and Its Administration from 1750*. Macmillan.
- Ramroth, W.G. (2007) *Planning for Disaster: How Natural and Man-made Disasters Shape the Built Environment*. DIANE Publishing.
- Ramsay, M. and Newton, R. (1991) *The Effect of Better Street Lighting on Crime and Fear: A Review*. Crime Prevention Unit, Paper 29. Home Office.
- Rapoport, A. (1982) *The Meaning of the Built Environment. A Nonverbal Communication Approach*. Sage.
- Ratcliffe, J. (2008) *Intelligence-Led Policing*. Willan.
- Ratcliffe, J. (2011) How Near Is Near? Quantifying the Spatial Influence of Crime Attractors and Generators. In *Patterns, Prevention, and Geometry of Crime*. Andreson, M. and Kinney, B.J. eds. Criminal Justice Press.
- Read, T. and Tilley, N. (2000) *Not Rocket Science? Problem Solving and Crime Reduction*. Crime Reduction Research Series 6. Home Office.
- Reith, C. (1956) *A New Study of Police History*. Oliver and Boyd.
- Rengert, G.F. (2004) The Journey to Crime, in G. Bruinsma, H. Elffers and J.D. Keijser (eds.) *Punishment, Places and Perpetrators: Developments in Criminology and Criminal Justice Research*. Willan.
- Rengert, G.F. and Wasilchick, J. (1985) *Suburban Burglary: A Time and a Place for Everything*. Charles C. Thomas.
- Rengert, G. and Wasilchick (2000) *Suburban Burglary: A Tale of Two Suburbs*. Second Edition. Charles C. Thomas.
- Repetto, T.A. (1974) *Residential Crime*. MA: Ballinger.
- Reynald, D. (2009) Guardianship in Action: Developing a New Tool for Measurement. *Crime Prevention and Community Safety*, 11, p.1-20.
- Reynald, D. (2010) Guardianship in Guardianship: Factors Affecting the Willingness to Supervise, the Ability to Detect Potential Offenders, and Willingness to Intervene, in *Journal of Research in Crime and Delinquency*. August 2010.

- Richards, D. (1953) *Royal Air Force 1939–1945: The Fight at Odds*. HMSO.
- Richards, J.M. (1954) *The Architectural Review* 5-1954, p.342
- Roach, J. (2006) Food For Thought, Crime Reduction Theory and Police Practice: The Appliance of Science, in *Police Professional*, June 2, 2006 p.28-29.
- Robinson, M.B. (1996) 'The Theoretical Development of CPTED: 25 Years of Responses to C. Ray Jeffery'. *Advances in Criminological Theory*, Vol. 8
- Ross, H.L. (1973) 'Law, Science and Accidents: The British Road Safety Act of 1967.' *Journal of Legal Studies* 4, p.285-310.
- Ross, C.E. and Jang, S.J. (2000) Neighborhood disorder, fear and mistrust: The buffering role of social ties and neighbors. *American Journal of Community Psychology*, 28(4), p.401-420.
- Ross, C. and Mirowsky, J. (1999) The concept and measurement of perceived neighborhood disorder. *Urban Affairs Review*, 34(3): p.412-432 (Google Scholar).
- Rubenstein, H.C., Murray, C., Motoyama, T. and Rouse, W. (1980) *The Link between Crime and the Built Environment. The Current State of Knowledge*. National Institute of Justice.
- Rudlin, D. and Falk, N. (1995) *Sustainable Urban Neighbourhoods: Building the 21st Century Home*. Architectural Press.
- Savage, J. and Souris. R. (2008) Mixed-Use Development and Crime. *Interdisciplinary Design and Research e-Journal*, 2 *Design and Livability*. pp.1–26. Available online at <http://www.idrp.wsu.edu/> (accessed on 22 September 2010).
- Saville, G. and Cleveland, G. (1997) '2nd Generation CPTED: An Antidote to the Social Y2 K Virus of Urban Design.' Paper presented at the *2nd Annual International CPTED Conference*, Orlando, FL, 3-5 December. Accessed 24 December 2015, <http://www.veilg-ontwerp-beheer.nl/publicaties/2nd-generation-cpted-antidote-to-the-social-y2k-virus-of-urban-design>
- Schneider, R. and Kitchen, T. (2002) *Planning for Crime Prevention: A Transatlantic Perspective*. Routledge.

Schneider, R. and Kitchen, T. (2007) *Crime Prevention and the Built Environment*. Routledge.

Secured by Design (1989) *Secured by Design – The Concept*. South East Region Senior Crime Prevention Officers Conference. Rea Publicity.

Secured by Design (1989) *Secured by Design – Estate* guidance document, South East Region Senior Crime Prevention Officers Conference. Rea Publicity.

Secured by Design (1992) *Secured by Design – Commercial*. ACPO Secured by Design.

Secured by Design (1992) *Secured by Design – Refurbishment*. ACPO Secured by Design.

Secured by Design (2003) *Safer Parking ‘Park Mark’ Award Scheme*. ACPO Secured by Design.

Secured by Design (2019) *Secured by Design – Homes 2019*. Police CPI Limited.

Secured by Design (2019) *The Sanctuary Scheme Installation Manual: A Place of Safety for those at Risk*. Police CPI Limited.

Shadish, W.R., Cook, T.D. and Campbell, D.T. (2002) *Experimental and quasi-experimental designs for generalized causal inference*. Houghton-Mifflin.

Shaftoe, H. and James, S. (2004) *Do symbolic barriers prevent crime and offer an increased sense of safety?* Routledge.

Sherman, L.W., Gartin, P.R. and Buerger, M.E. (1989) ‘Hot Spots of Predatory Crime: Routine Activities and the Criminology of Place.’ *Criminology* (27:1) p.27-56.

Sherman, L., Shaw, J. and Rogan, D. (1995) *The Kansas City Gun Experiment, Research in Brief Series*. U.S. National Institute of Justice.

Shu, S. and Huang, J. (2003) Spatial Configuration and Vulnerability of residential burglary: A case study of a city in Taiwan, in: *Proceedings of the 4th International Space Syntax Symposium*, London.

Sidebottom, A. (2017) *Reducing Crime through SBD: Reviewing the Evidence*. Presentation given on 14 March at the 2017 National Training Event for Designing

Out Crime Officers and Architectural Liaison Officers, held at Whittlebury Hall Hotel and Conference Centre, Northamptonshire, England.

Skinner, B. F. (1953) *Science and Human Behavior*. Macmillan.

Skogan, W. (1990) *Disorder and Decline: Crime and the Spiral of Decay in American Neighborhoods*. New York: Free Press.

Smith, M., Clarke, R.V., and Pease, K. (2002) Anticipatory Benefits in Crime Prevention, in *Crime Prevention Studies*, Vol. 13, p.71-88. Criminal Justice Press.

Sommer, R. (1969) *Personal Space: The Behavioural Basis of Design*. Prentice-Hall.

Stevenson, K., Cox, D. and Channing, I. (2017) *Leading the Police: A History of Chief Constables 1835-2017*. Routledge.

Strathclyde Police (1994) *Designing Out Crime: A Practical Guide*. Strathclyde Police Community Involvement Branch.

STS 201 (2016) Issue 7:2016. *Security Technical Specification: Burglary Resistance requirements for construction products including doorsets, windows, curtain walling, security grilles, garage doors and roller shutters*. Warrington Certification.

STS 202 (2015) Issue 6:2015 Burglary Rating 2. *Security Technical Specification: Requirements for burglary resistance of construction products including hinged, pivoted, folding or sliding doorsets, windows, curtain walling, security grilles, garage doors and shutters*. Warrington Certification.

Stucky, T. and Ottensmann, J. (2009). Land use and violent crime. *Criminology* 47: 1223–64.

SURF Centre (2002) *Hulme, ten years on*. University of Salford.

Taub, R., Taylor, D. and Dunham, J. (1984) *Paths of Neighborhood Change: Race and Crime in Urban America*. University of Chicago Press.

Taylor, N. (1967) *The Failure of Housing*. Architectural Review, October 1967.

Taylor, R. and Gottfredson, S.D. (1987) Environmental Design, Crime and Prevention: An examination of community dynamics. In A. Reiss and M. Tonry (eds.) *Communities and Crime* (p.387-416). University of Chicago Press.

- Teedon, P. and Reid, T. (Jan 2009) *Evaluation of SBD – Glasgow Housing Association (Draft)* – presentation delivered at Architectural Liaison Officer's Conference, Nottingham, January 2009.
- Teedon, P. and Reid, T., Griffiths, P. and McFayden, A. (2010) Evaluating Secured by Design Door and Window Installations. *Crime Prevention and Community Safety*, 12(4), p.246-262.
- Thornton, A., Hatton, C., Malone, C., Fryer, T., Walker, D., Cunningham, J. and Durrani, N. (2003) *Distraction burglary amongst older adults and ethnic minority communities*, Home Office Research Study 269. Home Office.
- Tilley, N. (2009) *Crime Prevention*. Willan.
- Tilley, N. and Hopkins, M. (1998) Commercial Crime, Crime Prevention and Community Safety: A Study of Three Streets in Camden, North London. In Gill, M. (1998) *Crime at Work: Increasing the risk to offenders*. Vol. II. Perpetuity Press.
- Tonry, M. (2014) *Why crime rates fall and why they don't*. University of Chicago Press.
- Towers, G. (2000), *Shelter is not enough: Transforming multi-storey housing*. The Policy Press.
- Trochim, W. M. and Donnelly, J.P. (2015) *The Research Methods Knowledge Base*. Cornell University.
- Tseloni, A., Farrell, G., Evans, E. And Tilley, N. (2017) *Domestic burglary drop and the security hypothesis*. Nottingham Trent University.
- Tudor Walters, J. (1918) *The Tudor Walters Report: Report of local government boards from England, Wales and Scotland no. 391*. Houses of Parliament.
- UK Government (1919) *Housing Act, 1919*. Houses of Parliament.
- UK Government (1956) *Housing Subsidies Act, 1956*. Houses of Parliament.
- UK Government (1967) *Housing Subsidies Act, 1967*. Houses of Parliament.
- UK Government (1964) *Police Act, 1964*. HMSO.
- UK Government (1984) *Police and Criminal Evidence Act, 1984*. HMSO.

UK Government (1998) *Crime and Disorder Act, 1998*. HMSO.

UK Government (1998) *Data Protection Act, 1998*. HMSO.

UK Government (1998) *Human Rights Act, 1998*. HMSO.

UK Government (1998) *Public Interest Disclosure Act, 1998*. HMSO.

UK Government (2018) *Data Protection Act, 2018*. HMSO.

United Nations Human Settlements Programme. 2007. "Global Report on Human Settlements 2007: Enhancing Urban Safety and Security." United Nations Human Settlements Programme), Kenya. Accessed 14 September 2021
<http://www.unhabitat.org>

UNICRI (United Nations Interregional Crime and Justice Research Institute (UNICRI), and Massachusetts Institute of Technology (MIT)). 2011. Improving Urban Security through Green Environmental Design: New Energy for Urban Security. UNICRI; MIT. Available online: http://www.unicri.it/news/files/2011-04-01_110414_CRA_Urban_Security_sm.pdf (accessed on 14 September 2021).

Van Dijk, J., Tseloni, A. and Farrell, G. (2012) *The International crime-drop: New directions in research*. Palgrave Macmillan.

Van de Voordt, T.J.M. and Van Wegen, H.B.R. (1990) Testing Building Plans for Public Safety: Usefulness of the Delft Checklist. *Netherlands Journal of Housing and Environmental Research*, 5(2), p.129-154.

Walsh. A. and Hemmens, C. (2014) *Introduction to Criminology: A Text/Reader* (3rd ed.) Sage Publications.

Watson, S. (2016) NPCC lead on Crime Prevention, Steve Watson's letter to all fellow Chief Constables asking that they rename their ALOs, CPDAs and DfSCs 'DOCOS'. Minutes of Crime Prevention Design Group.

Weatheritt, M. (1986) *Innovations in Policing*. Croom Helm.

Weisburd, D., Groff, E. and Yang, S. (2012) *The Criminology of Place: Street Segments and our Understanding of the Crime Problem*. Oxford University Press.

Welsh, B. and Farrington, D. (2008) 'Effects of Closed-Circuit Television Surveillance on Crime'. *Campbell Systematic Reviews*: 17. Campbell Collaboration.

- Welsh, B. and Farrington, D. (2008) 'Effects of Improved Street Lighting on Crime'. *Campbell Systematic Reviews*: 13. Campbell Collaboration.
- Whattam, S. (2011) *Situational Crime Prevention: Modern Society's 'Trojan Horse'*. Internet Journal of Criminology.
- Wikstrom, P-O. (2005) 'The Social Origins of Pathways in Crime: Towards a Developmental Ecological Action Theory of Crime Involvement and its Changes', in D Farrington (ed.) *Integrated Developmental and Life Course Theories of Offending*. Advances in Criminological Theory, 14. Transaction.
- Wilcox, P. and Eck. J. (2011) Criminology of the unpopular Implications for policy aimed at payday lending facilities. *Criminal Public Policy* 10: 473–82.
- Wiles, P. and Costello, A. (2000) *The 'road to nowhere': the evidence for travelling criminals*, Home Office Research Study 207. Home Office Research, Development and Statistics Directorate.
- Wilkins, L. (1997) 'Wartime Operational Research in Britain and Situational Crime Prevention.' In G. Newman, R.V. Clarke and S.G. Shoham (eds.), *Rational Choice and Crime Prevention: Theoretical Foundations*.
- Willink, H. (1962) Royal Commission on the Police Final Report. Home Office.
- Wilson, J.Q. and Kelling, G.L. (1982) The Police and Neighbourhood Safety, *The Atlantic*, March 1982, p.29-38.
- Winchester, S. and Jackson, H. (1982) *Residential Burglary: the Limits of Prevention*, Home Office Research Study No. 74. Home Office Research and Planning Unit.
- Wood, E. (1961) *Housing Design: A Social Theory*. Citizens, Housing and Planning Council of New York.
- Wootton, A.B., Marselle, M. and Davey, C. (2009) *City Centre Crime: Design Thinking for Safer City Centres*. 8th European Academy of Design Conference, 1-3 April 2009, Robert Gordon University, Aberdeen.
- Wortley, R. (2001) 'A Classification of Techniques for Controlling Situational Precipitators of Crime'. *Security Journal* 14: p.63-82.

Wright, R.T. and Decker, S. H. (1994) *Burglars on the Job: Streetlife and Residential Break-ins*. Northeastern University Press.

Yin, R.K. (1984) *Case Study Research Design and Methods*. Sage.

Yin, R.K. (2014) *Case Study Research Design and Methods* (5th ed.) Sage.

Young, M. and Willmott, P. (1957) *Family and Kinship in East London*. Penguin.

Zahm, D. (2005) 'Learning, Translating and Implementing CPTED' *Journal of Architectural and Planning Research* 22 (4): p.284-93.