A.1   INTRODUCTION AND BACKGROUND

The idea that environmental design – of sites and buildings – might play a role in crime reduction had its origins in Jane Jacobs's book, *The Life and Death of Great American Cities* (1961). Using personal observation and anecdote, she suggested that residential crime could be reduced by orienting buildings toward the street, clearly distinguishing public and private domains, and placing outdoor spaces in proximity to intensively used areas.

In 1971, architect Oscar Newman published a paper, "Architectural Design for Crime Prevention," and in 1973 published a book, *Defensible Space, Crime Prevention through Urban Design.* His studies of urban residential areas showed how physical design contributed to victimization by criminals. Newman explored the concepts of human territoriality, natural surveillance, and the modification of existing structures to effectively reduce crime, ideas that still form the foundation of building security design today. Newman's work became the foundation for what later became known as "Crime Prevention through Environmental Design" (CPTED).

The term "Crime Prevention through Environmental Design" had first appeared in a 1971 book by criminologist and sociologist C. Ray Jeffery, inspired by Jacobs's work. Jeffrey analyzed the causation of crime from an interdisciplinary approach, drawing from criminal law, sociology, psychology, the administration of justice, criminology, penology, and other fields. He also drew from relatively new fields at that time, including systems analysis, decision theory, environmentalism, behaviorism, and several models of crime control.

Defensible space theory and CPTED were very influential in law enforcement and architectural communities, particularly in urban residential development and public housing design and retrofit; throughout the 1980s, there were also a handful of architects, planners, and academics who advanced the field of CPTED, and it is to these pioneers that contemporary CPTED owes its existence.

In this period of evolution, the CPTED methodology was organized to match the function of the crime area, similar to Newman's layering of space from private to public spaces. CPTED now defines three basic strategies for security design: natural access control, natural surveillance, and territorial reinforcement.

A.2   CPTED BASIC STRATEGIES

❍ **Natural access control** consists of symbolic and real barriers that prevent the criminal from committing a crime.

Natural access control strategies involve decreasing opportunities for crime by denying access to crime targets and creating a perception of risk in offenders. It is accomplished by the design of streets, sidewalks, building entrances, and neighborhood gateways to mark public routes, and by use of architectural and landscape structural elements to discourage access to private areas.

❍ **Natural surveillance** increases the awareness by residents or building users of who leaves and enters the property or buildings.

Natural surveillance strategies are intended to make intruders easily observable. Features that maximize visibility of people, parking areas, and building entrances promote natural surveillance. Examples are doors and windows that look onto streets and parking areas, pedestrian friendly sidewalks and streets, front porches, and adequate nighttime lighting.

❍ **Territorial reinforcement** involves creating a sense of the users' proprietorship so that offenders perceive a territorial influence.

Territorial reinforcement strategies use physical design to create or extend a sphere of influence. Building users are trained to develop a sense of territorial control so that potential intruders will perceive this control and be discouraged from their criminal intentions. Features such as landscape planting, pavement surface design gateway treatments, and fences are used to define property lines and help distinguish private from public spaces to promote territorial reinforcement.

CPTED then divides each of these three strategies into response classifications:

❍ **Natural** concepts use **design** tools for avoiding user conflicts and providing clear circulation paths.

These concepts employ physical and spatial features, such as site and architectural elements, to ensure that a setting acts as a deterrent to crime while supporting the intended use of the space.   Examples of natural features include landscaping, outdoor seating and planters, fences, gates, and walls.

❍ **Mechanical** concepts use **devices and technology** that make committing the crime more difficult.

Sometimes referred to as "target hardening," mechanical measures emphasize hardware and technological systems, such as locks, security screens on windows, fencing and gating, key control systems, closed-circuit television (CCTV), and other security technologies. Windows may have protective glazing that withstands blows without breaking. Doors and window hardware may have special material and mountings which make them hard to remove or tamper with. Walls, floors, or doors may be specially reinforced in high-security areas with materials that are difficult to penetrate.

❍ **Organizational** concepts respond with **management and personnel** techniques.

These concepts rely on people (individuals and vested groups) to provide surveillance and access control functions in the spaces they occupy at home or work. Organizational concepts may use concierges, security guards, designated guardians, residents in neighborhood watch programs, police officer patrols, and other individuals with the ability to observe, report, and intervene in undesirable or illegitimate actions.

A.3 CPTED STRATEGIES FOR SITE PROTECTION

As examples of the application of CPTED principles and concepts, following are some of the CPTED strategies for site protection.

Examples of natural solutions:

❍ Natural solutions designed to delay an intruder by creating barriers such as walls, fences, water barriers, or landscaping

❍ Natural solutions that allow for siting of buildings to reduce blind spots and permit observation of movement by building users, such as window placement, location of entrances, and walkways

❍ Natural solutions that create boundaries with the building form or landscaping to clearly delineate the public, semi-public, semi-private and private spaces

Examples of mechanical solutions:

❍ Mechanical solutions for the detection of an intrusion, through use of electronic or infrared sensing

❍ Mechanical solutions that use technology to assist watching, such as CCTV and exterior site lighting

❍ Mechanical solutions that define boundaries and territory with perimeter protection systems

❍ Devices that assist in the provision of access control at site entries

Examples of organizational solutions:

❍ Solutions that provide for patrol and ability to respond, such as patrol routes, guardhouses and watch towers, or other locations.

❍ Surveillance strategies that allow for unobstructed watch for intruders.

❍ Solutions that use assigned or remote observers to detect, delay, and respond to intruders. Observers can be police, security guards, or trained building users. The building design may focus outward, for example, to allow observation of parking lots or playgrounds.

❍ Solutions that provide the staff and/or users of the building with the means to distinguish outsiders or violators from legitimate site users. The site may have a vehicle control system that requires stickers, decals, ID cards, or access control badges.

Examples of territorial reinforcement solutions:

❍ Strategies employ the building design and ability of users to challenge possible intruders and determine if they have a legitimate purpose.

A.4   CPTED TODAY

The basic CPTED planning concepts can often address vulnerability and risk in a more effective manner than many of the post 9/11 ad hoc measures, which heighten fear and unduly compromise the unique character of a place and a community.

It is necessary to ensure that there is a reasonable balance between planning for everyday crime prevention and planning to mitigate acts of

terror. Acts of terrorism are infrequent events, and everyday crime levels may increase further if security measures are enacted that undermine the integrity of a community. Such measures are permanent street closures and rigid adherence to arbitrary permanent stand-off distance standards, etc. Well-planned temporary measures would allow protection from increased or reduced threats on an as-needed basis, which may occur rarely during the life of the site.

The CPTED security design process can be applied on a macro to micro scale. The three scales are building perimeter protection, in-site security design, and the building envelope and interior (which mirror the three layers of defense concept used in this publication).

There is now an extensive literature on CPTED, and training courses are offered by some private consultants and by the International CPTED Association (ICA). A typical CPTED course is designed for a practitioner who will be involved in the application of proven crime prevention tactics to the built environment. Courses are relevant for architects, planners, community leaders, and police practitioners; they focus on the application of situational crime prevention measures to areas of our communities, with the goal of forming a total response to crime.

Typical CPTED course topic areas are:

❍ Architectural terms and the process of architectural development

❍ Municipal and regional planning

❍ Analysis of crime potential within the design area

❍ How to develop plans to prevent environmentally induced crimes in practical applications   of light and color

❍ Political analysis and development of CPTED codes and ordinances

❍ Security technology in support of natural surveillance and control

A number of police forces in the United States have been trained in CPTED and apply the principles in their review of construction projects.

A.5 CPTED SOURCES OF INFORMATION

Publications:

Publications relating to CPTED will be found in Appendix B, Bibliography

Web sites:

Defensible Space, nonprofit organization founded by Oscar Newman:
www.defensiblespace.com

International CPTED Association (ICA):
www.cpted.net

National Crime Prevention Institute:
www.louisville.edu/a-s/ja/ncpi

U.S. Department of State, Counterterrorism Office:
www.state.gov/s/ct

Security Design Coalition:
www.designingforsecurity.org