Mississauga CPTED Principles

Crime Prevention Through Environmental Design (CPTED)

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MISSISSAUGA

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Introduction

Introduction

Have you ever wondered why some properties are victimized and others are not? What makes one property more susceptible to criminal attacks than others? Crime Prevention Through Environmental Design (CPTED) is a pro-active crime fighting technique that believes the proper design and effective use of the built environment can lead to a reduction in the fear and incidence of crime as well as an improvement in the quality of life.

1.1 Purpose

The goal of this document is to provide Developers and Citizens with CPTED principles and strategies to create a safer and more liveable city. Furthermore, this document will enhance the awareness of safety and provide a better understanding of urban well-being among the citizens of Mississauga.

The Mississauga CPTED Principles document aligns with "Connect" Pillar of the City of Mississauga Strategic Plan. One of the goals of this pillar is "Maintain a Safe City" to actively mentor Mississauga as the safest large city in Canada.

The CPTED approach, when used correctly, can help reduce our exposure to crime by providing ways to better manage our human and physical resources. CPTED principles and strategies, can reduce the potential for fear and opportunity for crime, contribute to the development of vibrant, attractive and pleasant public spaces.

Crime Prevention Through Environmental Design Principles

CPTED Principles

CPTED involves the design of physical space in the context of the needs and predictable behaviour of the bonafide users of the space. The CPTED review process is an opportunity to plan and design safe environments — residential, commercial, industrial, institutional, parks, open spaces and road network developments before they are built.

CPTED is based on the belief that the proper design and effective use of the built environment can lead to a reduction in the fear and incidence of crime as well as an improvement in the quality of life.

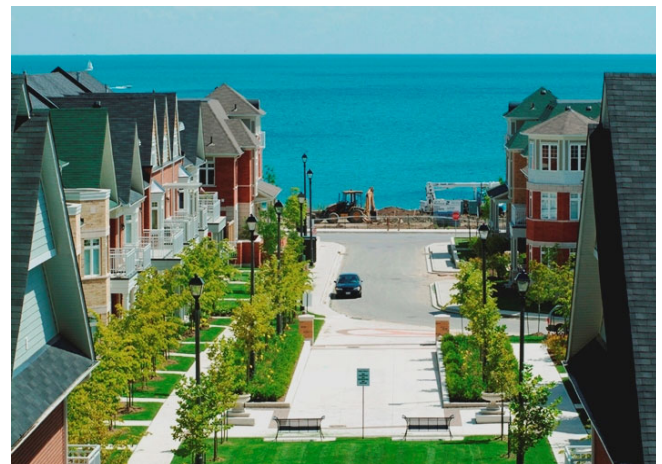**Figure 2.0.1** Views from the residential windows & balconies provide this pedestrian an added layer of safety

Figure 2.0.2 A well designed safe residential community incorporates natural surveillance, access control & territoriality

2.1 CPTED Objectives

CPTED has several objectives. These include:

- Match intended human functions with spaces that can support them;
- Ensure that the intended activity has the opportunity to function well and directly support the control of human behaviour;
- CPTED encourages diverse and compact urban forms which help to establish informal surveillance to public spaces. An important aspect of ensuring a safer urban environment is to establish the sense of ownership in every private and public place we design. In this regard, the creation of space must integrate diversity, accessibility and safety into the design;
- Safe urban environments require the presence of people in public places. Casual encounters of individuals are an important factor for CPTED solutions in dealing with vandalism, assault, loitering, mugging, harassment and other negative activities. Any public place should be under surveillance by its residents in order to avoid isolated areas.

Figure 2.1.2 A well-lit & maintained lobby with large windows promotes a safe environment

Figure 2.1.3 Well designed public spaces result in optimum use throughout the year

Figure 2.1.1 Seating areas with open views ensure acceptable behaviour & activity

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Design Strategies

Design Strategies

CPTED principles include the concept that the physical environment can be manipulated for the purpose of influencing certain desired human behaviour. CPTED design strategies which can reduce the fear and incidence of crime and improve the quality of life include the following strategies :

- Natural Surveillance: a design strategy directed at keeping intruders under observation by other users of the space or from surrounding areas;

- Natural Access Control: a design strategy directed at decreasing crime opportunities by denying access to a crime target and creating a perception of risk for potential offenders;

- Territorial Reinforcement: a design strategy that realizes that physical design can create or extend a sphere of influence so that users of the property develop a sense of proprietorship over it; and

- Mechanical Forms of Surveillance and Access Control

Figure 3.0.1 A Safe environment encourages relaxed & casual interaction

Figure 3.0.2 A Community centre entrance which incorporates accessibility & safety into the design

The term 'natural' when referring to surveillance and access control means surveillance and access control as a result of the routine use and enjoyment of the property. Opportunities for surveillance and access control are leveraged when natural forms are used. Territorial reinforcement is an expression of proprietorship, it gives users a sense of boundary and control. Design solutions brings about this sense at various levels of articulation from obvious to subtle expression.

The most important function of territorial reinforcement is to set up the framework of the control system. Therefore, in its implementation, territorial strategies will often include both natural surveillance and natural access control strategies.

Figure 3.0.3 Natural surveillance from the community centre gymnasium to an adjacent woodlot

Figure 3.0.4 Low walls & landscaping provide territorial reinforcement

3.1 Natural Surveillance

Natural surveillance is the state and condition of a site that is under human senses — observed by eyes and heard by ears. Under this notion, various parts of the site are observable without any electronic or mechanical devices (camera or audiovisual recorder) in both day and night. The real and perceived risk of legitimate users 'witnessing' criminal activity acts as a deterrent to crime being committed.

Based on this concept, CPTED principles are designed on the basic condition of safety through the use of human senses. As a design strategy, natural surveillance is based on the built environment and directed to minimize fear of crime and loss. Natural surveillance gives the sense that any conduct in public space is under the direct observation of the occupants space and surrounding buildings.

Figure 3.1.2 Not Preferred—Excessive signage in the windows limits natural surveillance opportunities to both the exterior and interior spaces

Figure 3.1.1 Preferred—Large windows allow clear views to the pedestrian realm

Figure 3.1.3 Preferred—Outdoor patio provides natural surveillance to the street

	Natural Surveillance
Visibility of Public Realm	• The layout of the site must be visually accessible. • The site must have sufficient lighting to support the intended uses of the space. • The casual surveillance and sightlines of people living, working and playing in the area must be maintained. • The visibility of the site from adjacent building and open spaces is optimized. • Landscape elements must provide sufficient sightlines. • The site has an active relationship with the adjacent neighbourhood and is not isolated from casual public encounters and activities.

Figure 3.1.4 Preferred—Views to public realm are optimized due to dwellings fronting the street with low open fencing

Figure 3.1.5 Not Preferred—Views to the sidewalk & street are limited due to rear yards facing the street with solid fencing

3.2 Natural Access Control

Natural access control focuses the movement of people by strategically directing them towards areas of good natural surveillance and away from crime opportunities. It is the process of managing the behaviour of people to identify and verify who should have access to the building and its surrounding. The physical setting is created to make potential intruders uncomfortable through a sense that their escape is always at risk.

Figure 3.2.1 A Community centre & school with consolidated entrances provide natural access control

Figure 3.2.2 An elaborate open canopy of the community centre projects ownership of the space

Figure 3.2.3 Views from the reception desk to the lobby & entrance enhances surveillance and access control

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	Natural Access Control
Safe and Convenient Movement & Connections	• The layout of the site must be designed for safe and accessible pedestrian movement. • The circulation routes must be defined with clear sightlines to all intended functions.
Access Control	• The site must have a limited number of entrance and exit routes which are clearly defined.

Figure 3.2.4 Safe & convenient movement from senior's centre to bus stop & adjacent parking lot

Figure 3.2.5 Multi tenant dwellings with consolidated natural access control enhances safety

3.3   Territorial Reinforcement

Territorial reinforcement occurs when design is used to realise people's sense of ownership, which can translate into users taking responsibility for public safety and security. This can be encouraged by creating a defensible space featuring a well defined and observed area which provides strong transition from public to private space. However, this does not mean that territorial reinforcement encourages building walled communities.
Territorial reinforcement is an expression of proprietorship, it gives users a sense of boundary and control. Design solutions bring about this sense at various levels of articulation from obvious to subtle expression. The most important function of territorial reinforcement is to set up the framework of the control system. Therefore, in its implementation, territorial strategies will often include both natural surveillance and natural access control strategies.

Maintenance is a critical factor of territoriality, a clean well cared for environment demonstrates pride of ownership. Territorial reinforcement, together with natural surveillance and access control, promotes more responsiveness by users in protecting their territory. A well designed territorial environment is defensible in nature.

Figure 3.3.2 Territorial reinforcement is defined by pillars & change in paving materials

Figure 3.3.1 Low planters & fencing define private property & the pedestrian mews

Figure 3.3.3 Design elements such as lighting & benches help define the function of the space & sense of belonging

Territorial Reinforcement	
Sense of Belonging/ Defensible Space	• The layout of the site must be spatially defined in relation to the adjacent buildings and activities to provide for a transition from public to semi-public and private spaces so as to provide a sense of change between spaces. • The site must have clear orientation, direction and connection of movement for pedestrians to the adjacent structures and their uses. • Areas within the site must not be isolated (no-man's land) from observation.
Connectivity	• The site must have an active relationship with the surrounding neighbourhood and not be isolated from casual public encounter or activity. • The site must be integrated into the neighbourhood system.

Figure 3.3.4 Landscaping & low walls define private & public spaces

Figure 3.3.5 The square repeats materials as seen on the adjacent building to create a sense of ownership & definition of space

3.4 Mechanical Forms of Surveillance & Access Control

Mechanical forms of surveillance and access control such as locks, lighting, cameras, etc. should support the intended function of the space and be designed to complement the natural design strategies of CPTED.

While CPTED principles support natural control systems as a core goal, mechanical devices may be necessary for the enhancement of safety and security control.

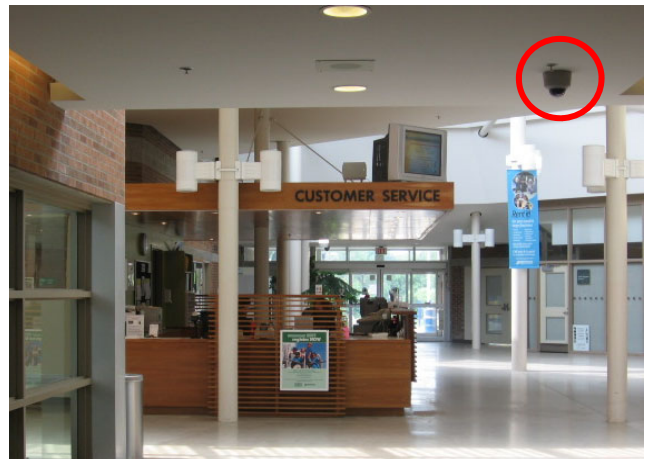**Figure 3.4.1** Mechanical security control

Figure 3.4.2 A combination of camera & lighting assist in the mechanical surveillance of the community centre

The following table compares natural and mechanical forms of access control, surveillance and territoriality.

| Natural Control	Mechanical Control
Surveillance of activities under casual observation from windows, doors and amenity areas of adjacent buildings.	Surveillance is under camera observation and visually recorded.
To direct access so that potential intruders are observable and discernable by the human senses.	Access is provided through controlled access points such as a gate or door with locks. Only authorized persons or vehicles are allowed to enter the site, usually with a special pass, key or other device.
Territory is defined through the use of landscape treatments, paving patterns etc.	Territory is enclosed by structures such as fencing with gates, walls, etc.
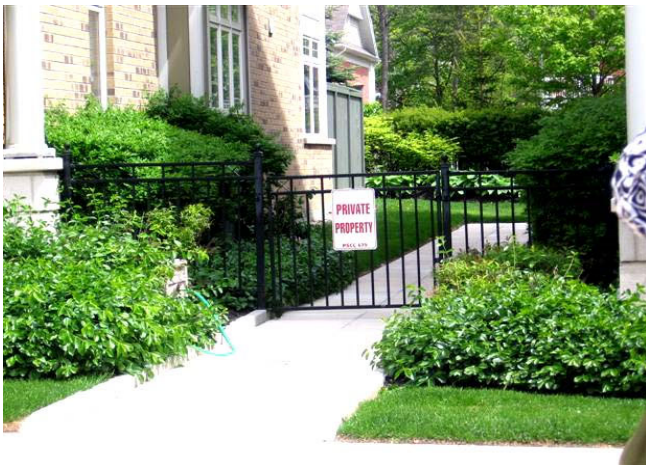
Figure 3.4.3 A gate defines public & private property

Figure 3.4.4 A defined bike storage area with clear visibility from parking lot & pedestrian walkway

4

Space Assessment

Space Assessment

CPTED principles provide guidelines on how to build and/or improve the physical environment to meet the needs of bonafide users. The purpose of space assessment is to analyze the space to match the intended human function with a space that support it.

A space assessment may be determined by answering a series of questions pertaining to the designation and design of the space. Commonly referred to as the three D's (Designation, Definition, Design), the answers can be used to guide the decision and recommendations for CPTED Audit Report.

Figure 4.0.1 Before—Mississauga Valley Community Centre with sunken entranceway which results in poor visibility

Figure 4.0.2 After—Redeveloped Mississauga Valley Community Centre with flush entrance & open views

The 3Ds of space Assessment

Designation	Definition	Design
What is the designated purpose of the space? What was it originally intended for?	How is the space defined? Where are its borders? Are there social or cultural definitions that affect how that space is used? Are legal or administrative rules clearly set-out and reinforced in policy? Are there signs?	What physical design will best support the intended use of the space? What physical design will best provide the means to influence human behaviour?

Figure 4.0.3 Before—Hidden entranceways due to the location of signage, landscaping & walls with obstructed views

Figure 4.0.4 After—A redeveloped consolidated single entrance increases natural surveillance & access control

4.1 Designation

Issues	Design Guidelines
How well does the space support its intended use?	**Assign space according to its ability to support an intended function.** The purpose of this guideline is to match the intended function with natural surveillance, natural access control and territorial reinforcement with a space that can support them.
Is there conflict?	**Use natural barriers such as terrain or distance to physically separate conflicting activities.** The purpose of this guideline is to reduce fear "that producing conflict" by effectively separating conflicting activities. Effective barriers to conflicting activities include distance, terrain and activities that can be described as neutral or complementary. An example of a conflicting activity is a basketball court next to a senior's centre.

Figure 4.1.1 Defined active public space with clear view corridors throughout

Figure 4.1.2 The patio enclosure provides definition & access control

4.2 Definition

Issues	Design Guidelines
Is it clear who owns the space?	**Provide clear border definitions of controlled space.** The origin of this guideline can be found in the common law requirement that space be defined to preserve property right. The underlying principle is that a 'reasonable person' must be able to recognize that he or she is moving from public to private space. Fences, certain types of vegetation and/or signs are examples of acceptable border definition. Border definition can be physical, symbolic or literal.

Figure 4.2.1 Columns & canopy provide spatial definition to the lobby entrance

Figure 4.2.2 Landscaping provides spatial definition between private & semi-private spaces

4.2   Definition Continued

Issues	Design Guidelines
Is there conflict or confusion between the designated purpose of the space and its definition?	**Provide clearly marked transitional zones that indicate movement from public to semi-public to private spaces** The importance of this guideline is that the intended uses of a property must be made to acknowledge movement of people and/or vehicles into a controlled space. The rationale behind this is that as transitional definition increases, the range of excuses for improper behaviour is reduced.

Figure 4.2.3 A well designed pedestrian promenade invites the public to walk, view & interact along the waterfront

Figure 4.2.4 Landscaping & feature design elements provide natural barriers between pedestrian & vehicular circulation

4.3 Design

Issues	Design Guidelines
Does the physical design match its intended use?	**Ensure that physical space is designed in the context of the needs of the bonafide users of the space** The purpose of this guideline is to properly match a space's physical design with its intended use. This can best be accomplished by matching the physical design of the space with the physical, social and psychological needs of the space's intended users.

Figure 4.3.1 Before — A pergola & recessed entrance at the Malton Community Centre limits natural surveillance opportunities

Figure 4.3.2 After—The removal of pergola & bringing the entranceway forward increases visibility from the parking lot & street

Issues	Design Guidelines
Does the physical design impede or conflict with the productive use of space?	**Design and organize space to allow for its effective use and safe critical intensity of people** It has generally been found that the effective and productive use of space will generate safe and critical intensity of people which will result in 'normal users' feeling and experiencing reduced risk due to an increase of surveillance and intervention opportunities.
Does the physical design impede or conflict with the proper functioning of the intended human activity?	**Identify vulnerable areas including those with limited natural surveillance, natural access control and territoriality in order to reduce their risks by improving the distribution of safe activities** This guideline is to be used to strategically distribute 'safe' activity areas so that a critical intensity of people and activity are maintained. The resulting benefit is an enhanced feeling of safety for 'normal users' and a sense of risk amongst most 'abnormal users'.

Figure 4.3.3 Before—The area under the bridge is vulnerable to graffiti; After—Murals create a sense of ownership to the space

Figure 4.3.4 Before—Smooth blank surfaces in isolated areas are prone to graffiti; After—Murals reduce graffiti opportunities

Issues	Design Guidelines
Does the physical design provide the means for normal users to naturally influence the activities of others?	**Design space to increase the perception or reality of natural surveillance, natural access control and territoriality** The purpose of this guideline is to emphasize 'user friendly' natural forms of surveillance and access control such as windows, clear sightlines and spatial definition. The reason for this emphasis is to minimize the constraint on the routine use and enjoyment of the property as is often the case when traditional forms of target hardening are used.
Is there conflict or confusion in the manner in which the physical design is intended to influence human behaviour?	**Identify vulnerable activities such as cash handling and child care centres and then reduce their risks by placing them inside areas of strong natural surveillance, natural access control and territoriality** The purpose of this guideline is to proactively distribute vulnerable activities in the safest possible places. The positioning of vulnerable activities near windows of occupied space or within tightly controlled areas will help to overcome risk and make the users of these areas feel safer.

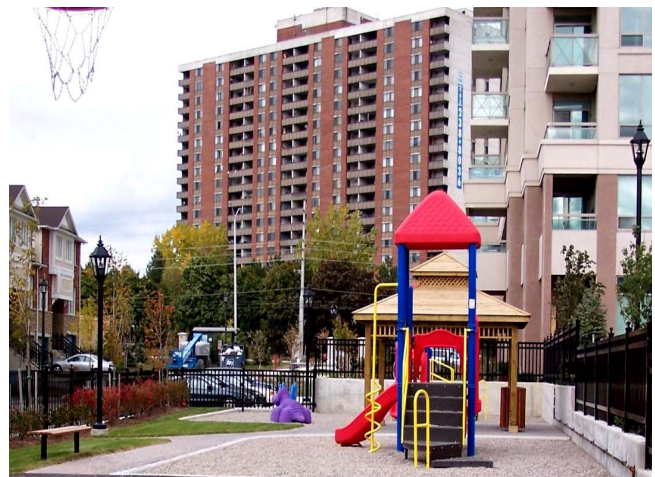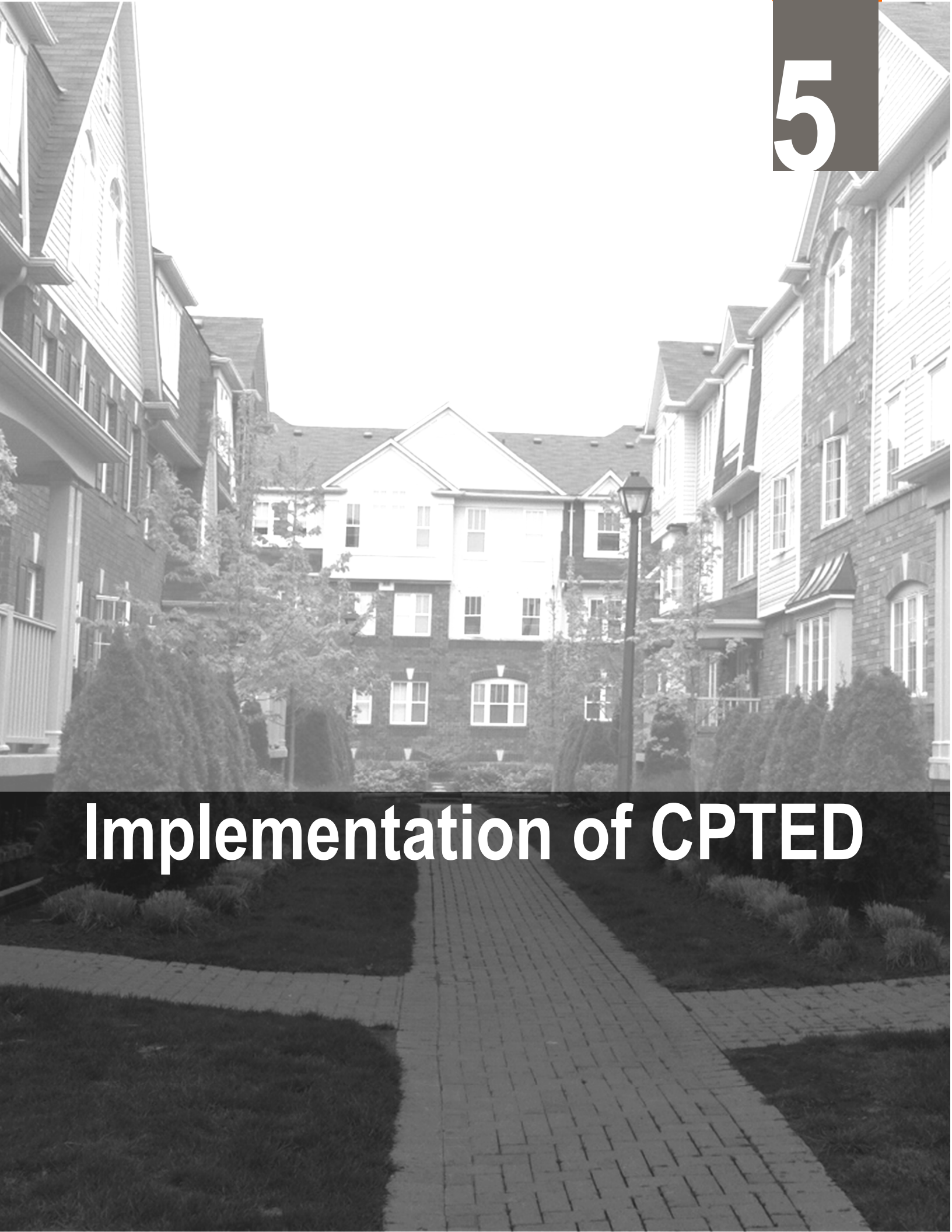**Figure 4.3.5** Clear views from the train platform to the well-lit bus stop promotes a safe environment

Figure 4.3.6 Natural surveillance to the playground is provided by the surrounding residential dwellings

5

Implementation of CPTED

Implementation of CPTED

5.1 Strategic Plan

In 2009, the City of Mississauga adopted a new Strategic Plan that contains a number of goals including **Maintain a Safe City** – to actively maintain Mississauga as the safest large city in Canada.

5.2 CPTED and the Planning Process

The City of Mississauga has implemented CPTED into the planning process of development application review and approvals in the following ways:

- The adoption of CPTED principles into the Mississauga's Official Plan and Design Guidelines;
- Reviewing all plan of subdivisions, site and landscape plans, Official Plan Amendment and rezoning applications from a CPTED perspective;
- Landscape Architects, Urban Designers and Planners of the Planning and Building Department have had CPTED training in order to conduct the CPTED review of development applications.

Figure 5.2.1 Natural surveillance from open patio & inside space

Figure 5.2.2 Residents' eyes on the street & park beyond

5.3   CPTED and New City Facilities and Parks

In January 2000, the City of Mississauga approved the following resolutions:

- That the CPTED principles be incorporated in all phases of the design, review and approval for all new City Building Projects and City Park Development Projects;
- That the teams of design professionals undertaking any new City Building Project and City Park Development Project for the City of Mississauga be required to have knowledge of and apply CPTED principles, and that this requirement be identified in each project's Terms of Reference.
- Furthermore, the Landscape Architects of the Community Services Department and the Project Managers and security staff of the new Corporate Services Department have had CPTED training in order to have CPTED implemented into their building and park projects.

5.4   CPTED Audits for City Facilities

In January 2000, the City of Mississauga approved the following resolution:

- That the Peel Regional Police, the Mississauga CPTED Advisory Committee and the Community Services Department work jointly to coordinate and administer regular CPTED audits and provide appropriate CPTED action plans for all City facilities, every three years.

During the following years, a majority of the City facilities were renovated through the Federal Infrastructure Funding Program. Many CPTED recommendations from the CPTED Audit Task Force were incorporated into these renovations. CPTED Audits are now conducted on as needs basis.

5.5 The Mississauga CPTED Advisory Committee

The Mississauga CPTED Advisory committee was formed in 1996 under the direction of the City's Planning and Building Department. Its mandate is to create a sense of safe community for the citizens of Mississauga by utilizing CPTED principles in order to reduce the fear and incidence of crime as well as improve the quality of life for all residents.

The Mississauga CPTED Advisory Committee reviews plans for all new and redeveloped city facilities and parks. The committee reviews private development applications upon the request of the planning and building department; committee members are encouraged to bring forward any CPTED issue or concern they have to the CPTED meeting.

The Mississauga CPTED Advisory Committee includes representatives from:

- Peel Regional Police
- Safe City Mississauga
- Planning and Building Department
- Community Services Department
  - Planning and Heritage Section
  - Park Development Section
  - Parks Section
- Corporate Services Department
  - Facilities Planning and Development Section
  - Security Section
- Transportation and Works Department
  - Development and Engineering Division
  - Enforcement Division

CPTED
The Mississauga
CPTED Advisory
Committee

Glossary

Glossary

Abnormal User:
Person whom you do not desire to be in a certain space.

Crime:
An act or commission of an act that is forbidden or the omission of a duty that is commanded by a public law and that makes the offender liable to punishment by that law.
Crime can be divided into four main categories:

- Reported
- Unreported
- Unacknowledged (store shrinkage)
- Undetected

The majority of crime is represented by the last three categories. For CPTED purposes, crime is simply the by-product of a human function that is not working properly.

Crime Prevention:
The anticipation, recognition and appraisal of a crime risk and the initiation of some action to remove or reduce it. For crime prevention to work, it must effectively remove or reduce one (or more) of the three essential components found in the 'crime triangle'.

- Criminal Desire
- Opportunity
- Victim
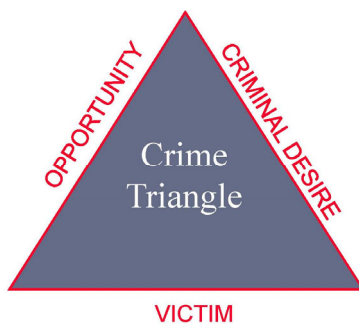
By removing or effectively reducing any one of these components, you can effectively prevent crime.

Defensible Space:
A term used to describe a residential environment whose physical characteristics (building layout and site plan) function to allow inhabitants themselves to become key agents in ensuring their own security.

Design:
A term which, within the CPTED context, encompasses people and their physical and social surroundings.

Environmental Design:
A term which, within the CPTED context, is rooted in the design of the man/environment relation.

Natural:
A term which refers to deriving access control and surveillance as a by-product of the normal and routine use of the environment.

Normal User:
 Persons whom you desire to be in a certain space.

Safe Activity:
A target neutral activity that results in increased natural surveillance.

Spatial Definition:
A natural form of access control that relies on space to control access to the property.

Graffiti:
The name for images or lettering scratched, scrawled, painted or marked in any manner on the property. Defacing property without the property owner's consent is considered vandalism, which is punishable by law.

Vandalism:
The wilful damaging or defacing of property belonging to another person or to the public.

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CPTED Ontario http://www.cptedontario.ca

Designing Out Crime Association http://www.doca.org.uk

Florida CPTED Network www.flcpted.org

United States Designing Out Crime Association www.us-doca.com