Safe Growth and CPTED in Saskatoon

Crime Prevention Through Environmental Design Guidelines:
An Illustrated Guide to Safer Development in Our Community

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"Research regarding crime prevention through environmental design is over 30 years old. The preponderance of supportive data makes it abundantly clear — design matters."

▶▶ CHAPTER 1.0
SAFEGROWTH AND CPTED

1.1 Using this Guidebook

This Guidebook provides site-planning design advice for seven major categories of urban development commonly found throughout Saskatoon:

1. multiple unit residential;
2. public places;
3. commercial / suburban commercial / power centres / town centres;
4. institutional;
5. public parks, recreational areas, and playgrounds,
6. surface parking;
7. walkways/linear parks.

While this Guidebook does not focus on architectural or security hardware used in construction, such as window styles or types of closed circuit television (CCTV), it does provide guidelines for two important forms of design specifically related to Crime Prevention Through Environmental Design (CPTED):

1. lighting; and
2. landscaping.

Therefore, this Guidebook offers a set of guiding principles for use in site and development planning. It is important to realize that no single design method will stop all forms of crime. That is why this Guidebook is not intended as a CPTED checklist. Instead, the guidelines provide design choices. In combination with a risk assessment of potential problems at a particular place, they are choices that will help create a safer Saskatoon in the years to come.

1.2 Assessing Risk

A crime risk assessment will help determine which crime-prevention strategies make sense and which do not in a particular development situation. An analysis of soil conditions is needed whenever major excavation precedes a development project. The same is true of design as it relates to crime and the fear of crime.

Saskatoon has many publications that will assist you in assessing risk. Many of these resources are available on the City of Saskatoon's website at saskatoon.ca under "P" for Planning and Development Branch, and a select number are available in hard copy from City Hall. Some examples of the resources that are available are:

- Local Area Plans for selected neighbourhoods;
- Neighbourhood Safety Reports for selected neighbourhoods;
- Neighbourhood Profiles for all neighbourhoods as well as the city as a whole; and
- A wealth of information from Statistics Canada.

Some of the information relevant to risk assessments will already be collected and available within these documents. It will be necessary to supplement that information with a more detailed look at the crime and safety conditions at each specific site. The various methods of risk assessment are listed in the City of Saskatoon Administrative Policy A09-034 - Crime Prevention Through Environmental Design Review, available from the City of Saskatoon.

Risk Assessments combine scientific field research and analytical methods with the practical experience of crime prevention practitioners and the perception of community members; a combination of quantitative (statistical) and qualitative (perception) approaches. In a Risk Assessment, a wide variety of qualitative and quantitative data is collected and considered in order to formulate an accurate portrayal of issues. This in turn allows for a much more effective solution or action plan to be developed. A Risk Assessment is critical to the success of a CPTED strategy because, in addition to "obvious" problems, there are often less obvious or underlying problems that need to be identified and addressed.

Collected data such as crime statistics, resident surveys, user surveys, and population demographics are all part of the quantitative picture. This information aids in understanding the context around the issue and the opportunities for crime. The other part of the picture, the qualitative element, deals with the perceptions that people have about their safety. Safety Audits, perception and intercept surveys (of actual users), and site inspections all add to the understanding of what environmental cues the area is presenting and how these affect people's "feelings" of safety.

1.3 Reducing Crime and Fear

Crime and fear of crime emerge for complicated social, cultural, and economic reasons. Criminological research reinforces an obvious equation: crime cannot happen without the intersection of an offender, a victim, and a place. It is helpful to realize that removing or modifying one of these elements will reduce the opportunity for crime. These CPTED design guidelines address primarily the 'place' element of that equation, but also the other elements as well. These guidelines comprise an important element for creating a safer city.

In Saskatoon, planning and design are an integral part of broader community-based initiatives to create greater social cohesion and the kind of community pride that contributes to safer places. These guidelines will help developers and design professionals contribute their part to creating safer places using the most current strategies and principles of crime prevention through environmental design and the larger program called Safe Growth.

1.4 The Role of Planning and Design

It is important to reiterate a basic premise of safety and crime prevention: No amount of design or social programming will ensure, with 100 percent certainty, that crime will not occur. The criminal justice system today does not do that. Further, no society is without crime. However, that does not mean nothing works and it does not mean that crime is to be tolerated. In fact, there are good grounds for optimism. That is the reason for creating these design guidelines.

Good policy and attention to community development lead to some very positive outcomes. This Guidebook provides a set of design guidelines for developers, builders, planners and designers as part of the City of Saskatoon's commitment to creating safer places.

1.5 Safer Saskatoon

It is important to realize that any design guidelines must be accompanied by sound social programming and proper management methods. CPTED guidelines will work much better if a building, parking lot, school, or sporting facility is properly programmed and managed.

Though scientific research does not yet specify the exact mechanisms, there is no doubt that social and economic environments are a major factor in terms of motives for crime. We may have limited influence on the national unemployment level, but we can have an impact on social and economic conditions in a specific place – for example, if we create a positive climate for businesses within a particular neighbourhood or if we provide daycare facilities near housing. That sort of neighbourhood focus is crucial for safe development into the future.

To facilitate these positive changes, the Guidelines include not only physical design guidelines, but also make suggestions for social activities and the management of space. Combining these approaches in a holistic fashion, and employing a neighbourhood focus, is the definition of SafeGrowth.

1.6 CPTED History

Crime prevention through environmental design (CPTED) has been around for four decades. It began with Jane Jacobs' famous book The Death and Life of Great American Cities in 1961, and was expanded by criminologist C. Ray Jeffery in Crime Prevention Through Environmental Design (1971) and architect Oscar Newman's Defensible Space (1972). The basic idea is that the planning and design of our communities has a significant impact on the opportunity for crime to occur and fear of crime.

This early work is called basic 1st Generation CPTED and it is characterized by attempts to get local citizens to take formal or informal ownership of the places where they work, live, and play – what is known in CPTED as territoriality. Territoriality includes good sightlines and night-time lighting, clearly defined entranceways and exits and improved management and maintenance of places.

Throughout the 1980s, research by planners, designers, and criminologists expanded on this work. Advanced 1st Generation CPTED now includes urban-design considerations on a much larger scale – land use, how crime is displaced, urban features and places that might

generate crime opportunities, creating positive activities in certain places, and paying careful attention to how people move from one place to another along stairways, walkways, and paths.

In the 1990s, CPTED expanded the emphasis from physical places and crime opportunity into the neighbourhood social conditions that create some of the motives to engage in crime in the first place. This is called 2nd Generation CPTED and it includes strategies to enhance social cohesion. These strategies may include techniques to connect people to surrounding neighbourhoods and groups; sustaining a careful balance of activities, housing, or business types; and providing opportunities for the cultural growth of neighbourhoods, what is often called placemaking.

The City of Saskatoon has adopted and is applying all of the above strategies, where appropriate, to ensure a process of safe growth in the city. The city has embedded safety as a fundamental value within the Official Community Plan (OCP) and identified the following principles of CPTED as the tools to achieve it.

The City of Saskatoon also requires that these principles be applied to most civic structures, facilities and developments.

1.7 CPTED Principles

The City of Saskatoon has adopted a policy to encourage CPTED. This policy includes the 14 principles below. This guidebook references all 14 principles throughout, however not every principle applies to each land-use category equally. As a result, some principles are highlighted in one category but not another, depending on the relevance and potential impact of that principle.

The following definitions are expanded versions of the definitions found in Saskatoon's Official Community Plan.

1. **Territoriality** is the concept of creating and fostering places that are adopted by the legitimate users of the space (i.e. they take ownership), making it less likely for people who do not belong to engage in criminal or nuisance behaviour at that location. This can be achieved by clearly marking public, private, and semi-public areas through landscaping. It can be achieved through signage, by having residents

beautify an area with their own street art, or by restaurant owners extending their eating areas onto streets with tables and chairs. There are many ways to accomplish territoriality, as indicated by the design principles below.

2. **Natural Surveillance** is the concept of putting "eyes on the street," making a place unattractive for offenders who wish to commit crime with impunity. Creating clear sightlines through street design, landscaping, lighting, and site design (i.e. neighbourhood layout) optimizes the potential for natural surveillance. Note that this is different from organized surveillance (security patrols) and mechanical surveillance (closed circuit television), which may ultimately be required in some places, however, ideally natural surveillance should make them unnecessary.

3. **Access Control** refers to controlling who goes in and out of a neighbourhood, park, building, and other places. Access control includes focusing on formal and informal entry and exit points in buildings or parking areas (fencing, access gates) and signifying entranceways to parks and neighbourhoods (hedging and other types of landscaping or design).

4. **Image** refers to the appearance of a place and how this is instrumental in creating a sense of place or territoriality for legitimate users of the space. A place that does not appear to be maintained or cared for may indicate to criminals that property owners and legitimate users of that place tolerate criminal activity. Regular clean-ups, graffiti vandalism removal, and litter pickup are a few ways to enhance image.

5. **Conflicting User Groups** refers to instances where different user groups may conflict (e.g. a school near industrial development or a seniors' centre near a nightclub). Careful consideration and a risk assessment of compatible land uses during the planning and siting of facilities will minimize potential conflicts between groups before they become a problem.

6. **Activity Support** is the concept of filling an area with legitimate users (by facilitating and scheduling activities or events like sporting events, street music festivals, or sales kiosks) to

decrease opportunities of offending with impunity. Places and facilities that are underused can become locations with the potential for criminal activity.

7. **Crime Generators** are areas that may generate activities that facilitate crime. For example, 24- hour convenience or liquor stores are legitimate commercial activities. They are not problems in themselves, but their location in the community may cause conflict or unforeseen secondary activity such as late night loitering and may become ideal places for evening robberies.

8. **Land Use Mix** is the concept that diversity in land uses can contribute to or detract from crime opportunities. Totally separating land uses (e.g. residential and commercial) from each other can create places that are unused during certain times of the day. However, careful transition between some land uses is critical to ensuring an activity does not increase the opportunities for crime to occur or reduce users' and residents' perceptions of their safety in the area. Careful consideration of land uses within a development but also of the surrounding land uses will reduce the opportunity for crime to occur and increase feelings of safety in the area.

9. **Movement Predictors** direct people, especially pedestrians and cyclists, along a particular route or path. In some cases, they do this without providing obvious alternative escape routes or strategies for safety, as in a pedestrian tunnel or overpass. In other cases, they merely direct people in a certain direction, what designers called wayfinding. It is important to carefully design and situate movement predictors so as not to provide potential attackers with places to lie in wait for people on a certain path.

10. **Displacement** in the CPTED context refers to the movement of crime in time or space and what the impact may be. Displacement includes negative displacement (crime movement makes things worse), diffusion of benefits (displacement can reduce the impact of crimes more widely than expected), and positive displacement (opportunities for crime are intentionally displaced which minimizes the impact of the crime).

11. **Cohesion** is the supportive relationships and interactions between all users of a place to support and maintain a sense of safety. Though not a specific urban design function, design can enhance the opportunity for positive social cohesion by providing well-designed and carefully located spaces where this can occur, such as activity rooms, park gazebos, or multi-purpose rooms in schools and community centres. In some cases property owners or building managers can provide opportunities for social programming. This will increase the ability of local residents or users of a space to positively address issues as they arise.

12. **Connectivity** refers to the social and physical relationships external to the site itself. It recognizes that any given place should not operate in isolation from surrounding neighbourhoods and instead appreciate its relationship to the whole city. Areas that isolate themselves often result in the Not-In-My-Backyard syndrome. Physical features that help accomplish this are walkways and roadways connecting a particular land use to the surrounding neighbourhoods or features such as centrally located community centres or program offices that provide services to a wider community.

13. **Capacity** is the ability for any given space or neighbourhood to support its intended use. For example, excessive numbers of similar land uses in too small an area, such as abandoned buildings or bars, can create opportunities for crime. Capacity refers to a balance of uses with a full range of services for local residents to allow them to shop, enjoy recreational activities, and live in the same geographical area. This is not only good environmental sense as it cuts down on long-distance auto travel, it also makes a neighbour-hood more interesting and therefore increas-es the likelihood local residents will be proud to live there.

14. **Culture** refers to the overall cultural expression of a place. Also known as "placemaking," this process involves artistic, musical, sports, or other local cultural events designed to bring people together and enhance social cohesion. Physical designs that can encourage this include public multi-purpose facilities, buildings and expressions of faith, sports facilities, and areas that local artists and musicians

might use. Community memorials, public murals, neighbourhood branding, and other cultural features also enhance this. Pre-existing cultural features that create a distinct identity for a place can be used to determine the design principles and policies that best support the cohesiveness and well-being of all groups living and working there.

1.8 Importance of interdisciplinary teams in the review process

Isolated approaches are rarely as effective as multifaceted approaches in reducing crime. For that reason, the City of Saskatoon administrative policy requires an interdisciplinary approach to design in relation to safety and crime and the application of the principles of CPTED.

One example is the CPTED Review Committee. This is a committee of CPTED and SafeGrowth trained staff who work together to ensure CPTED is part of identified civic projects in the city. The committee is comprised of representatives from Planning and Development, Community Development, Urban Design, Saskatoon Police Service, Fire and Protective Services, Saskatoon Light and Power, Parks, and Transportation.

In situations where the CPTED Review Committee does not apply a CPTED review, developers and builders should still employ the principles of CPTED and SafeGrowth. That is the main reason for this guidebook. It provides developers and designers the basic principles to apply to their architectural renderings and site plans.

Designers are encouraged at every step to include local residents, shop owners, managers, local youth, and others who will use a particular space to actively contribute to its design. Architectural design charrettes or workshops are one strategy that will help this occur.

It should be noted that some of the principles of CPTED may conflict with each other in a particular case or development. A decision must then be made to determine which principle will result in the greatest positive impact and the least negative impact over the life of the project.

Research regarding crime prevention through environmental design is over 30 years old. The preponderance of supportive data makes it abundantly clear that design matters. The references at the end of this guidebook will help you find additional information.

"Multi-unit residential developments can be an affordable and safe housing choice if designed to reduce the opportunity for crime to occur, increase owners or renters feelings of safety, and connect to the community around it."

▶▶ CHAPTER 2.0
MULTI-UNIT RESIDENTIAL

Multi-unit residential refers to townhomes, various plex designs (duplex, fourplex, etc), apartment buildings, and other multi-unit designs.

1. Territoriality

1.1 Risk assessments

A thorough crime and safety risk assessment should accompany prospective multi-unit residential developments in order to enhance overall safety. This is especially the case for large residential projects.

1.2 General territoriality

In the past, some multi-unit residential housing have suffered from poor design or from designs that set it apart from surrounding homes. This can stigmatize those who live in the property and set them apart from the surrounding neighbourhood. Residents often resent architectural designs that are radically different from the surrounding community.

Designers should ensure architectural style, choice of materials, and colours are sensitive to the other styles in the neighbourhood.

> **1.2 Application – Design for neighbourhood fit**
>
> There are a number of design elements that help a building fit into the surrounding neighbourhood. These include colour, massing, shape, and architectural style.

Colour, shape, massing, and architectural style are features that help multi-unit residential housing fit in to the surrounding neighbourhood.

An additional view of a multi-unit residential site that fits with the surrounding area.

1.3 Clearly differentiate spaces based on intended use

This requires that the intended use of the area be clearly defined with appropriate borders as necessary. The physical layout of the space should match its intended function and it should also be evident which activities are appropriate to the space and where. A lack of clarity here is confusing to users and can encourage illegitimate activities.

A children's playground is demarcated by a walkway and a small, raised edge. Beyond is a sports field for teenagers.

> **1.3 Application – Children's play areas**
>
> Children should be able to move around a play area safely. Design informal play areas within a housing site and within calling distance from nearby homes.

When designing play areas, differentiate spaces suited to different age groups and eliminate areas that provide opportunities for bullying between the age groups.

1.4 Specific territoriality – Signage

Create abundant and clear signage with a community name, site maps with dwelling numbers, and phone numbers for emergencies. The signage should greet visitors with a distinctive logo or title and let them know this community belongs to the residents. Obviously, if it is possible, choice of the name and logo is best decided by the residents themselves.

1.5 Specific territoriality – Dwelling numbers

Locate large, well-marked and well-lit dwelling numbers throughout the property. In some cases this can be done on the pavement, but numbers should appear on the building or doors as well to prevent them being covered by winter snow.

2. Natural Surveillance

2.1 Sightlines – Common areas and nearby activity generators

Careful consideration must be given to providing adequate sightlines from windows of units into high risk areas or special areas that need attention, for example, activity generators like children's playgrounds, post boxes, laundry rooms, or interior foyers. This means architectural designs should provide sightlines into those common areas from close enough that natural surveillance is meaningful (less than 75 metres). If distances between the windows and the common areas are larger there will be little impact from natural surveillance. Where sightlines are important, shrubs should be kept low and trees should crown about head height to keep the viewing pane open.

> **2.1 Application – Sightlines beyond 75 metres**
>
> Providing sightlines alone when locating windows is insufficient. Too large a distance (beyond 75 metres) will make it difficult for residents to see anything and unlikely they will take action if necessary. In addition, if there are other land uses between the windows and the place to be observed, for example a parking lot between windows and a children's playground, it will distract viewers and impede natural surveillance.

Multi-unit housing windows face a playground, but a parking lot lies between, and the distance to the playground is far beyond 75 metres, further neutralizing natural surveillance opportunities.

Windows from homes face a playground across a street, however in this case the distance is fairly close and it provides easy sightlines.

2.2 Sightlines – Parking lots

The landscape designs of parking areas, augmented by appropriate and adequate lighting, can facilitate sightlines and reduce the opportunities for criminal activity.

2.2 Application – Cluster parking

The tendency to create large parking lots for multi-unit housing allows for unsupervised spaces where thieves will target their crimes. These crimes can be reduced by clustering parking into smaller areas near natural surveillance opportunities.

Car-theft opportunities are reduced by locating small numbers of clustered parking spots with ample natural surveillance from owners' units.

2.3 Landscaping

In general, the principles of good landscaping described in Chapter 10 apply to landscaping in multi-unit housing. A variety of landscaping types and designs are applicable, depending on the risk assessment of the area.

2.3 Application – Hangout spaces

Design 'hangout' places where young people can socialize without adult interference but where natural surveillance can provide a basic level of intermittent supervision. Natural surveillance is achieved by trimming landscaping, providing adequate lighting, and locating legitimate activities nearby.

Common area offers some separation while still open to supervision by surrounding housing.

2.4 General lighting

In general, the principles of good lighting described in Chapter 9 apply to lighting in residential multiple unit housing. A combination of sodium, halide, and fluorescent lighting can all be used, depending on the risk assessment of that particular housing type.

2.5 Specific lighting – Street lighting

Street lighting within multi-unit residential properties is not only for vehicles. Many roadways and parking spaces within these properties are narrow and not meant for public use, and also function as pedestrian walkways. Even when walkways are provided, young people and residents from the property use the internal roadways for walking. Therefore, lighting design should ensure that there are adequate and even light levels across interior roadways and parking areas.

CHAPTER 2.0 – MULTI-UNIT RESIDENTIAL

2.6 Specific lighting – Glare and pollution

Because residences and walkway/roadways are so close together in this type of residential development, the proper design of lighting systems to avoid both glare and light pollution into residential units is critical. Two important risk assessment questions are: Can residents clearly see outside their doors and windows, particularly at night, into areas that may concern them? Does lighting spill into the living areas of the residential units?

> **2.6 Application – Porch lights**
>
> In multi-unit housing it is difficult to get residents to turn on their porch lights, especially if residents pay their own utility bills. One solution to this is to have common area spaces wired together so there is group lamping. Management or property owners can then take responsibility for turning on the lights, and now the front porches have become part of the common area space.

While residents might not like the light on, it does accomplish some important CPTED goals: the uniform lighting level illuminates all entrances equally and does not advertise who is home, and who is not, to a potential burglar.

3. Access Control

3.1 Access to dwellings

Most building codes require sturdy doors and deadbolt locks, however it is worthwhile to reiterate these are the last line of defense against break-ins. All new multi-unit construction should include them.

3.2 Access to porches and decks

Access to porches and decks is a special consideration, as this is where many burglars choose to break into homes. Designs should not to obstruct sightlines on properties so burglars cannot gain unobserved access to these areas.

3.3 Secure sliding glass doors

Sliding glass doors on decks and porches are notoriously easy to jar open. A secure locking mechanism and track-blocking mechanisms should be supplied.

3.4 Access to service areas, bike storage, general storage

Storage areas are frequently an afterthought in multi-unit designs. These areas are among the most commonly vandalized since that is where valuable property is stored. Designs should mitigate these risks with secure doors, locks, and lights. As well, natural surveillance of these areas will be useful to deter potential thieves.

> **3.4 Application – CCTV (Closed Circuit Television)**
>
> In cases where design cannot mitigate risks it may be necessary to install CCTV security cameras. Monitoring the image is very effective if it is made directly available to the owner of the property under surveillance. Owners can then follow an established protocol to contact security or police if they view someone breaking into the storage area.

Storage area in multi-unit housing that would benefit from better siting or CCTV.

3.5 Key control

If the multi-unit residence uses key controls, it is important that management and property owners keep careful account of key to units. Residents should be advised that missing or mishandled keys frequently allow burglars to gain entry to homes.

4. Image

4.1 Colour and visual complexity.

Architecture that coordinates colours throughout the site, such as on walls, doors, and fixtures, and the appropriate lighting to go with those colours, makes a place appealing to residents and visitors. Similarly, design with complex visual details, such as materials and trim, or different shaped windows and facades, looks as though design details matter to the property owner.

4.1 Application – Visual complexity

Visual complexity in design, teritorial fencing, and other site details can help bring a sense of pride and aesthetic appeal to a multi-unit residential development.

Good design adds value to a housing development.

4.2 Maintenance and management

Every multi-unit site must have a clear and well-published policy in regard to management and maintenance. Of the many aspects that contribute to safety in multi-unit residences, this is one of the most important.

Whoever is responsible for the clean-up, repair, and management, must focus on these duties on a regular and timely basis. If lights are out, residents must know who to contact and how to get them repaired. When litter or graffiti vandalism appear, this must be dealt with immediately. Disrepair and poor management are sure signs of impending problems.

5. Conflicting User Groups

5.1 Perceptions of safety

When different people walk through the site, for example adolescents, the elderly, or single women, it is important to ensure they do not have to "run the gauntlet" through an area dominated by others, or other land uses, with whom or with which they may be uncomfortable.

This scenerio may be prevented by extensive use of the CPTED principles of Cohesion, Connectivety, and Capacity. For example, if there is wide-spread social programming on the site and if the multi-unit dwellers are a cohesive group and know each other very well, this may serve to mitigate feeling of isolation and vulnerability. Housing complexes that have active tenant associations, block parties, or other social activities support the social connections within the complex and to the complex.

5.1 Application

These feelings of isolation and discomfort occur when movement predictors force people through areas where they may fear risks to themselves.

Pedestrians in this lane are forced past numerous entrapment spots and dark areas along the sides creating a gauntlet they must walk in order to get to their destination.

6. Activity Support

6.1 Supporting activities

Design can often be enhanced by providing activities that support natural uses. A barbeque area adjacent to a toddlers play area allows parents to barbeque during summer evenings while watching their children at play. These activities also increase the opportunities for connecting with others as well as keeping an eye on the surrounding property.

> **6.1 Application**
>
> By involving young people and children in the design and construction of recreation areas for their use they are more likely to use them. In one case, a landscape architect had skateboarders design their own skatepark on a 3-D model, which the architect then constructed. Not surprisingly, it was one of the most popular skateboard parks in the city.

6.2 Bicycle stands

Bicycle stands can be placed in certain semi-private areas to get residents to informally socialize during the day. These areas should be well lit and in plain view for natural surveillance. Stands should include new anti-theft designs beyond simple rails.

7. Land Use Mix

7.1 Locate within walking distance to other facilities

The initial decision of where to locate multi-unit residences has lasting consequences. Locations far from shopping and other recreational services mean residents spend more time in their cars, and less where they actually live. This will reduce the number of people on the site, thereby making it more difficult to activate other CPTED strategies, such as natural surveillance (no one present to see anything) and activity support (fewer people on site to participate in the activities).

Convenience stores, food stores, and other amenities within a short walking distance will help neighbours enjoy their own property more, get them out of their cars walking more often, and allow them to interact with each other more frequently.

A dentist and doctor's office fill the main floor of this multi-unit residential development.

Mixed use residential complex.

7.2 Differentiate play areas for children and teens

Recreational and playground areas should be carefully designated for different play groups. The needs of young toddlers are significantly different than for older children and teens. They should have different areas of the property for their own.

7.3 Differentiate activity areas for teens

One of the most demanding groups in multi-unit residential is teenagers. It is important to provide spaces to meet the needs of different teenagers. For example, entertainment spaces (common television room or group study area for students), games rooms, or an informal hangout area satisfy very different types of teens.

8. Movement Predictors

8.1 Compatible uses

Pedestrian walkways and sidewalks within the property should be compatible with other security measures.

> **8.1 Application – Walkways**
>
> For example, locating walkways adjacent to storage area doors means that residents will walk by vulnerable property and provide informal surveillance.

Multi-unit walkways can enhance movement around a property and add to overall aesthetics.

8.2 Pedestrian circulation patterns

Pedestrian walkways and sidewalks should be designed so that residents have opportunities to informally meet and talk. For example, if there are common post boxes the walkways should lead from units to these boxes so residents can greet each other when they collect their mail each day.

9. Cohesion

9.1 Programming social spaces

As mentioned above, social and cultural programming can help ensure residents know one another and spend positive time together at social events. Property developers may have little control over social programming, but provision should be made in site plans for recreation and community centres where these activities can take place.

> **9.1 Application – Social spaces**
>
> Cohesion among residents in multi-unit residential properties is greatly enhanced with a common area for community and recreational events.

The addition of a common area to a multi-unit residential development encourages cohesion, connectivity, and awareness within the development.

9.2 Enhance natural activities with design

Every neighbourhood has natural activities in which residents participate. These activities are opportunities for designers to maximize socializing. For example, some residents may be amateur gardeners so providing an area on site for a community garden is an excellent way to enhance this activity.

> **9.2 Application – Common post boxes**
>
> Common post boxes can be designed to encourage casual conversations among residents, so, for example, if the post boxes are outside, co-locating a community bulletin board, a covered shelter over the post boxes, and snow removal around the boxes in winter will support this additional activity. If the common post boxes are inside, co-locating them in or near a common area where social activities are scheduled increases residents' connections.

10. Capacity

10.1 Parking for residents and visitors

A common complaint in multi-unit residences is the lack of available parking which may force residents to park illegally on the site or on the street where they cannot keep an eye on their vehicle. Car vandalism is often a product of this problem.

Adequate parking should be carefully considered prior to development of any new multi-unit residence, and ideally, parking should be sited on or near the property.

10.2 Overall size

Each multi-unit residence will be designed for a specified number of units based on property size, economics, and zoning regulations. However, large projects tend to be more difficult to control using CPTED principles, as the level of complexity increases with size. It is much simpler to implement safe design and CPTED principles in projects of fewer than 30 or 40 units.

11. Culture

11.1 Provide artistic, cultural, heritage, and sporting facilities

Community cohesion is enhanced when residents of all ages can find useful and interesting activities in their neighbourhood. Artistic projects, such as indoor painting or music sessions for artists and musicians, show the importance of common areas. In addition, teenagers and children also require opportunities for cultural and sports activities. This might mean a tennis or basketball court, or more informal places for kids to be kids.

In residential areas, it is possible to design narrow streets, use traffic calming to slow vehicle speeds, and create abundant sightlines to allow children to play safely on the street, facilitating such traditional games as Canadian ball hockey during the Stanley Cup playoffs. Streets can provide natural sightlines from nearby houses. However, where it is possible, providing children with some nearby hard-surface areas for these purposes with natural surveillance creates a safer option and avoids conflicting uses between cars and children.

11.1 Application – Street hockey

Children like to participate in a variety of outdoor play. Hard-surface play is essential for motor-skill development but to encompass more activities, both grass or soft-surface areas and hard-surface areas are necessary for play. Leaving the hard-surface areas out of planning means children will search out paved streets.

Children need hard spaces to play street hockey and other games.

"Inviting and well designed publically accessible spaces are critical to the functioning of a city, or community, and the safety of its residents."

▶▶ CHAPTER 3.0
PUBLICALLY ACCESSIBLE SPACES

Publically accessible spaces are those areas within or perceived to be within the public realm. It includes downtown areas, City Hall square, sidewalks, public streets, as well as building foyers, entrances, or plazas, and the common areas in shopping malls. These areas may be public or they may be perceived to be public when, in fact, they are private property.

1. Territoriality

1.1 Risk assessments

A thorough crime and safety risk assessment should accompany the design of all large publically accessible spaces in order to enhance overall safety and design.

1.2 Differentiate spaces clearly so they are understandable

Clearly differentiate spaces based on the intended use. When intended use is unclear, it is confusing to users and this can encourage illegitimate activities. Differentiating space can mean, for example, that a downtown park has clear territorial marking separating it from a nearby parking lot.

Areas for walking, resting, and visiting.

1.2 Application – Differentiating public use areas

Sometimes differentiating use can be accomplished by consolidating related activities, for example, combining seating, community bulletin boards, litter containers, and bus stops at a single location.

Bench seating, a community bulletin board, and recycle/litter containers fit into this public rest area without impinging on the public sidewalk.

Spillover activities, for example from the park to the parking lot (baseball games in which balls hit parked cars), can create problems. Further, undifferentiated areas allow offenders to move freely from one space to another, for example car thieves walking unimpeded from a park into a parking lot to steal cars.

1.3 Dead spaces

Differentiating areas also avoids creating dead spaces. Publically accessible spaces that are isolated or without an assigned use can become entrapment areas or hangout areas that increase risks and fears for all users.

> **1.3 Applications**
>
> Publically accessible spaces must have designated uses and activities. Even downtown areas with ample pedestrian and vehicle traffic can become dead spaces if they fall into misuse or no use at all. The result is that unwanted or illicit activity, such as drug dealing, can be drawn to these dead spaces. The key is to design spaces carefully with attention to their designated use and to ensure the risk assessment informs the design.

This open plaza in British Columbia has only four planters with no other apparent designated uses in a large area. It has become a dead space attracting open-air drug dealing in recent years.

1.4 Specific territoriality – Signage

Publically accessible spaces should be clearly marked and numbered with signage. This not only allows emergency personnel to locate them in emergencies, but it helps the public find addresses and aids in wayfinding. Signage needs a name and address numbers. It is also useful to provide signs with phone numbers for emergencies or maintenance.

2. Natural Surveillance

2.1 Sightlines

Publically accessible spaces require adequate sightlines for natural surveillance. Placing street furniture in view of nearby windows can improve territoriality and natural surveillance. Landscaping must also take this into consideration with attention to overhead canopies, trimming plants and shrubs to allow good sight lines.

In winter conditions, snow can block sightlines by clogging chain-link fencing or piling up too high to see over. Design should ensure snow will not obstruct natural sightlines.

> **2.1 Application – Sightlines from nearby windows**
>
> Natural surveillance is enhanced by placing vulnerable items, such as street furniture, in plain sight of nearby, occupied windows.

The placement of vandal-resistant benches next to store windows affords natural surveillance of the public realm.

2.2 General lighting

The principles of good lighting described in Chapter 9.0 apply to lighting in public places. A combination of sodium, halide, and fluorescent lighting all have application, depending on the risk assessment of the space.

2.3 Specific lighting – Streetlighting

Lighting in public areas should not only provide for vehicles but for pedestrians as well. Sidewalks and walkways need to be well lit with even light levels.

2.4 Specific lighting – Motion detectors

Motion detector lights are a good way to protect specific areas, such as rear garages, access to property from the lane, or the back doors of commercial areas.

2.5 Landscaping

In general, the principles of good landscaping described in Chapter 10.0 apply to landscaping in public places. A wide combination of landscaping types and designs are applicable, depending on the risk assessment of that public space.

2.6 Closed Circuit Television (CCTV)

There is considerable debate regarding the usefulness of CCTV in publically accessible spaces. Research indicates it can be beneficial in some spaces, such as isolated parking lots, but less so in downtown areas where lighting, user activity, and good management can be equally effective. However, in some locations carefully monitored CCTV might offer some help protecting high risk targets.
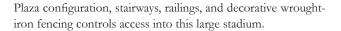
3. Access Control

3.1 Public access control

Public places are by definition open to the public. Therefore, controlling public access is not typically a concern. However access control to public areas is needed during closing hours or when there are reasons to protect certain types of property, a cenotaph or memorial, for example, from vandalism.

Public place access controls are similar to access controls in other land uses. Perimeter control can be fencing and other architectural barriers that channel people to entrances.

> **3.1 Application – Access control in large public venues**
>
> Large urban designs, such as the entranceways to stadiums, can employ access controls through subtle changes to grade, landscaping features, and wrought-iron-type gates. This is functional, aesthetically pleasing, and supports natural surveillance.

Plaza configuration, stairways, railings, and decorative wrought-iron fencing controls access into this large stadium.

3.2 Security systems

Sometimes, permanent access controls are neither feasible nor desirable, (as around a cenotaph or memorial, for example). In these cases security systems, or mechanical rather than natural surveillance, may be required. Closed circuit television or security patrols are an example of such systems.

3.3 Access to buildings

Controlling access to buildings can include minimizing the number of entrances, robust locking systems, key controls, and locating entrances near windows with clear sightlines to the entranceway or other supporting activities.

3.4 Access to established neighbourhoods

On occasion, neighbourhoods with grid street designs have had problems with shortcutting traffic or drive-through drug dealing. In specific cases closing off streets, temporarily or permanently, has been attempted with mixed results. Closing off streets may work for specific circumstances where it disrupts entrenched behaviour or changes traffic patterns. Successes are often related to local residents taking back the space through legitimate uses, thereby reducing the opportunity for crime to occur and increasing feelings of safety in the space.

If street closings are employed, care must be taken to ensure the entire neighbourhood is part of the solution and in agreement with the closings. Otherwise there will be resentment resulting from inconvenient traffic patterns.

CHAPTER 3.0 – PUBLICLY ACCESSIBLE SPACES

3.5 Access to new neighbourhoods

There is considerable debate over curvilinear street patterns and cul-de-sac designs versus grid street patterns in controlling traffic and crime in new neighbourhoods.

New neighbourhoods should have some level of integrity regarding traffic and pedestrian flow. This means some form of access control is needed, though it can range from physical barriers to symbolic markers to signs and landscaping. All can work well from a CPTED standpoint.

4. Image

4.1 Area clean-ups

As with all design, maintenance is a critically important element of CPTED. This is especially true in well-used areas in the public domain. Litter, graffiti vandalism, and damaged property must be dealt with immediately and users need to be able to identify who to contact regarding the cleanup. In addition, owners and/or managers of these areas must determine who will be responsible for these details.

4.2 Building walls

Long blank facades can create a sense of isolation and reduce territoriality; especially along the walls of large buildings. Where possible, the goal of design should be to create attractive landscaping features or large artistic wall murals.

The most effective murals in public spaces are those designed and painted by members of the community.

4.2 Application – Murals

Murals are an excellent way to beautify a public area. Wherever possible local artists and community members should be involved in creating the murals. For example, there are a host of summer programs where youth can play an active role.

4.3 Streetscaping

Large scale designs such as large stores and other major facilities are often set back from streets and sidewalks. At times this creates a sense of isolation. If this space cannot be avoided, design interesting streetscaping features, such as public art or benches around and within the site to help break down the image of isolation.

5. Conflicting User Groups

5.1 Public transportation

Avoid locating public transport, such as taxi stands and bus stops, near isolated areas and vacant properties. Locate them near shops and places where people can provide natural surveillance.

5.2 Conflicting activities

Some types of day-time activities naturally conflict with certain groups. For example, skateboarders near seniors' apartments can generate complaints about noise or disorder. Designers should provide for different user groups considering the needs of surrounding populations.

5.3 Event scheduling

Design can sometimes avoid potential conflicts by considering the timing of regular events when planning development of new facilities.

5.3 Application

Many public places would benefit from the thoughtful synchronization of routine scheduling. For example, bus stop times scheduled to coincide with nearby cinema showings will allow patrons to get onto and off busses without long waits at bus stops.

6. Activity Support

6.1 Telephones and emergency devices

Locate telephones and emergency telephones in obvious locations in public places, such as bus stops or taxi locations. Use signs to illustrate where they are located.

6.2 Safe zones

It is advisable to create safe zones in public places. In some jurisdictions "safe" zones are marked and designated in public places such as transit or subway stations. Emergency intercoms are placed in these zones along with monitored CCTV cameras that are pointed directly at these safe zones. Users populate these "safe" zones while they wait for taxis, busses, subway trains, or personal rides.

6.3 Bicycle parking areas

Bicycle stands should be placed in certain areas in conjunction with other supporting activities, such as restaurant seating areas, so they are in plain view for natural surveillance. The area should be well lit and include the newest anti-theft designs as opposed to simple rails.

6.3 Application – Bicycle stands

Where bicycle stands are not provided, bike owners may be forced to leave them unsecured and vulnerable to theft when they walk into public stores or other venues. Providing bicycle stands can reduce theft levels.

Bicycles should have a bike stand.

6.4 Buskers, newspaper stands, food sellers

In many public places it is possible to place legitimate "eyes on the street" by licensing street vendors such as buskers, newspaper stands, food sellers like hotdog stands, or hot coffee and hot chocolate drinks in winter-time.

7. Crime Generators

7.1 Entrapment areas

Eliminate hiding areas next to landscaping, dead ends, empty storage areas abutting main pedestrian routes, the bottom of stairwells, and others.

7.2 Closing off entrapments areas

If elimination of entrapment spots is impossible, consider closing them off with open style fences or gates and lighting them after hours.

8. Land Use Mix

8.1 Night-time entertainment areas

Some night-time activities, such as bars and taverns, create noise from entertainment and patrons at closing time. Consider locating night-time entertainment districts an appropriate distance away from residential areas.

8.2 Land use

Public spaces require compatible land uses. Shops near parking areas, or windows overlooking outdoor child care areas, are uses that support each other. All design in public places should consider compatible land uses.

9. Movement Predictors

9.1 Routes to parking

Consider CPTED along access routes between different activity areas in publically accessible spaces. For example, the routes to parking lots from nearby restaurants or cinemas might place late-night patrons at risk when walking to their vehicles. Route distances should be minimized and provided with adequate lighting and surveillance opportunities.

9.2 Routes from entertainment venues

Ensure that movement predictors from bars and taverns do not take patrons past residential areas where residents may be sleeping during closing hours. These routes should contain adequate lighting and surveillance opportunities.

10. Displacement

10.1 Crime mapping

All new developments should examine crime occurrences and trends during the risk assessment of the area. When drug dealing, the sex trade, or street panhandlers are confronted in one area, they can simply move to another. Overnight, a public space that was once safe can experience a rise in crime problems. Crime maps can help anticipate potential displacement problems and help designers take extra care in designing safe places.

10.2 Displacing outward

New developments in public places may also move currently existing crime problems to other locations. Risk assessments, an understanding of crime trends, and crime mapping will help designers notify others of this possibility and lead to more coordinated plans for mitigating potential problems.

11. Cohesion

11.1 Community participation in clean-ups

Where image and disorder are a problem, some communities have implemented successful neighbourhood clean-up campaigns or mural-painting festivities. This not only involves neighbours in socializing with each other, but enhances their commitment to the public realm as well. This has application at the neighbourhood level as well as at larger public areas, such as downtown.

> ### 11.1 Application
> Once neighbourhood residents participate in their own clean-up and painting festivities, they are more likely to use, and take care of, that space.

These Portland children regularly, and safely, play on the same streets they helped clean and paint. They do so next to their own homes where their parents can keep an eye on their activities.

11.2 Coordinating development plans

By coordinating development plans with surrounding residential or commercial areas and with municipal departments it is possible to alleviate some problems, such as displacement, before they happen. In fact, a neighbourhood can be significantly enriched by coordinating developments that are supportive of each other or of mitigating the negative impact of conflicting developments in a community.

12. Connectivity

12.1 Communicating services

Locating new developments in public areas means more than constructing a facility. It also means considering how to get neighbours to connect with property owners and shopkeepers. For example, not only is it important to locate emergency telephones near bus stops, but it is also useful to post signs in late-opening stores and restaurants nearby. The signs can provide information about the location of the bus stops, bus schedules, and emergency phone locations.

"A well designed, active, and safe commercial development makes good economic sense. When users feel safe and welcomed they are more likely to frequent a commercial development."

▶▶ CHAPTER 4.0
COMMERCIAL, SUBURBAN COMMERCIAL, REGIONAL CENTRES, TOWN CENTRES

Commercial, suburban centre commercial, regional centres, and town centres refer to urban and suburban shopping centres, box stores and other commercial land use configurations.

1. Territoriality

1.1 Risk assessments

A thorough crime and safety risk assessment should accompany the design of all large developments in order to enhance overall safety and design. This is especially the case for large commercial malls, regional town centres, and power centres (large unenclosed shopping centres that include multiple box stores and strip malls).

1.2 Enhance neighbourhood activities

Where possible, designs should provide activities that support natural uses in the surrounding neighbourhood. For example, if there are multi-unit residential nearby, there may be a need to include libraries, fitness facilities, health clinics, or grocery shopping.

1.3 Boundary definition and branding

Borders of town centres should be well defined, perhaps by landscaping, signage, lighting, and distinct urban streetscaping features such as benches. This will encourage local residents and workers or shop owners to feel a sense of pride and ownership in that place.

1.4 Transitional zones

In areas where public or private space transitions from one place to another it is helpful to clearly mark where that is happening. This helps people identify where they are moving to and from and can reduce fear levels during evening hours or quiet times.

1.4 Application – Pavement treatment

A subtle change in pavement treatments can configure how a space should be used. For example, the types and colours of paving stones, or the pavement grade from a sidewalk to a storefront, will clearly define what that space is to be used for.

The designer has changed the grade on a walkway to illustrate a transition from a parking lot, over a roadway, to a storefront.

2. Natural Surveillance

2.1 Support natural surveillance with design

High risk activities, such as removing cash from a bank machine, should be designed with special attention to natural surveillance from surrounding windows.

> **2.1 Application – Windows around bank machines**
>
> Full length windows are helpful to enhance natural surveillance into high risk locations. Consideration must be given to the glazing on the windows so they don't obscure sightlines during daytime. Consideration must also be given to internal and external lighting levels so users are not blinded when they exit glassed-in areas in the evening hours.

This financial institution placed the bank machine in a windowed, enclosed area away from winter weather but also ensured front entranceways were properly glazed and the interior was well lit and enhanced with CCTV.

2.2 General lighting

In general, the principles of good lighting described in Chapter 9.0 apply to lighting in large developments. A combination of sodium, halide, and fluorescent lighting all have application, depending on the risk assessment of that large development.

2.3 Specific lighting – Motion detectors

In isolated or secure areas, such as rear loading bays, motion-detector lights are a good way to protect property.

2.4 Specific lighting – Parking lots

Large commercial developments are often accompanied by vast parking lots. The lighting principles in Chapter 7.0, Section 2.6 on surface parking lot lighting also can apply to these areas.

2.5 Landscaping

In general, the principles of good landscaping described in Chapter 10.0 apply to landscaping in large developments. Proper landscaping contributes to reducing the opportunity for crime to occur and increases users' feelings of safety. It also supports boundary definition, access control, user comfort and safety, a positive area image, and appropriate use of space.

3. Access Control

3.1 Access to buildings

Control access to buildings by minimizing the number of entrances, using robust locking systems and key controls, and locating entrances near adjacent windows with clear sightlines to the entranceway.

3.2 Access to properties

Large commercial developments include vast parking lots open most of the day. Fencing the entire area is one way to control access. If that is cost prohibitive, it is also possible to use vehicle boom gates with kiosks at the entrances to the property. While that will not control access of pedestrians in the off hours, it will control vehicle access. It may be necessary to supplement this latter option with a security system such as patrols and CCTV.

3.3 Burglar ladders

Some landscaping or maintenance equipment can create unintended consequences allowing would-be burglars to climb onto rooftops for unobserved entry into the building. These are called burglar ladders and they should be avoided.

> **3.3 Application – Avoiding burglar ladders**
>
> The first step in avoiding unintended burglar ladders is to conduct a risk assessment to determine where vulnerabilities for potential break-and-enters exist. The second step is to consider how architectural features on the building or utilities may provide access to those areas.

Unintended access to the roof at the rear of a property due to the placement of screens and roof overhangs.

In this case the designer has eliminated roof access and installed secure doors and CCTV on the walls to protect the property.

4. Image

4.1 Distinctive branding

Large developments need branding with distinct colours or other markers to enhance their identity. Branding is a strategy that improves territoriality and provides an aesthetic look to a property.

4.2 Branding a mall

Commercial and community branding is a broad topic with many ways to stamp a particular image on a place. Logos, colour selection, flags and signage, and theme songs, are a few ways to brand a place and make it distinct.

4.2 Application – Commercial branding

Commercial branding includes malls seeking to create a distinctive look. The branding will typically extend to all areas of the mall and link all the shops together through some theme.

A mall uses green and ornate fixtures and lamps for branding.

4.3 Area clean-ups

Regular maintenance is critical. This is especially the case in large commercial developments. Litter, graffiti vandalism, and damaged property must be dealt with immediately. Some areas employ full time "ambassadors" who tidy, answer questions, keep track of emerging issues, and generally keep an eye on activity. These ambassadors are highly visible and their public interaction is as important as their maintenance work.

4.3 Application – Maintenance

Designing for safety will be ineffective without regular maintenance and property management including regular property clean-ups. Properties should be swept, have litter removed, and otherwise be kept in clean condition.

This commercial mall is cleaned and walls are graffiti-vandalism-free.

5. Conflicting User Groups

5.1 Teens in malls

Teenagers often congregate in malls to socialize. Some property owners restrict their activities. Developers should seek out the opinions of young people in the design and operation of commercial developments. Activities and designs can be created that benefit both property owners and young people, thereby mitigating potential problems.

> **5.1 Application – Teens in malls**
>
> The Dufferin mall in Toronto was able to create both recreational and educational activities for youth hanging out in the mall. This not only reduced conflicts between different groups of teens, but it also benefited the mall by creating a more positive atmosphere for shopping.

6. Crime Generators

6.1 Public washrooms & telephones

Public washrooms are a necessity in large commercial developments. Unfortunately, the design of these washrooms is frequently an afterthought and they are located at the rear of passageways with little, or no, security. The result is that many public washrooms are places where nuisance behaviour occurs, such as drug deals. This makes them a crime generator.

Designs for public washrooms must incorporate CPTED. Approaches to washroom entrances should be highly visible. They should be located in high traffic locations,

not isolated locations. Telephones should not be placed near them as this allows offenders to loiter undetected under the pretext of a legitimate activity. Signs should provide information on emergency assistance and regular maintenance and cleaning is a must.

7. Land Use Mix

7.1 Mixing uses

Even in large commercial developments, mixed uses can create positive contact among people throughout the day and enhance territorial sentiments and natural surveillance. For example, retail shops, personal service shops, and offices can work well together.

7.2 Lifestyle centres

The retailing trend toward "lifestyle" centres that combine shopping with leisure amenities at a smaller scale helps keep a development active well past the typical operating hours and should be encouraged.

8. Movement Predictors

8.1 Public transport

Bus stops and other public transport drop-off and pick-up spots should be located near the front of buildings or a development, not at the edge of the property.

8.2 Parking lot walkways

Locate walkways in parking lots. Recommendations from the surface parking, Chapter 7.0, apply to this section.

9. Displacement

9.1 Parking lot theft

Large commercial developments can potentially draw thousands of vehicles to their parking lots. These parking lots are often vast and correspondingly difficult to protect. As a result, they can attract large numbers of thieves from other parts of the city who prey on motor vehicles.

For this reason, special attention should go to the design of parking lots in these locales. The various recommendations in Chapter 7.0 - Surface Parking apply here; particularly those on lighting, landscaping, and natural surveillance.

9.2 Subdividing parking lots

If parking lots can be subdivided into smaller areas with landscaping, pavement grading, and pedestrian walkways it can make territorial control easier in each sub-area.

9.3 CCTV in parking lots

Carefully monitored CCTV and security patrols may be necessary in very large parking lots or very isolated lots. The key is to design the development appropriately in the first place but existing lots may need additional help.

10. Cohesion

10.1 Mixing social activities

Though most commercial developments are operated for retail shopping, it is still possible to create opportunities for other positive social activities, such as entertainment and education. Developers should consider including training facilities, libraries, cinemas, and other non-retail facilities that will enhance the operation of the mall.

Mixing social activities may have the added benefit of locating legitimate users who can provide natural surveillance and some level of territorial control over "their" mall.

11. Connectivity

11.1 Improved scheduling of space.

Carefully connecting activities in commercial developments can lower crime risk. For example, natural surveillance can be enhanced by locating restaurants near areas of the mall where late night cinema users park their vehicles. That way both groups can watch and walk to their vehicles during times when it might otherwise be more isolated.

"Institutional sites that are well planned, diverse, and active beyond normal working hours create opportunities to connect with the surrounding community and increase the natural surveillance on the site."

▶▶ CHAPTER 5.0
INSTITUTIONAL

Institutional refers to urban structures such as government and educational facilities, research buildings, and research parks.

1. Territoriality

1.1 Risk assessments

A thorough crime and safety risk assessment should accompany the design of all large institutional developments in order to enhance territoriality and overall safety and design.

1.2 Building orientation

Institutional land uses have a unique role and may include buildings providing government services, facilities conducting scientific research, or educational or medical buildings. However, there are a few design guidelines that will help safety and crime prevention. One is the orientation of buildings.

These buildings face a public open space that draws people from adjacent buildings.

1.2 Application – Building orientation

Where possible, buildings should face public or open space. This will provide a pleasant visual experience and will encourage building residents to use these areas collectively for lunches and breaks.

1.3 Building siting

Where possible, it helps to cluster institutional buildings together. This allows economies of scale so building owners can collaborate on collective security. It also allows the creation of common spaces, such as seating areas and parks, for use by all buildings. This will help natural surveillance and territorial control of shared spaces.

1.3 Application – Institutional water park

Siting institutional uses together, perhaps with other mixed uses as well such as coffee shops, provides opportunities for collaboration. One example is a shared public water feature such as a water fountain. This will not only beautify the area but also attract users from the buildings to socialize and provide some natural surveillance of surrounding areas.

This property has created a common water park for use by all. It provides a pleasant aesthetic look and also brings the institutional users together in a safe place.

Window sight lines will enhance surveillance, in this case of bike stands.

1.4 Avoid entrapment zones

Entrapment areas are places where it is easy to hide or pull someone into without being seen. Often these areas are not easily seen and so users of an area may not be aware of or pay specific attention when near them. Institutional buildings are frequently vacant during evenings. When late workers leave their offices, it important that they have safe, risk-free access to their vehicles or other areas. Designers must ensure that the site is free of possible entrapment zones.

2. Natural Surveillance

2.1 Sightlines and walkway lighting

Designers should provide natural surveillance by locating windows near entranceways and public areas. Building occupants should have clear sightlines, from within the building, of exterior areas, particularly in evening hours. Exterior lighting should provide even illumination of walkways to parking lots.

2.1 Application – Sightlines

Front foyers are a natural area to provide ample sight lines outside the building. This is often where security officers or reception desks are located. Not only will they appreciate the open view and light during their work hours, they are ideal individuals for keeping an eye on activities outside.

2.2 General lighting

In general, the principles of good lighting described in Chapter 9.0 apply to lighting in residential housing. A combination of sodium, halide, and fluorescent lighting all have application, depending on the risk assessment of that institutional use.

2.3 General landscaping

In general, the principles of good landscaping described in Chapter 10.0 apply to landscaping in institutional land uses. Proper landscaping contributes to reducing the opportunity for crime to occur and increases users' feelings of safety. It also supports boundary definition, access control, user comfort and safety, a positive area image, and appropriate use of space.

3. Access Control

3.1 Access to buildings

Control access to buildings by minimizing the number of entrances, using robust locking systems and key controls, and locating entrances near adjacent windows with clear sightlines to the entranceway.

3.2 Access to properties

Institutional access control is often called perimeter control. It is similar to access controls in other land uses and channels people to a common entranceway.

3.3 Perimeter controls

Perimeter controls can be fencing, vehicle boom gates, staffed kiosks, grade changes, and other architectural barriers.
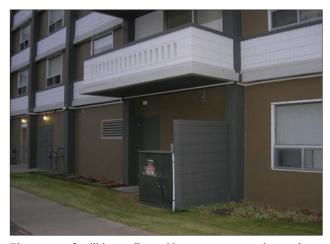
Institutions, such as universities, often use staffed kiosks and boom gates to control access to facilities like covered parking.

3.4 Security systems

Institutional land uses may have high risk items or vulnerable property. These sites may require specialized security systems such as CCTV, professional security, and patrols in addition to the application of CPTED principles. It is important to note that these additional security systems will not work optimally if proper design and the application of the principles of CPTED are not applied appropriately.

3.5 Burglar ladders

Design out burglar ladders that allow easy access to rooftops, ledges, and balconies.

Placement of utilities, walls, parking structures can be used as a ladder to access units.

3.6 Reception areas

Reception areas should be located in a prominent location in the front foyer of institutional buildings. In schools, the main office should be located at the front entranceway with clear sightlines of the front entrance doors. The results from a proper risk assessment will indicate the level of security needed at these areas. At minimum, receptionists or office workers require direct communication with and links to security.

4. Image

4.1 Management and maintenance

Maintenance and management of places is especially important in institutional uses. Schools that are not properly maintained are vulnerable to damage and graffiti vandalism. It is the same for other institutional uses. Litter, graffiti vandalism, and damaged property must be fixed immediately.

4.2 Lighting repair

Because many institutional uses are vacant and isolated during evenings, lights in disrepair may not be noticed for a while. It is very important that bulbs and lighting are surveyed regularly and repaired immediately.

5. Activity Support

5.1 Telephones and emergency devices

Locate public telephones and emergency telephones in obvious locations on institutional grounds. Use signs to illustrate where they are located. Video cameras and patrols can also be helpful if the areas are quite large. University campuses often employ panic buttons and telephones that connect directly to security as well as 24-hour patrols to support users.

Emergency devices come in many types, and shapes. One version is a stand alone call-button that is linked directly to emergency services.

5.2 Bicycle parking areas

Bicycle stands should be placed in locations with clear sightlines near secure locations. They should be well lit. Stands should include the latest in anti-theft designs beyond simple rails.

6. Land Use Mix

6.1 Optimizing land uses

If possible, institutional land uses should be maximized during evening and weekend hours. This will place more legitimate users into otherwise empty spaces. For example, community sports activities can be brought to school yards and empty parking lots can be used for driver training.

6.1 Application – Recreational uses built in to an institutional site.

The addition of recreation facilities such as soccer and football fields, tennis courts, and walking paths to the NIKE Headquarters site in Portland, Oregon adds value for their employees. These recreation facilities can also keep the area vibrant and active past the normal week day as well as through the weekend. Extending use of these facilities to the surrounding community also creates a stronger connection and has the potential to increase natural surveillance of the area by all users.

©2010 Google - Map data

Combining institutional and recreational uses support each other.

7. Movement Predictors

7.1 Bus stops

Pathways to bus stops, and bus stop locations, should be kept in plain view of occupied windows. Ideally, bus stops should be located the shortest distance possible from the building entranceway.

7.1 Application – Institutional bus stops

As with other land uses, bus stops provide an important service to users. However the bus stop locations and pickup times need to coincide with the activities of the adjacent institutions. Pedestrians standing alone for long periods while waiting for busses are placed at potential risk.

Locate bus stops close to entranceways.

7.2 Walkways

Walkways and sidewalks near institutional land uses should be in sight of windows and well lit. They should easily accommodate two people walking or cycling side by side, or passing each other.

7.3 Walking surfaces

With severe winter conditions, walking surfaces can easily fall into disrepair and buckle with the freeze-thaw cycle. Select walking surface materials for smoothness, stability, and durability. They must be non-slip in wet conditions and should not reflect lighting and create glare conditions when wet.

8. Cohesion

8.1 Bulletin boards

If institutions are clustered together, it is helpful to collaborate with all users to create information boards. These boards can be in bulletin format, or even electronic. They can include information such as changes to bus schedules, crime watch bulletins, and maps of the site. It is critical to ensure that these information boards are clutter free and updated in a timely manner.

9. Connectivity

9.1 Gathering areas

Institutional buildings often have facilities of potential use to the public, such as auditoriums, restaurants, and meeting spaces. These facilities are ideal gathering areas for members of the public during work or evening hours, which can assist with natural surveillance for late night workers.

Gathering spaces can also encourage participation by the larger community and foster feelings pride in the designed space. That can help build positive rapport between the institution and the surrounding community and increase a sense of ownership.

Connectivity to the surrounding areas is critical. Pedestrian and cycling networks are as important as vehicular and public transit access.

"Parks and playgrounds are the heart of a neighbourhood or area. They must combine active and passive areas in a safe and pleasing manner if they are to atttract users and support cohesion and connectivity."

CHAPTER 6.0
PUBLIC PARKS, RECREATIONAL AREAS, AND PLAYGROUNDS

Public parks, recreational areas, and playgrounds refers to urban and suburban green spaces used for walking, passive and/or active recreation, and entertainment.

1. Territoriality

1.1 Risk assessments

A thorough crime and safety risk assessment should accompany the design of all public parks, recreational areas, and playgrounds in order to enhance overall safety and design.

1.2 Name signs

Large, easily read signage at the entranceways to parks, recreational areas, and playgrounds is important for users' wayfinding and for establishing the use of the area. The signs should include a name of the park, maintenance, emergency numbers, and any other information established by the City of Saskatoon. They should also be high enough so they are not blocked by landscaping material or snow during the winter months.

Signage is important. Naming the playground, recreational area, or park after someone from the local neighbourhood can help enhance local ownership.

1.2 Application – Signage

Entranceway name signs should not be an afterthought during design. They provide a vital service and help establish an identity to a public park.

1.3 Edge definition

Provide a clear territorial definition along the edges of parks, recreational areas, or playgrounds. Take care not to use stones that can be thrown against windows or raised edges that will be damaged by snow removal equipment in winter. Edges can be defined through different ground cover, grass, and edgings like landscaping ties.

In this playground edges are defined with landscaping ties and a gravel walkway.

2. Natural Surveillance

2.1 Landscaping

In general, the principles of good landscaping described in Chapter 10.0 apply to landscaping in parks, recreational areas, and playgrounds. A wide combination of landscaping types and designs have application, depending on the risk assessment of that particular space.

2.2. Foliage

Plantings within parks, recreational areas, and playgrounds need special attention. It should provided four season aesthetic value that attracts legitimate users to the park. It should be easy to maintain, and it needs to take into account the intended uses of the area. For example, plant material around playgrounds needs to be safe for young children, while at the same time it needs to be rugged enough to withstand the adjacent activity. Tall trees are important to provide shade in summer, especially at nodes where park use is focused, such as near benches, paths and play areas. Trees also can help provide definition to edges and specific park spaces.

Whatever the foliage choice, it should not detract from opportunities for natural surveillance.

2.3 Lighting

In general, the principles of good lighting described in Chapter 9.0 apply to lighting in parks, recreational areas, playgrounds, and linear parks. If parks, recreational areas, or playgrounds are lit, a combination of sodium, halide, and fluorescent lighting all have application, depending on the risk assessment findings.

3. Access Control

3.1 Fencing

As parks, recreational areas, and playgrounds are meant to be open to the public, they are not generally fenced. However, there may be a need for territorial reinforcement around the perimeter or to prevent children from running out onto the street. That reinforcement or barrier can be in the form of low hedging or low open-type fencing.

Open fencing defines the edge of the park space and prevents young users from running into the street but does not interfere with the sightlines into or out of the space.

4. Image

4.1 Management and maintenance

Maintenance and management of parks and recreational areas is crucial if they are to draw plentiful users and legitimate uses. Unmaintained parks are vulnerable to damage and graffiti vandalism. Litter, graffiti vandalism, and damaged property must be fixed immediately. This includes benches, walkways, and playground equipment.

4.2 Lighting repair

Parks, recreational areas, and playgrounds are frequently unoccupied in late evening hours. If they are lit, the lighting fixtures must be kept in good repair and regularly checked to ensure they are in working order.

5. Conflicting User Groups

5.1 Conflicting users

One of the most common problems in parks, recreational areas, or playgrounds is the presence of illegitimate or unintended users which detracts from other's enjoyment of the property. Teens who use an adolescent playground to hang out or vagrants sleeping on park benches are two examples.

5.1 Application – Park benches

There are a number of strategies that might apply, depending on the risk assessment and the objective of the designated space. For example, in-ground sprinkler systems can be scheduled to water lawns during evening hours thereby displacing illegitimate users and discouraging loitering. Another example is to use benches that do not support the illegitimate use by skateboarders or vagrants. The bench below is not attractive to skateboarders and is also difficult to sleep on.

Park benches can be designed to deter overnight sleeping.

6. Activity Support

6.1 Telephones and emergency devices

In isolated parks, recreation areas, or playgrounds telephones and emergency devices, like intercoms and alarms, may be necessary. Though many people now use cell phones, land-line telephones provide an assured connection in the event of an emergency. Emergency devices have direct connection to security and emergency services, but must be maintained and monitored to be effective.

6.2 Seating and benches

Seating or benches are regular furniture in parks. They should be designed to be vandal resistant and be well maintained. Where possible they should be located in highly visible locations, preferably facing another activity space where people can provide natural surveillance for those activities.

6.2 Application – Seating

Bench seating adjacent to a playground allows parents or care givers to supervise their children while they play. Litter containers are also provided. Even older-style wooden bench seating is helpful, though it tends to be more vulnerable to vandalism and wear.

Benches are visible to the surrounding residential and allow easy monitoring of the play area.

Older style benches are effective as well.

7. Land Use Mix

7.1 Nearby activities

Where possible, locate parking lots near complementary land uses such as shops, cinemas, or other nearby activities. The closer to these activities, the shorter the movement predictor distance will be to and from the lot.

8. Movement Predictors

8.1 Routes to parks, recreational areas or playgrounds

Carefully design routes to and from parks, recreational areas, or playgrounds, preferably near surrounding buildings or homes that provide some natural surveillance.

8.2 Routes within parks

When necessary in larger spaces, design pedestrian routes within parks, recreational areas, or playgrounds. Use lighting, pavement marking, planting, grading, and signage to direct people to entrances and exits.

Park pathways should be designed to take into consideration desired traffic lines. These "desired lines" are usually the shortest distance between two points and are particularly evident around schools. Plantings can be used where the desired traffic line would cross through a sports field.

9. Displacement

9.1 Consider potential displacement

Loitering or illicit activities can move into parks, recreational areas, and playgrounds after hours. This can become a issue particularly if nearby drug dealers displace into a park or if patrons from a nearby bar spill into the park to carouse after closing hours.

Every effort should be made to locate parks, recreational areas, and playgrounds away from incompatible land uses or activities.

9.2 Lighting on or off?

It is important to consider whether lighting a park will attract illicit activities or whether turning the lights off will make it more difficult for offenders to act (e.g. drug dealers require minimal light to carry on their activities). Due to the impact of the surrounding demographics, culture, and conditions, it is necessary to conduct a risk assessment to determine the impact of potential displacement problems from lighting.

10. Cohesion

10.1 Bulletin boards

Parks, recreational areas, and playgrounds are ideal locations for information boards. These boards can include information such as bus schedules, crime-watch bulletins, cultural events, and information on community activities in the neighbourhood.

10.2 Naming the park

Naming the park, recreational area, or playground after a local personality whom the community respects can help enhance ownership.

11. Connectivity

11.1 Gathering areas

Recreational areas and parks are ideal meeting spaces for recreational activities in the community. The more social and recreational programs scheduled in the park the more opportunities there will be for natural surveillance and community connections. Particularly in the case of recreational areas, the more attractive and flexible the spaces are for community uses, the more they can help build positive rapport with the surrounding community, attract a wide variety of users without conflict, and increase a sense of ownership.

Well used recreational spaces attract legitimate users and help build connections within the community.

"Integrating human, aesthetic, and operational considerations into the design of surface parking lots provides a more functional and safe environment for both vehicular and pedestrian traffic."

▶▶ CHAPTER 7.0
SURFACE PARKING

Surface parking refers to ground-level parking lots on a site.

1. Territoriality

1.1 Risk assessments

A thorough crime and safety risk assessment should accompany the design of all large surface parking lots in order to enhance territoriality and overall safety and design.

1.2 Signage

Surface parking lots require ample, clearly visible, and well-lit signage for both pedestrians and vehicle users. The signs should indicate route directions and instructions for pedestrian users, such as helping shoppers locate their cars at shopping plazas. Colour-coding directional signs, or using an easy-to-remember theme, will help. Signs should also clearly mark vehicular routes, entrances, and exits.

Surface parking signage.

1.2 Application – Signage

Signage is essential for drivers and pedestrians to understand the space.

1.3 Surface parking lot size

Property size and user demand will determine parking lot size, however it is preferable to cluster parking into smaller groupings of 20 – 30 cars rather than into large parking areas of 75 or more cars. Large expanses of car parking make territorial control difficult.

1.4 Differentiate spaces clearly based on intended use

Design surface parking lots so that every space on the property has a clear, designated use. If the intended purpose of a space is unclear, it may increase the possibility of illegitimate use. This is particularly a problem in surface parking lots.

1.4 Application

When surface lots have poor access control and contain large undefined areas, they encourage shortcuts by pedestrians from one side of the lot to another. This makes it difficult to determine if thieves are at work. By clearly demarcating pedestrian walkways to and from car aisles, controlling access, and removing undefined areas it is possible to minimize opportunities for car thieves to steal with impunity.

Undefined areas and poor access control make it hard to monitor large parking lots.

Locating parking near occupied windows enhances natural surveillance.

2. Natural Surveillance

2.1 Landscaping

In general, the principles of good landscaping in Chapter 10.0 apply to landscaping in surface parking. A wide combination of landscaping types and designs have application, depending on the risk assessment of the parking area.

Maximize sightlines wherever possible, especially around entrances. Sightlines to surface parking lots should be clear of dense bush, solid fences, or advertisements.

2.2 Wall colour

If possible, adjacent walls should be painted a light colour in order to enhance the light levels. Murals may also be effective in adding to the visibility of the space as well as adding visual interest.

2.3 Adjacent windows

Orient vehicle parking in clear sight of nearby windows that overlook the lot in order to increase natural surveillance.

> **2.3 Application – Adjacent windows**
>
> It is not always possible to know all the land uses, or their configuration, in an area. Wherever possible, however, consideration should be given to placing parking lots near adjacent windows.

2.4 Formal surveillance

In very large surface parking lots, it may be necessary to institute formal surveillance including security patrols, park attendants, or community patrols.

2.5 CCTV (Closed Circuit Television)

Large surface parking lots may also require monitored CCTV. Research indicates security cameras can have an impact reducing crime in large, isolated parking lots. However, they must be constantly maintained and continually monitored by security in order to be effective.

2.6 Lot lighting

In general, the principles of good lighting described in Chapter 9.0 apply to lighting in surface parking lots. A combination of sodium, halide, and fluorescent lighting all have application, depending on the risk assessment of that particular parking lot.

Lighting should provide uniform luminance across the whole surface parking lot while avoiding glare. It is possible to eliminate light pollution from direct beam light by using fully shielded or cut-off luminaires. If light poles are located at the perimeters of lots and next to adjacent properties, cut-off luminaires, house-side shields, and low-wattage lamps all help to reduce the chances of light trespass.

Uneven lighting can endanger users and reduce feelings of safety.

2.7 Lighting into cars

Overhead lighting should not make it difficult to see the interior of a car by casting shadows. It is important that users can see inside their vehicle before entering.

3. Access Control

3.1 Control perimeter access

Perimeter control can be fencing, level changes, and other architectural barriers that channel people to entries. Ideally pedestrians should pass through one or two regulated entry points.

3.2 Fencing

Fencing can be an effective control around the perimeter of the surface parking lot. Ensure that it is see-through (such as wrought-iron-type fencing) or kept low to allow clear sightlines. Keep in mind that chain-link fencing can be unsightly in many locations.

> **3.2 Application – Lot fencing**
>
> Fencing in urban areas can be 1.0 metre in height and still provide good natural surveillance. In remote areas higher fencing may be appropriate.

The property owner has installed mid-level fencing that is easy to see over and combined it with instructional signage. The hedging must be kept trimmed in order not to obstruct sightlines in summer.

3.3 Hedging

If hedging or landscaping is the perimeter control, ensure that it allows clear sightlines and employs low-growth vegetation requiring minimal maintenance.

3.4 Vehicle-control gates

In larger surface parking lots the use of vehicle boom gates can help reduce vehicle theft opportunities, especially if the gates are supervised with an attendant or attendant kiosk.

3.5 Supervised kiosks

Supervised kiosks at entranceways provide some surveillance into parking surface lots and are an excellent way to help secure vehicles and control access. In larger lots with CCTV, control monitors inside the kiosk help the attendant keep an eye on the entire lot; however the monitors will need to be secured during off hours.

4. Image

4.1 Maintenance

Surface parking lots must be regularly maintained and cleaned. This includes repairing damaged or worn lights and fences, and keeping the property clear of litter, snow, and graffiti vandalism. A clean, well-kept lot sends a message that this property is cared for.

CHAPTER 7.0 – SURFACE PARKING

4.2 Quality materials

Enhance the look of surface parking lots with well-designed architectural features. For example, wrought-iron-type fences are preferable to chain-link. Decorative lighting is preferable to wall mounted spotlights.

5. Conflicting User Groups

5.1 Conflicting users

Locate surface parking lots away from potentially conflicting user groups. Skateboard parks, for example, rarely need parking lots and skateboarding may displace into the parking lots causing damage to vehicles. A risk assessment will indicate potential conflicts between user groups.

6. Activity Support

6.1 Telephones and emergency devices

In larger surface parking lots, telephones and emergency devices, like intercoms and alarms, are a necessity. Though many people now use cell phones, land-line telephones provide an assured connection in the event of an emergency. Emergency devices have direct connection to security and emergency services, but must be maintained and monitored to be effective.

6.2 Seating and benches

Seating or benches can be attractive features if they are well designed and maintained. They should be located in highly visible locations near exit and entry points, near entrance kiosks, or adjacent to landscaping features.

Appropriate bench seating at a bus stop adjacent to a surface parking lot. The bench is clean and provides a litter container as part of the structure.

6.2 Application – Seating

Public seating areas are an excellent way to get people to use an area if they are well designed. Design considerations include durability, vandal resistance, comfort, shade, and allowing multiple users without feeling crowded.

7. Land Use Mix

7.1 Nearby activities

Where possible, locate surface parking lots near complementary land uses such as shops, cinemas, bars, or other nearby activities. The closer to these activities, the shorter the movement-predictor distance will be to and from the lot.

8. Movement Predictors

8.1 Routes to surface parking lots

Carefully design routes to and from surface parking lots, preferably near surrounding buildings or homes that provide some natural surveillance.

8.2 Routes within surface parking lots

Design pedestrian routes within parking lots. Use lighting, pavement marking, and signs to direct people to exits and entrances. These parking lot sidewalks will help minimize conflicts between pedestrians and drivers.

Here the owner created a walkway through the parking lot with landscaping trees and a curbed, raised surface (although it is a bit too narrow to allow walkers to pass comfortably).

> ### 8.2 Application – Routes within surface parking lots
>
> Parking lot designers should provide walkways into, and through, parking lots. This can be done by pavement markings and lighting, by landscaping, and by pavement treatment and grade changes.

9. Displacement

9.1 Mapping crime

Conduct a thorough risk assessment and mapping of crime locations – crime hotspots – to help determine the best place to locate parking. Surface parking lots are used to best advantage if they provide access to nearby activities and facilities. However, if those activities are at crime locations they may increase risks at the parking lot due to spillover crime.

10. Connectivity

10.1 Coordinate with property owners

It is important to locate surface parking lots near complementary land uses, but it requires parking lot developers and owners to coordinate with nearby land owners and advertise their services, promote their use, and create opportunities for legitimate users to occupy the parking lot. Legitimate users who use a surface parking lot frequently create more "eyes on the street" and reduce crime risks.

11. Capacity

11.1 Large lot security

In large surface parking lot designs it may be necessary to adopt security management practices, such as security patrols and CCTV. This is because the larger the surface lot, the harder it is to secure.

11.2 Large lot attendants

Extremely busy surface parking lots, for example during special sporting events, will require parking lot attendants to help direct traffic. These attendants can also provide natural surveillance through larger areas.

Large, undefined parking lots require additional safety supports to ensure user safety.

"Well designed walkways and linear parks combine beauty, function, and safety. Done right, the proper materials, landscaping, location, and sightlines make travel routes around and through the neighbourhood safe and enjoyable."

▶▶ CHAPTER 8.0
WALKWAYS/LINEAR PARKS

Walkways and linear parks are urban and suburban pedestrian pathways and green space extending in a linear fashion between property uses.

1. Territoriality

1.1 Risk assessments

A thorough crime and safety risk assessment should accompany the design of all major walkways and linear parks in order to enhance territoriality and overall safety and design.

1.2 Location signs

It is important that large, clear, and readable signs be positioned at the entranceways to walkways and linear parks. If they include a map, they should be oriented so that they are consistent with the direction the walker faces when looking at the sign.

Entrance signs help identify a neighbourhood linear park.

1.2 Application – Signage

Signs should include a name of the walkway or linear park, a map for directions, and emergency and maintenance phone numbers. They should also be high enough so they are not hidden by trees or shrubs or snow during winter.

1.3 Edge definition

Provide a clear definition between walkways and planted areas or shrubs. Edging with pavement treatments, mulch, or other similar materials can help keep people off landscaped areas and visually beautify a walkway.

Linear parks or walkways require edge definition, in this case a medium-sized fence and low grass berms.

1.3 Application – Edge definition

Edge definition can be achieved with ground treatments such as landscaping stones. Take care that the stones cannot be thrown against windows and that any raised edges will not be damaged by snow removal equipment in winter.

1.4. Emergency communication

Along isolated or concealed routes, emergency telephones, intercoms, or security alarms should be available at regular intervals to allow users to summon help in an emergency. False alarms are always a possibility, but they are a lesser evil than a potential victim who is unable to contact emergency help.

2. Natural Surveillance

2.1 Landscaping

In general, the principles of good landscaping described in Chapter 10.0 apply to landscaping in walkways and linear parks. A wide combination of landscaping types and designs have application, depending on the risk assessment of that particular linear park or walkway.

2.2 Foliage and plantings

Foliage and plantings within walkways or linear parks should not be so dense that they detract from opportunities for natural surveillance.

> **2.2 Application – Foliage and landscaped islands**
>
> It is possible to cluster "islands" of dense foliage to beautify the linear park as long as they encourage pedestrians to use the walkway.

Natural surveillance is maximized here through landscaping islands, see-through wrought-iron-type fencing, and low foliage.
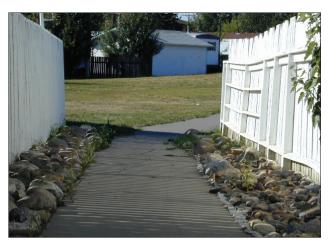
2.3 Tree canopies

Avoid high tree canopies where they may interfere with sightlines from nearby homes or block lighting from light standards.

2.4 Landscaping at stopping points

Avoid dense landscaping or trees near predictable stopping points, entranceways to walkways and linear parks, and near road crossings.

2.5 Fencing style

See-through fencing provides natural surveillance from adjacent properties. There are many fence styles, colours, and shapes that conform. However, use chain-link fencing sparingly and only in non-residential areas as is unsightly and detracts from the aesthetics of a park.

Walkway users feel more comfortable and safe if they can see where they are going. High, solid fencing reduces natural surveillance.

2.6 Fencing and lighting

In general, the principles of good lighting described in Chapter 9.0 apply to lighting in walkways and linear parks. A combination of sodium, halide, and fluorescent lighting all have application, depending on the risk assessment of that walkway or linear park.

If the linear park or walkway has night-time lighting, lighting should be handled differently depending on whether see-through or solid fences are in place. Bright colours on see-through fences can reflect glare and make viewing difficult. Bright colours on solid fences do the opposite; they increase the light reflectivity and light the area up.

CHAPTER 8.0 – WALKWAYS / LINEAR PARKS

2.7 Lighting – Fixtures

If linear parks and walkways are lit, choose luminaires that are high mounted and vandal resistant. Bollard lighting (low, ground-level light fixtures) provides an aesthetic addition to walkways however it is vulnerable to vandalism and should be hardened to resist damage. High, pole-mounted lighting can also be designed to be attractive and efficient.

> **2.7 Application – Pathway lighting**
>
> The decision to use low-level bollard or high pole-mounted lighting, or a combination, rests with the risk assessment and the nature of who will use the walkways at night. Whatever the case, lighting fixtures should be durable, vandal resistant, and attractive.

High, pole-mounted lighting on both sides of this pedestrian walkway ensures even distribution of illumination along the entire path.

2.8. Lighting – Distribution

Low-level lighting such as low-pressure sodium is inappropriate. Luminaires should be positioned to direct light downwards to avoid glare and light trespass into the windows or surrounding homes. Lighting should illuminate as evenly as possible along the walking portions of the linear park or walkway to avoid users moving from dark to light and back again.

2.9 Lighting – Levels

Light levels should be adequate to show a face at 15 metres and should avoid light pollution. Lighting should not excessively illuminate linear park or walkways so that surrounding areas appear dark making it difficult to see others nearby. Balance is critical.

3. Access Control

3.1 Entranceways

Linear parks and walkways need well-defined entranceways. They should be celebrated with appropriate landscaping as well as signage that includes a map of the route and emergency numbers.

4. Image

4.1 Maintenance

Provision must be made to maintain plantings and landscaping on a regular and consistent basis. Overgrown bushes not only look unsightly but also give the impression no one cares about the space and can detract from sightlines.

Clear signage and informal "gates" invite users to behave appropriately in park space.

4.2 Paving and walking surfaces

With severe winter conditions, walking surfaces can easily fall into disrepair and buckle with the freeze/thaw cycle. These surfaces require special attention during design to avoid problems later.

4.3 Pathway surfaces

Select walking surface materials for smoothness, stability, and durability. They must be non-slip in wet conditions and should not reflect lighting or create glare conditions when wet.

Surfaces should be durable, even, and smooth for easy use.

5. Conflicting User Groups

5.1 Path width

Widths of walkways should accommodate multi modal use. This means the path width is wider than what is normal for a straight pedestrian pathway. Widths must be adequate for cyclists and skateboarders who frequently make their way onto pathways and can conflict with walkers. Pathways should conform to City of Saskatoon standards at a minimum.

5.2 Pavement markings

If bicycle use is anticipated along a walkway, it may be helpful to divide the pathway in two with a centre line. This will help reduce the potential for conflict between walkers, runners, cyclists, and/or skateboarders.

6. Crime Generators

6.1 Hangout areas for teens

There is debate whether it is helpful to include hangout areas for teens on or in parks and linear parks. The issue isn't to avoid such places, but rather to design them in a way that accomplishes three goals:

1) to minimize potential conflicts between different users,

2) to allow teens to gather and socialize, and

3) to provide some natural surveillance for informal supervision.

6.1 Application – The supervised gazebo

Some park users complain that gazebos are too often vandalized by loitering teens and made unsightly by litter. In some parks, park maintenance personnel are housed adjacent to gazebos where they can keep an eye on the gazebo after hours and provide natural surveillance. Nearby residents who participate in local neighbourhood-watch programs can do the same. Trash receptacles and graffiti-vandalism-resistant materials allow daytime use of the gazebo by other residents.

A resident living adjacent to this walkway installed a see-through chain-link fence allowing him to keep an eye on a hangout location on the trail.

6.2 Park benches

On occasion, park benches or other areas of the park may become locations for undesirable loitering during late evening hours. Removing the benches is one option, but there are other solutions. For example, it may be possible to install in-ground sprinklers and schedule watering during those evening hours. Other solutions involve providing alternate activities for the loiterers or neighbourhood-watch programs.

7. Land Use Mix

7.1 Berms – Height

Berms can help improve the look and shape of a linear park, however, they must be placed with care. Their height should not detract from sightlines. If planting is incorporated into the berm, insure that the mature height of plantings does not obstruct natural surveillance.

7.2 Berms – Locations

Ensure that casual observance and natural surveillance is not obstructed around berms as they can be used as a hiding place if they are sited too close to walkways.

7.3 Conflicting land uses

Locating pathways and linear parks must be considered carefully. Residential land uses next to parks are ideal but there are some land uses that are not. A pathway into an isolated linear park leading away from night-time drinking establishments, for example, may place patrons at risk when they leave the bar. In that case it may be necessary to locate a well-lit taxi stand or bus stop to collect patrons. A risk assessment will indicate the impact of adjacent land uses.

8. Movement Predictors

8.1 Bus stops

Linear parks and pathways predict where and how people will move from one place to another. They are called "movement predictors." Movement predictors should have entrances near bus stops. Bus drivers picking up passengers can notify help if they observe problems nearby and pedestrians will easily know where to find transportation once they exit a linear park or walkway.

8.2 Siting – Controlling vandalism

Graffiti-vandalism-resistant materials and litter receptacles are useful in maintaining spaces along pathways adjacent to residential homes. It may be possible to use wrought-iron-type open fencing or ivy or moss to cover walls in order to discourage graffiti vandalism and still provide a pleasant environment.

8.3 Siting – Controlling break-ins

Locating pathways and linear parks to close to the rear of homes may increase opportunities for opportunistic break and enters. Movement predictors located adjacent to vulnerable properties may require special attention. For example, natural surveillance and access controls should be maximized with proper fencing, distance away from properties, and landscaping to maximize sightlines to name only a few.

8.4 Alternate routes

In some locations, pathways or linear parks may be appropriate for use only during specific hours of the day. If that is the case, alternate route signs should be provided for times when they are less used or less safe.

9. Cohesion

9.1 Preventing unwanted activity

Unwanted activities, such as after-hour loitering on benches, may arise in linear parks. Working with existing or new residents or Community Associations can help develop alternate recreational activities for those loitering or creating noise in the area. Neighbourhood Watch, stroller groups, fitness groups, and Park Patrol are examples of programs operated by communities that reduce incivilities in linear parks and pathways and bring residents together.

10. Connectivity

10.1 Destination

A pathway or linear park should connect neighbourhoods or provide access to facilities. The risk assessment will provide information on who will use the pathway or linear park and for what reasons.

> ### 10.1 Application – Linear park destination
>
> The point of a linear park or walkway is twofold: to provide an appealing and aesthetic land use for residents, and; to provide a route to a destination. A pathway without a destination means fewer people will use it and it may become difficult to secure.

This linear park ends at a children's play area and a regional shopping mall.

11. Culture

11.1 Gathering areas

Create areas within linear parks that local residents may use for community events, such as community barbeques. Linear parks offer neighbourhoods an asset of considerable benefit if they are given the opportunity to take advantage of it. The more residents use the linear park, the more likely it is that they will come to see it as theirs and begin to care for its safety.

11.2 Arts and culture

Where possible, create areas within linear parks and pathways for community art and culture, such as murals on walls or areas for impromptu music performances.

11.2 Application – Community bulletin boards are one way to offer a public service and also a place where people may go to find information.

This community bulletin board was designed by the community and is well used and free of vandalism.

"Lighting is neither good nor bad. What is critical to understand is... who are you lighting for? What are you lighting? Why are you lighting? And what type of lighting do you need?"

▶▶CHAPTER 9.0
GENERAL LIGHTING STRATEGIES

Lighting basics

There are many technical specifications regarding lighting beyond the scope of this general guidebook. Lighting engineers employ terms such as lux (a measure of illumination), luminaire (the light fixture), lumens (a measure of light at its source), and ballast (an electrical device to regulate voltage on a lamp). Lighting engineers are also adept at choosing the correct type of lamps for use in particular situations. However, designers require information from a proper risk assessment in order to determine which lighting is appropriate, how much lighting, and when to light an area.

Lighting types for exterior lighting include the following:

Incandescent – white/yellow, instant strike time (they illuminate immediately when switched on), good colour rendition, low initial cost but short lifespan, and energy inefficient.

Florescent – white, practically instant strike time, good colour rendition, and low initial cost but lifespan shortened by cold weather. Useful for interior walkways and hallways where clean, white light is needed and it is easy to change bulbs.

Metal halide – white, excellent colour rendition and good energy efficiency but high initial cost and slow strike time. Useful for exterior conditions for general lighting, such as bright, white lighting in high risk areas such as parking lots.

Low pressure sodium – orange, instant strike time when hot, very energy efficient but very poor colour rendition. Useful only for rear door or security bays.

High pressure sodium – bright yellow/pink, average colour rendition, and energy efficient but high initial cost and slow strike time. Useful for exterior conditions for general lighting, such as roadways.

Some far less common lighting types include:

Mecury vapor – blue/white, colour rendition varies, low initial cost but energy inefficient, slow strike time, and modest lifespan. Virtually phased out of common use.

Induction lighting – one of the newer lighting sources on the market, as yet uncommon in public use. Bright white, very long lifespan, instant strike, and energy efficient however high initial cost and lifespan is adversely affected by cold weather.

LED (light emitting diode) lighting – another new lighting source on the market, as yet uncommon in public use. White, good colour rendition, no glass to vandalize or gas to escape, but high initial cost and poor range of brightness.

1. Risk Assessments

The relationship between lighting and crime is not simple. In some cases lighting an area is desirable, in others not. The risk assessment process is where these determinations are made. However, lighting does have a direct link to fear levels in outdoor areas.

Although criminological research is not definitive, by some claims many night-time street crimes occur when lighting levels are low. However over-lighting does not prevent crime and detracts from enjoyment of a night-time sky. Although this may seem contradictory it reinforces the importance of a Risk Assessment in determining appropriate lighting. It is critical to understand what you are lighting, who you are lighting for and whether you ever need lighting.

2. Lighting for the elderly

Lighting for the elderly is different from that for the general population as deteriorating eyesight means considerably more lumination is needed. In general, a 60-year-old requires about twice the lighting brightness of a 20-year-old.

3. Retinal adaptation level

Retinal adaptation refers to the time it takes for eyes to become fully adapted when moving out of a well-lit area into a darker one. This transition time makes it difficult to see others for a moment and may prolong decision-making times.

In street lighting, lengthy strike times may be acceptable as retinal adaptation levels matter less (e.g.: sunlight does not instantly vanish at dusk). In isolated areas, however, or with some forms of motion-detector lighting it may be necessary for immediate strike times. This should be taken into consideration for CPTED and security purposes.

4. Light maintenance

Lights generate heat that can, after time, discolour the glass lens in a fixture, detracting from lighting effectiveness. This is worth considering in places where a luminaire requires a mechanical lift for maintenance, as in a shopping centre parking lot. A poorly maintained and difficult-to-service light fixture can result in ineffective lighting.

5. Energy sustainability and CPTED

The goal of exterior lighting should be to optimize energy consumption and still provide appropriate ambient lighting levels using luminaires that direct light where it is needed. Lamp selection and automatic turnoff switches will accomplish some of these goals, but they must be designed to take security and safety into account.

Separate resident or employee parking areas in housing and institutional land uses away from visitor and public parking areas will allow the latter to be turned down at night when those spots are not in use. A motion detector can then activate lights if someone enters those spots.

6. Glare

If a person can see a bright bulb from a distance (more than 30 metres), the lighting is producing glare horizontally, rather than shining vertically down on the ground it is supposed to be lighting. The glare interferes with the vision of drivers, pedestrians, cyclists, and security cameras.

7. Light trespass

Light trespass is lighting that spills out of the intended property and onto adjoining properties. It should be eliminated. The unintended light shines into windows and residents may close window shades minimizing natural surveillance and eyes on the street.

8. Light pollution

Light pollution should be avoided. It is produced by the use of bright, unshielded outdoor night lighting, often at commercial or institutional land uses. Light pollution is light that is not targeted for a specific task and creates skyglow above cities.

9. Design parameters

There are some general rules that apply to lighting:

9.1 Choose lights with adequate shielding so they illuminate only the intended areas.

9.2 Shielding fixtures should aim lights down. Fixtures should minimize glare and spread light evenly across the intended surface.

9.3 Colour rendition of high pressure sodium lights is not perfect, but they are energy efficient and sufficient in most locations as long as they provide adequate, even spread. Use white lights (halide) only where ideal colour rendition is important.

9.4 It may be possible to use timers on certain lights to conserve energy.

9.5 If it is necessary to provide light immediately when people enter an area, use fast-strike lights with a motion detector.

10. Coordinate design elements

Consider at all times the possibility that landscaping may obstruct lighting. Coordinate landscaping so as not to interfere with light distribution.

Painting surrounding walls and ceilings a light colour will help increase lighting levels.

11. General design suggestions

11.1 Use vandal-resistant polycarbonate lens.

11.2 Consider the need for strike and re-strike times.

11.3 Consider the need for accurate colour rendition.

11.4 Consider maintenance and replacement ease.

11.5 Outdoor lighting should illuminate faces at 15 metres.

11.6 Ideally, strong shadows and glare should be eliminated as much as possible.

11.7 Well-used walkways, sidewalks, and linear parks need independent lighting.

11.8 Entrapment areas, like vestibules off sidewalks, should be well lit.

"Landscaping must balance the choice and placement of materials with the risk of increasing opportunities for crime to occur and decrease users feelings of safety."

▶▶CHAPTER 10.0
GENERAL LANDSCAPING STRATEGIES

1. Isolated and concealed routes

It is unwise to construct isolated and concealed routes within the city. However, if there is a need for isolated routes, such as bike paths in remote areas in the city, there should be appropriate visibility on either side of the path.

If a concealed or isolated route cannot be removed or modified, it can be made safer by bringing in more activities, ensuring clear sight lines, improving lighting, and installing emergency telephones and electronic surveillance devices.

2. Entrapment areas

If there is an entrapment area or isolated area within 50 metres of the end of a movement predictor, it should be modified or eliminated. An entrapment area located near a concealed or isolated route such as an underpass or an isolated path provides an opportunity for crime.

3. Fence design

In cases where natural surveillance is of paramount importance, see-through fences such as wrought iron, are desirable. Chain-link may be appropriate for industrial or construction areas, but is unsightly in residential areas. The colour of see-through fencing will influence the impact of lighting: light colours tend to reflect light backs and may create a visual barrier. In those cases using darker colours on the see-through fencing will be preferable.

In cases where natural surveillance is secondary to access control, solid fences are appropriate. Keep in mind the risk of graffiti vandalism to solid fences. Community-designed murals can deter graffiti vandalism.

4. Greenscreens

Another solution to graffiti vandalism on fences and walls is greenscreens or moss walls. These include aesthetic wall plantings of, for example, ivy or moss as a way to reduce opportunities for graffiti vandalism and vandalism.

4. Application – Greenscreens

Greenscreens can be used on any type of wall in any location. They require little maintenance or watering.

Moss covering the entrance wall to a college provides an excellent and attractive green screen.

5. Orientation signage

Signage should provide information on emergency assistance, such as telephone numbers and nearby bus stops. It should also identify the name of the location and provide a map that is helpful for pedestrians. For ease of use, maps should be oriented according to where the viewer is standing.

6. Visible signage

Regardless of what is on signs, they should be clearly visible and easy to understand in all seasons. Winter snow means signage should incorporate lettering with strong dark and light contrasts. It should also be mounted so that blowing snow does not cover it after storms.

7. Mirrors

If mirrors are needed to see around corners, use flat, polished aluminum mirrors versus convex mirrors.

8. Sightlines

Choose appropriate vegetation and trees so that sightlines are maintained where appropriate. In areas away from paths or other areas when visibility is not an issue, a wider variety of vegetation is encouraged.

> **8. Application – Trimming hedges**
>
> As a general rule, it is advisable to maintain trees and shrubs to ensure adequate sightlines into areas, or across spaces.

Low shrubs allow natural surveillance into this bank-machine vestibule.

9. Space hierarchy

The public domain has multiple uses and no single design principle works everywhere. However, where possible, it will help with the "legibility" of public spaces to create a hierarchy of space from public, to semi-public, to private land uses through the use of buffers, grade changes, and plantings.

Another location where space hierarchy can be useful in is large public parks or common areas. Where possible, divide these areas into different "clusters" for use by different groups such as the elderly, adolescents, and teens.

> **9. Application – Residential home frontage**
>
> The frontages to residential homes are often designed with space hierarchy in mind. The public street is separated from the private doorway entrance by lawns, grade changes, small fences, landscaping, and pavement treatments.

This home uses a grade change and lawn to demarcate the public street from the property line. The recessed porch vestibule further divides the space into a semi-private area prior to entering the private space inside the front doorway.

10. Landscape features

Planting should always be based on growth rates and maintenance requirements. A mature shrub that obstructs sightlines while in full bloom will not help natural surveillance. If the leaves of a mature tree obstruct sidewalk lighting, that will increase risks. These considerations should be borne in mind when making planting selections.

Hard landscaping, like a bench, may suffer from vandalism if it is not hardened. Landscape decisions should also take into account ground covers such as stones that can be thrown at windows.

11. Shrubs

Shrubs can be usefully grouped according to size: low, medium, high. For obvious reasons, low shrubs less than 1.0 metre tall encourage natural surveillance. If they are planted close together they can also form a barrier to control access around perimeters, though it will only be a symbolic territorial barrier.

Medium-sized shrubs up to 2.0 metres tall are also useful for access control, especially those with thorns (though thorns collect debris and need regular maintenance). However, at mature size, medium shrubs will block sightlines. If the intent is to create a privacy barrier, they may be ideal.

High shrubs, over 2.0 metres can form excellent access control barriers around properties. If they are densely planted, they will be difficult to penetrate. They are not conducive to natural surveillance.

12. Trees

Trees, evergreen or decidious, provide access control barriers and, if properly trimmed, can also facilitate natural surveillance. Trees have many applications for CPTED including adding positive aesthetic image to a walkway or street, demarcating activity areas in a park, and providing shade for barbequing near a picnic table.

Research on public streets suggests trees make a major contribution. Small trees are useful to help define boundaries around properties and, if their foliage is thin, detract little from sightlines. Tall trees, especially older trees with large trunks, are often associated with beauty and should be retained, especially in park areas. Regular maintenance and trimming of their canopies is crucial to ensure they are not obstructing lighting levels.

13. The costs of landscaping

The main advantage to landscaping and planting is that it is typically far less expensive to modify or add to than hard architecture like stairways and foyers. Landscaping does require maintenance, and this should be considered the job of property management.

14. Community landscaping

In some neighbourhoods, social cohesion can be encouraged by getting residents to participate in creating their own street landscaping or community gardens.

14. Application – Community participation in design

In Portland, for example, thousands of residents each year participate in what they call "Intersection Repair" where they landscape their own neighbourhood intersections with painting, sitting areas, and art to create informal plazas. They then maintain those plazas throughout the year. This is an excellent way to get residents to work together, and such co-operation is one of the main objectives of CPTED and SafeGrowth.

Portland has many examples of intersections co-designed by residents who create lively street painting, adjacent gardens, bulletin boards, and seating areas at intersections in their neighbourhoods.

15. The importance of trees and shrubs

Choosing and maintaining the appropriate vegetation is important. Low shrubs and trees with high canopies may be important in areas where natural surveillance and sightlines are a priority. However, in areas where visibility and screening is not an issue more variety is available.

Having a variety of plant material with varying heights and density promotes biodiversity. In addition, bird habitat is greatly enhanced with multiple layers and levels of plant material that allows for a large number of nesting and perching opportunities.

Visually aesthetic landscaping with a mix of short and tall shrubs, decidious and evergreen trees, and other landscaping treatments will draw users to an area. Well maintained and tidy landscaping will help increase perceptions of safety of those users.

"Research regarding crime prevention through environmental design is over 30 years old. The preponderance of supportive data makes it abundantly clear – design matters."

▶▶ CHAPTER 11.0
APPENDIX – REFERENCES

The scientific basis for CPTED and SafeGrowth

This section lists the scientific studies that support CPTED. There is a vast body of evidence showing how urban design and careful planning can make communities safer. This is found both in the criminological and the urban design and planning literature. A few specific areas of research relating to criminal behaviour and the opportunity for crime include studies that show how:

- offenders use territory to evaluate risk to themselves when they commit a crime and how territory influences the fear of crime (Brown and Bentley, 1993; Perkins and Taylor, 1996; Ratcliffe, 2003), particularly break and enter, theft, and theft of motor vehicles;
- natural surveillance and eyes on the street can reduce crime (Hillier and Shu, 2000; Weisel, 2002; Cozens et al, 2003);
- keeping areas clean and properly managed reduces crime (Kelling and Coles, 1986; Ross and Mirowsky, 1999; Ross and Jang, 2000);
- controlling access into areas, particularly residential places, can make places safer (Poyner and Webb, 1991; Atlas and LeBlanc, 1994);
- supporting numerous activities in public places and mixing land uses can reduce opportunities for crime (Poyner, 1991; Wekerle and Whitzman, 1995; Pettersson, 1997);
- lighting can, in some circumstances, help make safer places (Farrington and Welsh, 2002; Cozens et a 2003);
- community participation helps to reduce crime (Sarkissian et al, 1997; Saville and Clear, 2000; Sarkissian, 2003; Dickout, 2006; Levan, 2006).

Research regarding crime prevention through environmental design is over 30 years old. The preponderance of supportive data makes it abundantly clear – design matters.

The references below are organized into the various topic areas used throughout this guidebook. They highlight only a few of the research studies to date along with the supporting data. A more detailed CPTED bibliography with over 800 studies is available from www.cpted.net, the website of the International CPTED Association.

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▸▸ NOTES

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