# Crime Prevention Through Environmental Design (CPTED)

**ABBOTSFORD**

# Preface

*This manual is meant to introduce the principles of Crime Prevention Through Environmental Design (CPTED) and promote the incorporation of these principles into the planning, design and management of development in Abbotsford. They are primarily focused on new development but can also provide insight into the retrofit of existing buildings and neighbourhoods.*

*Organized into three chapters, the manual can be viewed together or apart depending on the type and level of detail required. Chapter 1 provides a broad introduction and overview of the key elements and principles of CPTED. Chapters 2 and 3 provide more detailed strategies and guidelines related to the design, development and management of specific urban environments. Any duplication in this document is the result of an attempt to provide sections that can be viewed as stand-alone or as part of the larger document.*

*The guidelines mentioned in this manual are universal concepts that can be applied in any city. Nonetheless, when designing new projects or renovating the existing built environment, it is important to take into consideration the City of Abbotsford context and the diverse nature of its neighbourhoods. As such, designs should be sensitive to the context in which they are built. To achieve this, the built environment and public spaces must be accessible and welcoming for all residents of Abbotsford.*

*With a Crime Prevention Through Environmental Design strategy, the City of Abbotsford will be home to more safe, vibrant and identifiable neighbhourhoods comprising a more assured, proud and healthy population.*

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# INTRODUCTION

The City of Abbotsford has developed its first Crime Prevention Through Environmental Design (CPTED) manual, implementing a recommendation from the Crime Reduction and Community Safety Strategy. It is meant to be used as an informative booklet for developers and property owners looking to enhance the security and design of their current or planned buildings and environments.

CPTED is a practical strategy to mitigate opportunities for criminal and unwelcome behaviour. It is based on the idea that it is possible to use the design of urban environments to lessen or prevent the incidence of crime against people and property while creating attractive and active urban environments that foster a unique sense of place. At its core CPTED theory accepts that people take behavioural cues from their environment and therefore it is possible to influence behaviour through the design and management of our environment. When CPTED is properly applied, residents are safer and their neighbourhoods are perceived as such, whereas property owners often witness an increase in property values and retail businesses experience greater activity levels.

CPTED rejects the idea that safe and secure environments can only be achieved through a "fortress" approach that makes private property impregnable through high walls, security cameras and guards. This approach alienates and isolates the public realm making it an increasingly hostile place to be. Instead, CPTED embraces the "urban village" model where high levels of pedestrian activity, social interaction and increased "eyes on the street" are considered essential to achieving community safety. One of the most important ideas in CPTED is that crimes against people and property are less likely to occur when there are other people around. By creating active, attractive, safe and secure public spaces, it is possible to prevent crime without having to resort to fortress-like buildings and gated communities. In other words, the CPTED approach is broadly premised on bringing people in, as opposed to shutting people out.

CPTED complements other strategic directions identified by the City of Abbotsford by supporting walkable (healthy) communities, thriving local businesses and strong social development. When done well, CPTED creates high quality and desirable urban environments that bring people, businesses and services together.

This manual is organized in three chapters:

- Chapter 1 outlines the four main CPTED principles that guide the design process

- Chapter 2 applies these principles to urban land uses and spaces

- Chapter 3 identifies the places that require the most attention due to their crime vulnerability

# 1. CPTED PRINCIPLES

There is no single solution to the question of how to design and manage the built environment for crime prevention. Instead, the process must be adaptable, creative, and context specific, within a framework of key CPTED principles. These principles are outlined below.

Good urban design is about integrating a range of design principles and strategies to balance multiple objectives and manage trade-offs. For example, design strategies that emphasize privacy or security can undermine natural surveillance, or vice versa. Similarly, it is important that the strategies employed to deter crime and increase perceptions of safety don't undermine overall urban design quality and sense of place, or the comfort and enjoyment of the community as a whole. Fortunately, the principles and strategies for creating an active, attractive and high quality environment are, broadly speaking, similar to creating a safe and secure environment. The CPTED approach must balance and integrate the needs of diverse public uses related to the built environment.

## NATURAL SURVEILLANCE

Natural surveillance is central to CPTED. It is not "active surveillance" by guards and surveillance cameras but "informal surveillance" by members of the community as they go about their everyday lives. It involves achieving the right mix of land uses and activity generators and designing buildings and open spaces to allow people to casually observe activities in their environment. It is beneficial to locate activity generators adjacent to public spaces and orient buildings to provide opportunities for overlook. By ensuring the direct or indirect presence of people, potential criminal or unwelcome behaviour is deterred and people feel safer in their environment. This principle involves putting "eyes on the street" by encouraging pedestrian passage through a space or providing the opportunity for overlook from adjacent buildings and spaces.

### Principle 1: Design to maximize opportunities for natural surveillance.
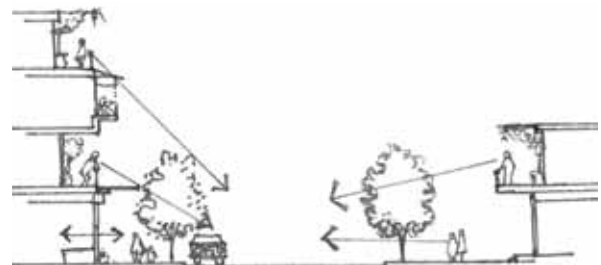


Figure 1. Street-fronting buildings provide multiple opportunities for natural surveillance of the public realm.

Guidelines:
- Avoid strict separation of land uses that may result in physical or temporal "dead zones" where there is little activity or signs of human presence.

- Ensure a compatible mix of uses that attracts people throughout the day and night.

- Balance the natural inclination for certain challenging uses (ie., some bars or nightclubs) to cluster together with the need for a range of users in the area. Avoid a critical mass of challenging uses that may drive other uses elsewhere.

- Locate activity generators and/or seating and opportunities for overlook around edges to create opportunities for natural surveillance of open spaces, plazas, parks or important pedestrian thoroughfares.

- Orient buildings and incorporate fenestration (windows, entrances, doors, balconies, patios, etc.) to overlook public, semi-private and shared open spaces and to allow informal, natural surveillance.

- Enhance building design at street level to create an attractive, comfortable and safe interface with the public realm.



Figure 2. Building design that ensures opportunities for overlook of public and semi-private spaces.

- Provide clear sightlines from within buildings to the entryways so occupants can clearly see outside before leaving the building. Design front entries so they don't create entrapment areas that are not visible from indoors. Design strong pedestrian connections between buildings and spaces. Building massing and site design should

emerge from the movement of pedestrians through and within the site.

- Provide clear sightlines at intersections and between key public places and adjacent uses. Avoid blind spots.

- Allow for informal surveillance of public and semi-public spaces while ensuring privacy for residents.

- Incorporate and locate lighting to allow for surveillance, particularly around building entrances and parking facilities. Ensure lighting design provides even light and avoids shadows and glare.

- In areas where crime is likely to occur, landscape with low ground cover or high-canopied trees. The trunk should be free of branches to a height of 2 metres.



Figure 3. Active ground floors including sidewalk cafes, displays, and upper storeys, are oriented towards the public promenade to provide many opportunities for overlook.

## LEGIBILITY / ACCESS CONTROL

Legibility and access control work together to allow people to move with confidence and ease through the urban environment. Legibility means that people know where they are and how to get where they are going. It means that the environment can be easily read and understood and it is simple to identify the appropriate and desirable routes to take. Access control reinforces legibility by creating clear design cues about what is the public realm and what is not. This allows users of the space to have more assurance as they navigate the urban environment in search of the services they seek. It also helps to mitigate the risk of getting lost or disoriented in a new setting, and reduces the chance that a person will stumble

unexpectedly into a private space where their safety might be at risk or where they could infringe on private property.

Reducing ambiguity also makes it more difficult for illegitimate users to legitimize their trespass into restricted areas. This creates a perception of risk to potential offenders and dissuades criminal or unwelcome behaviour.

## Principle 2: Design, detail and manage the built environment to maximize legibility and provide access control where appropriate.

Guidelines:

- Ensure important services (ie., bus or taxi stops) and signs are thoughtfully located and clearly visible.

- Create local landmarks by drawing attention to existing man-made or natural features such as rivers, sea-fronts, public squares, public art, heritage sites, or important civic buildings. Locate these at terminating vistas, preserve sightline and/or reference them in the design of the neighbourhood.

- Support way finding with clearly legible signage, annotated maps and strategically located information centres.

- Design entrances and exits so they are easily identifiable and clearly visible.

- Use access control measures such as low, visually permeable fencing to deter illegitimate users from semi-private or private outdoor spaces.

- Use footpaths, pavement, gates, lighting and landscaping to clearly guide the public to and from entrances and exits.

- Use gates, fences, walls, landscaping and lighting to discourage public access to or from spaces that are not meant for public use (ie., private outdoor spaces and unmonitored/poorly overlooked areas).



*Figure 4. Site buildings to define public open spaces. Site buildings and provide distinctive architectural features to terminate a street end view.*

## IMAGE / MAINTENANCE

According to the "broken windows" theory people take cues from their environment that will influence their behaviour. If an environment shows signs of neglect or vandalism people are more inclined to engage in unwelcome or criminal behaviour. Research has found that people are much more inclined to litter, steal and trespass when it seems other people have been breaking the rules. In one study, "the mere presence of graffiti more than doubled the number of people littering and stealing." In contrast, by enhancing and maintaining the physical appearance of the urban environment it is possible to encourage users of the area to respect their surroundings. Well used and cared-for public spaces encourage ownership and support community pride.



*Figure 5. Well cared-for streets support a sense of community.*

## Principle 3: Design and maintain the physical appearance of urban environments to reduce criminal or unwelcome behaviour.

Guidelines:
- Design the built environment using materials and fittings that will hold up to heavy use by the public.
- Use finishes that are resistant to vandalism and are easy to clean, repair or replace.
- Avoid long expanses of light coloured walls that may attract graffiti artists. Engage these groups in dialogue to find alternative outlets for their creativity (ie. commissioned murals or art exhibitions).
- Encourage beautification of neighbourhoods by supporting community group initiatives.



*Figure 6.   Large, blank walls attract graffiti.*

## TERRITORIALITY / OWNERSHIP

People tend to be territorial about their environments, or what they perceive to be their environments. Research suggests that a person's sense of control is negatively impacted by someone trespassing in "their territory". Similarly, most people would not intentionally infringe on another person's private space. Clearly differentiating and demarcating public space from private space reduces the risk of unintentionally trespassing, or being trespassed upon. Appropriate design of the interface between the public and private realm can help clarify ownership and define appropriate behaviour in these spaces.

Clear transitions between public, semi-public, semi-private and private space help to define the way we inhabit our environment. Clearly defined territory also helps to foster a sense of ownership over outdoor spaces. CPTED strategies are most successful when people take ownership of the urban environment and feel empowered to respond to situations in a way that will enhance the safety and security of the community. People usually protect territory that they perceive as their own and have respect for the territory of others. However, the design should define spaces in a way that does not eliminate the potential for natural surveillance. A filtered view between a public and private space will protect a person's sense of privacy while still allowing for the natural surveillance that is a cornerstone of the CPTED approach.



*Figure 7.   The transition from public to private is marked by design cues: a semi elevated entryway, landscaping, and a front porch help to define territory in a way that preserves privacy and supports a sense of ownership yet still allows for natural surveillance.*

## Principle 4: Clearly define boundaries between private and public spaces and promote shared responsibility for their security.

Guidelines:
- Organize the site into a hierarchy of visually defined zones by using devices such as material changes, landscape features, grade changes, low fences/walls, or seating to delineate boundaries. Avoid ambiguous land uses or spaces.
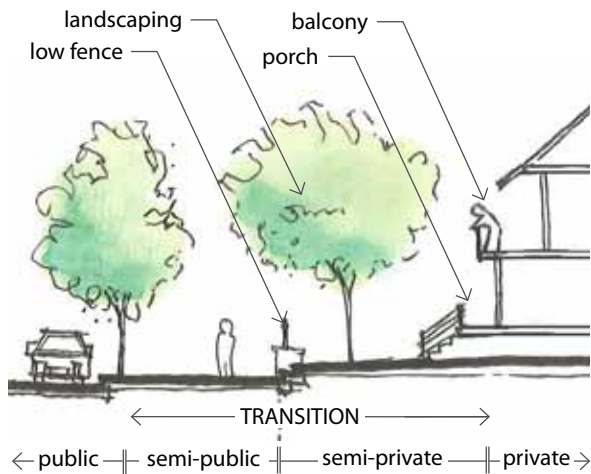
Figure 8. *A well-defined space with public, semi-public, semi-private and private realms helps express territoriality. The resident's perceived ownership extends to the street and unwelcome behaviour is reduced.*



Figure 9. *In this back alley, overlook from second storey windows provide opportunities for natural surveillance and privacy screens are visually permeable.*

- In building complexes with multiple users/ tenants (multi-family, office, institutional ,etc.), cluster individual entrances and/ or windows around principal entries, courtyards or common areas.

- Define ownership and intended use through obvious design cues such as low fencing, benches and paving patterns/materials.

- Relate exterior spaces immediately adjacent to buildings to establish territory. For example, low walls, landscaping and paving patterns to clearly define the space around a unit entry as belonging to the residents of that unit.

- Create a strong hierarchy of approaches and avoid providing too many ways to enter buildings or private areas. Ensure entrances and exits to the space are clearly marked.

- Balance the need for natural surveillance and the desire for privacy by creating filtered views that provide a sense of privacy while maintaining sightlines. Privacy screening should be visually permeable rather than solid screens.

# 2. URBAN DESIGN GUIDELINES

This chapter applies CPTED principles in specific urban environments. The guidelines included in this section should be viewed as supplementary to the general guidelines outlined in the rest of this document. The general guidelines form the overall framework within which the specific guidelines associated with these specific urban environments reside.

## NEIGHBOURHOODS

### Guideline 1: Design and develop neighbourhoods to promote surveillance of the public realm and community ownership.

1.1 Promote a variety of compatible land uses within the neighbourhood to encourage local access and surveillance.

1.2 Develop a variety of housing types and tenures throughout the neighbourhood to accommodate different household types, thereby enhancing natural surveillance by supporting many activity patterns.

1.3 Ensure all public streets and open spaces are strongly overlooked by appropriate buildings.

1.4 Promote neighbourhood legibility and wayfinding (ie. through easy-to-understand street layout, building orientation and signage that celebrates local landmarks, neighbhourhood gateways, views or natural features).

1.5 Ensure community public spaces are strongly overlooked from adjacent buildings with compatible uses.

1.6 Design to include and integrate institutions (such as business parks, retirement villages, hospitals, or schools) that might otherwise seek more isolated "gated" locations.

1.7 Provide a variety of places to gather, sit, observe and interact to encourage community ownership.



*Figure 10. This pedestrian mall provides plenty of opportunities to sit, observe, and interact.*

### Guideline 2: Support walking, cycling, and the use of public transit in the design and development of neighbourhoods.

2.1 Design neighbourhoods with high levels of physical connectivity for pedestrians, cyclists and vehicles.

2.2 Co-locate pedestrians, cyclists and vehicles in streets and design the public realm to deliver appropriate (but possibly varied) pedestrian amenities.

2.3 Avoid narrow pedestrian pathways between or behind development unless appropriate levels of overlook can be maintained.

2.4 Design integrated neighbourhoods rather than separating them into defined areas for housing, shopping and employment to support pedestrian/cyclist movement to and from these areas.

2.5 Design roads to enable active use and informal surveillance except where landscape buffers are required (ie. a freeway).

## CENTRES

### Guideline 3: Design, develop and manage district and city centres to create a lively pedestrian environment.

3.1 Provide a high quality public realm that is attractive, connected and comfortable for pedestrians.

3.2 Locate a wide range of uses and activities in centres to support pedestrian trips and provide informal surveillance.

3.3 Design and manage centres to promote long hours of legitimate use (including selective concentrations of night-time uses).

3.4 Include urban housing in centres to enhance surveillance, street activity and ownership.

3.5 In the renewal of centres over time, stage and locate development with an emphasis on ensuring the centre "stays together" so that the public realm grows outwards and doesn't end up with big gaps which could create surveillance holes and lessen the sense of place.

3.6 Locate and design key buildings and civic spaces to enhance their landmark qualities.

3.7 Define and overlook all civic spaces by supportive buildings with active ground floor uses.

3.8 Ensure largely continuous building setbacks along main streets.



*Figure 11. The commercial buildings in Abbotsford's historic downtown are consistently set back from the street to create a cohesive and legible urban environment.*

3.9 Facilitate the integration of major private and public institutions and places of worship.

3.10 Locate transit stops where they will provide access and pedestrian traffic to shops, night-time uses, and key civic or community spaces.

3.11 Locate and design car parking so as not to interfere with the continuity of the centre's public realm.

## PUBLIC REALM

### Guideline 4: Design and develop the public realm to promote natural surveillance and informal use.

4.1 Ensure buildings that define the edges of public spaces, or overlook them, are supportive in their design and use.

4.2 Design and manage the public realm to provide an appropriate level of surveillance from within the space and into it from the outside.

*Figure 12. The choice and maintenance of vegetation and other landscape elements provide clear sightlines into and within the park while maintaining a feeling of enclosure.*

4.3 Design to ensure active uses (pathways, cafes, shops or ground-oriented residential) around the edges and through parks, plazas and other community spaces to add surveillance and provide opportunities for people watching.

4.4 Thoughtfully design community places that provide opportunities for quiet contemplation, or other more private legitimate uses, in a way that balances security with enjoyment.



*Figure 13. A bench located slightly off the main pathway next to a tree provides a balance of privacy and safety.*

## Guideline 5: Design and manage the public realm to encourage legitimate use and community ownership.

5.1 Ensure there is a range of interconnected public spaces that cater to the needs of different groups within the community.

5.2 Design and develop the public realm so that the range of legitimate uses are clear and encouraged.

5.3 Design and manage the public realm to respond to different uses at different times (day/night, weekday/weekend).

5.4 Employ public art, landmarks, signage, views and natural features (in addition to the basic structure of spaces and their circulation systems) to enhance neighbourhood legibility.

5.5 Engage with community groups early in the design process to incorporate heritage and other cultural elements and build community ownership.

5.6 Ensure accurate, appropriate and well located signage and wayfinding.



*Figure 14. A well designed interpretative sign allows people to identify where they are, locate exits and plan their route. Good signage also eliminates excuses for unwelcome, inappropriate behaviour.*

## Guideline 6: Design, develop and manage the public realm to encourage access and movement by walking, cycling and public transit, supported by appropriate private vehicle use.

6.1 Provide a high quality public realm that is attractive, connected and provides continuous accessibility (without being frequently broken up by crossing "dead" areas such as surface parking lots).

6.2 Where possible, co-locate pedestrians, cyclists and slow vehicle traffic to promote accessibility, surveillance and legibility.

## BUILDINGS

### Guideline 7: Design and develop buildings and their sites to promote natural surveillance of the public realm.

7.1 Locate windows, entrances, porches, balconies, etc., to maximize informal surveillance of the adjacent public realm with special attention paid to the street, sidewalk and/or community open space.

7.2 Design and landscape sites so as not to obstruct surveillance between the lower floors and the public realm.

7.3 Ensure activities on the ground floor promote surveillance and locate uses with inside/outside activities (ie., a cafe or restaurant) adjacent to important public spaces such as a plaza or community gathering space.



*Figure 15. Entrances, windows and balconies provide many opportunities for informal surveillance.*

7.4 Ensure essential services (like public washrooms) and confined circulation systems (such as ramps and stairs) are located and designed to maximize visibility and access.

7.5 Minimize the extent of "dead" building elements (such as carpark entries, garbage/recycling enclosures, blank walls) at the ground floor on main street frontages.

7.6 Locate building elements with little or infrequent use (ie., the "dead" building elements) in non-critical places (such as the back alley or rear access) and, if unable to

be given appropriate natural surveillance, protect from illegitimate access by securing/locking them away or by using landscaping screens.



*Figure 16. Back of house uses should be located behind buildings and screened with landscaping to minimize impacts on the pedestrian environment.*

7.7 Locate and clearly define building entries on the main street frontage and design them to be:

- Clearly visible from the public realm, without physical or lighting concealment areas;
- Overlooked by uses within the building;
- Identified by legible signage;
- Appropriately lit (internally and externally);
- Transparent for public surveillance into the lobby area.

7.8 Avoid expansive blank walls and retaining walls (over 5 metres in length) adjacent to public streets. When blank walls and retaining walls are unavoidable, use an appropriate design treatment such as:

- Installing a vertical trellis in front of the wall with climbing vines or other plant material;
- Setting the wall back slightly to provide room for evergreens and conifers to provide year-round screening;
- Providing art over a substantial portion of the wall surface;
- Employing quality materials of different textures and colours to make the wall more visually interesting;

- Providing special lighting, canopies, awnings, horizontal trellises or other human-scale features that break up the size of the blank wall surface and add visual interest;
- Incorporating walls into a patio or sidewalk café space; and
- Terracing (step down) retaining walls.



*Figure 17. When a blank wall is unavoidable, devices such as planters can break up the visual impact and minimize opportunities for vandalism.*

## Guideline 8: Design and develop buildings and their sites to increase legibility and community ownership.

8.1 Ensure buildings present a "friendly" face to the street and avoid appearing closed off, locked-up, or fortress-like (with grills, solid shutters, locks, etc.).

8.2 Ensure buildings and their sites contain clear design cues that mark the transition from the public realm to the private realm.

8.3 Promote a sense of cohesion by designing and developing buildings along the same street with similar setbacks and visual massing.

## COMMERCIAL

## Guideline 9: Locate, design and manage commercial areas to promote natural surveillance and legitimate use.

9.1 Support a range of retail formats including small scale to large scale formats.



*Figure 18. A large format retailer integrated into a mixed-use neighbourhood.*

9.2 Wrap large format (big box) commercial developments with smaller scale retail formats that have more entrances providing a greater range of activities resulting in more informal surveillance.
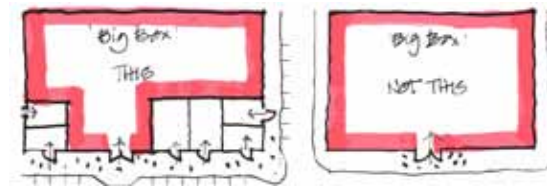


*Figure 19. Many storefronts on the street create a safer urban environment.*

9.3 Encourage the development of retail high streets by concentrating commercial uses along key corridors supported by appropriate residential densities.

9.4 Ensure buildings are sited and designed to be welcoming, and to encourage street vitality, visual interest, and safety.

9.5 Provide pedestrian access to storefronts and businesses from adjacent public streets.

9.6 Ensure that storefronts are transparent. Clear site lines from the inside of buildings to open public spaces allow for informal surveillance of the street and sidewalk while also making store interiors visible from the street.

9.7 Incorporate small-scale retail formats into commercial frontages facing the street.

*Figure 20. Buildings should be oriented to provide direct pedestrian access from the adjacent public streets/sidewalk.*
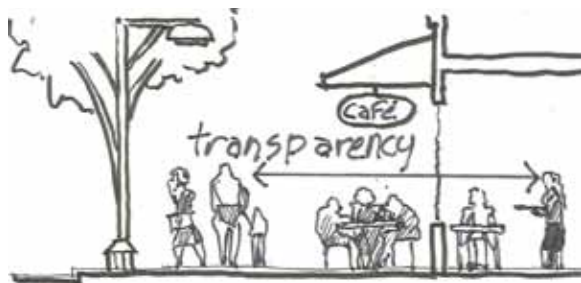


*Figure 21. Transparency creates visual interest, activity and safety, and applies to the ground floor as well as upper storeys of a building.*



*Figure 22. Fine-grained shopfronts enhance safety.*

9.8 Recess entrances to buildings in order to provide for door swings, protect the entrance from rain or snow, allow room to match elevation differences, and emphasize building entrances while maintaining clear lines of sight to maximize safety.

9.9 The use of frosted glass, tinted glazing or excessive signage is discouraged for windows facing the street.

9.10 Provide weather protection continuously along entire street fronting facade.

9.11 Design entrances to distinguish between commercial and residential uses.



*Figure 23. Recessed entries, glazing, weather protection and ornementation create a welcoming frontage without creating blindspots.*

9.12 Consider the front-to-back nature of commercial developments and design to avoid ambiguous space at the rear of buildings.

9.13 At-grade parking areas not readily visible from the street may be designed to restrict access after-hours.

9.14 Loading areas should not be in dead end alleys and should be architecturally integrated into the building with the potential for informal surveillance.

## OFFICE

### Guideline 10: Locate, design and manage office uses to promote natural surveillance and legitimate use.

10.1 If exterior doorways are recessed, angle corners to enhance visibility. Ensure that landscaping or built elements near the exterior doors do not create areas of concealment.

10.2 Locate activity areas to overlook public areas.

10.3 Ensure that building entrances are visible from the street and/or adjacent buildings.

10.4 All outside walls should have windows.

10.5 Windows and doors should have views into interior corridors.



*Figure 24. Clear visibility from interior spaces to the parking lot and main entrance.*

## INDUSTRIAL

Guideline 11: Locate, design and manage industrial uses to promote natural surveillance and legitimate use.

11.1 Concentrate points of access to enhance the possibility of public transit.

11.2 Consider the front-to-back nature of industrial developments and design to avoid ambiguous space at the rear of buildings.

11.3 Where blank walls are unavoidable, use landscaping, mosaics, murals or grills to minimize the risk of graffiti or vandalism.

11.4 Ensure that all entrances are well lit, well defined and visible from the street.

11.5 Maintain clear sightlines between the inside and outside at entrances (through windows on either side of the doorway and window panels in doors).

11.6 Minimize the opportunity for climbing onto the roof of industrial buildings.

11.7 Avoid solid fencing to maintain sightlines.

11.8 For security reasons, industrial buildings tend to limit glazing of their exterior walls. Balance the need for security with the need for surveillance by locating windows above ground level or in locations where the interior space of the building will not be revealed (ie. lobby areas or hallways).



*Figure 25. Windows in the lobby, internal corridors and above ground level.*

## MULTI-FAMILY RESIDENTIAL

Multi-family developments have great opportunity to be safe, healthy and attractive places for people to live. They benefit from the presence of user groups around the clock and, if designed properly, can add to the general safety and security of the neighbourhood. Where possible, multi-family developments should be located within an interconnected, mixed-use neighbourhood. This is beneficial to the residents because they are brought closer to services, employment, and transit and beneficial to the neighbourhood because it brings an influx of people to support local businesses and provide informal surveillance on the streets and open spaces.

The design of multi-family residential developments should balance privacy and community interaction by providing opportunities for both in a clear and legible manner.

Guideline 12: Locate, design and manage multi-family developments to postively impact their surroundings and promote natural surveillance and legibility.

12.1 Clearly define a perceptible edge between semi-public and semi-private property. This is particularly important where supervision of children is a concern.

12.2 Ensure building and site design promotes informal surveillance of entry ways, pathways, and community spaces within

and adjacent to the development through the placement of windows, doorways, balconies and porches.

12.3 Promote the use of outdoor space by partially recessing balconies or porches to provide weather protection.



*Figure 26. Building articulation creates weather protection and privacy screens for balconies in this mixed-use development.*

12.4 Site buildings with the longest facade adjacent to the street and orient living spaces and building entries toward the street to promote informal surveillance.

12.5 Ground floor residential uses should emphasize "doors on the street" by incorporating individual entrances to ground floor units in residential buildings that are accessible from the fronting street. This provides easy pedestrian connections to buildings, encourages street activity, walkability, and enhances safety.

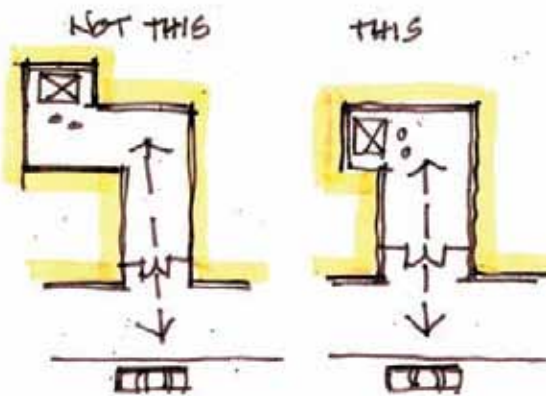12.6 Locate and design entrances and lobbies so they are clearly visible from the street.



*Figure 27. Maintain clear sightlines to main building entrances and into building lobbies*

12.7 Set back and elevate residential buildings on the ground floor to create a semi-private entry or transition zone to individual ground floor units.
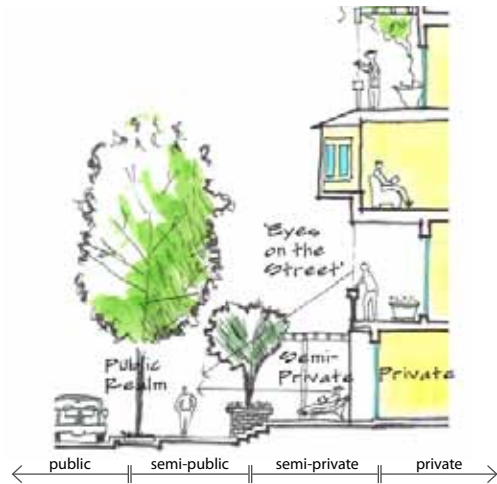


*Figure 28. Residential buildings with 'doors on the street' (entries and stoops directly accessible from the fronting street) and upper storey balconies overlooking the street enhance street activity and safety.*

12.8 Locate interior amenity areas (such as exercise rooms) near the lobby to provide informal surveillance.

12.9 Develop accessible amenity areas where residents can hold various gatherings and activities.

12.10 Privacy screens around outdoor space should not preclude informal surveillance.

12.11 Install windows on all four facades of the building.

12.12 Where multi-family developments are located adjacent to a public park, fencing, lighting and site design should provide an appropriate combination of security and access and promote surveillance into the public area.



*Figure 29. Balancing access and security in a residential development adjacent to a public open space.*

## SINGLE-FAMILY RESIDENTIAL

In some instances, single-family developments can achieve the residential densities necessary to support local retail uses, but typically single-family developments are also single-use developments. This can provide CPTED challenges because there is less foot and vehicle traffic, and therefore less opportunities for informal surveillance of the public and private realm.

The design and development of single-family areas should encourage interaction between neighbours to promote a shared sense of community and ownership.

### Guideline 13: Locate, design and manage single-family residential areas to promote natural surveillance and legitimate use.

13.1 Use lighting, walkways and landscaping to direct visitors to the appropriate entrance and away from more private areas.

13.2 Maximize opportunities for informal surveillance by orienting windows, entrances and porches towards the street.

13.3 Consider including a front porch in the design of single-family houses. Porches provide a semi-private outdoor space that is protected from the weather and encourages people to linger in their front yards. When the house is not set too far back from the street this encourages interaction between neighbours and informal surveillance of the street.

13.4 Where possible, avoid locating garages with large blank faces at the front of the house.

13.5 Provide lighting and weather protection at the front entrance to the home. This will make it easier for residents to unlock their front door, will create a more legible 'front door' to the building and will illuminate would-be burglars.

13.6 Locate the driveway to be visible from either the front or back door and at least one window.

13.7 Thoughtfully landscape to balance privacy with surveillance of vulnerable

doors and windows from the street and other properties.

13.8 Use landscaping, fencing (no higher than 1 metre) and pavement treatments to define the front property line and porches or stoops to create a transitional area between the semi-private front yard and the interior of the home.

13.9 When visibility is an issue, keep shrubs trimmed to 1 metre and prune lower branches of trees up to 2 metres.

13.10 Avoid pedestrian pathways located at the rear or side of developments unless appropriate opportunities for overlook can be achieved.



*Figure 30. An example of a single family home with a positive relationship to the street.*

## PARKING

A welcoming pedestrian environment is critical to safety and security in cities. Therefore, it is important that vehicular and service functions and other "back of house" activities remain primarily in the rear of developments with appropriate landscape screening so as not to conflict with pedestrian-oriented street activity.

In general, off-street structured parking is preferred to off-street surface parking. It is important to locate public on-street parking at the curb to provide convenient and easy access to commercial and residential entrances and promote pedestrian activity on the street.
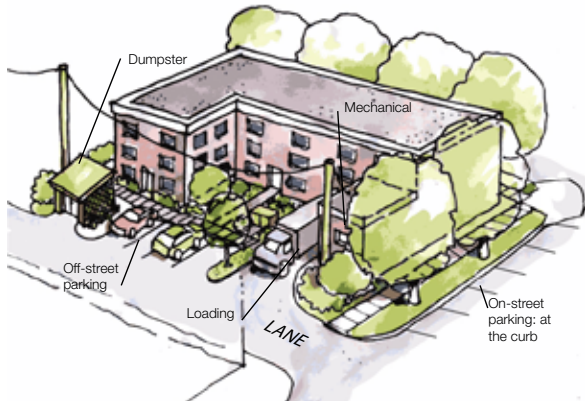
*Figure 31. Off-street parking uses should not be located between the front of a building and the public sidewalk.*

## Guideline 14: Locate, design and manage parking infrastructure to promote natural surveillance and legitimate use.

14.1 Provide on-street parking to focus activity on the sidewalk.

14.2 Locate car parking in areas of activity where the facility will likely be shared by different users at different times of the day.



*Figure 32. Provide on-street parking for street level activity.*

14.3 Locate surface parking areas to the rear of the building with parking access from the lane or side street.

14.4 Avoid off-street parking located between the front face of a building and the public sidewalk, particularly along retail high streets.

14.5 If surface parking is located beside the building and adjacent to the public sidewalk, screen these areas from sidewalks and other active open spaces using materials that provide a visual buffer while still allowing clear visibility and pedestrian access into the parking areas. Screening could include landscaping, such as a trellis or grille with climbing vines.

14.6 Ensure after-hours parking is well-lit and in close proximity to building access points.

14.7 Promote informal surveillance from adjacent uses by the placement of windows, balconies, and entrances to overlook the parking area.

14.8 Break up large surface parking lots into smaller ones by incorporating pedestrian pathways and landscaping.

14.9 Provide landscaping to buffer, frame and break up surface parking lots but ensure that sightlines are maintained into and out of the parking area.



*Figure 33. Screen surface parking using a trellis, landscaping or climbing vines that maintain sightlines.*

14.10 Any vehicular entrance and its associated components (doorways, ramps, etc.) should be architecturally integrated into the building so as to minimize its negative impact on the pedestrian environment. Treatments could include enclosures, screening, public art, high quality finishes, sensitive lighting and landscaping.

*Figure 34. Access to underground parking should be architecturally integrated into the building.*

14.11 Provide vandal proof and consistent lighting and white exit corridors, stairwells, walls and ceilings that reflect light.

14.12 Provide clear signage so that users can locate their cars quickly.

14.13 Install mechanical and/or organized surveillance.

14.14 Design and develop a network of designated, well-lit and sign posted routes throughout car parks linking users to the main entrances of the facility.

14.15 In above-ground facilities, maintain sightlines into the parkade from the sidewalk and adjacent buildings by minimizing the amount of solid wall.

14.16 Balance the desire to locate the potentially "dead" car parking facility where it can be seen by others with the need to ensure it doesn't negatively impact the quality or connectivity of the public realm.

14.17 Provide traffic calming measures on ramps to force cars to travel more slowly.

14.18 Locate parking entrances to promote surveillance from the street and adjacent uses.

14.19 Install vehicular gates and secure access to the building from the parkade.

14.20 Enclose exit stairs down to grade to avoid areas of concealment.

14.21 Install convex mirrors in vandal-proof casing where needed.

14.22 Incorporate glazing into staircases and elevator lobbies and provide vision panels in all doors leading to publicly accessible areas.

14.23 In residential contexts, do not number parking stalls to correspond to residential unit numbers (i.e. do not label the parking stall belonging to unit 802, 802).

14.24 Locate visitor parking in a separate, gated area with a clear path for visitors to access the elevator.

14.25 Use curbing to keep vehicles an appropriate distance from elevator or stairway areas to enhance sightlines and improve surveillance.

## PUBLIC TRANSIT

### Guideline 15: Locate, design and manage public transit stops and exchanges to promote natural surveillance and legitimate use and to ensure excellent legibility.

15.1 Where possible, locate public transit stops along streets integrated with vehicle, pedestrian and bicycle uses to enhance access and opportunities for informal surveillance.

15.2 Locate public transit stops so that they are in areas of activity (ie. adjacent to buildings with active ground floor uses) and where passers-by and passing vehicles are able to observe people waiting.

15.3 Ensure the walls of bus shelters are transparent and not obstructed by advertisements or other visual barriers.

15.4 Ensure passenger information signs giving transit routes, times, and basic wayfinding are prominently displayed and visible after-hours.

15.5 Ensure there is informal surveillance of waiting areas from adjacent activities during times when the public transit route is operational.

15.6 Provide safe, well-used and well-lit movement routes between public transit stops and major destinations with bold signage and emergency call points.

15.7 Provide lighting, seating and weather protection at all major public transit stops.

15.8 Carefully consider whether off-street transit exchanges are appropriate. Where they are unavoidable, ensure that the bus exchange is close to the street and fronted on at least two sides by buildings with active ground floor uses and activity during long hours of the day and night. In addition, ensure that transit exchanges are:

- Well-lit and painted with light colours (without creating a "fish-bowl" effect where users waiting at the exchange feel overly exposed at night);

- Carefully maintained so as to communicate a level of care and ownership;

- Designed to ensure that there are clear sightlines into and out of the exchange area;

- Designed to avoid areas of concealment;

- Built with weather protection and seating for users of the exchange.

## PEDESTRIANS & CYCLISTS

### Guideline 16: Locate, design and manage pedestrian and bicycle infrastructure to maximize opportunities for natural surveillance.

16.1 Where possible, create complete streets that include pedestrian/cyclist routes.



*Figure 35. Co-locating pedestrians, bicyclists, on-street parking and vehicle traffic increases opportunities for informal surveillance.*

16.2 Ensure that footpaths and cyclist paths are of sufficient width and quality to meet likely needs. This will encourage use and promote opportunities for natural surveillance.

16.3 In separated systems, avoid entrapment spots such as blind corridors, underpasses, confined routes, and tight spaces where the entire route cannot be seen by the user.

16.4 In separated systems, design for connectivity and surveillance, and introduce activity places and other points of urban contact along the route.

16.5 Manage intersections between pedestrians/cyclists and vehicle traffic at grade, without resorting to underpasses/overpasses except where supported by the urban topography and active edges of adjoining buildings/uses.

16.6 Use landscaping, built features and signage to enhance legibility.

16.7 Where the principles of CPTED cannot be sufficiently applied, support separated pedestrian/cyclist systems with technological and/or human surveillance.

## LIGHTING

The urban environment is often most vulnerable late at night when it is darker and there is less activity on the street. Thoughtful lighting design is therefore a key component of the urban environment. The guidelines that follow can help in the application of CPTED principles to lighting design.

It is important to be intentional in the way lighting is applied in the urban environment. In most cases where pedestrian movement occurs at night, some degree of lighting will be desirable. The level of light will depend on the specific context. Pedestrian/cyclist routes should be clearly lit without having an undue negative impact on adjacent residences. Some areas (for example, a street with night-life activity) will require more lighting than a residential street.

Where pedestrian activity at night is not desirable, (for instance laneways, trails and the rear of buildings) lighting may actually exacerbate

problems and increase risk to citizens. In these situations it is important to carefully consider whether activity is desirable and choose a lighting strategy appropriately.

In almost all instances, every effort should be made to reduce light pollution (which has an impact on human inhabitants of cities and nearby wildlife) while providing safe night-time urban environments.

## Guideline 17: Locate, design and manage an environment's lighting to promote natural surveillance and enhance legibility.

17.1 Avoid light pollution by directing lighting downward where possible. Only use uplighting in limited situations where it will not contribute to light pollution (for example, using a low intensity, small scale light to uplight vegetation or architectural elements).

17.2 Provide an even wash of lighting to avoid areas of high contrast.



*Figure 36. A public plaza is evenly lit to provide a safe environment at nighttime.*

17.3 Use appropriately scaled lighting. Vehicle traffic may require higher intensity lighting but pedestrian lighting can often be much softer and more subtely applied in the landscape.

17.4 Provide vandal resistant light fittings.

17.5 Where possible, integrate lighting of the public realm with the design of buildings.

17.6 Ensure that street names and building identifications are clear at night (for example, by using reflective materials and/or locating

identification in a clearly lit location close to the street).

## Guideline 18: Locate lighting along separated pedestrian/cyclist routes to increase an environment's legibility and encourage legitimate use.

18.1 Do not light areas not intended for night-time use.

18.2 Identify the major pedestrian/cyclist pathways where people will desire to walk at night. These pathways will likely be the ones that provide a key connection between destinations or popular promenades. Focus your lighting strategy along these pathways to concentrate night-time uses along key routes and assist legibility and choices about safe areas and routes.

18.3 Provide pedestrian-scaled lighting along the length of key pedestrian routes. Pedestrian-scaled lighting is generally not as tall or as bright as vehicle lighting, and is sited at shorter intervals to ensure continuous coverage.

18.4 Illuminate gazebos or other shelters and public art along the pathway to avoid creating areas of concealment close to the path.

18.5 Carefully consider transitional zones between well-lit and non-lit areas. The contrast between both can cause momentary blindness resulting in a dangerous environment.



*Figure 37. Appropriately scaled lighting along a key pathway.*

# 3. SPECIFIC URBAN SITES

Factors such as the design of the built environment, the type and density of land uses and the time of day can create situations where people are, or where people feel, more vulnerable to harm. It is generally accepted that having more people around reduces vulnerability or the perception of vulnerability. Isolated or hidden places provide opportunities for crime as do urban environments that are empty of people at predictable times. Some people may be more vulnerable than others (children) and some places are more vulnerable because they:

- Offer greater possible rewards from theft (ATMs),
- Are isolated (campuses), or
- Are open throughout the night (service stations).

The design and management of the built environment should respond thoughtfully to these situations of increased vulnerability, real or perceived.

This chapter outlines more detailed recommendations for addressing the design, development and management of specific vulnerable urban sites.

## ATMs

- Ensure there are no potential concealment spaces in the area near the ATM.
- Ensure the ATM is within direct view of surrounding activities and paths and close enough to ensure effective surveillance without impacting the privacy of the transaction.
- Ensure the path to the ATM is not a confined space or route.
- Locate the ATM where there are other supportive uses (for example, with users that are spread out over long hours of the day/night).
- Design and manage the ATM area to provide appropriate amenity and comfort (ie. protection from the rain).
- Design the public realm to be accessible.
- Support CPTED-based design with mechanical surveillance.

## SERVICE STATIONS

- Locate 24 hour service stations in areas where there is other 24 hour activity (such as transit nodes or nightlife areas).

- Ensure clear sightlines within the building and to the pump and other areas.
- Ensure clear sightlines from adjacent streets to the pump and building areas.

## PLAYGROUNDS

- Ensure that any spaces that may be used by children are in locations that maximize opportunities for natural surveillance.
- Ensure that playgrounds are situated away from conflicting activities (ie. vehicular movement)



*Figure 38. A play area overlooked from the street and adjacent residences while helping to keep children within the playground area.*

## ENTERTAINMENT AREAS

- Provide safe and direct access to and from night-time activities with public transit to serve users after dark.
- Ensure entrances to night-time venues are legible, overlooked, well-lit and monitored by mechanical surveillance cameras.
- Where possible, cluster multiple night-time activities that would attract a range of users (for example, a theatre, night club and restaurant) to provide additional pedestrian activity along key streets. Avoid creating large concentrations of potentially disruptive users (ie. too many bars in one location).

## PUBLIC TELEPHONES

- Locate public telephones in high traffic areas and away from isolated areas where they are not clearly visible.

- Ensure landscaping surrounding the public telephone does not obstruct sightlines.
- Ensure public telephones are clearly visible from pedestrian and other movement routes and close to other compatible uses.
- Provide appropriate lighting to allow for night time use.

## PUBLIC WASHROOMS

- Locate public washrooms in high activity areas. If they are meant to serve a large park, locate the washrooms close to the road and close them outside of park hours.
- Ensure entrances to public washrooms are clearly visible from the street and other public areas.
- Ensure entrances to public washrooms in or near playgrounds are visible from the playground.



*Figure 39. A public washroom on the sidewalk, highly visible from the street.*

## CAMPUS SETTINGS

- Where possible, integrate institutions into mixed use neighbourhoods.
- Provide clear, legible, overlooked, and well-used routes to gain access to essential buildings and services including residences, lecture halls, cafeterias, sports complexes, parking and public transit.
- Ensure emergency telephones connected directly to a security monitoring service with rapid response are placed at strategic locations along key routes used after-hours.
- Consider providing shuttle service to link key destinations within the site after hours.

- Develop a comprehensive surveillance strategy including:
  » Mechanical surveillance around buildings and along key pedestrian routes;
  » Clustered after-hours activities to improve informal surveillance;
  » Controlled and monitored after-hour access to buildings and facilities; and
  » Supplementary activities (such as residential or retail uses) along important routes to augment activity and informal surveillance.

## SKATE PARKS

- Integrate skate parks into the urban fabric and locate them close to other appropriate and complementary uses such as community centres, active retail or recreation.
- Engage skate park users early in the design process to maximize the success and ownership of the facility.
- Ensure that the skate park is located in a prominent location in relation to adjacent uses with active pedestrian routes along the edges of the park.
- Provide opportunities to sit and watch along the edges of the skate park (on the street or just slightly outside of the skate park) and within the skate park. Provide weather protection (ie. shelter from the rain) without obstructing sightlines or creating areas of concealment.
- Ensure vegetation and topography do not provide concealment of illegitimate activity.
- Locate the skate park in close proximity to frequent public transit routes and key pedestrian and bicycle networks.
- Avoid the use of heavy walls for sound proofing that restrict sightlines.
- Consider employing local urban (graffiti) artists to paint murals on concrete elements to minimize opportunities for "tagging" and undesirable graffiti.

## UNDERPASSES

- Wherever possible, avoid pedestrian/cyclist tunnels, bridges or other movement predictors that limit surveillance and escape options.
- Avoid creating places of concealment, particularly close to pathways, that prevent surveillance and limit choices.
- Ensure lighting is adequate but not excessive.

## NATURAL AREAS

Trails and other recreation facilities associated with natural areas, conservation areas and riparian areas can be important public amenities and provide key opportunities to foster stewardship of the natural environment. They can also represent significant challenges to maintaining the safety and security of park users. It is important to balance the various stewardship and conservation functions of natural areas with the safety and security of park users.

Undertake an inventory of natural areas in the community and identify those areas that provide important pedestrian connections and those that provide more recreation or conservation functions. The following guidelines relate to those natural areas that provide important pedestrian connections between key destinations.

- Where possible, locate active uses overlooking the natural area.
- Consider locating a public road along at least one side of the natural area.
- Ensure that paths are designed and maintained to establish and preserve sightlines from inside and outside the natural area.
- Where possible, avoid evergreens close to trails and walkways where they will create areas of concealment and obstruct visibility.

# IMPLEMENTATION

This manual describes the four CPTED principles and provides guidelines on how to successfully implement them in different urban environments. The implementation of CPTED into a development application with Planning and Development Services should consider the following points:

1. The guidelines mentioned in this manual are universal concepts that can be applied in any city. Nonetheless, when designing new projects or renovating the existing built environment, it is important to take into consideration the City of Abbotsford context and the diverse nature of its neighbourhoods. As such, designs should be sensitive to the context in which they are built. To achieve this, the built environment and public spaces must be accessible and welcoming for all residents of Abbotsford.

2. Although this manual is for informative purposes only, ultimately, the second chapter is intended to be integrated into the City of Abbotsford's Development Permit Guidelines contained in the Official Community Plan (OCP). This is anticipated to form part of a braoder OCP update that will include a comprehensive public consultation process and approval by Council. Development proposals requiring a development permit will be reviewed to ensure accordance with the guidelines and feedback may be given to improve the development's design and to align the project with Abbotsford's Official Community Plan's objectives.

With a Crime Prevention Through Environmental Design strategy, the City of Abbotsford will be home to more safe, vibrant and identifiable neighbhourhoods comprising a more assured, proud and healthy population.