

# **Crime Prevention Through Environmental Design**

**(CPTED)**

## **AUDIT REPORT**



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## **INTRODUCTION**

The purpose of this report is twofold. The first objective is to provide the reader with a general understanding of the audit process, related crime prevention concepts, and their potential benefits to the residents and businesses within the area. The second objective is to discuss specific concerns regarding your premise and make recommendations in relation to those concerns. While I have attempted to address concerns, this report may not address all crime risks, or preventative alternatives for the property.

As an owner, you want to ensure that your property is safe and secure. Your visitors want to feel safe when they come, and they are likely to return if their visit is positive. Law enforcement encourages all property managers to subscribe to the *Crime Prevention Through Environmental Design* (CPTED) concept as an easy way to ensure that their property is safe and secure. What is the secret to CPTED? It is the design and layout of the premise that eliminates or reduces criminal behaviour and at the same time encourages people to “keep an eye out” for each other. The National Crime Prevention Institute defines the purpose of CPTED as:

***“The proper design and effective use of the built environment can lead to a reduction of fear and incidence of crime, and an improvement in the quality of life.”***

*CPTED* is a pro-active crime prevention technique that is part of a comprehensive approach to crime prevention. The CPTED concept has been developed by criminologists and police departments based on knowledge of, and experience with, criminal behaviour. Its basis derives from common security techniques. In communities where these principles have been implemented, criminal activity has decreased by as much as 40 percent. CPTED is an approach to planning and development that emphasizes proper design and effective use of the physical environment. It can lead to a reduction in the fear and incidence of crime, as well as an improvement in the quality of life.

Communities, neighbourhoods, homes, businesses, streets and parks can all be made safer through the application of design principles that make it more difficult to carry out inappropriate activities. By emphasizing modifications to the physical environment, CPTED complements community-based policing, Neighbourhood Watch, and social programs that address some of the root causes of criminal behaviour. CPTED can be applied to identify and remove potential problems in

proposed developments. It can also be used to correct existing design problems that may invite crime.

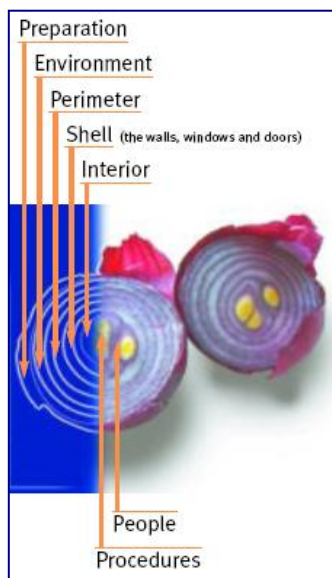
## **Benefits of CPTED**

CPTED benefits may include reduced crime, reduced fear, improved quality of life, partnerships, problem solving, reduced liability and cost savings. The benefits of CPTED make it an important part of the *risk management process* for any property manager or organization.

Choosing and implementing CPTED principles, whether contained in this report or not, is at the sole discretion of the property owner.

## **GENERAL CONCEPTS DEFINED**

Specific property concerns, and recommendations, will be discussed in detail in the audit section of this report, but first there must be a general understanding of basic Security Survey, CPTED and Target Hardening concepts. Using a balanced and logical approach will ensure that all areas are considered, so that improvements to security are more likely to be effective.



### **Onion Peeling Principal**

The technique used in all security surveying, however large or small, is called the **‘onion-peeling’ principle**. This simply means starting at the outside and working inwards.

*Preparation* will give an accurate idea of what the survey will cover and provide a better chance to use effective measures to reduce the opportunities for crime. Preparation should follow the ‘onion-peeling’ principle. It starts with the general area and works inwards with the audited premise as the focus. Preparation seeks to identify crime concerns for the surrounding area and audit site.

Consideration is given to potential targets, and threats to targets on the premise, as well as the level of risk and the effect of a crime against identified targets. The full range of possible effects, not just the financial ones, must be considered. This includes individual morale, overall image and being able to continue in daily activity. Having this information before a survey will help to decide which measures are: **appropriate, realistic and cost-effective.**

*The environment* is the area around the site whether residential, industrial, retail, pedestrian area, or parkland. It is the first part of the survey because it will influence the security of your location. Consideration must be given to the expected activities, persons frequenting the area (both normal and abnormal users) and witness potential. In the environment and at every level of a survey, the goal with regard to potential offenders is to **increase the effort, increase the risks, reduce the rewards, reduce provocation and remove excuses.**

*The perimeter* is the area from the property boundary to the buildings within it. It includes walls, or fences of the boundary. It may include a parking lot, loading bay, yard, playground, or path. Boundaries don't always need to be fences, gates or walls. They can be identified through painted markings, signs, rumble strips and speed bumps, or can even be unmarked.

*The shell* is the main fabric of the building, including the walls, windows, doors, skylights and roof. Sheds, outside storage areas and garages are treated in the same way as the shell of any main buildings.

*Interior* refers to building interiors and their content. Every premise is different and the levels and types of internal security will be different for each. The main things to consider are assets, stock and alarms. Assets include cash, computers, mobile phones, printers, information stored on computer, vehicles, personal organizers (paper and electronic), specialist equipment and tools. Stock and alarms will be discussed later as they apply to each specific audit.

*People* considerations apply to all residents, staff, delivery persons, guest, or other visitors to the property. Everyone should be aware of their responsibilities for security. They should be trained in the use of all security systems and policy and procedure.

*Procedure* refers to security procedures. Every building should have adequate **security and safety procedures.** These are only useful if **everyone** is aware of the security plan. These procedures can range from the very simple, for example,

locking a particular door immediately after each use, to more complicated procedures that may involve security staff, alarms and so on. It is important to be **vigilant** for any suspicious behaviour and to take appropriate action.

Building staff and residents should greet all customers, visitors and people making appearances. They should challenge and report anyone acting suspiciously.

## CPTED Concepts



The *Crime Triangle* shows that for any crime to occur, three elements must be present; Criminal Desire, a Victim and Opportunity. Individuals have little or no control over the first two elements. However, they do have control over the third – **Opportunity**. Every potential offender undergoes a target selection process, consciously or subconsciously, and should the element of opportunity be altered, even slightly, that alone can significantly reduce the chances of a crime from occurring. Removing, or reducing, criminal opportunity is the goal of CPTED and Target Hardening.

CPTED emphasizes the productive use of space with the resulting by-product being less crime / more prevention. CPTED recommendations are not intended to make the property absolutely problem or crime free. They will however address a number of safety and security issues by providing ways to improve access control, natural surveillance and territoriality, thus decreasing the probability of problems occurring. These three concepts often overlap but individually are explained as follows.

### **Natural Surveillance**

This design concept is directed primarily at discouraging criminal activity by ensuring that public spaces are easily observable. While formal surveillance techniques may involve hidden cameras and security personnel, physical features that maximize visibility of people, parking areas and building entrances can be just as effective. Designing for natural surveillance involves providing ample

opportunity for legitimate users, engaged in their normal activities, to observe the space around them. It also allows for witness potential through visibility.

The goal is to keep lines of sight open for normal users and potential witnesses. The overall sense of safety improves when people can easily see others and be seen. With proper use of natural surveillance, formal surveillance may only be necessary in vulnerable locations such as elevators and interior corridors, parking lots and other remote or isolated indoor and outdoor locations.

Examples include:

- doors and windows that look out on to streets and parking areas;
- sidewalks and streets that are open and inviting to pedestrians;
- unobstructed sight-lines with proper landscaping and trimming shrubs and trees (fencing should not block sight lines);
- open design concepts (e.g. that do not create hidden spaces);
- front porches and activity areas in front of buildings to encourage a visual connection with the street; and,
- Adequate lighting.

## **Territorial Reinforcement**

Territorial reinforcement is an umbrella design strategy that embodies all natural surveillance and access control principals. It attempts to create or extend a sphere of influence so that users of a property develop a sense of ownership over it and potential offenders perceive that territorial influence. While natural surveillance and access control strategies usually involve physical changes to space, such as pruning trees to improve sight lines or erecting barriers to deny or direct access, territorial reinforcement is the psychological by-product of doing those things.

This strategy is promoted by features that define property lines and distinguish private spaces from public spaces. Ways of doing this include use of landscape plantings, pavement designs, gateway treatments, and fences which create boundaries without compromising natural surveillance and signage. This is what actually instils the perception of risk that may cause potential offenders to avoid certain places. Signage may also act as a deterrent, while providing territorial reinforcement.

## **Access Control**

Natural access control is a design concept directed primarily at decreasing crime opportunities by discouraging access to crime targets and creating a perception of risk to offenders. This is a logical extension of the idea of territorial reinforcement. The primary thrust of access control is to deny access to a crime target and to create a perception of risk in offenders.

This is best accomplished by directing normal access to observable areas and preventing access to unobservable areas. Natural access control is gained by designing streets, sidewalks, building entrances and neighbourhood gateways to clearly indicate public routes, and by discouraging access to private areas with structural elements.

## **‘Hostile’ Vegetation**

Landscaping techniques can be used to supplement and improve the effectiveness of other security measures. For example, a hedge of thorny, ‘hostile’ shrubs (such as roses bushes) could be planted along an unfenced perimeter to direct incoming trespassers to an area or pathway that is monitored, or one that simply offers better natural surveillance. There are many species of hostile vegetation that can be used to deter trespassers and graffiti vandals. They can also be used to define boundaries and deny access to undesirable areas, or eliminate the use of a short cut.

## **TARGET HARDENING**

*Target Hardening* is the implementation of physical security measures in an attempt to prevent, or reduce criminal activity. This is the last resort to resist crime by increasing physical security and is a more recognizable, traditional way to discourage crime. It is accomplished by features that prohibit entry or access, such as window locks, dead bolts for doors, and interior door hinges. When considering Target Hardening measures, the ‘*three D’s of security*’ should be considered; Deter, Detect and Delay. This method of crime prevention is most effective when combined with the CPTED strategies identified above, so as to achieve a balanced approach.

The three D’s (deter, detect, and delay) will overlap with the CPTED principals already discussed. Individual strategies listed for each of the three categories will be discussed in detail as they pertain to the property, in the audit section. Considerations with regard to the three D’s are as follows.

## **Deter**

The first goal is to deter a potential offender by creating an increased perceived risk of detection. This may be done through the use of exterior landscaping, fencing, territorial reinforcement, natural surveillance, lighting, visible alarms and signage. Visible alarms refer to alarms that use visible and audible measures, such as strobe lights and sirens, in addition to monitoring. The purpose is to attract witness potential and create the perception of risk to an offender. Physical security improvements to the building shell may also deter offenders. Such improvements include door, window, and roof security.

## **Detect**

Should an offender persist in targeting a property despite attempts at deterrence, effective detection is the next goal in Target Hardening. Detection is accomplished through alarm systems, CCTV systems and neighbours or other witnesses.

In addition to the concepts previously discussed, any alarm system should be monitored to ensure police are dispatched when required. Many companies provide this service. CCTV systems need to be properly installed and monitored when used for detection. CCTV must be recorded if witness potential is desired.

## **Delay**

The goal is to detect an offender prior to successful entry to the premise, or access is gained to any protected assets. Physical security measures are employed to delay access to the premise and assets once detection has occurred. For example, a premise with double doors would alarm the outer doors and place a folding metal screen over interior doors. An offender has already set off the alarm but must still defeat the interior metal screen. Metal screens inside windows that are monitored by glass break sensors would have the same effect.

General security measures employed to delay unlawful entry to a premise include; proper locking systems, security doors, frames and hardware, window security hardware and glass security options such as laminate films placed on the glass. Any measures relevant to the property will be specifically discussed in the audit section of this report



## **CPTED AUDIT: 151 Bay St, Park Square Carleton Condominium Corporation No. 145**

### **Overview of Property**

I attended the building located at 151 Bay St, within the City of Ottawa on Tuesday August 23, 2022. I met with unit owner and community member, Brenda Knight, and obtained information related to concerns regarding the safety and security of the building.

Signage reminding residents to not allow people to follow them or piggyback them into the building could be considered in disallowing illegitimate users gain access to the building.

The overall maintenance of the building has been very well kempt. Challenges exist with the side entrance door, on the east side of the building. This area is an exit-only door that leads out to another gated gate/door and then, under a lengthy scaffolding to exit onto Queen St. It is quite dark and could be considered an entrapment area.

The main front door is located on Bay St and is kept locked, accessible only to residents with fobs. The outer door is unlocked, and the inner vestibule is where guests can contact residents to get buzzed in.

This building is a registered condominium, CCC145 that has 142 owned units on 14 floors. The structure was built in 1978. It is located in a mix of residential and business zone of Centretown.

This building is within walking distance of Parliament Hill; the Ottawa River, which includes the Ottawa River Pathway/Trans Canada Trail. This area is busy with both pedestrian and vehicular traffic.

### **Environmental Analysis**

Police call volume for this specific neighbourhood is relatively low. This building is in a mix of residential/business sector of Centretown. There is a hotel located across the street on Queen St as well as another on across the street on Bay St. Because of the proximity to the hotels, there is a higher number of pedestrian and vehicular traffic coming and going in relation to tourism in the Capital.

Witness potential during daylight is medium to high, with vehicle and pedestrian traffic at its peak during rush hour periods. There are multiple windows and balconies that face Bay St/Queen St providing increased natural surveillance if it is kept clean and well lit. Vegetation that surrounds the property is well maintained and clean. It was under renovation during my visit. Information that is concerning is the findings of needles in the flower beds/gardens which has been increasing in the area of Centretown, in particular since we in the midst of an opioid crisis. Gardeners should take care when in the gardens, and I would strongly recommend the use of gloves. I located one plunger from a needle located on the ledge outside the side door under the scaffolding.

No vandalism/graffiti was observed within the property boundaries and there has been no history of it.

I queried calls for 151 Bay St and determined there have been 15 calls for service in 2022 to date, which is on par with the number of calls for service in 2021 to date, and up from the 13 calls for service in 2020 to this date.

Past incidents and recent complaints from residents include problems with illegitimate users on the property, such as skateboarders. An increase of non-tenant sightings with individuals obtaining access to the garage, bike room, and mail room have also been reported.

## **Targets**

Although each property will have specific targets at risk from criminal offences, the purpose of this audit was to assess the building in general terms. The assessed targets at risk for the building are the exterior property (windows, doors, and lights) and illegitimate users of the property.

Property damage is a problem throughout downtown. Ottawa's downtown core has been targeted for graffiti repeatedly, and the city continues to work with residents and business owners to manage this concern. Research proves that initial graffiti vandalism may be opportunistic; however, if it is not immediately cleaned and managed, the property will be targeted. The result is exponential increase in the occurrence of mischief on the property. If not controlled, extensive graffiti damage can cost in the tens of thousands of dollars to clean if left unchecked. However due to the lack of police response for this type of criminal offence, I would rate the risk level associated with Graffiti within this property as very low.

Risks that this report is more concerned with are damage to property, theft/theft of packages, bicycle theft and suspicious individuals loitering/trespassing on the property.

I would rate the overall potential risks to people and property at 151 Bay St as low.

## **RECOMMENDATIONS**

The CPTED and Target Hardening recommendations that follow are not intended to make the property absolutely problem or crime free. Further, this report does not identify every conceivable crime risk. Recommendations in relation to the stated concerns will, however, address a number of safety and security issues. This is done by discussing ways to improve natural surveillance, access control and territoriality, as well as addressing target hardening principals, thus decreasing the probability of problems occurring.

### **Perimeter Protection**

As described earlier, the perimeter includes the property boundary and all property up to the building shell. Currently, the building only allows access to authorized residents.

There are cameras in the front lobby/front common area. Cameras are not deterrents to crime and are strictly a tool for evidence gathering.

You might consider posting a sign reminding residents to question individuals following them into the building.

Access to the underground parking lot is secure however I did not spend much time looking at the garage or the garage door. I did note that the area down the ramp at the garage door is quite dark, even though my visit was in daytime light. If a resident were to enter the garage, it might not be lit enough to see if anyone on foot gained access at the same time (picture below).



Directional mirrors in the courtyard might be seen as useful when coming up the ramp, for individuals on foot or in a vehicle around the corner.

Reminding tenants through a newsletter or bulletin posted in the front hallway to always remove anything of value from their vehicles or at the very least putting items out of plain sight and always keeping vehicle doors locked is important. As well, making sure tenants are registering visitor's vehicles/subcontractor's vehicles and workers when they are parking on the property, and enforcing this so as to avoid people taking advantage. I would suggest that residents also wait for the garage door to close before leaving so that they can observe if anyone is coming or going illegitimately.

“Private Property” and “No Trespassing Signage at the entrance on Bay St and surrounding the property are clear and are important in reminding people that it is private property. It also assists with officer's evidence when having to charge/remove anyone trespassing on the property.

Property Management or the Park Square Board could consider filling out an “Agent Status” form with the Ottawa Police Service to provide officers permission to attend the property to enforce the Trespass to Property act, without having to speak with tenants or the property manager first. These forms can be obtained through your Community Officer.

The side entrance to the building is of a concern. Again, because I attended in daylight hours, I cannot assess the lighting but would suggest proper lighting for this area. During daytime hours, it was quite dark and could be considered an entrapment zone. This is an area that is attended by illegitimate users as cigarette butts and a needle plunger was found (see pictures). There was a stench of urine as well. It looks

like someone has ripped or cut a hole in the construction wrap to gain access to the area.





## **Natural Surveillance**

There are no obstructions of vegetation around the property which is important in having natural surveillance of the property. There is a light pack located in one of the courtyard gardens that is obstructed by a tree, but I have been informed the tree will be removed, thus allowing the light to extend out further to the courtyard (picture added).



## **Lighting**

The lighting could not be fully assessed as I attended in the daylight, however I was informed that it can be quite dark at night in the courtyard.

Lighting falls within the realm of natural surveillance and territorial reinforcement. It works in conjunction with natural surveillance in that it allows visibility at night for lines of sight and target areas. Properly lit lines of sight to target areas provide

witness potential, and can have the effect of deterrence, detection and identification of abnormal users. Lighting provides territorial reinforcement by creating visual cues to property boundaries and ownership. There is no such thing as bad lighting, just bad lighting strategies, as while one type of lighting may work well in one place, it may not in another.

A successful lighting scheme requires good but not oppressive levels of light that is evenly distributed, allows clear colour rendition and avoids light spillage. Light spillage refers to lighting up unintended areas, such as neighbouring private residences. Well-positioned lighting deters and reveals potential intruders and reduces the fear of crime.

With many residents using the OC Transpo bus stop directly in front of 151 Bay St, on Bay St, having a well-lit pathway leading up to the front door is encouraged.

Reinstalling the light post in the centre garden of the courtyard would assist in providing 360-degree lighting in that area.



### **General Lighting Tips**

Lighting should be uniform and adequate intensity to illuminate the entire property. The actual volume, intensity and colour rendering needed would depend on what the goal is for lighting the area. Detecting abnormal user presence or movement would

require the least light quality, while identification through the use of video surveillance would require the greatest light quality.

It is worth noting that exterior wall mounted lamps will illuminate the facade and surrounding areas away from the building up to a distance equal to the mounting height of the lamp. Post-mounted lamps directing light downward will illuminate the surrounding area up to a distance equal to twice the mounting height of the lamp. This is useful in assessing the number of various types of lights required for the property.

Lighting needs can be divided into two categories – *safety and security*. Lighting for safety means that there is enough light to enable a person to see sufficiently so one does not stumble over or bump into any objects.

Lighting for security means that illumination levels are sufficient enough to enable someone to identify another person in general terms at a distance of 15 meters, then also to allow for facial recognition at a distance of 9 meters. These distances have been determined sufficient to allow an attentive person enough space/time to analyze an approaching person or situation and decide upon a course of action – continue or retreat. The key to effective lighting is that it should be even and continuous because the human eye cannot adapt quickly enough to provide good vision when constantly moving from light to darkness.

Security lighting, such as metal halide units, could be installed in all areas where surveillance is considered important, such as entrances, main pedestrian access routes, drive-thru lanes, car parks and other facilities. Other areas could use vandal resistant perimeter lighting, operated by photoelectric cells, which illuminate all elevations and recesses of the building. All fittings should be vandal resistant and positioned out of reach. The lighting design and layout should support natural surveillance and the operation of CCTV. Lighting should not be restricted by trees, shrubs or other landscaping features.

### General Interior Suggestions

When touring the interior of the building, I did note that the lighting in the hallways is quite dim and that there were blind corners where hallways meet. Directional mirrors/convex mirrors can assist in “seeing around corners”, minimizing the risk of not knowing what or who is around the corner.



## **Maintaining your property**

This is an important part of your over-all security. A run-down building can attract criminals (Broken window theory). Although Park Square is a very well kempt property, the following information is good to have.

- Keep properties and walk ways clean and repaired.
- Maintain parking areas to a high standard without pot-holes or trash.
- Remove faded posters, broken signs, and other displays that are beyond their useful lives.
- Keep plants and all landscaping in good condition.

## **CONCLUSION**

Although specific concerns were addressed, it would be unreasonable to expect to predict and prevent every conceivable risk. One can argue that adopting any of the recommended strategies is no guarantee against crime. While this certainly is the case, the goal here is to give potential offenders the perception of risk at this location, to reduce the possibility of this property being singled out as an easy target. Should a potential offender not be deterred, the goal is to detect and delay, until authorities can respond. Recommendations may also have the effect of reducing liability and costs related to crime on the property. Security risks must be reassessed regularly as changes to the property, and related environment occur.

Although police cannot monitor every location at all times, CPTED strategies can work for your property 24 hours every day. The CPTED concepts and strategies in this report offer no guarantees of solving your property problems, but because it's emphasis is the productive use of space, the likely by-product of that is a more efficient and safe environment. In order to maximize the effectiveness of these strategies, the recommendations contained in this report should be given consideration.

Should you have any questions regarding this report or any other property security matter, please feel free to contact me by phone or by e-mail.

Sincerely,  
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