Crime Prevention Through Environmental Design (CPTED)

MARANA CPTED STANDARDS

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Acknowledgement:

These CPTED standards are derived from the National Crime Prevention Council's Crime Prevention Through Environmental Design Guidebook and the Marana Police Department guidance in the CPTED presentation. Further guidance regarding CPTED was derived from the Mesa Arizona Crime Prevention Tri-Star Program.

CPTED: What can it do for you?

Physical environment greatly influences crime, fear of crime, and quality of life. The relationship between physical environment and crime has become more evident in recent decades as people make increasing use of locks, bars on windows, cameras, and alarm systems. Although these tools can have a legitimate role to play in crime prevention, they are not the complete answer. For a crime prevention strategy to be effective, it must be comprehensive.

The solution is an approach called "CPTED," or "Crime Prevention Through Environmental Design." As defined by the National Crime Prevention Institute,

CPTED is:

> **…a crime prevention philosophy based on the theory that the proper design and effective use of the built environment can lead to a reduction in the fear of crime as well as an improvement in the quality of life.**

CPTED works by decreasing a criminal's ability to commit crime and increasing the chances that the crime will be seen by legitimate citizens. CPTED goes beyond traditional security methods by naturally integrating security measures into the community. The goal of ALL CPTED applications is to:

> **Increase the Quality of Life**
> **Decrease Fear of Crime**
> **Decrease Crime**

By following the strategies presented in this handbook, homeowners, apartment residents, and business owners can achieve each of these goals. On pages 3 thru 6, you will find additional information about how CPTED works. On pages 7 thru 11, there are CPTED surveys meant specifically for single family home residents, apartment

residents, and business managers or owners. The pages on lighting describe the various lighting types available and their efficiency.

Why does it work?

CPTED is effective because of a concept called "defensible space." This concept suggests all space in the human environment is defendable: someone may take responsibility for the space and take action to defend it from non-legitimate, criminal, or unintended use. Alternately, space can be undefended. When there is no identifiable person who is responsible for the space, it is left exposed to criminal use. Crime is more likely to happen at a location if it is not defended, and crime is less likely to occur if an area is defended. The person defending an area may be the owner of the property, but they may also be a tenant, a property manager, or an employee.

In order to defend a location, it must be clearly identified and delineated, it must be modified to prevent access of unauthorized persons, and it must provide good visibility for witnesses in the event of a crime. The purpose of CPTED is to allow these things to be accomplished in ways that do not interfere with non-criminal activities. Does this sound difficult? Surprisingly, it is not. Defending a location may be as simple as building a small fence, installing an address marker, or cutting back weeds.

CPTED works because criminals avoid doing crime in the presence of legitimate citizens. Property that has been properly defended suggests to a criminal that a legitimate citizen may be near to witness the crime and call the police. Property that is not defended tells the criminal that no one is watching and they are safe to commit their crime. Like the table at the right shows, undefended places that are safe for criminals to commit their crimes are unsafe places for legitimate citizens.

Unsafe		Safe
Citizen	⬌	Criminal
Criminal	⬌	Citizen

Alternately, places that are defended and safe for legitimate citizens cause the criminal to fear detection and arrest for their crimes. The CPTED goal is to make every location unsafe for criminal activity while also making the same locations safe and inviting for legitimate citizens.

How does it work?

CPTED is applied in the community through one of four overlapping strategies. Each strategy employs a slightly different method of sending a clear message to criminals that a responsible person is nearby and their activity is not welcome. This section of this handbook will tell you about each of the strategies, and you will learn how to begin applying them in the next section.

Natural Surveillance

Natural Surveillance is the placement of physical features, activities, and people in ways that maximize the ability to see what is occurring in a given space. This is often thought of as the only strategy of CPTED, but it is only a quarter of successful CPTED effort. An example of natural surveillance is a parking garage built with large panoramic windows facing a major street. This allows pedestrians and motorists to see into the parking area and detect criminal activity. This strategy works because criminals will not commit crimes in areas where they feel exposed to observers. In the event a crime does occur, there is a greater chance that it will be witnessed and reported to police.
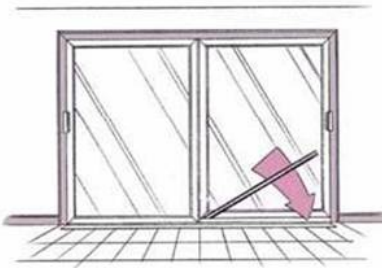
Territorial Reinforcement

Territorial Reinforcement is the use of buildings, fences, signs, pavement, or other objects to express ownership or to clearly delineate the transition from public space to private space. For example, a small decorative iron fence can be placed around a front yard. The fence separates the public roadway and sidewalk from the front yard and makes a clear statement that non-legitimate users are not welcome in the yard. This strategy works because it suggests there is someone present who has responsibility for the space and may observe criminal activity.

Access Control

Access Control is the physical guidance of people coming and going from a space by the placement of entrances, exits, fencing, landscaping, locks, and other barriers. For example, walkway bollards may be placed near the entrance of a park to prevent vehicle entry but allow pedestrian entry. This strategy works because it creates a barrier against improper vehicle movement into the park. In the event vehicles do enter the park, the presence of the bollards makes the inappropriate behavior clear to citizens passing by and they can notify police.

A component of Access Control is called Target Hardening. This refers to:

- Deadbolt locks
- Window locks
- Sliding glass door locks
- Alarms

Maintenance

The upkeep of an area demonstrates that someone cares and is watching. For example, a business may be regularly painted to maintain a clean appearance. This strategy works because of what is known as the "Broken Windows Theory." This theory suggests that a neglected space will elicit mistreatment by people, while a maintained space will elicit proper treatment. This strategy directly impacts the fear of crime in a community due to resident's perceptions of responsibility and caring in neighborhoods.

Poor Landscaping   Good Landscaping

How do I do it?

Any person wanting to protect their property with the use of CPTED must first ask themselves a question:

What am I trying to accomplish in this space?

Only after the true purpose of a space is recognized can CPTED be properly applied. The reason for this is that many times, a space is constructed to serve one purpose but is used for another. If CPTED strategies are used to affect the intended purpose, the strategies may have little or no effect on the true use of the property. For example, a resident may have problems with people standing or sitting in his front yard while waiting at a nearby bus stop. The resident attempts to keep these people off his property by building a brick wall, but the wall only serves to create a bench for the people to sit on while they wait for the next bus! The resident must ask himself what he truly wants to do with the property. If he chooses to have a private front yard without the distraction of bus passengers, then the resident needs to consider removing the wall and replacing it with a short picket fence or short bushes; things that may not easily be used to sit upon.

Using the Surveys

In order to help you best answer the question "What am I trying to accomplish in this space?" and properly apply the CPTED strategies to your property, the CPTED surveys in this book are separated into residential surveys and business surveys. To use them, select the one that is most appropriate for you and go to work! Each survey asks you questions about the property. While you are completing these surveys, please remember that the CPTED suggestions are made for the purpose of reducing the likelihood of criminal activity on your property. While no guarantee can be stated or implied, the concepts of CPTED have proven themselves internationally. The Marana Police Department offers this survey as a public service, with the understanding that there is no way to predict or prevent all crime risks. The purpose of this survey is to reduce the formability of crime by making a good faith effort to provide a safe environment. To become CPTED certified, the property must meet these standards as a minimum. Direct questions about this survey or your survey results to the Marana Police Department, Community Resource Unit at 520-382-2051 or 520-382-2055

Residential Survey

Residents are the core of any community. Their well-being directly impacts the health of the community and its ability to prosper. Residents who feel safe from crime in their homes and neighborhoods will be more willing to get involved in activities that strengthen and protect the community. Alternately, residents who don't feel safe often turn their homes into fortresses to protect themselves and they avoid contact with the community. This can contribute to the decline of the neighborhood and create a rise in crime!

All Marana residents are urged to spend approximately an hour of their time to complete this residential CPTED survey. The survey will allow residents to locate problems on their property, identify possible strategies for fixing the problem, and ultimately affect crime and quality of life in Marana.

Using the Residential Survey

In the survey below, you will find each of the four CPTED strategies listed with their proper application. Survey your property and compare it to each of these design elements, then rate the results in the space provided. A "NO answer suggests that your property may not be "CPTED-safe". In this case, consider modifying your property to satisfy the design element, or seek more direction from the CPTED Strategy Reference portion of this handbook. However, **to become CPTED certified, the property must meet these standards as a minimum.**

Residential Survey

Natural Surveillance/Lighting	Present?	
	YES	NO
Building parameters are well lit.		
Parking lots and/or carports are well lit.		
Common areas such as recreation areas, swimming pools, and walkways are lit		
Sidewalks and all areas of the yard are lit.		
The driveway, or where you usually park your car, should be visible from either the front or back door and at least one window.		
L2. Landscaping does not create blind spots or hiding spots.		
Front facing balcony railings, fences, or walls is not constructed of solid material or be higher than 36".		
Dumpster or other trash receptacles are lit and not create hiding areas		

Territorial Reinforcement	PRESENT?	
	YES	NO
L2. Property lines and private areas are defined with plantings, pavement treatments, short walls, or fences.		
The street and apartment addresses are clearly visible from the street with numbers a minimum of 5" high that are made of non-reflective material. The numbers should also be clearly lighted at night.		
L2. The property should encourage interaction between neighbors with low property-division fences, bushes, or landscaping transitions.		
The mailbox should be clearly marked with the street address. It should also be as close as possible to the front of the house and visible from the house.		

Access Control	PRESENT?	
	YES	NO
L.2 Walkways and landscaping should direct visitors to the proper entrance and away from private areas.		
Exterior doors are solid or metal and have eye viewers are installed on all front doors.		
Exterior doors or interior garage doors should be hinged on the inside and should have a single cylinder dead bolt lock with a minimum one-inch throw. The dead bolt strike plate requires being attached with 2" screws.		
All windows have locks and lift and slide protection devices.		
Sliding glass doors have a locking device or locking pin on the movable portion of the door.		

Maintenance	PRESENT?	
	YES	NO
Structures are free of hazards and in good repair.		
L2. Keep weeds abated. Trim all bushes to 36" high, all trees up 7' from the ground, and scrubs trimmed at least 6" below windows.		
L2. Keep landscaping tidy and in good repair.		
L2. Landscaping does not block pathway of stairwell views		
Area lighting is in working order and free of landscaping interference		
Graffiti is removed immediately		
Trespass signs posted		

Although not required for CPTED certification, the following are recommendations to improve safety and security of the property.

LAUNDRY FACILITIES:

- Well lighted facilities
- Self-closing/locking door
- Window in door/wall
- Money collected daily
- Cleanliness of facilities

COMMON AREAS:

- Ramadas/Picnic tables
- BBQ grills/Ash cans
- Litter receptacles
- Playground equipment
- Equipment maintenance
- Surveillance into area
- Access control to area
- Activity supports area

POOL AND SPA FACILITIES:

- Posted rules are legible
- Pool equipment
- G.F.I. outlets/electric
- CPR sign posted
- Pool depth marked
- Telephone near pool
- Surveillance into area
- Fences/gated/maintenance
- Chemical storage
- Activity supports area

EXTERIOR OF BUILDINGS:

- Building/apartment #s posted
- Rooftop #s painted
- Paint condition
- Windows/Screens
- Overall maintenance

MISC.:

- Cash handling policies
- Stairs/Railings
- Balconies
- Fire extinguishers
- Smoke alarms
- Fire lanes
- Fire hydrants
- Signs/posts
- BBQ policy
- Awnings
- Roof maintenance
- Electrical panels
- Exterior trim
- Site map posted
- Key control
- Curbs painted
- Speed bumps painted
- Parking lot asphalt
- Parking violations
- Parking space #s
- Balcony violations
- Window coverings
- Trip hazards
- Emergency lighting
- Exit signs
- Evacuation plan posted
- Mail box security
- Exterior and Interior fencing
- Gate security
- Water run-off
- Corrosion problems
- Landscape rocks

Commercial Survey

For a neighborhood to remain healthy, its local businesses must flourish; and for businesses to do well, they must be safe places to frequent. Perceptions about the safety of business areas directly impact the health of the community and its ability to prosper. Patrons who feel safe from crime in business areas will be more willing to return.

Business owners are urged to spend approximately an hour of their time to complete this business CPTED survey. The survey will allow owners to locate problems on their property, identify possible strategies for fixing the problem, and ultimately effect crime and quality of life in Marana.

Using the Commercial Survey

In the survey below, you will find each of the four CPTED strategies listed with their proper application. Survey your property and compare it to each of these design elements, then rate the results in the space provided. A "NO answer suggests that your property may not be "CPTED-safe". In this case, consider modifying your property to satisfy the design element, or seek more direction from the CPTED Strategy Reference portion of this handbook.

Commercial Survey

Natural Surveillance	Present?	
	YES	NO
Windows should face rear parking lots for increased visibility.		
Window signs should cover no more than 10% of window space.		
Interior shelving and displays should be no higher than five feet for increased visibility.		
Exterior and parking lots should be well lit.		
Loading areas should not create hiding places.		
Clear visibility should be maintained from inside the business to the street, sidewalk and parking areas.		
All entrances should be under visual surveillance by employees.		
Non-working or unattended surveillance cameras should not be used.		
Exterior parking lot lighting should be free-standing and not mounted to a building.		

Territorial Reinforcement	Present?	
	YES	NO
Property lines and private areas should be defined with plantings, pavement treatments, short walls, or fences.		
Businesses should be identified by wall signs for those parking in the rear.		
Reception and cash register area should be positioned to screen all people entering.		
Parking areas should be clearly marked and separated from pedestrian walkways.		

Access Control	Present?	
	YES	NO
Walkways and landscaping should direct visitors to the proper entrance and away from private areas.		
Cash register should be located in front of store.		
No easy access to the roof.		
Exterior doors should be hinged on the inside and should have a single cylinder dead bolt lock with a minimum one-inch throw.		
All windows should have locks.		
Detached storage sheds or other buildings should be equipped with lockable windows and doors.		

Maintenance	Present?	
	YES	NO
Keep structure painted and in good repair.		
Keep weeds abated. Trim bushes to 36″ high and trees up 7′ from the ground.		
Keep trash and debris from accumulating around rear of the building and storage sheds.		
Keep all lighting fixtures in good operating condition.		

CPTED Strategy Reference

Natural Surveillance

- Place lighting in such a way that it allows people to be recognized from 25' away. Avoid directing the lighting so that it glares into your eyes or into the eyes of persons passing by on the sidewalk or street. Glare may prevent you or passersby from seeing and identifying visitors to your door. Try to keep the light a white color to allow visitors to be better seen.
- Prune shrubs to no more than 36" high and trees up 7' from the ground. This allows you to maintain the shade provided by trees and the curb appeal of shrubbery, but it also provides a clear, unobstructed view. It also prevents criminals from easily hiding on your property.
- Leaving the window coverings open on at least a few front-facing windows creates the perception with people passing by that you are watching and will witness any crime that occurs there.
- Consider removing fences or walls that obstruct your view of the street. If you can't see out, then these areas may also provide a criminal a good place to hide near your house, lay in wait for you, or conceal their efforts to break into your home or business.
- In a business, maximize natural surveillance by keeping windows clear of posters, signs and other obstacles. Promote "eyes on the street" concept. By elevating the front counter/cash register area in a store, the clerks will have greater natural surveillance capability throughout the store.

Territorial Reinforcement

- Plant grass, flowers, or other shrubbery, or install short walls, fences, or other delineators to clearly show the line between your property and public property such as the roadway, sidewalk, or other easement. This demonstrates that you are responsible for your property, unwanted visitors are not welcome there, and you may call the police if a trespass occurs.

- A clearly defined street address allows police and fire services to find you easily in an emergency. It also sends a message to people on the street that you are taking responsibility for the property and have marked it as your own.
- Particularly in the front yard area, maintaining your landscaping to provide good access and visibility with your neighbors creates the image of a close-knit community. It suggests neighbors will protect each other if threatened by a criminal. This can be done by removing tall fences or bushes and replacing them with a low property line fence in the front yard, a strip of landscape edging, a planting of flowers, or even a path that connects the properties.
- Address numbers on your mailbox not only assist the mail carrier, they show that you are responsible for the box and the mail contained inside. Your mailbox should also be as close

to your home as possible in order to reinforce it as being your property and your responsibility. However, do not move your mailbox from its current position without first consulting with the local postmaster.

- In offices, locate the reception area so that people have to pass through that area to gain access to other areas of the building.
- Proper signage on business property helps send a clear message. Examples such as Private Property—No Trespassing, Hours of Usage, Residents Only, and No Vehicle Traffic tell a person that someone is managing the property.

Access Control

- Make certain the path to your front door is clearly identifiable. It must leave no question about the proper way to approach your home. This allows potential criminals who don't approach properly to be more easily noticed.
- Make sure all exterior doors are solid-core and are secured by at least one deadbolt with a minimum 1" throw. This helps to keep the door from being pried or kicked open. This is especially important with interior garage doors or other doors where the criminal is hidden from view.
- Keeping the door locks at least 40" from windows prevents criminals from breaking the window, reaching through the hole, and unlocking the door to get inside you home.
- All windows and sliding doors in your home should have locks to keep them from being pushed open from the outside.
- In stores, entrances for the public should be limited and visible to employees. They should also be well marked and have appropriate lighting.
- Directional signage, roadway or parking lot markings and use of other devices give guidance to people using the location. These devices allow employees at the property to observe those people who are not obeying the rules, which might prevent criminal activity.

Maintenance

- Keeping your home or business painted, clean, and repaired sends the message that you are taking responsibility for your property and will call the police in the event of suspicious or criminal activity.
- The storage of vehicles in your front yard for long periods of time creates several problems. It presents a target for potential car thieves or vehicle burglars. It creates places for trespassers or criminals to hide. It may also create the image that the vehicles are abandoned and uncared-for, and no responsible person is present to call police.
- Keeping outdoor lighting in good working condition allows for better natural surveillance and helps prevent criminal activity on your property.

Lighting

Lighting by itself does not prevent crime. Lighting provides the opportunity for "choice"; the choice to walk forward because you can see clearly that the path is clear and free of danger. If the user can see a potential danger (a person hiding, a group of misbehaving kids at the corner), they may choose to walk a different way. However, lighting can illuminate a target for a criminal as easily as it allows a legitimate user to see a potential threat or criminal. For this reason, lighting must be applied properly. Unless you have natural surveillance of an area, lighting may not always prevent crime. In fact, good lighting without surveillance may actually

encourage criminal activity. Lighting is a powerful tool that management and residents can use to control and reduce the "fear" and opportunity of crime.

Goals of lighting

Security lighting should be:
- Energy efficient (used consistently)
- Non-tamperable (use special screws)
- Break-resistant lens (Polycarbonate-Lexan)

Building lighting should:
- Illuminate building numbers
- Illuminate building accesses
- Illuminate front and back areas
- Illuminate porch lights under control of building, not apartment user.
- Illuminate the corners as well as walls.

Grounds lighting should
- Provide a cone of light downward to walkways, preferably from the side.
- Provide a level of lighting between buildings to distinguish forms and movement.

Common types of outdoor lighting fixtures
Energy-efficient lighting fixtures help you cut your electric bill. Additionally, most products are easy to install because many models come pre-wired and preassembled. Each style comes with a lamp and you can also choose to add a photocell on some designs.

High Pressure Sodium
Hermetically sealed, this high-pressure sodium lamp offers 24,000 hours of dependable life. Built for outdoor uses, it absorbs wind and vibration, is insulated against high voltage pulses and has minimal freezing or rusting in the socket. Clear or coated. (For use in high pressure sodium fixtures only.)

Dusk-To-Dawn High-Pressure Sodium
150 watt
Yellow light

High-Pressure Sodium Flood
150 watt
Yellow light

High-Pressure Sodium Wall Light
70 watt
Yellow light

Quartz Light Metal Halide
500 watt
Brilliant white light

Incandescent Bulbs

Supreme incandescent bulbs are rated to last 5000 hours compared to 750 hours for regular bulbs. Cooler burn with 85% longer lamp life. Withstands voltage fluctuations, and its brass base offers reduced socket freezing. Frosted or clear available. 40, 60, 100 watt varieties. White light

Incandescent Flood Light

One-piece weatherproof construction with a brass base to reduce socket freezing. Cooler burn. White light

Fluorescent Tubes

Cast cool, bright, economical light indoors.
Pictured: Circular, one of the many fluorescent tubes available.
White light
Color rendering

Another key performance characteristic, color rendering, is the ability of a light source to represent colors in objects. This is important for natural surveillance considerations, because different types of lighting cause colors to appear differently at night. For example, a criminal wearing a white sweater and gray sweatpants under a high-pressure sodium light would look like he was wearing a tan sweatsuit. Color rendering and the planned location for security lighting must always be considered before the final installation of a light fixture.

Purposes of security lighting

- Reduce crimes
- Reduce trespassers
- Reduce concealment
- Increases security
- Increases confidence
- Increase territoriality
- Increase surveillance

Proper use of various lights
- Metal Halide: Recreation areas, parking lots
- High Pressure Sodium: Parking lots, common areas
- Fluorescent: Covered parking, porch lights, walk paths
- Incandescent: Porch lights, inside units
- Low Pressure Sodium: Dumpsters, maintenance shops

Lighting terminology
- Foot Candle: Equals light from one candle at one foot away
- Lux: European scale for foot candle
- Lumen: Quantity of light from source
- Watt: Amount of energy consumed
- Life: Number of hours bulb will last

Light and lamp comparison
While many lamps will offer varying degrees of efficiency and effectiveness, this is a general guide to discuss advantages and disadvantages with certain lamps. Contact a professional lighting consultant if you have any questions.

Type Description	Use
Incandescent	- Low initial cost - High operating cost - Low efficiency - Short bulb life - Good color rendering
Fluorescent	- Moderate initial cost - Moderate operating cost - Moderate efficiency - Moderate bulb life - Poor to good color rendering (depends on phosphorous in tube)
High Intensity Discharge (Metal Halide & High Pressure Sodium)	- High initial cost - Low operating cost - High efficiency - Long bulb life - Good to excellent color rendering - Metal Halide: Excellent - High Pressure Sodium: Good
Low Pressure Sodium	- Most efficient of all types - Poorest color rendering of all types