

Crime Prevention Through Environmental Design (CPTED)

Security Handbook



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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 2-7, you will find additional information about how CPTED works. On pages 8-12, there are special 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 defensible: 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.

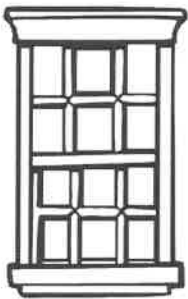
In order to defend a location, it must be clearly identified and delineated, it must be modified to prevent access of unauthorized persons, and it must provide good visibility for witnesses in the event of a crime. The purpose of CPTED is to allow these things to be accomplished in ways that do not interfere 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 and hedges.

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. Undefended places that are safe for criminals to commit their crimes are unsafe places for legitimate citizens... 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. Thus, maximizing the visibility of people, parking areas, vehicles and outside activities. Strategic placement of windows, doors, walkways, Parking Fields and roads. 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.

Examples of proper application of Natural Surveillance:

- All doorways that open to the outside should be well lit.
- The front door should be at least partially visible from the street.
- Windows on all sides of the house provide full visibility of the property
- Sidewalks and all areas of the yard should be well 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.
- Landscaping should not create blind spots or hiding spots.
- Front facing balcony railings, fences, or walls should never be constructed of solid material or be higher than 36 inches.
- Window treatments on 2nd story, front-facing windows should be kept open and provide a view to the front of the property.

Territorial Reinforcement

Territorial Reinforcement is the use of buildings, fences, signs, pavement, hedges, 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.



Examples of proper application of Territorial Reinforcement:

- Property lines and private areas should be defined with plantings, pavement treatments, short walls, or fences.
- The street address should be clearly visible from the street with numbers a minimum of 5 inches high that are made of non-reflective material. The numbers should also be clearly lighted at night.
- 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



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



Examples of proper application of Access Control:

- Walkways and landscaping should direct visitors to the proper entrance and away from private areas.
- Door locks should be located a minimum of 40 inches from adjacent windows.
- 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.
- All windows should have locks.
- Sliding glass doors should have a locking device or locking pin on the movable portion of the door.
- Detached storage sheds or other buildings should be equipped with lockable windows and doors.

Maintenance

The upkeep of an area demonstrates that someone cares and is watching. Removing physical hazards and graffiti, mowing the grass, trimming hedges and trees, fixing lighting. Gives the appearance that someone is present and the property is not abandoned. 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.



Examples of proper application of Access Control:

- Keep structure painted and in a condition of good repair.
- Keep weeds abated. Trim bushes to 36 inches high and trees up 7 feet from the ground.
- Don't store old automobiles, boats, trailers, or other vehicles in your front yard.
- Keep landscaping tidy and in good repair.

The Village of Garden City follows the same strategy:

- Wide streets
- LED Lighting
- Open parking fields
- Surveillance cameras accompanied by large visible signage
- Strict village ordinances regarding:
 - Upkeep of property
 - Maintaining sight lines from property
 - Minimal garbage left in the street
 - Limit the use of signage in store front windows
 - Overnight parking restrictions



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, and then directs you to another portion of this booklet for the applicable strategy.

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 Garden City 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 likelihood of crime by making a good faith effort to provide a safe environment. Direct questions about this survey or your survey results to the Garden City Police Department, Community Policing Unit at (516) 465-4114.



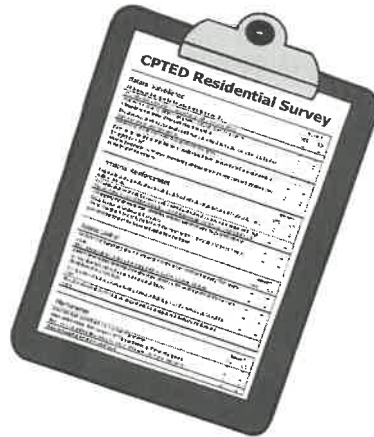
Residential Survey

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 Garden City 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 Garden City.

Using the Residential Survey

Using the survey on the next page, examine your property and compare it to each of these design elements, then rate the results in the space provided below. 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.



Notes:



CPTED RESIDENTIAL SURVEY

Every "NO" checked is an indication of improvement needed



Lighting, line of sight, and other visibility issues:	YES	NO	N/A
1. All doorways (front, side, rear, garage, basement) that open to the outside are well lit.			
2. The main entrance is at least partially visible from the street.			
3. There is a peephole in the front door of individual apartment/condo units.			
4. Windows on all sides of the building have full visibility of the property.			
5. Ground floor windows are clearly visible and not covered by vegetation.			
6. All windows (ground and upper floor, basement, garage) have adequate locks.			
7. The driveway and/or parking spaces are visible from either the front or back door and at least one window.			
8. Front facing balcony railings, fences, or walls are constructed of transparent material and not higher than 36 inches. Recommended material is strong, high quality, wrought-iron picket-type fencing with pointed tips or low fencing around the perimeter or adequate landscaping to perform the same function.			
9. Exterior stairs are designed so that persons going up and down the stairs can see through the stairs and railing.			
10. Sidewalks, all areas of the yard, and walkways are well lit to distinguish form and movement. Lights are kept clear of trees and landscaping. If on poles, poles are preferably low to ground.			
11. Landscaping is kept trimmed up to 2 feet off the ground and trees with 6 feet clearance below canopy.			
12. Parking garage is well lit and walls and ceilings are painted white or other light color to maximize lighting.			
13. Entries from garage to building interior have key or electronic access.			
14. Parking garage has vehicle sensors and automatic closing gates to prevent people from following vehicles inside.			
15. Garage signage is provided stating: Please make sure garage door is closed before proceeding.			
16. Building numbers, accesses, recesses, corners, walls are illuminated.			
17. Porch lights are under control of building manager/owner, not apartment user.			
18. Motion sensor lights are visible around the property.			
19. Landscaping, including berms, does not create blind spots or hiding spots.			
Clearly defined spaces:			
20. Property lines and private areas are well-defined with plantings, pavement treatments, short walls, or fences.			
21. The property encourages interaction between neighbors with low property-division fences, bushes, or landscaping transitions.			
22. Walkways, landscaping directs visitors to the proper entrance and away from private areas.			
23. The street address is clearly visible from the street with numbers 5 inches high made of reflective material so they are clearly visible at night.			

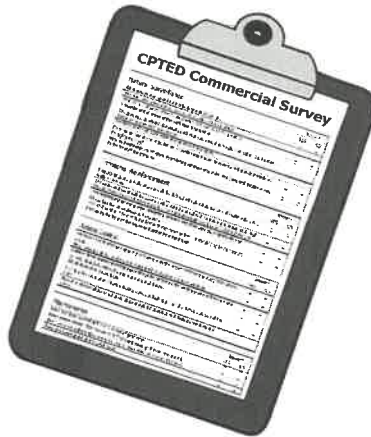
Commercial Survey

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 impacts 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 Garden City.

Using the Commercial Survey

Using the survey on the next page, examine your property and compare it to each of these design elements, then rate the results in the space provided below. 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.



Notes:



CPTED COMMERCIAL SURVEY

Every "NO" checked is an indication of improvement needed

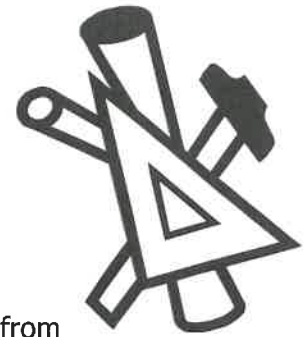


Lighting, line of sight, and other visibility issues:	YES	NO	N/A
1. Windows face rear parking lots for increased visibility.			
2. Window signs cover no more than 10% of window space.			
3. Interior shelving and displays are no higher than five feet for increased visibility.			
4. Shelves are turned so that cashier can see down aisles.			
5. Building exterior is well lit (photometric may be needed).			
6. Parking lots are well lit (photometric may be needed).			
7. Parking garage is well lit and walls and ceilings are painted white or other light color to maximize lighting.			
8. Convex mirrors help motorists and pedestrians with visibility issues.			
9. Loading and other outdoor areas are free of hiding places.			
10. Windows provide clear visibility from inside the business to the street, sidewalk and parking areas.			
11. All entrances are designed to be under visual surveillance by employees.			
12. Exterior stairs are designed so that persons going up and down the stairs can see through the stairs and railings.			
13. Front facing balcony railings, fences, or walls are constructed of an open material and no higher than 36 inches. Recommended material is strong, high quality, wrought-iron picket-type fencing with pointed tips or provide low fencing around the perimeter or adequate landscaping to perform the same function.			
14. The front door and windows maintain a view of the parking area.			
15. Sidewalks, all areas of the yard, and walkways are well lit to distinguish form and movement. Lights are kept clear of trees and landscaping. If on poles, poles are preferably low to ground.			
16. Landscaping, including berms, do not create blind spots or hiding spots			
17. Trees are of a type that retain a thin trunk as they grow and mature.			
18. Trees are of a type that retain an open canopy to allow light in from above.			
19. ATM are placed within easy view and not in blind or hiding spots, and the area is well lit.			
Clearly defined spaces:	YES	NO	N/A
20. Property lines and private areas are defined with plantings, pavement treatments, short walls, or fences.			
21. Businesses are identified by wall signs for those parking in the rear.			
22. Reception and cash register area are positioned to see all people entering.			
23. Parking areas are clearly marked and separated from pedestrian walkways.			
24. Benches have separators/armrests, so they are used for sitting only.			
Access:	YES	NO	N/A
25. Walkways and landscaping direct visitors to the proper entrance and away from private areas.			
26. Cash register is located in front of store and if not, faces entrance.			
27. No easy access to the roof.			
28. Planter boxes have grooves or spikes to deter skateboarders from causing damage to the building.			
29. Hostile vegetation is planted to deter sitting or access to windows.			
Other Concerns/Conditions:	YES	NO	N/A
30. Bollard, sanction, or security planter boxes are used.			
31. Fences are designed to resist tampering.			

CPTED Strategy Reference

Natural Surveillance

- Place lighting in such a way that it allows people to be recognized from 25 feet 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 inches high and trees up 7 feet 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 inch 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 pre-assembled. 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



LED Light

- One-piece
- Highly energy efficient and long lasting
- Variety of colors and wattages.



Fluorescent Tubes

- Cast cool, bright, economical light indoors.
- 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

- 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
- LED: Porch lights, inside units, walk paths, roads, common areas

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	<ul style="list-style-type: none">■ Low initial cost■ High operating cost■ Low efficiency■ Short bulb life■ Good color rendering
Fluorescent	<ul style="list-style-type: none">■ Moderate initial cost■ Moderate operating cost■ Moderate efficiency■ Moderate bulb life■ Poor to good color rendering (depends on phosphorous in tube)
High Intensity Discharge (High Pressure Sodium)	<ul style="list-style-type: none">■ High initial cost■ Low operating cost■ High efficiency■ Long bulb life■ Good color rendering
Low Pressure Sodium	<ul style="list-style-type: none">■ Very efficient■ Poorest color rendering of all types
LED (Light Emitting Diode)	<ul style="list-style-type: none">■ Moderate initial cost■ Most efficient of all types■ Longest life of all types■ Available in many colors■ No warm-up time, instant full output

