



The Advantages of Implementing Green Parking Lots

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Introduction

Green Parking Lots are needed for environmentally friendly parking. The design guidelines outlined here respond to the need for such parking lots which are also safe, efficient and attractive. Green parking lots should be implemented wherever possible for the following reasons: reduce or eliminate landscape irrigation costs, improve stormwater retention and treatment costs, reduce pollutant loading in receiving watercourses, and enhance aesthetics for any facility. These categories create a well-designed environmentally friendly parking lot.

Storm Water and Winter Maintenance

Storm water and winter maintenance increases the amount of pollution being put into the air. In order to reduce the amount of parking lot maintenance, one idea is to implement alternate pavers who can replace conventional asphalt or concrete with gravel, cobbles, wood mulch, brick, turf blocks, natural stone, or porous asphalt; this will assist water and snowmelt to run off without having to be removed. Traditional parking lot surfaces prevent rainwater and snowmelt from being absorbed into the soil to replenish groundwater. During storms and winter thaws, impermeable pavement can produce rapid run-off which poses flooding hazards and the risk of carrying pollutants directly into our lake, rivers and streams. Dark surfaces can also increase the temperature of stormwater run-off, disrupting water quality in receiving areas.

Two types of permeable materials



Paving and Asphalt

Large areas of asphalt contribute to urban island heat effect; the urban island heat effect raises local air temperature and increases smog. Vehicles left to bake in the sun can be significant polluters; they require further energy for cooling which also result in smog. Also, traditional parking surfaces prevent rainwater and snowmelt from being absorbed into the soil to replenish groundwater. During rain storms and the thawing of winter snow, impermeable pavement can produce rapid run-off which poses flooding hazards. Our proposed guidelines include planting trees to provide shaded areas and eliminate some of the urban island heat effect, use light coloured pavers or materials which will help reduce the surface temperature, or installing permeable pavement (or other such products) that will help the overflow of rain and snow in the parking lot. Designers should also install decorative paving or a change in paving material/colour to emphasize edges, pedestrian routes and crossings, entrances, loading areas and other special features within the parking lot.

Pedestrians and Cyclists

In order to eliminate navigation routes between parked cars, ensure pedestrians and cyclists are safe, and also promote healthy and active lifestyle, we propose the following guidelines: design safe and user friendly routes and paths for pedestrians and cyclists, establish well identified pedestrian routes that will connect them to building entrances, implement transit stops and other destinations, and provide well lit and weather protected areas for bicycle parking. Just like the biking, this will also make workers save gas knowing that public transit will drop them off right in front of their workplace or for people who don't work there, the business they are visiting. All pedestrian routes within a parking lot should include a barrier-free pathway, with a minimum clear width of 1.7m (wider pathways are encouraged and may be required depending on parking lot use); shade trees (or a shade structure) along one or both sides of the pathway; pedestrian-scale lighting to illuminate and define the route; and a clear division from vehicular areas, with a change in grade, soft landscaping and a change in surface material. Designers can place just as many bike racks (if not more) as the number of parking lots to promote biking to work or wherever the parking lot may be. Knowing that a business offers safe bike parking, and has a safe way for them to get to their destination, people will want to save money on gas and bike to work. We can also implement a separate bike rider's lane on the gravel so there is less of a chance that an accident would occur. Not only will this be safer for the bikers, but it will also make drivers feel better knowing that they don't have to share the road with bikers and worry about hitting them.

Green Technology and Lighting

The goal with Green Technology and Lighting is to use energy efficient equipment and environmentally friendly materials as much as possible. To make it safe for pedestrians and cyclist, the walkways could have solar panel lighting to ensure everyone can see at night to prevent falling, which will prevent the business from any lawsuits just in case someone may trip in fall in the night because there were no lights provided. As another safety precaution, there could be an emergency call center school would make people feel safe walking or biking. Another idea for green technology is covering the parking lot with solar panels. This would turn the parking spaces from a single use space into a power generation system. Not only would this produce lots of energy on other places but by covering the parking lot, the cars will be better protected. There are two designs for lighting that are possible are solar lighting and wind lighting.

20/20 Solar LED Lighting: It is designed for large spaces such as a parking lot. It gives out a high power of light that it increases pole spacing. The 20/20 design incorporates a low profile LED luminaire. Light engine, PV assembly and pole. It is configured to your requirements to run either throughout the night or to save energy with dimming when the full light is not needed. This will avoid costly trenching, wiring and electrical connection.

Wind Powered Lighting: Wind spins a small turbine that lights up LED lights along the edge. With the changing winds it increases the intensity from a low dim to a glowing light. This would work well throughout the night; as wind picks up, the light will become brighter making it easier to see at dark. No batteries or wires are required.

Parking Spaces

Reducing the size of each parking space in a parking lot will reduce the amount of natural ground ruined by parking lots: smaller parking spaces will result in a smaller parking lot. To accomplish this, we need to minimize the dimensions of the parking spaces; this can be done by reducing both the length and width of the parking stall. Placing a parking lot behind a building rather than in front of it creates a more inviting and pedestrian-friendly environment. Beyond making the parking lot more visually pleasing, vegetation and landscaping (including trees) around and inside the parking lot reduce HIE and help to absorb CO₂ emissions. Transform a parking lot from a sparsely landscaped expanse of impermeable paving to a space that is more aesthetically pleasing, land efficient, and community and environmentally friendly.



An example of bicycle parking with a protective canopy creates a unique parking lot edge integrates well with the streetscape design.

An example of pedestrian lighting



A pedestrian pathway defined and lit with appropriately-scaled fixtures



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