

In addition to engineered design solutions, green parking lots may also incorporate local codes designed to minimize the land area devoted to parking. This may include reduced parking stall dimensions, shared parking arrangements, and/or reductions in the minimum number of parking spaces required.

Hazard Mitigation

Green parking lots provide on-site stormwater management by allowing infiltration of run-off into the ground during storm events, thus greatly reducing runoff volume and rate. They may completely eliminate runoff from small storm events and have the ability to capture as much as 50-80 percent of runoff from larger events.

Site Considerations

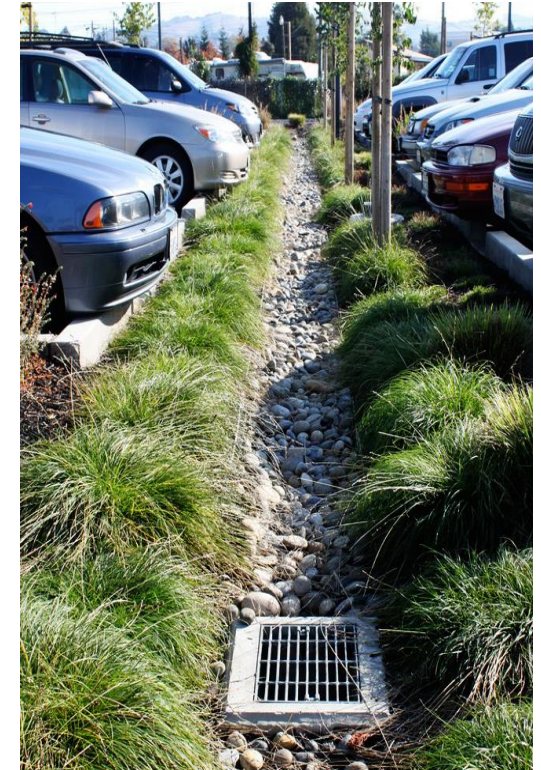
Green parking lots require suitable soil types and porosity to allow adequate infiltration. Clogging is a major risk in areas with high volumes of sediment and dust, so more frequent maintenance would be necessary for installation in these types of locations.

Porous pavement may be used in low-, medium-, and high-traffic areas. Porous asphalt may be used anywhere that conventional asphalt is appropriate. Pervious concrete is more durable than porous asphalt in hot climates, but in cold climates it must be designed with a stone subbase and never placed directly onto a soil subbase. Permeable pavers (including grass paving systems) are less durable than porous pavement and are not generally suitable for high-traffic areas. Many permeable paver designs are not suitable for handicap accessibility.

Green parking lots should not be located in areas with highly contaminated runoff (such as gas stations and auto repair facilities) to avoid the potential for groundwater contamination.

References and Additional Resources:

- [http://www.dot.ca.gov/design/lap/landscape-design/erosion-control/docs/Green%20Parking%20Lot%20Guide%200\(final\).pdf](http://www.dot.ca.gov/design/lap/landscape-design/erosion-control/docs/Green%20Parking%20Lot%20Guide%200(final).pdf)
- <https://www.epa.gov/green-infrastructure>
- <https://www.epa.gov/greeningepa>
- <https://web.archive.org/web/20120915061616/http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm?action=browse&rbutton=detail&bmp=136&minmeasure=5>
- <https://web.archive.org/web/20120915061616/http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm?action=browse&rbutton=detail&bmp=136&minmeasure=5>



**CITY OF
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GREEN PARKING



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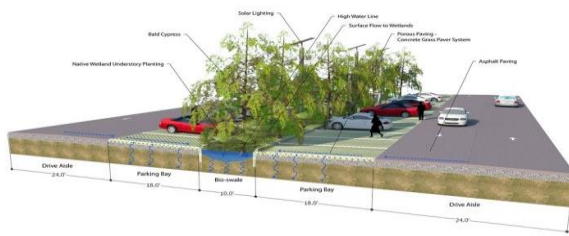
225 Park St

Lakeport CA 95453

Phone: 707.263.5615

Email: bsharp@cityoflakeport.com

Web: cityoflakeport.com



Why have Green Parking Lots?

The City of Lakeport is located on the largest natural lake in California, and has creeks that empty into Clear Lake. The reduction of storm water runoff is a critical priority. Here are a few benefits of having a Green Infrastructure:

- **HIGHER WATER QUALITY:** by soaking up and storing water in place, green infrastructure reduces stormwater discharges. Lower stormwater volumes mean reduced gray infrastructure sewage overflows and lower pollutant loads. Infiltration and storage of stormwater can also help remove pollutants.
- **INCREASED WATER SUPPLY:** Harvested rainwater can be used for outdoor irrigation and certain indoor uses thereby significantly reducing municipal water use. Water infiltration practices also recharge groundwater reservoirs.
- **REDUCED PRIVATE AND PUBLIC COSTS:** Green Infrastructure can reduce a community's infrastructure costs, promote economic growth, and create construction and maintenance jobs. Lower costs for site grading, paving, and landscaping, and smaller or eliminated piping and detention facilities provide savings for developers.
- **INCREASED PROPERTY VALUES:** Green infrastructure increases the market value of properties.

What is Permeable Pavement?

Permeable paving allows stormwater to infiltrate through the paved surface to an underlying crushed rock base where it is either stored or infiltrated.

Permeable paved surfaces such as pervious concrete, pervious asphalt or pervious pavers are best suited for parking lots, walkways and other areas that don't have heavy vehicular traffic.

When selecting permeable paving, determine the underlying soil condition and depth of base course material required for adequate storage capacity. Other design considerations include groundwater table elevation, installation costs, and maintenance. After installation, vacuum sweeping may be required if excessive sediment loads cause clogging.



Parking lot Infiltration Island/planters

On the surface, parking lot planters look like attractive landscaped areas. Below the surface, the planters include geotextiles, gravel, and soil to provide stormwater treatment through detention and infiltration. Stormwater runoff from the parking lot is directed into the planter, where it is temporarily detained, filtered, and infiltrated. The planter soil surface is lower than the adjacent paved parking surface.

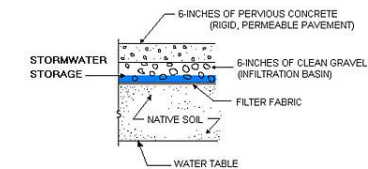
Costs

Installation costs for green parking lots are generally higher when compared to traditional asphalt, but they vary greatly depending on a specific site's characteristics (climate, topography, soil type, etc.) as well as the techniques incorporated within a particular parking lot design. Costs will be much higher if the underlying soil must be replaced due to inadequate infiltration qualities. Cost savings can be achieved however, in the stormwater system itself. As green parking lots significantly reduce run-off and improve water quality, the need for a conventional stormwater management system is also reduced, resulting in cost savings.

Description and Function

There are several different technologies which are considered permeable paving. These can be as simple as concrete or asphalt lacking sand and fine particles, or as intensive as manufactured grids with open spaces allowing plants to grow and water to infiltrate.

Permeable paving has proven to reduce total suspended solids in storm water, thereby eliminating automobile and other pollution.



Permeable Paving sections and demonstration

Co-Benefits of the Strategy

Green parking lots improve water quality, increase ground water supply, and reduce the urban heat island effect. Their environmental impact is considerable, with the Environmental Protection Agency estimating that porous pavement can remove 65-100 percent of sediment, metals, and other pollutants.

Maintenance Considerations

Permeable pavement has a life span comparable to that of conventional asphalt or concrete pavement. However, regular maintenance is necessary to ensure that the paving system does not clog (thereby eliminating its stormwater benefits). This typically includes high-pressure washing followed by vacuuming to remove sediment.

Similar or Complementary Solutions

Green parking lots typically incorporate a variety of "green" features such as bioswales or rain gardens. Large amounts of runoff that cannot be contained within a parking lot are directed into the larger stormwater management system of the area, which may include various types of green recreational areas, wetlands, or other open space.