

ALTERNATIVE PAVING



According to the United States Environmental Protection Agency, in the U.S., roads take up approximately 11.1 million acres of land, or 17,375 square miles, not including road shoulders and medians. Parking lots also account for a sizeable area. The estimate is that land dedicated to parking ranges from approximately 1.2 to 1.9 million acres or 1,910 to 3,035 square miles.

Impervious ground cover such as, roads, associated infrastructure and housing developments have the potential to impede drainage, increase flooding, increase pollution associated with runoff and cause fragmentation of natural habitats. Wetlands, for example, mitigate flooding and damage from erosion, wind, and waves; they facilitate sediment replenishment; and provide a viable habitat for biodiversity and economically important fauna and flora.

According to the Center for Watershed Protection, several steps can be taken to reduce impervious cover such as:

- Reducing street width. Widths should be based on traffic volume and should be designed to meet a minimum requirement to accommodate emergency and utility vehicles. Many municipalities have determined that streets between 18-24 feet in width are safe to accommodate fire vehicles.
- In residential areas, shared parking, shared driveways and more flexible design standards for sidewalks should be encouraged (i.e., allowing sidewalks on only one side of the street.) Driveways can also be made shorter if setback requirements allow for homes to be closer to the street.
- Use vegetated open channels in street right-of-ways to transport and treat stormwater runoff. Unlike curb and gutter systems, vegetated open channels reduce impervious cover while filtering pollutants carried in runoff.

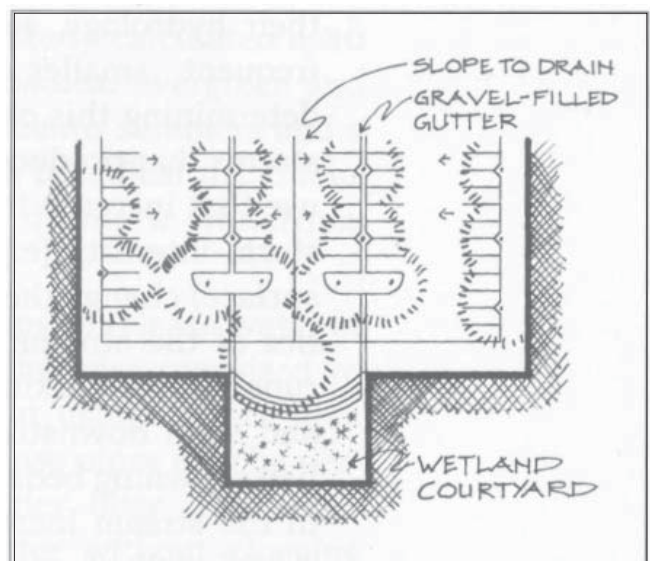
In addition to these methods, alternative paving is another method by which impervious cover can be reduced.

What is Alternative Paving?

Any type of highly permeable system may be defined as an “alternative paving” such as gravel—a highly permeable material. Another highly permeable system includes “grass paving” which may be used instead of paving. This may replace a traditional paved parking lot into a “green” parking area. Other materials such as brick or stone provide a durable alternative to asphalt or concrete. Any system that replaces impervious areas associated with development that increases the volume and the rate of surface water runoff may be considered alternative paving.

Incentives for Alternative Paving

Water resources and water quality are now threatened with large-scale paving. Increasing acres of impervious surfaces lead to higher runoff water volumes, larger and more frequent incidents of flooding, and extended periods of below-normal stream levels. Development patterns also lead to diminished groundwater recharge and various negative effects like increased sedimentation, increased water acidity, and higher water temperatures. Water quality in many rivers, lakes, and estuaries is degraded to a level where those water bodies can no longer support basic uses like fishing and swimming, and cannot be depended on as sources of clean drinking water.



This parking lot features pocket wetlands, which help absorb runoff during storms.

Benefits of Alternative Paving:

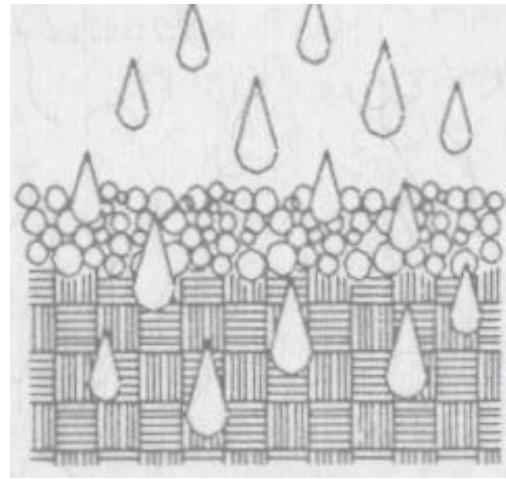
- Provides load bearing strength while protecting vegetation and root systems from deadly compaction.
- Stormwater is slowed in movement though and across paving surfaces, which deposits suspended sediment and increases discharge time.
- Active soil bacteria, which are aided by the paving system's oxygen exchange capacity consume suspended pollutants and moderate amounts of engine oils.
- Helps to protect wildlife habitat by keeping in character with the natural environmental processes and imposing less upon the land.
- Allows for airborne dust capture and retention.
- Cooler surfaces reduce heat absorption.
- The use of alternative paving and other environmentally friendly site design practices, results in the surroundings being aesthetically appealing.

Applications:

- Parking lots both peak demand and overflow parking
- Special event parking - stadiums, areas, etc.
- Fire lanes and utility vehicle access
- Driveways
- Pedestrian areas/walking trails
- Infiltration basins
- Bioretention facilities
- Rooftop runoff areas

Implementing Alternative Paving into the Horizon Plan

The City-Parish's comprehensive plan, the Horizon Plan, promotes innovative methods by which the environment can be minimally impacted by our area's rapid growth and development. Within the Conservation and Environmental Resources Element, several Goals, Objectives and Action Items support the advancement of alternative paving and better site design practices. Three goals in the Conservation and Environmental Resources Element state: (1) To protect the quality and quantity of surface water and groundwater, and provide for the efficient supply and use of water resources; (2) To protect and maintain the Southern Hills Regional Aquifer system, as well as smaller aquifers; and (3) To increase the visual quality of residential, commercial and industrial areas, as well as public and private lands.



At Bluebonnet Swamp, limestone is used as an alternative paving material for parking lots and driveways. This reduces runoff and filters the water as it passes through the limestone.

BREC's Bluebonnet Swamp: A Local Example

Located on North Oak Hills Parkway near Bluebonnet Boulevard in Baton Rouge, the Bluebonnet Swamp parking lot is an excellent example of an ideal use of alternative paving. Underneath the gravel surface of the parking lot is a cellular confinement system. This system of plastic honeycomb-like cells is filled with limestone and prevents the stones from spreading out while providing the stability needed to hold automobiles. This site design protects the natural functions of the swamp.

Because of the infiltration of contaminants such as oil and grease, not all parking areas are good candidates for alternative paving. However, parking spaces which are less frequently used, or lots that are not used for long term parking may provide an opportunity for alternative paving. Also, a combination of pavements could be utilized in some instances. For example, large parking lots could feature heavier pavement in the busiest part of the lot and grass for the areas which are less frequently used. Shopping malls often provide enough paved parking for the holiday shopping season, however, on most days of the year, many of the spaces remain unused.

Alternative paving should be considered in any site design process in order to keep environmental impacts, such as flooding, habitat destruction and nonpoint source pollution to a minimum.

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