



GREEN DRIVEWAYS

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Driveway Maintenance, Inc.

MAKE YOUR PARKING LOT AND DRIVEWAY A COMMITMENT TO ENVIRONMENTAL SUSTAINABILITY

A White Paper

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About The Author

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By Martin Applebaum

The concept of sustainability reaches every segment of residential and commercial development. From LEED certified buildings to environmentally conscious property development and management, a commitment to "green" practices in Florida and nationwide is vital to forward thinking building practices and social awareness.

To many property owners, "eco-friendly" is a euphemism for "expensive." Yet, most solutions can be both environmentally conscious and economically reasonable. These include asphalt paving, blacktopping, sealcoating, striping, pouring cement, and parking lot and driveway construction and maintenance. Contractors accredited through the U.S. Green Building Council's Green Advantage program are qualified to work on LEED-certified properties and are experienced in such initiatives.



Pervious Pavement Surface

The most common sustainability initiatives accredited contractors, such as Driveway Maintenance, seek to:

- Employ best products and best practices. New products and practices continually are being introduced to improve both the durability and environmental impact of paving projects.
- Reduce paved surface area. By limiting the amount of area covered in pavement or concrete, property owners can both decrease heat absorption and increase areas for water replenishment.
- Improve storm water run-off. Reducing paved surface area, as well as increasing the use of permeable products and landscaping can help improve water run-off and management. In areas reliant upon aquifer or underground water supplies, like Florida, this can help recharge these sources, while also reducing pooling that can lead to dangerous driving conditions or breeding grounds for insects.
- Landscape for aesthetics. Increased use of grass, shrubs and trees helps the environment. Xeriscaping is another option. This practice uses rock, stone and drought-tolerant plants in landscaping to reduce the need for supplemental irrigation. Foliage can counter some impacts of development in general, and create an aesthetically pleasing environment.

Renew. Reuse. Recycle.

In grade school, children today are taught about the “other” three Rs: Renew, reuse and recycle. In the asphalt paving world, this strategy – also known as reclamation or reclaimed asphalt pavement (RAP) – is gaining favor both for environmental sustainability and cost effectiveness.

Several types of asphalt products are in active use today. Pure or virgin asphalt contains no recycled product. New asphalt mixes can contain up to 50% recycled asphalt product, depending upon the project design specifications. Asphalt millings made from RAP can be installed and used as a granular base, embankment, fill material or as a stable, temporary pavement surface. Sunlife Stadium, where the NFL’s Miami Dolphins and Major League Baseball’s Florida Marlins play, has used recycled asphalt product for both temporary parking lots and roadway surfaces. The parking lot at Cowboys Stadium in Dallas, Texas, used 9,000 tons of warm-mix asphalt (WMA) created with a combination of RAP and recycled asphalt shingles (RAS).

In each application, recycled aggregate is less expensive than virgin aggregate.

When today’s responsible contractors remove asphalt from a pavement surface, they often take the top level that has been ground from the surface – or “millings” – to an asphalt plant for recycling. Even concrete taken from jobsites can be crushed and recycled for use on highways and other applications.

Another use for recycled asphalt is as a base for paving. Though native rock and sediment have long been used for parking lot and road bases, RAP can perform equally or superior to coquina. According to studies from the Florida Department of Transportation, “Overall, RAP exhibited as high a strength as the cemented coquina; however, the cemented coquina exhibited very poor drainage characteristics, making it unworkable during initial site construction....Data showed that RAP strength did not fluctuate as much as the cemented coquina, due to the effects of moisture.” Additionally, RAP requires no water as part of the compacting process, further saving vital resources. With the proper application and compacting, asphalt can become a viable alternative to traditional lime rock base.

Mix and Mill

Asphalt mix and mill in place, also known as full-depth reclamation, is a sustainable and cost effective means of rehabilitating a failing parking lot or roadway without completely replacing it. This process is ideal for asphalt surfaces experiencing significant base and asphalt failure due to age, reflection, slippage, discontinuity and fatigue, including swells or depressions, disintegration caused by pot holes, insufficient structural capacity, and edge or alligator cracks.

Using this process, specialized machinery mechanically pulverizes the asphalt and base to a depth of about nine inches. It then is blended on-site with the existing base material to produce a new base material. The newly-stabilized base is graded, compacted and paved with a new asphalt surface course resulting in a totally revitalized parking lot.



This process is used in Central Florida markets from Tampa to Orlando and northward due to their reduced reliance on coral rock base material. It conserves base materials, which in turn reduces costs of

the finished product. Further, costs often associated with hauling and disposal of former material are eliminated altogether.

In areas where plastic soils (clay) are common, adding Portland cement to the mix and mill aggregate will create a cement modified base. This adds strength to the finished product, which is especially important where a high water table, inadequate installation or plastic soils jeopardize the surface's lifespan.

Additionally, use of pozzolan additives like fly ash in the concrete mix can decrease the amount of costly Portland cement and lead to a stronger finished product.

Other Green Solutions

Among various other accepted solutions for improved sustainability and limited environmental impact are:

- Warm mix asphalt (WMA). This new process requires a lower heat – closer to 200 degrees – versus closer to 300 degrees or higher for traditional hot-mix asphalt. This saves costs associated with liquid propane required to heat the mix, as well as lowers emissions released during the application process.
- Paints, Striping and Reduced VOCs. Low- or no-VOC (volatile organic compounds) paints have been identified as vital to environmental awareness. In the paving industry, contractors seek striping paints with reduced prevalence of these organic chemical compounds – without reducing the paint's durability.
- Pervious pavement and permeable paving surfaces. These are gaining favor for their generally accepted sustainable properties. Some have turned to permeable paving solutions as part of an overall green initiative. These solutions allow water to seep through, providing both pollutant filtration and surface drainage. This process neither inhibits normal driving and parking practices, nor jeopardizes the integrity or lifespan of the paved surface.



By their nature, asphalt paving, blacktopping, sealcoating, striping, laying cement, and parking lot and driveway construction and maintenance create a "heat island" effect. They absorb sun rays and heat and raise temperatures around them. Yet modern development and use by automobiles require durable, long-lasting products. Attention to sustainable practices can help mitigate any perceived negative impacts.

Environmental sustainability and asphalt paving are not mutually exclusive concepts. Performed with an eye for the latest advancements in process and materials, today's paving professionals can ensure projects meet generally accepted

business practices – and exceed client or industry expectations for environmental responsibility.



Disclaimer: The information in this article is not complete, is not to be considered legal advice, and was believed to be correct at the time of writing. The author and his organization strongly recommend readers consult with counsel, engineers or architects regarding green initiatives.

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