



# Asphalt Paving 101 Best Practices in Parking Lot Paving, Maintenance and Repair Driveway Maintenance, Inc.

## **Asphalt Paving 101: Best Practices in Parking Lot Paving, Maintenance and Repair**

A White Paper

by Driveway Maintenance, Inc.

<http://www.driveway.net>



## ***About Driveway Maintenance, Inc.***

[Driveway Maintenance Inc.](#) (DMI) is a LEED-accredited full-service, self-performing [paving contractor](#) and [sealcoating company](#) serving clients throughout Florida, including Miami, Naples, Orlando, Palm Beach, Ft. Lauderdale, Ft. Myers, Tampa, Ft. Pierce, Delray and Daytona. DMI provides paving and sealcoating services to commercial entities, including apartment complexes, community associations, commercial office parks and retail shopping centers. Learn more at [Driveway.net](#).

## ***Asphalt Paving 101: Best Practices in Parking Lot Paving, Maintenance & Repair***

**By Driveway Maintenance, Inc.**

Driveway and parking lot construction, renovation and maintenance play a vital role in the aesthetics, safety and overall value of any commercial or residential property to the owner, tenant and visitors. A well constructed or maintained driveway or parking lot can better endure the elements and vehicular use. It can retain structural integrity, which reduces and degradation, like pitting, cracking and potholes that can damage vehicles and increase insurance costs. A properly maintained driveway or parking lot also improves curb appeal, which pleases patrons, satisfies tenants, and can help maintain rents and overall property value.

At Driveway Maintenance Inc., we receive numerous calls from customers concerned about caring for and protecting their driveway investment. Some of the most common problems faced by asphalt driveways and parking lots – and how those issues are addressed by professional asphalt contractors – are discussed below.

**What are the most damaging elements affecting parking lots today?** Parking lots are designed to withstand the elements and abuse of use. But some common – even unavoidable – substances and factors continually degrade the surface. The five most common damaging issues faced by parking lot surfaces are...

1. **Oxidation** resulting from weather is one of the most common damaging factors facing asphalt installations. Heat, freezing, water and the lasting effects of the sun and ultraviolet rays, over time, oxidize and break down the chemical make-up of the asphalt surface. Water seeping beneath the asphalt damages the top layer and base material and leads to more deterioration.
2. **Corrosive substances**, like petrochemicals (gasoline, motor oil, and coolant/antifreeze), as well as battery acid, chlorine and other chemicals, can damage and deteriorate asphalt.
3. **Flooding and insufficient drainage** create an environment for damage. Pavement surfaces not designed to effectively and sufficiently drain rainwaters create pools of standing water that can degrade the surface and substrate. Over time, the leeching of standing water through cracks and absorption into a poorly selected substrate, like clay or plastic sub-soils, can cause swelling and movement of the asphalt. Continued vehicular use then causes the substrate to rise through the cracks, creating an unsightly surface and eventually requiring a full-depth reclamation repair.
4. **Poorly performed previous repairs** can lead to continued failure of the asphalt or concrete surface. Often, in an effort to reduce costs, a property owner will turn to a handyman or provider inexperienced in pavement repairs. The result can be an ineffective repair and further damage to

the surrounding area. Repairs performed by a paving contractor, using industry-standard practices and the appropriate materials, can prolong the life of the repaired area.

5. **Ongoing maintenance** is the best – yet most ignored – solution for protecting the long-term health of a parking lot. Timely repairs of visibly damaged areas and regularly scheduled sealcoating can help correct damage, stop further deterioration, and maintain the integrity of the entire surface.

### The Maintenance & Repair Process



This concrete parking lot will be resurfaced with 1.5 inches of asphalt over a geotextile fabric.

Different deterioration calls for different maintenance and repairs. The most common maintenance protocols and repair techniques are...

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- **Asphalt Sealcoating.** Sealcoating is a cost-saving preventive maintenance process that can slow the natural degradation process. Sealers and sealcoating can boost parking lot life by up to 300%, and increase property value in the process. Read the Driveway Maintenance Inc. white paper on sealcoating.

**Patching.** When damage to the asphalt pavement surface comes from instability beneath or around the asphalt itself, the solution often is to “saw, cut, remove and replace.” This is to be performed when an overlay (see below) will not work because of the potential for reflective cracking (a “mirroring” where cracking beneath the surface reflects through to an upper surface). The goal in this situation is to cut away the damaged area, and install a “patch” of new asphalt material. If the damage has been caused by a tree root, the contractor will excavate the affected asphalt area, remove the root, then repair the asphalt surface. To help prevent future root intrusion, a root barrier between the planted area and the asphalt surface can also be installed.

**Asphalt Overlay.** This process places a new layer of hot, plant mixed asphalt over existing asphalt surface. After which, the freshly laid hot asphalt mix is rolled and compacted. It then cools and the curing process begins with the new pavement surface becoming firm.



**Transition Mill and Asphalt Overlay.** Transition mill, or complete mill, and overlay is a cost effective means of totally rehabilitating a failing parking lot or roadway surface – but whose base remains in good condition. Asphalt milling removes a layer of the exiting asphalt to help transition the new overlay to existing concrete

New asphalt overlay is applied atop the geotextile fabric.

surfaces or other fixed elevations. This is an effective way to bring a paved surface back to "like-new" condition at minimal expense. The process restores pavement to a uniform cross-section and longitudinal profile, helps maintain drainage flow and provides textured surface for skid control, and curb-reveal for roadways and parking areas that have had numerous overlays; requires minimum traffic interruption; and reclaims material for future use for a more sustainable environment – all at a reduced cost compared to other procedures, especially for large surfaces, such as streets, highways, runways, community developments and large parking lots.

**Full-depth reclamation.** Issues with poor drainage and faulty substrate often cannot be mediated with simple repairs or resurfacing. Unless removed or remixed, plastic subsoils or clay will continue to absorb moisture, swell, contract, and damage the surface. In these instances, a full-depth reclamation process may be the only solution. The surface is milled and remixed into the existing base. This blending of base and asphalt creates a stronger, more stable base. The surface then is graded, flooded, rolled and compacted. The result is a more stable base, and significant savings in money, materials, time and resources.

**Modified concrete base.** This is used where a high water table affects the surface, or where inadequate installation results in base failure. The process introduces Portland cement into the base and pulverizes the existing asphalt adding aggregate. Once the area is graded, rolled and compacted, water is applied to create a chemical "cure," much like concrete used in sidewalks and curbing. The end result is a fortified base material. Unlike repaving over existing failed base, this new base has no deficiencies and will not reflect through the new asphalt. The new base then is repaved with hot plant mixed asphalt.



**The finished concrete parking lot with asphalt atop geotextile fabric will enjoy a longer life and greater value than traditional asphalt applications.**

**Use of geotextile fabric.** Use of polypropylene, geotextile fabric can help solve issues of cracking and water absorption and extend the life of new asphalt concrete pavements and overlays. The product works by providing a barrier beneath the pavement or overlay, which disperses natural pressure and vibrations out laterally, not vertically up through the surface. This is similar to how flooring contractors apply cork between concrete foundation and the marble or tile above it. The surface is cleaned, tack glue is applied, and the fabric is rolled out and smoothed gently atop the foundation. The overlay then is installed. Use of geotextile fabrics and overlays is more expensive

than overlay alone, but it can help prevent reflective and fatigue cracking; limit settlement, expansion and contraction; reduce pavement damage in areas affected by the water table; and help mitigate damage and cracking from vibrations in the asphalt surface.

**Infrared patching.** This temporary repair of asphalt pavement failures, often referred to as cold weather patching or seamless cold weather asphalt repair, consists of heating up an area of pavement to make it workable, raking the existing asphalt material (sometimes adding some new) to cover any inconsistencies, and rolling to finish. It most commonly is used to repair newly installed asphalt overlay, where a raveled area can be heated and rolled so as not to create new seams; frost heaves; elevation adjustments around valve covers and manholes; as well as to bond speed bumps to existing asphalt

surfaces, and create stamped patterns in existing asphalt for aesthetics. Infrared patching is not a permanent repair and is not recommended for most asphalt failures.

**Conclusion: Asphalt Paving Maintenance & Repair**

Stable, sturdy and durable asphalt pavement surfaces are not impervious to damage, degradation or failure. Whether degraded by petroleum distillates, petrochemicals, oxidation or and water, the resulting damage can harm vehicles, create pedestrian hazards (and personal injury liabilities), and affect a property's curb appeal and value.

Proper initial installation of asphalt materials, the commitment to routine preventive maintenance and sealcoating, as well as immediate treatment of damage when identified, can protect, beautify, and extend the life of the pavement surface.

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