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Regular upkeep can extend life of asphalt pavement

In today's business market, property owners and managers constantly seek ways to maintain and upgrade their facilities while dealing with static or shrinking budgets. Often, they ponder technological upgrades, general building repairs, landscaping and other aesthetic treatments, such as painting or re-carpeting.

There is another aspect to consider, especially when thinking of long-term cost savings and the first-blush appearance of your property when a visitor or tenant drives up.

When maintenance priorities are developed for properties, upkeep of the asphalt pavements are often at the bottom of the list. In many instances, pavement maintenance is usually delayed to the point where it's no longer serviceable and in need of reconstruction, resulting in a much higher expense than would have been needed with proper care.

Take, for example, a private facility located in east Denver that had a deteriorating, small, asphalt parking lot. A pavement evaluation was performed in 1998 that identified select areas of low-to-moderate-severity distress in the form of embrittlement, cracking and weathering of the asphalt surface. Recommendations were given for preventative maintenance to rejuvenate the parking lot surface and delay major repairs for several years.

At this time, the estimated cost of the preventative maintenance was \$3,700 to \$5,500. The property owner lacked the money in the budget and chose to

PAVEMENT MAINTENANCE



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delay the work.

Fast forward to 2003. Portions of the parking lot were visibly, significantly in disrepair. The pavement evaluation now identified moderate-to-high-severity distress throughout the entire lot. The whole parking lot had to be reconstructed at a cost of \$35,500. Had the preventative maintenance recommendations provided five years earlier been

implemented, the pavement life could have been significantly extended at a much lower cost.

A maintenance strategy can increase the overall life and serviceability of your asphalt pavements at a significantly reduced cost when compared to delaying maintenance to the point where reconstruction is the only option. Development and implementation of a preventative maintenance program will slow the rate of deterioration, essentially delaying the need for rehabilitation for several years.

The delay in rehabilitation, combined with the lower cost of preventative maintenance treatments, can result in dramatic cost over the life cycle of the pavement. Other benefits of a preventative-maintenance program include:

- Higher overall performance of the asphalt pavements.
- The ability to make better, more informed decisions on an objective basis.
- The more appropriate use of maintenance techniques.
- Improved pavement condition over time.

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- Reduced overall costs for maintenance of the facilities pavements.

Though there are substantial benefits to implementing such a plan, starting the program is a big undertaking. Implementation often requires a fundamental shift in the philosophy of the property owner/manager, as they must understand the benefits to taking actions sooner than later. It's recommended that property owners/managers implement a number of maintenance measures, including:

- Surface treatments applied on a much more frequent basis.
- Crack cleaning and sealing performed annually.
- A thin, sprayed-on emulsified liquid asphalt (known as a surface seal or a fog seal) applied to slow premature oxidation and weathering of the asphalt surface. This should be applied every three to five years.

The climate in the Denver area can be particularly damaging on asphalt pavements due to the significant temperature changes between winter and summer. Environmental factors accelerate deterioration by hardening the asphalt, making it susceptible to cracking, as well as weathering away of the asphalt binder, making the surface susceptible to raveling, which leads to the generation of potholes.

Maintenance for asphalt pavements varies depending upon the property owner/manager's budget and preferences. However, a typical schedule for asphalt pavement maintenance for the Denver area should include the following:

Annual preventative maintenance:

- Visual pavement evaluations should be performed each spring or fall.

- Documenting the progress of distress to provide information on effective times to apply preventative maintenance treatments.

- Cleaning and sealing cracks.

Three-to-five-year preventative maintenance:

- Budgeting for a preventative treatment at approximate intervals of three to five years to reduce oxidative embrittlement problems.
- Typical preventative treatments include chip seals, fog seals, slurry seals and crack sealing.

Five to 10 year corrective maintenance:

- Corrective maintenance may be necessary, as dictated by the pavement condition, to correct rutting, cracking and structurally failed areas.
- Corrective maintenance may include full depth patching, milling and overlays.
- In order for an asphalt pavement to provide a 20-year service life, at least one major corrective overlay can be expected.

If implemented correctly, a preventative maintenance schedule should extend the life of asphalt pavements, improve its overall serviceability and reduce general maintenance costs. If maintenance isn't provided, asphalt pavements can be expected to deteriorate prematurely.

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