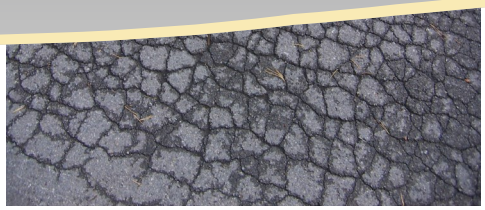
September 2012 Pavement Engineering, Inc.

The source for pavement rehabilitation information

PavementPrinciples



Ventura's value-added maintenance plan

Ventura Unified School District understands the value of site-specific pavement maintenance plans. With 3.3 million sq ft of pavement, being able to budget accurately for maintaining one of its largest capital expenses is important, not only for sound fiscal management, but for continued safety. It also assures taxpayers the District is doing due diligence with public funds.

When the District decided to update its existing maintenance plan, Facilities Department Planner, Terri Allison, asked PEI to assess pavement at 25 facilities and develop a five-year plan with projected repair and maintenance costs. As part of its evaluation, PEI established the current condition of its pavement and provided one or more treatment options for the District to consider and the timeframe for applying them.

At the conclusion of the evaluation in January 2012, VUSD received a comprehensive report that included a site plan of each facility with photographs demonstrating current pavement conditions, pavement condition ratings and estimated costs for maintenance or rehabilitation. PEI also helped the District understand a lifecycle cost for maintaining its pavement versus the cost impacts of doing nothing.

At the District's request, PEI highlighted critical maintenance needs for 2012 that matched the District's already adopted budget.

"I thoroughly enjoyed working with PEI," said Allison. "PEI maintained a consistency in expertise and professionalism from planning through inspection."

Part three of a three-part series

Protecting your pavement investment

The old adage "timing is everything" applies to more than just life. It applies to pavement, too. As pavement deteriorates with time, the type and cost of maintenance treatments change, so understanding timing relative to treatment becomes fundamentally important in extending pavement service life and protecting your pavement investment.

Pavement deteriorates primarily due to fatigue from heavy wheel loads and aging from the oxidizing effects of water and sunlight. Employing maintenance strategies, such as those briefly mentioned in part two of this series, is critically important to impede the deterioration process. Equally important is knowing when to apply those treatments.

There are three general approaches to managing treatment timing, each with different outcomes.

Worst-first management

The first and most common is the "worst first" or crisis-management approach, which focuses on the worst pavements while ignoring the rest. After all, it's pavement in the worst condition that gets the most complaints, but while the worst-first approach eliminates some problems immediately, it creates more in the future. Good pavements that are ignored now become the worst pavements in the future and will require more costly treatments to rehabilitate. This approach works only with an unlimited budget that addresses all pavement needs. With tight budgets school districts face today, this approach only adds to future costs.

Best-first management

The second approach is "best first," which focuses all the effort and budget on maintaining pavements in the best condition while ignoring the rest. This management approach typically costs less initially, but eventually, even the best pavements reach a critical point where major rehabilitation treatments are necessary.

Critical-point management

The third approach is what PEI calls "critical-point" management. Each pavement is unique and, as such, is somewhere on a deterioration curve. Eventually it intersects at a critical point where a specific treatment must be applied or the pavement risks falling into a condition where that treatment will no longer be effective and will require the next, more costly treatment to maintain or rehabilitate it. Knowing where a pavement is on the curve and where that "critical point" is, determines the next-needed

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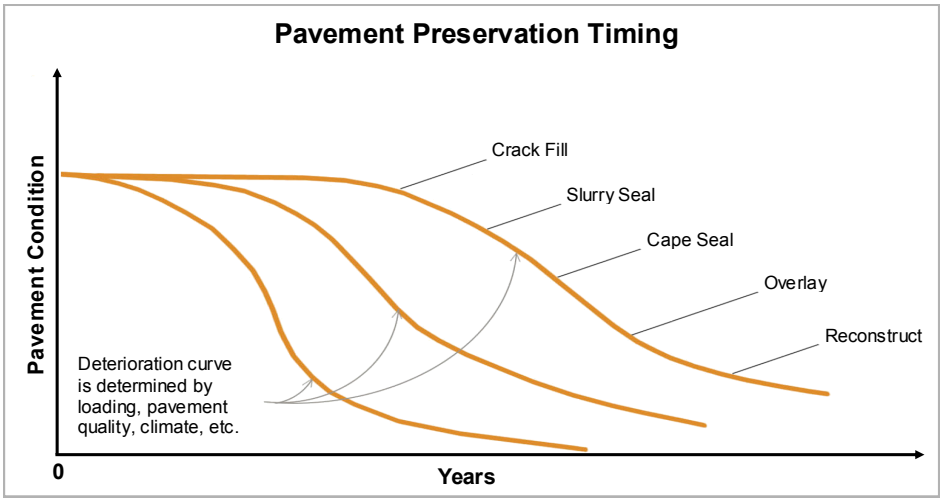

Optimum maintenance timing is critical to preserving your pavement investment. The more deteriorated the pavement, the greater the treatment cost.

Part 3: Protecting your pavement investment

Continued

treatment and the timing of the treatment. The critical-point approach is by far the most cost-effective pavement management plan.

For example, a pavement may be nearing the point where it requires an overlay, but applying it too early is wasting money if it's not yet needed. Conversely, if a pavement requires an overlay and you only seal it, that also wastes money because the applied treatment will not be effective.

The critical-point approach incorporates pavements from all parts of the deterioration curve, not just the best nor just the worst. This approach optimizes every budget dollar by seeking to apply the right treatment at the right time. Not too soon and not too late.

General timing rules

Although every pavement is unique, there are some general "right time" rules that apply to all new pavements to preserve your investment. A visual inspection should be performed at least every three years to assess each pavement's current condition and treatment needs and to update your five-year maintenance plan. Cracks should be filled in immediately as a first-line defense against water intrusion followed every three to five years with a seal, depending on traffic. Assuming the pavement was designed properly, a seal can be applied two or three times before the pavement reaches a "critical point" where seals no longer are effective. At that point, it may be the right time for a more aggressive treatment, such as an overlay.

Where budgets are tight, it may be necessary to "hold" a pavement together through localized repairs, skin patches to cover rough areas, or thin maintenance overlays. These stopgap or interim measures won't address the pavement's structural needs but will hold it together until the correct treatment can be applied.

Applying the right treatment to the right pavement at the right time is an investment that will add years to pavement life. Knowing WHAT to do is half the battle. Knowing WHEN to do it and ensuring that the work is properly specified is the other half. That's called a pavement management "plan". Planning is the key.

Next month: pavement assessments.

Tip of the month - When it comes to timing, knowing when to bid your pavement construction project is also critical. PEI recommends bidding paving projects in the winter, during contractors' slow periods. Seeking quotes in the spring and summer almost always results in higher quotes because contractors are busy. During the winter, contractors are looking ahead to fill their construction season calendar. This requires advanced planning. You also need to know what your next year's projects will be and have the designs underway by fall. Having an accurate five-year plan is critical for this process. In addition to timing, accurate, clear plans and technical specifications take the guesswork out of the bidding process. This also results in lower bids, but that's a future discussion.

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Pavement Engineering, Inc. is California's premier pavement engineering and rehabilitation expert, specializing in evaluating, designing, implementing and maintaining asphalt and concrete surfaces for public and private entities.

We provide the technical expertise to maintain roadways and parking lots cost-effectively, the managerial experience to make sure things run smoothly from inception to completion, and the proven track record that builds trust and loyalty.

Our number one goal is client satisfaction. We manage every dollar our clients spend as if it were our own – with common sense.