

**ENGINEERED**

pavement management • facilities • athletic venues • site management

# SOLUTIONS

for **FACILITY DECISION MAKERS**

## Pavement Maintenance Management Program (PMMP) Moves to the Head of the Class

by **Fred Kolkmann, CTCB**, Pavement & Athletic Facilities Development Manager, Larson Engineering • 414.475.2350 • [fkolkmann@larsonengr.com](mailto:fkolkmann@larsonengr.com)

Best management practices (BMPs) for facility and athletic venue pavements have long revolved around maintaining pavement assets in good condition through proactive pavement management and preventative maintenance. But the under-funding of maintenance programs in many school districts has resulted in an alternative and inferior facility management trend – allowing pavements to deteriorate until reconstruction or extensive rehabilitation is required.

Pavement management programs were developed in the mid-1960s to provide an objective framework for highway maintenance management planning and budgeting. But over time, the programs have garnered a reputation of being expensive, complicated, subjective, and difficult to cost-justify. Often modeled on Department of Transportation maintenance practices, many pavement management programs today generate a wealth of information but require facility managers and school, park and rec professionals to comb reports to extract useful nuggets of information, establish long-range maintenance goals, support budget requests, and protect and extend the service life of pavement assets.

### Do You Know the Value of Your Pavement Assets?

Board Members and District/Park/Rec Managers and Administrators often are unaware or forced to disregard the replacement value of the pavement assets

under their stewardship. Many states' educational facilities can be valued at more than \$300 billion, with a good portion of the total found in the pavement asset value of the various public and private school districts. The asphalt replacement costs for a small school district – grade school, middle school, high school, and some athletic pavement surfaces – can exceed \$1,000,000.

Service-life extension of these vital assets is a primary goal of Pavement Maintenance Management Programs. By identifying and employing proven, lower-cost preventive maintenance practices before reconstruction or rehabilitation measures are necessary, savvy managers can extend the useful life of facility pavements and lower both annualized and future resurfacing costs.

### PMMP Elements

Pavement Maintenance Management Programs utilize multiple methodologies for evaluating existing pavement →

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## Introducing the Engineered Solutions Newsletter

Welcome to the debut issue of **Engineered Solutions**, a newsletter for facility decision makers, published by Larson Engineering.

Our goal in this issue is to provide relevant information to help you extend the service life of your existing structures, pavements, and athletic venues, and realize maximum value from renovations, additions, and new construction projects.



# Safe Routes to School Programs (SRtS)



Forty years ago, about half of all students walked or biked to school. Today, fewer than 15% of all school trips are made by walking or bicycling; 25% are made on school buses, and more than 60% of all children arrive at school each day in private automobiles.

The revised federal transportation act – SAFETEA-LU – signed into law on August 10, 2005, provides funding to state departments of transportation to create and administer Safe Routes to School (SRtS) programs.

SRtS programs help parents, school districts, and communities create safer school environs through engineered solutions and education initiatives, including constructing sidewalks and bikeways, creating safer street crossings, educating parents and children on pedestrian safety, and creating effective programs for encouraging students to walk or bike to school.

By improving walking and biking travel options, SRtS programs promote healthier lifestyles in children at an early age. SRtS programs also ease automobile traffic and congestion near schools, reducing fuel consumption and air pollution.



## Smart Crosswalks Yield Safe Routes to School

One way to address pedestrian safety in and around school zones is to implement a Smart Crosswalks program. The program utilizes advances in asphalt pavement technology (DuraTherm) to enhance school crosswalk visibility.

The goals of the program are: (1) to improve student safety by increasing the percentage of drivers yielding to student-pedestrians; (2) to reduce the potential and frequency of vehicle/student-pedestrian conflicts; and (3) to remind students of proper school pedestrian safety measures – always look both ways before crossing the street and always cross at the Smart Crosswalk.

Smart Crosswalks incorporate a special reheating process to inlay decorative thermoplastic patterns within an asphalt street crosswalk area, creating a highly visible, safe and durable surface requiring little maintenance (see pictures above).

Congressman James Oberstar of Minnesota, the current chairman of the House Transportation and Infrastructure Committee and the architect and champion of the federal SRtS program, attended a recent Safe Routes to School project open house and was enthusiastic about the Smart Crosswalks program component.

The results of a study by the City of Toronto demonstrated statistically significant reductions in both non-yield-driver behavior and vehicle/pedestrian conflicts with the implementation of the Toronto “We are All Pedestrians” program, which included Smart Crosswalks.

## 2008 Grant Cycle for Wisconsin SRtS Projects

The next grant cycle for Wisconsin Safe Routes to School projects (SRtS) will take place in January of 2008, as the Wisconsin Department of Transportation (WisDOT) prepares to undertake its second year of administering federal funds to help communities set up and implement SRtS projects. Funding will be available for infrastructure-related projects, as well as for programs that educate and encourage walking and bicycling to school, according to Renee Callaway, Wisconsin’s SRtS coordinator. Contact Renee: **608.266.3973** | [renee.callaway@dot.state.wi.us](mailto:renee.callaway@dot.state.wi.us).

Details for the 2008 grant cycle have not yet been released. The application deadline for the 2007 cycle was March 16; SRtS grants were announced July 20. Forty-Seven grants were awarded to Wisconsin communities in 2007, totaling almost \$4 million.

Larson Engineering provides expert assistance with planning, civil engineering, and permitting services for SRtS projects. Contact Fred Kolkmann: **414.475.2350** | [fkolkmann@larsonengr.com](mailto:fkolkmann@larsonengr.com).



# Extreme Makeover – Athletic Venue Edition: Nicolet High School Outdoor Complex

by Roger Pocta, P.E., Athletic Facilities Consultant, Larson Engineering  
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Renovations of existing outdoor high school athletic venues present myriad challenges, including a multitude of site management and scheduling issues. The extreme makeover of Nicolet High School's outdoor athletic complex included redesign and construction of the football/soccer field, construction of a new, all-weather athletic track with perimeter trench drainage system, development and renovation of field event venues, installation of a track irrigation system (interior and exterior), stormwater and water drainage management, and landscaping.

## Project Highlights

The project posed several challenges regarding limited space available for the field events. The existing topography at the north end of the venue had

moderate-to-steep slopes and the track was two feet lower at its south boundary than its north end. As athletic facility construction generally requires level surfaces, the entire football/soccer field had to be reshaped. Following site grading and irrigation line installation, new topsoil was imported and large rolls of sod were placed over the newly-graded surface. The school desired a full size soccer field in the track interior, which necessitated using perimeter trench drains around the track to maximize the width for the soccer field.

It was important to keep the running and field events together. To build the long/triple jump events venue, with the high jump and pole vault areas in close proximity, the northern embankment was excavated and a seven-foot high



retaining wall was installed to provide enough room for long jump and triple jump events. Larson Engineering also provided inspection and construction management services for the project.

## PMMP – from page 1

conditions and forecasting the type and costs of future maintenance and capital expenditures. Elements included in a typical PMMP evaluation include bituminous and concrete parking lots, paths, and roads; concrete sidewalks, aprons, loading docks, and curb and gutter; and athletic facility pavements, including parking lots, paths, all-weather tracks, hardscape playgrounds, and tennis and basketball courts.

A Key PMMP activity is a comprehensive pavement inventory assessment. First, aerial views of facilities are created and divided into manageable pavement maintenance units. On-site assessment of these maintenance units is then undertaken, with surface ratings applied based on documented visible distress. Larson Engineering utilizes the PASER rating system in its pavement inventory assessments, rating pavement assets on a scale of one (failed – severe distress with loss of surface integrity) to ten (excellent – new construction). PASER rankings also incorporate general condition narratives for each pavement mainten-

ance unit and specific maintenance-measure recommendations. PMMP site assessments create and support annual programs of:

- Developing/updating the PMMP report
- Estimating project costs, based on the year the construction will be performed
- Establishing project budgets (annual and long-term) and funding options
- Creating plans and specifications
- Soliciting project bids
- Administrating contracts and providing quality control oversight.

### Why Develop a PMMP?

PMMPs help facility managers and school, park, and rec professionals identify proper maintenance activities and apply them to the right places at the right time, permitting facility owners, school districts, and park and rec departments to earn the best return from their pavement assets. PMMPs help you to:

- Be proactive and set priorities
- Budget intelligently
- Plan systematically for future pavement maintenance expenses.

Larson Engineering is adept at partnering with facility managers and school, park, and rec professionals to implement PMMPs. The final Larson Engineering PMMP work product combines user-friendly reports with reliable information and recommendations and a solutions-focused, get-it-done relationship with our engineering team, ensuring you earn the highest returns from your facility and athletic venue pavement assets.

### Another Inconvenient Truth

With unstable world oil markets and resurfacing costs escalating at record rates, you can't afford not to implement a PMMP for your district, facility, or park or recreation pavement assets.

Learn more about the benefits of PMMPs by attending one of Larson Engineering's free PMMP seminars. For PMMP seminar schedule information, call Fred Kolkmann at **414.475.2350**, or email [fkolkmann@larsonengr.com](mailto:fkolkmann@larsonengr.com). Fred will also take the show on the road and share his PMMP seminar information in your office or conference room.





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## ENGINEERED SOLUTIONS

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To add others within your organization to the newsletter distribution list, please contact Fred Kolkmann, 414.475.2350. To learn more about Larson Engineering, visit:

<http://www.larsonengr.com>.

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## Ask Larson Engineering

### Q: Is it cost effective to build 'green' schools?

**A:** According to a national review of 30 green schools, green schools cost less than 2% more than conventional schools – or about \$3 per square foot (\$3/ft<sup>2</sup>) – but provide financial benefits that are 20 times as large. The review is documented in an October, 2006, *Capital E Report*.

Green school design provides a cost-effective way to enhance student learning, reduce health and operational costs, and increase both school quality and competitiveness. The financial savings, per the report, are about \$70 per ft<sup>2</sup>, more than twenty times as high as the cost of going green. Only a portion of these savings accrue directly to the school. Lower energy and water costs, improved teacher retention, and lowered health costs save green schools directly about \$12/ft<sup>2</sup>, about four times the additional cost of going green. Financial savings to the broader community are significantly larger, and include the reduced cost of public infrastructure, lower air and water pollution, and a better educated and compensated workforce.

For a copy of the report, or for additional information about green engineering design, contact Matt Christianson – 414.475.2350 | [mchristianson@larsonengr.com](mailto:mchristianson@larsonengr.com).