



# THE CONCRETE conveyor

## Taxpayer Alert!

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## WHY CHOOSE CONCRETE?

The Series by Brad Skow, P.E.

Why choose concrete? Good question. For all the years that I was a consulting engineer, and all the years I designed and prepared plans for my clients, I usually didn't understand how the final pavement selection was made.

Was it the owner who decided? Was it the geotechnical firm? Was it an interested landowner? I'm not sure, but it usually ended up asphalt. And usually there is no written explanation, in any file, that would explain the decision process that determined the pavement type for that road. Maybe it was because we were so comfortable with one pavement type and we were so efficient at designing, building, and maintaining it that we didn't want to know that there might be something better out there.

Over the course of the next several newsletters I will be writing a number of articles discussing the advantages of choosing concrete pavements. The Concrete Paving Association of Minnesota represents the bulk of the concrete paving



contractors and materials suppliers in the Minnesota area. The goal of our association is to promote the use of:

- SMOOTH
- QUIET
- SAFE
- COOL
- DURABLE
- LONG LASTING
- EASY TO REPAIR
- RECYCLEABLE

and the most **COST EFFECTIVE** pavement material in the world...**CONCRETE.**

The two most common pavement surface types in the State of Minnesota are concrete and asphalt (bituminous). Historically there has been a typical split when it comes to pavement selection throughout the State. Concrete is used for higher volume roadways such as highways and interstates, and asphalt has been the choice for lower volume highways and local streets. Why?

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# Why Choose Concrete?

(Continued from page 1)

Well over 90% of the streets in the State of Minnesota are constructed using asphalt. Concrete was not even considered. Why? As taxpayers, the best value for our money is achieved through a competitive free market. If pavement alternatives are not being considered, we aren't being very fiscally responsible. Just because one

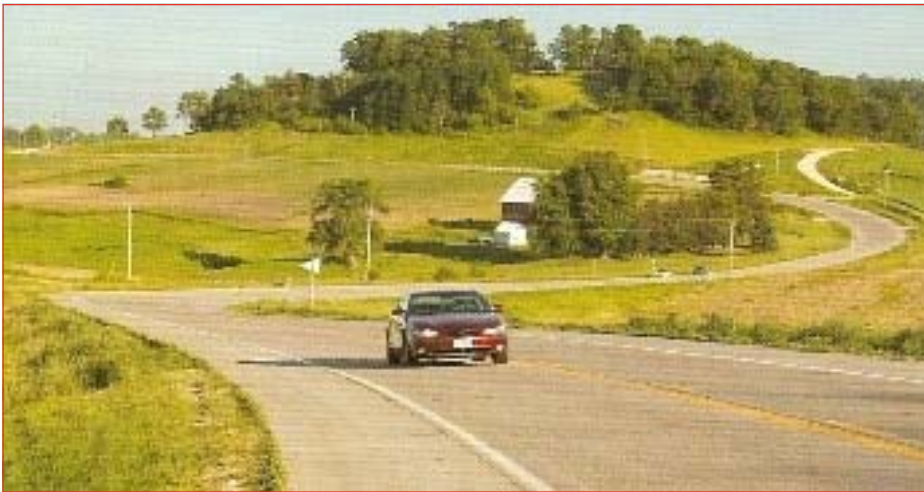
pavement type *appears* cheaper doesn't necessarily mean that it *is* cheaper. As an example, the Federal Government says that it costs 44.5 cents a mile to drive your car. Does it make any sense to drive 3 miles out of your way (6 miles = \$2.67) to save 10 cents on a gallon (15 gal = \$1.50) of gas?

Nope. Cheaper isn't always cheaper; there are other factors that need to be considered.

In future newsletters I will be discussing these factors and the reasons why concrete should be considered an option for any upcoming local road improvement or maintenance projects. As you'll discover, concrete pavements are durable, aesthetically pleasing, safe, smooth, low maintenance, and most importantly, cost effective for use on *any* roadway -- low or high volume. And in this day and age, don't we, as taxpayers, deserve the best bang for our buck?

Next newsletter:

SMOOTH & QUIET CONCRETE



## State Aid Design Chart Now Available for Low-Volume Roads

A recent addition to the Mn/DOT State Aid for Local Transportation (SALT) website is a new design aid that will enable engineers to "pick the depth" of concrete, based on the sub-grade soil condition and traffic conditions. The chart historically only indicated the "Granular Equivalency" (G.E.) for a bituminous pavement design, stating both the total G.E. required, and the minimum G.E. to be supplied by the bituminous. The chart was only rated for "7-Ton" and "9-Ton" designs.

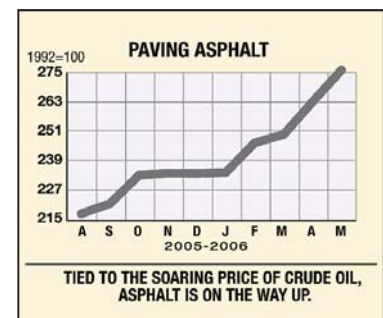
Through the efforts of Matt Zeller, CPAM Executive Director; Fred Corrigan, ARM Executive Director; and Dan Frentress, former CPAM Executive Director, ACPA's "StreetPave" design was tuned to reflect the low volume road characteristics of

Minnesota's secondary road system. (When a choice was made, the conservative side was chosen.) The Mn/DOT Materials Office was consulted to ensure that the resulting design aid would not be in conflict with current Mn/DOT procedures, and the SALT people wanted to ensure that the resulting chart would be easy, simple and usable. The final product has concrete depths for seven different traffic categories, six different soil factors, and doweled and undoweled pavements. Now, a local road engineer can view the chart to get a side-by-side comparison of the materials used for similar 20-year designs. However, the "concrete-side" of the chart is always rated for "10-Ton" as stipulated by Minnesota statute.

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### Asphalt on a Slippery Slope Upward

The sky seems the limit for paving asphalt as the price of oil hit a record high of \$75.35 a barrel on April 21 for U.S. light sweet crude. The price backed off to \$74.70 at ENR press time on April 24, but the damage has been done. The market for asphalt does not move in strict synchronization with oil, but the relentless rise is pulling it up. The price of PG 58 is up 4.8% for the month, leaving it 29.6% higher than a year ago. Paving projects also are being hammered by transportation costs as gasoline hits \$3 a gallon.



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# State Aid Design Chart . . .

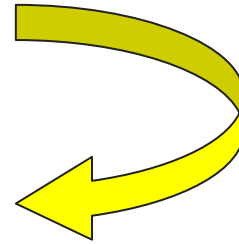
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The accompanying sheet of notes gives further guidance relating to “widened edges,” panel lengths, Class 5 base, when dowels are encouraged to be used, etc.

As mentioned earlier, the “parent” design of the chart is StreetPave. StreetPave should be used for higher traffic volumes than the chart allows, or other situations where the parameters need to be adjusted to fit the local conditions. Please contact the CPAM office to find out how you can get a copy of this tool!

CPAM staff - Brad and Bob - are offering a short tutorial class through the local DSAE’s meetings with City and County Engineers on the usage of the chart. Other sessions may be arranged by contacting one of them.

The complete chart and accompanying notes can be found at [www.dot.state.mn.us/stateaid](http://www.dot.state.mn.us/stateaid). Click “Design Tools” and scroll to “Concrete.”



*Below is the screen you’ll encounter on the Mn/DOT web page for the new State Aid Design Chart*

**Concrete Pavement Design Information** The following information has been approved by the Mn/DOT Materials Lab. Please [click here](#) for important information from the Lab prior to using any of the information below. For additional questions contact the Mn/DOT Pavement Design Eng at 651-779-5937 or the Minnesota Concrete Association at 651-762-0402.



**Concrete Pavement Design using Soil Factors, & [instructional notes](#)**



**Joint Layouts**



**ACPA Intersection Layouts**



**Colored Concrete Crosswalks**



**Subbase for Concrete Pavement**



**Sample Plans - Richfield Road**



**Sample Plans - Austin**

Call CPAM today to register for a FREE upcoming workshop on StreetPave as well as a Review & Tour of MnROAD near Albertville. Two sessions available:

Wednesday, May 17                      Thursday, May 18

9:30 a.m. — 2:30 p.m.

# CPAM Welcomes New Members



Jarden Zinc Products is the largest North American producer of solid zinc strip and fabricated zinc products. Our solid zinc strip is utilized throughout the world in the production of such products as automotive fuses, circulation coinage, roofing, gutters and downspouts, plumbing hardware and building products to name a few.

In addition to these products, Jarden has introduced such innovations to the concrete construction industry as the LifeJacket® Galvanic Cathodic Protection System for steel reinforced concrete structures in marine environments and the LifeJacket Dowel for concrete highway pavement joints. Our LifeJacket systems utilize proven zinc anode technology to protect steel encased in concrete from corrosion in the presence of salt water and/or the use of deicing salts.

Jarden Zinc Products is located in Greeneville, Tennessee. We have over 15 years experience in corrosion prevention and the trained personnel to provide solutions to your concrete construction issues. Our facility is ISO 9001:2000 certified.



Welcome to Traffic Technologies!

We are a Minnesota company providing transportation-related solutions since 1999. We focus on providing technologies and services that increase transportation safety by meeting or exceeding Federal, State and local standards for quality and durability.

We offer a wide variety of systems, products, and services including crash attenuators, anti-icing systems, dynamic signs, traffic detection devices, and intelligent transportation systems and services. The products that we produce, service, and distribute enhance the safety and efficiency of today's transportation infrastructure.

Please let us know how we can deliver world-class service to you and your community with the best products and services available today and in the future. We look forward to hearing from you.

## (Materials & Equipment Suppliers)

### Jarden Zinc Products

2500 Old Stage Road  
P.O. Box 1890  
Greeneville, TN 37744-1890

Dennis Weber, Vice President  
Wes Miller, Sales Manager  
Mike Mather, Manager, Sales Engineering

**(800) 251-7506**

**Fax (423) 639-3125**

**Email:** [sales@jardenzinc.com](mailto:sales@jardenzinc.com)

**Web address:** [www.jardenzinc.com](http://www.jardenzinc.com)

## (Traffic Control Subcontractors)

### Traffic Technologies, LLC

4754 Lyndale Avenue North  
Minneapolis, MN 55430-3638

Eric Johnson, President  
Dale Braddock, Jr., Sales Manager

**(612) 521-2122**

**Fax (612) 521-1022**

**Email:** [daleb@traffic-technologies.com](mailto:daleb@traffic-technologies.com)

**Web address:** [www.traffic-technologies.com](http://www.traffic-technologies.com)

# CONCRETE OVERLAYS

Concrete overlays are becoming an increasingly popular choice of overlays around the country. The two most popular concrete overlays are unbonded overlays and whitetopping.

An unbonded overlay (UBOL) is a new concrete pavement placed on top of an existing concrete pavement, separated by a thin, stress relieving, layer of blacktop. The new concrete pavement can be designed for almost any period, 15 years to 50 years. UBOLs have been placed as thin as 4" and are typically performing better than expected. Mn/DOT has made UBOLs a staple of the rehabilitation of our interstate system. In the late 1980's UBOLs were expected to last only 20 years. Today they are expected to have the same life as a new pavement on grade, or better.

Whitetopping is the process of placing a new concrete pavement

on top of an existing blacktop pavement. Again, these overlays can be designed for any life. There have been a number of whitetopping projects in Minnesota, including many sections placed at MnROAD. Sections as thin as 3" and 4" were built in 1997 at MnROAD and replaced after six years of interstate traffic and almost *six million* ESALs. MnROAD also has 6" whitetopping sections that were also placed in 1997 that are still in service today and are showing little sign of fatigue. Mn/DOT has a handful of research reports which validate the use of whitetopping. Olmsted County built a whitetopping project in 1982 which is still in service today and is not showing any signs of wearing out any time soon.

In today's economy, the cost of rehabilitating a pavement has become the driving force in the

selection of the process. Concrete overlays require little, if any, preparation of the existing pavement which helps tremendously with minimizing the initial costs. Concrete overlays are placed with conventional slipform paving equipment so no special equipment is required. Time and money can also be saved by paving the shoulder along with the mainline.

Concrete has long been known as the most durable paving product. It is because of this durability that concrete overlays have become more and more popular. Concrete overlays will not rut, shove or cup.

They can be designed and built for a wide array of traffic loadings and will maintain their smooth ride and durability characteristics. As has been shown at MnROAD, concrete is the long-term, smooth, and safe pavement. For these reasons as well as other considerations, more and more owners are looking to concrete to solve their overlay problems.

Have you looked into concrete overlays? You have nothing to lose by taking a look, but you may be quite surprised at how much you have to gain.

**Count on Concrete**  
PAVEMENT

## Megan Marie Snyder Joins CPAM Family

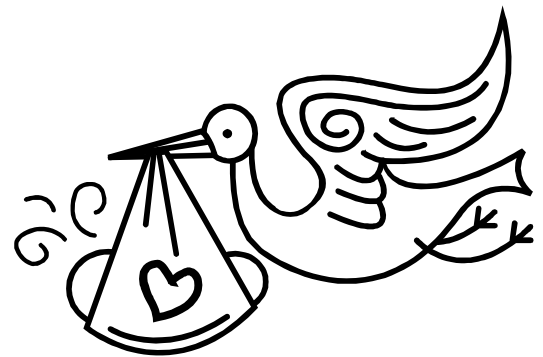


L-R Mark, Megan and Julie Snyder

Please join us in welcoming Megan Marie Snyder, born on Saturday, December 17, 2005 at 7:21 p.m. EST, weighing in at 7 lbs., 15 oz. and measuring 20 inches long.

Proud (and somewhat sleep-deprived) parents are Mark Snyder, former Executive Director of CPAM, and his wife, Julie.

Rumor has it that one of the first words out of Megan's mouth sounded surprisingly like "c-c-c-concrete". . .accompanied by a huge smile! She is undeniably extremely intelligent and advanced for her age!



**Congratulations, Mark & Julie,  
on your new little bundle of joy!**

# Local Construction and Engineering Team Win National Award

By Jane Greer, Ulteig Engineers

Even under perfect conditions, a runway reconstruction project can be a pain in the neck for airport managers and officials, pilots, and passengers. Add problems of climate, weather, and availability of materials, and the challenge increases substantially.

It is especially noteworthy when a runway reconstruction project wins a national award. The Runway 18-36 reconstruction project at Hector International Airport in Fargo, N.D. did just that, winning the "Commercial Service and Military Airports" category of the American Concrete Pavement Association's 2005 national awards, and was named a "State Airport Paving Award" winner by the local ACPA chapter.

## Creative routes to smoothness and durability.

The general contractor on the project was Shafer Contracting Co. of Shafer, Minn. "They found very creative ways to expedite paving," said Ulteig Engineers' Aviation Department Manager Steve Synhorst. "They used every method they knew of – and invented a few others – to keep the project moving and maintain quality."

Hector International is North Dakota's largest commercial airport, and the Runway 18-36 project was the largest runway reconstruction project in the state's history. Shafer Contracting, Ulteig Engineers and their partners had the task of completing reconstruction of a smooth, durable runway in time to allow the recommissioning of the Instrument Landing

Systems (ILS) before the Thanksgiving rush. There was one other requirement: no loss of airport service during the project.

None of these requirements was extraordinary. However, the construction season in North Dakota can be as short as five or six months. When wet weather slowed construction in May 2005 and paving had to be shut down for a week because of cement shortages, the going got tough – and the tough got going.

**Hold the paste, please.** It was important to minimize the amount of paste (liquid cement with little or no aggregate) that was brought to the surface of freshly poured concrete. Paste, often created during finishing activities on fresh concrete, ultimately makes the concrete brittle. Shafer worked with Midwest Testing Laboratories, Fargo, to develop a mix that used larger aggregate and was compatible with their paving equipment. The resulting

concrete required less finishing than usual. Spraying water on fresh concrete to help smooth it also causes paste, and Shafer was able to minimize the amount of water used in finishing.

**Nonstop paving.** The difficult achievement of nonstop paving was accomplished by dumping a constant supply of consistently mixed and monitored concrete in front of the paver. This reduced breaks in the pavement, required the use of fewer finishing techniques, and resulted in a smoother finish.

**Optimum paving schedule.** "Maturity monitoring" is used to measure the strength of concrete that has not cured completely and is not at maximum strength. The FAA generally does not approve maturity monitoring because it doesn't approve of the concept of getting on new runway pavement before it reaches full strength. For the Hector project, however, the FAA gave permission to use maturity monitoring in order to accelerate the paving schedule. As it turns out, however, Shafer did not need to use maturity monitoring. They had scheduled paving in such a way that pavements had time to reach full strength before being used.

## No loss of airport service.

One of the goals was to avoid any loss of airport service during the project. This required a well-organized traffic management plan. In fewer than 22 hours and under aircraft movement, Shafer converted a 100-foot-wide taxiway to a temporary

runway. After extensive communication and coordination with Ulteig and Hector Airport Director Shawn Dobberstein, the airlines limited the size of aircraft using the airport to DC-9-sized aircraft and smaller. Airfield pavement maps were developed for aircraft users, showing open and closed sections of pavement as well as airport rescue and firefighting access routes.

"The traffic management plan and traffic control techniques produced astonishing results," said Synhorst. "There were no on-the-job injuries. There was no loss of airport service. And most extraordinary of all, the numbers for total passengers, total passenger enplanements, and total passenger deplanements during the project year – 2005 – were greater than those of 2004."

"For an airport using a visual-approach temporary runway as the primary runway, this is quite an accomplishment," he concluded.



*Newly constructed runway 18-36 at Hector Int'l Airport in Fargo*



Mark your calendars for these up and coming events!

## Calendar of Events

### Local

<b>May 17 &amp; 18</b>	<b>MnROAD / StreetPave Seminars</b>	<b>Albertville, MN</b>
May 22-23	LTAP Workshop on Concrete Rehab for City Streets & Roads	Minneapolis, MN
June 5	MSES 8th Annual Spring Golf Outing @ Emerald Greens	Hastings, MN
<b>June 6</b>	<b>11th Annual Concrete Open @ The Legends Club</b>	<b>Prior Lake, MN</b>
<b>June TBD</b>	<b>Whitetopping Open House, TH 30</b>	<b>Amboy, MN</b>
<b>Dec 8</b>	<b>CPAM Annual Membership Meeting</b>	<b>Vadnais Heights, MN</b>
<b>Mar 15-16, '07</b>	<b>CPAM Annual Concrete Paving Workshop</b>	<b>St. Cloud, MN</b>

### National

April 30-May 3	2006 ACEC Annual Convention	Washington, DC
May 8-11	ACPA Chapter/State Paving Assoc Execs Mid-Year Meeting	Dubuque, IA
May 16	Concrete Partners for Political Results	Washington, DC
May 17-18	2006 Transportation Construction Coalition Fly-In	Washington, DC
July 10-13	ACPA Mid-Year Meetings	Evanston, IL
Nov. 29-Dec. 1	ACPA 2006 Annual Convention	Lake Buena Vista, FL

*Items in bold are sponsored or co-sponsored by CPAM.*

*If you have items you'd like to add to the calendar, please contact the CPAM office!*



Visit us on our website at:

**[www.concreteisbetter.com](http://www.concreteisbetter.com)**

*The Concrete Conveyor is published by the Concrete Paving Association of Minnesota for anyone involved or interested in concrete paving. It highlights industry activities and provides the latest information regarding concrete pavements and pavement options.*

*To subscribe or unsubscribe, please send an email message to Deb LaValle: [dlavalle@cpamn.com](mailto:dlavalle@cpamn.com)*

Publisher: Concrete Paving Association of Minnesota  
 4517 Allendale Drive, Suite A  
 White Bear Township, MN 55127  
 Phone: 651.762.0402 Fax: 651.762.0638

Staff cell phone #'s:  
 Matt Zeller 651.253.1652  
 Brad Skow 651.357.4444  
 Bob McPartlin 651.249-3244