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Minnesota Asphalt
Pavement Association

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PROGRESS

900 Long Lake Road, Suite 100 • New Brighton, MN 55112 • (651) 636-4666 • Fax: (651) 636-4790

2006 Perpetual Pavement Award

The Minnesota Department of Transportation (Mn/DOT) has received its fifth National Perpetual Pavement Award for TH 61 in southeast Minnesota between Wabasha and Kellogg.

The criteria for this prestigious national award are pavement sections that are 35 years or older, have not had major structural failure, has on average at least 13 years between overlays, and should demonstrate excellence in design, quality in construction and value to the traveling public.

Through projects such as this, Minnesota played an outstanding role in the history of transportation, technological change, and asphalt construction thanks to the progressive vision and partnering efforts of agency and industry representatives. This project has demonstrated outstanding design, construction, and performance value for more than 35 years of

service to the traveling public of Minnesota and continues to do so today.

“Mn/DOT is honored to accept this national Perpetual Pavement Award for the fifth year in a row,” said Keith Shannon, Director, Office of Materials. “These awards demonstrate Mn/DOT’s historical commitment to maintaining smooth pavements on Minnesota highways with cost-effective overlay treatments. Less maintenance on this road has also meant less disruption for motorists.”⁽¹⁾

“The methodology used during the road’s construction in 1969 was



innovative and now has become an accepted standard,” said Nelrae Succio, District 6 Transportation Engineer.⁽¹⁾

Congratulations to the Minnesota Department of Transportation! ■

⁽¹⁾Mn/DOT Press Release dated June 7, 2007.

Martin Marietta Open House

The weather just barely cooperated as the Martin Marietta Aggregates quarry in St. Cloud opened its doors to the public on June 7th. Nearly 1,400 people rode the bus through the quarry in a special tour and visited the exhibits. Minnesota Asphalt Pavement Association hosted an exhibit booth, met with the citizens as they toured the facility, and provided information.

Photo courtesy of Ralph Bell, Waite Park Newsleader.



More Porous HMA Pavement Constructed in Minnesota

The concept of managing storm water with porous or dense graded hot mix asphalt (HMA) pavements is fairly new in Minnesota, however this design has been used successfully since the 1970's to provide a solution to storm water runoff as well as groundwater table recharge.

Storm water management with HMA pavements have been used in many facilities including parking lots and playgrounds in Minnesota with the benefits of providing runoff control, aquifer recharge, reduction of drainage structures needed to comply with storm water regulations, and increased skid resistance and safety.

A typical HMA pavement section consists of either a porous or a dense graded HMA course, a top filter course, a reservoir course (designed for runoff detention, frost penetration, and structural capacity), and optional bottom filter course, filter fabric, and existing soil or subgrade material.

The proper design and application of storm water HMA pavement design is important for successful use of the concept. Soil characteristics, local topography, and climate conditions are physical factors that will be used in the planning and design processes. Other



T.A. Schifsky & Sons, Inc. paving church parking lot in Mahtomedi, June 2007

considerations include traffic loading, use of the facility, and agency regulations (i.e. storm water regulations).

The MAPA Asphalt Paving Design Guide and other reference materials are available for design guidance at www.asphaltisbest.com ■

Calendar of Events

MSES Fall Golf Outing • Sept. 12-14, 2007 • Madden's Resort • Brainerd, MN

AASHTO Annual Meeting • Sept. 27-Oct. 2, 2007 • Milwaukee, WI

2007 NAPA Energy & Recycling Symposium • October 22-23, 2007 • Radisson Hotel & Suites • Austin, TX

MAAPT 54th Annual Asphalt Conference

Wednesday, December 5, 2007 • Northland Inn • Brooklyn Park, MN

Annual Asphalt Paving Awards Banquet

Wednesday Evening, December 5, 2007 • Northland Inn • Brooklyn Park, MN

MAPA 54th Annual Membership Meeting

Thursday & Friday, December 6-7, 2007 • Northland Inn • Brooklyn Park, MN

North Central Asphalt User Producer Group Meeting • January 8-10, 2008 • Springfield, IL

52nd Annual Asphalt Contractors' Workshop/Quality Initiative Workshop

Wednesday, March 5, 2008 • Earle Brown Heritage Center • Brooklyn Center, MN

AAPT 83rd Annual Meeting • April 27-30, 2008 • Hyatt Regency at Penn's Landing • Philadelphia, PA

The Way Around a Roundabout

Roundabouts have become the new way around a Minnesota intersection, with the potential advantages of reducing the possible crash points of incoming traffic and reducing maintenance costs associated with a stoplight.

An example of a roundabout is one located in the city of Grand Rapids, MN, as a part of the 7th Avenue SE infrastructure improvement project. The new style intersection was designed by Short Elliott Hendrickson and paved by Hawkinson Construction.

A driving force behind this project was the need to increase traffic capacity on this heavily used collector roadway within Grand Rapids. To accommodate the



expected traffic of over 11,300 vehicles per day, the pavement design was 5 inches of SuperPave hot-mix asphalt over 12 inches of class 5 aggregate base over 18 inches select granular borrow. ■

TH 36 Open House, Site Tour, Demonstration and Workshops

An Open House is being held August 29, 2007 from 9:00 AM to 3:30 PM at the North St. Paul Community Center located at 2290 1st Street North, North St. Paul, MN 55109. Highway reconstruction innovations, such as complete closure and intelligent compaction, are in progress as Trunk Highway 36 (TH 36) is rebuilt.

This TH 36 reconstruction project open house features an intelligent compaction demonstration and a work site tour led by TH 36 project engineers. In addition, hear from FHWA, Mn/DOT, and TERRA officials, including FHWA administrator Rick Capka (invited) and Lt. Gov. Carol Molnau, Mn/DOT commissioner (invited). Concurrent panel sessions with federal, state, and industry speakers will address TH 36 project technology innovations, accelerat-



ed construction, and communications, outreach, and market research.

As a part of the Highways for Life program by the FHWA, Minnesota was one of the first states to receive \$1 million to help incorporate new technologies and approaches that cut construction time while improving quality, safety, and durability. In Minnesota, funds were used to supplement the reconstruction of 2 miles of TH 36 in North St. Paul. The proposed upgrades, including work on resurfacing with Hot-Mix Asphalt, grading, bridges, drainage and lighting will be the full closure of portions of TH 36 for five months. ■

Ghylin Named New APA Co-Chairman



NAPA Chairman Ron White has appointed Gaylen Ghylin, NAPA's State Director from Minnesota, as the new Asphalt Pavement Alliance Co-Chairman. He replaces Larry O'Donnell, O'Donnell & Sons Construction Co., KS.

This position also provides Mr. Ghylin with a seat on the NAPA Executive Committee. ■

Life Cycle Cost Analysis

By Richard O. Wolters, P.E., MAPA Executive Director, and Jill M. Thomas, P.E., MAPA Associate Director

Not all investments are equal; and because transportation facilities are usually constructed and maintained from public funds (taxes or bonds), it is sensible that the economics of alternative paving materials be examined carefully and be a part of the pavement decision process.

Once a pavement is in service, there are many benefits to the traveling public and there are some costs due to maintenance, periodic rehabilitation, and operational activities. In many cases, the benefits will build over time as traffic levels increase. These benefits and costs can be presented in terms of dollars for each year of the project's life cycle.

Life cycle cost analysis (LCCA) can also be referred to as pavement economics. There are many design options for consideration as a specifying authority (i.e., flexible, rigid, unbound granular, bound granular layers, staged construction, etc). While such choices may be structurally equivalent over the analysis period considered, the choices are unlikely to be equivalent from an economic standpoint. Construction and maintenance costs occur at different times over the analysis period and must be adjusted to the same datum comparison before total costs can be assessed. The timing of maintenance strategies in the analysis should be based on need and historical data, not on a prescribed given time interval or statewide average.

This can be accomplished by using the well-founded principles of

Present Worth of Costs (PWC) analysis, which is capable of taking into account the following terms:

- 1) initial capital construction costs,
- 2) subsequent capital construction costs at any time during the analysis period,
- 3) warranted annual and periodic maintenance costs,
- 4) user costs including user delay during maintenance operations, vehicle operation, accidents, and discomfort, and
- 5) residual value of pavement materials.

The Present Worth Factor (PWF), also known as the discount factor, is used to equate future costs to present costs and is derived from the discount rate. The real discount rate reflects the true value of money without inflation, and the nominal discount rate includes an inflation component; both can significantly influence the analysis result. LCCA should use a reasonable discount rate that reflects historical trends over a long period of time. Data on historical trends indicate that the real time value of money is approximately 4%. The U.S. Government Treasury is another indicator and is approximately 4%.

Analysts should work from an unbiased, approved, formalized, objective, structured approach that should be:

- 1) comprehensive enough to capture and evaluate true economics,
- 2) rational, understandable and defensible,
- 3) based on historical facts,
- 4) able to provide the "best value"

- for taxpayers and users,
- 5) fair and competitive for all the involved parties, and
- 6) able to retain quality and accountability for agency and industry partners (create a fair and level playing field).

The salvage value is the residual value after the useful life of a roadway is reached and is a very important factor to consider. For example, contractors and public agencies do not give away equipment after items have served useful lives. It is usually valued and sold or used in trade-in transactions, thus helping to keep overall costs down. With global conservation of energy and materials in mind, the salvage value of pavement materials for recycling must be taken into account in the LCCA.

Even with the recent increase in all pavement material prices, hot-mix asphalt (HMA) remains the best value for pavement owners. Asphalt cement (binder) is generally five to six percent of the in-place HMA mixture. Therefore, the cost of a ton of HMA does not increase in direct proportion to a rise in the price of asphalt cement (or crude oil).

In a way, a network of HMA roads is similar to a network of oil fields. Each mile of the roadway has very valuable resources in the HMA that can be reused at a significant cost savings to the tax payers.

Furthermore, the specifier would be wise to continue to build "equity" in their transportation system

by using HMA due to the increased value of the in-place asphalt cement and aggregates. The HMA industry has the unique ability to reclaim the asphalt cement and aggregate for its most valuable use, as part of the new binder and aggregate matrix. With proper application, there is also a positive value for the new Performance Graded (PG) asphalt binder. PG binders have been endorsed by specifiers on a national basis and mandated by the Strategic Highway Research Program (SHRP) for public agencies. Research has shown that PG binder materials have added intrinsic value for performance as opposed to the past conventional grading systems, and this value is re-used in HMA.

MAPA has always encouraged fair, real-value competition for the

specifier community. Several states use FHWA's LCCA report and RealCost LCCA software when performing analyses, both are on their web site at www.fhwa.dot.gov. Variable use of different procedures can result in non-uniformly comparing like alternatives. An "apple to apple" comparison is a must. Historic data, specifier contribution, research, and industry input into the LCCA formula for the benefit of all parties (engineer and non-engineer) is strongly encouraged. The pavement authority (specifier) will then be assured to get the best value for the stakeholders, which should be unbiased.

In summary, MAPA supports a pavement decision process that is rational and has an explainable and justified methodology. The goal of offering alternatives should

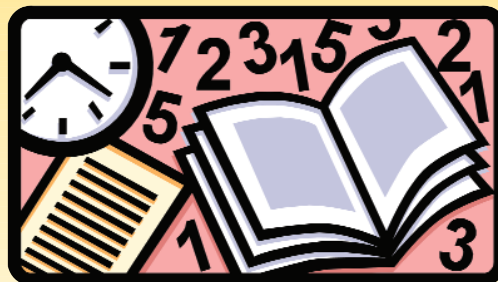
be to foster competition and get the best value for the taxpayers/owners. It is up to the contractors to provide the pavement that gives the best possible performance at the lowest possible price. It is critical to the future generation that we invest wisely in our national and local network of pavements. Thus, the pavement decision process should be beneficial for the taxpayer today and in the future (the real customers).

Contact MAPA if we can be of assistance to you with LCCA and visit our web site at www.asphaltisbest.com for continuously updated information. ■

Staged Construction in the Updated State Aid Manual

The 2007 edition of the *State Aid Manual* offers the official guidance, rules, and procedures for state and federal aid transportation projects. It is now organized by project phases, uses a simpler numbering system, and includes direct links to important resources.

Staged Construction is discussed in the manual as a means to phase the construction of projects over a few years. In this case, the placement of the bituminous surface must be within three (3) years of completion of the grading. This is another benefit to



using Hot Mix Asphalt to optimize construction dollars.

One scenario is the placement of the bituminous surface over two consecutive construction seasons with the final wearing course completed during the second season.

Keep in mind that the total strength is obtained when all layers are in place.

If you have any questions about the *State Aid Manual*, please visit www.dot.state.mn.us/stateaid/ or contact the State Aid Division help line at **651-366-3838**. ■

Spotlight on Ronald Mortensen, P.E. Meeker County Engineer

An interview by Jill Thomas, P.E.

Ron's diverse background in transportation is a key asset to the challenges at hand as the Meeker County Engineer.

Ron was born and raised in Meeker County near Cosmos. During high school, he worked for his uncle's grading contractor company called Lloyd Mortensen Construction, where he was first introduced to many engineering principles of construction.

Ron's interest in taking things apart to see how they worked and then putting them back together prompted his desire to become a mechanical engineer. He enrolled at Willmar State Junior College in 1968 and was in the process of transferring to the University of Minnesota in 1970 when he was drafted to the U.S. Army and sent to Vietnam for 14 months.

When Ron returned home, he married his wife, Shirley, and they have four children: Brenda, Jeremy, Melissa, and Dustin. Ron took a break from school during the 1970's to the early 1980's and worked for Century-Mercury Motor Freight, Farmer Co-op Exchange, and Rockite Silo. He expanded his engineering skills in these positions by staying involved in transportation and applying his education to "real life" problems.

Ron started working at the Minnesota Department of Transportation in Willmar (District 8) in 1986. He began his tenure as



a Highway Tech and moved up to Senior Highway Tech. With his sights still set on Engineering, he changed his focus to Civil Engineering and went back to the University of Minnesota to complete his Bachelor of Civil Engineering Degree in 1993. This was a long and arduous journey with two other Techs who carpooled, after a full workday in Willmar, to the Minneapolis campus for night classes over the next four years.

In 1993 there were no openings in the Willmar Office of Mn/DOT for an Engineer, so Ron waited for the next available position and in 1995, he became a Grad Engineer in the two-year Rotation Program and spent five months at Meeker County. He became a Registered Professional Engineer in 1997 and also moved up to the position of Senior Engineer at Mn/DOT. He worked in the Preliminary Design Unit on projects in Hutchinson and also the Willmar 4-lane bypass.

Ron became the Meeker County Engineer in 2001. He noted how

all the counties in Minnesota are different and yet they are all the same. One difference is that Meeker County has 272 miles of only County State Aid Highways (252 miles are paved with hot-mix asphalt and 20 miles are gravel), 776 miles of Township Roads (123 miles are paved with hot-mix asphalt and 653 miles are gravel), and no County Roads. This situation dates back to the early 1960's when all of the County Roads were turned to Township Roads and the county is responsible for the design and maintenance of the CSAH and Township roadway networks. This relates to a common challenge Meeker County shares with other counties for funding. Their current budget level is making it difficult to meet the needs of their residents.

As the Meeker County Engineer, Ron has an office staff of 26 people and 10 seasonal workers. Their Litchfield office moved in July to the east end of town to a building they will share with Mn/DOT.

In his spare time, Ron enjoys time with his family, hunting, fishing, and the family hobby farm that is 5 acres, has three steers, six ewes, and many pheasants. He especially enjoys helping operate large farm machinery for family and friends during the harvest season.

Best of luck Ron, and keep building 'em black! ■



Minnesota Hosts the Mississippi Valley Conference

Minnesota hosted the 98th Annual Mississippi Valley Conference of State Highway and Transportation Departments in Minneapolis from July 9th through the 11th. Over 500 people attended, representing 10 different states and sharing related information.



Addressing the conference was U.S. Secretary of Transportation Mary Peters (photo), who called for replacing the transportation policies of the past 50 years with ones designed for the next half century.

In discussing funding, Peters said the latest revenue projections that came out Wednesday show drastic drops in fuel tax revenue, indicating a projected \$4.3 billion shortfall in the highway account of the Highway Trust Fund in Fiscal Year 2009.

Peters said there are a number of actions that need to be taken to correct the funding shortfall, including the creation of a transportation system that is responsive to the needs of the nation in a global economy. She also emphasized the need to reduce congestion, creating corridors of the future, and using public-private partnerships to further goals. ■

USS New York: A Special Ship

Submitted by Mary Reed, Construction Equipment Guide

Despite geographical distance, a strong link connects the destroyed World Trade Center in New York City and the Northrop Grumman Ship Systems (NGSS) shipyard in Avondale, LA, which, like nearby New Orleans, was ravaged by Hurricane Katrina.



The bond between them is the U.S. Navy ship currently under construction in Avondale, for the vessel's bow stem was cast from steel salvaged from the ruins of the World Trade Center. Cleanup efforts after 9/11 included removal of approximately 200,000 tons of steel, much of which was sold worldwide to be reused for various purposes.

During a ceremony marking the occasion, Dotty England, wife of Gordon England, the then secretary of the Navy, stated, "For all those who will build and those who will serve aboard the USS New York and for all who suffered from the attacks of 9/11...let us never forget." ■

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