SCANNER

NEWSLETTER OF THE AMERICAN SOCIETY OF HIGHWAY ENGINEERS

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Spring 2004-2

ASHE 2004 National Conference

It's time to get serious about ASHE's 2004 National Conference! As you've read in these pages, this year's conference will be held at the luxurious Sawgrass Marriott Resort Beach Club in Ponte Vedra Beach, Florida, approximately 30 minutes south of Jacksonville, Florida.

Five full days of activities are on the agenda; beginning with an ice breaker planned for the evening of June 16, 2004 and culminating with the National Board Meeting on the morning of the final day (June 20, 2004). You, your colleagues, and especially your families, will enjoy a wide range of activities from organized golf and fishing events, to top-notch technical presentations and exhibits, social networking functions, as well as the favored event - ASHE's Annual Banquet on Saturday, June 20, 2004. Note that significant high profile sponsorship opportunities still exist for the conference. Learn about these, as well as register for the conference on line at: www.ashe2004.org.

Enjoy the World Class Sawgrass Marriott Resort and Beach Club

The Resort boasts luxurious accommodations and gracious hospitality, limitless recreation and leisure amenities; relax in quiet elegance beside a sparkling pool, refresh yourself in the on-site Spa and complete Fitness and Health Club, including massages, sauna and whirlpools. Doze off to the sound of crashing waves on a sun drenched beach, cherish a romantic dinner for two, socialize with friends, or just play with the kids and have fun! In addition, with 99 holes of golf on-site at the Sawgrass Marriott, you will find yourself in a Golfer's Paradise - home to THE PLAYERS Championship and TPC Stadium Course, the PGA TOUR Headquarters and the nearby World Golf Hall of Fame.

Explore the Living Heritage of the Nation's Oldest City, St. Augustine

Come and explore all the wonderful things St. Augustine has to offer. Make sure you visit as many of these sites as possible: St. Augustine Lighthouse, Bridge of Lions, Castillo de San Marcos National Monument, St. George Street, Ripley's Believe or Not, Lightner Museum and the Potters Wax Museum. There really will be something for the whole family.

ASHE's Florida Chapters are proud to be bringing you this year's Conference and look forward to seeing all of ASHE's friends and families from across the country down in Florida's First Coast. Remember, with only one month to go the time is now to start planning for your family's 2004 Summer Vacation. What better place than Sunny Florida, where it's always warm and the people are full of that good old Southern Hospitality! ■

AMERICAN SOCIETY OF HIGHWAY ENGINEERS
2004 NATIONAL CONFERENCE
June 16-20, 2004
Sawgrass Marriot Resort Beach Club
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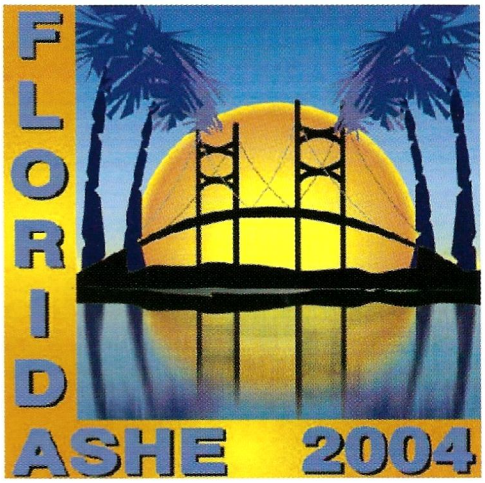

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Message from the President

David W. Jones, P.E.

As my year of presiding over the National Board and the American Society of Highway Engineers comes to a close, I would like to thank all the ASHE members for allowing me to do so. What a great year! It has been a truly significant event in my life. But the best part was meeting the members of ASHE. No one can encompass the strength of ASHE without that experience.

The National Board took great strides in achieving goals set by the Strategic Plan. The Legislative Review committee led by Perry Schweiss, took the committee in a different direction this year. With such important legislation as the reauthorization bill for Highway and Transit Funding, the Board felt that a larger effort was needed on voicing our opinion on this significant piece of legislation. While some individual sections participate in lobbying through other larger aggregate organizations, National does not. Mr. Schweiss presented a proposal for ASHE to participate in the American Road & Transportation Builders Association (ARTBA) until such time as ASHE is large enough to provide this service on our own. While the main concern was that ARTBA membership would not publicize our name, it would gain us access to critical legislative information needed to be more effective. Needless to say, all the lobbyists in the world do not take the place of people writing and voicing their opinions on the bill. A sample legislative action letter is posted on the National web site for your use in contacting your legislator. It is never too late.

The Publicity Committee has been working on ideas for the base tier of our marketing plan. This will be a series of low cost items or materials that can be widely distributed. Several ideas were tied into setting up an online ASHE store for membership items such as license plate frames, windshield stickers and other nicknack items. As an experiment, five hundred license plate frames will be made available to the National Conference attendees at no cost. Please let us know what you think about them.

The Membership Committee advanced a proposal to set up an "at-large" section for potential members outside established areas. In the past, we have turned away many potential new members because of the lack of an established section near them. Committee member, Rod Pello reported on his efforts to make ASHE an all inclusive group. He presented revised Membership Guidelines and a revised Membership Application. The Board approved the Membership Application for use by all sections. The revised Membership Application can be obtained from the National website. Each section should modify whom the application should be sent to and the amount of dues.

Robert Hochevar, Chair of the Web Site Committee reports that a procedure is now in place for Consultants, Suppliers and Contractors to purchase a business link or fixed advertisement on the National Web Site. This opportunity is to further advance the goals of ASHE by providing a centralized location for our supporters to identify their resources and to communicate who they are. The cost of the posting is $200/year. See the National Web Site for more details.

To achieve ASHE's mission of being the FORUM FOR THE HIGHWAY INDUSTRY, the National Board must reach out and use the membership resources that we have. I want to thank all of you for your time and effort that you put into ASHE this year. Three National Board members, Sandy Ivory, Mark Welker and Robert Peda will be leaving. All have done an outstanding job for you, our members. All will be missed. I hope that I will see many of you at the National Conference in Ponte Vedra, Florida, June 16-20th. I know every section in Region 9 is working very hard to make this a successful and enjoyable event. If you have not already registered, you can register "ON-LINE" at www.ashe2004.org. ■

The Gateway to Meadville Beautification Project

Joe Greco, President and Shirley Stuttler, Secretary – Franklin Section

Transportation department garages serve a critical role in many communities as essential service hubs. They provide a functional yet unglamorous home for the staff and equipment needed to keep traffic and people safe across the country. However, in Meadville, Pennsylvania, thanks to an award winning project led by Art Professor Amara Geffen, Allegheny College of the Arts/Meadville, PA, residents and tourists are appreciating the Crawford County Pennsylvania Department of Transportation Maintenance Facility, as much as for its aesthetic appeal, as for its invaluable service to the community.

Geffen, art students, interns with Allegheny College's Center for Economic and Environmental Development (CEED), PennDOT personnel, and community members, such as Mr. B.J. Smith, A.S.H.E. Franklin Section Member and active participant in the area's AAA, collaborated to create a site that showcases important qualities of the community at work and play. "Working together, we have endeavored to create art that embodies American values of hard work and community spirit. As inspiration, we have had to look no farther than our own backyard," said Geffen. Using recycled road signs, a great deal of hard work, and an earnest appreciation for the values and traditions that identify Meadville, they created a unique installation of public art at the site.

When CEED became aware of Crawford County PennDOT's desire to highlight their property, they turned to Allegheny Art Department Chair Geffen. Geffen suggested how students enrolled in her Art and the Environment Class could propose ideas for the site as their final project. The project was then named "Signs and Flowers."

"PennDOT wanted us to do something that would beautify the area, reduce the maintenance, and also call attention to the fact that something was there," said Geffen. In response to PennDOT's request, students made site model drawings of their ideas and a larger prototype. Then they offered PennDOT officials a written proposal and a verbal presentation.

The construction of "Signs and Flowers" began with fabrication and design help from CEED art interns, as well as with research assistance from CEED interns. With these students, Geffen, participants from CEED and PennDOT started by generating models. The site excavation commenced afterwards, taking about two whole weeks to complete. "I lost track after (30) dump truck loads of about (45) tons of soil," Geffen mentioned. The soil consisted of shoulder dirt, which was dirt that PennDOT had stockpiled from road shoulder renovations.

Next, the project moved into the welding shop to translate the flower models into life size sculptures. "Conceptually it came together very quickly," Geffen explained. "For just about four weeks we produced like crazy." The group worked regular PennDOT hours from 7:00 a.m. to 3:00 p.m. everyday. "They were tremendously hard workers," said PennDOT Crawford County Manager and A.S.H.E. Franklin Section Member Jack Molke. "We got to learn their thought processes."

Then the group concentrated on positioning the flowers. According to Geffen, "That was a feat in itself because some of the flowers are several hundred pounds and had dimensions of 11' x 6'. The challenge arose in finding a way to secure each flower into the ground in order to prevent theft, while at the same time allowing the possibility for removal for repairs."

There is one area of complete agreement about the road signs to flowers project blooming at the intersection of Routes 322 and 102 in Meadville, PA, also considered the Gateway to Meadville. It's different! Most of the reactions have been positive but some people are concerned that their tax dollars paid for the project. That, however, is simply not the case. The students did "the yeoman's share" of the work. Expertise and insight - and some working space - were provided by PennDOT. The signs, taken out of service as part of regular maintenance, would have been sold as scrap and the interns were supported by a grant through the Heinz Foundation, heinzfoundation@hjheinz.com.

All in all, everyone who participated in the Gateway to Meadville Beautification Project through "Signs and Flowers" took something positive from the experience and the hope is that the Crawford County community will benefit from this artwork. It gives PennDOT a really good look," commented Jack Molke. "It has given PennDOT a better image in the community. I think it was a great experience for everyone involved." ■

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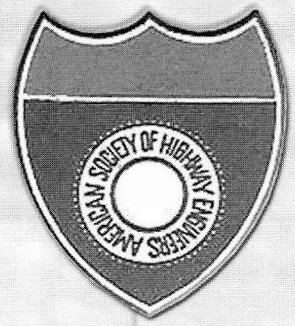

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TECHNOLOGIES

I-70/I-71 South Innerbelt Study

Valerie Croasman P.E., Central Ohio

Travelers to and through Central Ohio are likely to remark unfavorably about the congested, confusing and somewhat gauntlet like drive along the I-70/I-71 corridor on the southern boundary of the City of Columbus. Peak hour traffic reports daily note accidents on I-70/I-71 which block travel into and out from the Central Business District. In fact, crash data shows an average of three accidents a day occur along this short, 2-mile stretch of overlapping interstate. It is therefore not surprising that the I-70/I-71 South Innerbelt has earned the unflattering rank of number one congested location in Ohio.

The operational implications of closely spaced ramps and the overlap of I-70 and I-71 on the same freeway section were not viewed as significant problems under the modest traffic volumes of the 1960's. As Columbus continued to grow in the latter third of the 20th Century and the Central Ohio freeway system achieved most of its intended connectivity, the South Innerbelt began to experience deterioration in levels of service and safety. The steady increase in traffic volumes began to limit opportunities during many hours of the day for easy merging and lane-change operations. The design of the major interchanges between the two routes (the "west split" and "east split" as they are known locally) do not provide for continuous route following for I-70 and I-71 as they overlap, further complicating weaving maneuvers already existing due to the closely spaced service ramps.

Recognizing the shortcomings of the South Innerbelt performance, the Ohio Department of Transportation (ODOT) initiated a Major Investment Study of this vital transportation link. In the spring of 2002, ODOT selected ms consultants, inc. to lead a consultant team to begin the planning process to identify transportation improvements to move traffic safely and efficiently through the corridor.

Improvement of the operation and safety of the I-70/I-71 South Innerbelt is essential as the interstate corridor serves a number of important purposes. This combined section of interstate highway serves "through" auto and truck traffic and regional commuter traffic. It also provides local freeway access to downtown Columbus and inner city neighborhoods. Major area hospitals such as Children's, Mt. Carmel, and Grant are all dependent upon this section of freeway for emergency access. Given the importance of this vital section of interstate, it is ODOT's desire to move forward expediently through the project development process with the hope of easing congestion and improving safety by beginning construction in 2007 to 2008.

The I-70/I-71 South Innerbelt Study began with an evaluation of existing conditions to identify the problems and confirm the purpose and need for improving the corridor. The project team received no disclaimers from the public regarding the need to fix the outdated freeway — all except a few advocating no change are in agreement regarding the urgency to provide for safe travel through the corridor.

There was greater community interest and a much more diverse range of public opinion received during the next step of identifying concepts to improve the corridor. Progressing through the ODOT project development process, six initial broad-based concepts along with No Build, or do nothing, were evaluated last summer 2003. The screening process narrowed the concepts to improving the I-70/I-71 corridor and incorporating transportation demand management (TDM) and transportation system management techniques (TSM) - such as car pooling, tele-commuting, alternative work schedules, expanded public transit - into any proposed improvement option. The TDM and TSM techniques were included as they offer some congestion relief to the transportation system but cannot fully address the corridor goals by themselves.

Various alternatives which go into more detail on how to improve the corridor were then developed during the next step of the planning process. The project team is now evaluating eight alternatives identified to improve the I-70/I-71 South Innerbelt corridor. The eight alternatives range from No Build, to providing collector-distributor roads to separate local and through trips to constructing a tunnel for interstate travel under the existing freeway corridor. All alternatives, with the exception of No Build, include a complete redesign of the I-70/I-71/SR 315 "west split" and the I-70/I-71 "east split" interchanges to address safety concerns with the outdated ramp system. Providing route continuity to eliminate the existing lane changing required to maintain travel on either I-70 or I-71is a priority for both stakeholders and engineers and is also included in all of the eight alternatives except No Build. The eight alternatives are in the process of being evaluated to determine how well they meet the goals, objectives, purpose and need for the study. In May 2004, the evaluation data will be presented to the public for review and input. By June 2004, the project team anticipates screening the alternatives down to two or three conceptual solutions which can then move forward for further detailed analysis prior to selecting one preferred alternative to go into preliminary design.

It should be understood that the community and local agencies are heavily involved in the development of the alternatives to improve the I-70/I-71 South Innerbelt and have been involved since the onset of the study. It is ODOT's intent to continue close community involvement as the project moves from the planning phase into preliminary and then final design. Given the size and scope of the project it is important to seize the opportunity to provide solutions that not only meet the regional needs of this vital transportation corridor but also preserve the unique character and enhance quality of life of the surrounding community. ■

Bridge Maintenance Training

Ron Purvis PE, President, Ron Purvis Associates, member of the ASHE Potomac Section

Bridges, the key links in America's highway system, are deteriorating more rapidly than they are being repaired, rehabilitated, or replaced. Bridge deterioration costs billions of dollars in repair, replacement, and user costs annually. Most of these expenditures are avoidable if appropriate maintenance and protection is applied while bridges are in good condition, yet many transportation agencies continue to let these expensive structures deteriorate.

Bridge maintenance has traditionally been reactionary. Agencies respond to symptoms such as steel corrosion or concrete spalling (potholes), or they wait until there are functional or safety issues. Maintenance involves cleaning and protecting components to prevent deterioration. After deterioration reaches a certain point, maintenance simply is not effective.

Is bridge maintenance cost effective? Interviews with practitioners involved in this work would suggest that the answer is yes. Most also agree that it costs less to maintain a bridge in good condition. Maintenance costs increase exponentially as the bridge condition worsens. The difference expands even more when user costs are included. Unfortunately, many bridge owners expend most, if not all, their current allocated maintenance resources keeping poor condition bridges in service. This is the consequence of deferred bridge maintenance. When owners work only on the bridges in poor condition, the bridges in good condition deteriorate. This results in more bridges in poor condition. This cycle will continue until bridge owners recognize that the most cost-effective use of bridge resources is to perform appropriate preventive maintenance procedures on a regular basis to keep new bridges in good condition.

A basic understanding of how a bridge works is important in performing maintenance activities properly. Bridge maintenance not only requires advanced technical knowledge, it often also requires arduous manual effort under difficult and dangerous conditions. The work combines physical labor with technical and practical knowledge. It often requires an assortment of skilled trade workers including welder, concrete finisher, carpenter, machinist, electrician, and equipment operator.

Damage resulting from plugged scuppers and drains, leaky joints, porous wearing surfaces, and corroded metal accelerate deterioration year after year and compound repair requirements. If left unrepaired, the damage ultimately imposes a severe limitation on the operational capabilities of the structure.

Bridge maintenance training is an ongoing challenge for all transportation agencies. Products and materials are changing. Experienced staff members are lost. Expertise is not available. Contractors are expensive. Crews fall behind using inferior products or procedures. Maintenance is a daunting responsibility in today's climate of limited budgets.

A workshop is available to expose agency employees to a broad spectrum of proven bridge maintenance and repair activities. The course is intended for agency employees. Course participants are taught why, when, and how bridge maintenance is performed.

The objectives of this workshop are as follows:

1. Provide step-by-step instructions for performing a wide range of useful and effective bridge maintenance and repair procedures. These procedures have been collected from transportation agencies nationwide and can be used in part or as concepts that can be adapted and expanded to provide solutions to specific bridge problems.
2. Help participants understand basic technical concepts that are considered necessary by agencies to perform the duties of a bridge maintenance supervisor/technician.
3. Provide an overview of general management techniques useful to a bridge maintenance supervisor/technician, such as planning, scheduling, monitoring, and reporting work.
4. Improve work site safety for the bridge maintenance worker and the public, which will also reduce exposure of the agency to liability.
5. Improve participants' understanding of a bridge management system (BMS), its purpose, how it works, and how it can help the bridge maintenance worker do a better job.

A 4-day Bridge Maintenance Foreman's Academy is currently being presented to staff from the Bureau of Maintenance, Pennsylvania Department of Transportation. This version of the course contains basic and current technology customized to reflect the policies and applies to PennDOT structures. For more information contact Ron Purvis by email at ronpurvis@erols.com.■

Delaware Valley Section Projects of the Year

Robert Wright, P.E.
Transportation Engineering Manager, City of Philadelphia, Department of Streets

The Delaware Valley Section revised its Project of the Year program slightly for 2004. In past competitions, the Section recognized only one project. This tended to favor larger projects over smaller ones, and, often, the result was that lower-cost efforts with interesting and/or unique methods, materials, and solutions were overlooked. To better cover all projects regardless of their magnitude, the 2004 program considered two categories – projects with construction costs over $5 million and projects with construction costs under $5 million. It was thought that this would also open the competition to a greater variety of projects.

A total of five candidates were submitted for consideration, two in the larger category and three in the smaller classification. After careful consideration, the Section's Project of the Year Committee selected the following as the winners for 2004.

The over-$5 million winner is the Germantown Avenue Bridge Replacement project in the City of Philadelphia. The bridge crosses the Wissahickon Creek in Chestnut Hill in the far northwestern corner of the City. It is within Fairmount Park, the largest urban park in the nation, and adjacent to Chestnut Hill College. The new structure replaces a 9-span bridge built in 1920 on piers dating to the late 1700's.

Most of the piers of the existing bridge were located in the creek bed and did not have sufficient footings and foundations. The alignment was straight with a severe curve at the south end of the structure. The curve is located at the end of a lengthy downgrade approaching the bridge and this contributed to several accidents. The bridge was damaged by flooding in 1997, to the extent that cracks formed in two piers and one sidewalk collapsed. As a result of this damage, the structure was partially closed, forcing northbound traffic to follow a lengthy detour.

The new bridge was designed by URS Inc. in conjunction with the City's Department of Streets, Bridge Section. Neshaminy Constructors was the construction contractor.

The replacement structure is a 3-span 313-foot curved girder bridge with two 11-foot travel lanes separated by a 4-foot granite block median, two 5-foot bicycle lanes, and a pedestrian promenade. It was carefully designed and detailed to fit into the park setting and match the architectural scheme of nearby college buildings.

In the under-$5 million category, Montgomery County Bridge 221 (Metz Road over Towamencin Creek) was the winner. This consisted of the replacement of a closed single-span steel truss with a new prestressed concrete box beam bridge. The truss bridge, dating to the 1890's, was closed to traffic in 1992. It was salvaged for continued use in an upcoming bicycle trail project. The contractor was able to remove the truss in one piece.

Czop/Spector Inc. was the designer of this project. Construction was performed by Eastern Highway Specialist, Inc. Despite several floods and a limited construction corridor designed to minimize traffic impacts on nearby roads, the project was completed ahead of schedule.

The other nominated projects were US Route 202, Section 400 (the I-76 interchange) in King of Prussia, which was in the over- $5 million category, and two projects in the smaller range – the Destination Doylestown Bikeway and the PA 100 (Pottstown Pike) Roadway Improvement.

John Zarsky, Second Vice President of the Delaware Valley Section and Chair of the Project of the Year effort, was pleased both with the competition and the results. "The issues of smaller projects can be very unique to the engineering community and the public, but tend to be overshadowed by larger, higher-profile projects", he noted. "The winning projects highlight how engineers and contractors can team to deliver an excellent project by employing unique solutions to overcome many constraints." ■

American Society of Highway Engineers Establishes Endowment Fund

Lisa Wolff Kaye, Scholarship Chair, Northeast Florida Section

The Northeast Florida Section of the American Society of Highway Engineers (ASHE) is pleased to announce that it has established the American Society of Highway Engineers Scholarship Endowment Fund at University of North Florida. This endowment, the first of its kind for ASHE nationwide, will enable University of North Florida to identify, recruit, and retain future leaders of the First Coast region of Florida who pursue an interest in the transportation industry.

Today, Northeast Florida is one of the most dynamic and economically viable regions of the country. In order to continue to grow and prosper, Jacksonville and its contingent communities must have a well-educated and visionary carde of leaders.

By offering a value-added education through the American Society of Highway Engineers Scholarship Endowment Fund Program to outstanding transportation students, our chapter will expand its role as a strategic partner in the region's economic development initiatives. ASHE encourages leaders of other organizations to be a part of this vision by either joining forces with ASHE as a contributing partner or founding their own Endowment Fund. For more information see our website at www.ASHEjax.com, or contact Lisa Wolff Kaye/Wolf Technologies, Inc. at (904) 997-1400. ■

In Search of Stable Funding - New Jersey's 20 Year Quest

William B. Felix Jr., Southern New Jersey Section

In 1983, New Jersey voters approved a constitutional amendment that guaranteed a stable funding source for highway, bridge and transit projects for the first time in New Jersey's history. In response, the State Legislature passed a Transportation Trust Fund Act which created "pay-as-you-go" financing. It authorized the sale of bonds backed by a combination of dedicated fuel taxes, toll revenues and appropriations to create a predictable stream of funds for capital projects. Voters were assured that safeguards were built into the Act to ensure solvency, such as the statutory dedication of revenues, spending caps, minimal bonding to reduce debt service and prohibitions against the use of the Trust Funds for routine operations, maintenance and staff salaries. These statutory safeguards were not built into the constitutional amendment that created the Trust Fund, so they could be altered by the acts of subsequent Legislatures.

Today, the Trust Fund faces insolvency, for its founding principles have been compromised over time. By June 2005, all Trust Fund proceeds must be used to repay the debt service which has accumulated over the past twenty years. According to a Blue Ribbon Commission Report to New Jersey Governor James McGreevey, the fund requires a motor fuels tax increase of at least twelve cents per gallon to be replenished. New Jersey lawmakers have chosen instead to delay the day of reckoning until June, 2006 – well after the 2005 gubernatorial election – by floating $1.4 billion in GARVEE bonds to keep the transportation program afloat for an additional year. This $1.4 billion will generate $900 million in capital funds for 2005 projects, but without Trust Fund reauthorization legislation, there will be no capital program in 2006.

"Pay As You Go" financing in New Jersey does not mean reliance on a dedicated revenue source to build capital projects. It means borrowing money by selling bonds. This allows New Jersey to leverage revenue into its capital program in multiples and postpone the costs – in the form of debt service – to future years. So long as the economy remained healthy and the original statutory principles were not compromised, debt service remained low and the Trust Fund was self-perpetuating. But "Pay-As-You-Go" financing only lasted for the first five years. In the early 1990's, New Jersey was in the midst of an economic recession and faced chronic budget deficits. The Legislature reduced appropriations used to fund maintenance and operations at the New Jersey Department of Transportation and the New Jersey Transit Corporation and allowed an ever increasing share of these expenses to be absorbed by the Trust Fund. Lawmakers also viewed the fund as an economic engine that could stimulate New Jersey's economy. They lifted the spending cap from $365 million to $565 million and eventually to $700 million, without increasing revenues. Between 1991 and 2004, New Jersey lawmakers diverted "excess" monies from the fund ten times to relieve deficits in the General Fund. By 1995, the Trust Fund was nearly depleted and the voters approved another Constitutional Amendment which dedicated 9 cents of the 10.5 cent motor fuels tax to the Trust Fund. In that same year, the Legislature allowed the Trust Fund to be renewed with 20 year bonds. "Pay As You Go" financing thus slipped from nearly 100% in the early years to 24% today and the fund is burdened with heavy long term debt.

"Pay As You Go" financing slipped from nearly 100% in the early years to 24% today and the fund is burdened with heavy long term debt.

New Jersey faces a transportation funding crisis in 2006. For twenty years, the Transportation Trust Fund has been its primary financing mechanism for state, county and municipal transportation projects. The Fund currently finances over $1.2 billion in annual projects and has been used to leverage billions of federal highway and transit dollars. New Jersey's motor fuels tax is the third lowest in the United States, but must increase if the Transportation Trust Fund is to be renewed. Lawmakers are likely to face a volatile electorate. They need to regain the public's trust by building safeguards into a new constitutional amendment which prevents future Legislatures from diverting funds, raising spending caps or using the Trust Funds for purposes which were never intended.

Note – The Blue Ribbon Commission Report can be viewed on-line at the New Jersey Department of Transportation website: www.state.nj.us/transportation

The author is a member of the ASHE Board of Directors, Southern New Jersey and adjunct faculty at Rutgers University Political Science Department, Camden, New Jersey. ■

Pavement Preservation: Right Treatment, Right Road, Right Time

by Bill Ballou, President, Foundation for Pavement Preservation

When Leo Durocher was manager of the Dodgers, he pulled a pitcher out in the 8th inning of a close game. When a reporter questioned the decision, Durocher said, "Baseball is like church. Many attend. Few understand."

Outside an inner circle in the highway industry, the same might be said of pavement preservation (P2). Why? In part because "keeping good roads good" can take a back seat to crumbling infrastructure when it comes to public funding. In addition, pavement preservation as a subset of asset management isn't always self-evident.

Increasing the understanding of "quality P2" on the part of the public and policymakers is a goal of the Foundation for Pavement Preservation (FP2) and of the National Partnership for Highway Quality (NPHQ.) We have miles to go, but through the dedication of highway leaders, are definitely picking up speed. As Charlie Brown said of the Peanuts team, "It's awesome to bear the burden of permanent potential."

The Team and FP2

The Foundation for Pavement Preservation is a stakeholder in a P2 sphere that includes the Federal Highway Administration (FHWA), the American Association of Highway and Transportation Officials (AASHTO), roadway and engineering associations, suppliers, contractors, and academics. Many of us belong to the National Partnership for Highway Quality, which also places a premium on P2 research, development, technology, and implementation. Bob Templeton, P.E., NPHQ's Executive Director, recently distilled the quality core of pavement preservation: "It's a tool that promotes highway quality and customer service. Pavement preservation work is much less disruptive to highway users, and wrings more life out of pavements. This, in turn, leverages the project investment into much longer life."

Not coincidentally, NPHQ and FP2 were both founded 11 years ago with corollary purposes: NPHQ to promote quality practices for highways that operate at peak performance, and FP2 to advance the expertise of agencies trying to manage an aging system of concrete and asphalt that was well past its design life in terms of traffic loadings and years of service. Each signaled that the highway quality movement had kicked into full gear. The movement's premise: roadway users want mobility. Mobility is fundamental to business and borderless communities, and better highway quality, as promoted by NPHQ and FP2, is aimed at improving that mobility.

Under the quality umbrella, the Foundation for Pavement Preservation provides resources, research, technical support and education to highway agencies that are starting or sustaining pavement preservation programs. The non-profit's resources help define the right treatment for the right road at the right time to enrich travel and avoid costly roadway reconstruction. (For more information, visit www.fp2.org.)

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The System

Because of the money and miles wrapped up in the nation's highway system, it is useful to look at pavement preservation's potential for saving tax dollars while promoting safer, smoother roads for the customer.

Thousands of companies and agencies are engaged in the business of preserving and maintaining the nation's roads and highways - a universe of almost 4 million miles of roadway valued at over $1.75 trillion. The FHWA points out that the 43,500 miles of the nation's interstate highway system cost more than $129 billion to construct. Add to that the cost to build and maintain the more than 3,700,000 miles of state and local roadways, and you have one of the largest infrastructure investments in U.S. history. Pavement or road surfaces represent the largest single share of transportation investment; 40% or more of the public funds spent on highways are spent on road surfaces.

The enormity of this stewardship responsibility, and the logic of infusing quality practices into the mix, sparked a conversion not long ago from the concept of "system maintenance" to "system preservation." The shift makes great sense when you consider that a dollar spent on preventive maintenance saves 3 to 10 dollars in future rehabilitation, according to a report by the National Cooperative Highway Research Program.

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System Preservation

As an element of system preservation, which is the hallmark of all future highway programs, P2 protects the nation's highway investment. P2 is the timely application of appropriate surface treatments to maintain or extend a pavement's service life. It does not encompass new or reconstructed pavements or increase the structural capacity of those already out there. Its bailiwick is the use of techniques like thin hot-mix asphalt inlays and overlays, fog seals, slurry seals, crack sealing and surface recycling for flexible pavements. Concrete roadway treatments can include crack sealing, retrofit dowel bars, partial depth repairs, and diamond grinding.

The idea is to apply treatments when the pavement is still in good condition; once there's structural damage, a preventive maintenance treatment will not work. It's not "worst first." It's staying ahead of the curve before the worst case sneaks up. The use of preservation treatments can extend the life of a structurally sound pavement by 5 to 10 years.

P2 and Asset Management

Pavement preservation is an applied asset management concept. Asset management is itself a relatively new method of managing the highway business through a systematic process of maintaining, upgrading, and operating physical assets cost-effectively. It combines engineering principles with sound business practices, economic theory, and decision-making tools. Asset management serves as a framework for short-and long-range planning to deliver better mobility, fewer traffic jams, and a better overall quality of ride to drivers. In this context, pavement preservation ranks with design, construction, maintenance, and operation in terms of resource and quality management decisions.

Sounds good, so P2 programs should abound among transportation owner agencies, right? That's where money comes in. In the big picture, of course, transportation competes with other public sector programs like defense, security, health, education and others entwined in the Gordian Knot of the federal budget. In the local picture, preservation often competes with other maintenance projects for funding.

The more folks become educated as to the quality merits of P2, the more likely pavement preservation can make up the difference between what's necessary and what's affordable. P2 promotes a steady state and saves money through continual correction of deterioration from traffic and the environment.

Good News

Fortunately a lot is happening on the P2 front these days, which should boost awareness and interest in the process. Viewing pavement preservation as an asset management step is a leap in and of itself. Other noteworthy advances include the creation of the long-awaited National Center for Pavement Preservation (NCPP) at Michigan State University; state-of-the-art research and collaborations; and results from successful systematic preservation programs.

The new National Center for Pavement Preservation, one-of-a-kind in the world, was envisioned a decade ago as a quality action step to help manage that $1.75 trillion taxpayer investment mentioned earlier. The grand opening was on October 17, and the Center is set to extend the P2 reach to transportation owner agencies and beyond. It specializes in training, outreach and technical support for every level of government, academics, highway contractors; corporations, consultants and others in the field. It can also administer pooled-fund studies, such as ongoing sealer/binder research. Many states have money for research, but lack the staff to coordinate and administer a study, which is a must for pooled fund studies.

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Continuing education credits are possible through Michigan State (Big Ten!) for some NCPP courses, and Director Larry Galehouse, P.E., can tailor courses to specific needs. The Center is located in MSU's Engineering Research Facility just off campus in Okemos, Michigan. The web address is www.pavementpreservation.org and the phone number is (517) 432-8220.

As with most quality endeavors, a public and private partnering anchored this quasi-governmental Center. The Foundation for Pavement Preservation joined forces with the FHWA, AASHTO, the Michigan Department of Transportation, Michigan State University, the state legislature, and generous paving contractors, recycling contractors, and asphalt manufacturers. We all know there are three ways to get something done: hire somebody, do it yourself, or forbid your kids to do it. Turns out in this business there's a fourth: partner with other can-do professionals committed to highway quality.

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Good Ideas

These days some serious brainpower is being directed to increasing the amount of data and knowledge about pavement preservation. A few examples:

- AASHTO's Subcommittee on Maintenance, the FHWA Pavement Preservation Expert Task Force, the Transportation Research Board (TRB), and the Foundation for Pavement Preservation are engaged in research and knowledge-sharing on multiple fronts.
- The TRB is looking at tools for assessing pavement preservation options and choosing the best solutions for a given roadway. Plans are being developed to form a Pavement Preservation Task Force before the 2004 TRB annual meeting.
- FP2, with the help of the FHWA, eight state departments of transportation, and industry, has released an updated CD with over 50 technical documents to help agencies set up or improve pavement preservation programs. The CD Pavement Preservation 2: State of the Practice, can be ordered at www.fp2.org. It augments an existing Pavement Preservation Toolbox of videos, CDs, reports and brochures available from the Foundation for Pavement Preservation.
- Ongoing research is exploring improved standardization of mix designs and test procedures for P2 treatments; cost-effective preservation campaigns for the future; and guidelines for performance expectations.

It Works

In addition to mentioning these ongoing initiatives, it may be instructive to close with some documented improvements. Just a few instances will shed some light.

- The Michigan Department of Transportation's Capital Preventive Maintenance Program has grown from $6 million a year in 1992 to $73.5 million this year for preservation. MDOT reports a more than 6:1 rate of return on investment, depending on the mix of treatment fixes. The DOT consistency evaluates the program to assure they get the best bang for the buck.
- The Washington Department of Transportation strives to achieve a system wide rate of 75% of pavements in good condition and 25% in fair condition. When the state's pavement management system was implemented in 1969, nearly 20% of mileage was in poor to very poor condition and less than 50% was in good condition. Time and best maintenance practices brought the Washington roadway system to new heights: 70% in good condition, less than 10% in poor condition.
- Oregon's highway system went from about 50% fair or better in 1976 to nearly 80% fair or better in 1997. This was due in large part to the implementation of pavement management activities and a focus on the need to address pavement preservation.

California, Montana, Kansas, Minnesota, North Carolina, Georgia, Pennsylvania and Rhode Island all have implemented pavement preservation programs; Mississippi, Ohio, Alabama, South Carolina, Illinois, North Dakota and Colorado are looking into setting theirs up. We're seeing more workshops and executive conferences with agency peer contact, with states learning from each other.

Looking Ahead

Exciting times; of course it will take many more years of investment, training, best practice-sharing, and innovation to consistently deliver to the driving public the right treatment to the right highway at the right time. The good news: the right institutions, like the National Center for Pavement Preservation, are in place. And the right partnerships, like Foundation for Pavement Preservation and the National Partnership for Highway Quality, are planting the right seeds for future developments. A vision of quality for the future roadway is the bottom line of all pavement preservation efforts.

President Kennedy used to tell of a retired French general, a cultured man with a sense of history whose hobby was gardening. On his 80th birthday he bought a small shrub and instructed his gardener to plant it in the garden. "But Sir," the gardener objected, "that plant won't flower for a hundred years."

"Then by all means," the general said, "Plant it now."

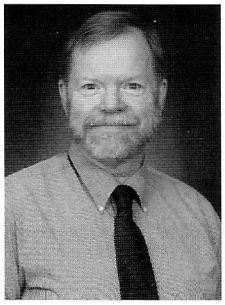
It will take time for our efforts to produce optimum highway quality nationwide. That's why NPHQ and FP2 are busy planting the seeds of quality today. ■

As the Wheel Turns

McMahon Associates, Inc., a full-service transportation engineering and planning firm with 28 years of service, is proud to announce the addition of **Richard S. Prentice** as a senior design specialist. Mr. Prentice joins McMahon Associates with over 35 years of civil and transportation/highway engineering experience working for the Pennsylvania Department of Transportation. He received a degree in Architecture from Temple University in 1968, as well as a Bachelor of Science in Civil Engineering (structures major) in 1978, and a Master of Science in Civil Engineering in 1981, both from Drexel University.

Mr. Prentice has extensive experience in many aspects of transportation engineering. He spent 13 years in the Bridge Unit at PENNDOT District 6-0, before his promotion to the Liaison/Project Management Unit, where he supervised the design of highway and bridge improvement projects for the next 12 years, as well as served as the District's Safety Review Engineer. He was assigned to the Operations Section of the Traffic Unit in 1993, and soon became promoted to assistant district traffic engineer. In this role, Mr. Prentice had managed over a dozen engineers and technicians responsible for reviewing highway improvements by the state, municipalities, developers, utility companies and other outside organizations. His team of engineers reviewed more than 900 projects each year.

Mr. Prentice is a very active member of several professional society organizations. In June 2003, he will become the national 2nd vice president of the American Society of Highway Engineers, of which he has been a member for over 30 years and has held many officer positions. He was named ASHE "Person of the Year" by the Delaware Valley in 2002. His other active participation includes the Delaware Valley Engineers Council, American Public Works Association - Delaware Valley Section, and also the Institute of Transportation Engineers. Mr. Prentice is the proud father of two daughters, and resides in the Phoenixville, Pennsylvania area.



Arthur L. Woods III, PE has been named Director of Burgess & Niple's Dulles District office, located in Chantilly, VA. He has served as co-District Director in Dulles since 2002. In this position, he is wholly responsible for managing contractual, marketing, operational, and project-related activities for the Dulles office, which serves as the headquarters of Burgess & Niple's mid-Atlantic region.

Woods joined Burgess & Niple in 1980. He was names an Associate at Burgess & Niple in 1999. As Engineering Division Director, Woods was responsible for the oversight of the transportation, civil engineering, geotechnical, and land development departments in Dulles. He has extensive experience in manageing project design teams for clients such as the Virginia Department of Transportation, Fairfax County, the Northern Virginia Regional park Authority and others.

Woods received his bachelor's degree in civil engineering from Virginia Tech in 1977, and is a registered Professional Engineer in Virginia. Woods lives in the Shenandoah Valley, in Warren County, VA. He is an avid outdoorsman.

Roy W. Little, PE, PP, was recently named a senior associate at Gannett Fleming, an international consulting engineering and construction management firm. Based in the firm's Hammonton, N.J. office, Little is vice president and director of project management and quality assurance.

He is responsible for providing oversight to make certain that projects are completed in compliance with scopes of services and to the full satisfaction of clients. Little verifies the contract compliance of deliverables and validates the technical quality of work. He also serves as the operations manager for the office with responsibilities for the oversight of procedures, training, recruiting and business development.

Little holds a bachelor of science in civil engineering from Rutgers College of Engineering and completed graduate course studies at the Rutgers School of Business. He is a registered professional engineer and a registered professional planner in New Jersey.

John Alford, PE has joined Ralph Whitehead Associates as Project Manager and Senior Transportation Engineer in the firm's Raleigh, N office. In this capacity, he will provide senior-level concept development as well as quality assurance reviews for DOT and municipal transportation projects.

Mr. Alford has over 32 years experience, including 30 years with the North Carolina Department of Transportation, where he held the position as State Highway Engineer.

McMahon Associates, Inc., a full service transportation engineering, planning, and design firm with over 27 years of service, proudly names **John DePalma,** Florida region general manager as the newest Vice President of the firm.

DePalma has nearly 30 years of experience in transportation design/planning, traffic engineering, and highway design, and serves as the general manager of Florida operations. In 1994, Mr. DePalma launched the firm's design department, vastly expanding McM's capabilities as a full-service transportation engineering, planning, and design firm. He relocated to Florida manage and grow the operations there in 1998. Since then, Mr. DePalma has expanded the firm's services from one east coast office to three offices serving the entire state. He has managed and engineered large-scale projects for both private development and state and local governments in Florida, Pennsylvania, New Jersey, and Delaware. His reputation precedes him, as an increasing number of public and private clients entrust his office. ■

Civil Engineering - Highway

Robson Lapina is a multi-discipline forensic engineering firm practicing throughout the eastern and central US. We seek a mature professional, experienced in design, construction, and maintenance phases of roadways and traffic control devices for interesting and challenging assignments. Must be degreed and registered, with excellent analytical and communication skills. Fulltime for Lancaster, PA and Cedar Knolls, NJ. More information and reply via www.RobsonLapina.com.

Transportation Engineers

NCDOT's PDEA Branch (Raleigh,NC) seeks transportation engineers for project management, engineering and environmental (NEPA) analysis, and public involvement in accordance with a newly approved organizational structure.

Both entry level and advanced engineering positions are available. Job postings are anticipated during late April and May 2004 and will be posted at http://apps.dot.state.nc.us/personnel/jobvacancies/. Information regarding the NCDOT PDEA Branch may be found at www.ncdot.org/planning/pe/.

For further information regarding job postings, contact Sandra Corbett at (919) 733-7844, ext. 202, or sbcorbett@dot.state.nc.us.

Marketing Director - New Jersey / Delaware

Cement industry market development group seeks person to implement plan for growing the market for ready mixed concrete applications in New Jersey and Delaware. Must have a 4-year degree in marketing, business, civil engineering or other suitable field. Will consider candidates with experience in construction industry sales/marketing. Must have excellent written and verbal communication skills. Proficient in Microsoft Office Programs. Must be an enthusiastic self-starter possessing a superior work ethic. Limited overnight travel. Attractive benefits package: Salary plus incentive, vehicle, life/health/dental/vision, pension & 401K. Team environment where hard work and initiative are recognized and rewarded. Position description can be viewed at www.necementshippers.com. Please forward resume in confidence to: NECSA, 1493 U.S. Route 9, Castleton, NY, 12033 or email to kfranklin@necementshippers.com.

Mansfield Bypass Route 15

Altoona Section

Location: S.R. 6015 Section E61 and S.R. 15 Section F12 & F13; Richmond Township, Mansfield Borough, Tioga Township, Tioga County, PA.

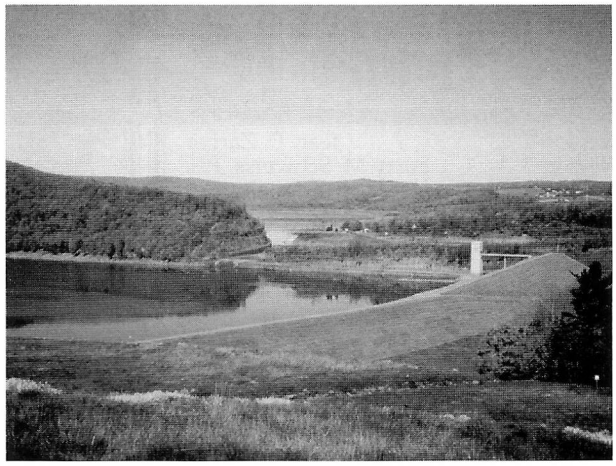
Project Type: Highway Construction Project (Future I-99 Corridor)

Construction Cost: Estimated $64 million

Owner: PENNDOT District 3-0

Subconsultant: Goodkind & O'Dea

Description: Prime consultant for $75 million limited access highway project. This project was built under three separate contracts, the first as a design-build for the seven-span, Section F13, bridge that crosses the backwater area of the Tioga Dam and built on existing piers; the second for earthwork, drainage, and new bridges; and the third for pavement and existing bridge rehab. The project consisted of the construction of two lanes of limited access highway 10.5 miles in length, in order to upgrade U.S. 15 to a four-lane facility. A categorical exclusion evaluation (level 4) was completed for the project. Also included in the project are two interchanges, three new bridges that cross existing side roads, one new river bridge, one new box culvert and a box culvert extension, as well as the rehab of seven bridges. Preliminary site development for the Tioga Welcome Center was performed with the scenic view of the Tioga Dam. The existing concrete southbound lanes of Section E61 were rehabilitated using crack and seat with a bituminous overlay. Included in this project was signing and interchange lighting, and lighting at the new Welcome Center. There was a weather station installed at the F13 bridge as part of this project. ■



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TOTAL 5,539

PROFESSIONAL STATUS	= 45%
DEPARTMENT OF TRANS	= 18%
CONSULTANT	= 62%
CONTRACTOR	= 10%
OTHER	= 10%