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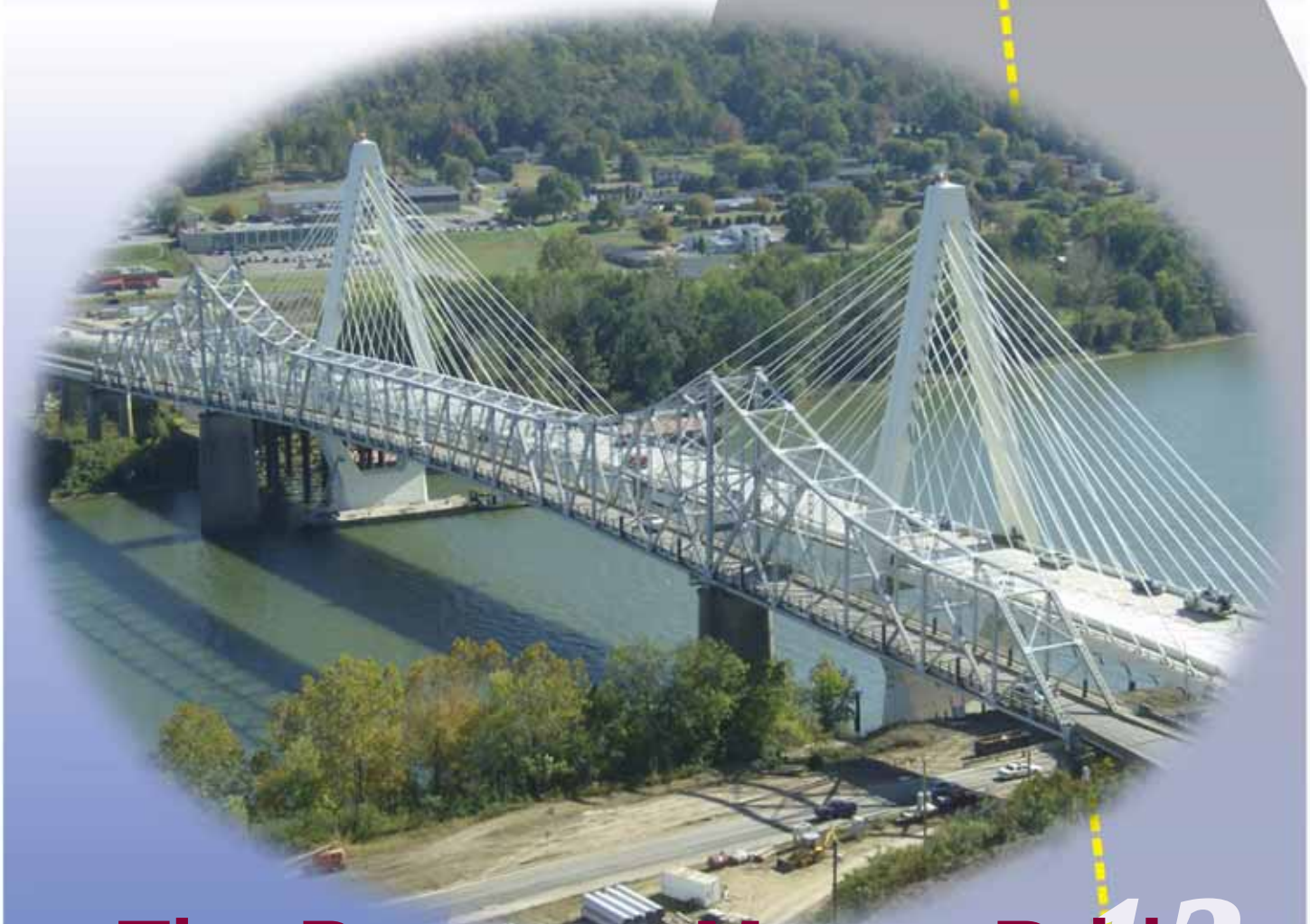

The Pomeroy Mason Bridge

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This signature cable-stayed bridge structure will replace an existing structure over the Ohio River in Miegs County, Ohio.

TDOT Historic Bridge Survey

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President's Message

Rich Clifton, PE

The Good, the Bad and the Ugly

The Good, the Bad, and the Ugly is one of my favorite movies. I am reminded of this movie when I look back on the first half of my term as President, because I think we have seen the good, the bad, and the ugly in the highway industry in this short period.

When I became President last June, things were already pretty bad for our industry. In fact, things had been bad for quite some time. We lacked the resources to adequately maintain what had once been the greatest transportation network in the world and we have watched our profession age as students and young professionals pursue more lucrative job opportunities in other fields.

As the summer passed, record oil prices and world wide demand for construction materials caused construction costs to soar. Motorists fought increasing fuel prices by significantly reducing consumption, which led to less revenue for road construction.

By the end of the summer our industry truly got ugly. For the first time since its creation, the Highway Trust Fund lacked the funds to meet the approved authorizations. A quick infusion of cash by Congress put a bandage on the bleeding but insolvency still looms around the corner. The lack of federal money, combined with revenue shortfalls in nearly every state, has caused many roadway projects to be delayed or cancelled resulting in significant job losses in our industry. Even public sector positions once sought for their security during difficult times have been subjected to downsizing.

As I write this article in late January, things still look ugly for our industry – but there is hope that good things lie around the corner. We have already seen signs of these good things. President Obama appears to be in favor of increased spending to rebuild our nation's infrastructure, especially our transportation network. Members of Congress have been discussing the need to fix our infrastructure and have noted how infrastructure improvements not only create immediate jobs but also have a long term positive impact on our economy.

Congress and the new administration have been pushing for an economic stimulus package that includes new money for transportation improvements. By the time this edition of the *SCANNER* is published the stimulus package should already have been passed. I can only hope that the final bill is better than the first draft that was submitted in mid-January. Even if the stimulus package is not all that we hope it will be, it is important that we keep working to educate our leaders to see the value of investing in our nation's roads and bridges.

The primary purpose of the stimulus package is to create jobs to help shore up the nation's sagging economy. While investing in infrastructure projects will certainly help achieve this goal the stimulus package was never intended to be the fix for our ailing roads and bridges.

The opportunity to create the program that should rebuild our transportation network is quickly approaching. Reauthorization of the Highway Trust Fund is due at the end of this federal fiscal year and for the first time in a very long time it appears that our leaders are ready to put together a strong program with enough money to get our transportation system back in order.

It is vital that we continue to educate Congress and the administration on the importance of quickly passing a strong reauthorization bill. Contact your Congressmen. Remind them that the opportunity for a long term fix for the nation's transportation trust fund is coming to them.

Emphasize the importance of providing sufficient long term funding to stabilize jobs in this industry so that we can efficiently rebuild our roads and bridges. Tell them how the product we create has economic benefits for nearly every sector of our economy and is vital to the health, safety and welfare of every American.

Most importantly, remind them that transportation infrastructure is the government's responsibility and that every American is depending on them to provide sufficient funding in a timely manner to help rebuild our system and maintain our economic engine (we can talk later about the merits and pitfalls of privatizing our nation's highways.)

Remember that most federal programs require a 10% to 20% match by the state, so also contact your state and local politicians and remind them that your state needs to have adequate funding in order to get all of their federal money.

Pennsylvania State Senator Rob Wonderling reminded us at the ASHE National Conference in Hershey that if we don't speak up for our industry then no one else will. Please do your part and contact your political leaders now. If we sit around and wait for someone else to do it for us, then we can only look forward to several more years of inadequate funding, crumbling roads and bridges, increased congestion, and rising crash rates. ■


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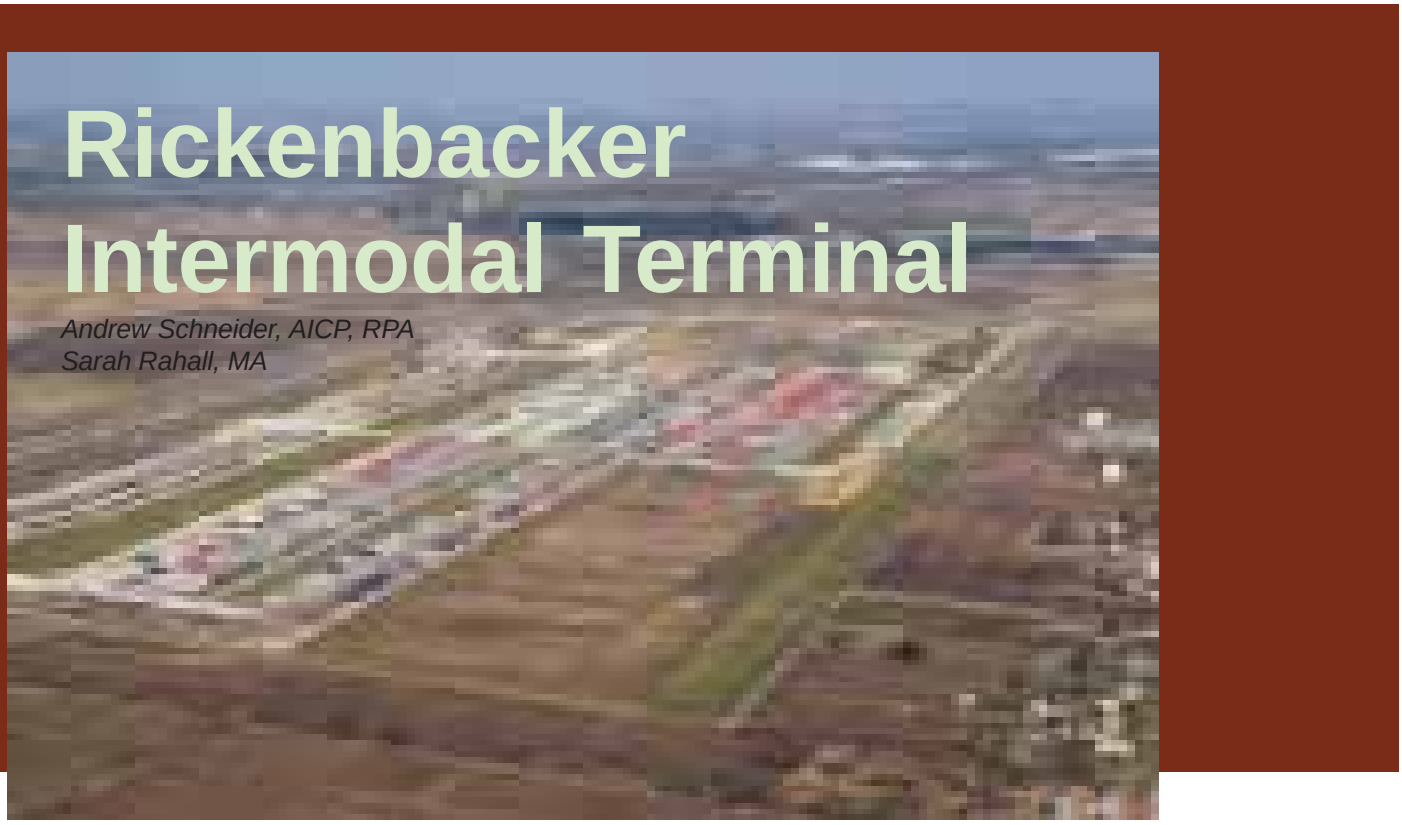


Rickenbacker Intermodal Terminal

Andrew Schneider, AICP, RPA
Sarah Rahall, MA

The United States is experiencing exponential growth in containerized freight entering the country and being moved via all modes of transportation. Compared to ton-miles of freight moved in the year 2000, 2020 projections show increases of 62 percent by truck, 47 percent by rail and 182 percent by air according to a recent AASHTO report. As such, intermodal transfer of freight truly represents the future of logistics and distribution in the U.S.

The new intermodal terminal at Rickenbacker International Airport (LCK) brings three modes of transportation to one Global Logistics Park. The intermodal hub represents an extremely efficient means of transporting freight and brings many economic, environmental and social benefits to Ohio.

Due to a variety of factors, the amount of freight that will enter Rickenbacker and the Ohio market instead of New York and Chicago will dramatically change travel patterns and supply chains of key distributors and manufacturers, providing a powerful economic engine for Ohio. This change is expected to create over 20,000 new jobs and generate $15.1 billion in economic impact over the next 30 years.

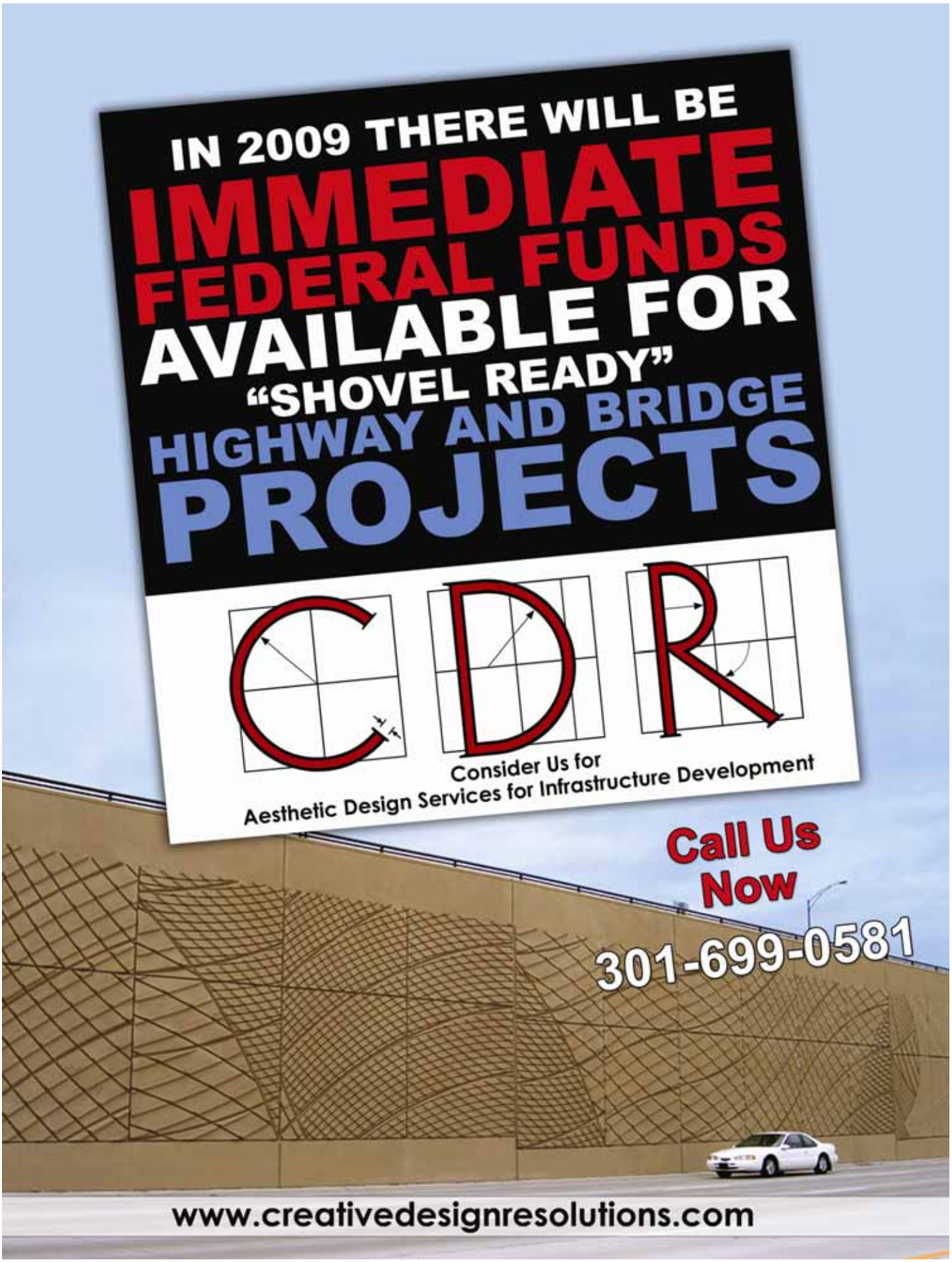
Project Description

The Rickenbacker IMF, developed in partnership between Columbus Regional Airport Authority (CRAA) and Norfolk Southern Corporation (NS), designed by TranSystems Corporation, and constructed by Nickolas Savko & Sons, opened in January 2008 and currently covers 284 acres with a capacity of over 400,000 lifts (truck-to-train container movements) annually. The IMF is the centerpiece of the 1200-acre Rickenbacker Global Logistics Park planned for lands surrounding the airport. TranSystems Corporation and its team assisted the CRAA with over $100 million in infrastructure improvements now in place, including the intermodal facility, new roads, water and sanitary sewer facilities.

This project was a unique opportunity to bring expertise in all transportation modes and phases of project development to bear on a single project. Listed below are just a few examples of originality, innovation and technical engineering applications that TranSystems utilized to provide cost savings and economic potential for the owners and users, as well as environmental benefits to the community.

This project was the first of its kind to utilize Roller-Compacted Concrete (RCC) Pavement for a facility of this type. The pavement must bear the daily weight of six overhead rolling gantry cranes straddling track and roadway to perform the container lifts. The yard design required storage area for 2700 fully-loaded containers (sometimes stacked up to three high) and another 7.5 acres are dedicated to empty chassis storage. At the gate, the facility

"Intermodal" continued p. 19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Liberty Memorial Bridge

The Next Chapter

AJ Wallevand, RLA, ASLA; Jason Gullicks, PE; and J. Steve Windish, PE

The new Liberty Memorial Bridge
Photo courtesy of Fred Gottemoeller

First named North Dakota Memorial Bridge it was soon renamed Liberty Memorial Bridge in honor of those who fought in World War I. A revolutionary new Warren-Turner Truss was selected for the project that resulted in a substantial savings of materials and labor. Construction on the bridge began on June 28, 1920 and it was completed in just over two years.

The bridge provided a permanent roadway connection between the cities of Bismarck and Mandan. Most importantly, the bridge created an east-west connection for the nation by providing a highway route across the northern United States that did not require a ferry crossing of the Missouri River in North Dakota.

Due to its national importance, the Liberty Memorial Bridge was included on the National Historic Registry. After 86 years of service, demolition of the Liberty Memorial Bridge began in October, 2008. However, that's not the end of the story.

During a routine inspection, the concrete substructure of the Liberty Memorial Bridge was found to be deteriorating to a point that would soon require closure of the bridge. Temporary repairs were made to the pier caps, extending the life of the bridge for approximately five years. At this time, the North Dakota Department of Transportation (NDDOT) started the environmental process to determine whether to close the bridge or construct a replacement.

In 2003, the decision was made to replace the Liberty Memorial Bridge. Because of the inclusion on the National Historic Registry, the NDDOT was committed to implementing Context Sensitive Design (CSD) solutions. US military veterans, local officials, and the public were involved in the design developments. This public process included participation in design charrettes and public input meetings. CSD solutions and historic mitigation eventually resulted in the development of bridge type, spire plazas and community parks.

Alignment of the new roadway and bridge was established to maintain traffic on the existing bridge during construction and not hinder a future roadway realignment west of the project. It was vital to keep the existing bridge open during construction to minimize impacts to businesses, maintain access to an ambulance station that uses the bridge daily, and to keep major utilities functional. The profile maintains clearances for the Coast Guard Navigational requirements, the Lewis and Clark Riverboat and two roadways.

Lighting design for the new bridge was to be functional, as well as accent the bridge features. Decorative area luminaries were used to light the bridge surface, and unique reflective disc luminaries were used at the pedestrian overlooks where medallions for the five branches of the military are showcased. Multiple flood lights mounted to the bridge piers provide illumination of the bridge girders.

"Liberty" continued p. 17


HELPING TO SHAPE A SUSTAINABLE FUTURE
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US 222/I-78 Interchange. Section 002 ends before the interchange.

SR 100/US 222 grade separate interchange near the beginning of Section 001.

A Better Connection

New State Route 222

State and Local Cooperation is Key to Project Success

Mark C. Roth, P.E., Alfred Benesch & Company, and Marlin Patrick, P.E., URS Corporation

For over 70 years, US Route 222 (Hamilton Boulevard) has served as the major route to the Reading and Lancaster areas from the Lehigh Valley. With substantial growth in residential, commercial and industrial land use over the last 20 years, Hamilton Boulevard quickly became congested during most of the day and particularly during peak hours. The solution was a new 5.5 mile four-lane highway on an alignment north of the existing Hamilton Boulevard and slightly west of Allentown near the Berks County line. The concept included a 30-foot wide median, left-turn lanes only at certain signalized intersections, and interchanges at State Route 100 and the western connection with Hamilton Boulevard.

Coordination

URS Corporation (URS) served as design consultant for Section 001 (western approach and improvements along SR100) and Alfred Benesch & Company (Benesch) designed Section 002 (eastern approach). URS and Benesch coordinated throughout preliminary and final design to ensure continuity and a quality design for PennDOT.

Communication

Regular Design Coordination Meetings were held with PennDOT staff, consultants, Lehigh County officials, Upper and Lower Macungie Township officials, and other stakeholders. These meetings served as a venue for the exchange of ideas regarding the project design and progress. A website and e-bulletins kept the public informed throughout the life of the project.

Challenges and Cooperation

Right-of-Way - Coordination with large property owners, such as Jaindl Land Company and Air Products & Chemicals Inc., led to significant land donations for right-of-way.

Access – The design team worked with a local developer providing access to the boulevard for residences and industrial businesses at critical signalized intersections. The developer donated right-of-way to PennDOT for providing utility casings for future crossings under the new roadway. Designers also worked with local fire service in each municipality to provide emergency access to the highway.

Environmental Issues - A stream and wetland mitigation site adjacent to the project was constructed in Phase 1 before the existing streams and wetlands could be impacted. This site provided 1.4 acres of wetland mitigation and 2.8 acres of stream mitigation used for both sections of the project.

Two distinct areas of Section 002 crossed sensitive surface waters. In the event of a large fuel spill, four stormwater detention basins were designed with accessible shutoff valves and containment boxes to prevent fuel from leaving the site and contaminating the surface waters adjacent to the project.

URS worked with the Township to construct an additional stormwater management basin adjacent to the project. It was used as an erosion control basin during construction and converted to a stormwater management system after construction. Adding this basin greatly reduced local flooding problems.

An advanced embankment construction contract was developed for Section 001 due to settlement concerns caused by the clay and limestone soil conditions. Use of settlement platforms for the high embankments allowed

"SR 222" continued p. 21

Improving Florida's Segmental Bridges

Timothy R. Barry, PE, Reynolds Smith and Hills

New Coupler System is an Important Step

For the past seven years the segmental bridge industry in Florida has gone through drastic changes. Changes became necessary when major durability and structural deficiencies were discovered in some completed segmental structures throughout the state.

Problems stemmed from corrosion within the steel, post-tensioned tendons that are critical to the design of segmental bridges. In response, the Florida Department of Transportation (FDOT) developed a comprehensive report on the industry as a whole and made recommendations for moving forward, paying particular attention to corrosion protection measures. That report, entitled *New Directions for Florida's Post Tensioned Bridges*, was published in 2001 by Corven Engineering, Inc. The changes it recommended, which the FDOT subsequently mandated, are still being implemented today.

One change involved requiring the use of a mechanical coupling device for all tendon ducts that cross from one segment to another (Figure A.) This had never been required of post-tensioned or segmental bridges anywhere in the nation. This requirement has the potential to significantly increase the durability and overall quality of segmental bridges.

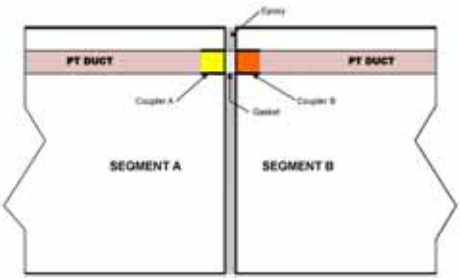

Figure A.

Advantages offered by the couplers are three-fold. They provide a secure way to connect the ducts to the formwork so they cannot be jarred loose during concrete placement. They prevent the grout, which provides long-term corrosion protection of the steel tendons, from leaking out of the ducts during the pressure grouting operations. Lastly, they provide a protective barrier against moisture intrusion after construction is complete. This adds another layer of protection for the steel tendons that are so critical to the life of the bridge.

The first project in the State of Florida to make these couplers a contractual requirement is in Jacksonville in Northeast Florida. The I-95/I-295 North Interchange Project was let by the FDOT in April of 2007 and is currently under construction. The Prime Contractor for this project is Superior Construction Company Inc. and their post-tensioning supplier is Dywidag Systems International (DSI). The project designer is PB Americas and the Construction Engineering and Inspection Firm is RS&H CS. Being the first project in the state to require these couplers meant that the contractor and their suppliers had to develop a coupler system and gain FDOT approval before they could implement them into the structure. The prototype coupler being used was developed by General Technologies, Inc (GTI), as part of a post-tensioning system supplied by DSI.

This system uses flexible rubber boots that attach to the ducts. This provides some flexibility without compromising proper duct alignment which is critical to post-tensioning tendon installation and overall structure durability. The coupler system also includes a specifically designed rubber gasket that sits in a recess in the face of the coupler piece. This design prevents the gasket from impeding the mating of the segments during erection yet still maintaining a tight seal across the joint.

The GTI coupler system has been approved by the FDOT for use on North Interchange project and they are currently being utilized in the structure

I-95/I-295 North Interchange Project

The GTI coupler system has been approved by the FDOT for use on the North Interchange project and they are currently being utilized in the structure. Thus far, through the segment pre-casting phase of the project, the couplers have performed successfully. As the project progresses into the segment erection phase, the couplers will continue to be evaluated to ensure they are meeting the intended goals.

Successful performance of this coupler system on the North Interchange project will be another in a series of positive steps toward improving the quality and long term durability of segmental bridges. Furthermore, it could effect the global segmental industry as Florida has long been seen as an industry leader. To remain an industry leader, the Florida segmental industry has committed to continuing improvements to the quality of the structures it produces. In doing so, the hope is that others will continue to follow Florida's lead. ■

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The Pomeroy Mason Cable Stayed Bridge

Jorge M. Suarez, P.E., Michael Baker Jr., Inc.

The Pomeroy Mason Bridge is a cable-stayed bridge structure which will replace an existing steel through truss structure on U.S. Route 33 over the Ohio River in Miegs County, Ohio. This new signature bridge will provide for a link between two growing cities – Pomeroy, Ohio and Mason, West Virginia. The bridge replacement alternate selected was a cast-in-place concrete cable-stayed bridge.

The cable-stayed portion of the bridge is a total of 1,163 feet long. The main span is 675 feet with two 244 feet back spans. The roadway is 56'-0" curb to curb with four 12'-0" lanes and two 4'-0" shoulders. The superstructure consists of post-tensioned concrete with 5'-6" deep edge girders with floorbeam and slab system. The slab thickness is 11 inches. Longitudinal post-tensioning is provided for the edge girders, floorbeams and slab.

The bridge towers are founded on deep foundations consisting of 8'-6" diameter drilled shafts socketed into rock. The tower footings are 21'-0" deep. The tower configuration is "A" shaped with two lines of cable stays connecting to the edge girder. The towers are 222'-6" high above the footing with approximately 177'-0" above the deck level. The towers are cast-in-place concrete with post-tensioning tendons. Cable stays are 0.6 inch diameter prestressing strands in 19, 22, 31, 37, 43 and 55 strand tendons.

Successful projects that experience minimal problems during construction are a direct result of practical design details, quality contract plans and frequent, effective communication between the designer, the contractor and the owner. Another good trait of a successful project is a safe project with no lost time accidents on the project. The Ohio Department of Transportation recognized these critical success factors and implemented a construction support contract with Baker to facilitate good communications and specialized construction experience with complex cable-stayed bridge projects.

Baker provided ODOT District 10 with Construction Support Services as an extension of its District 10 construction staff. Baker's staff included a Project Engineer, Scheduling Manager, two Construction Inspectors and a Technical Advisory Committee for engineering support, Construction Schedule Management / Monitoring, Constructability Reviews, Bid Tabulation Reviews, Submittal Reviews and Project Closeout.

Construction of the bridge starts with the substructure elements for the conventional bridge approach structures (piles, footings and stems for piers and abutments) and the cable-stayed bridge tower foundations (cofferdams, drilled shafts, tremie seals and footings). A non-production drilled shaft was also installed and tested to ensure the design capacity of the drilled shaft and rock socket could be achieved in the field. In the first two years of the project, there were two flood conditions that gave the entire construction team (ODOT, the Contractor and Baker) another

"Pomeroy" continued p. 23

Early Construction . Photo courtesy of Michael Baker Jr. Inc.

Drilled Shafts and Cofferdam for Tower. Photo courtesy of Michael Baker Jr. Inc.

A Call For Safer Highways

Joe Fiocco, P.E., PTOE, Senior Project Manager of McMahon Associates, Inc.

Over 42,000 people die each year on our nation's highways. Countless more suffer significant injuries and permanent disabilities as a result of vehicle collisions. The level of sophistication at which our roads are designed, constructed, and maintained can and does make a considerable difference. We have been making our highways significantly safer over the past 40-plus years. According to the Federal Highway Administration (FHWA), we have steadily reduced our highway fatality rate from 5.5 (per 100 million vehicle miles) in 1966 to 1.37 in 2007. If we were not making our highways safer, we could have seen over 164,000 people killed in 2007 using the 1966 crash rates and 2007 vehicle miles traveled (VMT). Using these figures, our highway safety efforts have saved about 120,000 lives in 2007 alone. However, we can do more!

This article is written in an effort to raise awareness of the influence that highway professionals have on the safety performance of our nation's highways. Too often driver's error is blamed as the sole cause of the crash and fail to admit that we can prevent crashes.

While it is true that a large majority of traffic collisions are caused by driver behavior (45 to 75 percent according to one FHWA report), the quality level at which we do our jobs to design, construct, and maintain roads can and will affect the likelihood that driver errors take place, or that the errors will cost them their lives.

If you are at all committed to seeing a reduction in the carnage that is realized every day (we lose 116 lives; 35 of them are under the age of 25) on our highways, you will be happy to hear that there are significant technological advancements coming in the very near future. The following efforts hold the promise that we will be much better equipped to utilize the precious limited public funding that is available to maximize our impacts on highway safety:

1. The first edition of the Highway Safety Manual (HSM) is scheduled for completion in early 2009. The purpose of the HSM is to provide practitioners with the best factual information and tools to facilitate roadway design and operational decisions based on explicit consideration of their safety consequences. The HSM will be an effective resource that can be used to quantify and predict the safety performance of the variety of elements which go into road planning, design, maintenance, construction, and operation (NCHRP Synthesis 367, pg 11). More information can be found at www.highwaysafetymanual.org.

2. The Interactive Highway Safety Design Model (IHSDM) is a suite of software analysis tools for evaluating safety and operational effects of geometric design decisions on two-lane rural highways. IHSDM is a decision-support tool. It checks existing or proposed two-lane rural highway designs against relevant design policy values and provides estimates of a design's expected safety and operational performance. IHSDM results support decision making in the highway design process. Intended users include highway project managers, designers, and traffic and safety reviewers in state and local highway agencies and engineering consulting firms. The 2008 release of IHSDM may be downloaded free-of-charge at www.ihsdm.org.

For the majority of my years working in the field of highway safety, there has been very little scientific information available to help us determine how our designs will perform relative to reducing crashes. It often comes down to an "opinion" as to whether design option A is a safer and more prudent design option than B.

A considerable amount of new safety analysis tools are expected to be available to the highway design community in the coming months, and I am hoping that we are open-minded about their potential, and work through the bugs efficiently. Together we can do our part to help NHTSA (National Highway Transportation Safety Administration) reach its established fatality rate goal of 1.0 per 100 million VMT by 2011. This translates into saving an additional 12,000 lives annually. Each one of those lives saved is someone's loved one, and they would certainly thank you personally if they only knew that you were the one who made the difference. ■

"Liberty" continued from p. 7

The Spire Plazas, located at either end of the new bridge, represent several concept ideas. Eleven spires stand in a circle within each plaza. They symbolize "The Armistice" peace agreement that ended World War I. The Armistice was reached on the 11th hour of the 11th day in the 11th month of 1918. The spires surround and protect the flags of the United States, Prisoners of War (POW MIA), and the State of North Dakota. This is symbolic of how our military service members protect our nation. The height of the tallest spire also signifies the height of the tallest truss of the original Liberty Memorial Bridge.

The Liberty Memorial Bridge Parks Project is in its final design stage. The design includes a park on each bank of the Missouri River. The parks project carries forward the design concepts developed in the bridge project design charettes with a focus on issues unique to the two cities, Mandan and Bismarck. The project also contains the historical mitigation requirements established in the Environmental Impact Statement. These mitigation requirements include historical interpretive panels discussing the original Liberty Memorial Bridge and the incorporation of a remnant of the original bridge into each park.

The mitigation elements for the parks are the most unique and challenging design features of the project. The interpretive panels illustrate key topics required for the mitigation. The presentation of the panel showcases another historic element. The base for the panel has been designed as a model of the river/ice-breaker piers that supported the original Liberty Memorial Bridge. The base supporting the original bridge remnant also ties to the past. It is a scale replica of the original riverbank pier, and will continue to support a piece of the bridge for years to come.

The Liberty Memorial Bridge Parks project is scheduled to begin in the summer of 2009 when the bridge replacement project is complete. The Liberty Memorial Bridge lives on with a new vision that begins its next historic chapter. ■

The Plaza at Dawn
Photo courtesy of Garry Redmann – North Dakota Department of Transportation

The first two sections of main span steel, bolted together on the ground, are hoisted into place. The original Liberty Memorial Bridge is seen in the background.
Photo courtesy of Mike Kopp – North Dakota Department of Transportation

"Intermodal" continued from p. 5

required five inbound and five outbound lanes for fully-loaded trucks and a maintenance area to service the gantry cranes, reach stackers and hostler vehicles. Analysis showed that the RCC material would meet the extensive pavement structural requirements of the project and provide not only an initially cost-effective solution, but an efficient, long-term maintenance program for NS.

Drainage analysis and design was a key issue as this area is known to be very flat with poorly draining soils and frequent flooding. The site was designed such that the post-construction drainage intensity to the existing culverts was no greater than pre-construction conditions, no small task for such a dramatic increase in impervious surface area due to construction of the 284 acre facility. This was accomplished through the design of an extensive storm water management system, utilizing underground storage detention techniques and small surface detention ponds. The system had to be designed to significantly minimize the duration and intensity of surface water retention to comply with FAA requirements within the flight zone of airports due to waterfowl concerns.

An innovative approach was taken to the design, funding and construction phasing of Rickenbacker Parkway. Many roadways surrounding the airport date to the 40's and 50's and could not support the projected increase in truck traffic. New infrastructure was necessary, but funding was tight. A delivery strategy was devised in which only the initial needs of the facility would be served, maximizing the use of available CRAA and City funds to construct only two lanes of the eventual four-lane divided roadway. Phase 1 was completed in 2007, placing the eventual northbound lanes in service as a two-way roadway until additional funding was available and traffic growth required construction of the other two lanes. The second two lanes are currently under design and will be constructed in 2010-2011, thus completing the four-lane parkway with landscaped median.

A significant, value-added component of the project relates to the design of Rickenbacker Parkway. In addition to designing for a high volume of heavy trucks, additional pavement thickness was added (15" total asphalt depth) to allow for the routine movement of overweight trucks (greater than 80,000 lbs, no limit) between the IMF and warehouses located along Rickenbacker Parkway. A simplified, single permit program was then developed by CRAA, Franklin and Pickaway Counties to allow shippers and distributers to take advantage of the increased goods per container that can be delivered and moved to warehouses here vs. other sites in the country. This weight advantage allows a shipper to potentially ship in four containers what might take them five containers to ship elsewhere. The economic advantage of this opportunity ripples through the supply chain from railroad to overseas shipping — a distinct economic advantage to Ohio businesses created by TranSystems' knowledge of the entire supply chain and a slightly different view of pavement design philosophy.

In the environmental arena, the area's fueling facility and oil-water separator system was designed to provide containment of potential spills anywhere in the facility. TranSystems worked with OEPA, ODOT, ACOE, FAA and FHWA to minimize impacts to existing streams, wetlands and natural habitat throughout the project area, establishing designated areas for preservation for streams, wetlands and bat tree habitat, as well as the design of an off-site wetland mitigation area at Mackey Ford Wildlife Area.

Environmental and Social Benefits

Intermodal transfer of freight represents the future of logistics and distribution in the United States. Connectivity between modes is at the heart of shipping and supply chain management, not only nationally, but globally. The Rickenbacker IMF represents the latest in the technology of intermodal transfer including sophisticated automated tracking/logistics systems allowing NS to precisely track and schedule container movements from train to storage to truck and vice versa. The gate areas include camera portals to support photographic inspection and documentation of all truck shipments. The layout of the yard represents extensive movement and throughput modeling to maximize efficiency between track and storage areas, as well as gate and roadway circulation. In addition, over 150 tower lights were designed to provide 24/7 site efficiency, but special techniques were employed to minimize spillover for local residents and comply with FAA regulations for cargo planes approaching the nearby runways.

The intermodal hub at Rickenbacker takes full advantage of rail transportation for long-haul movement of containerized goods. This mode of long-haul movement offers several environmental and social benefits, including a reduction in emissions which results in improved air quality. More containers on trains mean fewer long-haul movements by trucks, translating to less congestion and increased highway safety.

For the long-haul, rail produces fewer emissions on a per ton-mile basis than trucks for particulate matter, Carbon Monoxide and different forms of Nitrogen Oxide compounds and hydrocarbons. For typical amounts of freight moving through Rickenbacker, and projected into the future, moving these containers by rail versus truck results in 95% less CO, 37% less NOX/Hydrocarbons and 15% less particulate emissions compared to truck.

Not only is there an environmental benefit from intermodal transportation of containers, but there are significant cost savings with this shipping method. A study by Norbridge in 2003 shows a 29-43% cost savings for inbound and 11-13% cost savings for outbound intermodal traffic compared to truck. Shippers could potentially realize $660 million in transportation savings in the first 10 years of operation at the Rickenbacker Intermodal Facility. This savings is ultimately a result of the Heartland Corridor between Norfolk and Columbus, where NS will be able to double stack containers on trains.

"Intermodal" continued p. 21

US 222 Bridge over the Pennsylvania Turnpike during construction. (Photo courtesy of Michael Baker Jr., Inc.)

"SR 222" continued from p. 9

monitoring of the lengthy settlement process during Phase 1 while proceeding to Phase 2 without interruption caused by settlement time requirements.

During construction of Section 001, the area suffered frequent and heavy rains resulting in much higher water tables and more difficult bridge foundation work, especially on spread footing construction. Lime pozzolan was applied to the surface fill material which made the soil stable and dry quickly to expedite compaction of the embankments.

The southern interchange of Section 001 was designed as a three level system of ramps to reduce the enclosure of streams and habitat as well as post-construction problems due to the soils. Also in Section 001, a geogrid retaining system was utilized to hold a steep embankment while avoiding the relocation of a stream.

Noise Mitigation - An absorptive treatment was applied to the face of the sound barriers bordering both sides of the 222 corridor. Noise walls adjacent to the residential developments significantly reduced noise levels and provided visual separation from the highway.

Scheduling - Construction of the center span of a three-span structure over Brookside Road / Pennsylvania Turnpike / Schantz Road was performed during three complete shutdowns of the Pennsylvania Turnpike Northeast Extension. Each shutdown was limited to four hours, after which road user penalties would be enforced for every hour that the Turnpike was unable to re-open for traffic. This three-span bridge structure was unique because it was designed for both horizontal and vertical curvature of the 222 mainline as well as the off-ramp to Brookside Road.

As a result of successful state and local cooperation, the completion of the Route 222 Trexlertown Bypass alleviated congestion, reduced travel time, improved safety for local residential and business traffic, and provided an important link for through traffic from the Lehigh Valley to the Reading and Lancaster areas. ■

"Intermodal" continued from p. 19

As a result of this fact, as many as 49 million fewer truck miles on Ohio highways will improve congestion and safety on our interstates. The positive impacts to air quality are also important to consider. The estimated cumulative benefits over the truck alternative in its first 10 years of operation is 69,000 fewer tons of CO, 4,000 fewer tons of Nitrogen Oxide compounds and hydrocarbons and 72 fewer tons of particulate matter.

Public-Private Partnership

Given the challenges facing the modern transportation industry, it is important now more than ever to work together toward transportation solutions. Successful public-private partnerships made the Rickenbacker IMF come to fruition. The Rickenbacker Global Logistics Park offers a 1,000-acre logistics park anchored by an intermodal facility served by Norfolk Southern (NS) Railroad that will economically distribute container freight into the heartland of Ohio from the eastern and southern U.S. coastal ports. "The project validated the concept of the successful public private partnership," said Eric Hensley, Project Manager / Planning and Engineering, CRAA.

Not only is the intermodal facility a multi-modal success story, it is an outstanding example of multi-agency coordination and funding gone right. Parties involved in the development of the Rickenbacker intermodal facility included:

Columbus Regional Airport Authority (CRAA)
Norfolk Southern (NS)
Ohio Department of Transportation (ODOT)
Mid-Ohio Regional Planning Commission (MORPC)
Franklin County
Pickaway County
Federal Aviation Administration (FAA)
Federal Highway Administration (FHWA)

Significant private investment was the catalyst for the IMF. Significant funding contributions were made by the CRAA, NS, City of Columbus, ODOT, MORPC and provided via federal earmarks. ■

Tower Construction. Photo courtesy of Michael Baker Jr. Inc.

Form Travelers and Bridge Elevation during Construction. Photo courtesy of Michael Baker Jr. Inc.

Form Travelers on River Span. Photo courtesy of Michael Baker Jr. Inc.

"Pomeroy" continued from p. 13

challenge. There was also a major slope slide on the Ohio side that required additional repair drilled shafts to be placed in front of the OH tower for protection.

The cable-stayed portion of the bridge was shown on the contract plans to be constructed by the balanced cantilever method. In simple terms, superstructure segments (edge girder, floorbeams and slab) would be erected after the completion of the tower foundations and full height of towers. The segments would be built (formwork, reinforcement, concrete and cable stays) on alternating sides of the tower, cantilevering to the abutments and river mid-span. Both the West Virginia and Ohio sections would be built in this sequence until closure would be met at river mid-span. The contractor elected to build the cable-stayed bridge back-span superstructures on temporary falsework. This allowed him to use the back-spans to transport materials and equipment to the tower locations to build the structure. The cost of the temporary falsework also offset the cost of two additional expensive form travelers that are used for the river segments of the bridge.

Another challenge to the construction team arose when the complex form traveler systems (imagine a small truss bridge used to support formwork for the bridge superstructure segments, able to be moved hydraulically along the bridge) delivered to the job site required modifications. Although this issue set the schedule back several months, once the form travelers were put into service, the contractor was able to erect the superstructure elements efficiently.

In summary, many challenges were successfully overcome through the teamwork of ODOT, the contractor and the construction managers including two floods, a significant slope stability issue, complicated falsework, unique form traveler design and fabrication and rock slope remediation. Partnering techniques and good communications between all the construction team participants allowed them to mitigate and expedite practical solutions to these and many other daily challenges. Most importantly, the project is being completed with no lost time injuries on site and an overall excellent safety record. ■

ASHE National Board Members 2008-2009

Thomas S. Morisi
Region 4 National Director

Tom has been a member of the Altoona Section for nearly 20 years. During that time, he has served various positions on the Altoona Board of Directors, including Director, 2nd Vice President, 1st Vice President, and finally President in 2002/2003. During his term as President of the Altoona Section, Tom initiated an annual workshop between the ASHE Altoona Section and the Pennsylvania Department of Transportation, Engineering District 9-0. He served as the Chairman of the Committee to conduct this event for five years and turned over that Chairmanship when he became the Region 4 Director. Tom serves as the Region 4 Treasurer. He was the Co-Chair of the Technical Committee for the 2008 ASHE National Conference held in Hershey, PA.

Tom is a 1987 graduate of the University of Pittsburgh at Johnstown with a Bachelors Degree in Civil Engineering Technology. He is a Certified Bridge Safety Inspector and a member of ASHE, the Pennsylvania Highway Information Association and the Associated Pennsylvania Constructors. Tom has been employed at Keller Engineers, Incorporated of Hollidaysburg, PA for the past 15 years where he is Vice President, Corporate Secretary, and Director of Transportation. He is responsible for the supervision and management of all transportation projects within the Division including highway and bridge design and bridge inspection. Prior to his employment at Keller Engineers, Incorporated, Tom worked for six years as a designer on various bridge and highway projects while at another firm.

Tom is active in his community government where he has served on the Geistown Borough Planning Commission before becoming the Zoning Officer. Later he was appointed to a vacancy on the Borough Council in 1996 where he has served as a Councilman since that time.

Tom lives in Johnstown, PA with Nancy, his wife of 20 years and their 17 year old son, Jake. He cherishes the time spent with his family and his hobbies include bowling, boating, and working around the house.

Gerald J. Pitzer, P. E., P. L. S.
Region 3 Director

Jerry joined the Pittsburgh Section of ASHE in 1984 and became a member of the Section's Board of Directors the following year. He has been a member of the Board ever since serving as Chair of various committees and Section President from 1998-1999. He currently serves as the Section's Treasurer, a position he has held for seven years.

He served as the Exhibits Chair for the 1995 ASHE National Conference and Co-General Chair for the 2005 ASHE National Conference.

Jerry received his BSCE in Civil Engineering from Carnegie Mellon University. He went on to receive his MSCE in Civil Engineering from West Virginia University and an MBA in finance from the University of Pittsburgh.

Currently, Jerry is an Engineering Manager with GAI Consultants, Incorporated in the firm's Pittsburgh Office where he manages bridge, highway, and transportation projects. He has also served as the firm's officer in charge of risk management, QA/QC, and training. In addition to engineering assignments, he served on the committee which created the firm's ESOP and, for thirteen years, served on the ESOP Committee and as a trustee of the ESOP. He also serves as a Plan Administrator for the firm's 401(k) program.

Highlights of his engineering career include the Williamstown-Marietta Bridge, a 1,200-foot, two-span continuous, through truss over the Ohio River and the Fayette Station Bridge, the reconstruction of a 400-foot long, through truss over the New River. The reconstructed pin truss incorporated many of the wrought iron components of the 70+ year old bridge it replaced. Both of these projects received numerous awards, including the Gold Award in ACEC/WV's annual design competition.

In addition to his ASHE activities, for twenty years Jerry has been a member of the Executive Committee of the International Bridge Conference. This three day annual conference draws over 1,200 attendees from around the world. While on the Executive Committee, he has been the Chair of various subcommittees and served as the General Chair of the International Bridge Conference in 1998.

"National Board" continued p. 27

ASHE 50th Anniversary Book

Copies of the ASHE 50th Anniversary Book are available at a cost of $20.

Send requests to National Secretary Charlie Flowe at euclid@embarqmail.com or mail your request to ASHE National Office, 65 Beacon Hill, Henderson, NC 27537.

"National Board" continued p. 25

His outside interests include golfing, skiing, and traveling. His travels have carried him to almost all of the (50) states and three continents. He is active in the Pittsburgh Ski Club, a 1,000+ member organization, where he has served on the Board of Directors for the past eight years, including president in 2005-2006 and two terms as treasurer. He also served twenty five years as an advisor to the Carnegie Mellon chapter of the Delta Tau Delta fraternity.

Jerry is a Registered Professional Engineer in Pennsylvania, West Virginia, Florida, Maryland, and North Carolina and a Registered Land Surveyor in Pennsylvania and West Virginia.

Perry M. Schweiss

Past National President

Perry is a member of the Southwest Penn Section and served as Section Secretary of the Southwest Penn Section from 1996 to 2005. He is Past President of the Section (2006-07.) He also served as the Treasurer for Region 3 from 2003 to 2005. Perry served as Region 3 Director from 2003 to 2005 and has chaired the Constitution and By-Laws, Budget and Audit, and Legislative Review Committees.

Perry earned his B.S. in Structural Design & Construction Engineering from Penn State University in 1987. After graduating he was hired by Arora & Associates, Inc. located in West Trenton, New Jersey. In 1992 Perry accepted a position at Sucevic, Piccolomini & Kuchar Engineering, Inc. (SPK) in Uniontown, Pennsylvania. He was promoted to Vice President of Operations in 2001. Perry is a Professional Engineer in the states of Pennsylvania, West Virginia and Maryland. He is also a Professional Land Surveyor in West Virginia. Perry is proud to be the second ASHE National President from SPK. Domenic Piccolomini, President of SPK, served as 2000-2001 National President.

Perry resides in Morgantown, West Virginia. He has 3 boys, Eddie (15) and Tyler (14) and Lucca (infant.)

Shirley Stuttler

President's Assistant

Shirley has been a member of the Franklin Section for 28 years and has served as the Section Secretary for 24 years. Shirley served as a National Director from 1996 to 2002, at which time she was appointed as the National President's Assistant. She also serves on the National Board as Chair of the Section Operating Manual Committee and serves as a member of the National Conference, Nominating and Society History Committees.

Shirley retired in March 2005 from PennDOT Engineering District 1-0 after 35 years service and continues to perform her ASHE duties for the Franklin Section and National Board from the comforts of her home.

She and her husband John have been married for 20 years and reside in Cochranton, PA. They have three sons; David and his wife Lisa, who reside in Raleigh, NC; Jay and his wife Christy, who reside in Girard, PA; and Jim and his wife Katie who reside in Erie, PA. They are also the proud grandparents of three grandchildren; Adam age 7, Ethan age 1 and Jordan age 6.

As a three time cancer survivor, Shirley spends extra time providing current cancer victims with encouragement and stresses the importance of their attitude on life. She tells these individuals that the only thing we can do is play on the one thing we have and that is our attitude. She is convinced that life is 10% what happens to us and 90% how we react to it.

Shirley enjoys spending time with the grandchildren, traveling and relaxing at the cottage located along the Allegheny River where she and John can take canoe outings or enjoy riding in their hovercraft. ■

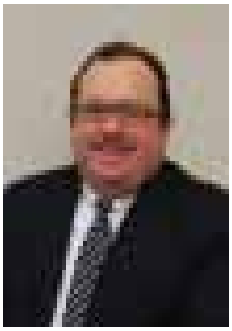
ASHE Public Relations Grants Available

Funds are available through the Society Exposure Grant program to assist Regions and Sections with public relations for ASHE. Funds may be used to purchase sponsorships and/or exhibitor space at conference such as SASHTO and the International Bridge Conference, purchase a Billboard during National Engineering Week, outreach programs, establishing a Student Section at a nearby university, or any other activity that fits the grant program's guidelines.

Additional information and the application form can be found at the ASHE National website www.highwayenginers.org under the Section Operating Manual – Guidelines for ASHE Exposure Funding Reimbursement. Also, all Section Presidents received a letter from ASHE National President Rich Clifton explaining the program.

April 1, 2009 is the deadline for the application to be received by the National Secretary for this year's funds. The National Board intends to continue this program next year so start thinking about how you can promote ASHE and expand our membership.

As the Wheel Turns



David S. Lowdermilk, P.E., of Wallingford, PA., has been named the 2009 Delaware Valley Engineer of the Year by the Delaware Valley Engineers Week Council (DVEWC).

The award, which is bestowed yearly upon a Delaware Valley engineer whose work and support of the engineering profession has had a significant impact on the region and profession, will be presented to Lowdermilk during Delaware Valley Engineers Week which will take place February 13-21, 2009.

Nominated by the Pennsylvania Society of Professional Engineers (PSPE) Delaware County Chapter, Lowdermilk was chosen to receive the coveted award by his peers who represent the many professional, technical and scientific engineering societies in the Delaware Valley. The Delaware Valley Engineering Award has been granted yearly to an exemplary engineer since 1953.

As Engineer of the Year, Lowdermilk will serve as an engineering ambassador in 2009. As such, he will be required to serve on the regional Engineers Week Council board, speak at technical society meetings, make public appearances and work with members of the press to highlight engineering issues and events as they occur throughout the year.

Lowdermilk currently serves as Vice President and Transportation Technology Principal at Pennoni Associates Inc., in Philadelphia, where he manages $20 million of the firm's total yearly earnings, along with more than 150 staff members. He is a Registered Professional Engineer in 11 states, and he serves as Principal-in-Charge for Pennoni's Pennsylvania Department of Transportation and the Pennsylvania Turnpike Authority accounts.

Additionally, Lowdermilk serves as the current Program Manager and Engineer of Record for the Burlington County Bridge Commission (BCBC), and over the course of his career, has worked on several major projects that have greatly impacted and improved the quality of life in the Delaware Valley including: engineering work on I-476; the Route 1 Safety Improvement Project; the Bucks County, I-95 Turnpike Interchange Project; the Montgomery County, U.S. Route 202, Section 610 Final Design; and the Philadelphia Frankford Transportation Center Project.

In addition to his significant contributions in the workplace, Lowdermilk was awarded the Engineer of the Year distinction because of his interest in, and willingness to, serve as an ambassador for the engineering profession, both within the engineering community, and in his community-at-large.

As such, he works with various engineering organizations to reach out to young people and educate them about the value of the engineering profession, via speaking engagements to middle school students, and through participation in job fairs for various age groups. He is an active member of various local engineering societies including the Pennsylvania Society of Professional Engineers, the American Council of Engineering Companies of PA (Present Philadelphia Chapter President), the American Society of Highway Engineers Delaware Valley Section, the American Society of Civil Engineers and the Institute of Transportation Engineers.

When Lowdermilk steps outside of the professional engineering world, he uses his skills and talents to help many different community-based groups, including his synagogue where he serves on the House and Grounds Committee, and The Players Club of Swarthmore, a non-profit community theatre company based in Delaware County, where he applies his Project Management skills to serve as the Stage Manager overseeing the design and construction of the productions' sets. ■

Ramey Kemp & Associates, Inc. announces the promotion of **Montell (Monty) Irvin, P.E., PTOE** to the position of President and Chief Executive Officer of the firm effective January 1, 2009. Ramey F. Kemp, Jr., founder and previous President, will remain in the position of Chairman of the Board and Director of Business Development.

On the promotion of Monty to President, Ramey Kemp stated, "Monty has proven himself to be one of the leaders in the transportation engineering industry. His promotion to President ensures a smooth transition in leadership in our company and continuation in our company's growth through the Southeast. We have looked forward to this leadership transition for many years and are excited about our company's future."

Mr. Irvin, who is a graduate of Louisiana State University, moved from south Louisiana to Raleigh in 1990. He joined Ramey Kemp & Associates in 1995 and has been the company's Executive Vice President for over 15 years. In addition to being a registered Professional Engineer in numerous states, he was one of the first in the nation to earn certification as a Professional Traffic Operations Engineer (PTOE) by the Institute of Transportation Engineers. Says Mr. Irvin, "I am very honored and excited to lead our firm into the future. Everyone in our firm has contributed greatly to our success and I plan to continue our strong commitment to our clients and our people, traits instilled in me by Ramey. We would not be where we are today if it were not for Ramey's trust and inspiration, a legacy that I'm sure will inspire me and others as we move forward." ■

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- What We Can Learn from Other Industries
- Customer Service Center Challenges
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TDOT Historic Bridge Survey Report

Martha Carver

This image shows children exiting a bus to walk across a dilapidated bridge near Pulaski, Tennessee. The bus driver then drove the bus across the bridge and the children got back on the bus. (Courtesy, Tennessee State Library and Archives)

TDOT historian examines bridge plaque on abandoned bridge near Pikeville, Tennessee. Image courtesy of the Tennessee Department of Transportation (TDOT).

1913 Bridge Plaque, Nashville Bridge Company. Image courtesy of the Tennessee Department of Transportation (TDOT).

Do you remember the collapse of the Silver Bridge in 1967? Do you remember seeing it on the news or was it something you studied in school? Had you been born? Repercussions from the collapse of the Silver Bridge affect most highway engineers and state highway departments even today.

The Silver Bridge spanning the Ohio River at Point Pleasant on the West Virginia and Ohio line collapsed during rush hour traffic shortly before Christmas in 1967, killing nearly fifty people. Built in 1928 the bridge became a symbol of this country's aging infrastructure.

> *Eventually saved and now open for pedestrian traffic, the [Walnut Street Bridge in Chattanooga] highlighted the need for a historic bridge survey and program in Tennessee.*

Faced with public outcry following this disaster, congressional hearings immediately ensued. Consequently, the Federal-Aid Highway Act of 1970 for the first time in U.S. history, established uniform, national-level standards for bridge inspection and safety evaluations. The act also designated funding for the replacement of deficient bridges on the Federal-aid highway system. The Surface Transportation Assistance Act of 1978 expanded that program into the Highway Bridge Rehabilitation and Replacement Program (BR), a program that continues today.

Thus, since the 1970s, highway departments have had extensive funding to replace deficient bridges, many of which were not only old but also historic. Unfortunately for these historic bridges, and for those who admire them, the 1970s started a "perfect storm" for their demise as money became available to replace this aging population of bridges that had become seen as obstacles and safety hazards.

However, replacement did not come without debate. Tennessee's first major bridge replacement of a potentially historic bridge was for the Walnut Street Bridge in Chattanooga, a magnificent 1891 six-span Camelback truss, created wide-spread controversy. Eventually saved and now open for pedestrian traffic, the project highlighted the need for a historic bridge survey and program in Tennessee.

Like most states around the country, Tennessee began a survey program of older bridges in the 1980s. Staff historians with the Tennessee Department of Transportation inventoried and documented older bridges around the state, and have continued to maintain and update those records.

One of the unexpected by-products of the survey and publication was the development of various historic research contexts. One focused on early twentieth century interstate highways such as the Dixie Highway, the Bankhead Highway, or Lee Highway. Researchers were

"Historic" continued p. 32

"Historic" continued from p. 31

astonished that Tennessee had a relatively unique toll bridge program in the 1920s. Another context focused on bridge companies that practiced in Tennessee. These companies included national leaders such as King Iron or Luten as well as local companies that operated at a regional level such as the Nashville Bridge Company or Steel and Lebby.

Engineering contexts revealed that Tennessee has a surprising number of significant historic bridges. While some are representative Pratts or Warrens, others include perhaps the only nineteenth century cable stayed bridge remaining in the United States as well as one of the last Baltimore Petit trusses and Bowstring trusses in the Southeast.

Similarly to many states, Tennessee has attempted to share its findings with the public and other researchers. In a 2008 publication, TDOT used historical context, narrative history, images, and drawings to explore bridge history in Tennessee, up to the end of World War II. The publication contains historical context of road and bridge construction, bridge companies that practiced in Tennessee, an engineering context and provides information on each bridge that has been determined eligible for the National Register of Historic Places

In addition, the publication explores some of the ways that Tennessee has attempted to preserve its historic bridges such as rehabilitation efforts, abandonment as historic ruins, or relocation for new uses.

As part of the bridge replacement project, TDOT relocated the 1907 Pratt truss span from the historic Buena Vista Ford Bridge in Smith County to a city park in Loudon for use on a trail. Image courtesy of the Tennessee Department of Transportation (TDOT).

In an effort to raise awareness about historic bridges, TDOT has circulated copies of this publication to each of Tennessee's county mayors, road superintendents, county historians and to most libraries in the state. In addition, TDOT created digital copies of the publication for distribution. Currently, the publication is available in PDF form on TDOT's website at http://www.tdot.state.tn.us/environment/historic/bridgebook.htm. ■

Martha Carver, the author of this article and of the bridge publication, has been a historian at TDOT since 1980.

A cable stayed suspension bridge built in 1891 near Ashland City, Tennessee. Image courtesy of the Tennessee Department of Transportation (TDOT).

A Baltimore Petit truss built in 1891 near Fayetteville, Tennessee, undergoing painting before being bypassed as a ruin as part of a bridge replacement project. Image courtesy of the Tennessee Department of Transportation (TDOT).

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