



ASHE SCANNER

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Lehigh River and Pohopoco Creek Bridge Replacement

The Lehigh River and Pohopoco Creek Bridge Replacement Project was advertised for construction as a typical design-bid-build contract. With only five weeks to bid day, Northeast Prestressed Products, Schuylkill County, received word the Pennsylvania Turnpike Commission would allow concrete bridge alternatives.

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ALSO INSIDE:

**ASHE Membership - Program Upgrade
Gives Members Control . . . page 1**



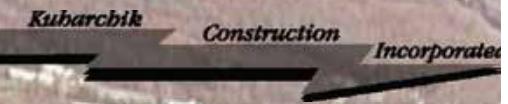
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ASHE National Membership Database Upgrade

ASHE is excited to roll out our new web-based membership database. Each member can access and maintain his or her own membership data. National's goal is that this database will become the common database that both National and the Sections use to maintain all membership information.

To access the database, go to www.database.ashe.pro. You must input your personal ID number which is an eight digit number located on the SCANNER mailing label. This will be your ASHE ID number for as long as you are a member of the Society. Your initial password is the zip code (including the dash if it is a nine-digit code) also on the mailing label. **Change your password after your initial login to ensure the security of your data.**

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It is an honor and privilege to serve as ASHE's National President. I want to thank Calvin Leggett, ASHE President 2011-2012, for his leadership. I also want to recognize and thank John Hetrick who has served for four years on the National Executive Board. Without the guidance and experience of these two, my job as the National President would be much harder. Board members who have completed their terms are Tom Brown and Shane Vorce.

Both of these gentlemen have contributed greatly to the quality of our organization. As we transition leadership each spring, our President's Assistant Shirley Stuttler provides us priceless support. We gratefully thank Shirley for her assistance.

I want to thank the members of the 2012 National Conference Committee, especially Co-Chairs Perry Schweiss and Clayton Stahl from the Southwest Penn Section. When I saw Perry promote the 2012 Conference at the 2011 Conference in Orlando last June, I knew we were in good hands. How is that singing career, Perry? The 2013 National Conference will be in beautiful Lake Placid, NY, where memories of the 1980 "Miracle on Ice" can still be found at the old hockey arena.

When I joined the Central Ohio Section of ASHE in 1986, I had no idea that 26 years later I would be at my computer composing my inaugural President's Message. In 1992, I was asked to assist with the ASHE National Conference in Columbus. After the conference, my mentor suggested to the board that they should ask the "kid" to be a member of the local ASHE board. My first position of responsibility with the Central Ohio Section was Program Director. At my first board meeting I was informed that in three weeks I was in charge of the Section's golf outing. The golf outing was a success although I take little credit for an event that yearly ran like a fine clock. During the first year, the Section also decided to re-arrange the By-laws and I was informed that I would be the Program Director not for one year,

President's Message

Frank O'Hare, P.E., P.S.
ASHE National President 2012-2013

but for two. I went on to serve as Central Ohio Section's President and Regional Representative. Later I was elected the Region 1 President, representing Ohio and Kentucky. On the National Board I have served in various capacities. This past year as First Vice President, I have worked on trade marking, the National Association of County Engineers (NACE) partnership and the Region Grant Requests. As our past National President Calvin Leggett said at the start of his term in 2011, "I have constantly found that the more I put into ASHE, the more I get out of it." I could not agree more with his summation. I have made many new wonderful friends throughout the country.

As we start a new year for ASHE, I want to take this opportunity to discuss the Board's recent efforts in updating our Strategic Plan for 2012-2015. The Officers, Board of Directors, Committee Chairs and the Strategic Planning Committee's special meeting was held in Raleigh, NC, this last January. During that meeting, the Vision, Mission and Values of the Society were reviewed and the Goals for the next three years were initially defined and discussed.

The defined goals for ASHE that were derived from the Raleigh meeting are:

- * Improve Internal Communications
- * Improve External Communications
- * Establish Strategic Alliances
- * Expand and Retain Membership Strength and Viability
- * Promote Education and Technology Transfer

"Message" continued p. 24



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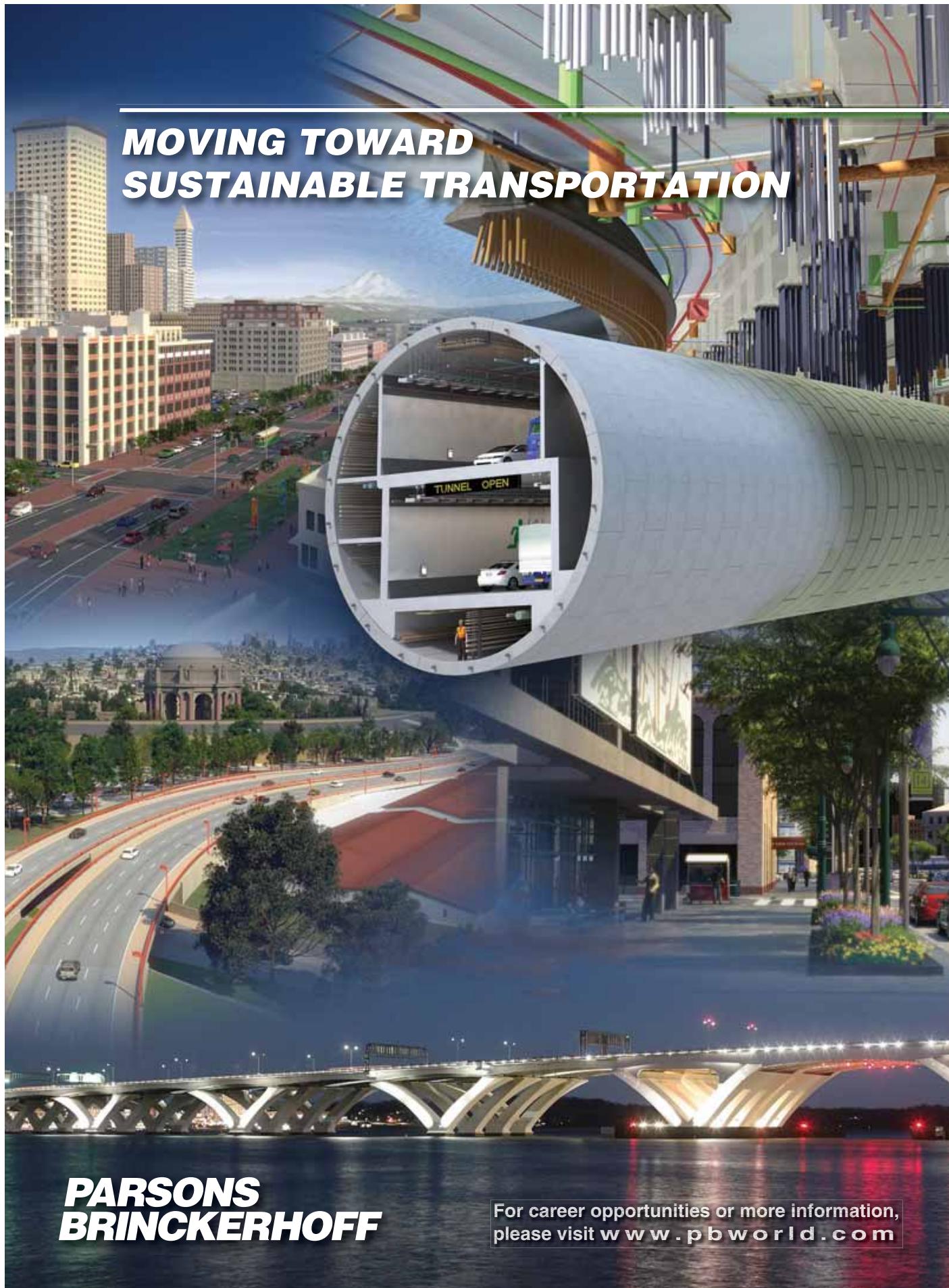


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Cleveland Innerbelt West Slope

Cleveland's Innerbelt Bridge Project

Slope Stability Improvements of the Cuyahoga River West Bank

Jeff Broadwater, PE
& Chris Cummings, PE
Michael Baker Corporation
Innerbelt Bridge Project Team

Construction of a new westbound I-90 Innerbelt Bridge and associated improvements is the single, largest contract in the history of the Ohio Department of Transportation (ODOT). Perhaps one of the most complex undertakings, stabilization of the west bank of the Cuyahoga River or "west slope" has been a challenging endeavor.

Existing Central Viaduct Bridge Slope

Stability Issues: The existing 5,080-foot long Central Viaduct, or "Innerbelt" Bridge, was constructed and opened to traffic in 1959 and is still in operation today. Due to excessive movements within the west slope, a stabilization system was proposed, designed, and subsequently constructed in 1999. Piers located in the west slope were identified as having moved as much as nine inches over the life of the structure.

The slope was found to be unstable, moving the substructure and causing an expansion joint to close in the truss superstructure. The 1999 stabilization project constructed an underground, tied-

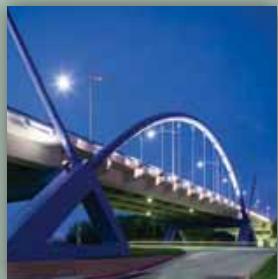
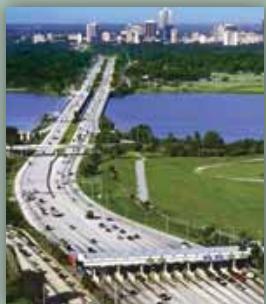
back drilled shaft structure to hold the slope. To relieve built-up stress in the steelwork, a 7,000-ton section of truss superstructure was also relocated three inches.

Ten years later, in 2009, the same section of the superstructure was relocated about three-and-a-half inches. Each relocation allowed the closed expansion joint to reopen. To permanently rectify the slope issue, ODOT prescribed stabilization construction for the west slope prior to construction of the new westbound Innerbelt Bridge.

Design-Build Procurement: In spring 2009, ODOT let a Design-Build (DB) contract to fast-track the new I-90 westbound bridge. While much of the design was left open to the prospective teams, ODOT prescribed the remediation of the west slope in order to provide a long-term solution.

After significant testing and analyses, a slope-unloading plan was prescribed. The plan included removal of a massive former warehouse called the "Cold Storage

"Cuyahoga Stability" continued p. 24



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The New Jersey Turnpike Interchange 6 to 9 Widening Project

Chelsea Napolitano, Stokes Creative Group, Inc.¹

The New Jersey Turnpike Authority (NJTA) broke ground on its massive \$2.7 billion dollar New Jersey Turnpike Interchange 6 to 9 Widening Project, July 2009. This project will ultimately add 170 lane miles of roadway over the 35-mile project corridor from Interchange 6 in Mansfield Township, NJ, to Interchange 9 in East Brunswick, NJ, making this the largest active roadway improvement project in the United States.²

The purpose of the project is to alleviate a troublesome merge located just south of Interchange 8A, optimize travel conditions, increase safety, and improve traffic operations in this section of roadway which frequently experiences 10 to 12 mile backups, only projected to become more severe with growing traffic volumes. Upon completion of this project, the Turnpike mainline will accommodate six lanes of traffic in either direction with separate

lanes for car and truck traffic, while making associated improvements to interchange configurations, toll facilities, bridges, and ramps. To put that in perspective, when all is said and done, the widening project will construct 99 bridges, one million SF of retaining walls, four miles of noise barriers, 170 sign structures, impact 120 acres of wetlands, and acquire 343 right-of-way parcels.

The widened roadway is expected to improve the quality of life for Turnpike patrons and local residents in the communities surrounding the project in a variety of ways. Motorists will enjoy reduced travel times and safer roadway conditions. Surrounding communities will be relieved of traffic jams on local roadways that resulted from the traffic diversions due to the frequent congestion on the Turnpike mainline. The NJTA's complete mitigation of all environmental impacts throughout the affected corridor to ensure no net loss, along with the significant reduction in air and noise pollution that will result from the decrease in idling traffic on the roadway will also be beneficial to the environment and residents of the State of New Jersey.

Throughout the design phase the NJTA had consulting engineers conduct constructability reviews to ensure the program was being designed in the most efficient and feasible way possible. All the effort put forth to troubleshoot during the design phase allowed engineers to expedite the construction phase in an effort to meet the NJTA's ambitious schedule for the program.

"New Jersey Turnpike" cont. p. 23

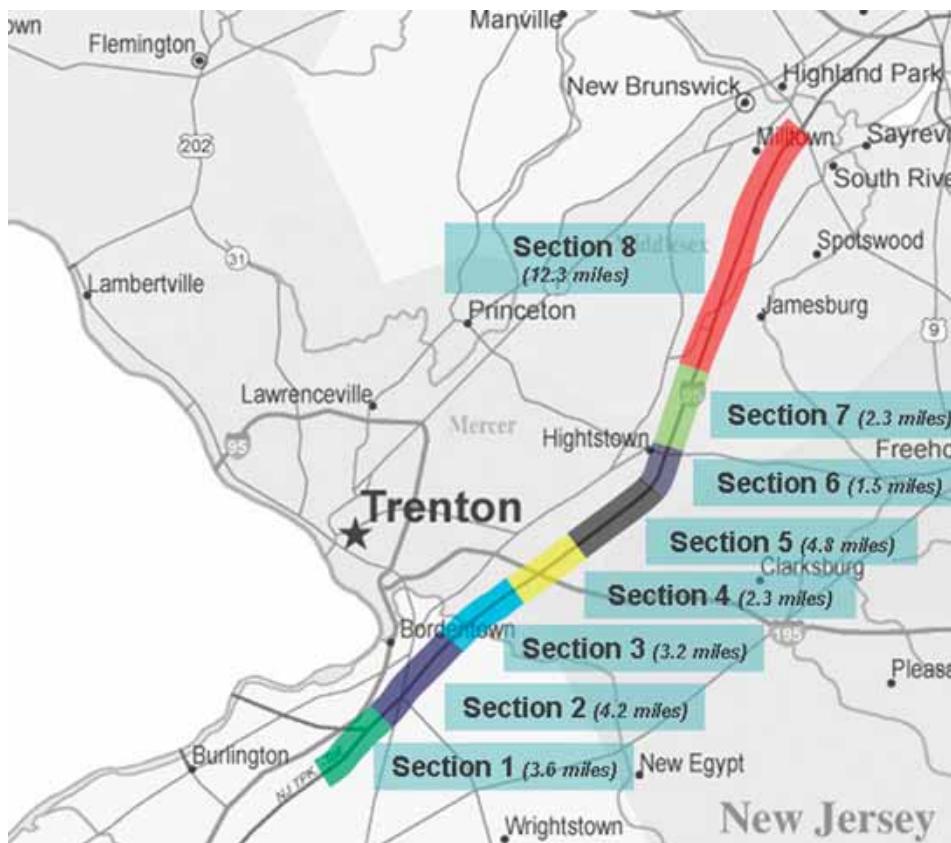


Figure 1: Sections of the widening project.



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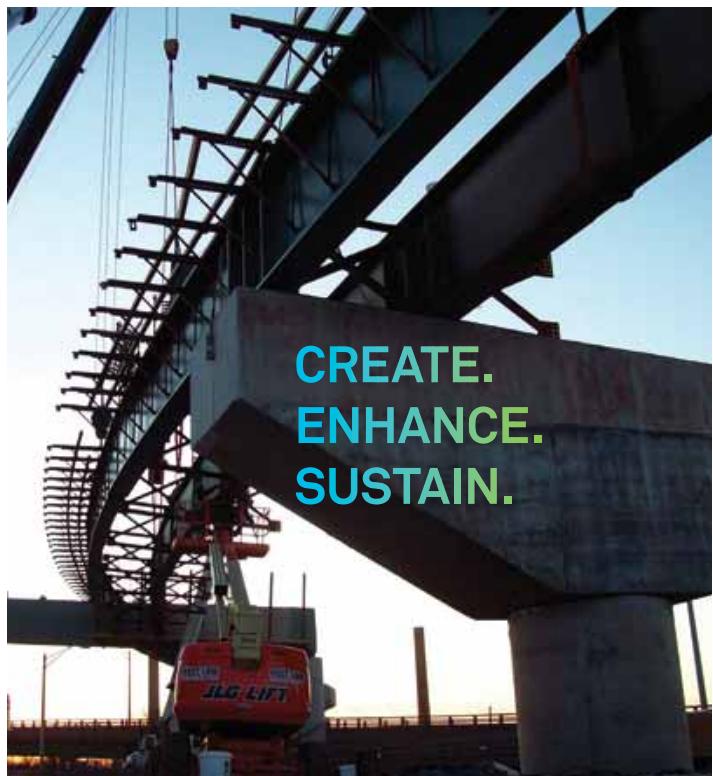
- Johnson, Mirmiran & Thompson, Roadway Project Manager, Lake Mary, FL and another position in Virginia Beach, VA
- EMH&T, Inc., Bridge Designer, Columbus, OH
- Mulkey Engineers & Consultants, Water Resources Group Manager, Cary, NC
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One River, Three Bridges and a Roundabout

Marla Fannin, PIO, PennDOT District 2

All road and bridge projects take considerable human effort. Every now and then, a project encompasses several sensitive and complicated issues that require even more effort and painstaking attention to detail. For Pennsylvania Department of Transportation (PennDOT) District 2, the SR 35 Juniata River Bridge project in Juniata County (central Pennsylvania) is such a project.

Details that called for attention included:

- A population that made use of the walkway on the bridge.
- A different alignment for the new bridge to ease turning movements on SR 35.
- Cohesion between the community of Mifflin on one side of the river and the community of Mifflintown on the other side of the river.
- The inclusion of a roundabout at the Route 3002/35 intersection, near the Tuscarora Junior High School.
- The need to retain a pedestrian bridge on an alignment different from the new bridge.
- The need for one or both communities to accept maintenance of the pedestrian bridge.

Design plans for this project have been evolving since 2004. The project first appeared on the Transportation Improvement Program (TIP) with SEDA-COG support in 1999.¹ From 2005 to spring 2011, almost 30 meetings were held. These included meetings with the public, community representatives, civic and legislative leaders, and the Community Advisory Committee.

Input was gathered from as many interested parties as possible. Project alternatives were reviewed and updated based on input from documented conversations and surveys. Many area residents use the pedestrian walkway on the bridge – including a large number of residents who walk to work at the local chicken plant. Because of that heavy use, PennDOT wanted to ensure an appropriate level of pedestrian involvement. To that end, PennDOT made regular outreach efforts to the community and offered publications and newsletters in Spanish as well as English.

During the process of choosing a Preferred Alternative, PennDOT offered a project website, which featured a breakdown of each alternative, newsletters, surveys, meeting minutes, and other project information.



After considerable public input, in October 2006, PennDOT announced Alternative 4 as the Preferred Alternative. Alternative 4 met all of the project needs and goals, including:

- Bridge replacement addresses the design deficiencies of the current bridge.
- Improvement of the alignment of the roadway approaching the bridge.
- Accommodating both car and truck traffic crossing the river and railroad.
- Accommodating pedestrians crossing the river and railroad.
- Maintaining community cohesion.
- Possibly improve conditions during future flooding events.

The bridge project will span three construction seasons and will include a new traffic bridge on a re-aligned Route 35, a new bridge over the railroad, a new pedestrian bridge in the location of the current traffic bridge, a roundabout at the intersection of Routes 3002 and 35, and improvements to the Route 3002/3005 intersection.

On July 28, 2011, PennDOT was joined by Juniata County community leaders and residents to mark the official beginning of the Route 35 Juniata River Bridge Project. Attendees gathered in the Community Park in Mifflin Borough to celebrate the beginning of the project. After brief remarks, officials gathered to plant a new tree in the park, symbolizing the official construction start of the project.

"Community" continued p. 15



By November 4, 2011, both bridges were substantially complete and open for use. The new bridges provide safe, seamless traffic flow on the heavily traveled Pennsylvania Turnpike. (Keary Larson / Something in the Sky Photography)

Lehigh River and Pohopoco Creek Bridge Replacement Project

Typical design-bid-build contract...with a twist.

The Lehigh River and Pohopoco Creek Bridge Replacement Project (northwest of Allentown, PA) was advertised for construction as a typical design-bid-build contract with four steel plate girder bridges arranged as two sets of dual structures. One set spans the Lehigh River, the historic

Lehigh Canal, a historic rail bed, an active Norfolk Southern rail line, State Route 248, an active concrete batch plant operation and an active trucking company base of operations. The second set of bridges span the Pohopoco Creek gorge and a local roadway. In order to span all of these features with minimal impact, the original design utilized long steel spans.

With only five weeks to bid day, Northeast Prestressed Products, Schuylkill County, received word the Pennsylvania Turnpike Commission would allow concrete bridge alternatives and turned to Borton-Lawson, headquartered in Wilkes-Barre, PA, to develop the concept. In four weeks, Borton-Lawson prepared a viable concrete solution – preparing an alternate design of the two sets of dual structures utilizing prestressed concrete beams in place of curved steel, negotiating agreements of sale for purchase of additional Right-of-Way needed at new pier locations and providing a conceptual design to the field of bidders.

On bid day, Walsh Construction Group of Chicago, IL, was the low bidder. The concrete alternative showed an incremental labor and supply savings, compared to the as-designed steel structures.

Although a new concept was bid and the bridges had to be redesigned, the contract completion date remained unchanged. Walsh bid on the alternative design, so the project would now be classified as a design-build instead of a design-bid-build. Complete redesign of the project needed to be finished as quickly as possible to minimize impact to the original construction schedule.

A new subsurface exploration program and geotechnical design were necessary due to the total rearrangement of spans. Borton-Lawson approached this challenge incrementally, advancing multiple design pieces simultaneously, but securing partial approvals to allow construction to begin as the remainder of the design progressed.

The Borton-Lawson team worked through all necessary approvals, including final TS&Ls, pier approvals, environmental permitting and the required Joint Permit Amendments. Sub-consultant, Dawood Engineering, Inc. of Enola, PA, was responsible for all geotechnical work and the subsurface exploration program.

The massive size of the bridge components and relatively small work area presented a challenge for construction. For example, some rebar cages in the piers weighed over 100 tons. The combination of these factors limited the ability of two cranes to work together to erect beams, which led to the solution of a single crane to lift 168', 112-ton beams into place. This required the use of the third largest crane ever built by Manitowoc and the only one available on the east coast of the United States.

The Borton-Lawson team worked to completely re-design the bridges and get the plans approved in approximately eight months. Additionally, all beams were fabricated in four months by Northeast Prestressed Products. The bridges were constructed and open for use in the fall of 2011, approximately one year ahead of schedule.

The eight-month design completion timeframe could not have been accomplished without a solid partnership and open, timely communication between the design-build team and the Pennsylvania Turnpike Commission. The Commission was responsible for reviewing all design documents – a total of nearly 300 submissions. Without the strong commitment on both sides, construction could not have started on time and finished ahead of schedule.

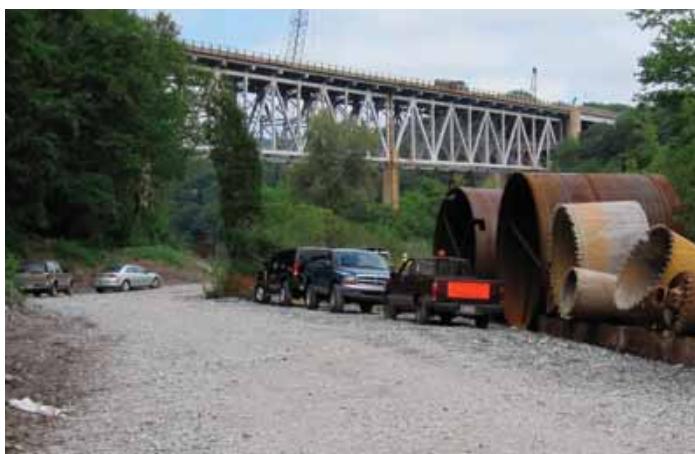
The design and engineering innovation demonstrated by the alternate plan saved the Pennsylvania Turnpike Commission \$7 million, and two state records were set in the process — largest caissons (11'6" diameter) and longest prestressed concrete beam (168'). This project was also awarded the 2012 Grand Conceptor Award by the ACEC Diamond Awards Committee. Most importantly, the new bridges provide safe, seamless traffic flow on this heavily traveled portion of the Pennsylvania Turnpike – invaluable results gained at the most economical price. ■



In order to erect the record setting 168', 112-ton beams with a single crane, it was necessary to utilize the third largest crane ever built by Manitowoc and the only one available on the east coast of the United States.



Construction moved along quickly despite the tight space and massive-sized beams, finishing approximately one year ahead of schedule.



Along with record-setting beams, this project also utilized the largest caissons in Pennsylvania to date, at 11'6" diameter.

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Cuyahoga Valley

Cuyahoga Valley Section Outstanding Project Winners

The ninth annual award lunch and presentations was held March 7, 2012, for the Cuyahoga Valley Section Outstanding Project Winners. Projects must have a substantial completion within the last two years and be located in the Cuyahoga Valley Section area.



Under \$3M: Seasons Road Reconstruction; L-R Tony Avolio, City of Stow; Bob Baker and John Chiarappa, Karvo Paving Company; Jim McCleary, City of Stow; and Kevin Kehres, Vice President ASHE Cuyahoga Valley. (Designer GPD Group did not have a representative.)



Over \$3M: South Main Street Roadway Improvements; L-R Kevin Kehres, ASHE Vice President Cuyahoga Valley; Ben Jones, Ciotti Construction Company; Scott Cook, KCI Associates; and Jim Weber, City of Akron.

Middle Tennessee

Middle Tennessee ASHE Golf Tournament

On October 4, 2011, the Middle Tennessee Section held its first annual golf scramble at Greystone Golf Club in Dickson, Tennessee. With 15 sponsors donating a variety of items, including lunch, hole and door prizes, and beverage carts, the event was a tremendous success. Seventy-six golfers participated in the tournament on a wonderful fall day. The outing allowed the local engineering community the opportunity to get away from the office and support the local ASHE Scholarship Fund, which raised more than \$3,000. These funds resulted in the Section awarding six \$1,000 scholarships in 2011 which is double the number of scholarships that are typically awarded each year.

The Middle Tennessee Section received sixty-three scholarship applications from seven universities across the state. The applicant must be classified as a sophomore, junior, or senior or in the second year of a two-year highway industry related technical program in order to be eligible to receive a scholarship. The fundraiser was a success and plans for the second annual Middle Tennessee ASHE golf tournament have already started.



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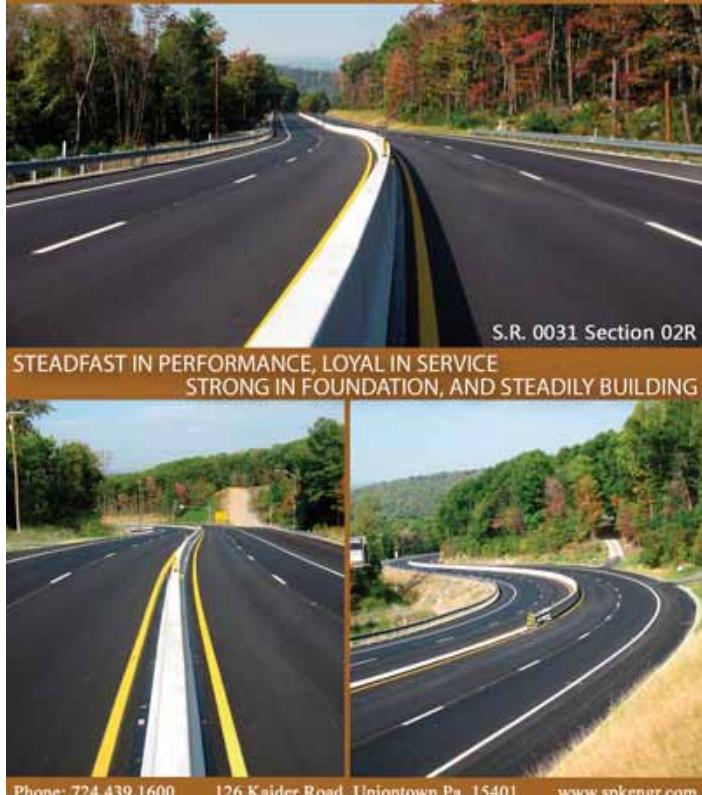
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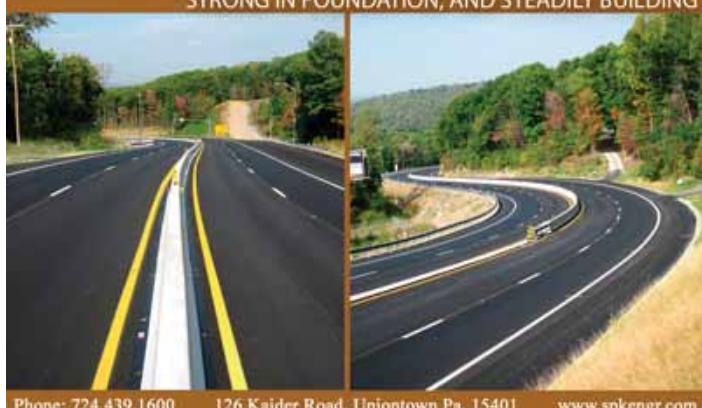


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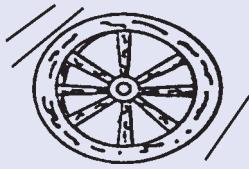
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As the Wheel Turns

Russell Horn Celebrates 100th Birthday

Russell E. Horn, Sr., the surviving founder of Buchart Horn (BH), and a founding member of ASHE celebrated his 100th birthday May 4 with employees, co-workers, community leaders, elected officials, family members and friends who gathered at the York Corporate Headquarters of Buchart Horn on May 4.

Mr. Horn's ASHE membership number is 17. He served as American Society of Highway Engineers' (ASHE) third president and presided at the first national conference which, he says, drew some 100 attendees. Mr. Horn received the Robert E. Pearson Person of the Year Award at the ASHE 2008 National Conference

"Russell Horn," said Brian Funkhouser, BH President and CEO, "graduated from Penn State during the Great Depression, served his country admirably during WW II, raised a family of three sons and a daughter with his wife Eleanor, joined up with his childhood friend Clair Buchart to create a top 300 Architectural/Engineering firm, became one of the great philanthropist in the community and provided the opportunity for countless number of employees and their families to sustain a living. We are all proud to know Russell; some of us have worked with him and some of us have worked for him, but all of us can call him a friend."



Guests honoring Mr. Horn included: Greg Maust, PE, former BH Employee and current Spring Garden Township Manager; the Honorable Kim Bracey, Mayor of York City; George Barnes, PE, former President and CEO of Buchart Horn; Voni Grimes, Community Leader in York; Dr. Madlyn Hanes, PhD, VP of Commonwealth Campuses, PSU; and LTC Dan Daley, President, PA Reserve Officers' Association.

At the end of the formal program, which lasted nearly an hour, Russell rose to the lectern and gave an impromptu five minute speech, recalling his first job with the Pennsylvania Department of Transportation, his love for Penn State, and his appreciation for the blessings he had received during his lifetime.

After greeting guests, Mr. Horn adjourned to a conference room to accept on-line birthday wishes from employees in Baton Rouge, LA; Memphis, TN; Baltimore, MD; Marlton, NJ; Pittsburgh and State College, PA.

Mr. Horn and Clair Buchart, AIA, formed Buchart Horn in 1945. The firm was one of the first to combine engineering and architectural services under one roof. Today, Buchart Horn is an international engineering and architectural firm with 290 technical and support staff serving clients from offices in eight states and Germany. The firm focuses on three primary areas architecture, transportation, and environmental engineering and design services. ■

"Community" continued from p. 9

This summer, the contractor will build the roundabout at the Route 3002/35 intersection. Though gaining support, roundabout projects are still rare in this region, so PennDOT will be making efforts to calm "roundabout fears". Outreach efforts this summer will include specific educational sessions about roundabouts. To ensure a high level of safety and provide a good understanding of the roundabout, PennDOT will work with the Juniata County School District to offer the roundabout educational session to its school bus drivers, van drivers, and administrators. Roundabout educational materials will be provided by PennDOT offices to area residents. The project completion is slated for 2013. ■

'SEDA-COG is a PennDOT planning partner, helping to develop a regional TIP and, like PennDOT, serving as a resource for transportation funding, grant management, and best practices on behalf of its member counties: Clinton, Columbia, Juniata, Mifflin, Montour, Northumberland, Snyder, and Union.



Addition of an At-Grade Intersection - Under the old configuration with a bridge, traffic would queue as far back as the Schuylkill River (approx. 2000'). Baker's design of the signalized intersection has cut queues down to approx. 425' and has improved the flow of traffic within the interchange. Bioretention areas can be found on both sides of the realigned ramps.



Simplified Ramp Configuration - The ramps from Ridge Avenue to Kelly Drive and City Avenue were reconfigured to reduce driver confusion and provide a longer distance for drivers to make decisions. A new bioretention area occupies the previous location of the ramps.

Gustine Lake Interchange

Project Overview

PennDOT's Gustine Lake Interchange project replaced four aging, structurally deficient bridges while incorporating roadway enhancements in a complex and compact urban interchange. This project demonstrates how innovation, smart transportation and stormwater management best practices can collectively come together to produce results in a short construction period.

Built in the mid-1960's, the Gustine Lake Interchange (SR 8045 Section GUS) is a series of six structures carrying traffic from Philadelphia to the surrounding suburbs. The Gustine Lake Interchange is located at the confluence of City Avenue, Lincoln Drive, Kelly Drive and Ridge Avenue. With five of the six grade separated structures exceeding their design life, this project became a priority for PennDOT District 6-0.

Although originally scoped as a bridge replacement project for five bridges, coordination with the East Falls, Manayunk and Roxborough communities resulted in an enhancement of the entire interchange. Context sensitive design was applied to create aesthetically pleasing structures, as well as a gateway between urban communities.

Bridge #3 carrying traffic from City Avenue to Ridge Avenue was replaced with a signalized intersection, that eliminated the yield merge of these roadways, simplified driver decisions and improved the flow of traffic. A portion of the ramp was replaced with a bus lay-by lane addressing SEPTA's bus staging needs for the nearby SEPTA Wissahickon Transfer Station (WTS). By eliminating the ramp that merged with Ridge Avenue, the former ramp proper created the opportunity for a linear bioretention basin, which served to improve water quality.

To further help meet community goals, the Baker Team redesigned the intersection of Ridge Avenue and the Bridge #1 ramps by consolidating turns onto the ramp at a single decision point. The new configuration reduces driver confusion and conflict points. At this same intersection, the community's desire to calm traffic was addressed by improving and condensing the right turn lane and island from the ramp onto Ridge Avenue.



As if the maintenance of traffic for 100,000 motorists that use the interchange on a daily basis was not challenging enough, this project had a limited construction duration of 24 months based upon its American Recovery and Reinvestment Act funding. To meet the schedule constraints, multiple structures were constructed concurrently.

Two bridges used detours that directed vehicles off the bridge and across a temporary signalized intersection with the crossing roadway underneath. Pedestrian detours were implemented throughout the interchange to address the pedestrian generators that included the Arthur Ashe Tennis Center, residential homes, SEPTA WTS and the Gustine Lake Community Center.

One of the most challenging aspects of this project was the maze of utilities beneath the interchange. Twenty inch gas mains, PECO duct banks, aerial facilities amongst other utilities are scattered throughout the interchange. With Bridge #1 located between the Philadelphia Water Department water intake and pump house, several critical drinking water supply lines ran underneath the bridge, including two 8' diameter brick pipes. With advanced planning, Baker enlisted the services of a subsurface utility company to identify and locate utilities throughout the interchange. Through design and coordination with the Philadelphia Water Department, the water lines underneath the existing abutment were avoided by replacing the existing three-span bridge with a two-span continuous bridge. The proposed abutment used micropile foundations to avoid interference with additional pipes in this area.

Other components of the project included aesthetically pleasing monopipe sign structures (one of the first statewide for PennDOT), six bioretention areas, interchange lighting system replacement and ADA compliant pedestrian accommodations.

This project demonstrates what can be accomplished when a design team has the right combination of expertise and experience, proactive management approach and collaborates with communities and utility companies. This project took an existing urban interchange and created a user-friendly gateway into the surrounding neighborhoods. The design team was able to reduce the overall amount of impervious area and address stormwater quantity and quality through green infrastructure. Final design was completed in an accelerated one year period. Originally intended to have a construction duration of four years, through collaboration with the contractor, client, construction manager and design team, construction was completed in 23 months. ■



Removal of Bridge #3 - Nestled between Manayunk, Roxborough and East Falls, the interchange was an uninviting sea of concrete that divided the communities. This project created a gateway between the communities through the use of aesthetic treatments and replacing a structurally deficient bridge with a traffic signal.



SEPTA Staging Lane - To help with the flow of traffic, a staging lay-by lane was added to let SEPTA busses wait off the street prior to beginning their route at the SEPTA Wissahickon Transfer Station. The old staging area was a narrow shoulder that caused busses to overhang on Ridge Avenue and restricted sight distance.

Maywood Avenue Project Showcases Green Infrastructure

More than Curb Appeal

Andrew Langenderfer, P.E. and Jamie Brescol, P.E., Tetra Tech

The Maywood Avenue project (Toledo, OH) is an infrastructure project that provides the benefits of stormwater management aimed at protecting and enhancing Toledo's water quality. The project received an American Recovery and Reinvestment Act (ARRA) Grant administered through the Ohio Environmental Protection Agency (OEPA) and was successfully constructed in 2010. This project is a demonstration project designed to evaluate the effectiveness of "green" infrastructure improvements as a measure to control Combined Sewer Overflows (CSO). This project complements the City of Toledo's long-range plan to update its aging sewer and wastewater treatment facilities and stop the release of raw sewage into Swan Creek and the Ottawa and Maumee Rivers that eventually discharge into Lake Erie. The Maywood Combined Sewer Overflow (CSO) demonstration project is a neighborhood scale project that uses Low Impact Development (LID) technology to improve water quality.

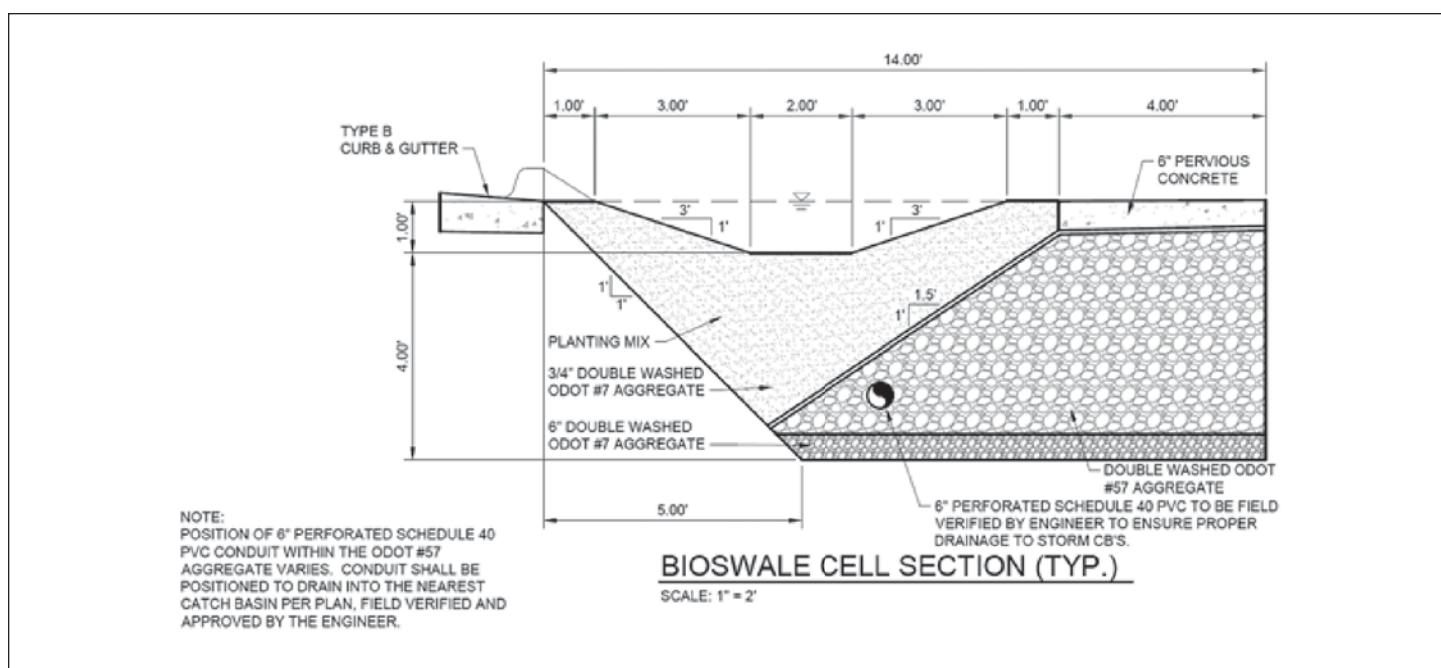
The key to the design was the installation of bioretention cells (or linear rain gardens) along the street edge of pavement, and also included the construction of pervious pavement for the sidewalks and driveways. The 1300 foot urban street reconstruction included roughly 50 curb cuts that discharged stormwater runoff directly into the bioretention areas which are located behind the curb and between the sidewalks. In traditional urban settings, water from a rain event washes from the street directly into a drainage structure (catch basin) and into a storm sewer or in this case into a combined sewer system.

The Maywood Avenue rain gardens capture storm water from sidewalks, driveways, and the street. The captured water soaks into the soil, and in the process, waters the plants in the garden. Rain gardens are designed to hold water on their surface for a short time after a rainfall. Excess rainwater passes through the garden and into an underdrain connected to the storm sewer system. The underdrain system includes a valve that can control the amount of discharge directly into the storm system. By passing through the soil, many of the pollutants that stormwater normally carries, such as oil and salt, are filtered out and absorbed as the water passes through the soil.

Benefits of bioretention include:

- Slowing runoff near its source
- Filtering pollutants
- Maintaining the natural water cycle
- Providing natural habitat
- Absorbing rainfall

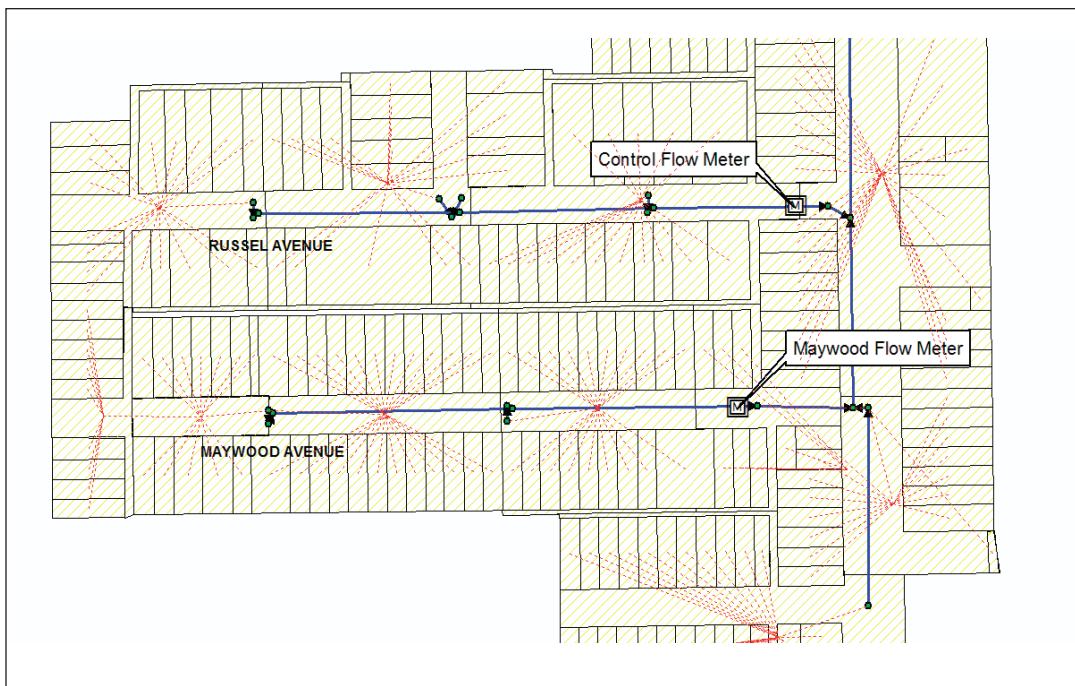
Tim Murphy, Commissioner of Environmental Services for the City of Toledo says this about the project, "The Maywood Avenue neighborhood, due to aging infrastructure and increasingly intense rain events, had been adversely impacted by flooding and water in basements. With our budget for capital improvement projects being reduced it made sense to pursue a green infrastructure solution to the problem. I am happy to report that since the project was



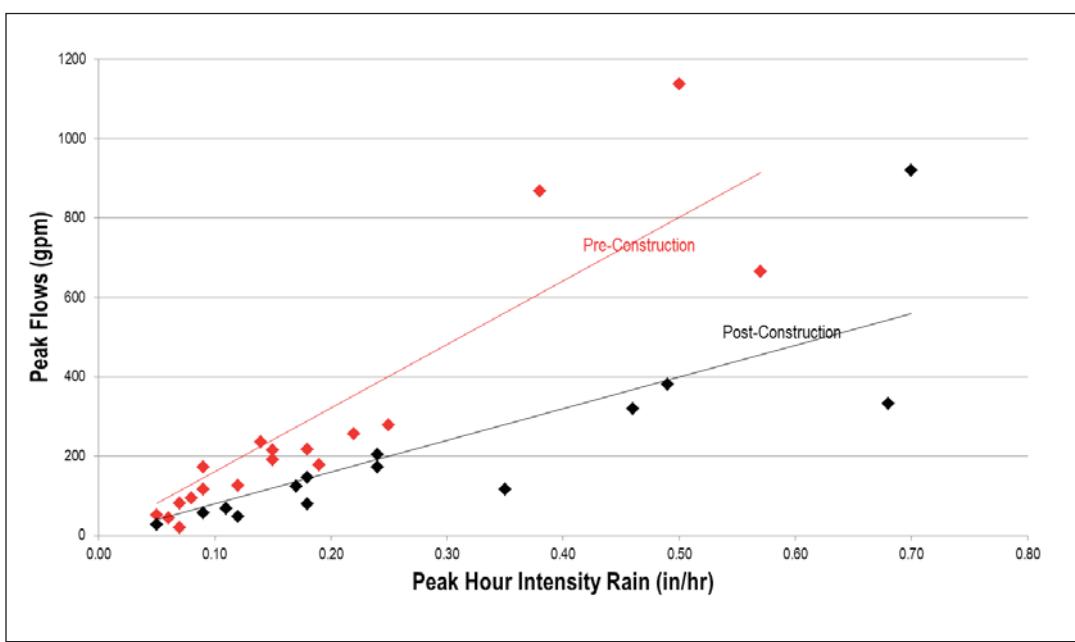
Bioretention

completed we have received no complaints of water in the basements on Maywood Avenue and we've also seen a dramatic reduction in the volume of stormwater traveling through the storm sewer system. We're thankful to our partners, the Ohio EPA who provided grant funding, Tetra Tech, for their technical design assistance and overall project oversight, Biohabitats, Toledo GROWS and American Rivers for their bio-swale planting and maintenance assistance. The City of Toledo looks forward to implementing additional green infrastructure projects that will reduce the volume of stormwater in our sewer system and improving the overall quality of the water in our rivers and streams."

The demonstration project included flow monitoring of both pre and post construction conditions, and the monitoring was completed in February of 2012. Long term simulations evaluated by Tetra Tech, using US-EPA SWMM, indicate that an annual average reduction of runoff volume will be approximately 64%, with peak flows reduced 60-70% at equivalent rainfall intensities. The final results of this demonstration project will be a useful tool to further evaluate green infrastructure projects and its application to CSO control. ■



Flow meter



Peak flow stored and infiltrated

Pennsylvania Turnpike All-Electronic Toll Study

Timothy M. Scanlon, P.E., Pennsylvania Turnpike Commission

The Pennsylvania Turnpike Commission (PTC) reached a key milestone with the recent release of the All-Electronic Tolling (AET) Feasibility Report. Based on several assumptions identified through a best-practices analysis, the PTC determined that AET is feasible, under certain conditions, from financial and physical perspectives.

The next step is for the PTC to continue a more in-depth analysis that will explore the best approach to system design for customers, employees, transportation partners, Turnpike operations and stakeholders. A full conversion to AET would represent the single most significant shift in operations in the Pennsylvania Turnpike's 70-year history and would likely make the Turnpike one of the largest systems in the nation to convert.

Agencies across the nation and around the world that have converted to AET find many benefits to cashless tolling including:

- Enhanced safety - Reduced number of crashes on barrier-free highways and less weaving in toll plazas areas.
- Improved mobility - Reduced travel times and no toll-plaza congestion
- Customer convenience - No stopping to pay tolls
- Cleaner environment - Reduced fuel consumption and emissions
- Smaller footprint - Minimizes community impacts
- Operational efficiencies - Less expensive way to collect tolls

The AET study effort has been broken down into two specific components. The first phase was the feasibility study which is complete and may be reviewed at www.paturnpike.com/aet.

The second phase of the study will include a thorough review of several critical areas, including:

- PTC workforce consulting, outreach and engagement
- Financial analysis
- Public and legislative outreach efforts
- Traffic and revenue studies
- Engineering analysis and design
- Environmental studies
- Development of license-plate based tolling methods (i.e., "video tolling"), fare collection business rules for the AET system and customer service center plans and requirements; and
- All-electronic toll system design

No final decision has been made, and a full conversion will take at least five years to implement. The PTC recognizes that several critical benchmarks must be cleared before a conversion would take place, including a higher rate of E-ZPass use.

How Does AET Work?

TOLL-COLLECTION GANTRY

Tolls would be assessed as customers drive beneath overhead structures, called "gantries," that span travel lanes or ramps on the Turnpike. Equipment mounted on the gantries would assess tolls via E-ZPass transponder or other electronic methods. All Turnpike entrances and exits would remain open but traditional tollbooths would be phased out.

NONSTOP TRAVEL

The tolling system would be much different from the system now used on the Pennsylvania Turnpike. Tolls would be assessed without customers ever having to stop at a tollbooth - providing a continuous flow of traffic and avoiding long lines and delays associated with cash payments.

E-ZPASS ANTENNAS

Antennas mounted on the overhead gantry read the signal from the E-ZPass transponder as the vehicle passes beneath.

E-ZPASS TRANSPONDER

The E-ZPass transponder is a battery-powered radio frequency transmitter that is typically mounted to a vehicle's windshield. An antenna reads the transponder's unique signal to deduct the correct toll from the pre-paid account.

VIDEO TOLLING (i.e., license plate tolling)

Cameras on the overhead gantries would capture an image of the license plate for those without E-ZPass. The image would be used to identify the vehicle's registered owner for billing purposes.

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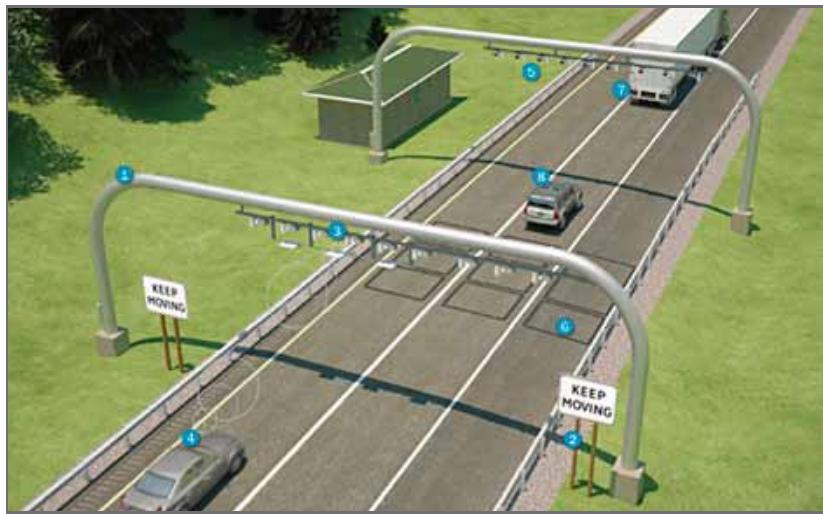


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Video cameras on the overhead gantries would capture an image of the license plate for those without E-ZPass. The image would be used to identify the vehicle's registered owner for billing purposes.



ALL-ELECTRONIC TOLLING | HOW DOES IT WORK?



⑥ VEHICLE-CLASSIFICATION SYSTEM

Toll rates would still be assessed based on a vehicle's classification. The vehicle-classification system would incorporate technologies to collect vehicle information required to determine the appropriate toll.



⑧ AET BENEFITS

AET would offer customers the convenience of nonstop travel and reduce accidents and vehicle emissions associated with traditional toll plazas.



⑦ NO SIZE RESTRICTIONS

Overhead gantries would accommodate most commercial vehicles including permitted oversized loads.



May 12, 2011

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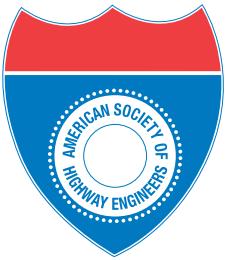
AET Feasibility Study Timeline

January 2011 - the PTC launches AET Feasibility Study to measure potential impacts of conversion on customers and PTC operations.

September 2011 - the PTC completes a Progress Report announcing that conversion is feasible from a financial and physical perspective.

March 2012 - the PTC issues the All-Electronic Tolling (AET) Feasibility Report, concluding the first phase of the study and recommending additional study.

April 2012 - the PTC begins the process of hiring a consultant team to continue studies. ■



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Aerial view of construction on the widening project.

"New Jersey Turnpike" continued from p. 7

Early right-of-way acquisitions and utility relocations set the stage for a smooth transition into the construction phase with minimal delays. After two years of final design work prior to the 2009 groundbreaking, the NJTA selected three construction management teams, and the approximately four-year construction phase, scheduled for completion in 2014, was set to begin. The NJTA began rolling out contract advertisement, reviewing the bids, and awarding contracts.

With construction underway, the construction management teams of AECOM/GPI/PB Americas (Joint Venture), along with HNTB Corporation and Stone & Webster, Inc., are overseeing the 30 separate construction contracts throughout the eight design sections involved in this massive project.³

The project serves as a major economic stimulus for the State of New Jersey, generating approximately 50,000 jobs. The NJTA is able to provide manageable workloads to contractors and sub-contractors of all sizes, keeping transportation professionals at work in fields of engineering, contracting, fabrication, shipping, and surveying, to name a few.

The widening project is progressing rapidly with the work of NJTA staff, designers, the construction management team, contractors, and subcontractors. Work on the aggressively scheduled construction phase is being completed ahead of schedule. The New Jersey Turnpike Authority, New Jersey residents, and all New Jersey Turnpike patrons who depend on this critical transportation corridor to move people and goods throughout the Northeast continue to look forward to the benefits of this New Jersey Turnpike Interchange 6 to 9 Widening Program. For more information, visit [www.njturnpikewidening.com](http://njturnpikewidening.com). ■

¹ All text content and photographs were supplied by Stokes Creative Group, Inc., a New Jersey based multimedia/marketing firm who is providing a wide variety of public outreach, multimedia, and communication support for the New Jersey Turnpike Authority Interchange 6 to 9 Widening Program. All principals are members of ASHE South Jersey and North/Central New Jersey.

² See photo above, showing an aerial view of construction on the widening project.

³ See Figure 1, detailing the sections of the widening project.

Cuyahoga Stability continued from p. 5

Building," excavation of 300,000 cubic yards of soil and installation of vertical and horizontal drains. Structure foundations located in the west slope were also required to be founded on drilled shafts – or "caissons" – socketed into shale bedrock approximately 150 feet below ground.

West Slope Construction Progress: The Walsh/HNTB Design-Build Team (DBT) has been working on the west slope through the winter and is approaching the final stages of excavation. Excessive rain in 2011 is suspected as a contributing factor in challenging ground water issues, which have been encountered. To mitigate those issues, trench drains were installed and the team is evaluating additional measures, such as aggregate slope drains.

The DBT also recently constructed a demonstration shaft to prove their construction techniques, integrity of the completed shaft and capacities. The 5.5-foot diameter shafts were constructed under polymer slurry, with concrete placed via a tremie pipe. Specialty testing performed included:

1) Crosshole Sonic Logging (CSL) Testing – where acoustic signals generated in embedded access tubes are measured in adjacent tubes to provide evaluation of concrete quality;

2) Gamma Gamma Testing – where gamma rays emitted from a source are backscattered by concrete and measured by a detector to assess the concrete quality around the perimeter of the shaft; and

3) Osterberg Cell Testing – used to maximize the efficiency of drilled shaft designs. The O-cell is a hydraulically driven, high capacity, sacrificial loading device installed at the bottom of the drilled shaft to record the actual soil resistance parameters for use in sizing the rock socket.

Eastbound Innerbelt Bridge Construction: After removal of the existing Innerbelt Bridge, ODOT plans to extend the excavation of the west slope to further stabilize it during construction of the eastbound Innerbelt Bridge. The proposed slope unloading concepts incorporate the recreational "Towpath Trail" and scenic overlooks along adjacent streets.

ODOT has been – and will continue to be – sensitive to the massive excavation and its impact on the nearby historic Tremont neighborhood and will continue to engage stakeholders and the public in the project development. For more information on the Innerbelt Bridge project, log-on to www.Innerbelt.org. ■

"Message" continued from p. 3

At the April meeting in Baltimore, the National Board reviewed, discussed and modified many of the strategies and action items that were originally defined in Raleigh. The direction for the Society has now been set for the next three years. It is my responsibility, with the assistance of our First Vice President Tom Morisi and Second Vice President Sam Mody, along with Past President Calvin Leggett, Secretary Charlie Flowe and Treasurer Dave Jones, to provide the leadership necessary as we begin to implement the action items and accomplish the Board's goals for the Society.

An action item that the Board believes will provide tremendous benefits to ASHE is the establishment of a Member at Large Category. In an average year, through the ASHE website, ASHE receives numerous requests for membership from large cities and small towns where a Section has not been established. The Member at Large provides us with a strategy to track interest for Section formation based upon geographical demand. The logistics of this membership category is being developed and coordinated with the By-Laws and the ASHE Operations Manual. You will see more about this topic in the future months.

When the last Strategic Plan was developed, social media was just being born. Today, ASHE has a presence on Linked-In. Exploring ways to improve communications is an ongoing challenge for ASHE. Last year, I was shown one of the first copies of the Society's newsletter. It was basically a mimeographed, hand typed document. Today ASHE is using a website, Linked-In, Email blasts and *INSIDE LANE* to keep the membership informed.

ASHE is a grass roots organization and we have heard speakers at our National Conferences express their amazement at this achievement. Our volunteer officers and directors on the National, Regional and Section level contribute significantly to ASHE's success. A significant element of being an officer for ASHE is the realization that your service must add value to your membership. There are an amazing amount of resources at the disposal for Section Leadership.

I am looking forward to this next year as ASHE's 54th President and meeting more of our diverse membership and dedicated Section and Regional leadership. ■

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Derby City	61
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Northwest Ohio	41
Triko Valley	117
Subtotal	685
North Central Region	
Central Dacotah	116
Subtotal	116
Rocky Mountain Region.....	
Phoenix Sonoran	117
Subtotal	117
Total Membership.....	
Professional Status	60%
Government	13%
Consultant	69%
Contractor	7%
Other	11%