



the
INTER-SECTION

November 2018



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Upcoming Events

PennStress Facility Tour

Builder's Club of the Month

From PennDOT District 9-0



December Event: Holiday Dinner

Event Details

Where: U.S. Hotel, Hollidaysburg

When: December 11, 2018

Time: 5:00 pm

Cost: \$40/person

Please RSVP to Dave Hoglund at dhoglund@rettew.com by December 3rd.

Agenda:

5:00-6:00	Happy Hour open bar with hor d'oeuvres which consist of veggie trays, cheese trays and wings. Gift basket raffle tickets for sale.
6:00-7:00	Dinner of herb roasted chicken breast, chef carve top round, oven roasted veggies, herb roasted potatoes, strawberry cake.
7:00-8:00	Transportation Trivia Night with your host David Trebek (aka Dave Hoglund)
8:00-???	Gift Basket Drawing/Social



Builders club members are encouraged to donate a gift basket or prize for the raffle. The proceeds from the gift basket raffle will be donated to the Mountain Lion backpack program. The Mountain Lion Backpack Program in Altoona, Pennsylvania, provides weekend meals for children in need in the Altoona Area School District.



The U.S. Hotel has been part of Hollidaysburg history since 1835. It was strategically built along the Pennsylvania Canal and the Allegheny Portage Railroad, connecting Johnstown and Pittsburgh. Once an important and bustling national transportation center, Hollidaysburg's claim to that was lost when the Pennsylvania Railroad mainline through Altoona was completed in the mid-1800s. However, the historic U.S. Hotel continued to service the new railroad industry and still stands today.

PennStress Tour Highlights



In October 18, ASHE Altoona Members and ASHE Clearfield Members attended a joint tour event of PennStress, a precast/prestressed manufacturer servicing the Mid-Atlantic region. The manufacturing facility located in Roaring Spring, Pennsylvania maintains roughly 250,000 square feet of enclosed production space. The plant includes multiple casting beds for both prestressed and non-prestressed products. PennStress has extensive experience in parking structures, stadiums, correctional facilities, industrial buildings and prestressed beams and girders. They are also a leader in Accelerated Bridge Construction with precast substructures, superstructures and roadway pieces. PennStress engineering, sales, quality control and plant staff were on hand to walk us through the facilities and describe their operations and answer questions. Afterwards, attendees visited Champs for lunch and networking. This was a great opportunity to learn about the operations of a large precast/prestressing facility located right in our back yard!



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Trafford Road Bridge - A Key Early Action Initiative

By Edward J. Bosack, III, PE and Ryan T. Fasnacht, PE
Alfred Benesch & Company



The Pennsylvania Turnpike Commission recently completed the replacement of the SR 4033 (Trafford) bridge over the Pennsylvania Turnpike at milepost 59.6. Alfred Benesch & Company was the design consultant for this early action bridge replacement project which is part of a future Turnpike Mainline widening project between the Monroeville/ Pittsburgh (Milepost 57) and Irwin Interchanges (Milepost 67). The project involved the replacement of the mainline bridge (WB-500), a bridge over Lyons Run (WB-500B), a culvert along Lyons Run Road and the construction of Turnpike maintenance access ramps. Both bridges are owned by PennDOT, so the replacement structures and SR 4033 roadway modification designs were coordinated with PennDOT District 12-0.

As part of the Turnpike's long-term capital plan, the Turnpike is proposing to widen the Mainline from two to three lanes in each direction along with improving the highway alignment to current standards. The roadway widening will consist of three 12-foot lanes in each direction with 12-foot right shoulders separated by a 26-foot wide median. The Trafford Road bridge replacement as an essential first step in this large reconstruction project as it facilitates the necessary construction staging during the future mainline widening.

The existing WB-500 structure over the PA Turnpike was constructed in 1950. It consisted of a 108'-0" single-span, through-girder structure with a concrete deck supported on concrete abutments (50° skew to the PA Turnpike). The existing bridge width provided for (2) 11' lanes and 4' outside shoulders. The minimum vertical under clearance was 13'-6". The existing WB-500B structure over Lyons Run was constructed in 1949. It consisted of a single span, steel beam structure with a concrete deck and bitu-

minous overlay supported on concrete abutments. The clear span was 45'-9" and it provided for two (2) 11'-0" lanes and 4'-0" to 5'-0" shoulders.

Alignment Alternatives/MPT – Influence Structure Type

Ultimately, the structure selection was greatly influenced by the new Trafford Road alignment. The substandard vertical clearance of the bridge over the Turnpike, structure type (through girder) and poor roadway geometry guided the design towards an off-alignment alternative. The final alternative resulted in an alignment shift to the east and an increase in the vertical profile by a maximum of 12 feet while providing 19 feet of under clearance. The large difference between the vertical alignments meant that a quick switch over of traffic was not possible and a detour would be required. The proposed 10-mile detour used a locally-owned road, and both Penn Township and the Municipality of Murrysville were concerned with a long-term detour. A detailed construction schedule was prepared that evaluated the minimum amount of time required to complete final roadway tie-ins and switch traffic onto the new alignment. It was determined that a two-month detour was required. Given the relatively short timeframe of the required detour, Murrysville agreed to use the local road as part of the detour.



Realignment of Trafford Road

The bridge is bound by curves on either side, however the use of curved steel girders was not a preferred option for a project of this size. The WB-500 bridge consisted of a two-span (96' each span) prestressed bulb tee beam bridge using splayed beams and varying overhangs to accommodate the horizontal curvature of the new roadway. The substructure consisted of full height abutments and pier founded on rock. The WB-500B structure consisted of a single span (96') integral abutment bridge utilizing prestressed bulb tee beams.



Access Ramps – Geotechnical Challenges

The project incorporated two access ramps for use by emergency services and Turnpike Maintenance. The surrounding topography which consists of steep embankments presented a challenge with respect to slope stability, excessive fill waste areas, drainage and roadway geometry. The eastbound access ramp presented the greatest challenge given the steep embankment, presence of a natural spring and desire to limit right-of-way acquisition. Several iterations were completed with various cut slope alternatives to attempt to reduce excavation through steepened slopes while providing the required performance ratios. The final design established 2:1 or flatter cut slopes in soil areas and 1:1 or flatter cut slopes in rock. Several portions of the cut slopes required the construction of rock buttresses for slope stability. The natural spring was addressed by installing a drainage channel to reduce groundwater infiltration into the cut slopes. Lastly, given the steeper rock cut faces, a rock fall analysis using the Colorado Rock Fall Simulation Program (CRSP-3D) was completed to verify the bounce height of the rock and adequate shoulder width/barrier height for rock sizes up to 3 feet in diameter.

Permitting

The size and number of impacts to watercourses required the submission of a PADEP/ACOE Joint Permit. Major impacts included disturbance to 550 LF of stream bank along Lyons Run, 197 feet of relocation of an unnamed tributary and seven new pipe outfalls. Wetlands were avoided by the design. Through coordination with DEP, a streambank restoration plan was proposed along Lyons Run and the unnamed tributary to establish a benched floodplain area with a maximum 2:1 embankment slopes to attenuate and filter out-of-bank flood events. The final streambank condition was achieved through the placement of topsoil stabilized with turf reinforcement mat, native seed mixes, woody vegetation and live stakes.

Project Completion

The project is nearing completion with traffic switched onto the new alignment and paving work to be completed on the access ramps early next year for a Spring opening. The demolition of the existing bridge is scheduled for the Fall of 2018.

Summary

The project has resulted in a vastly improved Turnpike crossing for the local community while also laying the groundwork for future mainline reconstruction to improve this busy Turnpike corridor.



Completed Bridge Deck

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From PennDOT District 9-0...

PennDOT Kicks Off 4th Annual “Paint the Plow” Program

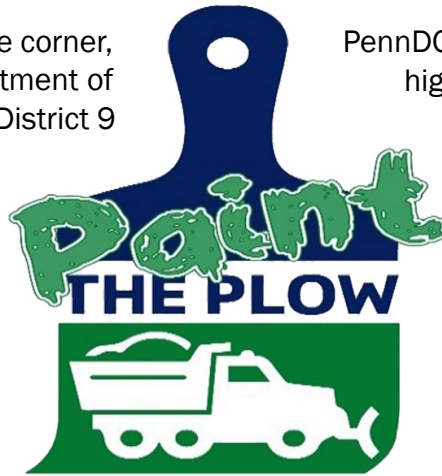


With winter just around the corner, the Pennsylvania Department of Transportation (PennDOT) District 9 is getting help from schools in Bedford, Blair, Cambria, Fulton, Huntingdon and Somerset Counties in the creative outreach project to promote winter safety called “Paint the Plow.”

The project began in 2015 and has been a great success since it began and has continually expanded not only in District 9, but across the state.

“We are always looking for ways to make the public more aware of safety, especially during the winter months, and this is a great opportunity to begin that awareness at an age where the students are just beginning to drive themselves,” said PennDOT District Executive Thomas A. Prestash.

Schools were asked to paint the plows with a winter safety theme, weather motif or even school mascots, while incorporating the theme, “Know Before You Go.” Painted plow blades will run in the areas of the respective school districts.



PennDOT sent applications of interest to high schools and career-technical school across the region, along with Elementary Schools in Huntingdon County. Once the blades were collected, they were judged by a panel for an overall winner in each county and a “fan favorite” contest took place for each county on the PennDOT Facebook page. Photos of winning plows are on the following page.

“We are excited to begin this expanded project this year as we have 35 schools participating that will be painting 37 plows,” Prestash said. “We hope the program will not only promote winter safety for the department, but will also showcase the creative talents of our local students.”

“We encouraged students and community members alike to go and vote for their favorite plow in this contest,” said District Executive, Thomas A. Prestash. “The students worked hard and had a lot of challenges this year with weather we are very proud of their efforts and are looking forward to running the plows throughout this winter season.”





Bedford County - Tussey Mt High School**



Blair County - Central High School**



Cambria County - Blacklick Valley Sr. High School**



Cambria County - Ferndale Area High School



Fulton County - Forbes Road High School**



Fulton County - McConnellsburg High School



Huntingdon County - Southside Elementary



Huntingdon County - Stone Valley Charter Elementary**



Huntingdon County - Southern Huntingdon High School**



Somerset County - Winber Area High School

** Indicates "Fan Favorite"

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Newsletter

Editor
Keven McCloskey
kmccloskey@hwlochner.com

Please submit your contributions by November 28, 2018.



The mission of the American Society of Highway Engineers is to provide a forum for members and partners of the highway industry to promote a safe, efficient and sustainable transportation system through education, innovation and fellowship.

Industry Events & Other Chapter Happenings

Date	Event
November 13	ASHE North East Penn Dinner Meeting (PA Turnpike Update w/ CEO Mark Compton)
November 14-16	APC/PennDOT Fall Seminar
December 3	ASHE Harrisburg Lunch (Cheryl Moon-Sirianni)

Save the Date! A look ahead...

December 11: Holiday Dinner – US Hotel
January 16: Dinner Meeting

Welcome New Members!

Devin Lansberry , EIT of Stahl Sheaffer Engineering
Matthew Macey, PE of CDR Maguire
Irina Hott, EIT of PennDOT District 9-0
Rosanna Smithnosky, PE of Susquehanna Civil
Nolan Synoracki, EIT of Dewberry Engineers Inc.

If you wish to be involved with the ASHE Altoona section for the 2019-2020 season, please contact Jessica Urbas at jurbas@pa.gov

Career Opportunities

Visit the [ASHE Altoona website](#) and click “Career Opportunities.”

Builders Club Sponsors can submit job openings to be posted by emailing Matt Walerysiak at mwalerysiak@markosky.com