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Spring 2017

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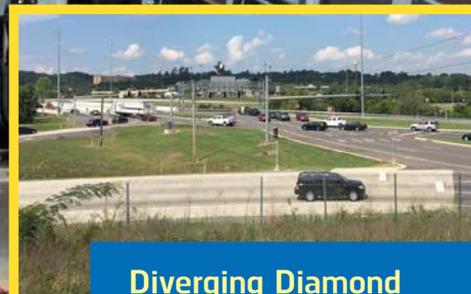
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Interchange for the Gateway
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CONFERENCE
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Larry Ridlen, PE

ASHE National President 2016–2017



New Directions

Spring has finally arrived, and so has the spring edition of the *scanner*. First and foremost, you will find inside this issue plenty of helpful information about the 2017 ASHE National Conference in New York City this June. I hope that you take the opportunity not only to attend the great technical sessions but also to spend some time with your fellow ASHE members and enjoy the sights and sounds of the Big Apple. The New York Metro Section is preparing to make it a fantastic experience.

In January, I attended a kick-off meeting for a potential new ASHE Section in Lexington, Kentucky—The Bluegrass Section. More than 75 people attended and expressed their interest in getting involved. A special thanks goes out to the Great Lakes Region, the Derby City Section and the Triko Valley Section for their work in identifying the opportunity and coordinating the event. Meeting presenters included Tim Robertson (Derby City), Caroline Duffy (Triko Valley), Dave Stills (Derby City) and Tim Matthews (New Sections Committee Chair). Keep an eye out for future announcements about the chartering of the Bluegrass Section.

I continue to marvel at all of the work being done within our individual Sections. I have seen some impressive presentations at lunch and dinner meetings, and the holiday season outreach and university engagement efforts are always tremendous. Our 16 National Committees and 11 Subcommittees are also providing great value to the organization and taking on more activities. At our January workshop in Orlando, Florida, we conducted a short SWOT analysis of the Committees, reviewing the structure, goals and management of each. We learned that organizing Committees as policy-focused versus task-focused could be helpful, and that some Committees could potentially be phased out once their specific goals are reached. As a fully volunteer national organization with more than 6,500 members, we want to make sure that we are keeping our ASHE structure strong and efficient.

The next National Board Meeting is scheduled for April in Morgantown, West Virginia, home of the North Central West Virginia (NCWV) Section. At this meeting, we will continue our workshops focusing on membership growth, evaluating the best ways to provide value in order to retain current members, seek out new members (with new Sections or At-Large Members) and increase our student member involvement. I am also looking forward to the chance to interact with the NCWV Section and hear their success stories and concerns. The National Board received a great deal of helpful feedback from the Central Florida Section during the last meeting, which is why our Board moves meetings around to be close to different Sections. If you have an interest in the National Board coming to your area, please let me or one of the National Board members know, and we will look for future opportunities.

The end of another ASHE financial year means that we are transitioning to new leadership at all levels of the organization. At the National level, we are fortunate to have Greg Dutton assuming the role of ASHE President, and Dick Cochrane will take on the First Vice President position. The three of us have spent a lot of time together over the past year working to improve ASHE, and I know both of these individuals will do an excellent job in continuing ASHE's traditions while also bringing new ideas to the table. Please give them your support as you did for me. There will also be leadership changes at the Region and Section level,

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Floating the Feasibility of a Car Ferry on Lake Sakakawea, ND
(cover: Keller Ferry, WA)

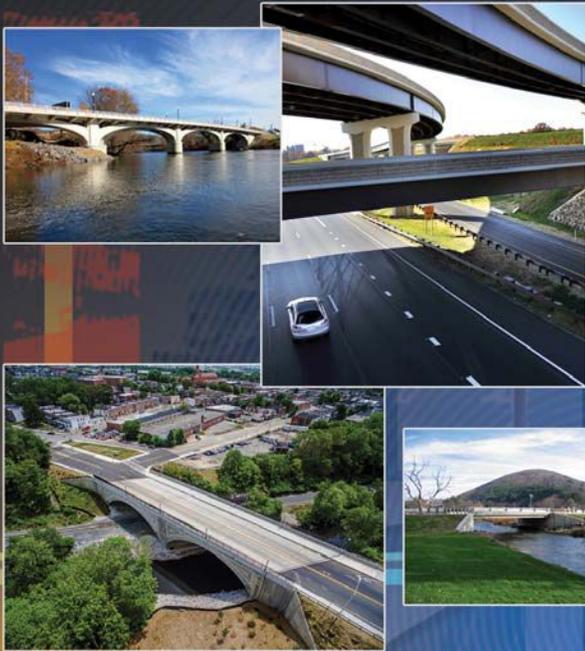
ASHE Central Dakota Section

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COLLABORATIVE ENGINEERING

A Race to the Finish in Central Ohio Multimodal Conversion

by ASHE Central Ohio Section

For decades, streets in Columbus, Ohio—along with every other major American city—were largely built to accommodate vehicular traffic. The city had a vision to transform Columbus streets into a bicycle-friendly transportation network that encouraged more bicycle and pedestrian trips, reduced automobile use and presented an improved environment for living, working and pursuing leisure activities downtown. The Spring and Long Streets Multimodal Conversion project in Columbus, Ohio—located in ASHE's Great Lakes Region—would work to realize that vision. However, the project team needed to use their creativity to hit a dangerously tight schedule. The project owner, City of Columbus Department of Public Service, hired as prime consultant OHM Advisors, an architecture, engineering and planning firm, to provide engineering services in downtown Columbus.

A traffic study of the downtown network identified opportunities to improve roadways and add cycling accommodations and on-street parking in the central core. Results indicated that the existing four to five lanes on Spring and Long Streets could be converted to three lanes for motorized vehicles, bike lanes and full-time parking lanes.

Because the need for cycling and parking facilities was in high demand, a goal was set in June 2014 to have the new bike lanes and parking spaces installed by the end of 2014—mere months away. By far, the most complex aspects of this project were in the design process.

Teamwork, Not Time, on Our Side

To meet the fast-paced design schedule for a detail-oriented, downtown project, the project team was forced to devise a new approach to the typical review process—one that accommodated the extremely aggressive timeline.

In just a few short months, the project team collected survey data, prepared combined Stage 1 and 2 Design Submittals, held Workshop Reviews with the city, addressed the city's comments and delivered Stage 3 plans.

The city was instrumental in this process as they decreased their review time between submittals from 30 days to under one week. All city comments were streamlined through the City Project Manager in order to provide concise, clear and meaningful feedback.

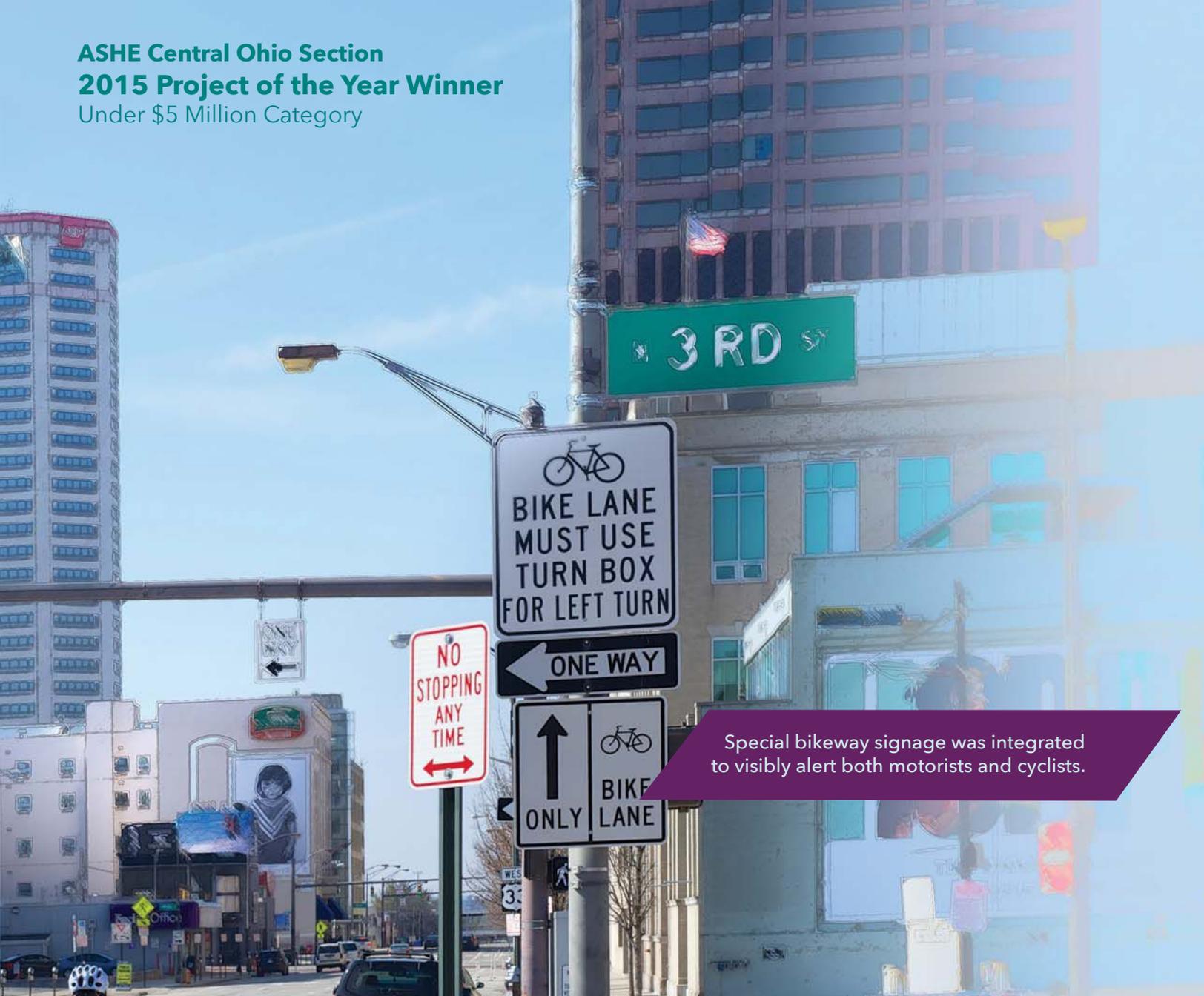
This unique Workshop Review format consisted of three workshop-style reviews where the temporary bike plan design was presented and thoroughly analyzed. Participants in the three workshops spanned all requisite city partners: Project Manager, Design, Plan Review, Traffic, Maintenance of Traffic, Parking and Construction staff.

(continued on page 9)

This project offers cyclists a safe, sustainable transportation facility, promoting exercise and a healthier lifestyle.



ASHE Central Ohio Section
2015 Project of the Year Winner
 Under \$5 Million Category



Special bikeway signage was integrated to visibly alert both motorists and cyclists.

COLLABORATION + INNOVATION
= PROJECT SUCCESS

This project brought 2.3 miles of east-west bicycle lanes to Spring and Long Streets - between Marconi Blvd. and Hamilton Ave. The first bike lanes in downtown Columbus connect the Scioto Greenways Trail, North Bank Park and Arena District on the west side of downtown with the historic King-Lincoln District and Discovery District on the east.



The innovative project approach, fast-tracking the City review process through a collaborative workshop review format, set a precedent by demonstrating how quickly and efficiently a project can be delivered.



The project team devised a new workshop review approach, reducing review time from 30 days to five days.



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Cyclists have a safe way to make left turns at multi-lane signalized intersections.

A Race to the Finish in Central Ohio Multimodal Conversion

(continued from page 6)

The innovative format and fast-tracked design approach facilitated interaction and quick decision making among city staff and the project team—bringing all key decision makers together in the same room.

This new project approach set a precedent by demonstrating how quickly and effectively a project can be delivered using the combination of the Workshop Review format, the voice of the public and a project team determined to work collaboratively outside of typical project processes.

The project team accomplished in three months what a traditional schedule would have required in at least 11 months.

Collaborative Spirit Yields Public Benefits

Because of the innovative workshop series and a willingness to work together across departments, the aggressive timeline was completed on schedule, realizing enhancements to the project area, including:

- Bike lanes and sign installations throughout downtown
- Central Ohio Transportation Authority bus passengers now able to “bike and bus” on routes to popular destinations, such as downtown, regional shopping centers, the airport region and Ohio State University
- Two-foot door buffer zone between parking lane and bike lane
- New bike lanes on a number of cross streets
- Two-stage, bike-turn queue boxes at five busy downtown intersections

The more than two miles of new bike lanes are the first and only east-west bicycle facility through the heart of downtown Columbus. They connect downtown’s populous Discovery District, Uptown District and Arena District by offering a safe, efficient and reliable bicycle facility.

By reducing the downtown corridors to three travel lanes, a bike lane and full-time parking lanes, bicyclists now enjoy slower vehicular speeds and an overall safer experience.

The new two-foot door zone buffers between the parking lane and bike lane enhance both bicyclist and motorist safety—providing greater distance between parked vehicles and bicyclists, and providing space for bicyclists to pass another bicyclist without encroaching into the adjacent motor vehicle travel lane.

As with many urban downtowns experiencing explosive growth, parking is often scarce. One of the benefits of this project was the incorporation of 84 new parking spaces—converted from non-peak to full-time spots—bringing total parking spaces to 336 in the project area.

Sustainable “Firsts”

The first two-stage turn queue boxes in downtown Columbus, approved by the Federal Highway Administration for experimentation, were incorporated into this project. Two-stage turn queue boxes offer cyclists a safe way to make left turns at multi-lane signalized intersections.

The benefits include: improving cyclists’ ability to safely make left turns providing a formal queuing space for left turns, thereby reducing turning conflicts between cyclists and vehicles and preventing cyclists from queuing in a bike lane or crosswalk.

The Central Ohio 2015 ASHE Project of the Year exemplified how the power of thinking differently can achieve the seemingly impossible when the tried-and-true path is simply not an option. 🇺🇸

Replacing the SR 19 Scholars

by Jason Layman, EIT, PennDOT District 10-0; Scott Vannoy, PE, and Sean Hart, PE, Michael Baker Int



Proposed stream channel with jumbo block removed (looking upstream)

Project Overview

One of the dilemmas that transportation agencies frequently face is the critical need to replace a heavily traveled bridge while maintaining unimpeded traffic on a major highway. The replacement of the Scholars Run Bridge in Jackson Township, Butler County, PA, posed such a challenge. With the assistance of Michael Baker International, Inc. (Michael Baker), the Pennsylvania Department of Transportation (PennDOT), District 10-0, developed a solution to this age-old problem.

A Severely Deteriorated Bridge on a Critical Highway

Constructed in 1936, the bridge that carried SR 19 over Scholars Run was a simple span concrete tee beam bridge with stone masonry abutments and wing walls, and was 35 feet long and 40.5-foot wide with a 45-degree skew. The bridge was structurally deficient with a sufficiency rating of 45. The exterior beams exhibited severe concrete deterioration, spalling and exposed longitudinal and shear reinforcement bars with section loss.

The interior beams were slightly better than the exterior beams, but were also in poor condition. The bridge was restricted to legal loads only, and no permit loads were allowed to cross the bridge. The exterior beams were restricted from vehicular loads with channelizing devices, although an entrance to a campground that provides daily access to large camping vehicles is located just north of the bridge. A dam located downstream from the bridge also had to be removed as part of this project.

While the bridge clearly needed to be replaced, maintaining two lanes of traffic on SR 19 during construction of the new bridge was critical. That section of SR 19 is a major arterial, with an average daily traffic of 11,300 vehicles. A viable detour was not available for SR 19, which is designated as an emergency route for I-79 traffic. Partial-width construction on the bridge's stone masonry abutments would have been difficult and costly. Both of the exterior beams of the existing bridge were severely deteriorated and would have had to be strengthened prior to shifting traffic onto them.

Run Bridge in West Central PA

International, ASHE Mid-Allegheny Section



Temporary bridge erected

The Solution

The project team proposed a temporary bridge and roadway that crossed Scholars Run just downstream of the existing bridge. The temporary bridge was approximately 120 feet long and 37 feet wide and was a premanufactured truss-type structure that accommodated two lanes throughout construction. The substructure consisted of two reinforced concrete abutments with spread footings on rock. Access to the campground entrance had to be maintained at all times, and a temporary entrance driveway had to be configured to provide adequate sight distance due to the proximity of the driveway to the temporary bridge.

New Scholars Run Bridge

Michael Baker's services included geotechnical investigations, maintenance and protection of traffic, temporary and permanent structure and roadway design, erosion and sedimentation control, permitting, dam removal, stream restoration and construction consultation.

Monaloh Basin Engineers, Inc., provided surveying services, and Markosky Engineering Group, Inc., developed the bridge hydraulics and drainage design. The prime contractor, CH&D Enterprises Inc., completed construction of the new bridge in November 2015.

The new bridge is a 71-foot-long, simple span, composite prestressed concrete spread bulb tee beam bridge. The cross section consists of five 33-inch by 39.25-inch bulb tee beams spaced at nine feet, 11.5 inches, with three-foot, three-and-one-quarter-inch overhangs. The roadway on the bridge consists of two 13-foot, six-inch travel lanes, two eight-foot shoulders and two one-foot by eight-and-one-quarter-inch-wide concrete barriers. The skew angle is 45 degrees to match that of the old bridge and to minimize the new bridge length. The new substructure consists of two integral abutments founded on steel HP12x84 piles. The new integral

(continued on page 17)

by Scott Shimko, PE, DBIA, Project Manager, Borton-Lawson, and Charles Buchanan, PE, Assistant Roadway Engineering Manager, PA Turnpike Commission, **ASHE North East Penn Section**

Roadway Project Rehabilitates PA Turnpike Northeast Extension (I-476) Mileposts A-101.30 to A-104.25 in Luzerne County

Pennsylvania Turnpike Northeast Extension History

The Northeast (NE) Extension of the Pennsylvania Turnpike serves as the primary north-south interstate corridor through eastern Pennsylvania, connecting the Philadelphia metropolitan area with the Lehigh Valley, Pocono and Wyoming Valley areas. The Pennsylvania Turnpike Commission (PTC or Commission) began construction of the original roadway on March 25, 1954, and the entire NE Extension was completed in just over three and one-half years, opening to traffic on November 7, 1957. The NE Extension was originally built as a four-lane section (two NB and two SB lanes) with a four-foot-wide median. The original roadway was constructed as 10-inch reinforced concrete pavement. It was overlaid with three inches of bituminous pavement in the mid-1970s.

Pavement Deterioration and Customer Service

To maintain the ride quality on the NE Extension, the PTC completed numerous bituminous overlay and resurfacing projects over the years. In Luzerne County, between Milepost (MP) A-95 and A-105, a one-and-one-half-inch bituminous overlay was completed in 1982, followed by a one-and-one-half-inch mill and bituminous overlay in 1996, a full-depth milling and bituminous paving in 2006 and a one-and-one-half-inch milling and bituminous paving in 2015. As time passed, the Commission realized that the original concrete pavement on the NE Extension was deteriorating to a point where replacement was required. The previous resurfacing projects were not performing to the expected life cycle, and the bituminous paving maintenance operations were becoming increasingly costly for the Commission. The challenge was how to replace the original concrete pavement while maintaining the high level of customer service that is expected by the Turnpike's customers.

Customer service, with a focus on safety, dependability and mobility, has always been a core value of the PTC. Typically, roadway and bridge repairs are completed under single-lane patterns and during off-peak hours when reduced traffic volumes do not cause extensive queuing. As traffic volumes have increased over time, available hours for single-lane patterns have been reduced, resulting in a more challenging maintenance program for the Commission. A solution to reconstruct the pavement was necessary to enhance the ride quality on the NE Extension.

Reconstruction Solution – Southern NE Extension

Projected traffic volumes along the more urbanized southern section of the NE extension created a challenge beyond just improving the riding surface—the need for three lanes in each direction. While this need created its own set of obstacles, it did present a solution for how the original Turnpike pavement could be reconstructed. The Total Reconstruction of the Turnpike, as the program is now known, includes the addition of one 12-foot lane and 12-foot outside and median shoulders in each direction. This increased pavement section allowed the Commission to sequence construction in a manner where two lanes of traffic could be maintained at all times, even during full-depth reconstruction of the original pavement.

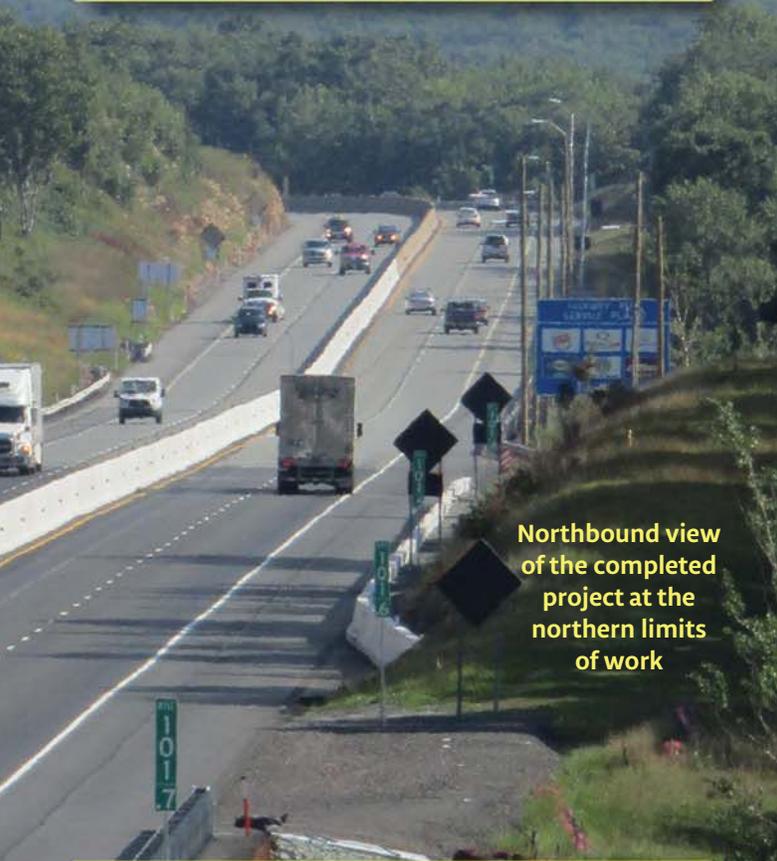
Reconstruction Solution – Northern NE Extension

Traffic projections on the northern section did not warrant the need to widen the Turnpike, so a different solution to reconstruct the pavement was necessary. Working closely with their traffic department, the PTC determined that, if planned properly, it could be possible to use long-term, single-lane patterns to reconstruct the pavement. In Luzerne County, between MP A-95 to A-105, minimal backlogs were projected during a normal week, with backlogs of one to two miles anticipated in the northbound lane on Friday evenings and in the southbound lane on Sunday evenings. Additionally, unidirectional backlogs of two to three miles during the Memorial Day and July Fourth holiday periods were expected. Backlogs were projected to approach five miles over the Labor Day holiday, so it was critical to develop a plan that restored two lanes in each direction prior to this holiday.

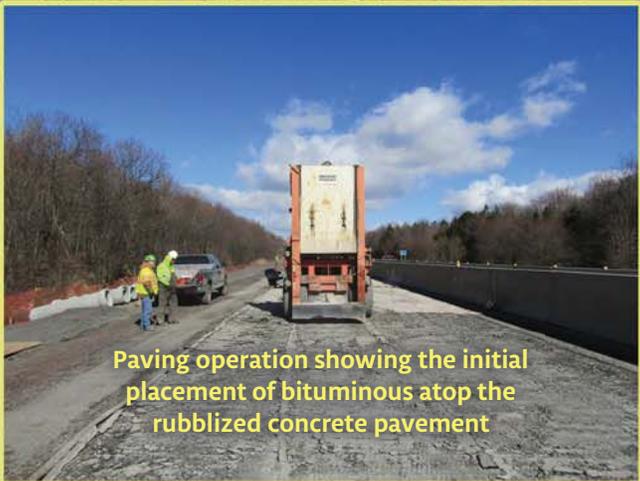
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Paving operations during Stage 2



Northbound view of the completed project at the northern limits of work



Paving operation showing the initial placement of bituminous atop the rubblized concrete pavement



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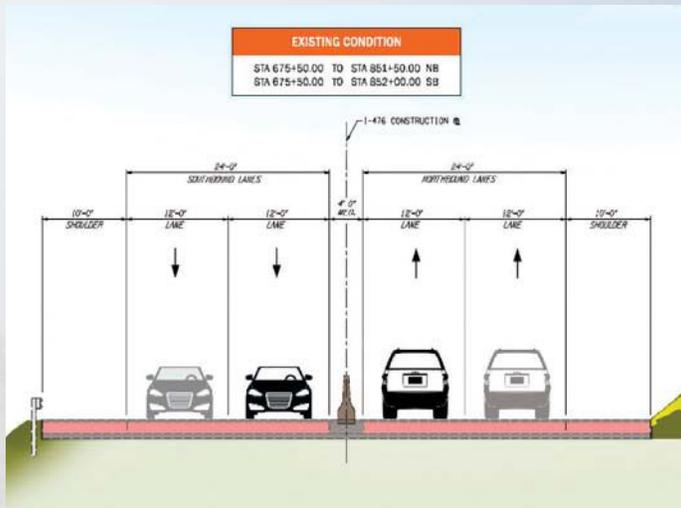
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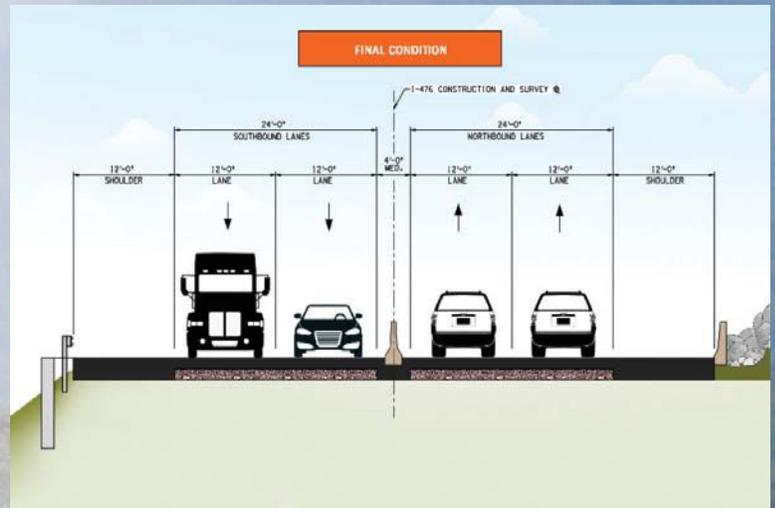
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Roadway Project Rehabilitates PA Turnpike Northeast Extension (I-476)

Mileposts A-101.30 to A-104.25 in Luzerne County (continued from page 12)



Typical Section showing the existing condition of the roadway.



Typical Section showing the final condition of the roadway.

A-101.30 to A-104.25 Roadway Rehabilitation Project

Borton-Lawson was retained by the Commission to prepare the design plans and specifications for the milestone project in Luzerne County. Utilizing an accelerated schedule with 24/7 shifts, the \$35.8 million project was constructed in three main stages over a 14-month period. For the first time in their history, the PTC utilized A+Bx bidding as a method to deliver the project to ensure the main stages of work (Stages two and three) would be completed prior to Labor Day 2016. The contractor had to bid a minimum of 141 days and no more than 166 calendar days to complete this work. The actual completion versus the calendar days bid would equate to an incentive or disincentive (via Road User Liquidated Damages) at a price of \$75,000 per day.

The first construction stage, which began in August 2015, rebuilt the existing NB shoulder and prepared the work area for major construction activities of Stages two and three. This work was completed under short-term, single-lane patterns that provided motorists all four lanes during weekends, holidays, special events and other periods of heavy traffic.

Stage two construction began March 14, 2016, and utilized long-term, single-lane traffic patterns via crossovers. NB traffic was shifted onto the previously rebuilt shoulder, while the SB traffic was shifted to the NB lanes through the work zone. A temporary concrete barrier with glare screen separated the NB and SB traffic while the SB lanes were reconstructed.

In Stage three, the long-term, single-lane crossover pattern was flipped to the rebuilt SB lanes, allowing crews to reconstruct the NB lanes.

New drainage systems, guiderail and 12-foot-wide paved shoulders were constructed on each side, and a new concrete median barrier with glare screen was installed between NB and SB lanes during the final stage of the project.

To reconstruct the roadway, the existing reinforced concrete pavement was broken into small pieces in a highway construction process known as rubblizing. The rubblized concrete was leveled, compacted and used as the base for the new bituminous pavement section. Rubblization greatly reduced the material required to be removed from the work area, lessening overall environmental impacts, and helped to accelerate the construction activities.

Successful Completion

Pikes Creek Site Contractors, the successful low bidder for the project, worked every day except for two rain days from March 14, 2016, to July 31, 2016, using two day crews and two night crews, 10- to 11-hour shifts, alternating four days on, then four days off. The submitted bid utilized the 166-day schedule, and a 25-day maximum incentive (\$1.875 million) was paid as Pikes Creek achieved four lanes being available to traffic on July 31, 2016.

The success of the project can be attributed to a collaborative effort between the PTC and Borton-Lawson during the design stage, as well as the dedication of the Commission's consultant construction management and construction inspection staff. The PTC has identified adjacent sections of the corridor for rehabilitation, and the A-101.30 to A-104.25 project has set the model for how these projects will be completed. 🇺🇸



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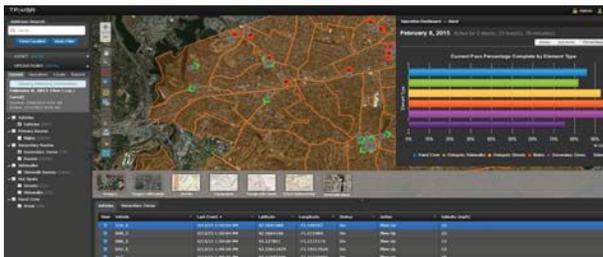
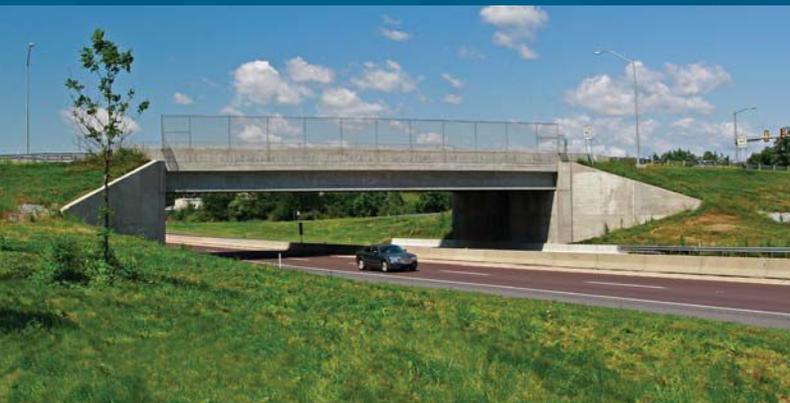
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New Directions *(continued from page 3)*

which is a great sign of a healthy organization. To best serve its members, every group needs individuals who are ready to step up and serve in leadership positions.

This is my last President's Message, and though a person often wants to say, "Whew! I'm glad that's over!" when something draws to a close, I have certainly not had that feeling. It has been a great year serving as your President, and I hope that I have made positive contributions to ASHE's continued growth and success. I have been able to meet with Sections all the way from Orlando, Florida, to Wilkes-Barre, Pennsylvania, and from Phoenix to the East Coast, learning about the different best practices for managing an ASHE Section, the story of ASHE's history, and even how to correctly pronounce ASHE (with and without the silent E). I have enjoyed your wonderful hospitality throughout my travels, and I have definitely made a lot of new friends along the way. If there is anything that I can do to assist you in the future, please let me know.

Again, I would like to thank you for the honor of allowing me to serve as your President for the past year. I look forward to seeing you in New York in June at the National Conference. It will be a great time on Broadway! 🇺🇸

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Replacing the SR 19 Scholars Run Bridge in West Central PA

(continued from page 11)

abutments were placed behind the existing stone masonry abutments to minimize the bridge span length and save construction costs. The existing abutments also serve as scour protection. A curb drain and exterior diaphragm supporting the downspouting were added to each side of the bridge, due to the vertical sag curve and the flat grade on the bridge to help remove anti-skid material and water. Safety edges were used along the roadway where applicable.

Dam Removal and Stream Bank Restoration

Michael Baker developed a dam removal and stream restoration plan for a dam that was located 250 feet downstream from the bridge, and for the improvement of the stream banks between the dam and the bridge. Stream bank improvements included the construction of rock vanes, the construction of bank roughness features that included live stake

plantings along the stream and the removal of jumbo blocks that lined the stream channel. The stream banks and immediate surrounding area were regraded to provide for vegetative improvements along the stream banks.

Community Participation

Due to the dam removal and the stream restoration, coordination with local community groups became part of the project. Local community groups offered to perform live stake plantings along the stream banks in the spring of 2017. This helped the groups to participate constructively in a PennDOT project.

Early Completion

The scheduled construction completion date was April 2, 2016. The final inspection was conducted November 23, 2015, more than four months earlier than anticipated. 🇺🇸



THE CROSSROADS OF THE WORLD INVITES YOU

ASHE NY METRO is proud to announce that we are hosting the 2017 ASHE National Conference this June in the heart of New York City. There has never been a better time to visit our city, which is among the premier destinations in the USA. New York is currently one of the most safest and most vibrant cities, not just in the U.S., but in the world.

As an ASHE member and conference attendee, you and your family will have a special opportunity to experience this great city as our guests. The ASHE NY Metro Section, as your hosts, are planning a once-in-a-lifetime opportunity for you to experience an inside look at our city's attractions and transportation infrastructure.



ACCOMMODATIONS AND ATTRACTIONS

The 2017 Conference will be held at the Sheraton New York Times Square Hotel. Located just north of Times Square proper, the Sheraton Hotel (at left) offers convenient access to all of Times Square without being in the midst of the crowds that the area is famous for. It is also convenient to public transportation for safe and efficient travel throughout the city.

Our guest tours include the world-famous Metropolitan Museum of Art and Museum of Modern Art, the NYC Transit Museum, Double Decker Bus Tour and Radio City Music Hall Art Deco Tour. In addition, there will be opportunities to visit Broadway shows, historical and cultural sites and many other places of interest independently or with a knowledgeable local guide.

PROFESSIONAL NETWORKING AND DEVELOPMENT

The 2017 Conference will offer the opportunities to network with ASHE members from all over the country as well as with other local professionals from our industry. With infrastructure concerns of more importance than ever nationwide, the conference will provide a timely opportunity to learn about high-profile projects underway and planned for the tri-state area of New York, New Jersey and Connecticut.

Networking opportunities will include our Ice Breaker Reception, Exhibitor Area during breakfast and breaks, Opening Session, Luncheon to Honor Past Presidents, Technical Presentations, Friday Night Broadway Extravaganza and the Saturday Night Cocktail Hour and Gala Banquet.

Our Technical Sessions will offer PDH and/or CEU credits. These sessions will include presentations about the New NY Bridge, Goethals Bridge P3 Replacement, East Side Coastal Resiliency and the complex BQE (Triple Cantilever) Rehabilitation Project. Technical tours will include the WTC 9/11 Memorial and Oculus, and LaGuardia Airport Redevelopment.





Conference Registration

	Registration on or before May 1, 2017	Registration After May 1, 2017
<input type="checkbox"/> ASHE Member	\$215	\$275
<input type="checkbox"/> Non-ASHE Member	\$235	\$300
<input type="checkbox"/> 1 Day Registration	\$145	\$160
<input type="checkbox"/> Government Rate	\$125	\$175
<input type="checkbox"/> Government Rate 1 Day	\$75	\$125
<input type="checkbox"/> Guest/Child 10 Years & Over	\$45	\$50
<input type="checkbox"/> Speaker	Complimentary	Complimentary
<input type="checkbox"/> Past National President	Complimentary	Complimentary
<input type="checkbox"/> National Board	Complimentary	Complimentary

Additional Costs **NOT** Included in Registration

Other Events

Day	Event	Price per Person
<input type="checkbox"/> Thursday	Golf Outing	\$200
<input type="checkbox"/> Friday	Luncheon Honoring Past Presidents	\$65
<input type="checkbox"/> Friday	Dinner and Broadway Review	\$75 Adults \$30 Child, under 16
<input type="checkbox"/> Saturday	Annual ASHE Banquet / Awards Gala Entertainment Party	\$95

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Please complete registration form online at www.2017conference.ashe.pro



Attendance and Activities Registration

Time	Event	Cost	Number Attending	Total
Wednesday, June 14, 2017				
2:00 pm - 7:00 pm	Registration	—	Use Registration Form	—
5:00 pm - 7:00 pm	Welcome Reception	Included	—	—
7:00 pm - 9:00 pm	Hospitality	Included	—	—
Thursday, June 15, 2017				
7:00 am - 5:00 pm	Registration	—	Use Registration Form	—
6:30 am - 4:30 pm	Golf Tournament	\$200	Use Golf Registration Form	—
8:00 am - 10:00 am	Breakfast - Hotel Registrants Only	Included		—
12:30 pm - 5:30 pm	Technical Tour - LaGuardia Airport Redevelopment	\$25		\$
1:00 pm - 5:00 pm	Guest Tour - Transit Museum	\$24		\$
2:00 pm - 4:00 pm	Guest Tour - Double Decker Bus Tour	\$30		\$
2:00 pm - 5:00 pm	Exhibitor Set-Up	—	—	—
5:00 pm - 9:00 pm	Ice Breaker Reception - Exhibits Open	Included	—	—
9:00 pm - 12:00 am	Hospitality	Included	—	—
Friday, June 16, 2017				
7:00 am - 5:00 pm	Registration	—	Use Registration Form	—
7:00 am - 12:00 pm	Exhibits Open	Included	—	—
7:00 am - 9:00 am	Breakfast - Hotel Registrants Only	Included		—
8:30 am - 10:00 am	Opening Session	Included	—	—
10:00 am - 10:30 am	Break	—	—	—
10:30 am - 11:30 am	Section / Region Meeting	Included	—	—
10:30 am - 2:00 pm	Guest Tour - Museum of Modern Art	\$34		\$
	Guest Tour - Metropolitan Museum of Art	\$45		\$
10:30 am - 11:30 am	Technical Sessions	—	—	—
	New NY Bridge	Included		—
	Connected Vehicles	Included		—
	Van Wyke Widening	Included		—
	Asset Management and Capital Planning	Included		—
11:30 am - 12:00 pm	Break	—	—	—

Please complete registration form online at www.2017conference.ashe.pro

Time	Event	Cost	Number Attending	Total
12:00 pm - 1:30 pm	Luncheon Honoring Past Presidents	\$65		\$
2:00 pm - 3:00 pm	Past Presidents Meeting	Included	Invitation Only	—
2:00 pm - 3:00 pm	Technical Sessions	—	—	—
	Goethals Bridge P3 Replacement	Included		—
	Ethics	Included		—
	East Side Coastal Resilience	Included		—
	I-295, I-76, Route 42 Direct Connect	Included		—
3:00 pm - 3:30 pm	Break	—	—	—
3:30 pm - 4:30 pm	Technical Sessions	—	—	—
	Brooklyn Queens Expressway Triple Cantilever	Included		—
	Business Develop. for Technical Professionals	Included		—
	Making Resilience Happen	Included		—
	Planning for the Future	Included		—
4:30 pm - 5:30 pm	Hospitality	Included	—	—
6:00 pm - 10:30 pm	Dinner and Broadway Review	Adult	\$75	
		Children Under 16	\$30	
10:30 pm - 12:00 am	Hospitality	Included	—	—
Saturday, June 17, 2017				
7:00 am - 9:30 am	Registration	—	Use Registration Form	—
7:00 am - 9:00 am	Breakfast - Hotel Registrants Only	Included		—
9:00 am - 11:00 am	Technical Tour - WTC 9/11 Memorial and Oculus	\$12		\$
9:00 am - 11:00 am	Guest Tour - WTC 9/11 Memorial and Oculus	\$12		\$
12:00 pm - 5:00 pm	Hospitality	Included	—	—
1:00 pm - 3:30 pm	Guest Tour - Radio City Music Hall Art Deco	\$27		\$
6:00 pm - 7:00 pm	President's Cocktail Hour Reception	Included	—	—
7:00 pm - 11:00 pm	Annual Banquet and Gala	\$95		\$
11:00 pm - 12:00 am	Hospitality	Included	—	—
Sunday, June 18, 2017				
7:00 am - 9:00 am	Breakfast - Hotel Registrants Only	Included		—
8:00 am - 12:00 pm	National Board Meeting	Included	Invitation Only	—
9:30 am - 11:00 am	Conference Debrief Meeting	Included	Invitation Only	—
12:00 pm	Checkout	—	—	—

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Sponsorship Levels

Includes Registrations

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- Golf Foursome
- Option to provide promotional materials in registration packets

PLATINUM - \$5,000

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- 2 Complimentary Sept 2017 – Sept 2018 dues for the NY Metro Section

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- 2 Conference Registrations
- 1 Complimentary Sept 2017 – Sept 2018 dues for the NY Metro Section

SILVER - \$2,000

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- 1 Conference Registration

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| <input type="checkbox"/> Welcome Reception/Ice Breaker Sponsor | \$4,000 |
| <input type="checkbox"/> Luncheon Honoring Past Presidents (includes 6 luncheon guests) | \$4,000 |
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| <input type="checkbox"/> Hospitality Suite Sponsor | \$1,500 |
| <input type="checkbox"/> Technical Session Break | \$1,000 |
| <input type="checkbox"/> Golf Outing Sponsor (includes one foursome at Golf Outing) | \$3,000 |
| <input type="checkbox"/> Golf Ball Sponsor | \$1,500 |
| <input type="checkbox"/> Golf Cart Sponsor | \$250 |
| <input type="checkbox"/> Golf Hole Sponsor | \$150 |

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- | | |
|--|----------------------|
| <input checked="" type="checkbox"/> Back Cover (Full Page) | SOLD! \$1,200 |
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| <input type="checkbox"/> Full Page | \$750 |
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| <input type="checkbox"/> Patron Sponsor Listing | \$50 |

To ensure your ad appears in the Program Book, we must receive your artwork by May 1, 2017.

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THANK YOU FOR YOUR SUPPORT!

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Golf Registration



North Hempstead Country Club
291 Port Washington Blvd, Port Washington, NY 11050
Thursday, June 15, 2017

Registration: 8:00 AM Shotgun Start: 9:00 AM

Registration Fees:

\$200 per Conference attendee

Format:

4-person teams with a rotating 2-man scramble
(detailed instructions will be provided)

Online Registration and Hole Sponsorships are available!

Please visit the conference website for more details: www.2017conference.ashe.pro

Please designate someone as your Team Captain for reference (Golfer #1 below).

If registering/paying here as an individual, please indicate the Team Captain you would like to play with: _____

<p>Golfer 1 - Team Captain</p> <p>Name: _____</p> <p>Company: _____</p> <p>Phone: _____</p> <p>Email: _____</p> <p>Transportation required: Yes / No</p> <p>Conference Attendee? Yes / No</p> <p>Payment covered by Sponsorship: Yes / No</p>	<p>Golfer 2</p> <p>Name: _____</p> <p>Company: _____</p> <p>Phone: _____</p> <p>Email: _____</p> <p>Transportation required: Yes / No</p> <p>Conference Attendee? Yes / No</p> <p>Payment covered by Sponsorship: Yes / No</p>
<p>Golfer 3</p> <p>Name: _____</p> <p>Company: _____</p> <p>Phone: _____</p> <p>Email: _____</p> <p>Transportation required: Yes / No</p> <p>Conference Attendee? Yes / No</p> <p>Payment covered by Sponsorship: Yes / No</p>	<p>Golfer 4</p> <p>Name: _____</p> <p>Company: _____</p> <p>Phone: _____</p> <p>Email: _____</p> <p>Transportation required: Yes / No</p> <p>Conference Attendee? Yes / No</p> <p>Payment covered by Sponsorship: Yes / No</p>

Number of golf registrations covered through Conference Sponsorship _____ x \$0 = \$ _____ 0

Number of golf registrations _____ x \$200 = \$ _____

Transfer Golf Subtotal to the conference Registration form

Golf Subtotal \$ _____

Golf

Tom Ruckel
truckel@hardesty-hanover.com
646.306.0071

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732.330.4443

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Golf club rentals are available directly through North Hempstead Country Club.
Breakfast and lunch are included at the country club.
Transportation will be provided from the hotel. Meet in the lobby of the hotel at 6:30 AM.
Bus will return to the hotel at 4:30 PM.

Cancellation Policy: ASHE reserves the right to cancel the golf outing if there is insufficient registration or for any other reason. ASHE is not responsible for cancellation charges assessed by the golf club or other losses incurred due to programs and/or other events being canceled. See the conference website or registration form for details on the cancellation policy.

Please complete registration form online at www.2017conference.ashe.pro



Exhibitor Registration

Exhibitor Times

**Thursday, June 15, 2017, 5:00 pm - 9:00 pm and
Friday, June 16, 2017, 7:00 am - 12:00 pm**

We are now making exhibit spaces available. With your commitment of \$1,200 you will receive:

- 10' x 10' pipe and drape booth with 6' skirted table, 2 chairs and a standard head sign bearing your company's name
- 2 free conference registrations
- Program listing
- Company listing on conference website

Booth availability is limited, so show your support for ASHE and generate interest in your company!

Call one of our Exhibits Committee members TODAY to reserve a booth:

Anthony Grosso
agrosso@gpinet.com
347.242.6442

Robert Milliken
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For additional information regarding sponsorship and registration information please contact
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For up to date exhibit booth availability and more conference details, please consult our website at
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Please complete the information below to confirm your exhibit space.

Name _____

Company _____

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Booth Selection 1 _____ Selection 2 _____ Selection 3 _____

Final Booth number will be confirmed via email and updated on the floor plan on the website.

Please send electronic invoice for payment

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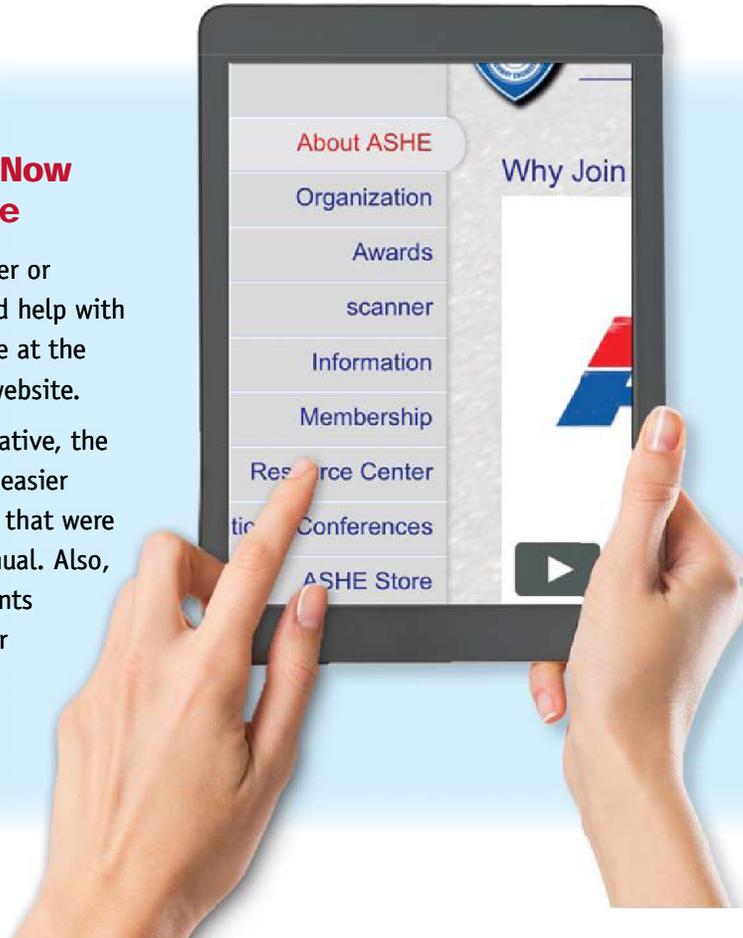


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Are you a National, Region or Section officer or director in search of a form, or do you need help with an ASHE procedure? You can find assistance at the Resource Center on the ashe.pro national website.

In response to an ASHE strategic plan initiative, the Resource Center was created to provide an easier way to find guidance documents and forms that were formerly found in the ASHE Operations Manual. Also, as part of this initiative, all of the documents and forms contained in the Resource Center were updated in accordance with current operating procedures.



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When the Army Corps of Engineers constructed central North Dakota's Garrison Dam in 1953, the flooding of the Missouri River resulted in the creation of Lake Sakakawea. At that time, the Highway 8 Missouri River Bridge near Twin Buttes, ND, was removed, separating the Three Tribes' reservation into five segments and disrupting their Native American community. The Four Bears Bridge at New Town provides the only Missouri River crossing on the reservation, a major disadvantage for people who need to travel to jobs, schools, health care facilities and other destinations.

To help alleviate this problem, the Rural Economic Area Partnership Investment Fund, Inc., received a Rural Business Opportunity Grant from the United States Department of Agriculture Rural Development program to study the feasibility of a car ferry system that would operate on Lake Sakakawea. A car ferry is a ship designed to transport cars and people across a body of water. Statistics show that there are 264 car ferry operators in the United States carrying nearly 103 million passengers and over 37 million vehicles a year, according to the 2010 United State census. One example of this type

Floating the Feasibility of a Car Ferry on Lake Sakakawea, ND

by Bob Youness, PE, Ulteig Engineers,
ASHE Central Dakota Section

of transportation is the Keller Ferry (shown on front cover) in eastern Washington State, which crosses the Columbia River at its confluence with the Sanpoil River on Roosevelt Lake. Approximately 60,000 vehicles per year use this ferry, and without it, traffic would be detoured for 58 miles each way. Another example is the Gifford-Inchelium Ferry (shown below.)



The Gifford-Inchelium Ferry, operated by the Colville Confederated Tribes, is another example of a car ferry. It transports 227 cars per day across Lake Roosevelt on the upper Columbia River in Washington State, connecting the town of Inchelium to SR 25 across the river.

The Gifford-Inchelium Ferry



An alternative to the car ferry over Lake Sakakawea would be the establishment of a four-mile-long bridge (left) crossing the lake at the proposed location of the car ferry crossing. The estimated cost of such a bridge would exceed \$500,000,000. In comparison, a car ferry at this location would incur considerably less expense; car ferry construction costs are based on several factors, such as the capacity to carry (for example) 14 cars and 30 passengers, at a ship speed of about 20 knots, along with consideration of lake conditions (such as wave height). This vessel could cost \$3.8 to \$6.8 million.

Cost of the terminal facilities would include land side and water side improvements. In regard to a dock for the car ferry, Lake Sakakawea water elevation fluctuates 52 feet during the season when the car ferry would be operating. A 1,000-foot-long paved ramp sloping 6.5 percent would accommodate the changes in elevation and provide a hard surface for loading and unloading vehicles. A floating deck end section on rails would provide the transition between the ferry and the paved surface. The paved ramp and floating dock could cost about \$600,000. The terminal facilities and dock are estimated at \$2,687,000.

Additional Variable Costs for the Lake Sakakawea Car Ferry

The list of potential variable costs to this project could include the following:

Land acquisition (10 to 20 acres per site).....	(\$50,000 to \$250,000)
Road and Utility Right of way	(\$50,000 to \$290,000)
Permit costs	(\$10,000 to \$100,000)
Environmental Impact Statements, historical and archeological study	(\$90,000 to \$180,000)
Design cost (include survey and geotechnical work).....	(\$300,000 to \$400,000)
Construction observation and testing.....	(\$200,000 to \$300,000)
Legal and administrative costs	(\$200,000 to \$400,000)
Interest on borrowed money.....	(\$100,000 to \$200,000)
Access roads interconnecting with the State Highway (by others).....	(\$500,000 to \$1,500,000)

Projected Revenue Income

The estimated revenue stream is based on:

- 90 ferry passengers per day @ \$10 each (260 days per year)
- 84 automobiles per day @ \$24 each (260 days per year)

Projected annual revenues generated from the estimated usage and rates identified would be \$760,000 for the Lake Sakakawea Car Ferry.

Operating Costs

The ferry service’s operating costs would include labor and overhead, fuel and oil consumption, maintenance of boat machinery, hull and outfit, maintenance of the terminals, moorage, insurance, management and administration and overhead, with total annual operating costs estimated at \$716,000.

Comparing projected revenue and operating costs, there would be a surplus annual revenue of \$44,000. Increased ridership would also increase revenue without increasing operating costs.

Car Ferry Total Project Capital Cost

A car ferry crossing Lake Sakakawea at a location near old ND 8 highway appears to be a cost-feasible solution at an estimated project cost of \$11.8 to \$19.6 million.



The feasibility study also included a water taxi service as an additional option for public transportation across Lake Sakakawea.

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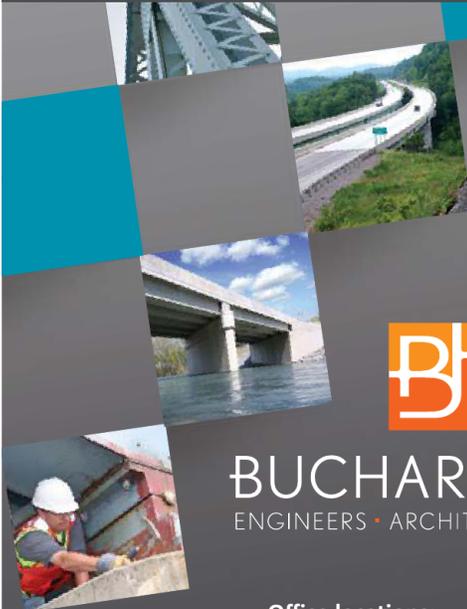
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Floating the Feasibility of a Car Ferry on Lake Sakakawea, ND

(continued from page 29)

Table of Project Capital Costs – Car Ferry and Two Terminals

Item No.	Description	Low Estimate Cost	High Estimate Cost	Average Estimated Costs
1	14 -Car Ferry Capital Cost	\$3,980,000	\$8,198,000	\$6,089,000
2	Primary South Terminal	\$2,687,000	\$2,967,000	\$2,827,000
3	Primary North Terminal	\$2,247,000	\$2,547,000	\$2,397,000
4	Variable Costs South Terminal	\$1,500,000	\$3,620,000	\$2,560,000
5	Variable Costs North Terminal	\$1,500,000	\$3,620,000	\$2,560,000
	Total Project Capital Costs	\$11,914,000	\$20,952,000	\$16,433,000

The above line item 1 estimate is based on the car ferry designed to a capacity of 14 cars and 30 passengers. If car ferry capacity increases to 24 cars and 60 passengers, the project costs would increase to \$4,500,000.

Grants to Support Ferry Service

The Federal Highway Administration could provide up to 80 percent matching funds through a Ferry funding program. These grant programs would need to be administered through the North Dakota Department of Transportation as the sponsoring agency.

Conclusion

The car ferry service at Lake Sakakawea could operate above a break-even scenario. Grants are needed for 80 percent of the capital improvement costs. The stakeholders would need to support the project with 20 percent matching funds.

- 1. Grant contribution \$ 13,146,400
- 2. Stakeholder contribution \$ 3,286,600
- Total cost of capital improvements \$16,433,000



Lake Sakakawea State Park Marina



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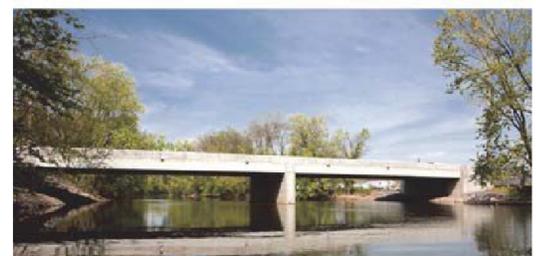


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Reconstructing I-40's Exit 407: A Gem of a Diverging Diamond Interchange for the Gateway to the Smokies

by Jonathan D. Haycraft, PE, ENV SP,
Gresham, Smith and Partners,
ASHE Middle Tennessee Section

The I-40 interchange at SR 66 in Sevierville, Tennessee (Exit 407), was a partial cloverleaf interchange that had performed poorly for many years due to an insufficient number of lanes and other geometric deficiencies. This interchange in east Tennessee is known as the gateway to the Great Smoky Mountains National Park. The Tennessee Department of Transportation (TDOT) selected Gresham, Smith and Partners to provide design services for the reconstruction of the interchange to a



Westbound Intersection



Eastbound Intersection

diverging diamond interchange (DDI). TDOT's primary goals were to accommodate the high volumes of traffic that are present (particularly tourism-related traffic) and improve the interchange's safety, while minimizing disruptions to traffic operations during construction.

When construction began, there was only one DDI in Tennessee and less than two dozen DDIs across the United States. However, none of these existing DDIs were located at such a nationally significant location. The Great Smoky Mountains National Park is the most visited national park in the country, with approximately 10 million visitors a year.

A standard diamond interchange was first investigated, but was eliminated because it would have necessitated constructing 10 lanes along SR 66 over the interstate along with replacing the interchange's existing bridges. This would have increased the cost and made maintaining traffic during construction difficult. The required roadway width would have necessitated costly right-of-way acquisitions, creating project delays.

A DDI was determined to be the appropriate design solution for the location based on its ability to accommodate the high left-turning volumes that are present. It could also reduce the number of conflict points at the intersections within the interchange, reduce signal phases that cost capacity and minimize the number of lanes required between interchange ramp intersections. And it could allow the existing bridges to be maintained for use in the DDI.

Informing the Public

The project team developed a comprehensive public information program to demonstrate to local motorists and tourists how the DDI interchange would work. As part of this public outreach, video simulations were developed and presented at local events and on websites and television newscasts.

Utilizing Existing Bridges

To increase capacity, pavement markings were redesigned on the existing two-lane bridges to reduce the width of the lanes and shoulders and add a third lane to each bridge. Using these existing bridges significantly lessened the duration

of construction time from a typical 24-month duration associated with new bridge construction to just nine months, resulting in significant cost savings, reduced traffic delays due to construction and reduction of the project's overall economic impact to one of the most popular tourist destinations in the country.

Public Safety

Improved safety was one of the key considerations in choosing the DDI configuration. Conventional diamond interchanges have 26 conflict points, and DDIs have 14, leading to less crash risk. The Crash Modification Factors Clearinghouse reports crash reduction factors ranging from 35 percent to 72 percent when diamond interchanges are converted to DDIs. Also contributing to a safer interchange, capacity was added to the off-ramps to prevent vehicles from queuing onto I-40.

Schedule and Teamwork

Due to the urgent need for improvements, TDOT set a deadline of six months to complete the design of the project, which would typically take a standard roadway design team of two to six people 18 to 24 months to complete. To meet the fast-track schedule, a design team of 20 staff members from three different office locations was assembled. The design plans were completed ahead of schedule, under budget and required no impacts to utilities or acquisition of right-of-way. More significantly, construction of the project was completed two weeks ahead of schedule, with no significant delays to motorists and no reported crashes.

(continued on page 34)

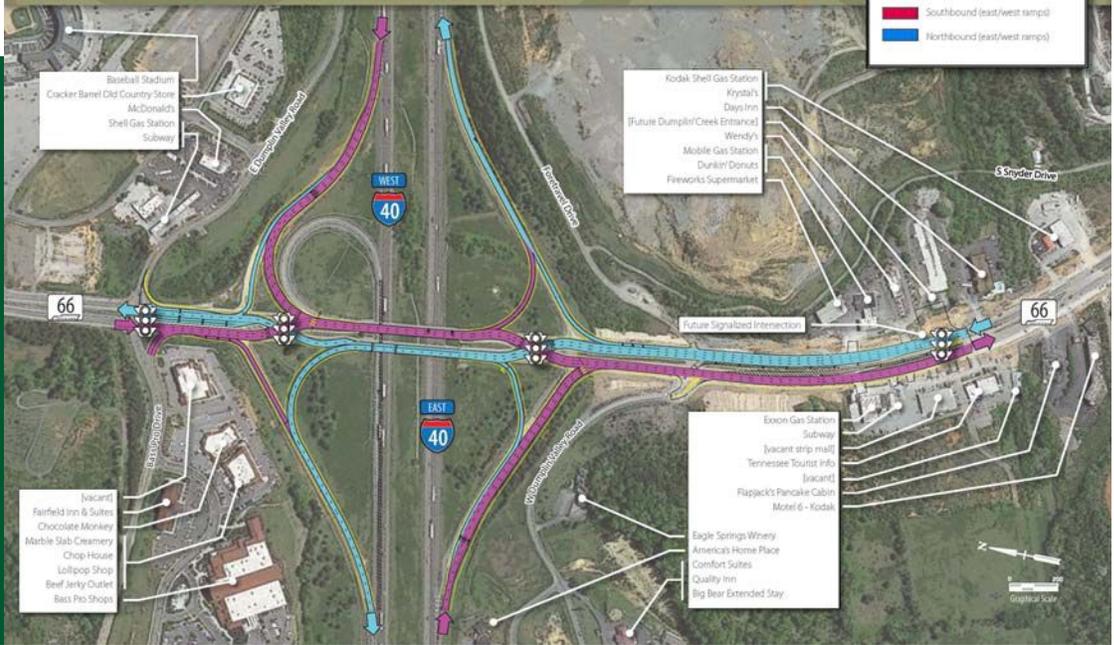


LEGEND

- Southbound (east/west ramps)
- Northbound (east/west ramps)

Reconstructing I-40's Exit 407: A Gem of a Diverging Diamond Interchange for the Gateway to the Smokies

(continued from page 33)



Communication Is Key

During the design development process, the design team worked closely with TDOT's Structures and Roadway Design Divisions, as well as their utility coordination, geotechnical, traffic and Intelligent Transportation Systems (ITS) groups. This regular interaction played a vital role in delivering the project ahead of schedule and under budget.

Fredrick Miller, PE, assistant director of TDOT's Roadway Design Division, commented: "TDOT is always looking for innovative and cost-effective ways to improve our transportation system. The DDI design provided an efficient solution to the congestion issues at the Exit 407 interchange."

Smart Work Zone

During construction, the project team employed Smart Work Zone Systems to disseminate real-time road conditions to motorists, such as traffic delays, average speed and estimated travel times. This vital information was displayed on dynamic message signs located at each interchange just before Exit 407 to give motorists up-to-the-minute

information on traffic conditions and the opportunity to choose an alternative route based on those conditions. Through this innovative application of ITS technology—a first for a construction zone in Tennessee—no significant crashes were reported in the work zone during the construction period.

Future Benefits

When design work began in 2013, there were still questions about the safety and effectiveness of the DDI's unique crossover design. Opened to the public in 2015, the I-40 at SR 66 DDI serves as a case study for future projects of its type, demonstrating how significant volumes of traffic can move quickly and safely through a DDI configuration. 🇺🇸



Aerial of completed project

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New York Metro	86
North Central New Jersey	166
North East Penn	131
Pittsburgh	559
Southern New Jersey	97
Southwest Penn	275
Williamsport	128
Subtotal	3,220

Mid-Atlantic Region

Blue Ridge	76
Carolina Piedmont	65
Carolina Triangle	244
Chesapeake	244
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Old Dominion	95
Potomac	239
Subtotal	1,124

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Northwest Ohio	38
Triko Valley	182
Subtotal	752

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