ASHE SCANNER

Summer 2011

www.highwayengineers.org

ASHE National PIN Chair Caroline Duffy and ASHE Great Lakes Region President, Frank Bronzo, attend the House Transportation and Infrastructure Committee Hearing in Columbus, OH.

ASHE Political Interest Network (PIN) at Work

The ASHE Political Interest Network (PIN) condensed suggestions from the national membership into a two page ASHE Position Paper. The ASHE Position Paper was presented to Rep. John Mica (R-Fla.), Chairman of the House Transportation and Infrastructure Committee and the four other members of the House in attendance at the meeting held in Columbus, Ohio in February for inclusion into the Congressional Record.

Chairman Mica and members of the Committee held meetings in 14 different cities across the country.

Chairman Mica requested information to aid the House Transportation and Infrastructure Committee in formulating the next six-year bill in the following categories:

- *How to consolidate and improve the performance of programs;*
- *How the government can cut red tape and streamline the project delivery process;*
- *How to increase private sector investment in our infrastructure;*
- *How to identify creative financing alternatives;*
- *Other ideas for writing the legislation.*

Many points testified to by a panel of eight experts from the Ohio area were already included in the ASHE Position Paper. (See page 16 for a copy of the Position Paper.)

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President's Message

Calvin W. Leggett, P. E. ASHE President 2011-2012

I am extremely grateful to the ASHE membership for the opportunity to serve as your President for the upcoming year. The transportation industry faces special challenges during the current recessionary environment. Our industry, largely built on a user pays philosophy, has seen its revenue base erode. Political support for and investment in an improved transportation system is imperative for the continued well being of our economy. ASHE should play an important role in sharing this message.

I have been a member of the Carolina Triangle Section since 1992. During almost 20 years as an ASHE member, I have served as a Committee Chair, President, First and Second Vice-President of my Section, worked on the 1999 National Conference, served as a National Regional Director and as President of the former Region 8. On the National Board, I have served as Chair of the Constitution and Bylaws and Legislative Affairs Committees. Serving on the Legislative Affairs Committee, I initiated direct communication with a number of ASHE members in over 30 Sections. I will continue to use the internet to create dialog between the National Officers and our ASHE membership. I have consistently found that the more I put into ASHE at every level, the more I get out of it.

For 33 years I have been a Transportation Engineer with the North Carolina Department of Transportation where I serve as a Branch Manager responsible for budgeting and scheduling major projects, conducting special and feasibility studies and developing the State Transportation Improvement Program. My DOT career has allowed me to engage in virtually all aspects of highway construction. I also worked for the City of Raleigh for three years where I gained experience in Transit Management and Traffic Engineering work. My policy work at the state and federal level has made me keenly aware of the need to build political consensus for transportation initiatives.

My major goal areas for the upcoming year are to:

Increase the Visibility of ASHE - We must provide great programs and be walking billboards for the organization to allow our Sections to grow and prosper. How many of our co-workers do not know about ASHE, or are just waiting for an invitation to a meeting? We need to bring them on board. My challenge to the membership this year is for us all to be ASHE ambassadors. Wear something ASHE to work; drink from an ASHE coffee mug in the office (as I do); wear an ASHE ball cap to games; be ready to talk about the benefits of ASHE membership when asked. The ASHE Company Store has many such items that can be purchased.

Communicate With and Better Serve the Membership - Our website continues to improve. Our new on-line membership database will allow individuals to update their contact information, improve communications and make it much easier for National and Section Secretaries to keep up with members. We are partnering with many other entities involved in transportatio to leverage our impact on the national scene. You will hear of new partnership agreements in the future that aim to not only increase our national exposure, but also to help each of you in making connections and building new relationships. Communication improvements will continue to be made both through the website and other uses of the internet.

Update the Strategic Plan - The Strategic Plan has been critical to our reorganization efforts and growth. It has set long term goals and short term action plans to allow movement toward those goals. The plan has set three year update cycles. Your Board, along with the Strategic Planning Committee, will be updating that work early in 2012. By this time next year we will have an updated plan to share with you. As we try to insure adequate Regional representation through the transition period of expansion, the number of National Board Members representing each Region may fluctuate.

Continue Our Efforts Toward Growth - Efforts continue to encourage growth in existing Sections and to create new Sections. We are in the early stages of reorganization to a truly National Society. Our New Sections Committee is working from the Atlantic to the Pacific to foster new Section development. Many areas of our country are without ASHE Sections. If you have industry contacts in a likely area for a new Section, please let us know. With your support and assistance, the new Sections Committee and National Board can spread the benefits of ASHE to the Highway Industry nationwide.

ASHE makes a significant contribution to the future of the transportation industry. Since ASHE first began awarding scholarships, sections have cumulatively given over $1,000,000 in scholarships to students across the country. This is truly a great achievement, and when combined with the growth in ASHE Student Chapters we are setting the stage for a solid future both for the organization and our industry. Thanks to years of outstanding leadership, I am taking over an organization that is solid and healthy. We have over 6100 members in 16 states and have added Sections in two new states (Arizona and Indiana) in the past two years. The fundamental reason for the health of our organization is that we truly add value to our membership. With our low dues and meeting expenses, we are the perfect recession organization to join!

I look forward to meeting you and working together to be sure that political leaders and citizens of this country understand how critical mobility is to the economy and our cherished way of life.

Eastern Avenue Bridge Reconstruction Over Kenilworth Avenue, N.E.

Simon Simon, P.E., Michael Chamberland, P.E., Charlee Hardy, Jen Queen, Greenhorne & O'Mara
Contributors: Stacy Stone, P.E., Greenhorne & O'Mara and Roger Carriker, P.E., ASHE Chesapeake Section

This project involved reconstruction of the Eastern Avenue bridge over Kenilworth Avenue in northeast Washington, D.C. The minimum vertical clearance of the existing bridge was 14′0″± along Kenilworth Avenue. The existing bridge was struck several times since being constructed in 1956 and the bridge superstructure was in poor condition.

The crossing is an important link for pedestrians and vehicles between the communities of northeast Washington, D.C. divided by Kenilworth Avenue (I-295) and an important truck turnaround for the industrial sites in the area.

The District Department of Transportation (DDOT), with Greenhorne & O'Mara, Inc. as the design consultant, reconstructed the existing bridge to provide adequate vertical clearance along with improved safety for pedestrians and vehicles. The new bridge serves as a gateway structure for motorists traveling into Washington, D.C. from Maryland.

Constraints required an innovative design approach and the latest in accelerated construction methods. The profile of Kenilworth Avenue below the bridge could not be lowered due to the traffic impacts this would cause along a major commuter route into Washington, D.C. The service roads adjacent to the bridge could not be significantly raised due to the adjacent neighborhoods and businesses. Because of these two constraints, the existing single span bridge was replaced with a two-span bridge supported on the reconstructed abutments and a new pier in the Kenilworth Avenue median to increase the vertical clearance by reducing the superstructure depth.

With Kenilworth Avenue a major commuter route, through traffic had to be maintained while minimizing the construction duration and impact. The MOT scheme allowed full closure of the bridge during construction while maintaining all lanes of Kenilworth through the work zone during peak hours. Prefabricated pier columns and superstructure units were used to minimize the construction duration and traffic impact. Using prefabrication, Greenhorne & O'Mara, Inc. was able to obtain a $1,000,000 construction grant for DDOT from the Federal Highway Administration's Highways for Life Program which encourages state transportation departments to utilize accelerated construction methods in their projects.

The pier footing and combined median barrier/lower pier column were castinplace. This castinplace portion provided a temporary support for the prefabricated pier columns during erection and casting of the reinforced closure pours which tied the footing and columns. After the closure pours had cured, the prefabricated superstructure units (consisting of two W16×100 rolled steel beams supporting a 9′0″wide by 7½″ thick lightweight concrete deck) were erected during nighttime operations. Erection of

"Eastern" continued p. 32

Existing superstructure demolition

Installed prefabricated pier columns

Cleveland OH I-90 Innerbelt Bridge

The Ohio Department of Transportation (ODOT) has undertaken the single largest project in state history – construction of a new, $287.4 million westbound I-90 Innerbelt Bridge. The massive new "delta-frame" steel structure will rise about 120 feet over the Cuyahoga River Valley at its highest point and will be 4,247 feet long.

Construction of the new bridge and associated work is the first in a series of projects to rebuild Cleveland's Innerbelt Corridor – a tangled and oft-congested series of intersecting roadways including Interstates 71, 77, 90 and 490.

"The westbound bridge project is a critical first-step in the intelligent renewal of Cleveland's transportation infrastructure," said ODOT's Project Manager Craig Hebebrand, P.E.

Following construction of the first (westbound) bridge just to the north of the existing bridge, ODOT will demolish the existing non-load path redundant steel truss bridge and construct a second (eastbound) bridge. The new westbound bridge will temporarily accommodate six lanes of two-way traffic while the new eastbound bridge is being constructed. Once the second bridge has been completed, each of the bridges will accommodate five lanes of one-way traffic.

In September 2010, the bridge project was awarded to Walsh Construction and designer HNTB Ohio Inc. The project was the first value-based design-build project awarded by ODOT. The team will complete substantial construction of the new westbound bridge during the fall of 2013 – nearly a year earlier than originally anticipated.

In addition to the main structure over the river valley, the westbound bridge project includes the construction of five new bridges and the replacement of the bridge decks on 11 other bridges; the replacement of three service interchange ramps; and the permanent closure and removal of two redundant system ramps. The project will also replace the bulkheads along the Cuyahoga River with "green" bulkheads that incorporate habitat pockets.

The project calls for substantial earthwork and grading to stabilize the river's west bank. About 300,000 cubic yards of earth – or about 20,000 truckloads – will be moved as part of the project.

The piling for the foundations of the new westbound Interstate 90 bridge will extend some 200 feet into the bedrock below. "Typical foundations for bridge construction in our area go about 100 feet," said ODOT Deputy Project Manager Thomas Hyland, P.E. "But this is a unique situation because of where the bridge sits adjacent to the Cuyahoga River."

The project will include 114,000 linear feet of piling in total. Crews will drive 390 piles for the westbound bridge alone. Drilled shafts closest to the river's edge will include 2700 linear feet of caissons, 7'6" in diameter.

Construction of the new westbound bridge and adjacent work will include some 40,000,000 pounds of new structural steel, 11,250,000 pounds of reinforcing steel and 70,000 cubic yards of structural concrete – that's enough concrete to fill more than 7000 trucks.

As a part of the contract, the design-build team worked with the local community and the City of Cleveland's Design Review Committee and City Planning Commission to develop and select the final aesthetic treatments – including an LED lighting system capable of illuminating the superstructure in 256 different colors.

For more information on this project, visit www.Innerbelt.org.

Access to DuBois Regional Medical Center Improved

Marla Fannin, Press Officer, PennDOT District 2
Ryan Gargan,P.E., URS Corporation

PennDOT Realigns Hospital Avenue/ Dixon Avenue/ South Main Street

Few things carry more importance to a community than issues associated with quality of life. Quality of life is impacted and graded on many variables, including the health of the residents in the area.

In 1985, the Maple Avenue Hospital in DuBois, PA, merged with the DuBois Hospital to become the DuBois Regional Medical Center (DRMC) and discussion about improving access at the DRMC West location (and improving access to quality health care) began.

For over two decades, area residents would meet both formally and at kitchen tables to discuss how to move the project forward, where to find the needed funds, and what the finished project might look like. As the new century began, plans started to come together and input from neighborhood residents and DRMC employees was given high priority throughout the project design and construction.

The Hospital Avenue Realignment Project included realignment of Hospital Avenue/Dixon Avenue and South Main Street in the City of DuBois and Sandy Township, Clearfield County, Pennsylvania. The following situations all played roles in making the project necessary - average daily traffic exceeding 9,000 vehicles per day; tight turning radius at South Main Street and Hospital Avenue; miss-aligned/ offset intersection of Dixon Avenue/South Main Street and Hospital Avenue; difficulty in making a left-turn, due to high traffic volumes, from Hospital Avenue; and the adjacent location of the DuBois Central Catholic Junior/Senior High School.

DRMC is one of the largest employers in the area, with both patient and employee traffic contributing to congestion and to the potential for crashes within the corridor. In March and June of 2007, PennDOT held public meetings to allow residents and DRMC employees an opportunity to provide input into the development of the project design. PennDOT staff attended, led by Design Project Manager Dean Ball, along with representatives from design consultant URS, and leaders from DRMC. Many ideas, opinions, suggestions and concerns were garnered through these public meetings.

With public input, expertise from PennDOT, URS, and North Central Pennsylvania Regional Planning and Development Commission, the project alternative was selected and finalized. The Department began moving toward property acquisitions and awarding of the construction project. Property was also donated by DRMC—a clear signal of DRMC's commitment to the project.

In order to create a new "plus" intersection, Hospital Avenue was relocated west along South Main Street (toward existing Dixon Avenue) and Dixon Avenue was relocated east along South Main Street (toward existing Hospital Avenue). South Main Street remained at its existing location. All four approaches to the intersection were widened to three lanes, two lanes entering the intersection, including an exclusive left turn lane, and one lane leaving the intersection.

At the newly realigned intersection, a four-way traffic signal with pedestrian facilities was provided. The intersection realignment, along with the new traffic signal, provided relief to a congested area and created a safer environment for vehicular and pedestrian travel.

On the east side of DRMC, Grove Avenue provides access to the emergency room, heli-pad for life support transport, doctor/employee parking lot and delivery docks. During the design phase it was decided to improve access to the delivery area and allow for easier flow of emergency vehicle traffic to and from the emergency room entrance. To address that concern, the project included widening Grove Avenue from its narrow typical section to a three lane section from South Main Street to Prospect Street.

Other aspects of the project included reconstruction of Dixon Avenue and South Main Street Extension, upgrading pedestrian facilities to meet the new ADA regulations, new drainage and storm water management facilities, providing a cul-de-sac on Miller Avenue and raising the profile of Prospect Street to tie to the relocated Hospital Avenue. In addition, access to the DRMC parking lots adjacent to Hospital Avenue was provided via existing Prospect Street and Grove Avenue, as well as a connection from the realigned Hospital Avenue.

The project was bid in October 2009 and became PennDOT District 2-0's first experience working with the project contractor, S.E.T. of Lowellville, Ohio. Assistant Construction Engineer Dean Josephson led the December 2009 pre-construction conference. It was reaffirmed at that meeting that communication with the public was essential. With DRMC providing health care to so many residents in the local and extended areas, keeping access to DRMC as clear as possible was vital throughout construction of the project.

Prior to the project beginning, PennDOT press staff met with DRMC staff and other interested parties to develop a media and non-media distribution list. Non-media partners included regional EMA organizations, Sandy Township, City of DuBois staff, DuBois area School District, Pennsylvania State Police, area transportation providers, area legislators, other PennDOT districts, and the local Chamber of Commerce. The communication goal was to keep traffic flowing as efficiently as possible during construction by providing up-to-date construction information.

PennDOT's District press office issued weekly releases each Thursday so DRMC staff, emergency caregivers, patients, and the public at large would know what was coming up on the project the next week. Updates also detailed delays or challenges motorists might encounter as they drove through the work zone. To further ensure that this information was shared, DRMC Public Relations staff shared those updates with all DRMC employees.

PennDOT construction inspector Brian Brosius and S.E.T. Superintendant Scott Rodgers kept the project on schedule and provided timely information to PennDOT's press office so that weekly updates were provided as promised. Brian and Scott were also quick to respond to customer issues and concerns in the field. Overall, the project had few customer complaints that elevated past the on-site level. There were no instances of emergency vehicles not having access to DRMC.

In January 2010, PennDOT held an outdoor groundbreaking ceremony near the old intersection of South Main Street/Dixon Avenue/Hospital Avenue. From January into December, PennDOT issued weekly updates to keep the public informed of the progress on the project. With most work complete late in the year, PennDOT held a December indoor ribbon cutting to celebrate the completion of the project. Appropriately, the ribbon cutting took place in the DRMC lobby.

Although completion of this project was a long-time coming, it was well worth the wait according to facility users. Vehicular and pedestrian access to and from DRMC is greatly improved and traffic flows through the area in a more safe and efficient manner.

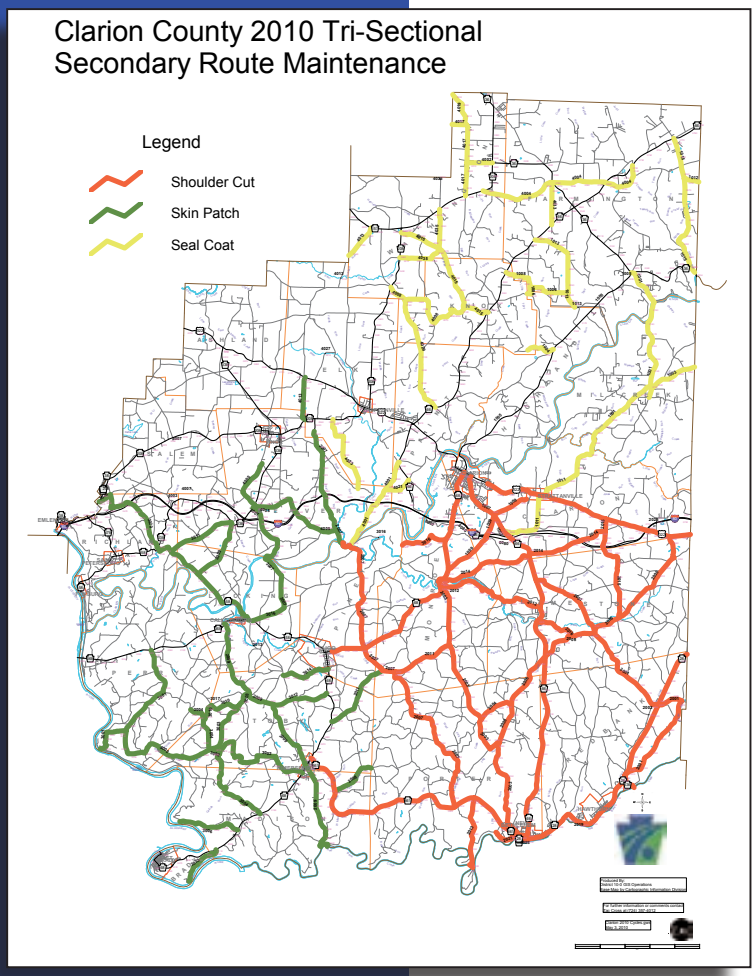
The DRMC complex includes physical therapy, the Hahne Cancer Center, the main hospital, doctor's offices, the heart center, and other facilities. Patients and families from a 15-county region who count on this facility daily for health care benefit from this transportation improvement project.

Sectional Cycle Maintenance

George McAuley, PE
Assistant District Engineer, Design, PennDOT District 10-0

Budgets are tight everywhere. Highway departments across the country are searching for new tools and management methods to preserve their aging infrastructure as efficiently as possible. The quality and cost effectiveness of maintenance strategies are more crucial than ever before.

Many operations are typically planned in a cyclical fashion - cleaning and replacing drainage, maintaining shoulders and shoulder back-up and applying surface treatments. Paving is a luxury of late, particularly on secondary routes. Every dollar saved in every operation is needed to hold these routes together.



PennDOT Engineering District 10-0 in Indiana, Pennsylvania, has been applying a technique that reduces the cost of their regular cyclical maintenance activities. They have coined it Sectional Cycle Maintenance.

District 10-0 is the smallest Engineering District in Pennsylvania and predominately rural. It encompasses a population of just under ½ million residents in a 3,500 square mile land area and contains 3,184 miles of state owned highways. Of these roadway miles, 2,047 carry a traffic volume less than 2,000 Average Daily Traffic (ADT). The District's roadway construction dollar focus has primarily been on their major routes, from interstates down through their higher volume traffic routes. The large secondary system has been held together with regular seal coat applications. Clarion County, the smallest of the five District 10-0 counties with the smallest maintenance budget available for roadway improvements, was the first to apply Sectional Cycle Maintenance to their major preservation efforts.

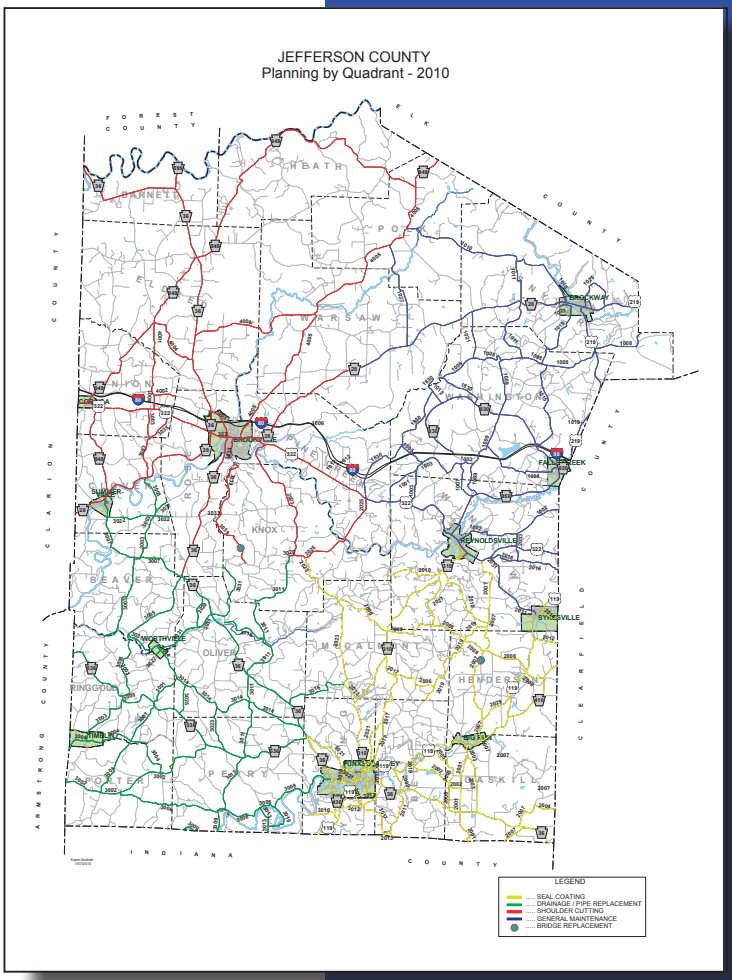
Sectional Cycle Maintenance involves dividing the county's seal coat network, the secondary system, into approximately equal geographic sections. The seal coat program is performed in just one of these geographic sections annually. The work is planned to minimize the mobilization of the people and equipment throughout this set of roadways. The crew can concentrate on quality of work and be productive, losing little time mobilizing from one route to the next. The operation rarely needs a lowboy truck and trailer to transport equipment from site to site.

Clarion started by dividing the county into three sections. Two years before the seal coat crew gets to a section, crews work to clean pipes and tail ditches, replace failing pipes and install underdrain where needed. The next year, the stabilized shoulders are graded and improved, though the budget only allows for paving chronic erosion problems. Areas of regular edge of road drop-offs are stabilized with aggregate or material that is a mix of milled asphalt, aggregate and soil that comes from shoulder repair milling. Then, in the third year, the seal coat crew arrives in the section.

The size of the geographic sections fits the productivity of the work to be performed by each crew, completing the above tasks without requiring an excessive amount of overtime. Crews are usually planned for overtime work, based on productivity metrics, to complete a route to a practical staging location and to utilize oil tanker volumes productively.

Clarion's efforts originated as a three-section effort. The seal coat material performs well for three years. The other counties in District 10-0 are in various stages of transition to a sectional cycle maintenance system, each focused on a quadrant plan. The oils and aggregate used in the seal coat operation perform acceptably in a four-year cycle. This stretches the county's dollars even farther. Clarion is devising adjustments to expand their cycles to a four-year plan.

A recent adaptation initiated in Jefferson County sets the course of the seal coat crew from their traditional practice to a more efficient process. The operation traditionally applied oil and chips to half of the roadway in one direction, then turn and complete the opposite direction before moving to the next route. Jefferson County's crews devise loops within the quadrant, applying the surface treatment to one lane of connecting routes that loop to the beginning point, then turning to treat the other lane on each route. This requires even less mobilization and adds to the cost effectiveness of the treatment.



It takes a transition period to implement such a strategy. Most county maintenance organizations plan their work to some sort of cycle, understanding the need to refresh the pavement surface to maximize pavement life. Therefore, to jump to grouping the network geographically as opposed to a cyclical pattern based on pavement initial construction or overlay application takes strategic planning, and the willingness to jump out of the quadrant occasionally in the first four years to hold a road together.

Crews attack the roadways in the seal coat section when spring arrives, repairing potholes and base failure locations to ensure a solid foundation on the entire set of routes. International Roughness Index (IRI) data is generated for the preparation crew, indicating "spike" locations so plans can be set to level these locations in advance of the seal coat effort. Between the patching and leveling efforts, the roadway is solid and smoother so the seal coated roadways are durable and more satisfying to the public.

Once in the Sectional Cycle Maintenance system, the county finds crew capacity to address other roadway needs and the capital to provide the materials for such efforts, as a result of the added efficiencies gained by their increased productivity and reduced expense of operations.

The customers of the Department of Transportation, the motorists, while never excited about driving on newly seal coated roadways, typically understand the need. With a Sectional Cycle Maintenance system in place, they are notified in which specific section of the county the work will occur, and recognize that the crew will not be back for this type of work for the following three years. Survey results indicate their increased satisfaction with this approach over the methods employed in the past. Other counties within Pennsylvania are recognizing the potential of the initiative and applying similar tactics in their planning and production efforts.

George W. McAuley, Jr., P.E. | gmcauley@state.pa.us | 724-357-2809

I-77 HOV-to-HOT Lanes Conversion & Extension

Calvin Leggett, P.E. and Derrick Lewis, P.E
Program Development Branch, NCDOT
Lynn Purnell, P.E., Parsons Brinckerhoff

Background

In 2004, the North Carolina Department of Transportation (NCDOT) opened the first high-occupancy vehicle (HOV) facility in the state along I-77 as part of a design-build project. The projected widened the interstate from four to eight lanes between I-85 and I-485 north of Charlotte. The facility consists of a concurrent flow lane located next to the median in each direction of I-77. Access to the lanes is restricted at selected areas as denoted by double solid white lines. A wide skip white line indicates where access to the HOV facility is permitted.

In order to provide an acceptable terminus for the southbound I-77 HOV facility, an HOV-only ramp was constructed across I-85 (Figure 1). The southbound I-77 lanes and shoulders were narrowed to extend the HOV lane past the general purpose exit ramp for I-277 (Brookshire Freeway). This extension enables southbound vehicles using the HOV facility to merge out of the dedicated lane where I-77 morning peak traffic volumes are lower. The southbound I-77 HOV lane is about 10 miles long.

The northbound I-77 HOV lane begins one half-mile north of the I-85 interchange and ends at I-485, a distance of about five miles. Designation of the median lane as an HOV lane begins far enough north of the I-77 entrance ramp from I-85 so that vehicles, particularly trucks, can safely merge from this lane into the leftmost general purpose lane. The HOV designation for the northbound median lane extends beyond Harris Boulevard and is dropped prior to the I-485 interchange. The HOV lane becomes a general purpose lane at this point.

Key I-77 HOV facility facts include:

- Restricted to high occupancy vehicles 24 hours a day, seven days a week.
- Restricted to vehicles with two or more occupants except for motorcycles, emergency vehicles when responding to an emergency, and buses.
- The North Carolina State Highway Patrol (NCSHP) randomly conducts enforcement as part of normal enforcement duties.
- About 300 vehicles use the HOV facility in the peak hour.

Figure 1: Southbound HOV Only Access Ramp

I-77 Feasibility Study

In 2009, NCDOT contracted with Parsons Brinckerhoff (PB) to analyze the feasibility of converting the existing I-77 HOV facility to high-occupancy toll (HOT) lane operations. The study involved converting the existing HOV facility to HOT lanes, plus extending only the HOT lane from the current HOV facility terminus to the Town of Davidson. The planning effort also explored converting the existing HOV facility to HOT lanes, plus adding a HOT lane and a general purpose lane in each direction. This study identified issues, design modifications, revenue potential, benefits and costs associated with the HOV-to-HOT lanes conversion and extension. Figure 2 shows the limits of the existing HOV facility and the proposed extension

Because conversion of the existing HOV facility to HOT lanes and expanding project limits further north was deemed feasible, the following alternative was investigated in more detail:

- Conversion of the existing I-77 HOV facility to HOT lanes.
- Extend a single HOT lane in each direction from the current northern terminus at I-485 to Catawba Avenue in the Town of Cornelius.

- Designation of the northbound HOT lane would end ½-mile south of Catawba Avenue with general purpose traffic merging to the leftmost lane (HOT facility users would have priority); the outside general purpose lane would drop at the Catawba Avenue interchange.
- The southbound HOT lane would begin south of the southernmost causeway located between Catawba Avenue and Griffith Street.

Recommended alternative for I-77 HOT lanes would operate as follows:

- 24/7 operation (same as current HOV facility operations)
- Electronic toll collection only with the same transponders and license plate recognition technology as other North Carolina toll facilities
- Buses, emergency vehicles (when responding to an emergency) and vehicles with two or more occupants travel for free
- Two-axle trucks, such as delivery vehicles, could pay to use the HOT lane, but three-axle trucks would be prohibited
- Access to the HOT lanes would be allowed only at designated areas, indicated by a wide white skip line. Access restrictions would be denoted by two wide solid white lines defining a non-traversable buffer.

Benefits of the proposed I-77 HOT lanes include:

- Makes better use of existing HOV lanes by permitting access to additional vehicles, thus backfilling available capacity.
- Offers more choices for I-77 commuters by allowing single-occupant vehicles to take advantage of the travel time savings and trip reliability associated with a managed lane while preserving these benefits for carpoolers and bus riders.
- Provides an incentive for increased transit use and ridesharing because of the longer dedicated facility, resulting in shorter commuting times.
- Improves travel times in general purpose lanes based on the number of HOT lanes users.

Figure 2: Project limits.

- Takes advantage of toll technology and operating procedures being implemented by NCDOT along the Monroe Connector/Bypass east of Charlotte.
- Provides an alternate route for traffic and/or clearance facility for traffic incidents along I-77.

"Conversion" continued p. 15

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HOT Lanes Design

The HOT and general purpose lanes would be 12-feet wide with a 4-foot painted buffer between the HOT and general purpose lanes. The inside (left) paved shoulder width would be 10 feet while the outside (right) paved shoulder width would be 12 feet. Figure 3 shows the typical section for the recommended alternative.

Conceptual Financial Feasibility Analysis

The study included a conceptual financial feasibility analysis for the recommended alternative. Projected HOT lanes revenues were estimated using a special planning model developed specifically for this type of study. The sketch planning model is calibrated from HOT lanes already in operation and also used outputs from Charlotte's regional travel demand model. Gross toll revenues are projected to increase from $3.7 million in 2013 to $4.7 million in 2030. Estimated gross revenues in year-of-collection dollars grow from $4.2 million in 2013 to $8.9 million in 2030. Peak hour toll rates would average about $0.15 per mile and would be set such that the number of vehicles in the HOT lane is about 1600 vehicles per hour and travel speeds along the HOT lane exceed 45 miles per hour. The increased usage of the HOT lane over the existing HOV lane also will provide congestion relief to vehicles in the adjoining general purpose lanes.

The recommended alternative's estimated construction cost is $50 million, including $5 million for converting the existing HOV facility to HOT lanes. Annual toll-related operating and maintenance (O&M) costs are estimated at $2 million for 2013 and reflect the latest NCDOT assumptions for planned turnpike projects. Dedicated onsite enforcement and electronic violation enforcement are included in this cost.

The aforementioned toll revenues cover projected annual toll-related O&M expenses plus provide a contribution to capital recovery. An estimated $22 million could be made available for project construction through toll revenue bonding over a 30-year period. Estimated toll revenue bonds would offset roughly 38 percent of estimated $57 million capital cost in year-of-expenditure dollars, leaving a gap of $35 million. Under the U.S. Department of Transportation's Transportation Infrastructure Finance Innovation Act (TIFIA) loan program (if available), more favorable terms could be obtained for financing. The forecasted toll revenue stream would increase to $31 million, covering an estimated 55 percent of project cost. The funding gap would decrease to $26 million under this scenario.

The Mecklenburg-Union Metropolitan Planning Organization (MPO) has approved contributing $5 million in local Congestion Mitigation and Air Quality (CMAQ) funds to address the funding gap. NCDOT has approved the allocation of $10 million in Statewide CMAQ funds for the I-77 HOT lanes project, reducing the funding gap even further. NCDOT continues to explore for additional revenues in order to expedite project implementation. The Mecklenburg-Union MPO added the project to the urban area's Transportation Improvement Program (TIP) in March 2011.

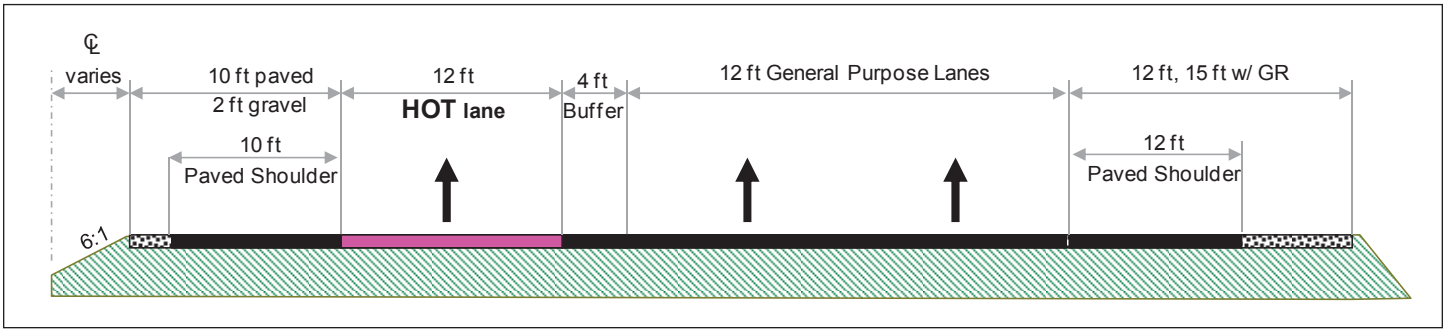

Figure 3: I-77 HOT Lane Typical Section

American Society of Highway Engineers Position Paper for the Six Year Transportation Bill

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The Industry was requested to present ideas in five categories that will aid the House Transportation Committee in formulating the next six-year bill. The memberships of the American Society of Highway Engineers Members have the following suggestions:

1) How to consolidate and improve the performance of programs
   a) Evaluate all programs and combine like programs for efficiency.
   b) Evaluate Transportation System Management (TSM) alternatives first before producing a construction related NEPA study. TSM can solve many problems without major construction costs.
   c) The NEPA process should serve to satisfy all federal agency purpose and need and alternatives analysis requirements for all non-DOT agency decisions on transportation projects.
   d) Decentralize the review of projects to the most local level possible.
   e) Reevaluation of EPA Regulations to include a "common sense" approach which takes into account the impact of proposed regulations on jobs and the economy, as well as the safety and well being of the nation.
   f) Only fund design standards that comply with Federal Standards. Extras or proprietary designs should be paid with state or local funds.
   g) If a project is approved through a federal process, all federal agencies should work to expedite delivery - lawsuits against approved projects should be discouraged as much as possible.

2) How the government can cut red tape and streamline the project delivery process
   a) Projects funded by federal dollars have much stricter regulations than if that same project was funded by private dollars. Compare the same project under both scenarios and address why the same project cost many times more and takes much longer when utilizing federal funding. Do a cost/benefit analysis on the regulations that increase cost and project delay.
   b) The FHWA should stipulate the required level of review for each document and mandate agency adherence to the established review protocol and time frames. If agencies continually don't adhere, make them ineligible for future DOT funds unless review function is outsourced to insure adherence to project deadlines.
   c) Specify in federal law the agency review and approval times for the various projects for a project to advance. If no action is taken within this time frame by non-DOT agencies, the project is deemed to be approved and can proceed.
   d) Planning efforts should include a focus on determining constructability of proposed projects.
   e) Set out performance goals for government workers. Reward them for making their goals.
   f) Use technology to streamline the business side of a project to improve efficiency and reduce project costs.
   g) Specify that improvements to existing roadways within National Forests are in keeping with existing Forest Management Plans.

3) How to increase private sector investment in our infrastructure

a) Allow States to lease Interstate and State Highway rights of way to companies like Ford/Google to develop smart communications to advertise upcoming or adjacent private businesses that are of interest to the motorist (McDonald's in 2 miles etc.) where safety will not be compromised.

b) Lease right-of-way (Infield areas, rest areas, areas over existing highways etc.) to private entities to create a source of revenue, such as the installation of solar panels for generation of cheap energy which is sold, and create a source of continuous revenue for the public.

c) Encourage states to require Traffic Impact Studies so that development impacts to the system are made visible.

d) Encourage expensive truck permits for overloaded vehicles and set interstate weight limits so that the business community will utilize water or rail for those operations, thus saving the integrity of the pavement of our interstates.

e) Congress should support the development of Regional Infrastructure Improvement Zones (RIIZ) that allow private corporations or individuals to contribute tax-deductible funds toward construction and maintenance of public infrastructure. RIIZs are a grassroots opportunity to attract infrastructure investment that leverages federal and state funds, while benefiting communities and keeping people, businesses and the economy growing and moving. See the following link for more information: http://www.oki.org/departments/transportation/riiz.html.

4) To identify creative financing alternatives

a) Approve an immediate 3% increase of gas/diesel price user's fee for short-term funding.

b) Develop a Vehicle Mileage Users Fee so that gas efficient vehicles pay their "fair" share. Implement initially with volunteers who get discounts on the price of fuel until mandatory for all in 5 years.

c) Index any new method for collecting monies for the Highway Trust Fund.

d) Encourage development of Public Private Partnerships.

e) Eliminate earmarks.

f) Create an Infrastructure Bank to leverage tax dollars with investor dollars to fund major capital transportation improvements.

g) Create an "Innovative Design Fund" specifically for dynamic geometric design alternatives such as diverging diamond interchanges, roundabouts, and continuous flow intersections. This fund would encourage innovation and provision of additional capacity at lower cost.

h) Create a separate funding program for Projects of National Significance that is separate from the funding stream for the other projects in a region.

i) Evaluate toll roads on existing and new access controlled roadways.

j) Legislation needs to clearly prohibit using Highway Trust Funds for anything other use than what is designated in the Highway Trust Fund

5) Other ideas for writing the legislation

a) Any federal support for rail improvements should come from a dedicated source that did not adversely impact the ability of the Highway Trust Fund to adequately fund needed roadway improvements.

b) Structure the next Surface Transportation Bill to insure long term funding stability. Reauthorize the base transportation user fees for 10 years, not 6 years.

c) Don't use cost factors in funding distribution formulas. Reward states for keeping construction costs within 5% or better of the engineers estimate.

d) Integrate Value Engineering concepts and practices into Preconstruction processes. Reward states that demonstrate usage of value engineering in all design aspects.

e) Encourage "alternative bidding" processes to allow evaluation of different materials and/or construction methods to get the most economical construction bid for a project.

f) Give incentives to states that use recycled materials.

February 2011

Philadelphia area, Pennsylvania

Route 202 Section 701 Parkway

Delaware Valley Section 2010 Project of the Year (over $10 million)

Chris Stanford, P.E. and Laura Frein Michael Baker Corporation

Route 202 Section 700 Parkway, PennDOT's new 8.4 mile long roadway project in suburban Philadelphia, is an example of the use of Smart Transportation design principles, context sensitive design and cutting-edge storm water management best practices (BMPs). Smart Transportation recommends a new approach in which transportation investments are tailored to the specific needs of each project with consideration to financial, community, land use, transportation and environment.

Originally intended to be a multi-lane, median divided expressway, the Commonwealth's 2004 budget shortfall for highway maintenance and improvement projects resulted in the stoppage and re-evaluation of several major projects across the state, including this one. The project was re-evaluated with the goal to develop a new solution to enhance mobility in the area, while remaining affordable and reflecting the context of the community. As a result of these changes, the project team was faced with a new design concept, an accelerated schedule and a fixed construction budget.

An Environmental Evaluation Report typically takes three or more years to complete, however, the project team completed this report in approximately 20 months. Final design was done on a fast track schedule and completed successfully in approximately seven months. This project has been a challenging and rewarding coordination effort involving PennDOT, Montgomery Township, local Community Advisory Committees and a Task Force formed specifically for the project.

The overall Section 700 project was divided into three design sections. Route 202 Section 701 was the southernmost section and the first of the three to be completed. This $31 million section extends from SR 63 (Welsh Road) to just beyond SR 463 (Horsham Road) in Montgomery Township. The project is a new alignment, limited access parkway located between existing US 202 (Dekalb Pike/ Upper State Road) and Stump Road. The typical section consists of a four-lane roadway with additional turn lanes at signalized intersections. Bike lanes in both directions are also included along the Parkway. The 300' wide corridor for the project was acquired as Limited Access Right of Way to ensure that current traffic operations would not be degraded over time by the introduction of new signals and driveways. Acquisition as limited access also contributes to sound land use planning along the corridor by not inducing new development, by preserving open space and by allowing for potential future transportation use. Traffic signal design was based on vehicle delay and queue length thresholds versus traditional level of service analysis. One other major component of the project is the incorporation of an independent shared use path for pedestrians and bicyclists along the entire 1.8 mile long project. This facility will serve as a linear park for the adjacent communities and connect the growing trail systems already established in Montgomery County. Two trail-head parking areas were also constructed to provide better access to the trail and as well as provide park and pedal and park and ride opportunities for local residents.

One unique aspect of the Route 202 Section 701 Parkway is the numerous "green" elements incorporated into the project, long before the creation of smart transportation and the popularization of green roadway design. This project takes the environment into consideration by the use of structural and non-structural storm water management best management practices (BMPs), congestion management practices and the recycled materials. Ten bioretention sites, one mile of infiltration trenches and vegetated swales, stone

"Route 202" continued p. 29

St. Vincent College Roadway

Contributors: Kevin Bittner and Angie Gessler, Gibson Thomas Engineering; Jerome Bendo, Project Manager, PennDOT District 12-0.

St. Vincent College in Unity Township, Westmoreland County, Pennsylvania, developed a Master Plan to accommodate increasing student enrollment and pedestrian/bicycle use on campus. The Master Plan proposed to relocate S.R. 1045 outside campus to eliminate through traffic. S.R. 1045 originally bisected the campus and was used as a short cut from S.R. 0030 into the City of Latrobe, bypassing one of the busiest intersections in Unity Township. Gibson-Thomas Engineering developed eight alternatives using the College's Master Plan schematics as a guide. The alternatives weighed benefits and impacts to the traveling public, St. Vincent College, and numerous site environmental features.

The resulting S.R. 1045, A10/A11, an $8 million project, included relocation of almost two miles of roadway, three new structures, a modern roundabout intersection, and onsite wetland and stream mitigation. The completed project provides a safer and more direct route for S.R. 1045 traffic while connecting the main college campus with the Winnie Palmer Nature Reserve and the newly constructed Fred Rogers Center.

The Winnie Palmer Nature Reserve was created in coordination with Arnold Palmer and St. Vincent College in memory of his late wife to preserve the natural beauty of the college and to protect the environment from development in the area along S.R. 0030. The Reserve acts as an educational resource to the college and local community, provides scenic walking trails, and has a historic barn from 1879 which was relocated and restored to serve as the Environmental Learning Center. The Fred Rogers Center opened in October 2008 and was designed utilizing LEED Green Building Technologies.

The realigned college access road was designed with these two features in mind and to accommodate the relocated college security guard house. Continuing the natural preservation theme, the new access road enhanced the view of the St. Vincent Basilica and followed natural contours of the land. The college access road is lighted, landscaped, and allows pedestrian, bicycle, and vehicular traffic to access the surrounding features safely. Pedestrian routes, decorative crosswalks, pedestrian safety features, and a shared bicycle/pedestrian lane were incorporated into the roadway design which enhanced the walk-ability of the project.

A modern roundabout was constructed for the newly created four-way intersection at the project's northern terminus. The roundabout provides a safe and aesthetically pleasing alternative to a traffic signal. The completed roundabout reduces congestion, noise pollution, and acts as a traffic calming method discouraging use of S.R. 1045 as a bypass.

"St Vincent" continued p. 31

St. Vincent College access road

St. Vincent College guard shack

St. Vincent College roundabout

PennDOT Improves Statewide Incident Response

Michael Pack, PennDOT ITS Division
Eric Rensel, Gannett Fleming

Pennsylvania is known as the Keystone State for many reasons; however, none may be more representative of its key role to the nation than its surface transportation network. Statistics from 2008 show that the Pennsylvania Department of Transportation (PennDOT) was responsible for more than 39,000 miles of roadway that carried more than 220 million daily vehicle miles traveled[1]. Combine this with the fact that more than 54 million Americans live east or northeast of Pennsylvania, and it is easy to see how important this state is, as well as why efficient traffic operations is a necessity.

Transportation agencies typically dedicate a great deal of resources to reducing both recurring and non-recurring congestion. The front-line tools used to combat non-recurring congestion in Pennsylvania are traffic management centers (TMCs), or data transaction points in traffic flow information. PennDOT operates nine TMCs statewide and is constantly evaluating ways to operate them in a fiscally responsible manner, while balancing a proactive, comprehensive approach to tackling traffic incidents.

Although processes were already being implemented, the events of Feb. 14, 2007, accelerated PennDOT's plans to unify its approach to traffic operations. On that Valentine's Day, an unusual storm pattern crossed the Commonwealth that crippled the transportation network in eastern Pennsylvania and stranded motorists across the east coast. As a result, PennDOT and other state agencies have made additional commitments to preparedness and cooperation. Much of this incident response effort has been focused on TMCs in a two-fold approach: technology and procedures.

Technology and Communications

PennDOT established center-to-center connectivity to allow control of intelligent transportation systems (ITS) devices from neighboring TMCs. This connectivity allowed the department to implement its Regional Traffic Management Center (RTMC) program through which rural TMCs are able to maintain normal business hours and then transfer operations to one of three urban TMCs in Pittsburgh, Harrisburg, or Philadelphia, PA., during off hours. The RTMC program has allowed for efficient use of personnel, better coordination with police and emergency management agencies, and increased situational awareness within PennDOT.

PennDOT's Road Condition Reporting System (RCRS) expanded to include reporting for both planned and unplanned events, as well as the road condition for

routes of interest. The RCRS is a geographical information system designed to create a common operating picture for the entire department and has been made available to the Pennsylvania State Police (PSP) and Pennsylvania Emergency Management Agency (PEMA). In addition, Pennsylvania launched its PA511 network to enable access to the verified information being collected by TMCs and others within the department.

Procedures

Interoperable incident communications are an important part of both traffic incident management and emergency transportation operations. While technology can improve efficiency of people performing the duties within a TMC, considerable emphasis must still be placed on the training and continuing education of TMC operators. PennDOT has accomplished this through its RTMC program in several ways.

First, it used the National Incident Management System to help establish a basic understanding of incident and emergency command and control by requiring all TMC operators to take ICS-100 and ICS-200 courses. These courses teach operators how to most effectively prepare for and respond to disasters. Next, PennDOT developed a single, statewide TMC standard operating procedure (SOP). While each TMC may maintain local SOPs for dealing with unique situations in their area of responsibility, the statewide SOP was developed to establish the expectation of statewide coordination.

An internal information portal was also created to bring department resources together to one place. The portal is set up to include a dedicated page for each of the three regions, as well as a home page, and stores numerous critical reports. Incident response plans have been created for every interstate in Pennsylvania that identify the primary area contacts and ITS devices to be activated for every mile of its roadway. Finally, PennDOT developed a process to maintain open lines of communication with the PSP, PEMA, Pennsylvania Turnpike, and others interested in improving the state's mobility.

Gannett Fleming partnered with PennDOT to implement the RCRS system, developed its Statewide TMC Operating Procedures, and trained more than 300 of its traffic operations professionals to further the department's traffic operations goals. While it is impossible to build a way out of the state's growing congestion issues, PennDOT will continue to seek innovative ways to manage the flow of traffic on its complex roadway network.

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[1] *Pennsylvania Department of Transportation Fact Book, 2009*

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Lake Champlain Bridge at Crown Point, NY (August 2009)

Lake Champlain Bridge: Part 1

Central New York

Michael D. Hurtt, P.E.
CHA, Inc.
ASHE Albany Section President, ASHE CNY Section Member

On December 28, 2009, the 2184 foot long steel truss bridge crossing Lake Champlain at Crown Point, NY, was demolished by controlled demolition, dropping the bridge into the lake. This followed the abrupt closure of the 80 year old bridge two months earlier due to the discovery of significant underwater pier deterioration that threatened a catastrophic failure. The impact of the bridge's demolition sent shockwaves through the surrounding communities, and reverberated in the state capitols of New York and Vermont. The loss of this invaluable link was enormous, especially given the fragile state of the local economies. The social and economic connection provided by the Lake Champlain Bridge to neighboring towns on both sides of the lake was truly understood once it had disappeared.

Over 400 years ago, the New World was ripe for those seeking fame and fortune, and stories of riches sparked the imagination of European explorers who braved the dangerous Atlantic on voyages of exploration. In late summer 1609, the English explorer Henry Hudson was charting the river that now bears his name, having embarked on a journey northward on the river to present day Albany. A little over 100 miles further north that same summer, another explorer was traveling south from Canada into an expansive lake nestled between two mountain ranges. This lake now bears the name of that French explorer, Samuel de Champlain. Neither man was aware of the other's presence and just how close they had come to crossing paths. We'll never know if that confluence would have been one of camaraderie or confrontation, but over the next 200 years the French and the English were in a constant struggle for control of those waterways.

The Hudson River was tamed and developed, and some of the most celebrated bridges of the modern age rose from the banks. Verrazano-Narrows, Brooklyn, Manhattan, Williamsburg, Queensboro, George Washington, Tappen Zee, Bear Mountain, Newburgh-Beacon, Mid-Hudson, Kingston-Rhinecliff, Rip Van Winkle, and a dozen more as the river narrowed near Albany. First it was the river itself providing efficient means of transportation, but later it was the bridges that crossed the river that provided the catalyst that made the Empire State the powerhouse of the Nation's economy. Over the same 140 mile or so length as the Hudson, only

Controlled demolition of the Lake Camplain Bridge

two bridges would eventually conquer Lake Champlain - Rouses Point at the most northern end of the lake, and Crown Point at the southern third. The Rouses Point Bridge provides the northern most crossing of the lake between Vermont and New York. Rouses Point Bridge will never receive the acclaim that any of the Hudson River bridges have, but the Lake Champlain Bridge at Crown Point would.

Lake Champlain, or Bitawbagok, the Native American name meaning 'Lake Between', resides on the northern border between New York, Vermont, and Canada. It is nestled in the fertile valley between the Adirondack Mountains and the Green Mountains. Flowing north from its inlet at Whitehall, NY, the birthplace of the U.S. Navy, to its outlet in the St. Lawrence River via the Richelieu River in Canada, Lake Champlain is 125 miles in length and 14 miles at its widest point. The lake is one of the largest secondary lakes in North America, with only the Great Lakes larger. Its depths reach to 400 feet, the resting place of many a shipwreck and likely the lair of Champ, the infamous Loch Ness-like lake monster. In the early 1800's, a navigable passage to the Hudson River was made with the construction of the Champlain Canal, built simultaneously with the more famous Erie Canal.

The location of the Crown Point bridge site was a known lake crossing location with inhabitants of the area dating back over 9,000 years. The narrowness of the lake at this location, less than a half mile across, was an ideal crossing. Geometrically, the Crown Point location was the best site to build a bridge. From a historical and archaeological perspective, it was one of the worst. The area along each bank is extremely rich in Native American history and archaeology. As would be expected at such a prominent crossing location, the earliest of settlements were built on each side. As Europeans settled into the area, the site took on strategic significance being a natural chokepoint on the lake, similar to West Point on the Hudson. In 1731 the French, in a largely successful effort to protect their northern settlements from the English, built a small temporary stockade fort named Pointe-à-la Chevelure (French for 'Scalp Point', but incorrectly translated by the English as 'Crown Point', crown referring to the top of a person's head) on the east shore of the choke. By 1737 the permanent stone redoubt Fort Saint-Frédéric was completed on the west shore. Control of the choke provided the French with control of the lake and secured their southern border of New France. With the outbreak of the French and Indian War in the late 1750's, control of Lake Champlain's waterway became hotly contested. In 1759, the French Fort Carillon, ten miles south in Ticonderoga, fell to a superior British force and the French fled the area, burning and abandoning their settlements and Fort Saint-Frédéric and Pointe-à-la Chevelure as they retreated. With only the stone chimneys of Pointe-à-la Chevelure still standing, the British renamed the area its present name, 'Chimney Point'. The British immediately built new forts on or near the ruins of the destroyed French forts. His Majesty's Forts at Ticonderoga and Crown Point replaced Fort Carillon and Fort Saint-Frédéric, respectively. Both these forts eventually fell to the Revolutionary forces lead by Ethan Allen, Benedict Arnold, and the Green Mountain Boys during the early stages of the American Revolution. These forts have since been named National Historic Landmarks.

With the richness of the historical, cultural, and archaeological significance at the Crown Point / Chimney Point crossing, it would

"Champlain Bridge" continued p. 26

Ruins of Fort Saint-Frédéric (His Majesty's Fort in background)

Ruins of His Majesty's Fort at Crown Point

Lake Champlain Bridge Site: 1) Bridge; 2) Chimney Point, Pointe-à-la Chevelure, 1780 Tavern; 3) Fort Saint-Frédéric; 4) His Majesty's Fort at Crown Point; 5) Champlain Monument / Light House

1929 Lake Steamer

1780's Tavern at Chimney Point

"Champlain Bridge" continued from p. 25

be unfathomable today to think of desecrating this sacred ground by building a bridge. But that is exactly what was done in the late 1920's. A bridge and roadway alignment was thread ever so carefully through these historic sites, a mere 20 feet from the still visible stone walls of Fort Saint-Frédéric, 100 yards from the ruins of His Majesty's Fort at Crown Point, 50 feet from the 1780's Chimney Point tavern-now turned museum, and purportedly directly on top of the ruins of Pointe-à-la Chevelure. In the 1920's, with the prominence of the automobile rapidly growing, utilitarian function trumped the sacrosanct. This could likely be said about many of the nation's great bridges, but likely nowhere else in the nation was it done so egregiously.

The Lake Champlain Bridge at Crown Point was the first long-span continuous truss bridge for highway traffic, designed by the then-renowned bridge designer Charles Spofford. Spofford was a pioneer in continuous steel truss design and used similar truss designs on other bridges during the early twentieth century. The half-thru truss design of the 434 foot main channel span was chosen to allow for 95 feet of vertical clearance necessary to allow passage of the smokestacks of the steamships common in that day. The approach to the main channel span rose at a dizzying eight-percent grade, but the combined height provided the bridge with a majestic stature that quickly afforded the bridge landmark status, almost rivaling the forts it was built between.

As unique and innovated as the bridge's steel superstructure was; the substructure was unknowingly compromised. Iron-ore tailings from nearby mines were used as aggregate in the foundation's concrete. This material produced concrete of exceptional strength, so much so that steel reinforcement in the concrete was thought to be unnecessary. There also was no armoring to protect the exposed slender concrete piers against ice abrasion. Over the years, significant pier deterioration occurred, most evident near the top of the piers where the bearing of the superstructure fractured and spalled the concrete to the point where temporary steel banding, plates, and tie bars were installed to consolidate and encapsulate and further retard worsening of the piers' condition. Routine underwater inspections were also preformed to monitor for section loss due to the seasonal ice.

In 2009 the New York State Department of Transportation, joint owner of the bridge with the Vermont Agency of Transportation, contracted with HNTB Corporation from New York City to perform preliminary engineering for a bridge replacement or rehabilitation. Subconsultants to HNTB were CHA, Inc. of Albany, NY and Fitzgerald & Halliday, Inc. of Hartford, CT. Given the sensitivity of the existing bridge site, the design and permitting process was expected to take a minimum of five years. Preliminary alignments and alternate bridge crossing locations were progressed in earnest by CHA by the summer of 2009.

Also in 2009, repairs to the steel superstructure were being performed by Harrison & Burrowes Bridge Constructors, Inc. of Glenmont, NY. While the repair work was underway, it was noticed that accelerated section loss to the pier's concrete had occurred below the waterline between routine inspections. Further investigation showed that cracking was evident at these same locations. HNTB began a structural stability analysis of the bridge and foundations, with a primary focus centered about the stresses imposed on the weakened piers due to expansion and contraction forces transmitted directly to the piers through the bridge's nonfunctioning frozen bearings.

The first project public meeting to discuss a likely bridge replacement or rehabilitation was held October 8, 2009 when the public was assured that the bridge would remain open until its eventual replacement or rehabilitation was complete. Eight days later at 1:30 in the afternoon the bridge was closed without advanced warning to the public, following the completion of HNTB's analysis that a large temperature contrast could lead to a catastrophic failure. The unsuspecting evening commuters were immediately forced into a 90 mile detour to get home, the nearest bridge being 45 miles south in Whitehall. The bridge would never see traffic again.

To be continued…

Part 2: The design team navigates the through a five year design and permitting process, coordinating with over 10 federal and state agencies, to deliver a uniquely-designed bridge to letting less than four months after the bridge's demolition.

Pier Deterioration

Mile Markers

Chesapeake Section

Scholarship Award Recipients

The ASHE Chesapeake Section awarded their 2011 John Bruck Memorial Scholarship to three local college engineering students at its March 15, 2011 meeting. The Chesapeake Section typically awards one or two $1,500 scholarships, however this year they awarded three scholarships due to the success they had at the annual golf tournament and from contributions throughout the year to the scholarship fund. The three college engineering student recipients included Corey Harper (Morgan State University), Viona Miller (University of Maryland), and Mo Alkaysi (Johns Hopkins University). The program was named for John Bruck, a SHA employee, who labored tirelessly to ensure all activity-related transportation needs were met during the 1993 National ASHE Conference held in Baltimore, Maryland. John was a man of vision and held the highway industry dear to his heart. To date, the Chesapeake Section has awarded over $35,000 as part of its annual scholarship program.

ASHE Chesapeake members and 2011 scholarship recipients: Pictured from left to right: Roger Carriker, Corey Harper, Nimish Desai, Viona Miller, Matt Waters, Mo Alkaysi, Rob Hudson, and Marco Avila.

"Route 202" continued from p. 19

filter strips, two acres of riparian buffer plantings, and a porous paver parking area, in addition to 10 traditional volume control basins, highlight the structural BMPs included in the project. One way the project minimizes environmental impacts through the non-structural BMP is the reduced roadway footprint. Before the Smart Transportation guidebook was created, the design team collaborated with PennDOT and the Task Force to create a roadway typical section consisting of 11′ travel lanes as opposed to 12′. The roadway typical also includes 5′ paved shoulders and 3′ stabilized shoulders, as opposed to 8′ paved shoulders. The 3′ stabilized shoulders are comprised of a soil and aggregate mixture designed to infiltrate water while being strong enough to withstand the weight of a vehicle. The reduced pavement width results in 0.78 acres of less impervious area across the project. Another non-structural BMP green element is introduced through traffic calming devices. Several traffic islands occur throughout the project. Rather than paving the islands and increasing the amount of impervious area, plantings are used to create an area for infiltration. Retaining walls and steeper slopes minimize wetland and stream impacts as well. Green elements can be found throughout the project in the materials selected for the project. Earth berms consisting of soil excavated from the site were used to provide a visual barrier for neighborhoods as opposed to using structural methods. Porous pavers are also used in one parking area to encourage infiltration. Additionally, benches are made of recycled materials.

The project is an example of context sensitive design, of collaboration with local municipalities and adjacent property owners, as well as an outstanding model for future sustainable roadway projects. The project minimized impacts on the existing environment and added elements that will improve the water quality in the area. This project advanced from the concept development, environmental clearance through preliminary, final design, right of way clearance, environmental permitting and two seasons of construction, all in less than six years. This is a notable feat considering typical projects of this size and complexity can take 10 years or more to make it through the same process.

ASHE National Board Members 2011–2012

George H. Willis, P.E.

Northeast Region Director, Franklin Section, PA

George has been a member of the Franklin Section since January 1985. Starting his service on the Section Board of Directors in 1996, he subsequently served as Second Vice President, First Vice President and President in 1997/1998. He currently is serving as a two-year Director. George assisted during the three-year planning stage of the 2002 ASHE National Conference held in Erie. He participated in developing the original Franklin Section Website, and through his company, Urban Engineers, has sponsored the hosting of the site.

He is active in the Section and his participation includes periodically hosting and providing programs for the Franklin Section monthly meetings. He is the Editor of the Section Newsletter, the 'Franklin Section Profile', serving since 1996.

George graduated from Clarkson University in 1975 with a Bachelor of Science Degree in Civil and Environmental Engineering. Upon graduation, he began working for Urban Engineers in their Erie office. His career has covered assignments as diverse as highway design and construction inspection, Light Rail Rapid Transit design for the Buffalo, NY LRRT surface section, work on waterfront structures, airports, and municipal engineering including traffic signals/studies, water, storm-water and waste-water projects. George is a registered Professional Engineer in Pennsylvania, New York and Ohio. In 1992 he was named Vice President responsible for the operation of the Erie Office of Urban. He currently is a Senior Vice President and, in addition to the Erie office, serves as a Trustee of the company Employee Stock Ownership Program. This year, George celebrates 35 years of service with Urban.

In support of the engineering profession, George is the Erie Chapter President of the Pennsylvania Society of Professional Engineers and is active with their annual MATHCOUNTS program for middle school students. He is also active in the Erie community having served nine years on the Erie Waterworks Authority Board, and currently as a Corporator for Hamot Medical Center and for St. Vincent Health System. He also serves as a Trustee for the Erie Cemetery Association and is active in his church, St. Stephen's Episcopal.

George is a city dweller and lives in Erie, Pennsylvania with his wife of 31 years, Cindy. They are enjoying their part-time status as "empty nesters" with a son, Ben who just graduated college and is now living in San Diego, and a daughter, Martha a junior in college in Chicago. (Thank you ASHE Franklin for the scholarship program!) He enjoys sailing and boating on Lake Erie and winter skiing during those few spare moments of the rest of his life.

John W. Franz, Jr., P.E.

Northeast Region Director, Central New York Section

John has more than 40 years experience in civil engineering, particularly in the area of transportation planning, design and construction inspection. His experience includes management of large contracts with multiple sub-consultants and technical specialists. John's capabilities includes planning, design, and construction inspection of recreation trails, roads and bridges throughout New York State, traffic studies, NYSDOT highway permits, retaining wall design, drainage studies, site development design, environmental audits, subdivision design, sewer system evaluation and rehabilitation design, sanitary sewer collection system designs, water distribution system designs and wetland review. Early in his career, he was employed by the NYSDOT in Region 1 Design and Region 4 Construction.

He is a founding member of the Central New York Section where he served as their first Section President. He is currently serving as the Regional Director representing Central New York and is the Co-Chair of the 2013 ASHE National Conference.

John is also currently on the New York State Board of Director's for the American Council of Engineering Company (ACEC), is President Elect of the New York State Chapter of APWA, and is on the Board of Director's of the Central New York of APWA. He is a member of the American Society of Civil Engineers, New York Society of Professional Engineers (Past President of the Central New York Chapter), Institute of Traffic Engineers, New York State Association of Transportation Engineers and is the past Chairman of the New York State Qualification Based Selection Council.

He currently is a Partner in the firm of Shumaker Consulting Engineering & Land Surveying, P.C., and is the Regional Manager of the firm's offices in Utica, Albany and Syracuse, NY, where he takes an active role in many of the firm's projects.

John graduated from Clarkson College of Technology in 1970 with a B.S. in Civil Engineering and from Rensselaer Polytechnic Institute in 1973 with an M.S. in Management. He is a licensed Professional Engineer in New York, Connecticut, Florida, Georgia, Massachusetts, New Jersey, North Carolina, Pennsylvania, South Carolina, Illinois, Vermont (inactive) and Alaska (inactive).

Alice M. Hammond, P.E.

Northeast Region Director, Altoona Section, PA

Alice's history with ASHE began in 1997 when she was the recipient of the annual scholarship award given by the Altoona Section. Alice has been a member of the Altoona Section of ASHE since 2000. During that time, she has served in various positions on the Altoona Board of Directors, including Director, Second Vice President, First Vice President and President in 2005/2006. Alice has remained active in the Altoona Section since her presidency and was recently, 2009/2010, back on the board to fill a vacant Director position.

During her term as President of the Altoona Section, she was instrumental in starting the annual summer picnic to encourage fellowship between ASHE Altoona Section members. Families were strongly encouraged to attend as well. The first event held in 2003 was a success and continues today in conjunction with the Section's Annual Golf Outing.

She served as the Co-Chair of the Advertising/Sponsorship/Exhibitors Committee for the 50th Anniversary ASHE National Conference held in Hershey, PA, in June 2008.

Alice is a 1998 graduate of the University of Pittsburgh at Johnstown, with a Bachelors Degree in Civil Engineering Technology, and a 1999 graduate of the Pennsylvania State University with a Master's in Civil Engineering. She is a member of ASHE and ASCE. Alice has been employed at the Pennsylvania Department of Transportation (PennDOT), Engineering District 9-0, of Hollidaysburg, PA since 2006, where she is a Project Manager in the Consultant Design Division of the Design Unit. She is responsible for the supervision, management and delivery of transportation and bridge projects for PennDOT. Prior to her employment at PennDOT, Alice worked for seven years as a Designer and Project Manager on various bridge and highway projects for The EADS Group, Inc.'s Altoona office.

Alice lives in Johnstown, PA, with her yellow labrador retriever, Timber. Her family is the most important part of her life and she enjoys spending time with her nieces, Kaylee, Kaitlyn and Kira. Her hobbies include golfing, motorcycle riding, hiking, skiing, hunting and traveling.

Nicole 'Nikki' Reutlinger

Southeast Region Director, Georgia Section

Nicole Reutlinger has been an official member of the Georgia section since 1999, but was attending meetings since the chartering of the Georgia section in 1998 while still interning. After several years of attending meetings, she took on the role of Golf Committee Chair in 2002. She served in this position from 2002 to 2010 and even co-chaired the National Conference golf tournament that was held in Atlanta in 2009. In addition to the Golf Committee, she has served as the Social Chair, Vice President (First and Second), President and currently as the Regional Representative for the Georgia Section.

Nicole is a 1998 graduate of the Georgia Institute of Technology with a Bachelors Degree in Civil Engineering. She is a licensed engineer in the State of Georgia. Nicole has been employed with Atkins for seven years. She has experience with all types of transportation projects from interstate design to rural bridge widening. She currently serves as a Program Manager for DeKalb County.

She and her husband have been married for nine years and reside in a suburb of Atlanta. They have two children, Taylor (4) and Ethan (3). With what spare time is left after being a mom of toddlers, she enjoys hiking, running and scrapbooking.

"St. Vincent" continued from p. 21

S.R. 1045 now crosses Monastery Run and then parallels the creek between it and an abandoned railroad along the eastern edge of the campus. The project required replacement of three structures. These structures impacted Monastery Run and its surrounding wetlands. The stream impacts were mitigated off-site while replacement wetlands were constructed on-site and included overlooks, trail access, and placement of brush for habitat enhancement.

The project was recognized by receiving the 2010 ASHE Pittsburgh Section Outstanding Highway Engineering Award and the 2010 Allegheny Energy/Smart Growth Partnership Award.

In its entirety, the S.R. 1045 relocation project enhanced safety for vehicles and pedestrians, while still maintaining the environmental resources and natural beauty of the St. Vincent College campus.

"Eastern" contined from p. 5

prefabricated pier columns and superstructure units took the contractor one and a half months to complete.

A curved superstructure fascia with stone facing architectural treatment provides a gateway theme as motorists enter Washington, D.C. The piers received a striated architectural treatment. Wide planters with a variety of plants were incorporated along both sides of the bridge to provide motorists and pedestrians with an aesthetically appealing crossing.

DDOT, with Greenhorne & O'Mara, Inc. as the design consultant, and Fort Myer Construction Corp. as the contractor have provided an example for extensive use of prefabrication in bridge construction. The pre-cast technology reduced a two-year project to less than a one-year timeframe and the bridge was ready for traffic October 20, 2010.

Accelerated construction methods will lead to competive bidding among contractors and provide value to the client, with value extending to the community and commuters as well. This project achieved the Highways for LIFE performance goal of a 50 percent reduction in the time highway users are affected by construction.

As the Wheel Turns

Joe Keller Receives Altoona Section Distinguished Service Award

(Hollidaysburg, PA) Joe started Keller Engineers in 1991 and has since grown the company to over 60 employees as the firm celebrates its 20th anniversary this year. In 1993 he began providing transportation design services and has supported the growth of those services to now include 23 engineers, designers, technicians and inspectors with transportation design representing over 40% of the company's business.

Joe is an avid supporter of ASHE, both at a local and national level. At the local level, he served as a Director, and President for the 2000/2001 term. He supported numerous employees as they served as Directors and Presidents, and, at the local and national level, Joe supports ASHE by donating services to provide and maintain websites for the Altoona and Pittsburgh Sections, as well as the National website. He also has provided professional and financial support for employees to serve on the National Board and as National President.

"I truly believe that a successful business is made up of staff, clients and community," Joe recently said when asked about his firm. "You have to give back – it's about being a good citizen and giving support to where you live and work." He serves the community by serving and actively participating on various boards, including the local Chamber of Commerce Transportation Committee, and donating and contributing funds and resources to area organizations. Other service projects include the annual Keller Open to benefit the Hollidaysburg Rescue Workers and the annual Hollidaysburg Area Engineers Food Drive Competition for the local food bank.

Joe is a 1972 Bishop Guilfoyle High School graduate, (Altoona, PA) and obtained a Civil Engineering degree from The Pennsylvania State University in 1976. He worked in various positions at P. Joseph Lehman, Inc., Consulting Engineers, from 1976 through 1991. He holds PE licenses in Pennsylvania, Maryland, Virginia, West Virginia and Ohio.

He and his wife, Joan, have been married for 30 years and they have one son, Jared, a high school junior.

William W. Reid, PE, Joins Barge Waggoner Sumner and Cannon, Inc.

William W. Reid, PE, has joined Barge Waggoner Sumner and Cannon, Inc. (BWSC) as Senior Transportation Manager in the Nashville, TN, office. In this role, Reid will be working directly with project teams to help provide solutions to BWSC clients' transportation and bridge needs.

Reid has over 14 years of experience in project management, transportation design, and bridge design and evaluation.

A native of Memphis, Reid holds a Bachelor of Science in Civil Engineering from the University of Memphis (1999). He is a licensed professional engineer, and is a Certified Professional in Erosion and Sediment Control (CPESC). Reid is a member of the American Public Works Association (APWA), the American Society of Civil Engineers (ASCE), and the American Society of Highway Engineers (ASHE).

Erdman Anthony Welcomes William J. Stewart, P.E.

Erdman Anthony welcomes William J. Stewart, P.E., as a senior mechanical engineer in its Harrisburg, PA, Facilities Department. Stewart is a graduate of The Ohio State University with a Bachelor of Science in mechanical engineering. He has more than 33 years of engineering experience in the design and construction of central utility plants, district heating and cooling systems, refrigeration systems for food storage and distribution, and in building HVAC systems.

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Membership Report

Northeast Region

Albany	78
Altoona	207
Central New York	51
Clearfield	88
Delaware Valley	365
East Penn	105
First State	183
Franklin	201
Harrisburg	377
Long Island	33
Mid-Allegheny	108
New York Metro	140
North Central New Jersey	160
Northeast Penn	142
Pittsburgh	534
Southern New Jersey	181
Southwest Penn	299
Williamsport	140
Subtotal	3392

Mid Atlantic Region

Blue Ridge	72
Carolina Piedmont	77
Carolina Triangle	232
Chesapeake	166
Greater Hampton Roads	107
North Central West Virginia	48
Old Dominion	71
Potomac	173
Potomac Highlands	43
Subtotal	989

Southeast Region

Central Florida	46
Georgia	375
Gold Coast	6
Middle Tennessee	123
Northeast Florida	213
Tampa Bay	103
Subtotal	866

Great Lakes Region

Central Ohio	177
Circle City	48
Cuyahoga Valley	119
Derby City	63
Lake Erie	130
Northwest Ohio	39
Triko Valley	173
Subtotal	749

North Central Region

Central Dacotah	105
Subtotal	105

Rocky Mountain Region

Phoenix Sonoran	83
Subtotal	83

National Total	**6184**
Professional Status	60%
Government	13%
Consultant	69%
Contractor	7%
Other	11%