SCANNER

NEWSLETTER OF THE AMERICAN SOCIETY OF HIGHWAY ENGINEERS

www.highwayengineers.org

Fall 2005-4

Middle Tennessee Section of ASHE Charters in August 2005

Larry Ridlen, President
Brad Winkler, 2nd Vice-President

Early 2004, Larry Ridlen, Gresham Smith and Partners, and Brad Winkler, Parsons Brinckerhoff, began discussing the possibility of establishing an ASHE section in the Nashville area. Prior to returning to Nashville in 2001, Brad was a member of the Georgia Section during its early years and benefited from the relationships, development opportunities, and camaraderie within that Section. Larry has been actively involved in ASCE as the Tennessee Section Transportation Technical Chair. The intrigue of ASHE for Larry spurred from his desire to get everyone in the highway industry, including the public sector, involved in a collaborative fashion. ASHE, as proven in other states, offered this opportunity to include the often missed sectors of the highway industry in a unified and focused organization.

During the fall of 2004, Larry and Brad began meeting with local jurisdictions to gauge interest in joining an organization such as ASHE. In the meantime, Larry called upon Bill Moore, Gresham Smith & Partners and recently retired Chief Engineer of the Tennessee Department of Transportation (TDOT) to solicit participation from the State. Concurrent to these activities, a core group was identified and in January 2005 an organizational meeting was held that included representation from TDOT, local consultants, contractors, vendors, and utilities.

The core group began soliciting memberships and set a Charter meeting date for August 2005. Leading up to the Charter meeting, the core group published the first Middle Tennessee ASHE Newsletter in March and held an informational social, paid for by Century Club sponsorships. Adopted from other chapters, the Century Club was established early in the process in order to raise much needed capital to fund local organizational operations and help to maintain low local member costs. As with other sections, as the local section's financial condition normalizes, Century Club sponsorships will be allocated to social causes, operations, and scholarships.

The Chartering Meeting was held on August 9, 2005 with just over 90 people in attendance including several guests. The Charter officially listed 77 members and we have had an additional 16 new members since the meeting for a total of 93 members. In was great to have in attendance a mixture of City, State, Consultants, Utilities, Contractors and ASHE National leadership including ASHE National President, the National First Vice President, the New Section Chairman and three Regional National Directors, and the keynote speaker TDOT Commissioner Gerald Nicely.

As the Middle Tennessee Section moves forward, programs and activities will be tailored to the specific needs of the region while remaining coherent to the needs of the organization and industry collectively. As with all new organizations, we have just passed the first of many milestones. ■

ASHE Northeast Penn

Is proud to present our

2005 – 2006 SPONSORS

DMJM HARRIS | AECOM

Pennoni
PENNONI ASSOCIATES INC.
CONSULTING ENGINEERS

MODJESKI and MASTERS, INC.
4909 Louise Drive
Mechanicsburg, PA 17055

Gannett Fleming

T. W. CONSULTANTS, INCORPORATED
ENGINEERS AND PLANNERS

Baker
Engineering & Energy

benesch
alfred benesch & company
Engineers • Surveyors • Planners

TRAFFIC PLANNING AND DESIGN, INC.
www.TrafficPD.com

Challenge Us.

SHUMAKER
Consulting Engineering & Land Surveying, P.C.

MKA
Consulting Engineers
Environmental Scientists
Construction Inspectors
McTish, Kunkel & Associates
Allentown ❖ Pittsburgh ❖ Montoursville

Borton Lawson
ENGINEERING

GPI
Greenman-Pedersen, Inc.
Engineers, Planners, Construction Engineers and Inspectors

Reilly
ASSOCIATES
SINCE 1939
ENGINEERING/ENVIRONMENTAL/SURVEYING

BRIDGETEK®
A CONTECH Company

ceco
associates inc.
consulting engineers

MEI milnes engineering incorporated
Engineering
Planning • Designing
Surveying • Construction Services
12 Frear Hill Road
Tunkhannock, PA 18657
Tel: 570•836•2145
Fax: 570•836•6510

Locust Ridge Quarry
POCONO LAKE, PA

GREENHORNE & O'MARA, INC.

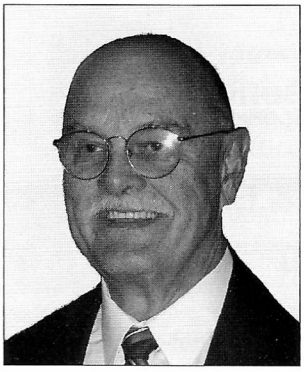
KCI
L. Robert Kimball & Associates
Architects and Engineers

KCI TECHNOLOGIES

www.ashenepenn.org

President's Message

Ron Purvis



Change is inevitable and occurring more rapidly today than ever before. Methods of communication are changing. Information technology is changing. The ecosystem is changing. The world economy is changing. Transportation technology is changing. Public expectations are changing. Accepting or rejecting change is not an option for most of us. We adapt or become obsolete.

Young people adapt quickly. New technology is easy for them. The older we grow, the more difficult it is to handle change. I identify with the distinguished gentleman below holding the sign: "But we've always done it that way." I've also been known to say: "If it ain't broke don't fix it."

We often feel threatened by change. We were successful in the past doing things the old way. Why not continue procedures that worked fine in the past? Unfortunately, to function in today's world we must be willing to adapt to change.

How does this apply to the American Society of Highway Engineers? Are we slow to change? Perhaps some of us are. For example, no one currently on the National Board can remember when the National dues were last increased. We think it has been over (20) years. Yet some are concerned that our membership will object to a proposed $10.00 annual increase.

The purpose of the recommended increase is to:

- Keep pace with rising operating expenses;
- Provide funds for ASHE National exposure to aid growth; and
- Provide reserve funds for the eventual addition of a National Director to support the National Board in the administration of day to day activities.

The highway industry has changed in the past 20 years. The cost of building a mile of highway has changed. Salaries have changed. The expectations of ASHE Members have changed. Our current vision is to become a nationally recognized forum for the highway industry by:

- Increasing membership;
- Increasing organizational visibility;
- Providing professional support and accountability;
- Increasing fiscal resources;
- Balancing organizational diversity; and
- Protecting organizational values.

Last year the organization chartered the first ASHE Section in New York State. The first Section in Tennessee was chartered in Nashville in July 2005. The New Sections Committee is currently establishing and working with groups in Kentucky, Massachusetts, and South Carolina with the objective of chartering new Sections in these states. Budgets are stretched very thin. Perhaps the organization could be growing faster if additional funds were available.

The ASHE National Board consists of a group of elected volunteers from the highway industry. Board members have no particular skills or expertise in administering a national professional society. We make mistakes. Often, by the time we get comfortable in our job the term is over. Other professional organizations hire individuals with the appropriate expertise to assist their National Board. This proposed modest dues increase would allow ASHE National to obtain the minimum outside expertise and resources required at this time to support the National Board in achieving objectives.

Based on my conversations, a considerable number of our members recognize that the current $10.00 per year annual National Dues is too low. Some say that the credibility of ASHE National is influenced by these very low dues. We usually hear good things about the local Sections, but many members would like to see more significant leadership from National. They want to see ASHE grow to become a national forum that represents the entire highway industry. They understand that, as ASHE's National influence increases, it will help local Sections increase membership and expand programs.

The annual national dues for similar organizations are ten to fifty times higher than ASHE. They have administrative directors, large staffs, and offices. They offer many membership benefits such as seminars and a variety of work groups to advance technology and develop "best practice" guidelines for the industry. Will ASHE become such an organization one day? Perhaps; but the current objective is to keep pace with the requirements of this growing organization.

Some of the current issues that must be addressed by ASHE National Board include:

- Technical guidance in administering the National Membership database;
- Technical guidance in administering the National Website;
- Continuity and training issues related to the rotation of board members;
- Support and guidance for the local committees planning each annual conference to ensure quality and conformity;
- Cost effective methods of elevating the visibility of our organization nationwide;
- Establishing a website connection for Sections to obtain ASHE promotional items such as t-shirts and caps;
- Guidelines and support for the organization and operation of the nine ASHE Regions;
- Establishing mechanism for more college student involvement; and
- Support for ASHE Sections that have leadership problems.

"Message" continued p. 23

ASHE National Constitution Amendments Adopted

The ASHE National Board is proud to announce that the amendments proposed for the National Constitution have been adopted. The voting concluded in June with 1,132 approval votes and 11 disapproval votes received; exceeding the required minimum 20% eligible membership response and 2/3 of the voting casting affirmative votes for approval.

The National Constitution is the written instrument that embodies the rules of the ASHE organization. The National Board worked hard to review and make recommendations for updating the Constitution. This effort was initiated in order for this important document to be compatible with the mission and core values the National Board adopted in 2004 with the Strategic Plan.

The National Board is currently reviewing and compiling recommendations for amendments to the National bylaws. The bylaws define the rules of the organization that governs its members and regulates its affairs.

The National Board wants to thank all those who encouraged the successful membership response to the balloting and all of you who provided your input on the National Constitution. The National Board is very excited about the recent growth that the organization has been experiencing and feels that the adopted amendments will set the stage for continued growth well into the future.

To access the National Constitution, please visit the ASHE website www.highwayengineers.org.

ASHE Membership Drive Contest

Rich Clifton, ASHE Region 7 National Director

The National Membership Committee has teamed up with the 2006 National Conference Executive Committee creating a contest to help increase ASHE membership. Every year at the annual banquet the National Secretary recognizes sections that have added the most new members during the previous year (April 1 to March 31). The section with the highest number of new members and the section with most new members as a percentage of membership are given plaques to recognize their accomplishments.

This year we are going to sweeten the deal by giving the winning sections one free registration to the 2006 National Conference in Williamsburg. This will include the general conference registration as well as registration for the Past President's lunch, Friday dinner at Jamestown and the annual banquet on Saturday night. The section can give the award to any member they choose - perhaps they will reward the individual member that brings in the most new members or maybe they will send a section officer to receive their plaque at the annual banquet.

Winners will be determined by the National Secretary on or about the first of April. Winning sections will be notified by the Chair of the 2006 National Conference Executive Committee by mid-April. To be eligible to win, continue to send in completed applications (with dues and initiation fee, of course) prior to March 31. If you have questions about the contest, contact Rich Clifton at rclifton@gfnet.com.

Rich Clifton
ASHE Region 7 National Director
Gannett Fleming, Inc.
11838 Rock Landing Drive, Suite 200
Newport News, VA 23606
(O) 757-873-0768 x155; (F) 757-873-6868
(M) 757-434-2081

2006 ASHE National Conference

Dorothy Purvis, PR Committee Chairman

Colonial Williamsburg, Virginia
May 31 – June 4, 2006

It is highly appropriate that the 2006 ASHE National Conference be held in Williamsburg, Virginia. Williamsburg was the thriving capital of Virginia when the dream of American freedom and independence was taking shape. From 1699 to 1780, Williamsburg was the political, cultural, and educational center of what was then the largest, most populous, and most influential of the American colonies. It was here that the fundamental concepts of our republic — responsible leadership, a sense of public service, self-government, and individual liberty — were nurtured under the leadership of patriots such as George Washington, Thomas Jefferson, George Mason, and Peyton Randolph.

Come to Colonial Williamsburg, explore and learn, see the people, see the places, experience the colonial life, visit the museums, shop, visit the College of William and Mary, and enjoy the many restaurants. Enjoy historic Yorktown, or visit Virginia Beach (a 45-minute drive). Historic Jamestown, which will celebrate its 400th anniversary in 2007, is nearby. Other attractions include Busch Gardens, the Water Park, and golf.

The 2006 Conference Committee has been working for several years to be certain that this conference will offer the highest quality technical programs, complemented by exceptional guest tours and wonderful hotel accommodations. 2006 is a year of celebrations including the 50th anniversary of our interstate highways, and the Virginia Department of Transportation is celebrating its 100th anniversary.

The Technical Program Committee has assembled an outstanding array of topics and speakers for sessions that will kick off Friday morning, June 2, 2006. CEU credits will be awarded for attendance at these programs. A special, one-day registration will enable participants to attend the Friday Technical Programs.

Technical Programs are organized into three tracks.

The first track: 50 Years of Interstate. This track will focus on the history of our industry, where we have been, where we are now and where we can go. Sessions will include: Then—History of the Interstate; Now—Current condition of Transportation System; Future – New ways to pay for transportation; and Tour the Colonial Parkway.

The second track: Hot Technologies. Technology drives the future of our Highways and Transportation. We need to know what is out there, how it is being used and how we can be apart of it. Sessions include: Latest in Intelligent Transportation Systems (ITS); GIS Advances and the Future; FHWA's program to move new technologies.

The third track: Safety Improvements & Repairs. Our Transportation System will always need repairs and as our world changes, we always need to make things safer. Sessions include: Bridge Innovations and Remediation; Designing Safer Roads; Ground Improvements—Geotechnical Technology.

The Conference will have wonderful technical programs, but there will be an abundance of special fun-filled tours for members and their guests each day. Everyone who has told committee members that they plan to come to Williamsburg has talked about the colonial town. Therefore, one of our guest activities will be the colonial tour, and a planned candlelight tour of the colonial city.

The highlight of our entertainment program will be a Friday night dinner and tour of the Jamestown Settlement. Preparations are underway for the quadric-centennial celebration of the establishment of Jamestown in 1607. New facilities and programs are underway in preparation for 2007. History comes alive in re-creations of a Powhatan Indian Village, a colonial fort, and the three ships– Susan Constant, Godspeed and Discovery.

The conference hotel, the Williamsburg Marriott, is adjacent to Busch Gardens. The hotel is also in close proximity to shopping and a number of great restaurants. There is plenty for everyone to do. That is why we encourage ASHE members to plan now to bring the whole family to Williamsburg.

Did you think we forgot golf? Of course not! Make your plans for Thursday, June 1. We have arranged for 288 golfers to have the opportunity to play golf at the much-lauded Kingsmill Club. Companies interested in sponsoring one of the 18 holes, contact our Golf Committee Chairman, Mike Tugman (757) 222-1500; Mtugman@hdrinc.com.

Our Ice Breaker Reception is Thursday evening in the beautiful exhibit hall, where members will enjoy hearty finger foods while visiting our many sponsors' exhibit booths. Companies interested in securing a prime exhibit location, contact Jerry Dougherty (410)316-7899 gdougherty@kci.com.

Polish your dancing shoes for the Fabulous Hubcaps who are performing Saturday night. This popular band will entertain us at the Saturday night annual banquet and business meeting.

Make your plans now to join us in Williamsburg. Region 7 invites you join us for a truly outstanding ASHE National Conference. For more information, check our website: www.ashe2006.org or highwayengineers.org. ■

CEE Faculty Member Helps DelDOT Design Safety Grate for Storm Drains

Diane S. Kukich, Research Administrator

Storm drains have long been a public safety concern, but the issue became particularly newsworthy in Delaware in September 1999, when two girls were swept to their deaths during a flood triggered by Hurricane Floyd.

The drains are necessary in an era of rapidly expanding development where natural drainage is interrupted. But headlines in the Wilmington News Journal during the five years after the tragedies caused by Floyd pointed to continued concerns about storm drain safety: "Deadly drain is still a danger." "Delaware slow to safeguard storm drains." "7-year-old sucked into drain, survives." "Father says grate couldn't come too soon."

Finally, in August 2005, a News Journal headline signaled good news: "DelDOT says it has developed a safer storm drain grate."

The new device, called the "Personnel Safety Grate," was designed by DelDOT in collaboration with Prof. Nobu Kobayashi of the Center for Applied Coastal Research at the University of Delaware. Kobayashi's contribution to the work was supported by DelDOT through a contract with UD's Center for Innovative Bridge Engineering. Both centers are housed within the Department of Civil and Environmental Engineering.

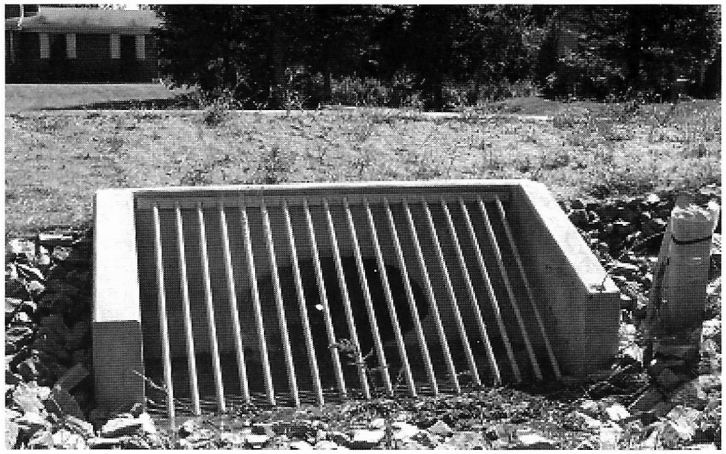
"Our overall goal," says Kobayashi, "was to develop a set of guidelines that would assist a competent engineer in designing a personnel safety grate with minimum adverse effect on the hydraulic performance of the stormwater pipe. We had to deal with the complexities caused by competing objectives: The grate must prevent people from being carried by stormwater into the pipe, but, at the same time, the pipe must be open to carry stormwater as efficiently as possible during storm events."

"We identified several major factors to consider in designing a safety grate upstream of a stormwater pipe that is determined to be hazardous," he continues. "These include the placement of the grate in relation to the pipe inlet, the orientation and inclination of the grate, and the orientation and spacing of the bars of the grate."

The term hazardous is currently used to refer to any pipe 12 inches or larger where daylight is not clearly visible when one is looking through the pipe. That criterion was reduced from 18 inches, after a seven-year-old child was sucked into a 12-inch pipe in July 2004.

According to DelDOT engineer Joe Ellis, Kobayashi's report was instrumental in providing guidance for developing a Standard Construction Detail for Personnel Safety Grates.

In developing the standard and coordinating with pipe manufacturers and fabricators, DelDOT is providing guidance to others, such as developers, as they also need to place PSGs in their hazardous storm water pipes.



Last year, DelDOT installed new Personnel Safety Grates over open-ended stormwater pipes in the Caravel Hunt, Pine Valley, Westover Woods, and Duncan Glen developments in New Castle County. DelDOT has also been refining stormwater safety in existing systems and incorporating storm water safety mechanisms into standard construction plans.

In addition to developing technical guidelines for storm drain safety grates, Kobayashi's report recommended that a holistic approach be adopted, with the participation of various agencies, civic groups, and media.

"Accidents can be minimized if children and adults know the danger of playing in water in the vicinity of stormwater pipes," he says. "Active participation of the public through stream clean-up and elimination of household litter in backyards and roads helps reduce debris clogging on grates. Public education, such as public service announcements in local radio and television programs at the beginning of and during the hurricane season, should be part of the overall effort in promoting safety near stormwater pipes."

DelDOT's Ellis agrees with Kobayashi about the importance of an educated public with regard to storm drains. "We're very pleased with the new grate design," he says, "but I can't stress enough how important is that residents not take this problem into their own hands. DelDOT is placing grates over the upstream opening to the drains, but it is very dangerous to block the outfall end of a pipe. If a person gets into the system, they are trapped. It also creates some serious maintenance problems." ■

Sponsors

Grand
DMJM + Harris, Inc.
GAI Consultants, Inc.
HDR Engineering, Inc.
Michael Baker Corp.
SAI Consulting Engineers, Inc.
Trumbull Corporation
URS Corporation

Diamond
Bayer Corporation
Johnson, Mirmiran & Thompson
KCI Technologies, Inc.
Maguire Group, Inc.
MS Consultants, Inc.
Parsons Brinckerhoff, Inc,
PBS&J
Pennoni Associates, Inc.
Site-Blauvelt Engineers
Sucevic, Piccolomini, Kuchar Engineering, Inc.

Platinum
Buchart-Horn, Inc.
Gannett Fleming, Inc.
Greenhorne & O'Mara, Inc.
Mackin Engineering Company

Gold
Earth, Inc.
McTish, Kunkel & Associates
Skelly & Loy Engineers
STV Incorporated
T.W. Consultants, Inc.
Whitman, Requardt & Associates, LLP
Wilbur Smith Associates

Silver
American Geotechnical & Environmental Services, Inc.
Constructors Association of Western Pennsylvania
George & Lynch, Inc.
Gibson-Thomas Engineering Co., Inc.
Herbert, Rowland & Grubic, Inc.
Ohio Contractors Association
Vollmer Associates, LLP

Bronze
ARCADIS
ASHE, Erie Section
CTE
East Jordan Iron Works, Inc.
Innovative Consulting Group, Inc.
Markosky Engineering Group, Inc.
TGS Engineers

General
Dawood Engineering, Inc.
Monaloh Basin Engineers

2005 ASHE National Conference Highlights

What a weekend! While the ASHE 2005 Conference might be an increasingly distant memory for attendees, the Conference Committee members from Pittsburgh are still trying to decompress. The numbers tell the story: 619 people attended the June 2-5 event. Seventeen National Past Presidents attended the Past Presidents' Luncheon. Twenty-two technical programs were presented with unprecedented audience attendance. And the weather cooperated, with warm, sunny skies that helped to show off our beautiful city.

Some more numbers help to reveal how successful the Conference really was: there were 54 exhibitors, so many that we had to open an additional small exhibit room – with its own open bar. We had 7 Grand Sponsors, 10 Diamond sponsors and 4 platinum sponsors. Our appreciation of their involvement in the Conference cannot be overstated. We are truly grateful to those companies and agencies that provided this financial support. Their generous support enabled us to reach 117% of our anticipated goal for sponsorships.

Spouses and children, sometimes accompanied by ASHE members, participated in eight different off-site tours. Whether they were riding the Incline up the face of Mt. Washington with its spectacular view of downtown Pittsburgh, admiring the opulence of Henry Clay Frick's mansion, or watching gorgeous birds fly overhead at the National Aviary, the comments were very positive and enthusiastic. People on the tour of PNC Park were treated to an unexpected visit with Dave Littlefield, General Manager of the Pittsburgh Pirates.

One of the outstanding technical programs occurred Friday morning when senior executives of the Pennsylvania Department of Transportation, Pennsylvania Turnpike Commission, Port Authority of Allegheny County, Southwest Pennsylvania Commission and the Allegheny County Aviation Authority joined together to provide their unique and candid perspectives on their

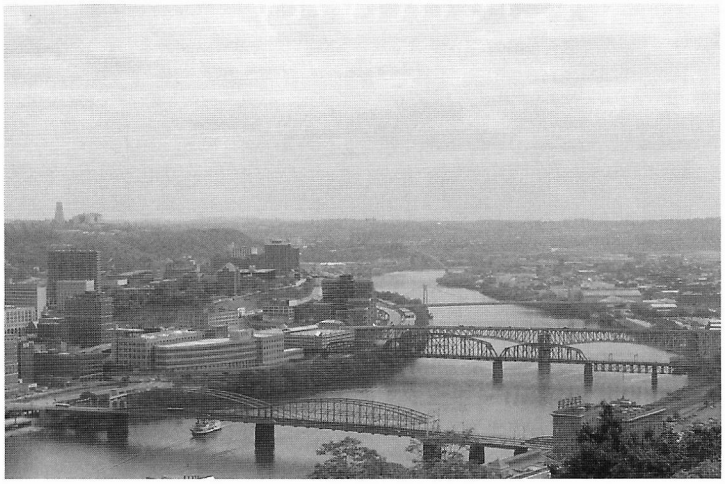
segment of the transportation industry. Their participation showed clearly the high esteem in which ASHE is held in Pennsylvania.

The Past Presidents' Luncheon on Friday was unusually well attended. Seventeen National Past Presidents were recognized and honored for their contributions to ASHE over the years. Pennsylvania State Senator J. Barry Stout was presented with the Robert E. Pearson "Person of the Year" award for his tireless efforts on behalf of the transportation industry. The keynote address to the 267 people in attendance was delivered by Allen D. Biehler, Secretary of Transportation for the State of Pennsylvania.

The Friday night social at the Senator John Heinz Western Pennsylvania Historical Museum was another big hit. People enjoyed a live jazz band in the main hall of the former icehouse and wandered freely among the four floors of exhibits, savoring a variety of gourmet dishes on each floor. We did have one complaint here: when it was time to leave, one guest wanted more time to finish visiting the exhibits. (We invited him to come back another time to enjoy the museum at his leisure.)

The Saturday golf outing drew 144 golfers to the beautiful Birdsfood Golf Club where, as the early morning fog began to lift, they were welcomed by the haunting tunes of a kilted Bagpiper. Twenty firms donated prizes for the various golf holes and for various skill challenges.

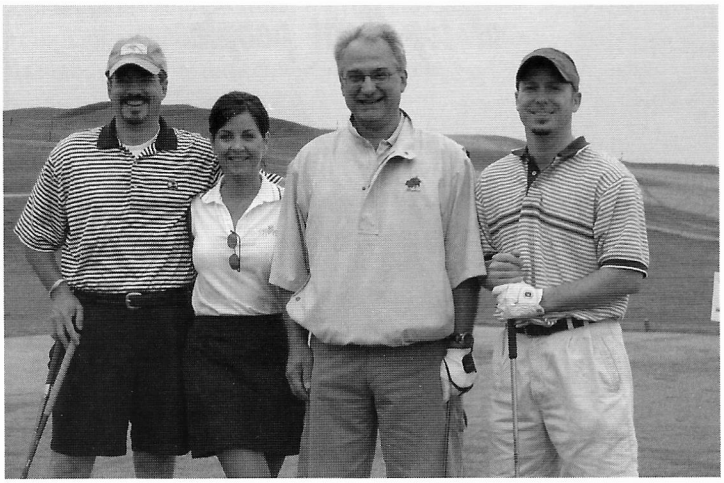
The Saturday night banquet offered a mix of fellowship, laughter, nostalgia, good food and drink, and tradition. Outgoing National President Rodney Pello and incoming President Ron Purvis shared their observations on the organization with the nearly 300 guests in attendance. The newly elected National Board and the board of the Pittsburgh Section were officially inducted. During dinner, guests were treated to a large-screen presentation of photographs taken during the Conference, many of which now appear on our conference website, www.ashe2005.org. The



smooth, sophisticated, sentimental music of The Vogues brought almost everyone to the dance floor.

The Conference Hospitality Suite earned high praise with its endless open bar, ample snacks, and a truly outstanding view of the Pittsburgh skyline reflected in the waters of the Monongahela River. The adjacent long balcony enabled people to sit outside to chat with old and new friends and to enjoy the ever-changing vista of the thriving, vibrant city before them.

I know we sound like charter members of the Pittsburgh Chamber of Commerce, but we are so proud of our city and of the opportunity afforded by ASHE to show it off to old friends and new. To those who were unable to attend the 2005 Conference, we're sorry you missed it and we hope you'll try to join us all in Williamsburg next June. And to those 619 people who did attend, a big, very sincere thank you. ■



OOCEA Data Server: Sharing Resources to Achieve Regional Objectives

L.A. Griffin, Manager of Expressway Operations
Orlando-Orange County Expressway Authority

Project Summary

The Orlando-Orange County Expressway Authority (OOCEA) is underway with deployment of the Phase 1 Expressway Management System in order to enhance the safety, reliability, and performance of the OOCEA Expressway System. The Expressway Management System will allow Traffic Management Center (TMC) personnel to monitor real-time traffic conditions and respond to traffic incidents. Another feature of this system will provide OOCEA customers with decision-quality information regarding incidents and origin-destination travel times. Travel times will be generated by the OOCEA Data Server using information reported from data collection sensors (DCS) deployed across the OOCEA Expressway system. These DCS will read toll transponders and produce anonymous data used to develop generic travel times on the Authority's system. The OOCEA Data Server will also process travel time information received from non-revenue toll transponder sensors installed under the iFlorida Field Components project. The OOCEA Data Server is currently under development by Southwest Research Institute. While this system has been developed around the Authority's needs, the Authority has been working closely with regional partners to identify ways to share data and cooperate to provide seamless services to customers, regardless of jurisdictional boundaries. As part of a consortium of transportation operational agencies in Central Florida, the Authority has formalized its commitment to regional partnerships and goals. The OOCEA Data Server is an example of achieving regional objectives.

Provisions for Privacy of Customer Data

The Authority has taken a number of steps to ensure the privacy of customer data. Travel time information is calculated by the OOCEA Data Server in an anonymous fashion by matching encrypted transponder identification information not used for toll collection.

Data Collection Sensor Provisions for Privacy

The SIRIT data collection sensor equipment to be installed uses the Title 21 protocol to read the Title 21 identification number from the transponder. The Title 21 identification number is not used by the SunPass or E-PASS electronic toll collection systems. Additionally, the Authority will not be using any transponder data collected at toll plazas as part of its data collection project.

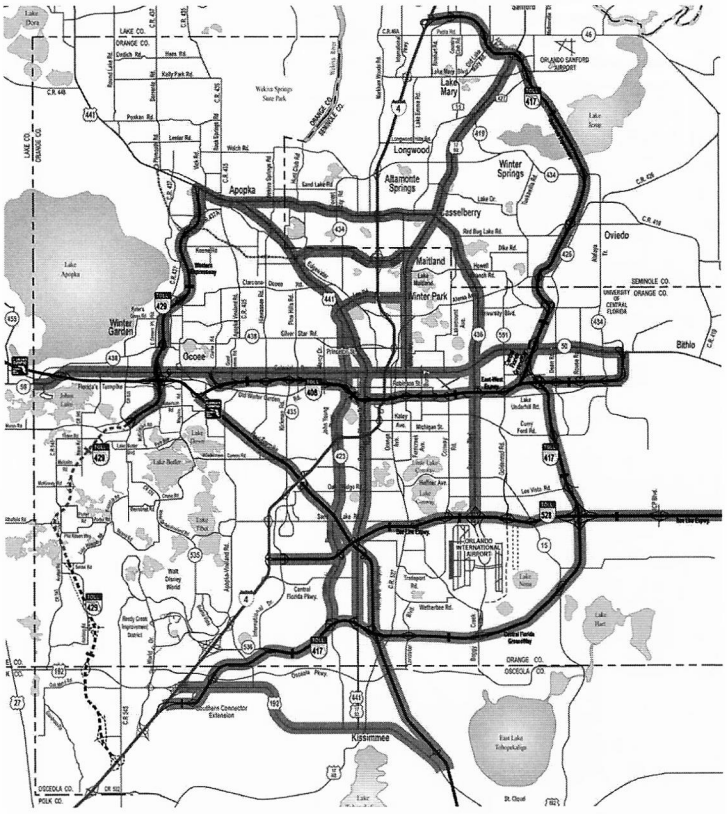
Data Server Provisions for Privacy

The architecture of the Authority's data collection system has been specifically designed not to allow any correlation of travel time statistics with customer information. The OOCEA Data Server communicates directly with the SIRIT data collection sensors in order to gather the Title 21 identifications read from the transponders. Once read into the Data Server, these transponder IDs are encrypted using an algorithm that permanently modifies these numbers. This matching of encrypted numbers to calculate travel times is done in volatile computer memory so that encrypted numbers are not stored with matches within the Data Server System. Additionally, transponder IDs are removed from the matches prior to storage of travel times. Real-time travel times are reported as aggregates, not on a per-vehicle basis. The Data Server algorithms require a minimum of ten matches to be used for all reported travel times to prevent a single match from being used to generate average travel times. Hence, only generic average travel times are reported by the Data Server. These Data Server software provisions prevent the monitoring or recording of individual customer movements.

Coverage Area

The picture below depicts a map of the Central Florida area. The dark gray highlighted roadways are the OOCEA expressways that the Data Server will calculate travel times. The Authority will use SIRIT data collection sensors to cover the Authority's entire roadway network, placed an average 1.5 miles apart. The light gray highlighted roadways are the iFlorida covered major arterials and portions of the Florida Turnpike that the Data Server will also calculate travel times. iFlorida, under development by the Florida Department of Transportation, will use both Advanced Vehicle Identification (AVI) and License Plate Readers to cover major arterials in the Central Florida region, placed an average of 4 miles apart. The Data Server will provide travel times for all highlighted roadways to the iFlorida Conditions Reporting System Project.

"OOCEA Expressway" continued p. 14



"OOCEA Expressway" continued from p. 13

Data Server Functions and Features

The Data Server's Data Fusion includes matching tag reads, filtering outlier data, and fusing data to obtain average travel statistics. The Data Server will encrypt the transponder ID for all data collected to protect the privacy of customers. The encrypted IDs will then be matched to obtain raw travel times. The encryption will ensure that raw travel times cannot be traced back to a customer. Filtering will remove outlier data by applying speed thresholds, based on current travel time averages. These thresholds were developed from the operational experience of the Traffic Data Pilot. Discrete travel times will then be averaged into aggregated travel times using established fusion methods that were used and refined as part of a pilot project. The Data Server also has the ability to dynamically calculate travel times from upstream and downstream sensors of a failed sensor site in the event of a device failure.

Travel Time Dissemination Outlets

The Authority and its regional partners will leverage the features of the Data Server to deliver high-value information to transportation operational agencies and customers in the Central Florida region. The system will include an Operator Interface to support the management of the Authority's expressways. This interface will include a speed map, incident event logging to support the development of performance measures, and standard reports that query archived data for roadway performance monitoring. These functions will allow Traffic Management Center (TMC) personnel to monitor real-time traffic conditions and respond to traffic incidents.

As part of a separate project, OOCEA is deploying more than thirty Full Matrix Dynamic Message Signs (DMS). The Data Server will provide an automated travel time message feed to the DMS to support the continuous display of travel times to downstream interchanges.

An interface to the iFlorida Conditions Reporting System will provide travel time data to support 511 messaging and a public multi-agency website for the Central Florida area. In addition, the Conditions Reporting System will be utilized by FDOT District 5 Regional Traffic Management Center (RTMC) to manage and report incidents and events using travel times produced by the Data Server. All external interfaces are governed by interface control documents that specify how the Data Server communicates with these external systems. ■

Case Study: On-site UC Consultants Relieve Overloaded Staff

By Vinnie LaVallette, Assistant Director/Senior Utility Coordinator, TBE Group

All around the country, increasing development coupled with aging and deteriorating infrastructure have placed an escalating burden of work on state Departments of Transportation (DOTs). DOT district office staffs, including utility coordinators, are feeling the pinch. Some districts are taking a creative approach in finding a solution to their stretched-too-thin situation. They're hiring outside consultants to ease their utility coordination workload, and the consulting firm's utility coordinators often work on site at district offices as an extension of the district's staff.

One case in point – a success story – can be found at the Florida DOT's District One office in Bartow. The district found itself with an increasing workload without adequate in-house staff to handle the volume. The district decided it could increase its workload capacity without increasing actual staff by hiring external consultants and having the consulting firm's utility coordinators work on site at the district office. These utility coordinators are employees of the consulting firms, but they function as district staff.

Walter Childs, District One's District Utility Administrator, has been using utility coordination consultants for the past four or five years to augment his staff. "We could not handle our work volume without additional staff," Childs said. "Our outside consultants offer us qualified, expert individuals who can perform all of the levels of work needed on the projects we are clearing. The on-site coordinators allow us to handle one-third more work and meet work schedules that otherwise would have been impossible to maintain."

Childs has found additional benefits to having consultant utility coordinators on site. "It's a much more efficient use of their time and ours," he said. "First, if the work is being done off site, there's a chance for delay or of something unintentionally slipping through the cracks and not getting done at all. Second, if the utility coordinators need my input on something, they can just walk over to my office and ask. They don't have to call and leave a message or get in the car and drive over to show me."

The beauty of the arrangement is that as extensions of Childs' staff, his consultant utility coordinators are in the district office eight hours a day, five days a week. "Not only do they work on projects, but they're available to work on whatever else I need done," Childs said.

"The coordinators' responsibilities are not totally project-based, so they are available as staff for anything that comes up," said Mark Pitchford, Vice President / Southern Region Manager, Utilities, for TBE Group, a full-service international consulting, design and engineering firm. "If they need to run reports or get permits, they're there to perform these functions."

Two of District One's on-site consultant utility coordinators are TBE Group's Ray Mercer and George Radford. While Mercer and Radford are on TBE's payroll, they work at the district office and report to Childs for their daily assignments.

Both Mercer and Radford understand the numerous benefits of working on site. "We're right here where everything is happening," Mercer said. "When paperwork or responses come in from the utilities, we're immediately available to respond, answer questions, locate documents...whatever is needed."

"Working on site is so much more efficient and convenient," said Radford. "The people we need to deal with are right here, and if something comes up for us to handle, we're here instead being on the other end of the phone line. For example, some agreements need to be hand-delivered for sign-off. We're available to do that. The assignment doesn't have to wait until later."

"Our contacts at the utility companies see us as part of the DOT staff, and we're able to establish productive relationships with them," Mercer added. "In addition, all of the people at the District One office are very knowledgeable and helpful. It's a pleasure to work here."

"Having well trained staff increases our effectiveness," Childs said. "Using on-site consultants, such as Ray and George, helps us meet the demands of our work programs. It's a winning arrangement for everyone."

For more information on TBE's utility coordination, subsurface utility engineering (SUE) and survey and mapping services, contact Nick Zembillas at 727-531-3505 or nzembillas@tbegroup.com, or visit www.tbegroup.com. ■

'Steel City' Brownfield Redevelopment

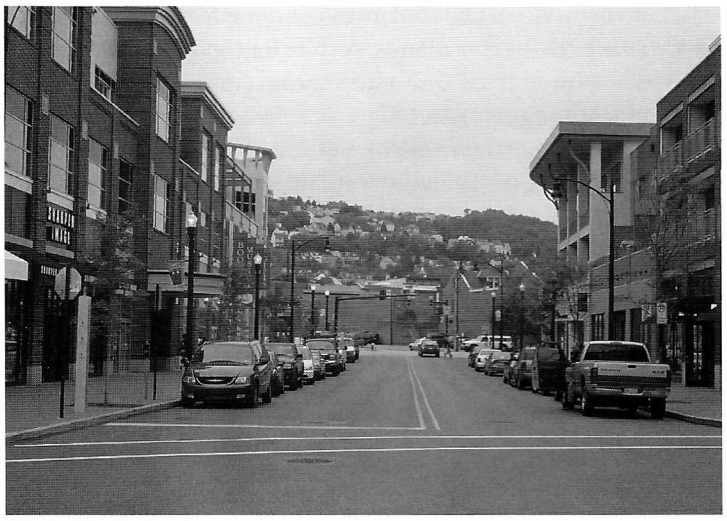
Lisa Andrus-Pease, John Hetrick, and Richard Matisz of SAI Consulting Engineers, Inc.

Introduction

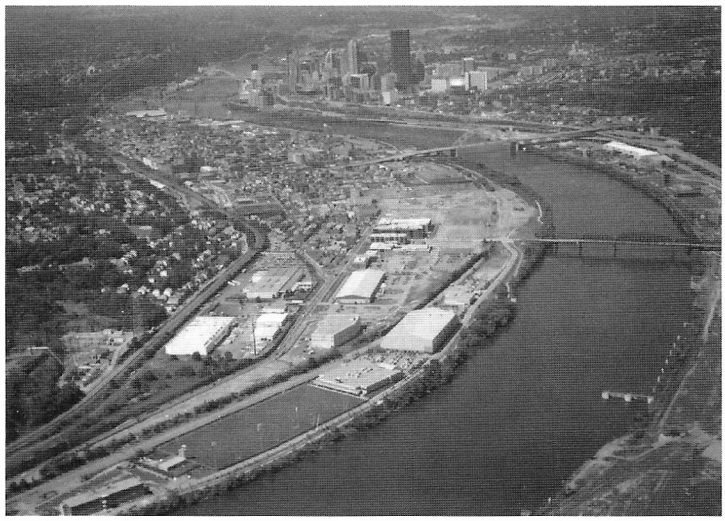
Pittsburgh, known across the country and in many parts of the world as 'The Steel City', has watched its legacy virtually disappear over the past two decades. The Steel Making Capital of the World was a title held by the Pittsburgh area and the river valleys of Southwestern Pennsylvania for over 100 years. During WWII, the region's mills produced more steel than Germany and Japan combined. The majority of the steel mills have now closed, leaving vacant factories and thousands of acres of land along the Three Rivers to sit inactive. These sites have been classified as "brownfield sites." A brownfield site is defined as real property - the expansion, redevelopment, or reuse of which may be complicated by the presence of potential hazardous substances, pollutants, or contaminants.

After the "Small Business Liability Relief and Brownfields Revitalization Act" was signed into law in 2002, the Urban Redevelopment Authority of Pittsburgh (URA) purchased one of these brownfield sites – the LTV Steel Corporation's South Side Works plant, which was idled in 1993.

The URA had a vision that would help rejuvenate Pittsburgh's struggling economy by redeveloping this 123-acre piece of land into a new mixed-use development which would include residential, commercial, and retail buildings, a professional sports complex, and R&D land uses. With the combined efforts of local engineering firms, various private developers, non-profit organizations, and state and local governments, the new South Side Works was created, giving Pittsburghers one more reason to be proud of their city.



Commercial area



LTV Site during redevelopment. Sports complex and practice fields already installed.

Project Highlights

Development of the LTV brownfield site began in 1997. To date, 12 contracts to install infrastructure and build city streets have been completed.

115 acres of land have been and continues to be developed into various types of residential housing, i.e., condominiums, apartment buildings, townhouses, and trendy lofts. The commercial properties are made up of a combination of independent small businesses and nationally recognized one of a kind retail and restaurants that are new to Pittsburgh. Flex office space houses a wide variety of businesses, including government agencies and private corporations. Five parking structures are being built to handle increased parking demands and optimize the available development area of the site.

Site Preparation

Before roadways and structures could be built, subsurface investigations were necessary to clear the corridors of old subsurface mill structures. Over 8,000 mill drawings were reviewed and data plotted to identify locations of foundations, tunnels, and other underground structures that needed to be removed for construction purposes. A large percentage of the old concrete structures was crushed and the material used for grading. Other

materials, such as railroad ties and rails, were stockpiled and later removed from the site under a separate contract.

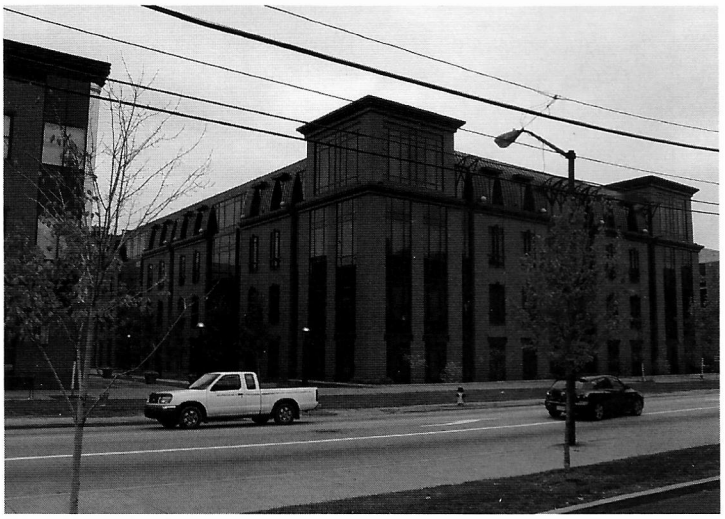
Old utility trunk lines, situated 25 to 30 feet below the surface, were inspected and, where possible, rehabilitated and reused as part of the public sewer systems. Supplementing these lines was the construction of thousands of feet of new storm and sanitary facilities. A number of new submerged storm outfalls had to be constructed at the edge of the Monongahela River.

Roadway Design

A complete city street network was laid out and constructed. Over two miles of roadway with all new public and private utilities make up this network. In addition, a one-mile section of S.R. 0837 (East Carson Street), fronting this development, is scheduled for reconstruction in 2006. Alignment and profile of these roadways were closely coordinated with site requirements for access to buildings and garages.

Bridges

Three 70-foot single-span pre-cast spread box beam bridges with integral abutments built at-grade were constructed as part of the street network to span over an active CSX railroad tunnel that split the site. Two old mill river crossing structures that carried rail cars across the Monongahela River between the mills are being converted to vehicular and pedestrian bridges. The Hot Metal Street Bridge opened to traffic on May 2000 and the pedestrian bridge is scheduled for rehabilitation in 2006.



Flex office buildings

Residential

Unique Complex Features

One early development on the site was design and construction of the UPMC Sports Performance Complex. This facility contains medical and training facilities as well as practice facilities for both the Pittsburgh Steelers and the University of Pittsburgh. Located on the lower terrace of the site, this complex occupies approximately 25 acres of the site and sits adjacent to the Monongahela River Trail, which runs the length of the development. Grading for all of the structures, roadways, and trails, as well as the installation of all public and private utilities, was part of the infrastructure work.

Conclusion

To date, the efforts of the URA have brought over $220 million in private investment, 1,500 jobs, 1,420,000 sq. ft. of commercial and office space, 354 residential units, and four parking garages to the South Side Works. Recognized for their efforts and accomplishments, the URA received the 2002 National Phoenix Award.

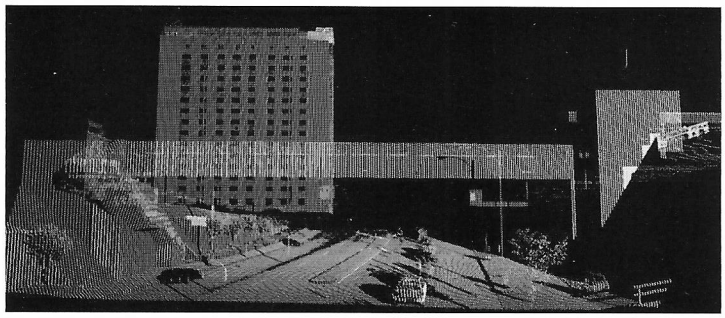
Many older citizens of Pittsburgh will always remember this site as the LTV Steel Mill, but to the young generation of Pittsburgh, it is becoming the place to be. ■

Virginia Department of Transportation Implements New Survey Technology

Stacey Provence-Roosa in VDOT's Remote Sensing

The three-dimension High Definition Terrestrial Scanner (HDTS) is the newest in technological advances introduced to the VDOT survey department. With this new technology many doors will open to the survey department, including enabling surveyors to get into areas that were previously dangerous, time consuming (labor intensive), and hard to access. The HDTS will also relieve some of the pressure of revisiting a survey site.

The system creates a cloud of points each with its own true position in relationship to the coordinate system to which it is referenced. Each point is created by transmitting a light pulse with a high speed measure counter. This counter records the time of flight from the scanner to the point and back again. A digital recorder also takes high resolution digital photos in the same field of view as a scan. The combination of these elements reduces the need for detailed sketches at a project site. Also, the colors from these photos can be assigned to each point in a cloud producing a photo like image. Attached below is an example of the 14th Street pedestrian Overpass here in Richmond, Virginia. The building to the left and in the back ground is the Annex Building of VDOT, while the structure to the right is the Monroe Building (which abuts I95 SB).



The scanner is most useful when: confidence in the data is important, there are time constraints on a project, fast turn around is needed, or when an area is difficult or dangerous to access and/or measure. A single setup of the system can cover more area than traditional survey methods which may require many setups thus reducing field time. The system's ability to capture large amounts of information and gather information from all surrounding elements in a single setup enables the surveyor to secure measurements from the office rather than spending time in the field. Projects such as scanning busy intersections, bridges, or delicate surfaces can capture as-built geometry and associated infrastructure quickly, safely, and accurately. These can all be accomplished without disruption to passing traffic or putting individuals in harms way. A variety of power sources and target choices make scanning versatile and easy.

Set up of the scanner can be performed over an assumed point or a known control point. Placing targets on other control points will tighten the accuracy of any scan. Though the line-of-sight technology (cannot see through or around objects), front and upper scanning windows have a combined dual design that covers a 360 horizontal X 270 vertical degree field of vision with an efficient range of 200 meters. The three dimension range accuracy is +/-4mm. The intensity of the return is based on the reflectivity of the object that is being scanned

The software is user friendly and supports easy manipulation of billions of points. Control of the size of point clouds is achieved and they can easily be converted to conventional Microstation files. Software capabilities include referencing to a coordinate system (including VDOT Project coordinates), notation on cloud point files, fly through with clearance measurement, and simple elimination of noise. The software also has the ability to create two-dimensional alignments from three-dimension scans, complex wire frame, Triangulated Irregular Network (TIN) models, and build contours. All these can be more easily used in design projects without requiring additional man-hours to do contours in the field. The scan technology provides visualization capabilities, immediate measurements, two-dimensional maps and drawings, cross sectioning and three-dimension modeling. All the information can then be easily exported into Microstation.

VDOT envisions that this newest technology will enable more efficient and effective completion of survey jobs. As technology advances, VDOT stays on top of it and keeps Virginia moving. Further information can be obtained by contacting Stacey Provence-Roosa at (804)786-3391 or emailing her at Stacey.Roosa@VDOT.Virginia.gov. ■

Classified

SURVEYOR/PARTY CHIEF
INSTRUMENT PERSON/
SURVEYORS

Immediate positions for responsible, conscientious and results-driven surveyors/party chiefs, and instrument persons/surveyors for field crews to perform boundary, topographic, highway and ALTA surveys. Experience with total station and electronic data collection systems mandatory. Travel required. Excellent benefits package. EOE. Join a growing, respected, company. Apply to:

DAWOOD ENGINEERING, INC.
ATTN: Drew Bitner, P.E., P.L.S.
2020 Good Hope Road, Suite 100
Enola PA 17025-1237
or by fax to 717-732-8596

GEOTECHNICAL ENGINEER

EARTH, INC. is looking for a highly motivated engineer (BSCE and EIT required, P.E. a plus) with zero to 5 years experience. With an increasing amount of geotechnical engineering work, we must expand our work force. Salary commensurate with experience. Excellent benefits including profit sharing and 401k plan. Send cover letter and resume to earth@earthincorp.com or mail to:

Earth, Inc.
The Gristmill - Suite 100
101 Bellevue Road
Pittsburgh, PA 15229-2107

QBS INTERNATIONAL, INC.

QBS, a mid-size engineering firm, is looking for the following professionals in its Pennsauken, NJ office:

- **Senior Highway Engineer** with a minimum of eight years of experience in all facets of highway design (NJDOT / NJTA / PennDOT / PTC experience and PE license desired)
- **Highway Engineer** with a minimum of five years experience in highway and drainage design, hydraulics, and hydrology
- **Senior Structural Engineer** with a minimum of ten years experience in bridge design and ability to manage projects and people (PE license required, PennDOT/PTC experience desired)
- **Structural Engineer** with a minimum of five years experience in bridge design and a familiarity with LRFD and AASHTO (PennDOT / PTC experience desired)
- **Resident Engineer** with five to ten years of bridge construction inspection and management experience (PE license or NICET certification required)

For consideration, submit resume and salary history in confidence to info@qbsinternational.com. QBS offers competitive compensation and benefit packages as well as a comfortable, professional work environment. QBS International, Inc. is an equal opportunity affirmative action employer.

As the Wheel Turns

Paul J. Messineo, Jr., P.E. joined Pennoni Associates Inc., an Engineering News Record Top 500 consulting engineering firm headquartered in Philadelphia, as the Pittsburgh Office Principal. With over 18 years of experience, Mr. Messineo comes to Pennoni from DMJM Harris of Pittsburgh and specializes in Earned Value Analysis and Contracts.

Throughout his career, Mr. Messineo has worked on many projects including, but not limited to, the Mon-Fayette Expressway sections 51J and 53E, the Northshore Connector Tunnel, and various contracts for the Pittsburgh International Airport.

"We are excited to welcome Paul Messineo to the Pennoni Team," said Steve Barber, Regional Manager of Central and Western PA. "His intimate knowledge of the Pittsburgh and Southwestern Pennsylvania region is an invaluable resource for the multifaceted initiatives that Pennoni is pursuing. Mr. Messineo's dynamic personality further enhances an already strong team in the Pittsburgh Area."

In his new role, Mr. Messineo is responsible for basic operations of the office as well as cultivating new leads and client relationships. He will also work with his division to continue Pennoni's excellent reputation for existing customer service and follow-up.

A University of Pittsburgh graduate with a BS in Civil Engineering and an MBA, Mr. Messineo is very active in the engineering community. He is a member of many organizations including the ACEC/PA where he is the Western Chapter President and serves on the Port Authority Sub-Committee, the American Society of Highway Engineers where he serves on the Pittsburgh Section Board and is Program Chair, the Construction Legislative Council where he serves as Chairman, the NAIOP where he sits on the National Membership Committee and Minority Sub-Committee and sits on the Pittsburgh Chapter Board and is the Membership Chair, and is on the Allegheny County Transportation Transition Team and MWDBE Advisory Committee. A resident of Churchill, PA, Mr. Messineo and his wife, Terri, have three sons, Paul III, Brandon, and Jordan.

McMahon Associates, Inc., is proud to announce the promotion of **Dean A. Carr, P.E.** to Senior Project Manager.

Dean A Carr, P.E. draws on 10 years of experience in highway design and transportation engineering. His expertise is in roadway design, including horizontal and vertical geometry, drainage design, traffic signal design, utility coordination, traffic control layout and design, construction management, along with numerous other highway design related activities. Mr. Carr received his bachelor of science in civil engineering from Pennsylvania State University in 1994. He is a registered professional engineer in Pennsylvania and is a member of the American Society of Highway Engineers.

McTish, Kunkel & Associates (MKA) named **John J. (Jack) Porter,** Western PA Regional Manager of its Pittsburgh area office. With over 35 years experience in engineering, Jack served 33 years for the Pennsylvania Department of Transportation Engineering District 5-0. He held various positions in design, maintenance and construction during his career with the Department. His final assignment as Major Projects Manager included environmental clearance coordination, preliminary and final design and construction monitoring for projects totaling in excess of $500 million dollars.

Jack attended the University of Texas at El Paso, Lafayette College and is a graduate of Penn State University.

Jack received the PQI Project Recognition Award (2000) for design activities involved in the design of S.R. 0022, Section 04M (I-78) Rehabilitation and the 2001 National Partnership for Highway Quality Achievement Award for the top highway project in the nation for the same project. He will be a tremendous asset adding his expertise and enhanced services for MKA's Clients.

Duane E. Mundorf has joined JMT as Senior Associate in charge of our Construction Management group in our York, Pennsylvania office. Mr. Mundorf will be responsible for business development, project management, staff development and recruitment throughout Pennsylvania.

Duane brings more than 38 years of experience in the fields of highway/bridge construction and maintenance management to our clients. After advancing through positions of increasing complexity and responsibility at the County, District and Central Office levels, Duane's 32 year career with PennDOT culminated in his appointment as Acting Director of the Maintenance Division within the Bureau of Maintenance & Operations. He has worked in the consultant community for six years; first as Director for Construction Inspection, then as Principal Director for Construction Engineering & Inspection, and most recently as Vice President for Operations. His recent experience includes construction management and inspection projects in Pennsylvania, West Virginia, Ohio, and New York.

Mr. Mundorf holds an Associate degree in Business Administration from LaSalle University and completed his Civil Engineering education at Penn State University's Harrisburg campus. He served on an NCHRP committee tasked with assessing national highway/bridge maintenance quality assurance issues, and he served on a national panel that assessed the FEMA disaster recovery program. Duane is currently an active member of ASHE in Pennsylvania. ■

ASHE *SCANNER* & Web Advertising Insertion Order

Advertiser

Company:_____

Contact:_____

Address:_____

City, State, Zip:_____

Phone:_____ E-mail:_____

Signature:_____Date:_____

Payment preference:

- ❑ Check enclosed (payable to ASHE)
- ❑ Send an invoice

Place our ad as marked:

SCANNER	Distribution	Ad file due
❑ Winter 2006	February	January 15
❑ Spring 2006	May	April 15
❑ Summer 2006	August	June 30
❑ Fall 2006	December	October 31

www.highwayengineers.org

- ❑ One year

Ad size:

	One run fee	Four run fee
❑ Issue sponsor	$600	n/a
❑ Full page	$425	$1,600 ($400/issue)
❑ Half page	$325	$1,200 ($300/issue)
❑ Quarter page	$225	$ 800 ($200/issue)
❑ Business card	$150	$ 500 ($125/issue)
❑ Classified	E-mail text to editor for quote	
		Full Year
❑ Company ad & logo on web		$200

Specifications:

Full page	7 5/8" x 10"
Half page	7 5/8" x 5"
Quarter page	3 13/16" x 5"
Business card	2 1/2" x 1 1/2"

- Ads are printed black and white; spot color (determined by issue press run color) can be added for an additional 15% fee.
- Send electronic files in .pdf, .jpg, .tif, or .eps format to jennifer@wannerassoc.com. Camera ready art can be accepted as well.
- Link your company to the ASHE website. E-mail your company name, logo, and url address to jennifer@wannerassoc.com. Your company will appear for one year on the Consultants, Contractors and Suppliers page.

Profile

The *SCANNER* is published quarterly by the American Society of Highway Engineers and delivered to over 5,600 readers nationwide.

- 16% are State D.O.T. Employees
- 65% are Engineering Consultants
- 9% are Contractors
- 10% are Related Professions
- 50% of the membership have a professional status

***SCANNER* Correspondence**

Drew Bitner, P.E., Managing Editor
c/o Wanner Associates
908 N. Second Street
Harrisburg, PA 17102
717-236-2050; Fax: 717-236-2046
E-mail: jennifer@wannerassoc.com

"Message" continued from p. 1

Every ASHE member is important. Our older members have much to offer. Nothing can substitute for experience. Many of our older members helped establish and grow this organization. Their advice and guidance is invaluable. Younger members are also important. Without them our organization has no future. Their enthusiasm and willingness to try new things moves the organization forward. The ideal ASHE Section has a broad mixture of old and young members. It is also important that both groups share leadership and respect the other's contribution.

The role of the National Board is to represent the will of the membership and provide leadership. Your ideas and support are requested. The contact information for each National Board Member is on the ASHE National Website: www.highwayengineers.org.

The 2006 National Conference will be held in Williamsburg, Virginia. Attractions include: Colonial Williamsburg, Bush Gardens, Jamestown, Yorktown, Colonial Parkway, and Virginia Beach. You are cordially invited to attend. It's a great opportunity to bring your family and have fun. ■

THE ASHE SCANNER
Drew Bitner, P.E. Managing Editor
c/o Wanner Associates, Inc.
908 North Second Street
Harrisburg, PA 17102

PRESORTED
STANDARD
U.S. Postage PAID
Harrisburg, PA
Permit No. #741

AMERICAN SOCIETY OF HIGHWAY ENGINEERS

National Headquarters
113 Heritage Hills Road Uniontown, PA 15401
724-929-2760 or 407-836-7929
(South-East)
www.highwayengineers.org

Send address changes for the SCANNER to ASHE's National Headquarters at the above address as well as your home section.

Membership

Region 1	
Cuyahoga Valley	132
Central Dacotah	52
Central Ohio	157
Lake Erie	130
Northwest Ohio	45
Triko Valley	119
Western Reserve	7
Region 2	
Clearfield	103
Franklin	237
Mid-Allegheny	88
Region 3	
Pittsburgh	587
N. Central West Virginia	44
Potomac Highlands	61
S.W. Penn	243
Region 4	
Harrisburg	374
Altoona	188
Region 5	
N.E. Penn	120
East Penn	115
Williamsport	132
Region 6	
Delaware Valley	394
First State	123
New York Metro	118
North Central N.J.	132
Southern N.J.	221
Region 7	
Potomac	145
Chesapeake	89
Old Dominion	43
Greater Hampton Roads	53
Region 8	
Carolina Piedmont	94
Carolina Triangle	253
Georgia	252
Middle Tennessee	96
Region 9	
Tampa Bay	103
Central Florida	261
N.E. Florida	233
North Florida	36
Gold Coast	54
Total	**5634**
Professional Status	50%
DOT	16%
Consultant	65%
Contractor	9%
Other	10%