

SCANNER

NEWSLETTER OF THE AMERICAN SOCIETY OF
HIGHWAY ENGINEERS

www.highwayengineers.org



Winter 2006-1

Specifying and Permitting Alternative MTDs

*Thomas R. Decker, P.E., M.S.C.E.
Edwards and Kelcey, Inc.*

Specifying multiple alternative manufactured treatment devices (MTDs) in contract documents and approved permits provides flexibility, encourages competition, and provides a cost effective approach to satisfying design goals. Never before has providing cost-effective MTDs required a team effort between the owners, designers, regulatory agencies, and contractors.

This article is an update to a previous article that appeared in the Spring 2004 edition of the ASHE SCANNER and the July/August 2004 edition of *Stormwater*. Recent advances and changes in the approval and use of manufactured treatment devices (MTDs), particularly in New Jersey, warranted further discussion of the use of MTDs. MTDs are generally defined as pre-fabricated stormwater treatment structures that utilize settling, filtration, absorptive/adsorptive materials, vortex separation, vegetative components, or other appropriate technology to remove pollutants from stormwater runoff. Compliance with the Environmental Protection Agencies (EPA) Phase II Rules is also having an impact on the market.

Many state and local regulatory agencies, such as those in New Jersey, continue to implement and enforce use of new stormwater management (SWM) regulations to provide for increased water quality control, particularly for new developments. Limited developable property, right-of way, and other site constraints are making use of conventional BMPs (above ground basins, bio-retention, infiltration, stormwater wetlands, etc) difficult or not cost effective. In the last year alone, this

resulted in a substantial increase in the use of MTDs. To meet the increasing need to provide alternatives for removal of floatables, total suspended solids (TSS) and dissolved pollutants, innovative Best Management Practice (BMP) devices are being developed and marketed by various vendors. A quick count of the MTDs in just one of the *Stormwater Journal* publications revealed approximately 20 MTDs in use.

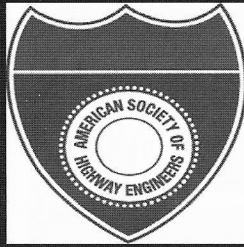
In New Jersey, evaluation and certification is performed by the NJDEP Division of Science, Research & Technology (DSRT) in coordination with the N.J. Corporation for Advanced Technology (NJCAT). The NJDEP Division of Science, Research & Technology (DSRT) is ultimately responsible for certifying final pollutant removal rates for all manufactured treatment devices. All conditional interim certifications are effective only for a limited time period, as determined on a case-by-case basis by the NJDEP. In addition, NJDEP has typically attached certain conditions for use of BMPs that have interim certifications, such that they only be used as part of a "Treatment Train" or where it is proven that no other conventional water quality BMP can be incorporated into

MTDs continued p. 13

**Join us in
Williamsburg,
Virginia**



www.ashe2006.org



ASHE
Northeast Penn

Is proud to present our
2005 – 2006 SPONSORS

DMJM HARRIS | AECOM



PENNONI ASSOCIATES INC.
CONSULTING ENGINEERS

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



T. W. CONSULTANTS, INCORPORATED
ENGINEERS AND PLANNERS



Gannett Fleming

Baker

Engineering & Energy

benesch

alfred benesch & company
Engineers • Surveyors • Planners



TRAFFIC PLANNING AND DESIGN, INC.

www.TrafficPD.com

ChallengeUs.

SHUMAKER
Consulting Engineering & Land Surveying, P.C.



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

ENGINEERING/ENVIRONMENTAL/SURVEYING



ceco
associates inc.
consulting engineers

BRIDGETEK
A CONTECH Company

**Locust
Ridge
QUARRY**

POCONO LAKE, PA

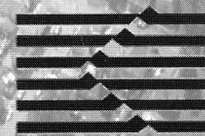
MEI milnes
engineering
incorporated
Engineering

12 Frear Hill Road
Tunkhannock, PA 18657
Tel: 570-836-2145
Fax: 570-836-6510
Planning • Designing
Surveying • Construction Services

GREENHORNE &



O'MARA, INC.



KCI
TECHNOLOGIES

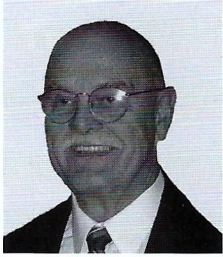
Kimball

L. Robert Kimball & Associates
Architects and Engineers

www.ashenepenn.org

President's Message

Ron Purvis, P.E.



My goal in preparing these President's Messages is to help inform the ASHE membership about matters being considered by the National Board. In this issue, I will focus on the ASHE Strategic Plan. The 2003-2006 Strategic Plan can be found at the ASHE website: www.highwayengineers.org. The tab to access the plan is located on the left side of the homepage. While the National Board has responsibility for developing the Strategic Plan, the goals cannot be accomplished without local section support.

The ASHE Strategic Plan defines the purpose and goals of our organization. It is a dynamic document that is redeveloped every three years. The National Board is currently in the process of developing the 2006-2009 Strategic Plan. We consider this to be an important responsibility. While the Board approves the new plan and provides input, the Strategic Plan Committee has the responsibility of developing the draft document. The Strategic Plan Committee also has the responsibility of monitoring progress throughout the year toward achieving the strategic goals outlined in the document.

Board members assigned to the Strategic Plan Committee have an important job. They help define the direction of the organization for the next three years. ASHE leadership changes each year, however, progress can only be achieved by building on past accomplishments. Continuity is important to achieve significant progress over the three year period. To provide maximum continuity the First and Second Vice Presidents are members of the Strategic Plan Committee. The Committee is chaired by the Past President. The objective is to build progress from year to year and gain commitment from future leaders.

Based on past experience, if a Strategic Plan contains too many goals it is difficult to achieve significant progress. It is better to define a few important goals, assign these goals to specific committees, and monitor their progress at each Board meeting.

Is growth a high priority? Do you agree that we should place priority on chartering sections in every state to become a nationwide organization? Based on our rate of progress to-date, it will take another one hundred and fifty years to accomplish this. I think that is much too long to wait.

While a few national groups represent parts of our industry such as consultants, contractors, or state DOTs, no national group represents the total industry. The public is rarely reminded

Strategic goals under consideration by the ASHE Board:

- Increase ASHE membership by adding new Sections and by growing existing Sections
- Increase the visibility of ASHE among nonmembers within the industry
- Achieve a more balanced diversity of membership among different parts of the highway industry such as public sector employees, vendors, construction contractors, private consultants and academia
- Protect traditional ASHE values established by the founders of the organization. These values are currently defined as: diversity, innovation, integrity, fellowship and quality

of the benefits of an efficient highway system to our economy and quality of life.

Hopefully, a 2006-2009 ASHE Strategic Plan will be approved at the April National Board meeting. If you have suggestions contact the National Director that represents the region where your Section is located. Section officers are encouraged to use this in planning local programs. Plans are to provide National recognition for special achievements.

The 2006 National Conference will be held in Williamsburg, Virginia. You are cordially invited to attend. It's a great opportunity to bring your family and have fun. Attractions include: Colonial Williamsburg, Bush Gardens, Jamestown, Yorktown, Colonial Parkway, and Virginia Beach. Go to www.ashe2006.org for details. ■

New ASHE Logos Available!

Use of a uniform logo by National and all chapters will increase ASHE's branding impact. Sandy Ivory has generously created uniform - yet unique - logos for each ASHE chapter.

Contact Sandy at sivory@keyconn.net to receive a copy of your chapter's logo.

Chapters are respectfully requested to discontinue use of previous versions by June 1, 2006.



CAREERS

WORTH BUILDING

Careers at T.Y. Lin International are built on commitment, talent and a need to exceed the expected. With a strong foundation of people, our success has no limits. Start building your career with us today. We are currently hiring for the following positions in Tampa and Fort Myers:

SENIOR ROADWAY ENGINEERS | SENIOR TRAFFIC ENGINEERS | ROADWAY ENGINEERS
CADD TECHNICIANS | ENTRY LEVEL CIVIL ENGINEERS

For immediate consideration, please submit your resume online to:
imanabe@tylin.com or www.tylin.com

TYLIN INTERNATIONAL

10500 UNIVERSITY CENTER DRIVE SUITE 155 TAMPA FLORIDA 33612

TYLI IS AN AFFIRMATIVE ACTION/EQUAL OPPORTUNITY EMPLOYER

Innovative Broadway Street Reconstruction for the City of Akron

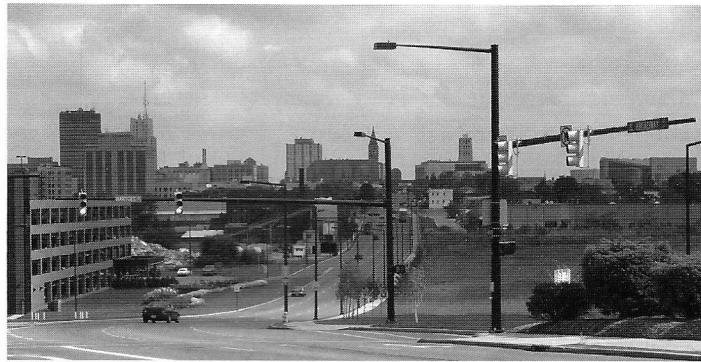
*Frank Bronzo, P.E.
McCoy Associates, Inc.*

The Broadway Street Reconstruction project was a vital improvement to the City of Akron's transformation of its Central Business District. Located just south of the City's core business area, the Broadway Street improvement will push new development to an area that was once covered with old buildings and rail tracks. Broadway Street, a northbound one-way arterial, carries more than 18,000 vehicles per day into the city. Today, after completion of the project, one can see that the lands once landlocked are now open and ready for the next influx of companies to fill the acres of the University Technology Park.

City of Akron planners were looking to the future. They wanted to redevelop the Opportunity Park Urban Renewal Area, just as it was done 40 years earlier. Through the reauthorization of the Transportation Equity Act of the 21st Century (TEA-21), enacted in June 1998, the City was able to obtain a federal grant. The grant, which enabled the City to move forward with its plans, required that the funds be used only for "construction innovation."

The City hired McCoy Associates, Inc. to perform a study to research the various

alternatives for improvement and, ultimately, for the final design of the project. The preferred alternative included the demolition of the existing South Broadway Street Viaduct and the construction of a new Broadway Street at-grade. The at-grade approach allowed the City to provide direct access to adjacent properties that could be developed and sold.

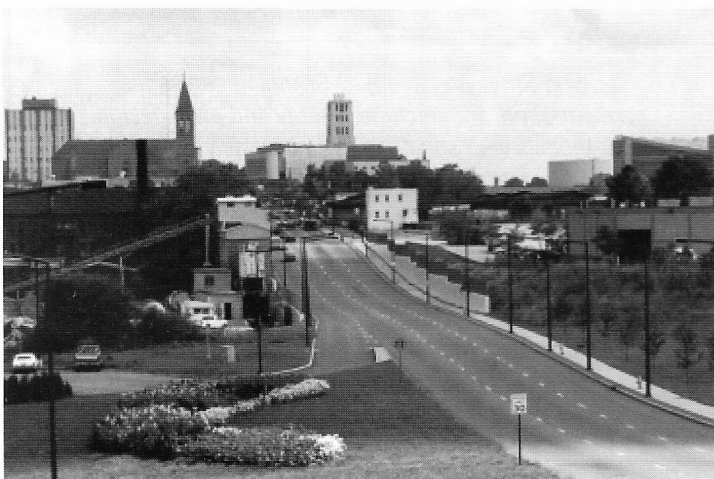


The project was initiated on a fast-track program, and construction was completed as planned by December 2002. Due to project complexities, including new utility services, street lighting, retaining wall restoration, and unsuitable pavement soil conditions, considerable time was needed for coordination among all stakeholders.

Another important element of the project required that access to the new Opportunity Park parking deck had to be provided and

maintained during construction. Two access locations to the deck were available – one off the High Street bridge and the other from a ramp that runs below the old Broadway Street bridge. The High Street ramp was maintained during construction, and the Broadway Street ramp was kept open as long as possible until it had to be removed to complete construction.

Innovation and aesthetic features were extremely important for the project to be successful. As a result, the use of crushed concrete from the old Broadway Street Viaduct proved to be both economically prudent and very innovative. The crushed concrete was utilized as a base material for the new pavement. Aesthetically, the City not only wanted to provide such things as the use of brick in the sidewalks but, more important, to provide a "gateway view" of Akron's skyline as a driver approached the city from the south. In addition, the historic Selle building, located in the southwest quadrant at the intersection of Broadway Street and Selle Street, also became visible as a landmark from the at-grade surface. This project was the culmination of the City of Akron's foresight, sound engineering, and cost-effective construction techniques. ■



Engineering Solutions from Concept Through Construction

- Civil Engineering
- Construction Services
- Environmental Services
- Geographic Information Systems (GIS)
- Right-of-Way Services
- Stormwater Management
- Subsurface Utility Engineering (SUE)
- Survey and Mapping
- Transportation Planning & Engineering
- Urban and Land Planning
- Utility Coordination
- Utility Relocation Design



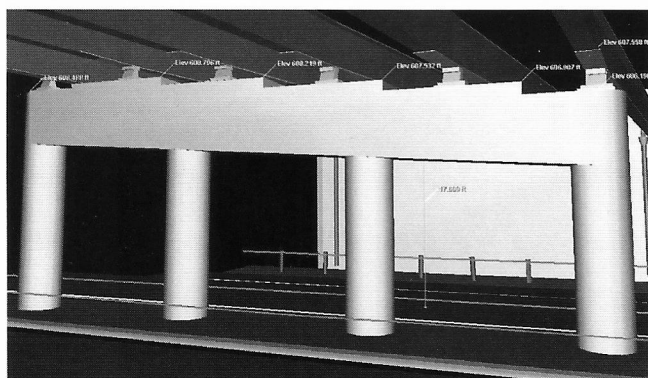
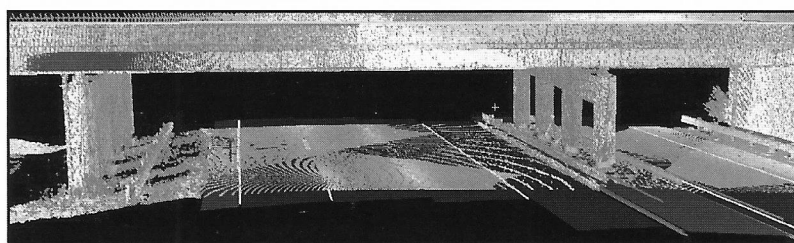
800.861.8314

www.tbegroup.com

Supporting the design professional with detailed 3D scanned data of the built environment...

Consider our scanning service as a supplement to your own in-house survey efforts
or count on our expertise as the solution for all your base mapping needs.

- Berding Surveying and B3D Scanning, LLC provide complete as-built data capture for your bridge, structure and roadway projects.
- Data easily integrates with aerial and conventional base survey mapping.
- Little or no interruption to traveling public.
- Accesses hard to reach, remote or unsafe structures.
- Survey grade results.



Berding Surveying and B3D Scanning serves the transportation, architectural, energy and plant design professionals with solutions that accurately model and describe the built environment.

Berding Surveying



741 Main St., Milford (Cincinnati), Ohio 45150
www.berdingsurveying.com www.b3dscan.com
 (513) 831-5505 (513) 831-6620
(888) 254-5755

North Carolina's Ecosystem Enhancement Program:

A National Model for Mitigation

William S. Gilmore, PE

The same challenge faces every state in the nation: achieving responsible growth while simultaneously protecting the environment. In every state, new roads and other economic development activities cannot go forward until federally mandated environmental safeguards protecting wetlands and waterways are achieved.

North Carolina is working to meet this challenge by proactively and comprehensively addressing the environmental impacts associated with certain development activities through its newly created, groundbreaking Ecosystem Enhancement Program (EEP).

In the mid-1990s the N.C. Department of Transportation (NCDOT) experienced significant project delays. Up to 40 percent of the missed start-dates of new construction projects could be attributed to problems with wetland mitigation required as compensation for environmental impacts.

As a result, NCDOT joined with the state Department of Environment and Natural Resources (NCDENR) and the U.S. Army Corps of Engineers, Wilmington District (USACE) to create EEP. This initiative is designed to address the state's core mitigation needs:

- Mitigation in advance of impacts. EEP works to enhance, restore, and create wetlands and streams as mitigation in advance of environmental disturbance to ensure no net loss of natural resources.
- Watershed-planning based mitigation. EEP focuses on the watershed context of mitigation, seeking restoration sites of high ecological value.
- Adequate funding provision. The initiative is sufficiently funded to assure that mitigation projects are completed in advance of impacts.
- Separation of impact-permitting decisions from mitigation decisions.

All projects carried out by EEP must follow a specific sequencing that considers avoidance, minimization, and finally, mitigation. EEP combines all project impacts and address cumulative impacts with cumulative mitigation.

EEP reflects the state's commitment to leave behind the old project-by-project strategy and focus on quality mitigation that provides substantial benefit and protection to the state's natural resources while promoting responsible economic growth. The state is moving beyond efforts to merely comply with environmental permits and instead base its mitigation practice on a solid foundation of watershed planning.

These environmental investments are targeted via broad-scale, in-depth watershed planning. EEP considers long-range projections of road-building and other development-related impacts, as well as environmental data, and directs program resources to high-priority watersheds across the state.

EEP follows a carefully developed business model. Each year, NCDOT examines the state's seven-year highway construction program to determine the type, amount, and location of impacts to wetlands and stream corridors. NCDOT then provides its analysis to EEP, which is administered by NCDENR. EEP develops a plan to meet the mitigation needs and crafts a biennial budget to fund the necessary mitigation.

The strength of EEP lies with the coalition of partners working to improve North Carolina's advance-mitigation process. Representatives from the Federal Highway Administration (FHWA), the National Oceanic and Atmospheric Administration, the U.S. Environmental Protection Agency, the U.S. Fish & Wildlife Service and USACE help to oversee the program via an advisory panel that functions as an external quality-assurance mechanism for EEP management processes, methods, and outcomes. FHWA also provided

funding for program assessment services and development of an Internet database system that will track credits produced and permit actions, as well as providing a full-time liaison staffer.

The program also relies on private-sector partners and public-private cooperative initiatives, partnerships that help EEP avoid big-government stereotypes and access the expertise of consultants and contractors. The program forged an innovative agreement with the state's land trusts to promote land acquisition and open-space preservation to protect the state's most precious lands from development and the subsequent loss of wildlife habitat and stream buffers, already preserving more than 34,000 acres in perpetuity. EEP has collaborated with private-sector partners in about 400 wetland- and stream-restoration projects statewide.

In 2005 EEP was chosen from more than 1,000 applicants as one of the top 50 new government initiatives in the nation by Harvard University's Kennedy School of Government—the so-called Oscars of government prizes. The National Association of Environmental Professionals honored EEP with an Environmental Excellence Award in 2005 for local watershed planning. Also, FHWA has designated EEP as one of 15 Exemplary Ecosystem Initiatives nationwide, an honor awarded to transportation projects that successfully employ an ecosystem approach to environmental management.

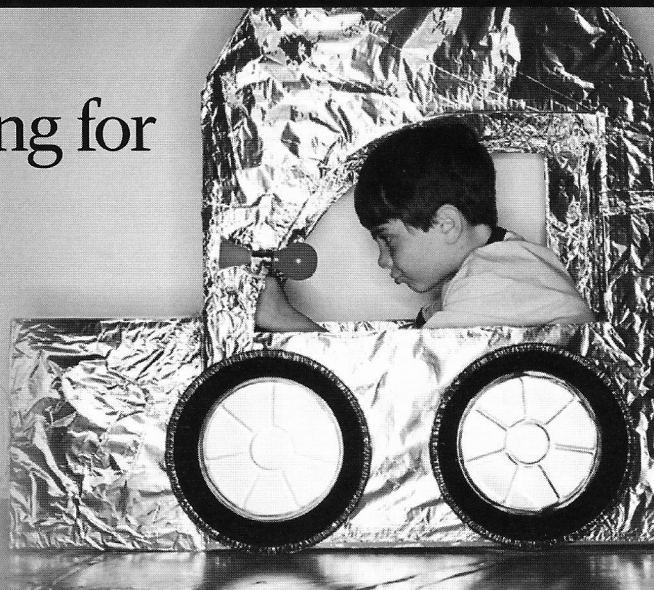
By grounding advance mitigation on a solid foundation of watershed planning, North Carolina is providing states around the nation a model for a transportation-development program that works to restore, enhance, and protect wetlands and waterways. ■

William Gilmore is director of the N.C. Ecosystem Enhancement Program. He is a registered professional engineer with specialization in the National Environmental Policy Act, permitting, and heavy civil engineering public works.

He'll probably be working for us in about 15 years.

He could head up highway design. Or program development or an environmental practice. For more than 75 years, DMJM Harris has been bringing together the most creative thinkers in every discipline. Our project managers build teams that know how to anticipate and address stakeholder issues, put together creative financial solutions and, of course, deliver sound and original engineering results.

No matter how large the project, we have the experience, the knowledge, the resources of AECOM and – most importantly – the people to get it done.

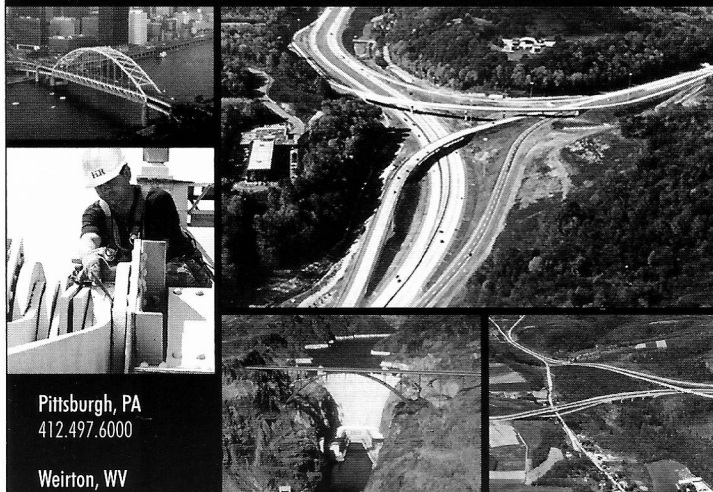


866-433-9001

DMJM HARRIS | AECOM

www.dmjmharris.com

Engineering Solutions for Your Community



Pittsburgh, PA
412.497.6000

Weirton, WV
304.748.8740

Philadelphia, PA
610.768.7737

Cincinnati, OH
513.792.2273

Transportation • Environmental Planning • Geotechnical
Design & Construction Management • Security/Vulnerability Assessments

Offices
Nationwide
www.hdrinc.com

HDR

ONE COMPANY | Many Solutions™



HRG
Herbert, Rowland & Grubic, Inc.
Engineering & Related Services

[BUILDING RELATIONSHIPS.
DESIGNING SOLUTIONS.]

717.564.1121 [phone] • www.hrg-inc.com
Offices Statewide

ROADWAY DESIGN • TRAFFIC ENGINEERING
BRIDGE DESIGN & INSPECTION
CONSTRUCTION INSPECTION & SUPPORT SERVICES
ADVANCED FIELD SURVEYING • GIS

We're always looking for qualified professionals!

© 2005 Herbert, Rowland & Grubic, Inc.

1st Annual PennDOT Archaeology Day

*Stuart E. Kehler
District Environmental Manager
Penn DOT Engineering District 9-0*

The spirit of volunteerism and support for the Commonwealth's past are alive and well in PennDOT Engineering District 9-0. The district, headquartered in Hollidaysburg, has a long tradition of public involvement and volunteer participation in transportation environmental projects. Over the years, volunteers have planted over 80,000 trees and shrubs in newly created wetland areas as part of the district's efforts to involve the public in its environmental program.

This year, for the first time, the district involved the public in its historic preservation program launching Archaeology Day at District 9-0. As part of the planning effort for a proposed maintenance stockpile area, an eight acre area along S.R. 26 near Whipple Dam required an archaeological inventory. District environmental and historic preservation staff thought the project represented an ideal opportunity to involve the public in the preservation of their own past, as well as a chance to educate the public and district staff

in the importance and practice of archaeology and transportation projects.

As designed, the Archaeology Day project would use volunteers working under the supervision of professional archaeologists working for the Department or its consultants. Volunteers would spend their day excavating small closely-spaced test pits in an effort to accurately locate previously undiscovered archaeological sites that were suspected to occur in some parts of the project area.

The project was unfortunately scheduled for September 17, 2005, the day Hurricane Ivan slammed into the Commonwealth. The heavy rain did not appear to dampen anyone's enthusiasm however, and the weather actually moderated as the day went on. Thirty-five student volunteers from Juniata Valley High School as well as volunteers from the District 9-0 staff, several consulting firms, other PennDOT offices, and a variety of state and federal agencies including the Pennsylvania Historical and Museum Commission, the US

Army Corps of Engineers, the Pennsylvania Department of Environmental Protection, and the US Environmental Protection Agency all participated in the day-long event. Volunteers excavated approximately 80 test pits and located two very small Native American archaeological sites on the property. The project saved the taxpayers over \$80,000, and gave many volunteers their very first encounter with Pennsylvania's buried past.

This first experiment in introducing the public to the past was a success, and the District is planning to try it again next year, possibly during the Commonwealth's annual Archaeology Month celebrations in October 2006. If you would like more information about the project, please contact Bill Savage, the district's Assistant Environmental Manager at (814)696-7227 or via e-mail at wisavage@state.pa.us or contact Eric Scuoteguazza at (724) 357-2081 or via e-mail at escuoteguaza@state.pa.us. ■

Join us in Williamsburg, Virginia June 1-4, 2006

Outstanding Technical Program ~ Popular Local Attractions



www.ashe2006.org

colonial williamsburg

jamestown settlement

busch gardens

yorktown

virginia beach

colonial parkway

fabulous hubcaps

golf at kingsmill resort

Boush Street Improvements – Revitalizing the Downtown Waterfront Area

By Bekki Jucksch, P.E. (Kimley-Horn & Associates, Inc.) and Rob Brown, P.E. (City of Norfolk)

In the late 1980s the City of Norfolk, in partnership with Norfolk Redevelopment and Housing Authority, began implementing a plan to revitalize the Waterside Drive/Boush Street Corridor in downtown Norfolk.

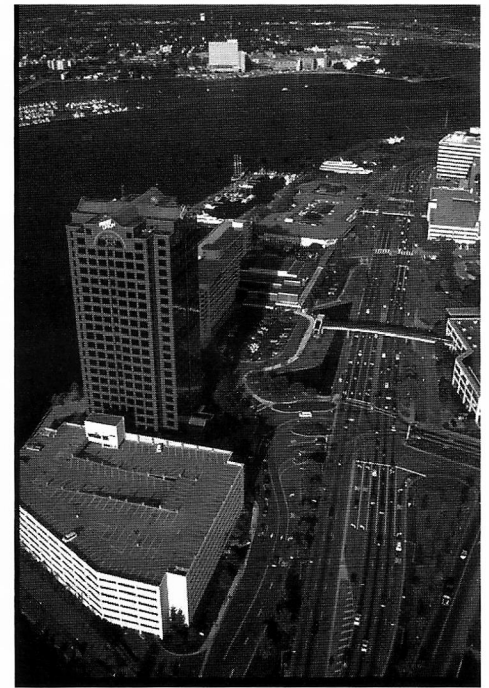
This urban corridor extends 25 blocks from I-264 into the heart of downtown Norfolk and serves prominent downtown landmarks such as a 100,000-square-foot waterfront retail center (Waterside Market Place), an urban waterfront park, major hotels, Nauticus National Maritime Museum, and the Freemason Historic District. This redevelopment was part of the City of Norfolk's 2010 Downtown Plan. Kimley-Horn and Associates was awarded the engineering contract for the design and study of the Waterside Drive/Boush Street corridor. The project involved enhancing the visual appearance of this heavily traveled corridor, upgrading aged infrastructure, and improving vehicular and pedestrian traffic flow.

The First Phase – Waterside Drive

The development of Waterside Market Place and Nauticus National Maritime Museum triggered Phase 1 of the project that

extended along Waterside Drive from Martins Lane to City Hall Avenue on Boush Street. Enhancing pedestrian mobility and calming traffic were major objectives of the first phase. A traffic study was performed to determine the impact of reducing the number of lanes along the corridor. The study showed that by taking advantage of capacity in other underutilized corridors in the downtown area, Waterside Drive and Boush Street could be reduced from an eight- and six-lane corridor, to a six- and four-lane section. In conjunction with the reduced pavement section, a separate project was underway which provided for an upgrade to the citywide traffic management system. The enhanced traffic management system allowed for better coordination among the traffic signals as well as the ability to provide more responsive timing on a time-of-day basis.

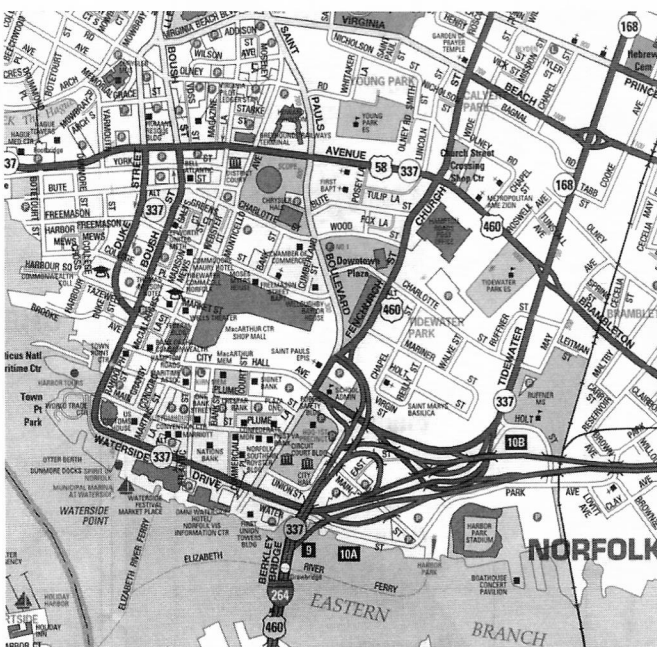
Traffic signals were modified to include pedestrian actuation, which significantly enhanced pedestrian access across Waterside Drive and Boush Street. Brick and concrete pavers were installed at crosswalks to delineate pedestrian areas. This aesthetic feature provides a visual separation from the roadway pavement, further enhancing pedestrian safety. Other streetscape features included designs for decorative pedestrian lighting, wider and patterned sidewalks, dimensions and layout of verge areas, and landscape features.



Planning for the Second and Third Phases

The next phase extended along Boush Street from City Hall Avenue to Brambleton Avenue. One objective was to return Duke Street (a parallel corridor one block west of Boush Street) to a neighborhood street consistent with the City's residential redevelopment plan.

Transportation planning and analyses were performed to evaluate the conversion of the Boush Street – Duke Street one-way pair to a two-way facility exclusively on Boush Street. This modification to the traffic pattern eliminated a circuitous route for southbound traffic and provided a higher capacity right-turn movement from Brambleton Avenue to Boush Street; thereby removing a large volume of traffic from Duke Street. The traffic analyses once again evaluated the option of reducing the northbound typical section from three lanes to two lanes with possible on-street parking and bus stops. The two-lane section prevailed, however; on-street parking proved to be a detriment to the through volume capacity.



Since this corridor serves more than 29,000 ADT, construction sequencing and maintenance of traffic were critical issues. To solve this issue, the project was split into two construction phases: Phase 2 and Phase 3.

Phases 2 and 3

Phase 2 included construction of the southbound lanes along Boush Street from City Hall Avenue to York Street, and Phase 3 of the project included the construction of the northbound lanes along Boush Street from City Hall Avenue to Brambleton Avenue. The southbound side of the corridor was prioritized over the northbound side due to the imminent opening of MacArthur Center Shopping Mall and residential development along Main Street.

Interim design and construction measures were implemented to provide necessary improvements to the southbound lanes and help to ensure the northbound lanes could continue to function until Phase 3 was constructed. To make the change from the one-way pairing to a divided two-way facility, the profile and cross slope were designed for the ultimate roadway (both southbound and northbound improved) but only constructed to the median area. During the interim period between Phases 2 and 3, the median area accommodated the grade difference. Storm drainage pipes were installed across the southbound lanes and terminated with

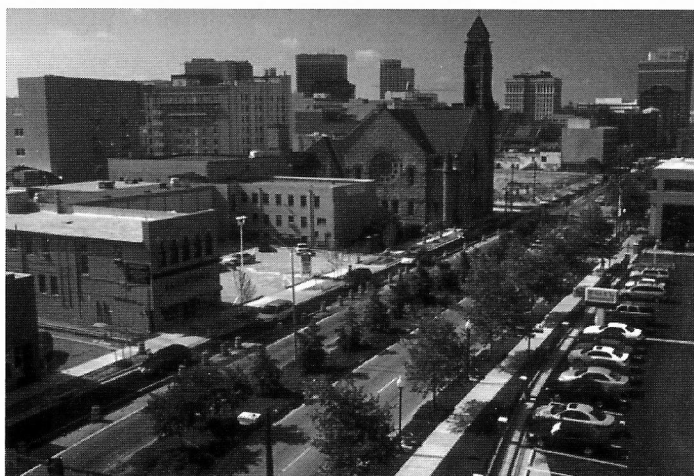
temporary structures that would be converted to manholes in Phase 3 construction. A 20-inch water main was installed under the southbound lanes replacing antiquated 16-inch and 8-inch cast iron water mains under the northbound lanes. New service connections were installed across to the median area and then aligned back to the existing service until Phase 3 construction could complete the connection across the roadway.

In addition to the roadway, utility, and streetscape features of the previous phases, Phase 3 involved construction of the free-flow right-turn lane from eastbound Brambleton Avenue to southbound Boush Street. Property acquisitions were made in the block of land surrounded by Brambleton Avenue, Boush Street, York Street, and Duke Street to accommodate this turn lane. This free flow right-turn lane eliminated the need for vehicles to make the right on Duke Street, left on York Street, and right on Boush Street. The residual property acquired with this block provides an opportunity for the development of a park or open space in the future.

Design and Construction Challenges & Solutions

Working below grade in an area with aged infrastructure is always a challenge. This corridor provided numerous unforeseen challenges and had some unique features. This area of downtown is actually a manmade fill into the Elizabeth River with portions of Waterside Drive built over a seawall intended to prevent flooding of downtown Norfolk. The seawall provided interesting challenges for development of the profile as well as for constructability.

As the area developed into the downtown business district, an abundance of public and private utilities were installed to accommodate growth without a master infrastructure plan and with limited record keeping. In addition, many utilities were replaced or upgraded through the years and existing infrastructure




was abandoned in place. There was limited room for new infrastructure between the water mains and services, sanitary sewer mains and services, storm drainage system, large electric duct bank, fiber optic communication cables, abandoned utilities, cobblestone layers and seawalls, and the high water table.

Survey, utility designation, test holes, records research, and conversations with various public and private utility personnel helped locate many of the existing underground features but there were still many surprises during construction. In some instances, open trench excavation was the only way to find out what existed and identify an unused space for new facilities. Innovative design and construction procedures were used such as built-in-place brick storm structures to fit around conflict utilities; spread footing signal foundations to fit around adjacent pipes and duct banks; trench drains to accommodate drainage in a flat area with multiple high-value fiber optic cables, and various indirect routings of pipe systems.


To add to the challenge, the facility was constructed while maintaining ADT of nearly 30,000 vehicles and accommodating special events such as the Harborfest festival held at Waterside. In addition to special events, an increased number of cruise ships arrive at and depart from Nauticus Pier, placing additional vehicular and pedestrian traffic on Waterside Drive and Boush Street.

Despite these challenges, and a very wet construction year, Phase 3 of Boush Street was completed in the summer of 2004 with a ribbon cutting ceremony on September 3, 2004. ■





JOHNSON, MIRMIRAN & THOMPSON
Engineering A Brighter Future®



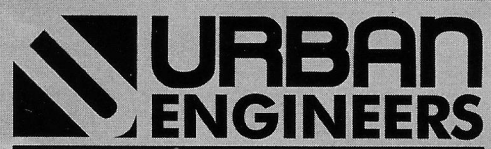
specializing in:

- Transportation Planning & Design
- Structural Engineering
- Transit Planning & Design
- Traffic Engineering
- Construction Management
- Municipal Services
- Surveys
- Geographic Information Systems
- Environmental/Facilities Services
- Landscape Architecture
- Water/Wastewater
- Water Resources
- Aviation Services

Office Locations:

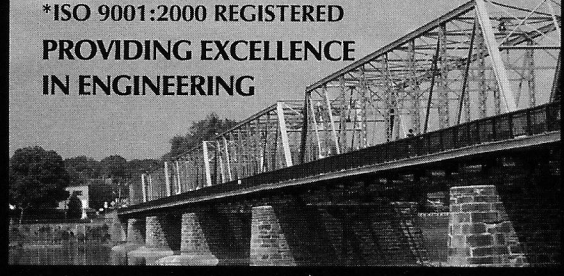
York, PA	Pittsburgh, PA
Baltimore, MD	Sparks, MD
Richmond, VA	Dulles, VA
Newark, DE	Virginia Beach, VA
Morgantown, WV	Lake Mary, FL

www.jmt.com



URBAN ENGINEERS

*ISO 9001:2000 REGISTERED
PROVIDING EXCELLENCE
IN ENGINEERING



■ Transportation	■ Facilities and Building Systems
■ Construction Services	■ Environmental Services
■ Planning/GIS	■ Program Management

530 Walnut Street, 14th Floor
Philadelphia, PA 19106
(215) 922-8080
Fax (215) 922-8082

Office Locations:


Pennsylvania	* Philadelphia
	* Mechanicsburg
	Erie
New Jersey	* Pennsauken
Delaware	* New Castle
Maryland	Baltimore
Connecticut	Hartford
New York	Buffalo
	New York City

FOUNDED 1960
EMPLOYEE OWNED

1-(800)-232-4596 www.urbanengineers.com

Rummel, Klepper & Kahl, LLP

Consulting Engineers Since 1923




- Highways and Bridges
- Traffic / ITS
- Transit Systems
- Water / Wastewater Facilities
- Natural Gas / Utility Systems
- Geotechnical Engineering
- Environmental Assessments
- Hazardous Waste Remediation
- Construction Engineering / Inspection
- Geographic Information Systems

RK&K OFFICES

York, Pennsylvania	Richmond, Virginia
Norristown, Pennsylvania	Virginia Beach, Virginia
Keyser, West Virginia	Alexandria, Virginia
Raleigh, North Carolina	Staunton, Virginia
Concord, North Carolina	Dover, Delaware
	Washington, D.C.

Headquarters: Baltimore, Maryland

www.rkkengineers.com



Sucevic, Piccolomini & Kuchar Engineering, Inc.

126 Kaider Road, Uniontown, PA 15401

- > Consulting Engineers and Land Surveyors
- > Roadway Design
- > Bridge Design
- > Drainage Design
- > Hydraulic Studies
- > Grantsmanship

Phone: 724.439.1600
Fax: 724.439.5449
Email: spkengr@spkengr.com
Web: www.spkengr.com

Domenic M. Piccolomini, P.L.S., President
Paul T. Sucevic, P.L.S., P.E., Vice-President
Robert P. Kuchar, B.S., Treasurer
Perry M. Schweiss, P.E., Vice-President of Operations



MTDs continued from p. 1

the design. It is important to note that devices may be "NJCAT Verified", but not receive full certification from NJDEP.

An overview of the process currently in place in New Jersey for evaluating and certifying MTDs was presented in the previous article. Providing uniform design and review standards for use of these MTDs is continually needed to facilitate a level playing field of equity and fairness. In addition, specifying multiple MTDs avoids proprietary issues, particularly on State and Federally Funded public projects. The reader is encouraged to visit the NJCAT web site (www.njcat.org/verification) and the NJDEP web site (www.state.nj.us/dep/dsr) for detailed information and the specific conditions on the use of these structures.

As mentioned above, MTDs are generally defined as pre-fabricated stormwater treatment structures utilizing settling, filtration, absorptive/adsorptive materials, vortex separation, vegetative components, or other appropriate technology to remove pollutants from stormwater runoff. These and similar manufactured treatment devices are designed to capture sediments, metals, hydrocarbons, floatables, and/or other pollutants in stormwater runoff before being conveyed to a storm sewer system, additional stormwater quality treatment measure, or water body.

It is important to note that Federally Funded projects restrict the use of proprietary products. State agencies, such as the New Jersey Department of Transportation (NJDOT), also require that the designer provide justification for a product's use. If an item uses a non-standard detail or specification, the designer must submit the justification for its use. If a proprietary device is used that is not an approved standard item, the designer must try to provide at least three approved equals.

Sometimes during construction, the contractor proposes an alternative and designers and owners are confronted with trying to determine if the substitute is an equal, or whether the different MTD complies with the approved permits. Typically, there is insufficient time or it is not practical to go back to the regulatory agencies to get approval or a revised permit.

As outlined before, the NJDEP has a procedure in place for evaluations and certifications of manufactured treatment devices. At the time of the writing of this article, there were six (6) MTDs that have received conditional interim certification from NJDEP. There were only two (2) approved MTDs a year ago. Currently, there are also another four (4) MTDs that are candidates for NJCAT verification that will most likely receive NJDEP conditional interim certification. NJDEP also requires field-

testing as a condition of the Interim Conditional Approval. Perhaps after testing is complete, the TSS removal rates and storage and maintenance issues may be clarified which will help provide for a more robust design and approval selection process.

Filtration-type MTDs are currently approved for an 80% TSS Removal Rate and gravity separation-type MTDs are approved for a 50% TSS Removal Rate. It is important to note that the NJDEP has provided all gravity separation-type MTDs with an equal TSS Removal Rate. On one hand, providing a uniform TSS Removal Rate has somewhat neutralized any perceived superior performance aspect (from a regulatory/permit approval standpoint) of a specific product being promoted by each vendor. On the other hand, it has simplified the selection process. Selection can be now made based on site conditions, cost, and which product provides the greatest ease of maintenance. There are positives and negatives to this policy decision.

Having several approved MTDs to select from presents another issue related to preparing permit documents. Each unit is of different size and shape. Inverts in and out of the structure vary and the required head required to efficiently operate the MTDs also varies. The frictional and structural losses through the units also vary, which could impact the drainage design and upstream hydraulic grade line evaluation.

The goal of the design by the engineer, if practical and within the scope of services is to allow for multiple selections of approved units by the contractor to encourage competition and facilitate a cost-effective product. The role of the design engineer is also one of providing benchmarks to facilitate an equitable review and approval of alternatives. It is noted that

The goal of the design by the engineer...is to allow for multiple selections of approved units by the contractor to encourage competition and facilitate a cost-effective product. The role of the design engineer is also one of providing benchmarks to facilitate an equitable review and approval of alternatives.

the NJDEP states in their approved permit documents that "No change in the plans or specifications shall be made except with the prior written permission of the NJDEP."

The contractor sometimes looks for alternatives that provide a cost effective alternative product that may not be specifically detailed in the design or permit documents. Certain economic and regional factors also dictate which MTD can be the most cost effective at the specific time of the bid. Relationships and/or reduced time for ordering, fabrication, and delivery may make one unit more desirable than another, despite the lower purchase price. Most often, time is money for the contractor.

Outlined below are issues to consider as the owner and designer of MTDs:

1. Plan ahead and provide for a design, if possible, that allows for a change in invert elevations. Some MTDs have the same invert in and out, and some MTDs require a change in elevation between the invert and outlet.

2. Consider specifying that any alternative MTDs maintain the same amount of storage volume (e.g. sediment and oil). This will prevent a substitution that may result in additional maintenance requirements for the owner. It is recognized that this can be somewhat subjective since each MTD captures TSS at different rates and different particle sizes.

3. Consider in the hydraulic design of drainage facilities that different MTDs have

MTDs continued p. 15

M&S

"EXPERIENCED & DEDICATED"

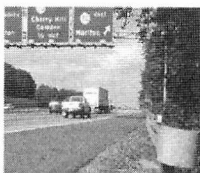
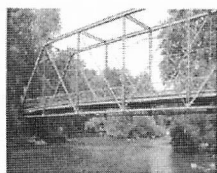
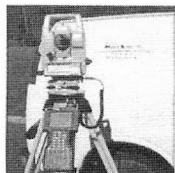
Malick & Scherer, P.C.

Consulting Engineers • Construction Inspectors
Professional Land Surveyors

DBE / MBE / ESBE

Serving NJ • NY • PA

Arif R. Malick, P.E.
Glenn J. Scherer, P.E.
Michael J. McAlpin, P.L.S.



- Highway & Traffic Engineering
- Hydraulics & SWM Design
- Environmental Services
- Land Surveying Services

One Salem Square, 295 Route 22 East
Whitehouse Station, New Jersey 08889
Phone (908) 534-4995 • Fax (908) 534-0507
m&s@malickandscherer.com



IN PENNSYLVANIA

Bensalem
Harrisburg
Philadelphia
Pittsburgh

KCI OFFICES

Delaware
Florida
Georgia
Maryland
North Carolina
Ohio
Pennsylvania
Virginia
West Virginia
Washington, DC

Providing
Solutions
for your toughest
Project
Challenges

Engineers
Planners
Scientists

Construction Managers

www.kci.com
Employee Owned Since 1988

In Pennsylvania, please call Scott Sternberger at (717) 691-1340

VISION.

Developing better solutions
today, to fulfill the needs
of tomorrow.

Highway and Bridge Design
Construction Engineering & Inspection
Resource Management
Planning and Traffic Engineering
Hazards Mitigation and Security

GREENHORNE &



O'MARA, INC.

www.G-and-O.com

9001 Edmonston Road • Greenbelt, MD 20770
Tel.: (301) 982-2800 • Fax: (301) 220-2483

Annapolis, MD • Atlanta, GA • Baltimore, MD • Fairfax, VA
Fairmont, WV • Fredericksburg, VA • Germantown, MD
Jacksonville, FL • Mechanicsburg, PA • Raleigh, NC
Richmond, VA • Silver Spring, MD • St. Petersburg, FL
Tampa, FL • West Palm Beach, FL

VISIONS. SOLUTIONS.



Gibson-Thomas Engineering, Co., Inc.
Consulting Engineers Since 1916

- Highway Engineering
- Environmental Engineering
- Hydraulic and Hydrologic Studies
- Construction Management and Inspection
- Surveying
- Bridge Engineering
- Land Development
- Water Distribution & Treatment
- Wastewater Collection & Treatment
- Stormwater Management

Providing over 85 years of Consulting
Engineering Services

CORPORATE HEADQUARTERS:

1004 Ligonier Street
P.O. Box 853
Latrobe, PA 15650
Telephone: (724) 539-8562
Facsimile: (724) 539-3697
E-Mail: gtemain@gibson-thomas.com
gibthom@westol.com

HARRISBURG AREA OFFICE:

2 West Main Street
P.O. Box 3535
Shiremanstown, PA 17011
Telephone: (717) 612-9880
Facsimile: (717) 612-9465
E-Mail: gteast@ezonline.com

www.gibson-thomas.com

MTDs continued from p. 13

different head losses. It should be recognized that certain site constraints and limited hydraulic depth might eliminate some feasible alternatives.

4. Provide enough design information in contract documents that the contractor can evaluate and demonstrate that all alternatives meet design objectives. Depending on the vendor and economic factors, it may be possible to upsize a unit to reduce head losses, but still provide an alternative competitive with a smaller and less expensive product under other circumstances.

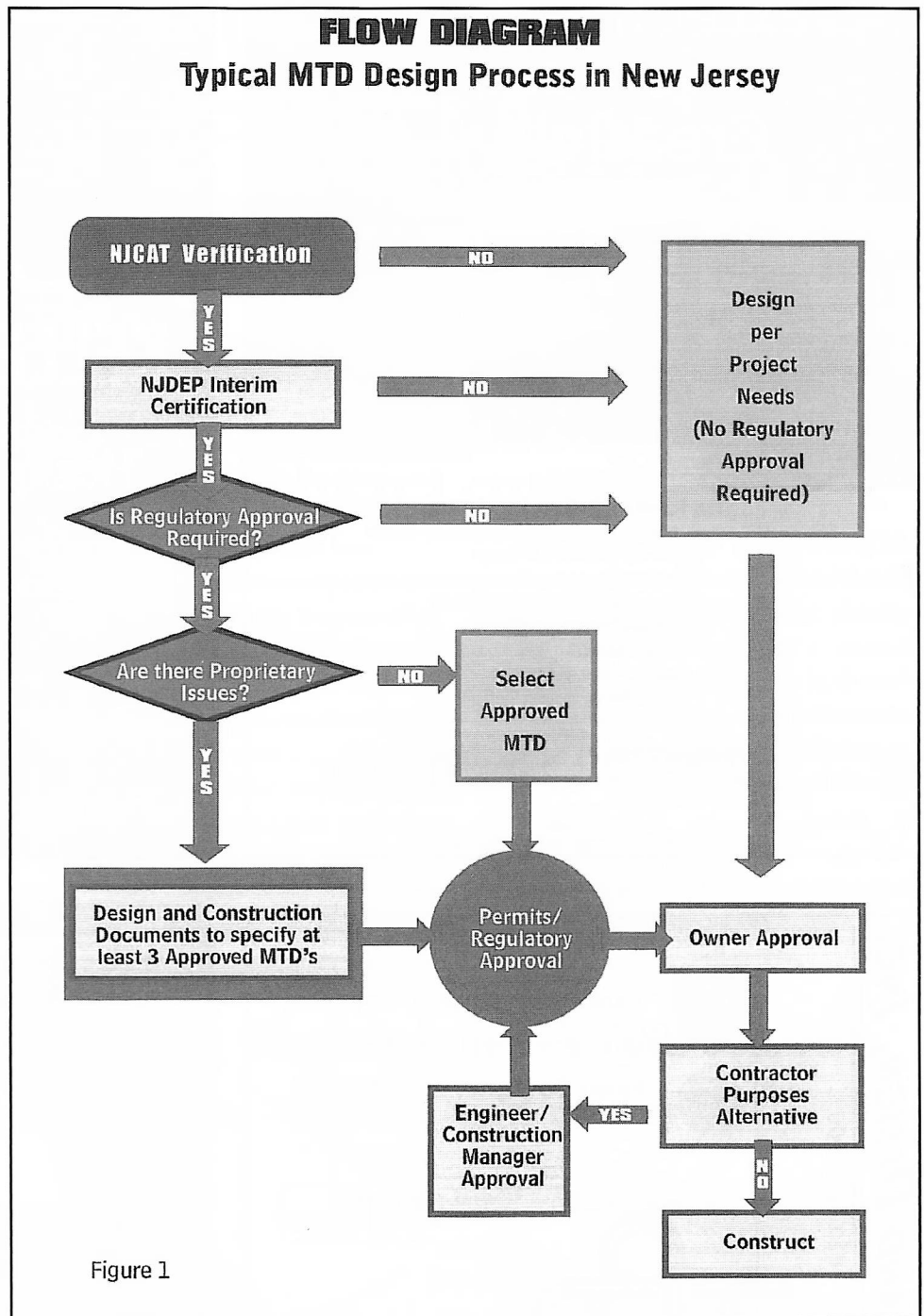
5. Format the design, details, specifications, and permit applications to specify at least several approved MTDs. This may avoid the need to modify the permit documents during construction. This will save time and project costs for the contractor and owner. This could also avoid potential delays and claims. It should be recognized that this would result in additional design costs.

6. If applicable, clarify in design and construction documents that the contractor will be responsible to obtain regulatory approval for any changes that violate the approved permit plans or conditions.

Not being clear in contract documents or information submitted by the contractor, may result in confusion on what is an approved equal. This could lead to problems modifying permits or getting regulatory or owner approval of an alternative MTD. It should be recognized that different approaches to design and specification of alternate MTDs might be needed between privately and publicly funded projects.

Outlined in Figure 1 is a flow diagram that outlines a typical design and approval process of MTDs in New Jersey.

Ongoing development of standards and approval methods of multiple MTDs will clarify selection options for designers, regulatory reviewers, owners, and contractors, while protecting the environment and improving water quality treatment and control. Never before has providing cost-effective MTDs required such a highly coordinated team effort between owners, designers, regulatory agencies, and contractors. ■



Thomas R. Decker, P.E., M.S.C.E. is a Senior Associate in the Highways/Public Works Department of Edwards and Kelcey Inc. located in Morristown, New Jersey. Mr. Decker is also a member of the Editorial Advisory Board for Stormwater Magazine, The Journal for Surface Water Quality Professionals.

REFERENCES

- New Jersey Corporation for Advanced Technology, Verification Process, website, www.njcat.org/verification. Accessed August 2005.
- New Jersey Department of Environmental Protection, The New Jersey Stormwater Best Management Practices Manual, February 2004.
- New Jersey Department of Environmental Protection, Division of Science, Research & Technology website, www.state.nj.us/dep/dsr. Accessed August 2005.

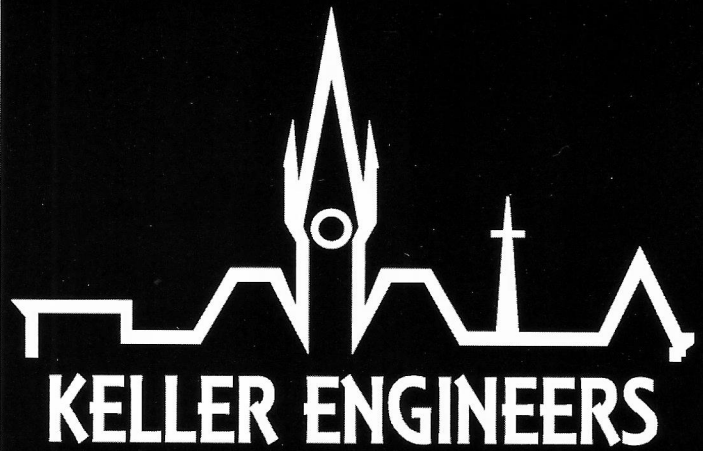
Exceptional Service... Creativity



- Signals and Intelligent Transportation Systems
- Traffic Engineering and Transportation Studies
- Roadway and Civil Site Design
- Land and Engineering Survey Services
- Subsurface Utility Engineering (SUE)
- Municipal Project Management
- Safety Studies
- Data Collection and Analysis
- Geographic Information Systems
- And much, much more



770-813-0882
GEORGIA • VIRGINIA • FLORIDA • TEXAS • NORTH CAROLINA



**CONSULTING ENGINEERS
LICENSED LAND SURVEYORS**

*50 Professionals Providing Services To
Public and Private Clients*

P.O. Box 61
Hollidaysburg, PA 16648
Phone: 814-696-7430
<http://keller.nb.net>

Hollidaysburg • State College • Hagerstown

TRAFFIC PLANNING AND DESIGN, INC.

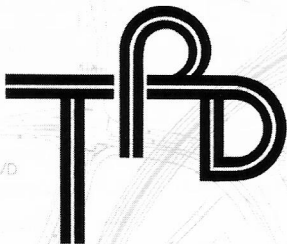
610.326.3100

www.TrafficPD.com



Ranked by *CE News Magazine*
as one of the best Civil Engineering
Firms To Work For In The U.S.

BEST PLACES
to work in PA 2005



Bridge Design

Highway Design

Transportation Planning

Design-Build and Construction Engineering Services

Now seeking Design Engineers at all office locations.

Pottstown, PA Harrisburg, PA Lehigh Valley, PA Camden, NJ



SCHOOR DEPALMA
Engineers and Consultants

*Quality is the product
of top-flight people.*

CORPORATE HEADQUARTERS
200 State Highway Nine, P.O. Box 900
Manalapan, NJ 07726-0900
Tel: 732.577.9000 Fax: 732.577.9888

QualityFirst™

New Jersey ■ Pennsylvania ■ New York
Florida ■ Arizona

www.schoordepalma.com

Ohio and Erie Canal Towpath Tunnel Project

Keith A. Bennett, P.E., P.S.
Hammontree & Associates, Limited

The Ohio & Erie Canal was part of a major shipping link from Lake Erie to the Ohio River from 1825 to 1913. The towpath that runs through Cuyahoga, Summit, Stark and Tuscarawas Counties in Ohio is now part of the Ohio & Erie Canal National Heritage Canalway, which runs from Cleveland to New Philadelphia. Through federal, state, local and private funding, over 70 miles of the Towpath Trail have been developed, historic structures have been preserved, and new visitor centers and trail heads have been constructed. Many more miles of connecting trails servicing the Towpath Trail have been improved or constructed using local funds. The Ohio & Erie Canal Association in partnership with the Ohio Erie Canalway Coalition is overseeing the rehabilitation of the Ohio & Erie Towpath Trail. The involved agencies have plans to recreate the towpath's continuity from Lake Erie to New Philadelphia. Under their guidance, various park districts, counties and municipal agencies have been working together to rebuild the towpath in Ohio.

Three major structural linkages along the towpath are being coordinated by the Stark County Park District to further the completion of the towpath trail in Stark and Tuscarawas

Counties. Hammontree & Associates engineers developed plans for a 14-foot diameter tunnel that was excavated under the Wheeling & Lake Erie Railway (W&LE) near State Route 212, just north of the Tuscarawas County line. The W&LE originally crossed over the abandoned canal and towpath with a bridge. When the bridge required extensive repairs, it was decided that the bridge superstructure be removed and embankment placed between the abutments. Without a way across the railroad tracks, towpath trail users would have to trespass across the railroad tracks to access the trail on the other side. The Park District settled on a solution of tunneling through the embankment to provide the safest way for the Canalway and the Railroad to coexist in this location. Design development is also underway for a pedestrian bridge over Interstate Route 77 near Fort Laurens in Bolivar, Ohio. The bridge will accommodate hikers, bikers, and equestrians. The bridge will be constructed along the alignment of the canal that was destroyed by the construction of the Interstate. Construction of the bridge is scheduled to begin in 2005. Preliminary development has also commenced on constructing a pedestrian bridge over the Tuscarawas River at the site of the original canal

aqueduct. The aqueduct carried the canal and towpath over the Tuscarawas River. The design will attempt to replicate the appearance of the original structure. These projects are important steps in linking sections of the Towpath Trail in Stark and Tuscarawas County.

In the fall of 2003, over 150 community leaders, elected officials and local partners gathered to dedicate the completed tunnel. A special ceremony was held to honor U.S. Congressman Ralph Regula. Congressman Regula has been a driving force in obtaining federal funding for various projects along the Canalway. The Stark County Commissioners passed a resolution naming the Ohio & Erie Canal Towpath Trail in Stark County the "Ralph Regula Towpath Trail". A rendering of a bronze plaque naming the trail was unveiled at the dedication. Eight similar plaques will be installed along the trail in Stark County honoring the Congressman for his vision and dedication to the preservation and development of the Towpath Trail.

Through careful planning and coordination, the Ohio and Erie Canal Towpath will live on for future generations to enjoy Ohio's past. ■

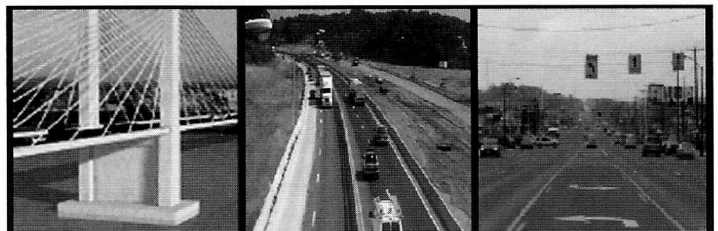


DAWOOD
ENGINEERING, INC.

HARRISBURG MAIN OFFICE
2020 Good Hope Road - Enola PA
717.732.8576 dawoodeng.com

- + civil engineering
- + structural engineering
- + design/build
- + geotechnical / environmental
- + surveying
- + municipal services

OTHER OFFICES
Pittsburgh Grantville



Akron 330.836.9111
Cleveland 216.622.2400
Columbus 614.464.4500
Cincinnati 513.651.3440

Toledo 419.246.0839
Youngstown 330.743.5100

URS

Benatec is a proud sponsor of ASHE

Civil Engineering
Forensic Consulting
Landscape Architecture
Transportation Planning
Public Works Consulting
Construction Administration
Land Development Planning
Bridge & Highway Engineering
Stormwater Management Planning
Electrical & Mechanical Engineering
Environmental Remediation Services

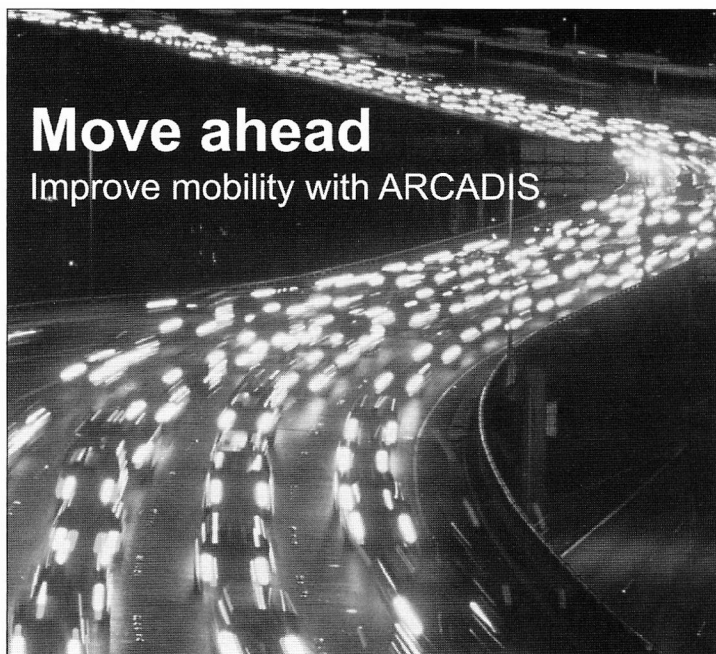


BENATEC ASSOCIATES

Engineers and Environmental Consultants
1040 Eberly Way, Suite 200
Lemont Furnace, PA 15456
724.439.2835 www.benatec.com

Move ahead

Improve mobility with ARCADIS



Total transportation solutions
Decades of experience
Proven results

www.arcadis-us.com



Imagine the result



RESPONSIVE
TRANSPORTATION
SOLUTIONS

We turn traffic confusion...



...into engineering solutions!

Land Survey	Traffic Data Collection
Highway/Intersection Design	ITS/Traffic Signal Design
Structural Design	Corridor/Traffic Studies
Construction Observation/Management	Transportation Planning

Corporate Headquarters:

Pennsylvania: Fort Washington 215.283.9444

Regional Offices:

Florida: Palm Beach Gardens - Fort Lauderdale - Fort Myers - Miami

Massachusetts: Boston Pennsylvania: Exton - Mechanicsburg

New Jersey: Yardville

www.mcmtrans.com

Baker provides a full range of professional services that address the complete life-cycle of our customers' transportation challenges:

- Program and Project Management
- Planning
- Design
- Construction Management and Inspection
- Traffic Studies
- ITS
- NEPA Studies
- Cultural Resources Services
- Public Involvement Services
- Mapping and GIS
- Context Sensitive Solutions and Visualization
- Software Development
- Training
- Asset Inspections and Inventories

We view challenges as invitations to innovate.

Baker

ChallengeUs.

Airside Business Park • 100 Airside Drive • Moon Township, PA 15108
1-800- 553-1153 • www.mbakercorp.com

Federal Highway Administration Names State Environmental Programs as National Models

The Federal Highway Administration (FHWA) annually spotlights a small group of “exemplary ecosystem initiatives” and posts information about them on its web site to encourage environmental protection, innovation and stewardship in highway and bridge projects. Acting Federal Highway Administrator J. Richard Capka praised the eight state departments of transportation that developed these model programs in 2005 for protecting diverse biological resources and sustaining communities and regional economies.

Arkansas

Ecoregion-Based Approach to Wetlands Mitigation

To help mitigate historic wetland loss, a statewide, ecoregion-based mitigation banking system was initiated by the Arkansas DOT in 1996, when a mitigation bank came on-line in the Mississippi Alluvial Plain ecoregion of eastern Arkansas. Four other banks were established over the following nine years, each in one of the five ecoregions of the State.

California

Coachella Valley Habitat Preservation Initiative

As part of a cooperative effort to develop conservation measures and mitigation, State, Federal, and local agencies worked with private partners involved in environmental planning and approval for Caltrans projects to design an ecosystem-based plan to restore and protect critical habitats for threatened and endangered species in the Coachella Valley.

Florida

GIS Technology Applications

In cooperation with resource conservation agencies, the Florida DOT has developed a GIS-based decision model to integrate road improvement projects into habitat management and conservation plans.

Kansas

Prairie Restoration, Conservation, and Education Initiative

With over 650,000 acres of right-of-way, the Kansas DOT implemented a variety of cooperative management and public information activities to restore and promote roadside ecosystems, including the restoration native grasses and other prairie plants along highways in the State.

Pennsylvania

Ecological Mitigation and Enhancement Projects

The Pennsylvania DOT implemented an integrated, ecosystem approach to the management of environmental impacts and mitigation. With input from a broad spectrum of Federal, State, and local agencies, the DOT is building design features into its projects that address important and widespread impacts on natural ecological communities and habitats at a landscape scale.

South Carolina

Carolina Bays Ecosystem Initiative

The South Carolina DOT developed a cooperative effort to protect important ecosystem resources in the Waccamaw River drainage while accommodating the present and projected transportation needs of Myrtle Beach. Land acquisitions and donations were used to preserve, enhance, and maintain an important wildlife corridor connecting large natural areas.

Washington

Interstate 90 Snoqualmie Pass East Project

The Washington DOT partnered with Federal and State resource agencies in developing proposals to meet regional objectives for management of old growth forest habitats and important wildlife corridors in concert with improvements to I-90. This included a habitat linkage study that helped identify critical linkage zones across the highway corridor.

Wyoming

Moran Junction to Dubois Project Wildlife Crossing Study

Concerns with potential habitat fragmentation by the proposed highway improvements resulted in studies by the Wyoming DOT to collect primary data about wildlife crossing zones and wildlife-vehicle collisions. The information collected will be used to identify mitigation opportunities and accommodate wildlife crossings into design plans, based on landscape-level habitat needs. ■

Reference: <http://www.fhwa.dot.gov/pressroom/prs2005.htm>; February 2, 2006.



THE WHITE HOUSE
WASHINGTON

December 14, 2005

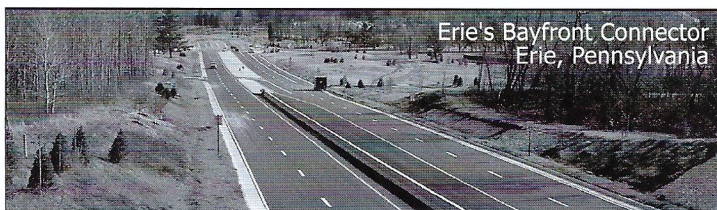
I send greetings to those observing National Engineers Week.

America has a rich history of exploration and discovery, marked by scientific and technological achievements that have transformed the world. Through their dedication to the advancement of knowledge, engineers expand the realm of the possible and contribute to our Nation's prosperity. This week is an opportunity to reflect on the importance of continuing our progress and laying the groundwork for a future of continued innovation.

I appreciate engineers for your commitment to excellence and for your efforts to inspire curiosity and a passion for discovery in the next generation of engineers. Your good work helps ensure that our country is at the forefront of technology and development for decades to come.

Laura and I send our best wishes.

A handwritten signature in black ink, appearing to read "George W. Bush", with a long horizontal flourish extending to the right.



Erie's Bayfront Connector
Erie, Pennsylvania

Transforming Ideas Into Realities...

Highway & Bridge Design
Bridge Inspection & Rehabilitation
Traffic Studies, Traffic Control Plans
Signal & Lighting Design
Condition Assessment & Surveying
Transit Studies
Transportation Planning/GIS
Construction Monitoring
Cultural Resources
Environmental
Geotechnical



Pittsburgh Office
385 East Waterfront Drive
Homestead, PA 15120-5005
Tel 412.476.2000
www.gaiconsultants.com

Philadelphia, PA • Charleston, WV • Orlando, FL • Jacksonville, FL • Fort Wayne, IN



American Geotechnical & Environmental Services, Inc.

A Decade of Service...

Kanwal P. Chopra and Neil Styler thank you for your support and confidence in our firm as American Geotechnical & Environmental Services, Inc. celebrates its tenth anniversary.

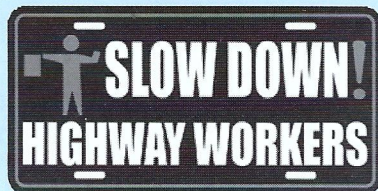
In October 1995, A.G.E.S., Inc., began as a two-man company in the Pittsburgh area. During the past 10 years our staff has grown to include 60 full-time and part-time professionals who have provided, and continue to provide, quality geotechnical engineering services on some of the most complex and high-profile projects in the Commonwealth.

A.G.E.S., Inc. is dedicated to client satisfaction, and our staff continues to develop professional relationships built on trust and outstanding service. Our success over the past ten years is the result of that dedication, our commitment to client service, and our ability to provide innovative engineering solutions.

We look forward to maintaining and building upon our business relationships over the next ten years as we continue to expand our presence in the engineering community.

WWW.AGESINC.COM

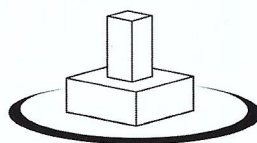
License Plate Sales Benefit Children of Fallen Highway Workers



Associated Pennsylvania Constructors (APC) launched the new work zone safety license plate campaign benefitting children of fallen highway workers. The association designed this front license plate at the direction of the APC/PennDOT Joint Safety Committee in an effort to increase public awareness of the need to drive responsibly in highway work zones.

APC is donating 100 percent of the proceeds to the American Road and Transportation Builders Association's (ARTBA) Highway Worker Memorial Scholarship Program. This program helps the children of highway workers killed or permanently disabled on the job to afford post-high school education. This campaign is being subsidized by the Educational Trust Fund (ETF), funded through voluntary contributions by APC members.

The Safety Committee encourages highway construction-related companies to consider outfitting their entire fleets with this license plate to spread this message where it will have the greatest impact...on Pennsylvania highways! Plates are being sold for \$5 apiece. Contact Brian Fraley at 717.238.2513 ext. 104 or check out www.paconstructors.org for more information.



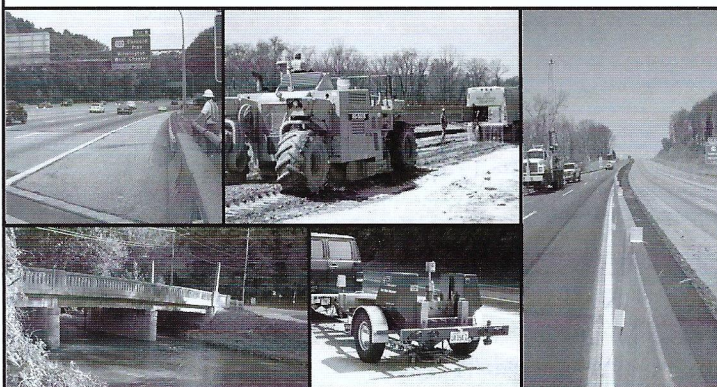
GeoStructures

GEOTECHNICAL ENGINEERING CONSULTANTS

Phone: 610.688.7066

Fax: 610.688.7065

www.geostructres.net



- ◆ Foundation Evaluations & Design
- ◆ Pavement Analysis & Design
- ◆ Geologic Exploration & Mapping
- ◆ Soil Stabilization & Geosynthetics Design
- ◆ Slope & Retaining Wall Design
- ◆ Sinkhole Assessments & Remediation
- ◆ AASHTO Accredited Soils Laboratory

985 Old Eagle School Road, Suite 502, Wayne, PA 19087

Classified

ENGINEERING OPPORTUNITIES

SAI Consulting Engineers, Inc. (SAI) is a Pittsburgh-based civil and structural consulting/engineering firm specializing in design, inspection and construction management of transportation, industrial, institutional and commercial projects. SAI is currently seeking highly motivated individuals for their Pittsburgh, West Virginia and Harrisburg offices for the following positions:

HIGHWAY ENGINEER - requires B.S. in civil engineering with a minimum of 2-5 years experience in highway design and plan presentation.

PROJECT MANAGER - requires B.S. in civil engineering with a minimum of 12 years progressively responsible engineering design and proposal experience.

OFFICE MANAGER (West Virginia) - requires B.S. in civil engineering with a minimum of 10 years engineering design and proposal experience. Ability to estimate and monitor project costs, excellent negotiation skills and WV P.E. are also required.

All candidates should possess excellent written and verbal communication skills and be able to use a personal computer. Experience on PENNDOT, WV

Department of Transportation, and/or PA Turnpike Commission design projects is required.

A competitive salary/benefits package is offered. Qualified applicants may submit current resume and salary history in confidence to:

SAI Consulting Engineers, Inc.
1400 Penn Avenue
Pittsburgh, PA 15222-4332
Attn: Human Resources Dept.
Email: mlkiefier@saiengr.com

Equal Opportunity Employer. Drug-free Workplace

For additional information on SAI and other Job Opportunities, see our Website www.saiengr.com.

SURVEYOR/PARTY CHIEF AND 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., PLS, 2020 Good Hope Road, Suite 100; Enola, PA 17025-1237 or by fax to 717-732-8596.

PICKERING, CORTS & SUMMERSON, INC.

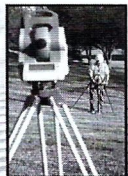
CONSULTING ENGINEERS, LAND SURVEYORS,
PLANNERS & LANDSCAPE ARCHITECTS

*Responsiveness • Quality • Value
Experience • Partnering*



**TRANSPORTATION
HIGHWAY, STRUCTURES,
AND TRAFFIC
ENGINEERING**

**BRIDGE INSPECTIONS
NBIS, IN-DEPTH,
& UNDERWATER**



**LAND SURVEYING
ROUTE, BOUNDARY, AND
CONSTRUCTION LAYOUT**

*Providing the foundations for responsible
growth and development in our communities.*

828 B Newtown-Yardley Road, Newtown, PA 18940
Phone: 215-968-9300 • Fax: 215-968-3649 • www.pcs-inc.biz
Pennington, NJ - Center Valley, PA - Plymouth Meeting, PA

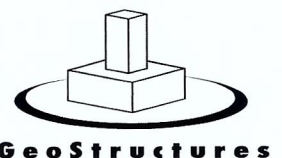
PROJECT GEOTECHNICAL ENGINEER AVAILABLE POSITION

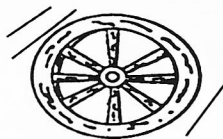
GeoStructures has an immediate opening for an energetic, highly motivated project geotechnical engineer with 3-5 years of experience in subsurface investigations including test boring and test pit supervision, foundation and retaining wall analysis and design, pavement design, ground improvement, construction monitoring, soil laboratory testing and environmental geotechniques.

Strong academic background, creativity, and excellent verbal and written communication skills are required. Successful candidates must have proven leadership skills, a drive for excellence and ability to work in a team setting. A Master's degree in civil or geological engineering is required - professional registration or ability to obtain in one year preferred.

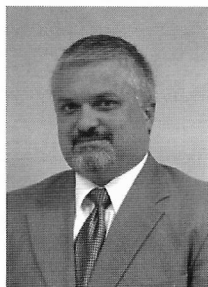
GeoStructures has a technically rich environment that fosters professional development. We offer an excellent compensation package including 401(k) and tuition reimbursement for advanced graduate studies. Send resume to:

GeoStructures, Inc.
985 Old Eagle School Road, Suite 50
Wayne, PA 19087
Fax: 610-688-7065
E-mail: info@geostructures.net
www.geostructures.net





As the Wheel Turns



James W. Gutshall, PE, has been promoted to Division Manager for the Camp Hill Transportation Technology of Pennoni Associates Inc., an *Engineering News Record* Top 500

consulting engineering firm headquartered in Philadelphia. Mr. Gutshall has been with Pennoni for over 1 year, and most recently served as Senior Engineer in the Camp Hill office. In his new role, Mr. Gutshall will be responsible for the day-to-day operations of the Division as well as continuing the success and growth of the Technology.

A Registered Professional Engineer in PA since 1994, Mr. Gutshall provides professional

transportation engineering services to private and public sector clients. He has over 16 years of highway design experience on projects ranging from local bridge replacements to large interstates.

Projects that he has worked on include design of an alternate Traffic Control Plan for the Lisburn Road Interchange project in Cumberland County; preliminary engineering and final design of the PA Route 283 reconstruction from SR 0341 to the Lancaster County line; design for the 6-mile continuation of the limited access U.S. Route 15 from SR 0287 to the New York state line; and final design of the replacement of three dual structures and the reconstruction of 1.5 miles of I-80 near the Clearfield Interchange. Jim is currently involved in the SR 997 roadway widening and bridge replacement over I-81 in Franklin County and

the intersection improvement and realignment of the intersection of SR 322 and SR 743 in Derry Township, Dauphin County.

"Jim has demonstrated that he is technically capable, willing to learn new things in his role and has a sense of humor that everyone respects," stated Todd Morris, PE, Regional Transportation Manager. "Jim has a genuine eagerness and concern for advancing the reputation of Pennoni and his own career, as well as meeting the needs of our clients."

A graduate of The Pennsylvania State University, Mr. Gutshall earned a Bachelor of Science degree in Civil Engineering. He is an active participant in the American Society of Highway Engineers (ASHE). Jim resides in the Camp Hill, Pennsylvania, area with wife Tina and son Luke.



The Fulcrum International, headquartered in Orlando, Florida is pleased to announce the appointment of **Judy Bradford** as Marketing Consultant for its promotions

across the US. Opened in 2004, The Fulcrum International is a web-based service that assists engineering, architectural and construction firms across the US in locating new staff in an inexpensive and effective way. Additionally, the company is working with more than 200 colleges and universities across the US to assist students in locating internships or full-time employment after graduation. The website can be found at www.thefulcrumintl.com.

Ms. Bradford is currently the president of SMPS Central Florida, and owner of Full Spectrum Consulting, Inc., a marketing and corporate event consulting firm. She is a graduate of the University of North Florida.

Jacklyn VanderPol, founder and president of The Fulcrum International, explains how the service works: "Employers can purchase job postings spaces on the site, which can be switched out with different positions at any time. Users have total control of their information and it's very easy to load and update." Costs compare very favorably with other online services such as monster.com, and www.thefulcrumintl.com is marketed solely within the design and construction industry and is teamed with industry organizations including ASHE (American Society of Highway Engineers) and several chapters of SMPS (Society for Marketing Professional Services). Public organizations can post their job openings at no charge. Job Seekers can post

resumes on the site, and search for positions at no charge.

The Fulcrum International offers a free e-newsletter which includes articles for employee newsletters, technology tips, and other industry news. The website is averaging 19,000 hits per week.

For more information please visit www.thefulcrumintl.com or contact company president Jackie VanderPol at 407/228-1747 or Jacklyn.vanderpol@thefulcrumintl.com. ■



Looking for new employees? Searching for a new job?

The Fulcrum International is
ASHE's OFFICIAL JOB BANK.

Visit **www.thefulcrumintl.com** to:

- Post new employment opportunities for your company.
- Post your resume for FREE.
- Search for open positions for FREE.

ASHE Members Receive a 10% Discount on posting jobs.

For more info: info@thefulcrumintl.com

OFFICERS 2005-2006

Ronald L. Purvis, P.E. President
Richard S. Prentice 1st Vice President
Perry M. Schweiss, P.E. 2nd Vice President
Terence D. Conner, P.E. Secretary
Robert E. Yeager, P.L.S. Treasurer
Rodney P. Pello, P.E. Past President

DIRECTORS

1 Year

Region 1 Robert A. Hochevar P.E.
Region 2 Jean E. Zarger
Region 3 Kevin Duris P.E.

2 Years

Region 4 W. Andrew Bitner P.E., P.L.S.
Region 5 Andrew S. Stasek, Jr. P.L.S.
Region 6 Robert W. Muir Jr. P.E.

3 Years

Region 7 Richard D. Clifton P.E.
Region 8 Calvin Leggett P.E.
Region 9 Nancy Buchanan P.E.
President's Assistant Shirley Stuttler

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

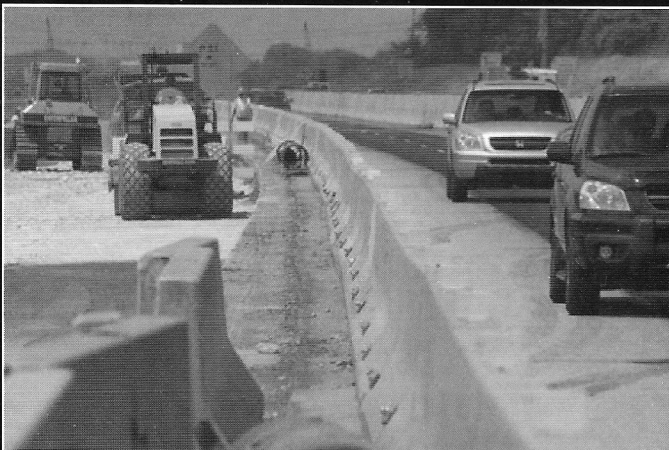
AMERICAN SOCIETY OF HIGHWAY ENGINEERS

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.

- Construction Management
- Traffic Engineering
- Environmental Assessments
- Intermodal Facilities
- Highway Design
- Bridge Design & Inspection
- Noise/Sound Barriers
- GIS/Mapping



PA Turnpike's 6-Lane widening between M.P.'s 326-333
in Montgomery County, PA

BUCHART **BASCO**
HORN, INC. **ASSOCIATES**
Engineers, Architects & Planners

THE INDUSTRIAL PLAZA OF YORK
445 West Philadelphia Street
York, PA 17404-3340
800-274-2224
www.bh-ba.com

Membership

Region 1

Cuyahoga Valley	136
Central Dacotah	60
Central Ohio	163
Lake Erie	97
Northwest Ohio	45
Triko Valley	117
Western Reserve	7

Region 2

Clearfield	102
Franklin	237
Mid-Allegheny	87

Region 3

Pittsburgh	601
N. Central West Virginia	44
Potomac Highlands	57
S.W. Penn	253

Region 4

Harrisburg	383
Altoona	190

Region 5

N.E. Penn	120
East Penn	106
Williamsport	133

Region 6

Delaware Valley	399
First State	111
New York Metro	130
N. Central N.J.	136
Southern N.J.	221

Region 7

Potomac	117
Chesapeake	98
Old Dominion	43
Greater Hampton Roads	66

Region 8

Carolina Piedmont	94
Carolina Triangle	255
Georgia	291
Middle Tennessee	96

Region 9

Tampa Bay	90
Central Florida	260
N.E. Florida	258
North Florida	36
Gold Coast	54
Total	5693

Professional Status	50%
DOT	16%
Consultant	66%
Contractor	9%
Other	9%