Pittsburgh

ENGINEER

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Orlando, FL, USA

November 9-13, 2025

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PUBLICATIONS COMMITTEE

The ESWP produces a range of publications as a service to our members and affiliated technical societies. ESWP Publications are supported by an all-volunteer Publications Committee.

Marki B. Johnson, CCM, LEED AP
G. Stephens, Inc.

David A. Teorsky, CCM
ESWP



ON THE COVER

ESWP Banquet Photos from Larry Rippel

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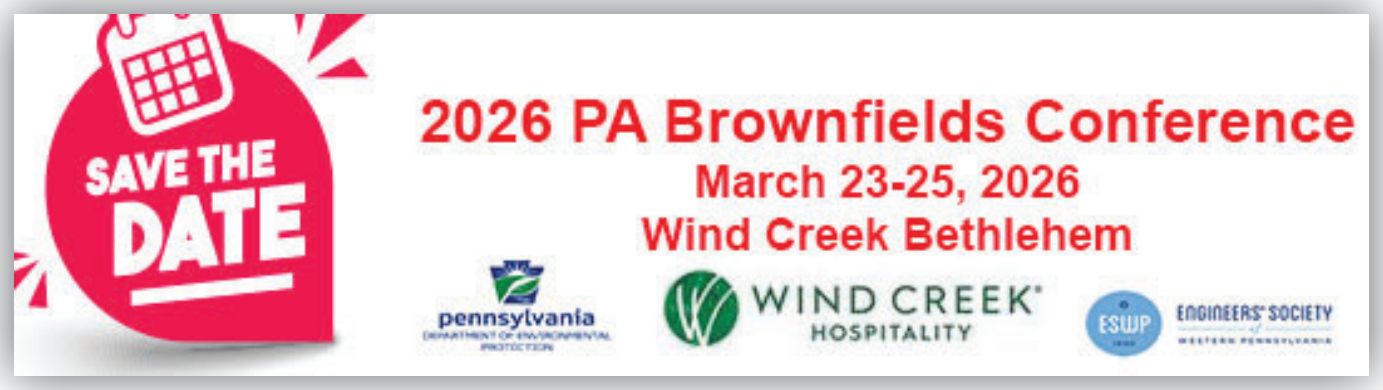
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Pennsylvania DOT, District 11-0


It's not that far away...line up your foursome soon!
ESWP's Annual Golf Outing
Monday, August 11, 2025
Southpointe Golf Club
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Seated on the dais are members of the ESWP Executive Commmittee Jamie McMaster, Greg Cerminara, Cheryl Moon, Metcalf Award Recipient Herb Higginbotham, Mallory Griffin, Steve Shanley, joined by Fr. Lou Vallone (L) and Master of Ceremonies Rick Sebak at the podium.

Oh, what a night!

The Engineers' Society of Western Pennsylvania held its 126th Annual Awards Banquet on Thursday, March 20, 2025. The Banquet, held at the Westin Convention Center Hotel in downtown Pittsburgh, was the place to be! Over 500 guests enjoyed a sumptuous dinner in the Allegheny Ballroom. Before dinner started, there was plenty of networking going on during the social hour, giving a feeling of homecoming. ESWP brings together engineers, consultants, owners, government officials, educators, students, and many more! It is the event of the year for the Pittsburgh engineering community. The awards program, a significant part of the evening, highlighted nine different projects in various categories, which are detailed throughout this issue of the *Pittsburgh ENGINEER* magazine. In addition, several individuals were awarded for their contributions to the engineering profession, a testament to the value we place on their work. Learn more about these well-deserving individuals in this publication.

Another part of the awards program is the presentation of the George Washington Prize, which is presented by faculty members from the University of Pittsburgh and Carnegie Mellon University, as their respective universities have awarded it. Additionally, recipients of the ESWP Member Scholarship were recognized during the dinner video.

We were fortunate once again to have WQED-Multimedia's Rick Sebak as the Master of Ceremonies. Rick has been the "MC" of the Annual Banquet for nearly two decades! He adds a touch of class and professionalism like no one else! Members of the ESWP Executive Committee were seated on the dais and had the opportunity to introduce each awardee personally.

The highlight of the evening was the presentation of the William Metcalf Award to Herbert C. Higginbotham, II, in recognition of a lifetime of achievement in engineering. ESWP President Cheryl Moon, P.E. presented the Award to "Herb" after a video tribute, featuring colleagues from past and present who comment on Herb's involvement in their lives, careers, and the engineering profession.

We are grateful to all those who supported and organized the Banquet, as we received an overwhelming number of positive comments and compliments on the evening. If you missed it, you can learn more later in this issue, and the video tributes can be viewed on the ESWP website at eswp.com/annual-events/annual-banquet/

We are already planning the 2026 Annual Banquet for Thursday, March 26, at the Westin Hotel, and we look forward to seeing you there! And there is still plenty of time to begin assembling your nomination for next year's awards. Look for that later this year.

Helping communities and clients improve mobility.

Congratulations to PennDOT and the entire project team for receiving the 2024 ESWP Geotechnical Project of the Year award!

Beaver Grade Road Landslide Remediation – Before and After



gftinc.com

GFT

2024 GEO-TECHNICAL PROJECT OF THE YEAR

The SR 3077-A25 Beaver Grade Road Emergency Landslide Repair Project

The SR 3077-A25 Beaver Grade Road Emergency Landslide Repair project in Moon Township, Allegheny County, was designed by Gannett Fleming and built by Allison Park Contractors. The repair consisted of micropiles and a rock slope. SR 3077 was also shifted away from the slope. The initial landslide occurred in mid-January 2024, and the road fully reopened in early July of the same year. Total cost was approximately $4 million.

The project was unique because the landslide occurred between a PennDOT road and private residences located at the top of the slope. The repair had to consider all interested parties, given the significant media interest in the story.



Crews worked continuously on-site to remove over 8,000 cubic yards of failed soil mass and install more than 11,000 cubic yards of durable rock, thereby stabilizing the 75-foot-high by 400-foot-long slope failure. This rock buttress was reinforced with steel micropiles, which were drilled 25 feet deep into the underlying solid bedrock. Once the lower portion of the slide mass was secured, the team continued to reconstruct the upper portion of the slope by trucking in an additional 11,000 cubic yards of select granular embankment material, restoring the landscape of the six residential properties located at the crest of the slope to as close to pre-slide conditions as possible.





The project required extensive coordination with the property owners, the Homeowner's Association, and the Township. The upper portion of the slope was outside of PennDOT's Right of Way, but the final project was able to incorporate a full-height slope repair that benefited all parties.

This was a unique project because the decisions had a close and immediate impact on the property owners and the neighborhood. The team successfully completed a project through clear and consistent communication.





Receiving the award from the projet team from ESWP's Steve Shanley (L) and Cheryl Moon (R) is Josh DiCriscio of JMT; Greg Mumich of PennDOT; Corey Potetz of Allison Park Contractors; and Brian Heinzl of GFT.

2024 MODERNIZATION PROJECT OF THE YEAR

Westinghouse eVinci Project at 51 Bridge St.



The Westinghouse eVinci Project at 51 Bridge St. in Etna began approximately six years ago when the Owner, The AM Group, undertook a complete renovation of the site and building to be leased as a tech-flex space for multiple tenant uses. In early 2023, Westinghouse leased the entire building for its eVinci™ microreactor accelerator and standalone technology hub.

51 Bridge Street's heritage dates back to its origins in 1902, when it opened its doors at the height of Pittsburgh's steel production, operating as a machine shop that supported the steel pipe mills in Etna. The building had solid bones and presented such a unique and amazing space that the AM Group envisioned it could be repositioned as a true innovation hub. They set out to honor that legacy and transform the building to attract and help power Pittsburgh's renaissance in innovation and technology. They also felt the location had excellent access, near downtown and several universities. The Borough of Etna and the local business community within Etna created a vibrant and welcoming community, and the AM Group wanted to contribute to the area's success.

Through the Owner's vision of revitalizing the building and Westinghouse's needs for a modern office and manufacturing R&D facility, the 51 Bridge St tenant fit-out project took off with JLL, RPA Engineering, and Desmone Architects supporting the project design.

Modernizing the building to meet the needs of today's workforce while preserving the industrial aesthetic and historical aspects of the building was the primary focus of the design. The project quickly split into phases, and Turner Construction joined the team. Phase 1 involved the fit-out of the 40,000 sq. ft., 3-story office side of the building. Phase 2 encompassed the 50,000 sq. ft. manufacturing/R&D side of the building, and Phase 3 was the cherry on top – a beautiful 4,500 sq. ft. roof deck with scenic views of the Pittsburgh skyline.

The Office side of the building is comprised of individual offices, conference and huddle rooms, open workstations, and multiple café and break area spaces. On the Manufacturing Shop side of the building, the design included creating rooms and areas for the separation of manufacturing activities, R&D, a machine shop, storage, additional open workstations, conference and huddle rooms, and a large design review auditorium. Engineering services were also provided to support



the installation of manufacturing equipment, including structural equipment foundations, electrical systems, process exhaust, and makeup air, plant compressed air, DI process water piping, and wastewater controls.

The project received support from state and local government, and Westinghouse's investment of over $20 million in 51 Bridge St. is a strong commitment to boosting the local economy while developing clean energy technology.

The new 51 Bridge St facility is a beautiful, functional, and modern manufacturing workspace that everyone is proud to have worked on, and will continue to support the eVinci™ technology development for years to come.



Bright and Open Common Space at 51 Bridge Street



Roofdeck overlooking the City of Pittsburgh at 51 Bridge Street



New Training Rooms at 51 Bridge Street



Jamie McMaster (L) of Westinghouse, Chris DiLorenzo of Turner Construction, Tom Sabol of The AM Group, Eric Laurent of Westinghouse and Samantha Owens of RPA receive their award from ESWP's Cheryl Moon and Steve Shanley.

2024 ENVIRONMENTAL PROJECT OF THE YEAR

ALCOSAN Environmental Compliance Facility



Photo courtesy of ALCOSAN and Ed Massery

The Environmental Compliance Facility (ECF) for the Allegheny County Sanitary Authority (ALCOSAN) in Pittsburgh, Pennsylvania, is a 54,000-square-foot laboratory and office complex supporting ALCOSAN's $2 billion Clean Water Plan. Designed to address evolving environmental testing needs, the facility integrates sustainable design, cutting-edge technology, and flexibility, enhancing ALCOSAN's capacity for future growth.

Previously, ALCOSAN's environmental functions were dispersed across various buildings, resulting in inefficiencies. The ECF consolidates these functions into a single, streamlined structure, improving workflow and operational effectiveness. AE Works collaborated with stakeholders through interactive workshops to ensure the facility met both current and future requirements.

The ECF houses microbiology, organics, and instrumentation testing labs, as well as offices, conference rooms, and classrooms. Its modular design allows for flexibility, accommodating future testing protocols and technologies. The facility supports automated processes and digital equipment, enhancing efficiency and adaptability.

Sustainability is central to the design, featuring a green roof, LED lighting, and energy-efficient heating, ventilation, and air conditioning (HVAC) systems. Smart controls optimize mechanical systems, while features like fume hoods with variable volume valves minimize energy waste. The facility also uses direct expansion cooling instead of traditional air-cooled chillers, and hot water radiant panels supplement heating in office areas.

Constructability was a focus, particularly with the project's location on ALCOSAN's union parking site. AE Works developed a fast-tracked construction plan to build a 170,000-square-foot parking garage, ensuring continued access. The design also accounted for underground utilities to avoid disruptions.

The ECF is a key investment in ALCOSAN's mission to adapt to future needs and strengthen its

operations. In line with ALCOSAN's dedication to environmental stewardship, the new building is 3 Rivers Proud, representing the region's values of innovation and progress. Featuring sustainable design, adaptable spaces, and advanced technologies, the facility enhances operational performance while contributing to a lasting, positive impact, supporting the Clean Water Plan for years to come.

Photo courtesy of ALCOSAN and Ed Massery



Building Exterior of ALCOSAN's New Facility

Photo courtesy of ALCOSAN and Ed Massery



New Testing Lab

Photo courtesy of ALCOSAN and Ed Massery



New Offices and Classrooms

Project Team Members:

Design Team:

Prime and Project Manager: AE Works Ltd.

- Architectural Design
- Mechanical, Electrical, Plumbing and Telecom Engineering
- Interior Design
- Construction Administration
- Planning + Project Services

Additional Design Team Members:

- Parking Garage Expert - Desman Design Management
- Civil Engineering -Colliers
- Structural Engineering - Atlantic Engineering Services
- Environmental Engineering - Skelly & Loy
- Geotechnical Engineering - Sci-Tek
- Landscape - Moore Design Associates
- Laboratory Expert - RS Collaborative
- Estimating - Trophy Point

Contractor and CM Teams:

- Parking Garage: Mike Coates Construction Company (GC)
- Bronder Technical Services (Electrical contractor)
- Gunning Inc. (HVAC contractor)
- W.G. Tomko & Sons, Inc. (Plumbing contractor)

Laboratory:

- Hudson Companies (GC)
- Bronder Technical Services (Electrical Contractor)
- Guy's Mechanical Systems, Inc. (HVAC contractor)
- SSM Industries Inc. (plumbing contractor)

CM Contact:

- G. Stephens was the prime contractor for the Construction Management project, with Hill International and DLZ serving as sub-consultants.



ESWP's Steve Shanley (L) and Cheryl Moon (R) present the Award for ALCOSAN Environmental Compliance Facility to Marki Johnson of G. Stephens, Inc., Cody Edgell of ALCOSAN, and Tiffany Haile of A/E Works, the Architect/ Engineer.

2024 ALTERNATIVE DELIVERY PROJECT OF THE YEAR

I-64 Improvement and Kanawha River Bridge



Just outside Nitro, West Virginia, Interstate 64 crosses the Kanawha River on the Donald M. Legg Memorial Bridge. After more than 60 years of service, the structure and surrounding interstate had become a bottleneck in the regional transportation system, stemming from an inability to expand the through-truss bridge.

The West Virginia Department of Transportation's $224 million I-64 Improvement and Kanawha River Bridge project expands 4 miles of interstate and includes a new tri-level interchange with two curved steel ramps, replaces three sets of dual mainline structures, an overhead crossing, and the Kanawha River crossing. The DOT determined that the design-build process would allow them to work collaboratively with the contractor and design teams to assess options, ultimately selecting the design-build team of Brayman Construction Corporation and Trumbull Corporation, a Joint Venture, as the contractor and HDR as the designer.



The new Kanawha River Bridge has two side spans at 380- and 90-foot-long. Each bridge is 65-foot-wide

The crown jewel of the project, the new Kanawha River Bridge, is a dual three-span plate girder structure with a 562-foot-long main span, making it the longest steel I-girder span in the United States. Each bridge is 65 feet wide and accommodates four travel lanes: three for mainline traffic and a fourth for ramp traffic. To maintain the navigation envelope, the team reused



Using a non-traditional method to erect the large girders reuired the team to analyze the sequencing to verify the girders, sized for final condition, were adequate for erection

the existing bridge piers for the eastbound structure, which determined the record span length mirrored by the westbound structure.

The design-build delivery method required significant coordination among the designer, constructor, and owner while providing a cost-effective structure that facilitated the transportation of pieces and simplified construction. It minimized impacts on river traffic, thereby meeting service life expectations.

A challenge for the structural designers was the lack of code requirements for a structure of this size. The project team turned to unique structural analyses to deliver the one-of-a-kind bridge. By carefully examining the project requirements and collaborating with the contractor and owner, HDR's engineers designed and detailed the structure to achieve a 100-year service life, minimizing complex solutions that could impact the design, construction, or necessitate atypical future maintenance.

With the project completed, there are now six lanes from Teays Valley to Charleston. The project provides a blueprint for utilizing alternative delivery methods to develop innovative solutions that enhance safety, reduce congestion, and accommodate a growing community for the next century while establishing a process for designing record-breaking steel structures nationwide.



ESWP's Steve Shanley (L) and Cheryl Moon (R) present the Alternate Delivery Award to Jeff Slezak from Trumbull Corporation, Thomas Hesmond from Brayman Construction Company, Todd Rumbaugh of the West Virginia Department of Highways, and Jason Fuller of HDR..

ESWP Member News

We are pleased to recognize the more than 75 firms in the Corporate Member program of the Engineers' Society of Western Pennsylvania (ESWP). Corporate Memberships are available at 3 levels: Gold, Silver and Bronze; Gold members are entitled to 14 memberships that can be exchanged by employees; Silver, 9; and Bronze, 5 — annual dues are $2400, $1700, and $1000 respectively. In addition, ESWP Corporate Member Firms may add 2 additional individuals in our "Under-35" age category at no additional cost! This is a great way to recognize those future leaders in your firm!

We also offer Individual Memberships, including our "Under-35" category, which allows for full member privileges at annual dues of $25 and a Government rate (full-time), for $50.00! More information can be found at eswp.com. Please contact the ESWP Office (412-261-0710, or eswp@eswp.com) with any questions.

Membership in ESWP comes with a long list of benefits! From our continuing education opportunities earning you Professional Development Hours (PDHs), to the business networking events at our social events, there is something for everyone in your organization. Also, ESWP is helping the next generation of engineers with student STEM outreach programs, giving you the opportunity to participate in many rewarding programs, encouraging the next generation of engineers (*and ESWP members!*).

2025 Member Dues were invoiced in January, 2025. If you have yet to receive your invoice, please contact the ESWP offices. Thank you!

ESWP Gold Corporate Member Firms

AECOM
Allegheny County Airport Authority
ARCADIS
CDR Maguire Engineering
DLC Duquesne Light Co.
gai consultants transforming ideas into reality
GFT
GPI
Geosyntec consultants
HATCH
HDR
Michael Baker International

ESWP Silver Corporate Member Firms

CEC Civil & Environmental Consultants, Inc.
Gateway On Call. On Time. On Target.
KTA
KU Resources, Inc.
PJ Dick Trumbull Lindy Paving
PRT Pittsburgh Regional Transit
RVE 1901 Remington & Vernick Engineers
Wade Trim

ESWP Bronze Corporate Member Firms



























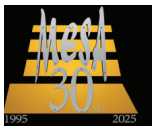




































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2024 INDUSTRIAL PROJECT OF THE YEAR

The Iron City Brewery



McKim & Creed's responsibilities extended to the distribution piping, plumbing, and electrical infrastructure essential for brewery operations. Design included an electrical system reconfiguration.

Owned by the Pittsburgh Brewing Company, Iron City has a devoted regional following. However, in 2007, when financial hardship struck, and operations relocated to Latrobe, it felt as though the city had lost a piece of its history and heritage.

In 2022, Iron City returned to Pittsburgh, finding a new home in Creighton on the banks of the Allegheny River.

The former 140,000-square-foot Pittsburgh Plate Glass Company plant, which was used from 1883 to 2018 to fabricate glass, has been converted into the new Iron City Brewery.



A challenge of the project was preserving the historic manufacturing facility's integrity while developing a modern brewing space that functions as both a visitor attraction and a manufacturing facility.

Designing infrastructure that integrates the facility's aesthetic while allowing for future growth was crucial to the owner's vision. The building's large scale posed unique challenges for power distribution, piping, and HVAC, all of which were dependent on the design of the brewing equipment.

Unlike traditional industrial design, this project required thoughtful design and installation, primarily to accommodate different standards found in German brewing equipment used in the brewery.



Lighting the open spaces and the massive tanks with general ambient lighting, as well as task-focused lighting fixtures blended to complement the old industrial aesthetic of the space while providing targeted illumination for working in and around the large equipment and complex piping infrastructure.

To achieve this, McKim & Creed rehabilitated both the existing outdoor and indoor high-voltage substations, ensuring the project stayed within budget and remained on track. McKim & Creed's team tested, repaired, and returned both elements to service, resulting in an estimated cost savings of $ 2 million.

McKim & Creed's engineers collaborated with architects, facility owners, and brewmasters to provide infrastructure solutions worthy of Iron City's legacy.



Lighting the volume of the spaces and the massive tanks with general ambient as well as task focused fixtures complemented the old industrial aesthetic of the space while providing targeted illumination for working in and around the large equipment and complex piping infrastructure.



ESWP's Steve Shanley (L) and Cheryl Moon (R) present the Industrial Award to Ron Mahinske of McKim & Creed; Martin Busser of Indovina Architects, and Katie Jones of McKim & Creed accepting on behalf of the owner Iron City Brewing Company..

2024 WATER/WASTEWATER PROJECT OF THE YEAR

Niobec Mine Water Desalination & Brine Management. Saint-Honoré-de-Chicoutimi, Québec, Canada

Project Overview

Located approximately 200 km north of Quebec City, the Niobec Mine is the world's first and only underground niobium mining site. This operation presented Niobec, Inc. with dual challenges: efficiently managing highly saline mine water while maintaining a strong commitment to environmental stewardship.

Working closely with Niobec, Aquatech implemented an advanced, modularized, closed-loop water treatment solution to reduce water withdrawals, minimize waste, and prevent the discharge of salt-laden effluent into local waterways.



Key Challenges

Due to the nature of underground mining operations, the water produced has a significantly high salinity content, often exceeding 25,000 PPM. This water is also saturated with scale-contributing constituents, including calcium, magnesium, strontium, barium, alkalinity, and sulfate.

Traditional methods of softening the feed water before processing through reverse osmosis (RO) and thermal systems would have led to excessive chemical consumption and the generation of large quantities of sludge. The advanced pretreatment solution implemented is both innovative and straightforward, reducing the risk of operational issues and enhancing reliability while maintaining an attractive lifecycle cost.

By utilizing Aquatech's proprietary cutting-edge outside-in ultrafiltration technology, the mine achieved significant reductions in chemical consumption and sludge generation, thereby enhancing the system's operational reliability and sustainability. The processed brine was then utilized in the mine's paste backfill plant, promoting a positive environmental cycle by returning the concentrated waste underground. The treated water was reused for the mine's process water, reducing the plant's environmental footprint.

This innovative water treatment system not only complied with stringent environmental regulations but also significantly reduced the mine's overall environmental impact. This approach also enabled the mine's expansion initiative without raising concerns about the discharge of salt-laden mine water into nearby water bodies.

Aquatech designed and deployed a closed-loop treatment train using advanced membrane and thermal technologies. The system leverages:

1. Multi-media filters (MMF) for





Accepting the Award for the Niobec Mine Water Desalination & Brine Management Project, is Mahesh Badane and Page Davies at Aquatech, presented by ESWP's Steve Shanley, (L), and Cheryl Moon (R).

initial removal of suspended solids.

2. PVDF outside-in ultrafiltration (UF) membranes to mitigate turbidity and protect downstream equipment.

3. Reverse osmosis (RO) to remove salts, hardness, fluoride, sulfate, and heavy metals.

Forced circulation evaporation to minimize brine volume. This approach ensures high-quality treated water, and produces a concentrated brine stream suitable for reuse within the mine operations.The desalination system is rated to:

- Produce 528 GPM (120 m^3/h) of treated water
- Manage 119 GPM (27 m^3/h) of brine flow
- Generate 53 GPM (12 m^3/h) of concentrated brine for reuse in the mine's paste backfill processes.

Future Applications & Significance

By deploying well-targeted pretreatment, reverse osmosis, and thermal technologies, this project demonstrates how chemical inputs can be minimized, even when treating complex mine water.

Lessons learned from Niobec's facility—including the successful handling of high salinity water, reduction in sludge production, and the reuse of industrial brine—offer a robust model for other underground mines worldwide.

This project underscores a shared commitment by Niobec, Inc. and Aquatech to environmental stewardship and operational efficiency, paving the way for broader industry adoption of advanced water treatment solutions.

2024 BRIDGE PROJECT OF THE YEAR

The New Kensington Bridge Rehabilitation Project

The New Kensington Bridge, spanning both Allegheny and Westmoreland County, is overseen by PennDOT District 11-0. Preservation efforts for this bridge commenced in December 2017 under The Markosky Engineering Group, Inc., with the final design completed in December 2022. Construction of the project was substantially completed in December 2024.

The New Kensington Bridge is a 14-span steel bridge that carries SR 1038 over Freeport Road, 10th Street, the Norfolk Southern Railroad, and the Allegheny River. The bridge is eligible for listing in the National Register of Historic Places.

The bridge plays a vital role in providing travel across the Allegheny River and aiding in both industrial and commercial development within the City of New Kensington. The city is undergoing a renaissance, with the addition of new stores, restaurants, breweries, boutiques, and residential units. Examples of revitalization include the rehabilitation of the former Ritz Theater and the historic Bloser Mansion, now home to Voodoo Brewery and a new bed and breakfast. The Schreiber Industrial Park is being revitalized for heavy industrial, light industrial, and tech flex users.

The rehabilitation of the New Kensington Bridge is part of ongoing efforts to revitalize New Kensington, serving as a river crossing that supports the city's development. The bridge was listed in satisfactory condition but had significant defects that, if left uncorrected, would lead to advanced deterioration and impact its load-carrying capability. Markosky's rehabilitation approach focused on cost-effective solutions that did not create excessive impacts on the traveling public, the community, or pedestrians and did not compromise the historic character of the bridge.



New Ken Bridge. c. 1940



Existing Bearing Before Reab



Bearing After Rehab

During the preliminary engineering phase, a preservation inspection of the entire bridge was completed in March 2018 by Markosky and Michael Baker International. Recommendations included repairing deteriorated concrete, applying epoxy resin, replacing expansion dams, cleaning and painting structural steel, and installing new protective fencing.

The project necessitated four telecommunication facility companies to relocate their lines from an existing truss member above deck. A shared effort enabled the installation of a new conduit and the relocation of lines under the structure, providing opportunities for expanded service to the surrounding area.

To maintain two lanes of traffic across the bridge, a multi-phase approach was implemented. Substructure work was executed without disrupting traffic flow, and superstructure repairs were managed by maintaining two lanes of traffic with phased width restrictions. Deck preservation work was conducted under a time-restricted detour.

The final design commenced



in August 2019, and the project was awarded to Swank Construction Company, LLC on January 25, 2023. During construction, unforeseen issues, such as structural repairs to the webs in Span 4 through the girders, were addressed collaboratively.

Overall, the New Kensington Bridge Preservation project was essential for supporting the ongoing development and progress of the City of New Kensington and surrounding communities, ensuring the safety and efficiency of a vital transportation link, and preserving a historic structure for future generations.

Owner:
- PennDOT District 11-0

Lead Engineer:
- The Markosky Engineering Group, Inc.

Subconsultants:
- Michael Baker International, Inc.
- KTA-Tator, Inc.
- T2 UES, Inc.
- Keystone Valuation Group, L.P.
- Keystone Acquisition Services, Corporation
- Lehigh University

General Contractor:
- Swank Construction Company, LLC
- Avalotis Corporation
- Amelie Construction & Supply, LLC
- 20+ Subcontractors and Suppliers

Construction Management
- PennDOT District 11-0
- Johnson, Mirmiran & Thompson Engineering, Inc.

Inspection
- CDR Maguire, Inc.
- CDM Smith, Inc.
- Greenman-Pederson, Inc.
- Quinn Consulting Services



ESWP's Steve Shanley (L) and Cheryl Moon (R) present the award to members of the project team Nick Wagner and Tyler Haupt of Markosky; Stephen J. Reyes of PennDOT; and Frank Strittmatter of Markosky

2024 RAILROAD PROJECT OF THE YEAR

Norfolk Southern's Railroad Brige Over Conneaut Creek



A train waits on the bridge for clearance into the yard located to the west of the site. The train engine is resting partially on the new track and also on the original track.



Norfolk Southern's 100+-year-old, 1,320-foot-long, 28-span open-deck bridge over Conneaut Creek in Ohio needed to be replaced to maintain safe, continuous service. The bridge is located along one of Norfolk Southern's busiest rail corridors. The bridge is approximately 60 feet high, with access being restricted near the bridge on either end by steep embankments and two piers located within the water of Conneaut Creek. A portion of the bridge was over another active railway. Mascaro had to constantly communicate with the railroad companies to swing their cranes and equipment out of the way for passing rail traffic for both the railroad we were working on and the railroad below.

A ballast deck bridge replaced the old open deck bridge, presenting a challenge in maintaining continuity between each span to ensure uninterrupted rail traffic during the replacement process.

The new superstructure consists of four welded girders with a steel deck. It's supported by cast-in-place concrete pier





Working around the clock during an outage to remove the existing steel tower and track from around the new concrete pier. In the picture on the left, one can see the new bridge structure (right side of photo) and the existing structure (left side of photo). The new concrete pier is intertwined in the original steel tower.

caps and pairs of cast-in-place concrete columns founded on drilled shafts. The main span of the bridge weighs over one million pounds alone, and 4.7 million pounds of structural steel was used in the bridge's construction. Mascaro's heaviest crane pick-up was 310 tons. The new substructure was installed before the superstructure, with no impact on train operations. It was positioned in such a way as to eliminate interference with the existing foundation as much as possible. The superstructure was replaced incrementally in a series of 13 total outages, with the majority averaging approximately 18 hours. The team was up against a tight schedule during each outage, as the work had to be completed in the allotted window before the next train was expected to travel down the track.



ESWP's Steve Shanley (L) and Cheryl Moon (R) present the Railroad Award for the Norfolk Southern Conneaut Creek Bridge to Wendy Berill of Michael Baker International; Hal Harmon of Mascaro; Nabil Hamadani of HDR; and Ruth Brown of Norfolk Southern Railroad.

2024 RAPID RESPONSE PROJECT OF THE YEAR

Parking Lot Bridge over Route 51 Saw Mill Run Boulevard Project



The demolition of the Parking Lot Bridge over Route 51 Saw Mill Run Boulevard exemplifies a rapid infrastructure response. This critical project involved the removal of a deteriorating and unique bridge, the construction of creative abutment extensions, the widening of SR 51, the installation of new barriers along both sides of Route 51, and drainage modifications.

The original railroad overpass, completed in September 1930, was constructed as part of a new section of roadway known as Saw Mill Run Boulevard Section B, now designated as Route 51. The bridge facilitated rail access for the Pittsburgh and West Virginia Railway to the Wabash Tunnel. Over time, the railroad bridge turned into a parking lot. Poor bridge ratings necessitated the closure of vehicular traffic on top of the bridge in 2023, requiring immediate action. The structure was a three-span non-composite bridge with a concrete deck featuring an overall span length of 172 feet and 3 to 8 feet of fill material atop the superstructure. Its position was within a 130-foot-deep rock cut and also created a significant pinch point for Route 51 travelers.



Project design development required a comprehensive site condition analysis and a thorough historical understanding. The key innovation was the creative use of precast modular blocks placed atop existing abutments that remained in place to retain the existing fill material behind the abutments. While these blocks are standard in construction, their application on this project demonstrated significant ingenuity given the project's site constraints.

The project challenges included a very limited legal right-of-way behind the abutments, no access to the bridge from the top, all demolition needing to be staged from Route 51, stakeholder coordination,



The project challenges included very limited legal right-of-way behind the abutments, no access to the bridge from the top, all demolition needed staged from Route 51, stakeholder coordination, an accelerated 11-week design schedule, advanced NTP and utility coordination including temporary removal of power lines to the Wabash Tunnel.

an accelerated 11-week design schedule, advanced NTP, and utility coordination, including the temporary removal of power lines to the Wabash Tunnel. During construction, the closure of Route 51 began on August 2nd, and traffic was restored on August 29th.

A benefit resulting from the bridge removal was the widening of travel lanes on Route 51 from 10' to 11' and maintaining a sidewalk along the southbound side.

Both the expedited design and construction demonstrated exceptional efficiency in addressing critical infrastructure needs. Beyond eliminating the immediate safety concerns of the deteriorating bridge, the completed work removed the restricted roadway width and the psychological impact of traveling beneath a visibly deteriorating and restrictive structure.



ESWP's Steve Shanley (L) and Cheryl Moon (R) present the Rapid Response Award for the Parking Lot Over SR51 and Sawmill Run Blvd. to Zack Workman, of the City of Pittsburgh DOMI ; Shane Szalankiewicz of PennDOT District 11-0; Russ Driskel of Charles J. Merlo, and Maria Rowley of STV.

2024 EDUCATOR OF THE YEAR



ESWP's Jamie McMaster presents Ms. Tracy Smith with the 2024 Educator of the Year Award. Tracy is an engineer who graduated from Lehigh University with a Bachelor of Science degree in Mechanical Engineering and an MS in Automotive Systems Engineering from the University of Michigan. Then, after working at Chrysler Automotive for four years, she began pursuing a Master of Arts in Education with a focus on Physics, also from the University of Michigan. Upon graduation she returned to her hometown of Upper St. Clair to teach Physics in 2003.

Since then, Tracy has leveraged her advanced engineering education and practical work experience in the classroom as a high school STEM educator, with a mission to empower students to become problem solvers and innovators. She is certified in secondary physics, mathematics, and technology education. In this role, Tracy is skilled in differentiated instruction, ensuring that the needs of students with ADHD, autism, anxiety, and English Language Learners are addressed by creating an environment where every student can thrive. Tracy has been awarded the Carnegie Mellon University Sigma Chi Outstanding Math and Science Teacher Award.

Tracy is also very active in numerous extracurricular programs. Her teaching strategies extend beyond traditional methods, incorporating robotics, engineering, and programming into the curriculum with practical applications of STEAM principles. A good example of her approach to aligning classroom activities with practical industry trends is the integration of STEAM programming into the curriculum, such as the Technology Now and Tomorrow.

2024 ENGINEER OF THE YEAR



ESWP's Cheryl Moon (L) and Mallory Griffin (R) present the award for the 2024 ESWP Engineer of the Year to John Osterle. John P. Osterle, P.E., is Senior Vice President of RIZZO International, Inc., a civil and geotechnical firm headquartered here in Pittsburgh, PA. John holds a Bachelor's and Master's degree in Civil Engineering, both from Carnegie Mellon University.

John is a registered professional engineer in 23 states and has worked on dams across the country. Locally, he managed the John C Smith Dam and Todd Springs Dam projects in Western Pennsylvania, both of which are critical water supply reservoirs located in Bedford, PA.

Primarily, though, his engineering career has encompassed major hydroelectric and hydropower dam design and dam safety projects across the country, as well as internationally, including a dam safety review for the Government of Suriname. Ironically, the dam in Suriname was designed by a group of engineers from Pittsburgh 50 years prior, which shows the reach of this Western Pennsylvania engineering community.

John is recognized nationally in the field of dam safety and has authored and co-authored 16 technical papers. He serves as the Chairman of the United States Society on Dams (USSD) Environment and Sustainability committee, a position he has held since 2021. The Committee has recently prepared position statements on Sustainability Principles for Dams and Levees and for Securing Future Water Supplies.

John comes from a family of engineers, with his grandfather and father working in the electrical and mechanical fields. They have a long history of collaborating with local universities, such as Carnegie Mellon University. To give back to this community, John served as technical mentor to CMU's Civil and Environmental Engineering senior design project in 2024 – which had the students look at one of the local dams I mentioned, the Todd Springs Dam to design various aspects such as the spillway, embankment, access roads and water treatment facilities.

2024 YOUNG ENGINEER OF THE YEAR



ESWP's Greg Cerminara presents Nicole Stafford with the Young Engineer of the Year Award.

Nicole is a project manager with McKim & Creed, where she has been employed for seven years. She has a bachelor's degree in chemical engineering from Geneva College and a master's degree in environmental engineering from the University of Pittsburgh.

Nicole is an invaluable member of the McKim & Creed team, bringing leadership, expertise, and a willingness to mentor and make a difference in both her community and within her community of engineers. In a short time, Nicole has gained tremendous expertise in industrial water and wastewater treatment and is one of McKim & Creed's trusted project leaders.

She has consistently demonstrated her ability to engineer and manage complex projects, excelling in roles that encompass project management, process engineering, and construction management. Nicole's commitment to advancing the engineering sector is reflected in her dedication to sustainable engineering, integrating solutions that promote environmental stewardship and financial efficiency. This is evident in her leadership of engineering and process design on projects such as the Chatham Park Decentralized Water Recovery Center for the Preston Development Company in Pittsboro, North Carolina, where her responsibilities included detailed engineering, construction management, and equipment procurement.

Her passion for "giving back" is evident through her volunteering, where she has led multiple fundraising efforts, including those for Make-A-Wish, the Salvation Army, and Play It Forward. Her dedication to fostering professional growth and networking opportunities within the engineering field is shown through Early Career Professionals volunteer events (two of which she served as the president of the Early Career Professionals Leadership Team). Nicole has also been very generous to the industry, serving as a regular contributor and author as well as a discussant at the ESWP's International Water Conference since 2019.

2024 HIGHER EDUCATOR OF THE YEAR



ESWP's Steve Shanley (L) presented Dr. William (Bill) H. Sanders with the 2024 Higher Educator of the Year Award. Doctor Sanders earned his bachelor's degree in computer engineering, Master's degree in computer, information, and control engineering, and Doctoral degree in computer science and engineering, all from the University of Michigan. He has a cumulative 37 years of experience in academia, including 6 years at the University of Arizona, 25 years at the University of Illinois, and currently five years at Carnegie Mellon University in Pittsburgh, where he serves as the Dr. William D. and Nancy W. Strecker Dean of the College of Engineering.

Doctor Sanders joined Carnegie Mellon in January 2020 and led the development of a new strategic plan to further position the renowned College of Engineering as a research powerhouse, addressing societal challenges with a global reach. He credits his colleagues at Carnegie Mellon Engineering for the college's success.

Dr. Sanders' research interests include secure, dependable, and resilient computing systems, with a focus on critical infrastructures. He has directed work at the forefront of national efforts to make the U.S. power grid innovative and resilient. His significant scholarly record includes the publication of more than 300 technical papers in this field.

A recognized leader in his field, Dr. Sanders was elected to the National Academy of Engineering in 2023, one of the highest professional distinctions an engineer can receive for his contributions to cybersecurity and resiliency technologies for critical infrastructures. Doctor Sanders's electrical system safeguards against hackers, which guards against previous electrical outages that resulted in 63 million people without power..

2025 WILLIAM METCALF AWARD PRESENTATION



Herbert C. Higginbotham, II, P.E. accepts ESWP's 2025 William Metcalf Award

Each year since 1963, the Engineers' Society of Western Pennsylvania (ESWP) has presented the William Metcalf Award to an outstanding individual whose field of accomplishments closely relates to Western Pennsylvania. ESWP named this Award in honor of its first President, William Metcalf, who served in 1880 and 1881. This year's recipient, Herbert C Higginbotham, II, P.E., joins an illustrious group of previous recipients and is certainly no exception to the group. "Herb" was recognized with the 2025 William Metcalf award at the ESWP's 126th Annual Awards Banquet on Thursday, March 20, 2025, at the Western Convention Center Hotel. Herb's career spans several decades, encompassing roles in both government and private consulting. Herb's impressive résumé includes projects with Allegheny County, such as the Allegheny County Jail and the Coraopolis-Neville Island Bridge, where he played a key role in collaborating with the public to achieve outstanding outcomes. Herb found working with the Allegheny County Government to be very rewarding, taking the responsibility of public trust very seriously while seeing direct results that benefited the public.



Herb Higginbotham receives the Metcalf Award from ESWP President Cheryl Moon



Audience members stand in recognition upon the introduction of the Metcalf Award recipient Herb Higginbotham

Herb's achievements in the engineering field extend beyond the workplace, where he is recognized as a generous volunteer to several organizations, including the Southwest Pennsylvania Engineering Outreach (SPEO) organization and, of course, the ESWP. Additionally, Herb is known as a willing mentor who welcomed new professionals not only into the engineering community but also the Pittsburgh region.

ESWP President Cheryl Moon, P.E., presented the Metcalf Award plaque to Herb after a video tribute that included Tom Donatelli, Arletta Scott Williams, Mallory Griffin, Chad Davis, and Tammi Halapin providing accolades to Herb's role in their life and careers. The 500+ attendees at the gathering welcomed Herb with a standing ovation, many of whom had come especially for Herb. Herb's acceptance remarks credited his parents for setting an example with proper work ethic and education, saying they worked hard to ensure he was on the right path to a successful career. Herb spoke about the spark that was ignited in him as a young teenager, drawing his attention to the engineering profession. Herb is one to freely comment on how the profession has been so good to him, as well as the connections and friendships he has made over the years, crediting many who helped him during his career.



Chad Davis with Herb Higginbotham, and Tom Donatelli

To view the video introduction, and the presentation of the Metcalf Award, visit https://eswp.com/annual-events/annual-banquet/

SCENES FROM THE 2025 ESWP ANNUAL BANQUET



















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