



YEAR IN REVIEW

INSIDE THIS ISSUE

4	<i>Message from the President</i>
6	<i>2021 NJ Project of the Year</i>
10	<i>2021 Golf Outing</i>
12	<i>Spotlight on Dewberry, Looking Forward: Using Renewable Energy in the Transportation Market</i>
14	<i>Roebing-Florence Bicycle Tour</i>
16	<i>Spotlight on Arora & Associates, PC, Revitalizing the Pulaski Skyway</i>
18	<i>Construction Panel- In-person Technical Event</i>
20	<i>Spotlight on Richard Grubb Associates, Revolutionary Fight at Monmouth County Route 3</i>
22	<i>35th Anniversary Celebration</i>
24	<i>Spotlight on Baker, Newark South Street and Adams Street Drainage Improvements</i>
26	<i>2022 Golf Outing</i>
28	<i>Spotlight on Urban Engineers, Supporting a Diverse Range of Services; Committed to the Community</i>
30	<i>2022 NJ Project of the Year</i>
34	<i>Sponsors</i>
35	<i>Upcoming Events</i>

2021-2022

THANK YOU TO OUR 2021-2022 OFFICERS EXECUTIVE BOARD

President Joseph Macios, PE	Vice President Heather Sabetta, PE	Secretary Sara Irick, PE, CME, PMP, TDM-CP	Treasurer George Zimmer, PE	Past President Amy Sokalski, PE, PTOE, PTP
---------------------------------------	--	---	---------------------------------------	---



JoeMacios@hotmail.com



Heather@ace.engineer



Sara.Irick@FPAengineers.com



George.Zimmer@wsp.com



ASokalski@mccormicktaylor.com

BOARD OF DIRECTORS

Membership
Alex Kluka



Alexander.Kluka@wsp.com

Sponsorship/Venues
Chris Gentz, PE



Chris.Gentz@wsp.com

Education
Richard Grubb



RGrubb@rgaincorporated.com

Website
Rémy Donahey



Remy.Donahey@gmail.com

Regional Director
Joseph Danyo, PE



JDanyo@mbakerintl.com

Public Relations
Chris Donahey, PE



CDonahey@gpinet.com

PDH Coordinator
Joseph Chichilitti



Joseph.Chichilitti@mbakerintl.com

2022-2023 OFFICERS

EXECUTIVE BOARD

President Heather Sabetta, PE **Vice President** Chris Gentz, PE **Secretary** Sara Irick, PE,
CME, PMP, TDM-CP **Treasurer** George Zimmer, PE **Past President** Joseph Macios, PE



heather@ace.engineer



chris.gentz@wsp.com



Sara.Irick@FPAengineers.com



george.zimmer@wsp.com



joemacios@hotmail.com

BOARD OF DIRECTORS

Education
Richard Grubb



RGrubb@rgaincorporated.com

Sponsorship
Michael A. Danko



MDanko@midatlanticeng.com

Venues
Kellen Sporny, PE



KSporny@malickandscherer.com

Membership
Alex Kluka



Alexander.Kluka@wsp.com

Website
Rémy Donahey



Remy.Donahey@gmail.com

Regional Director
Joseph Danyo, PE



JDanyo@mbakerintl.com

Public Relations
Karnvir Mashiana, PE



Karnvir.Mashiana@aeapc.com

PDH Coordinator
Joseph Chichilitti



Joseph.Chichilitti@mbakerintl.com



A Message from Past President Joe Macios

As I write this letter from my Dining Room table, I am humbled and still shocked to be in this position in charge of a Professional Engineering Society's Chapter. I am very honored to be taking over the 2021-2022 year as president of the Southern New Jersey Section of ASHE after years of being Treasurer and Vice President last year. With COVID refusing to leave us, I hope you and your families are safe and taking the necessary precautions to stay that way.

In this newsletter we look back at our accomplishments over 2021/2022 and look forward to 2022/2023. We have been working through the challenges of COVID and looking forward in-person events and meetings. It had been an unusual and challenging year. From politics to personal situations; from shopping in person to shopping from home; from restaurant dining to take out and delivery; from zooming to the office in cars to ZOOM while coming to the home office, from wearing our work clothes to now wearing our sweatpants and t-shirts. How times change.

We all thank last year's Past president Amy Sokalski for her dedication last year. She was thrust into the Presidency during a pandemic and forced to think outside the box on how to provide services that are not common to get the job done. Despite the challenges still had our yearly fieldtrip dinner meeting, bicycle events, charity golf event, and the Thank You Outing for our members last year while traversing through REMO webinars, constant medical reports and ever changing predictions of the future and for leading us through that; we offer our thanks to Amy.

As engineers, we embrace change, as it is a natural part of human life and our job description, as well as all organizational journeys. If one does not come to embrace change, one can certainly not move forward or realize their full potential: We are practical, we are realistic, we are driven by facts – we are Engineers! Let's face it, if it wasn't for change (and entropy sometimes) we wouldn't have highways and bridges to replace – so change is good, no matter how scary the circumstances may seem.

Anyway, I offer the following goals and initiatives that we hope to achieve in 2022/2023.

- Recapture ASHE-SNJ Members who may have left this past year during COVID-19
- Increase new membership and encourage personal and professional growth
- Reach out and nurture potential sponsors for long term relationships with ASHE-SNJ
- Create alliances and foster relationships with (additional) academic organizations
- Get back to face-to-face dinner meetings
- Increase Scholarship activity and support
- Look toward the future to embrace and surmount whatever challenges may come
- Encourage and empower our current Volunteer Staff and Board of Directors
- Have a social outing (SOME OF US NEED A DRINK AND TO TALK TO SOMEONE FACE TO FACE - NOT VIA ZOOM)

We have many new members on the board or in different positions to accomplish this and we are always looking for help and volunteers to join. Similarly, if you have a presentation on a job, product, ethics, or a technical issue that you would like to give to the members, there is always a spot available for you. We always need help and it's not as involved as you might think – just a few minutes here and there and it'll really make a difference in the chapter – so please consider it.

Thank you for all those who served previously and thank to those who have agreed to accept the challenge this year.

Please get your memberships paid by September and join us for a great season.

Look forward to seeing you all in person– Joe





A Message from President Heather Sabetta

Most of you only have known me since 2017 where I have been secretary of this great organization. Truth is, I have been part of this organization for much longer. I was on the board in the ASHE's Potomac Section since 2012– Hence why you hear me say ASH-EE rather than ASH. I am working on it!

I was honored to move up and be Joe Macios' VP. He did a wonderful job navigating the online meetings and getting presentations. Last year was tough since there were not many presentations ready to go. Of course we had a lot of help making the virtual meetings go smoothly. I want to thank Remy for setting them up and helping our presenters with their dry runs.

The board is really excited to be back in person and hope to have a good lineup for technical presentations and social events. As a chapter, the target is to host 8 technical events, 1 field trip, the golf scholarship outing, and 4 social events each year. If you would like to be a presenter or have presentation ideas/recommendations, please reach out to me.

UPDATES TO BOARD

Last year, we welcomed Joe Chichilitti from Michael Baker International to the board. This year, we have 3 new board members. Welcome Mike Danko from Mid-Atlantic Engineering Partners, Kellen Sporny from Malick and Scherer and Karnvir Mashiana. Dylan Livingston from McCormick Taylor has taken over scholarships after being mentored by Carrie Strehle. Brent Brisko has taken over social events.

SOCIAL MEDIA OUTREACH

One of our goals this year is social media. We have a LinkedIn account, where we have flyers for events, photos of past events, and Member spotlights,. Please follow us to keep up to date: www.linkedin.com/company/ashe-southern-nj/

VENUE UPDATES

Normally, we as an organization alternate events locations between the Cherry Hill and Hamilton area to best serve the Southern Section. Our Hamilton restaurant is no longer hosting anything besides weddings. We are actively trying to find a new location but please understand why things are changing.

UPDATES TO NEWSLETTER

Unfortunately, Chris Donahey, who completed our amazing newsletter, is retiring from engineering and from ASHE. He will be sorely missed. We wish him a wonderful retirement.

This newsletter is to recap the 2021-2022 session. You will find photos of any in-person events we had and the spot lights written up last year.

After this newsletter, the following ones, will only be a few pages to show a review of past events and looking forward to events. If your company has sponsorship, they are welcome to submit an article that will be included in the update.

Looking forward to a successful year. Thank you for your support. If you have any feedback, please send me an email.



2021 Project of the Year Over \$10 Million

Bloomfield Avenue (CR 506)

Bridge over NJ TRANSIT

The New Jersey Department of Transportation's \$12-million rehabilitation of the Bloomfield Avenue (CR 506) Bridge restored its structural integrity while maintaining railroad operations, vehicular and pedestrian traffic, and utility services. Located on the Montclair-Glen Ridge border, the bridge was originally built circa 1911, carries approximately 30,000 vehicles per day, and is a contributing resource to the historic railroad corridor. The physical constraints imposed by the bridge site, the skew at which Bloomfield Avenue crosses NJ TRANSIT's tracks, the non-redundant structural framing of the original concrete T-beam superstructure, the connection of NJ TRANSIT's catenary and communication systems to the bridge, and the presence of critical PSE&G lines, complicated the rehabilitation.

The solution utilized prefabricated superstructure (Inverset™) units to improve the vertical clearance over the tracks, improve the quality of the completed product, reduce the duration of track outages and the overall construction duration. To allow staged replacement of the deficient superstructure, a strong-back girder was designed to temporarily support the loads imposed on the portion of the original superstructure which remained in service. New concrete parapets and ornamental railing were included to compliment the architectural features of the original bridge. Extensive teamwork and coordination with stakeholders including NJ TRANSIT, NJDEP, Montclair, Glen Ridge, Essex County, PSE&G, local businesses, and residents was maintained throughout the design and construction of the project.



Use of a strong-back girder facilitated staged construction by maintaining the structural system's integrity, and allowed continued use of the bridge by vehicular and pedestrian traffic.



The rehabilitation successfully minimized impacts to railroad operations by continuously coordinating with NJ TRANSIT.

2021 Project of the Year Over \$10 Million Bloomfield Avenue (CR 506) Bridge over NJ TRANSIT



Prefabricated superstructure units were utilized to improve quality, increase safety, minimize disruption of NJ TRANSIT operations,



Architectural treatment, ornamental railing, and concrete stain were incorporated to compliment the bridge's historic character and enhance its final appearance.

2021 Project of the Year Under \$10 Million

River Road Bridge over Raritan Valley Railroad Emergency Bridge Replacement

The New Jersey Department of Transportation’s (NJDOT) River Road Bridge over Raritan Valley Railroad project is a perfect example of what can happen when a quality team is assembled and remains committed to the needs of the community and general traveling public. The project had its challenges—namely the extremely accelerated schedule, the overhead power lines, an active railroad restricting access, and even COVID-19 impacts – but each and every obstacle was expertly addressed by NJDOT and WSP with clear communication and active involvement from all parties throughout the duration of the project. Totally unsafe, the existing bridge superstructure suffered extensive corrosion of the through girders



New bridge design has two lanes with shoulders in each direction. New crashworthy bridge railings, guiderails, and aesthetic fencing elements that respect the original site’s settings

and floor beams. Overloaded trucks were observed passing over it and its two directions of traffic were serviced on just a single lane. Coupled with substandard traffic railings, guiderail, and roadway alignments, the existing condition was a risk to the public. There was substantial public input in this project which was accounted for and reflected in the construction staging, road closures, signing, aesthetic features and roadway design. The new bridge that has now been installed features a single span with new abutments and a tremendously efficient, high-strength concrete box beam

superstructure that provides the traveling public



with a much safer method of traveling River Road and a stunning viewshed of the project area. The single span reaches over 80’, close to the length of the existing bridge, but in two fewer spans.

The most complex aspect of the bridge replacement was the aggressive project schedule. Utilizing precast concrete beams fabricated offsite, and while the abutments were constructed onsite, allowed for the beams to be placed and secured the day they arrived at the project site. WSP designed semi-integral abutments which allow the thermal movement of the structure to occur off the bridge and away from the superstructure below. This eliminated conventional deck joints, which reduces the rate of corrosion of the primary structural components and minimizes future maintenance. Beams of this size and weight took careful planning and extensive coordination with NJ TRANSIT, the Township of Branchburg, JCP&L, Verizon, Comcast, Crown Castle, and private property owners. Prior to the start of construction, JCP&L approved a weekend power outage for beam installation. As the date of beam erection drew closer, it was discovered that the utility lines were providing essential power to a medical center working to procure COVID-19 test kits. To avoid interruption to this critical facility, the team worked closely with JCP&L. An opportunity to install the beams was created when another energy source was brought online that could power the facility during a short-term timeframe for the beam installation. Even with unpredictable and

2021 Project of the Year Under \$10 Million River Road Bridge over Raritan Valley Railroad Emergency Bridge Replacement

unprecedented impacts, the project remained on schedule. With NJDOT's goals in the forefront—close the unsafe bridge and rapidly replace the deteriorating structure with a new, permanent, functional system as fast as possible—WSP designed a bridge that better serves the public need. There is now enough space for one 10-foot traffic lane and a 5' shoulder in each direction, a dramatic improvement over the existing bridge's 12'-8" single lane serving traffic in both directions, without shoulders. With the addition of shoulders residents can now move safely across the structure. From emergency closure to design and construction completion in less than one year, the project is a testament to what teamwork can do. Branchburg Township now has a bridge that is safe and will service the surrounding community for many years to come.



Low clearance power lines supplied essential power to a medical center procuring COVID-19 test kits. Beam installation was coordinated when another energy source was brought online to power the facility



2021 SCHOLARSHIP GOLF OUTING



For more photos, visit our website!
<https://ashesnj.wildapricot.org/photos>

2021 SCHOLARSHIP GOLF OUTING



Spotlight on Dewberry

Looking Forward: Using Renewable Energy in the Transportation Market

As the country begins to open back up following the COVID-19 pandemic, commutes and travel are beginning to resume. There has been a lot of talk about the new normal and what that means in a post-pandemic world. For the transportation and energy industries, this means looking at power alternatives and finding more eco-friendly ways to create and sustain our infrastructure.

Creating Sustainable Change

The Delaware River Port Authority (DRPA) is the regional transportation authority that serves areas of both New Jersey, and Pennsylvania. DRPA is installing photovoltaic (PV) solar panels at seven properties as part of a 20-year power purchase agreement, under which DRPA will purchase all electricity generated by the project. Four of these properties are in coordination with the Port Authority Transit Corporation (PATCO), which has 13 stations running between Philadelphia, Pennsylvania, and Camden County, New Jersey. The PATCO locations across New Jersey will include Lindenwold Station in Lindenwold, Woodcrest Station in Cherry Hill, Ferry Avenue Station in Camden, and Ashland Station in Voorhees. The remaining locations include Commodore Barry Bridge, Betsy Ross Bridge, and DRPA Headquarters at One Port Center.

The Benefits of Solar Power

Dewberry provided preliminary due diligence, including survey, geotechnical, and electrical assessment services on the site. The firm's services

also included civil and electrical engineering, permitting, and construction administration support on each of the seven station properties. Using PV panels, the project is expected to produce more than 50% of the total electricity consumption for the DRPA and PATCO, saving up to \$12 million over the 20-year term.

The project will generate an estimated 22-megawatts of electricity through a combination of ballasted flat roof-mounted solar panels and solar canopies over parking, storage, and work areas. All PATCO stations will feature high-efficiency solar PV parking canopies, which will not only generate electricity but also protect customers' vehicles from the summer sun and inclement weather.

envisioned, as-designed finished project is ultimately in the hands of the contractor – specifically, how accurately they construct the design and to what level of quality.

The paving component of a highway project is no exception to the above. In order for a pavement system to perform as designed, the contractor must place and compact the correct materials to the specified thicknesses and densities. With a viscoelastic material such as asphalt, it is also critical that the paving is done with minimal variation in temperature across the mat and that compaction occurs while the asphalt is at temperatures conducive to achieving proper density. Regardless of material type, rollers need to be run in a pattern that ensures sufficient and uniform density across the pavement structure.



First introduced in the U.S. in the early 2000's, Intelligent Construction Technologies (ICT), namely Intelligent Compaction (IC) and Thermal Profiling, have gained gradual adoption for paving contractors to meet the above-noted challenges.

IC is a construction technology that equips rollers with various devices, such as high precision global positioning systems, infrared (IR) temperature sensors, accelerometer-based measurement systems, and on-board color-coded displays, to improve compaction control for both unbound and asphalt materials. Likewise, Thermal Profiling is a complementary technology that enables real-time, continual monitoring of the asphalt surface temperature. Recognizing that these technologies present potentially game-changing QC tools to contractors, NJDOT embarked on a pilot project to explore their usefulness.



NJDOT PILOT PROJECT

Building upon its initial foray into ICT a few years ago and aiming to apply ICT on both unbound and asphalt pavement layers, NJDOT selected a project in central/southern NJ designed for concrete rubblization followed by placement of an asphalt overlay. With construction taking place in 2019-2020, the contractor utilized IC rollers on the rubblized concrete layer and IC-IR rollers and pavers on the asphalt overlay. Acting as a sub-consultant to Jacobs Engineering Group, Advanced Infrastructure Design (AID) took the lead in ensuring proper implementation of the IC-IR equipment in the field, evaluating the ICT data, and comparing the results to complementary “spot” testing done by AID on-site – namely, Light Weight Deflectometer, Falling Weight Deflectometer, and Nuclear Density Gauge testing.

The pilot project proved to be a useful first step for NJDOT in exploring ICT. Data on the rubblized concrete revealed the effects of the number of roller passes and the roller settings on the resulting stiffness of the compacted layer. Likewise, the IR data on the

rollers and pavers captured the variability across the asphalt overlay mat. By conducting ICT along with complementary, conventional QA testing in test strips at the project outset, optimal paving parameters can be established for production. With proper training as a critical prerequisite, the roller and paver operators can then utilize on-board ICT screens to assist in achieving uniform, within target compaction and paving operations. QC engineers and inspectors can likewise monitor the paving via ICT data uploads to the “cloud,” potentially enabling adjustments to be made in real-time. Knowing that variability and out of range parameters typically have direct consequences on the density achieved and resulting performance of the pavement, implementation of IC-IR appears to be a worthy endeavor, as recognized by NJDOT.

APPLYING A GREEN THUMB TO PAVEMENT DESIGN

The pilot project integrated two sustainable pavement solutions – Concrete Rubblization and Asphalt Full Depth Reclamation (FDR). Both techniques involved re-

use of the deteriorated existing pavement by breaking/pulverizing it to create a sound base paved with a uniform asphalt riding surface. This green design lowers construction costs and environmental impacts.



*Contributed by
Walter Bronson.*

ROEBLING-FLORENCE BIKE TOUR

If you schedule a bicycle trip in July you can assume that it will be hot, and it was. Fortunately we scheduled an early start, and were touring by 9:00 AM. Our first stop was Crystal Lake Dam, the site of the recent NJDOT dam reconstruction project. The dam embankment also supports US Route 322, and is at risk of overtopping during a large storm event. The dam is uniquely sited less than a mile from the tidally influenced Delaware River, so flow over the dam spillway reverses during high tide.



To protect Route 322 from a flood approaching from either direction, NJDOT armored the upstream and downstream dam faces with articulated concrete block. After the dam work was complete, Burlington County extended their trail system to cross the dam along the upstream side.



From Crystal Lake the group pedaled through the countryside past farmlands to meet another new trail section which follows the historic Kinkora Rail line. For almost 100 years, the Kinkora spur served the

massive Roebling Steel located on the Delaware River. Features of the new trail section include the reconstructed bridge where Route 322 crosses over the railroad, and a new at-grade crossing of the NJ Transit RiverLine. Most of the Roebling Steel Mill buildings have long since been removed, allowing us to appreciate sweeping view of the Delaware River as we passed through Roebling. The tour continued along the waterfront through the historic towns of Roebling and Florence for a quick stop at Wilkie Park.

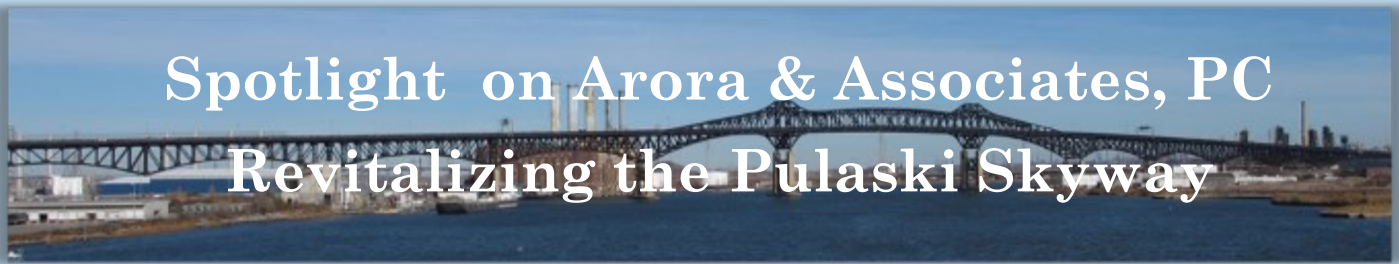
An excellent lunch was procured from Bob's Corner Deli, a local landmark, where we relaxed and shared stories. Next we visited the Roebling Museum, located in the gatehouse, one of the few buildings remaining from the massive Kinkora Works. The museum tour told the story of John Roebling and his family, how they overcame adversity to complete the iconic Brooklyn Bridge. The story highlighted many of the Roebling innovations, and how Roebling wire rope was a key part of 20th century industrialization and growth, supporting longer bridge spans and allowing elevators to operate in the tallest skyscrapers. The museum tour also told the story of the people of Roebling, their town, and impact of the mill closure in 1974.

ROEBLING-FLORENCE BIKE TOUR



For more photos, visit our website!

<https://ashesnj.wildapricot.org/photos>



Spotlight on Arora & Associates, PC

Revitalizing the Pulaski Skyway

The 80-year-old, 3.5-mile Pulaski Skyway is a vital link in the NJ/ NYC transportation network, carrying over 67,000 vehicles a day. The NJDOT multi-contract Rehabilitation Program aims to bring the Skyway into a state of good repair, address structural/ functional deficiencies, and improve its overall condition and safety. Arora and Associates, P.C. (Arora) is the Prime Consultant for the 1-mile-long Contract 6; the rehabilitation of 15 truss spans, from Piers 62 to 77, including the Hackensack River crossing.

Since their construction, no significant repairs have been made to the Skyway’s piers. The piers’ components exhibit extensive deterioration, necessitating replacement. A general shell concept for the piers was proposed; it provided a gap between the shell and the existing pier columns, which would remain in place. The shell rendered itself for use as part of a temporary truss support system during bearings replacement. Existing caissons would be bypassed through new drilled shaft foundations.

The Kearny Ramp (Fig. 1), located within the limits of Contract 6, was replaced as a standalone contract. Since access to adjacent areas of the main truss and piers would be ideal for repair/ replacement during this reconstruction, Arora

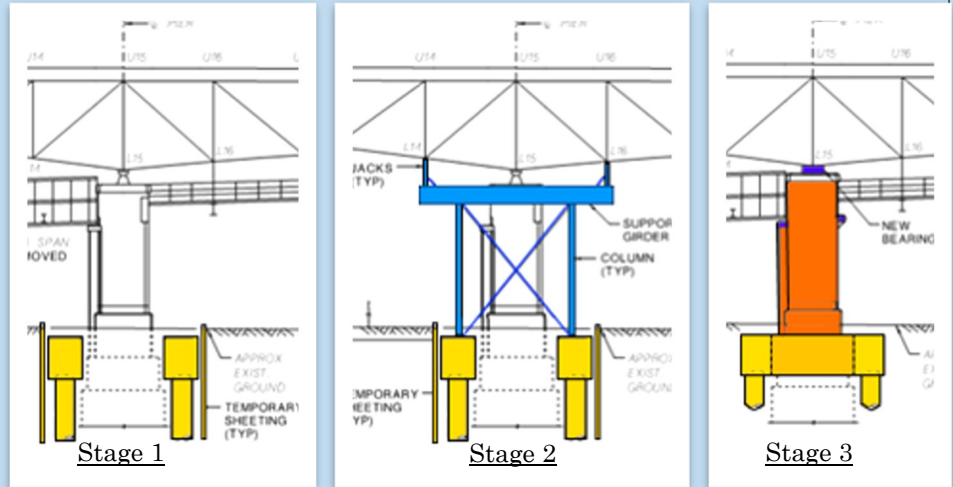


Figure 2 : Construction Staging for the Replacement of the Piers at the Ramp

accelerated this work. Shelling of the ramp piers (76 and 77) was not practical since the ramp runs through and is partially supported by the piers. Arora designed the two piers as a geometric in-kind replacement, consisting of solid columns supported by new footings/caps on drilled shafts surrounding and bypassing the existing caissons that remained in place. Arora utilized three-phase construction staging (Fig. 2). Utilizing eight (8) 900 -ton hydraulic jacks, the truss was lifted up from its bearings and supported on an independent temporary structure resting on the Stage 1 foundations, while new columns and the Stage 3 foundation cap were constructed. Traffic closed only during actual jacking.

Inspection of the trusses after the removal of the ramp revealed additional deterioration of the truss members, some of which were subsequently replaced. Additional replacements were required due to erection sequencing or other needs such as connectivity members converging into a common location. Arora performed extensive analyses to ensure stability and safety, resulting in a meticulous construction staging. Detailed Finite Element models were also prepared to evaluate new load paths, member load reversal, member



Figure 1: Kearny Ramp is within Contract 6

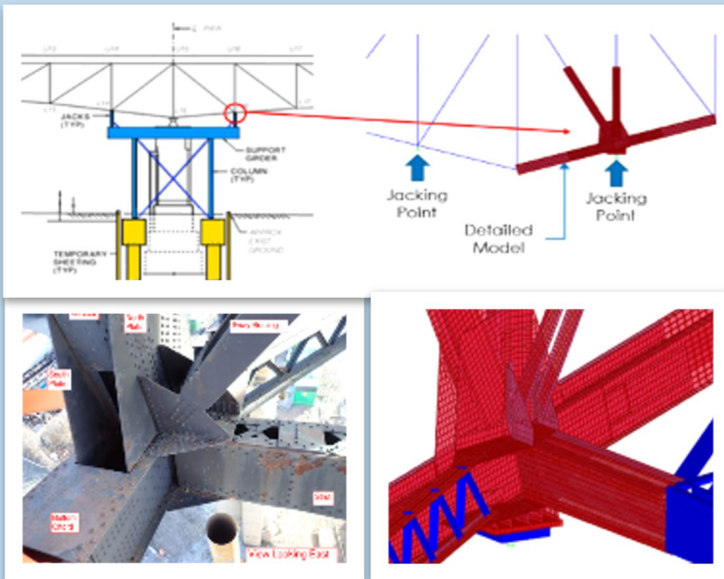
capacities during jacking and temporary support as well as the effects of steel deterioration on the jacking operations. (Fig. 3).

Arora conceived a Structural Health Monitoring plan and analytically identified possible modes of failure, predicted stresses at set intervals of the jacking operation, changes in stresses, and established “trigger” levels to ensure safety. The monitoring provided: good agreement with predicted changes in dead-load stresses; close agreement with predicted Demand over Capacity ratios; confirmed the procedures were sound and safe.

The pier replacements were constructed successfully (Fig. 4) with the trusses lowered from the temporary structure to their permanent supports at Pier 77 during the night of May 4 to May 5, 2020.

The replacement of two piers at the Kearny Ramp presented significant engineering challenges due to the complexity of the structure and the varying degrees of deterioration exhibited by the structural steel members. Arora performed extensive analysis and modeling of the truss and determined the necessary level of structural strengthening and repairs required before jacking the structure and placing it on temporary support towers. A real-time monitoring system was developed and installed to evaluate the change in stresses in key truss members during, and after, jacking operations. The well-thought-out design ensured the safety of the jacking process. It reduced risks for the designer, contractor, and owner. This design approach proved to be constructible, safe, and economical; and it will be utilized as a model for the Pulaski’s future pier replacements.

Ruben Gajer, Khairul Alam, Glenn Deppert, Reilly Thompson, Matt Tchorz, Jaimin Amin & Matthew Williams, Arora Associates PC.



Figures 3: Modeling to Develop Repairs Details



1. Original Pier 76 Elevation with Temporary Support System
2. Pier 77 Temporary Support System with Existing Pier Removed
3. New Solid Pier 77

Figure 4: Jacking of the Trusses and Reconstruction of the Piers

CONSTRUCTION PANEL IN-PERSON TECHNICAL EVENT

Our only in-person technical event was on February 16, 2022. George Lobman from Utility & Transportation Contractors Association put together a panel of contractors to answer questions from the Designers or the Governments can be proposed and discussed to be better prepared to move forward with more understanding. Speakers included

Glenn Ely – PKF

Henry Meyers – Anselmi & DeCicco Inc.

John Maisano – New Prince Construction

Harry Coleman – IEW Construction Group

The event was held at National Conference Center, Holiday Inn of East Windsor, Questions varied from change orders, utility coordination, best practices and even how to get young people involved early.

For more photos, visit our website!

<https://ashesnj.wildapricot.org/photos>



CONSTRUCTION PANEL IN-PERSON TECHNICAL EVENT



Spotlight on Richard Grubb Associates

Revolutionary Fight at Monmouth County Route 3

Monmouth County’s Route (CR) 3 in Manalapan Township is in the process of undergoing traffic safety, congestion, realignment and drainage improvements designed by CME Associates for Monmouth County Engineering along a nearly three-mile long corridor. The route, initially constructed in the mid-19th century, extends into the western edge of the New Jersey (NJR) and National Registers of Historic Places (NRHP)-listed Monmouth Battlefield Historic District, a National Historic Landmark and is adjacent to the Old Tennent Church cemetery. The historic district boundary delineates the main military engagement between British and Continental forces known as the Battle of Monmouth on June 28, 1778. To enable compliance with the NJR Act and the New Jersey Department of Environmental Protection (NJDEP) Freshwater Wetland (FW) Act, Richard Grubb & Associates (RGA) completed identification, evaluation and mitigation-level historic architectural and archaeological surveys to enable receipt of the FW permit from the NJDEP.

Initial RGA surveys, coupled with earlier private metal detection studies completed by the Battlefield Restoration and Archaeological Volunteer Organization (BRAVO) as research-based studies, resulted in the identification of military-related artifacts within and near the project footprint. Identified at the western edge of Monmouth Battlefield, the artifacts include 28 musket balls, cannister shot, cannon balls, a flint lock firing mechanism, and a cartridge box finial. A closer examination of the musket balls revealed a range of sizes used for different style 18th-century firearms. Those found west of CR 3 range from .47 to .57 caliber in size, suggesting that they were fired from American rifles (.5 to .65 caliber barrel). One .68 caliber unimpacted or dropped ball found near a brass cartridge box finial west of CR 3 would have been used with a British Brown Bess (.75 caliber

barrel). To the east, nine musket balls ranging from .55 to .75 caliber were found, of which one contains forceps impression resulting from a wound extraction. The larger caliber balls found east of CR 3 may have been fired from carbines, fusils, pistols, Charleville muskets that the French supplied the Americans in 1777, or the Brown Bess issued to British infantry. The different sized balls found on each side of CR 3 suggested a military engagement between opposing forces and required a close examination of battlefield event documents associated with this peripheral battlefield area. Ultimately, the archaeological resource was considered eligible for NRHP and project-related effects were successfully mitigated.

Extensive research utilized military pension records, numerous battlefield maps, newspaper accounts, military orders and correspondences, journals and diaries, and minutes from American General Charles Lee’s court martial. None provided evidence of a skirmish between opposing forces near the church, but collectively the historical documents and artifacts revealed that the location may have had an early strategic value to and influence on the battle.



Old Tennent Church Cemetery

In the days prior to the June 28 event, the 20,800-person strong British Army under General Clinton's control evacuated Philadelphia and began a 90-mile trek across New Jersey toward New York City. Washington's army and the American militia were in hot pursuit, the latter serving as the army's vanguard to harass and slow the British advance and allow Washington time to engage. On June 26, the British encamped in present-day Freehold Boro. To the west, the 1,200 person-strong militia was spread throughout the countryside, skirmishing day and night with the British.

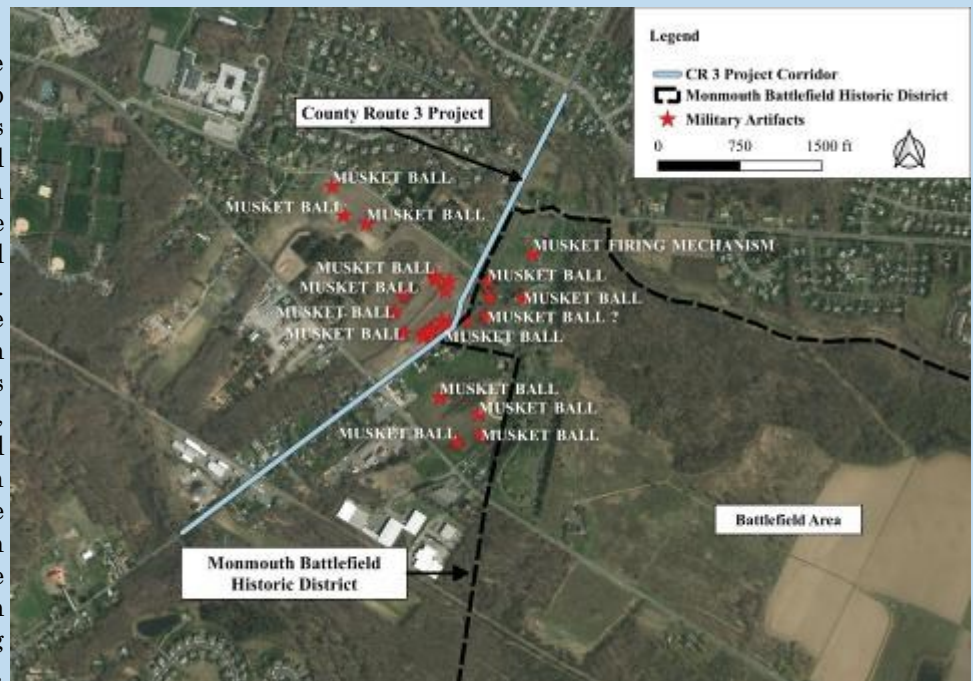
Militia use of the church knoll east of CR 3 occurred between 1:00 and 7:30 pm on June 26 when Major General Philemon Dickinson ordered men from the 2nd Middlesex Brigade to head from Englishtown toward the church. By the June 27, the militia established a staging ground at the knoll with 700 men. To the west, in Englishtown, Major General Charles Lee, with 4,500 troops, joined Lafayette's 3,687 men, while Washington remained with 7,800 men near Cranbury/Jamesburg. That day, several skirmishes broke out and both forces sent out scouting and foraging parties. For the Americans, the church and knoll offered an excellent, defensible locale. To the east was undulating, hilly terrain with deep ravines and to the west, toward the American Army, was a broad flat plain. The church knoll overlooked that plain and an important crossroads leading from Englishtown to Freehold. Control of the knoll was critical to the events that followed.

On the morning of June 28, the British began to break camp and by 6:30 am the Americans had provoked a battlefield confrontation, the first in which Washington could prove his strength on an open field with newly trained troops. After initially suffering some loss of the battlefield through American General Charles Lee's poor communication, Washington repositioned troops and artillery to establish an elevated cannonade the repelled further British advance of the battlefield. The positions were held through the night and the following morning, the British left, continuing their planned trek to New York. Washington

claimed it as a victory to instill new hope in the Revolutionary cause, but the victory was later debated as a stalemate by historians.

Archaeology reveals that the skirmish along CR 3 west of the battlefield likely took place in the days or hours prior to the main battle and perhaps occurred between the American militia encamped at the church knoll and a British or Hessian scouting or foraging party that was spotted in the tree line or field to the west based on the location of different caliber musket balls found. The recovery of a dropped Brown Bess ball and a cartridge box finial suggests militia may have hit their intended target. A viewshed analysis that using existing terrain and historic tree lines reveals that American control of the church knoll was critical. Should the British have captured the knoll during the skirmish and established a picket at the crossroad, it would have offered Clinton's Army the ability to control an elevated point within an excellent view of the broad plain towards the American Army. Such control could have thwarted Washington's army from advancing toward Freehold and prevented a major battle altogether. The CR 3 improvement project prompted a closer look a peripheral battlefield area and how military activities near the project footprint influenced a major Revolutionary War battle.

Michael J. Gall, Richard Grubb & Associates

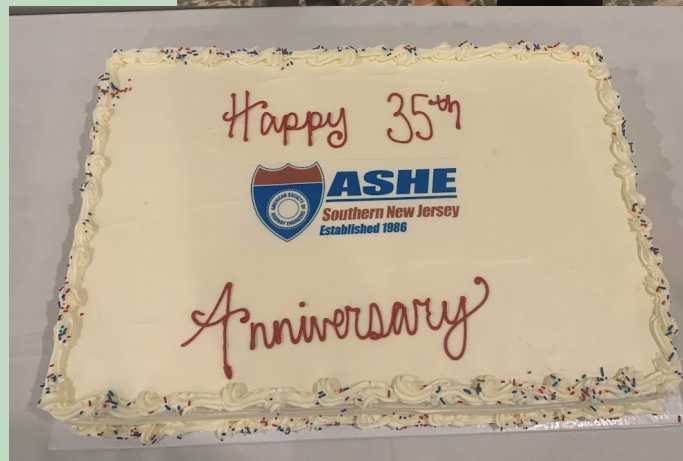


Battlefield Map

ASHE SNJ 35TH ANNIVERSARY CELEBRATION

Technically, ASHE Southern New Jersey 35th anniversary was in 2021. Due to Covid, we decided to wait until this year. Our Past President Committee, lead by Carrie Strehle, prepared a wonderful event at Renault Winery. There was attendance by ASHE National Board including Matt Carter.

We recognized all our past presidents, life-time members, and all new members that were in attendance.



For more photos, see our website:



ASHE SNJ 35TH ANNIVERSARY CELEBRATION



For more photos, visit our website!

<https://ashesnj.wildapricot.org/photos>



Spotlight on Michael Baker International Newark South Street and Adams Street Drainage Improvements

Deep in the heart of New Jersey lies “The Ironbound” community, a working-class, multi-cultural neighborhood. Encompassing four square miles of the city of Newark, Essex County, the small enclave is home to more than 570 businesses and nearly 50,000 residents. The area includes critical corridors for a mix of commercial, freight and passenger vehicles destined for Route 21, Route 1 and 9, New Jersey Turnpike, Newark Liberty International Airport, Port Newark Terminal and Newark’s Industrial Park, as well as the metropolitan New York City area. The Ironbound Community is bordered by the Passaic River to the north, a freight railroad corridor to the south and major urban arterials to the east and west.

The Ironbound community is a force in the economy; however, it had a problem that threatened safety and mobility: the highly urbanized area was experiencing serious flooding and drainage issues. The area lies in a topographic depression that cannot drain efficiently by gravity sewers alone and was developed with an approximate impervious coverage of 70%, leaving much of the landscape unable to effectively absorb or infiltrate rainfall. Heavy rains regularly led to extreme flooding conditions, creating dangerous safety concerns as well as impeding the flow of traffic.

Creating safer, more efficient water systems was of the utmost importance to the city of Newark. Previously, all flow was conveyed to the Passaic Valley Sewerage Commission (PVSC) during dry weather. During wet weather and snow melt, the combination of storm water and wastewater in the CSS often exceeded the capacity of the system. The excess flow, combined sewer overflow (CSO), was discharged directly to a waterway through permitted outfall pipes. Since CSO discharges include raw sewage, they contain a combination of untreated human waste and pollutants discharged by commercial and industrial establishments. CSOs also have a significant storm water component that includes pollutants from urban and rural runoff. These pathogens, solids and toxic pollutants were discharged directly to the waters of the state during wet weather events.



To tackle the flooding and drainage issues in the key area of South Street and Adams Street, the city of Newark engaged engineering, planning and consulting firm Michael Baker International to complete a conceptual design study and also serve as the lead designer and construction manager for the project. Before any work began on the project, Michael Baker worked with the city to create a scope for the project and explored many alternatives during the concept study phase. In addition, the team worked with the neighborhood residents and business owners to solicit their input, which impacted the final design and construction for the project. The various options – including raising the roadway and adding pump stations – were provided to the city of Newark before the final design components were selected.

The final design incorporated roadway resurfacing, sidewalk, curb and ADA curb ramp improvements, new drainage inlets, manholes and pipes to begin the separation of storm water from the CSO

culverts. The new pipe systems, carrying storm water runoff, tie into the CSO culvert after the CSO screen chamber. More than 4,000 linear feet of deteriorated corrugated metal pipe was replaced and existing pipe to remain was cleaned. Green infrastructure (GI) was constructed on Avenue A, at the Intersection of South and Adams Street, as well as along South Street, including curb inlets with planted areas between the curb and sidewalk. As construction began, the team encountered significant utility conflicts that could not be identified during design. In some cases, aggressive changes needed to be completed while construction was in progress and the pump station location had to be shifted as a result of these previously unidentified utilities.

The team also incorporated additional improvements that would enhance the area into the design. Prior to the drainage improvements, the existing sidewalks and business parking lots were beginning to deteriorate. The team redesigned the sidewalk to be 10 feet wide where feasible, making better use of the existing space and offering more walkability than the area previously experienced. The project team also helped local businesses by adding new curbing for driveways that extended further than was necessary.

Managing storm water runoff and implementing green infrastructure is a key component of the city of Newark’s strategy to reducing CSOs and has been identified in Newark’s Sustainability Action Plan, the city of Newark Master Plan and Newark’s Greenstreets Initiative. Benefits of GI include improved water quality and reduced sewer overflow; financial benefits in the form of reduced construction costs compared with all-grey infrastructure; and social benefits like improved aesthetics, more urban greenways and increased public awareness and education on their role in storm water management.

By incorporating GI into the South Street and Adams Street Drainage Improvements project, storm water can be captured before it reaches the sewer system, thus reducing flooding and occurrences of CSOs. In addition, GI creates more permeable surfaces, which can also assist to reduce ambient air temperatures, provide open space, improve air quality, lower energy demand and reduce greenhouse gas emissions. These factors can also contribute to the frequency and severity of CSO events. New GI in The Ironbound Community includes 50 to 100 feet planter boxes and tree trenches to help reduce flooding and filter sediment before that water discharges down through the system.



Looking to the future, the team decided to utilize oversize pipes in the project’s design to allow for eventual connections. In addition, the team considered future impact by designing the pump station to incorporate a connection from the adjacent property owner, whose land was also prone to flooding.

The drainage improvements on South Street and Adams Street have helped to reduce the impact of heavy rain events on the city of Newark’s infrastructure. The reduction in flooding has made the area safer for residents, pedestrians and motorists alike. The project was completed in early July 2020.

2022 SCHOLARSHIP GOLF OUTING



For more photos, visit our website!

<https://ashesnj.wildapricot.org/photos>



Spotlight on Urban Engineers

Supporting a Diverse Range of Services; Committed to the Community

Urban Engineers has been a part of the New Jersey community since 1968 and is currently located in Cherry Hill. Urban is well known for our engineering design and construction support services, including aviation, highways, bridges, transit, rail, facilities, and ports and waterways. Our project work reaches throughout the state and includes all markets.

Aviation

A well-designed airport provides a direct link to the economic growth of a community and metropolitan area. Urban's aviation division has successfully provided airport planning, design, and construction management services for decades. Trenton-Mercer Airport has been an economic engine in Mercer County with multiple projects underway. Urban has supported the airport with planning and engineering services since 2014 and recently prepared the airport's master plan update which focused on airfield pavement and lighting rehabilitation; incorporation of new FAA geometry standards for airfield pavements; and the layout of a future passenger terminal complex.



Trenton-Mercer Airport

Urban's aviation division is also providing civil and site work design for the Consolidated Rental Car Facility at Newark Liberty International Airport for the PA NY/NJ. Working with the project architect, PGAL, this P3 project employs several sustainability initiatives, including a solar roof, electric vehicle charging stations, LED efficient lighting, and water reclamation and air quality systems.

Surface Transportation

Urban has been a recognized leader for providing planning, design, and construction support services of surface transportation infrastructure since our inception.

Whether rehabilitating local roadways, designing major expressways, or improving the flow of traffic through urban environments, our experts take pride in delivering responsive, innovative, and sustainable transportation solutions that connect communities, enhance mobility, and increase the safety of our highways and streets. We understand the challenges faced by our clients in managing transportation investment decisions, supporting system preservation, and maintaining the quality of service.



Roundabout in Woodbine, NJ

For Cape May County, Urban expanded our roundabout portfolio having designed the recently constructed roundabout at the intersection of Woodbine-Ocean View Road and Dennisville-Petersburg Road. The firm performed topographic surveys, secured regulatory permits and approvals for construction, designed roadway and drainage improvements, prepared and hosted a public information session, and prepared a contract for a new alternative intersection that will improve safety.

For NJDOT, Urban continued successfully delivering projects from planning and design through to construction with the completion of Tomlin Station Road



Tomlin Station Road over I-295 Deck Replacement

(CR 607) over I-295 Bridge Deck Replacement. The project represents another example of Urban's experience advancing projects through the Limited Scope Bridge Deck/Superstructure Replacement Program within an expedited schedule.

For the New Jersey Turnpike Authority, Urban provided construction support services for the New Gretna Toll Plaza E-ZPass Improvements, replacing the aging toll plaza with new infrastructure to support higher speed electronic toll collection.

Rail & Transit

Urban's experience is unmatched in providing Project Management Oversight (PMO) services for major federally funded capital programs. Our strong



New Canopy for the New Gretna Toll Plaza

combination of engineering and project management talent has managed and supported more than \$50B in projects, including the Second Avenue Subway extension and East Side Access projects for the MTA, and currently for NJ Transit's State of Good Repair Program. We are providing design services for the design-build rehabilitation of the Elizabeth Station on Amtrak's Northeast Corridor, contributing to the revitalization of Elizabeth's historic downtown area.



Elizabeth Station

In addition, final design services are nearing completion for the Rehabilitation of the New Brunswick Train Station, which also includes a new pedestrian bridge to improve pedestrian access and safety to the station from commercial and residential facilities, promoting transit

ridership and supporting the objectives of the Liberty Corridor.

On the construction side, Urban is providing construction management services for the replacement of the 107-year-old Lyndhurst Station with a modern facility that will be more aesthetically linked to the surrounding historic neighborhood.

Ports & Waterways

Urban's ports and waterways team is built to address maritime infrastructure challenges, with the capabilities to inspect, analyze and design waterfront structures in complex marine environments. Currently, Urban is providing design services for improvements to facilitate and expand rail cargo transportation at the Joseph A. Balzano Marine Terminal in Camden by increasing the efficiency of load times and nearly tripling the capacity of moving rail cargo.

Commitment to Community

Urban believes in actively maintaining the health and well-being of the neighborhoods in which we live and do business through community outreach. Our talented and dedicated staff volunteer their time to many organizations that promote the A/E/C industry and service local communities. Employees are active members of many New Jersey infrastructure organizations including ACEC-NJ, ASHE, ASCE, NJSPE, NJ AFA, and WTS.



Urban staff volunteer with programs like Spark

Our employees also partner with organizations that promote STEM to the next generation, like Future Cities, MATHCOUNTS, Spark, and the ACE Mentor Program. As a firm, Urban is showing its commitment to outreach and mentorship through its annual donation to the Kevin Brown, Jr. Scholarship with the ACE Mentor Program, the annual Edward M. D'Alba Leadership Award Scholarship, and by encouraging and highlighting staff who donate their time. It is a common saying at Urban that, "We don't just 'do well,' we do good."

2022 Project of the Year Over \$10 Million Route 495, Route 1& 9 Paterson Plank Road Bridge

The Route 495, Route 1&9/Paterson Plank Road Bridge Rehabilitation Project provided for the complete rehabilitation of the mainline structure and two ramp structures and associated approach roadway improvements. The Route 495 bridge is located at the eastern terminus of the New Jersey Turnpike ramps from Interchanges 16E & 17, at the terminus of State Route 3 as it intersects U.S. Route 1&9, and approximately one mile west of the Lincoln Tunnel entrance. The mainline structure consists of nine spans which carry eight lanes of Route 495 traffic over US-1&9, Liberty Avenue, Paterson Plank Road, Conrail & NYS&W rail lines, and the New Jersey Transit North Bergen Park and Ride Lot. Two ramp structures, that connect westbound Route 495 to US-1&9 northbound and southbound, are comprised of three spans over Liberty Avenue and six spans over Dell Avenue respectively.



The bridge was rated as structurally deficient and functionally obsolete, with the last major rehabilitation performed in 1985. The purpose of the project was to completely rehabilitate the bridge and approaches, extending the useful service life of the bridge for an estimated 25

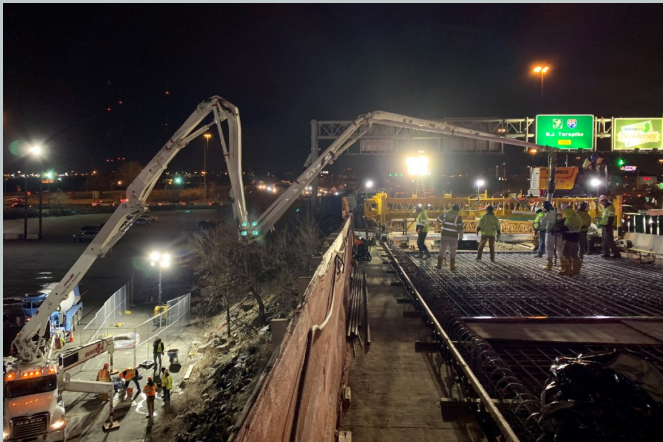
years without significant maintenance required, with an estimated bridge deck service life of 75 years, and to eliminate the need for potential emergency repairs that could significantly disrupt commuter and local traffic.

The rehabilitation provided efficient and cost-effective solutions to repair the aging structure located in one of the most densely populated regions in the United States and along the only corridor that directly connects to midtown Manhattan.



Collaborative coordination was required with various stakeholders due to the traffic impacts associated with the project staging. Construction staging impacted traffic on Route 495, with the Port Authority of New York and New Jersey and the New Jersey Turnpike Authority being the significant stakeholders. Project staging also impacted traffic through the local roadway network and therefore local municipalities were most affected and included the Town of Secaucus, Township of North Bergen, City of Union City, and the City of Weehawken. A robust Traffic Management Plan was developed during the design and implemented during construction.

2022 Project of the Year Over \$10 Million Route 495, Route 1& 9 Paterson Plank Road Bridge



This included the creation of a three-point regional task force focusing on Traffic, Incident Management, and Operations. The task force involved various agency personnel, local police, fire, and rescue personnel, first responders, and design team members. The Incident Management task force continued through construction and was paramount in ensuring all those involved clearly understood each stage of the project, changes in those stages, access and response considerations, and establishing open lines of communication and resource sharing.



The project included complex structural framing repairs and replacement, difficult work areas within multiple stages for the replacement of the bridge deck, complete removal of the existing lead-based paint system and repainting with a three-coat paint system, local roadway/intersection improvements to accommodate detour traffic volumes, temporary relocation of tenants within construction easement areas, and staging area and permanent improvements within the NJ Transit Park and Ride Lot.



The project was completed on time and within budget due to the willing collaboration of all Department staff, engineering consultants and sub-consultants, affected agencies and municipalities, task force members, and all other stakeholders involved.

2022 Project of the Year Under \$10 Million

Route 44 Truck Bypass and DuPont Port Access

Gloucester County Improvement Authority retained McCormick Taylor to advance the Route 44 Truck Bypass and DuPont Port Access project from Local Concept Development (LCD) through Preliminary Engineering (PE) and Final Design (FD). The project provided construction of a new 0.60-mile truck bypass roadway that ties into the existing Route 44 roadway in western Gibbstown. The truck bypass diverts existing through movements of trucks away from the Route 44 and Broad Street intersection in downtown Gibbstown and provides direct access for the future development of the DuPont/Repauno site, which occupies approximately 1,900 acres along the Delaware River directly north of Route 44. The new roadway runs primarily through undeveloped DuPont property along the periphery of extensive forested wetlands adjacent to an active railroad line and existing Route 44.



Final Design of the project included completion of the NJDEP EO 215 Environmental Impact Statement, which included technical environmental studies for Noise, Air Quality, Socioeconomics/Environmental Justice, Ecology, Cultural Resources, and Hazardous Waste. McCormick Taylor also provided utility coordination and developed schemes of accommodation for six impacted companies. The project included preparation of Jurisdictional Limit Maps, design exception approval and highway lighting design. Structural design included design of steel sheet pile retaining walls to limit the lateral extent of filling, concrete barrier with moment slabs and revised slope protection at the existing Route 44 overpass. Lightweight fill was proposed on the existing culvert over Sand Ditch to avoid increasing the dead load on the structure. A new railroad grade crossing was also designed to maintain the port's vital link to the regional rail network.



2022 Project of the Year Under \$10 Million

Route 44 Truck Bypass and DuPont Port Access

McCormick Taylor prepared the full Final Design Submission package and PS&E package including Roadway Design, Construction Plans, Specifications, Engineering Estimates, and Construction Schedule. All plans were designed in accordance with the Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD) guidelines, NJDOT Roadway Design Manual, NJDOT Standard Roadway Construction, Traffic Control and Electrical Details as well as the American Association of State Highway and Transportation Officials (AASHTO) Policy on Geometric Design of Highways and Streets and AASHTO Roadside Design Guide. The construction of the project was completed in July 2021. The design schedule of the project was significantly compressed by combining the Preliminary and Final Design phases, with each phase taking only six months. Along with local approvals requiring that the bypass project be completed, it also unlocked the further development of the port, which is vital to the economic success of the local community.



THANK YOU TO OUR 2021-2022 SPONSORS

PLATINUM LEVEL



Richard Grubb & Associates, Inc.
Cultural Resource Consultants



ARORA and ASSOCIATES, P.C.
Consulting Engineers



Est. 1989
**TRAFFIC PLANNING
AND DESIGN, INC.**



Dewberry[®]



To be a sponsor, please reach out to
Mike Danko
at Mdanko@MidAtlanticEng.com



UPCOMING EVENTS

LOOKING AHEAD

Keep an eye on LinkedIn
and the [website](#) for more information:

WINERY SOCIAL EVENT
AUGUST 2022
HAMILTON AREA

ASHE SNJ/NC-NJ Joint Meeting - NJDOT & NJTA
Capital Programs
SEPTEMBER 2022
CRANBURY AREA

Route 495, Route 1& 9 Paterson Plank Road Bridge
OCTOBER 2022
HAMILTON AREA