



KEEPING YOU UP
TO DATE WITH ALL
OF PENNDOT'S
PROJECTS AND
INNOVATIONS
THROUGHOUT
THE YEAR.

ROUNDBABOUTS CONTINUE TO ENHANCE TRAFFIC SAFETY

A MEMORIAL TO REMEMBER

By Rich Kirkpatrick, Bureau of Innovations

Secretary Leslie S. Richards presided over a day of emotion and remembrance on April 10 when she hosted a series of events in honor of Work Zone Awareness Week, highlighted by the unveiling of a new Workers' Memorial at the Commonwealth Keystone Building in Harrisburg.

Prior to its dedication, the secretary held a news conference with the traveling Workers' Memorial as a backdrop featuring Pennsylvania's brightest high school students who were in Harrisburg presenting their work zone safety solutions as part of PennDOT's Innovations Challenge statewide judging event.

"We are starting a new construction season," Richards said at the memorial event. She noted that motorists will see more orange barrels, but "too often that means hazards for the men and women delivering those benefits."

Delivering a poignant, heartbreaking message, Melissa "Missy" Gensimore recounted the aftermath of her husband Bobby's death last year when he was hit while placing flares on Interstate 99 during a snow storm.

"I had to call my children and tell them Dad was gone," she said. "Our lives were shattered, and I had to learn to adapt and continue on."

She noted how her husband, a PennDOT foreman and also a volunteer firefighter and first responder, was considered "Mr. Safety."

"He was always in the line of trouble, and he took precautions to make sure nothing happened to anybody else."

She said she relies on both her immediate family and her PennDOT family and advocates for work zone safety, so everybody remains safe. Her daughter, Grace, accompanied her.

"I want everybody to be safe because I don't want another family to go through what we have been through this past year because it is hell," she said. "But you have to keep going, to keep saying the message, and keep driving it home to people you have to be safe in work zones because these people have families that they need to come home to."

Even a year later, she added, "I still expect him to walk through the door."

Her comments were highlighted in television news coverage and PennDOT social media posts following the event.

Richards presented Mrs. Gensimore with the first Workers' Memorial pin featuring the newly designed fallen PennDOT worker logo and told her that she was inspired by her strength. PennDOT employees can purchase their



own Worker's Memorial pin by donating to the PennDOT Employees Association's Catastrophic Fund via the PennDOT Employee Association's website <https://sportal.dot.pa.gov/sites/pea/Pages/default.aspx>.

"I made a promise to you that Bobby's legacy will have meaning and help others as well," the secretary said.

In unveiling the new permanent Worker's Memorial for the Keystone Building atrium, Richards noted the building's employees will see it every day.

The back wall of the glass enclosed booth features a large photo of the traveling Workers' Memorial. A replica of one of the individual memorials is in the middle of the booth. A television monitor plays a continual loop of photos and details of each of the workers who lost their lives while on the job at PennDOT.

Somerset High School senior and Innovations Challenge participant Benjamin Geary was moved by the traveling Workers' Memorial.

"All the crosses, it's just kind of mind blowing that that many people passed away because of drivers in work zones," he said.

"We have lost five employees during my time at PennDOT," Richards said. "Losing team members and meeting their families impacts me greatly. This new memorial invokes the spirit of the traveling memorial."



WELCOME TO THE DOTcom!

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This quarterly newsletter highlights our latest efforts to improve mobility and quality of life in Pennsylvania.

This issue features PennDOT's focus on roundabouts, work zone safety, PennDOT engineers, bike safety, new registration plates and more!

As always, feel free to send story ideas or requests for information you want to see. If you’re involved in an interesting or innovative project or initiative, have ever wondered about other parts of PennDOT’s operations or have other suggestions, email the Press Office at ra-penndotpress@pa.gov.

We hope you enjoy this latest issue!



**FROM THE
secretary**

Dear Colleagues,

We are beginning another construction season and while that means orange barrels, it also means improved roads and bridges. We will have more than 1,800 construction projects underway, starting, or going out for bid this year. But construction season also too often means hazards for the men and women who are delivering these benefits.

According to preliminary PennDOT data, there were 23 people killed in crashes in Pennsylvania work zones in 2018. That’s four more fatalities than in 2017. And sadly, most of the people killed were drivers themselves.

We at PennDOT want that number to be zero.

It’s for that reason – in October 2018 – Governor Tom Wolf signed Senate Bill 172, the Automated Speed Enforcement in Work Zones legislation to help decrease speeding and improve motorist and roadway worker safety. This new law allows PennDOT and the Pennsylvania Turnpike Commission to install cameras equipped with LIDAR or radar in some work zones. The cameras will take photos of license plates of any vehicle exceeding the work zone speed limit by 11 mph or more when workers are present. We expect to deploy this technology this fall.

We urge motorists pay close attention to flaggers and signs when in work zones. Whether they’re our workers, workers employed by construction companies or workers for traffic control companies, they all deserve to get home safely.

Sincerely,

Secretary of Transportation

For more information please visit our website: www.PennDOT.gov

Or find us on social media at:



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EAST CENTRAL PA'S SECOND AND THIRD ROUNDABOUTS OPEN TO TRAFFIC

By Ronald J. Young Jr., Community Relations Coordinator, District 5

Roundabouts continue to pop up around the state as a safer alternative to traditional intersections.

Two roundabouts were opened in the second half of 2018 in PennDOT's Allentown-based District 5 – covering Berks, Carbon, Lehigh, Monroe, Northampton, and Schuylkill counties.

In July, a roundabout was installed at the intersection of U.S. 222 and PA 662 in Richmond Township, Berks County. The \$6.6 million project replaced a signalized intersection with a modern roundabout, along with widening U.S. 222 to four lanes at the roundabout approaches.

And in November, the district's third roundabout opened at the intersection of Broad Street, River Road, Foxtown Hill Road, and the Interstate 80 Exit 310 ramps in Smithfield Township, Monroe County. Although this roundabout is open, crews continue to work on the center and approach islands and all work is expected to be complete in the spring.

The signalized intersection was replaced with a modern roundabout, and the \$14.13 million project also included replacing the Exit 310 on-ramp bridge to I-80 east in Smithfield Township, and the Exit 310 off-ramp from I-80 west in Delaware Water Gap Borough. Both ramps traverse I-80.

PennDOT recently reviewed data for 11 roundabouts on state routes at intersections that were previously stop or signal controlled. These roundabouts were reviewed based on having at least three years of data available before and after the roundabout's installation. Department data based on police-submitted crash reports spanning the years 2000 through 2017 shows:

- Fatalities were reduced by 100 percent (from two to zero);
- Serious injuries were reduced by 100 percent (from seven to zero);
- Minor injuries were reduced by 95 percent (from 19 to one);
- Possible/unknown severity injuries were reduced by 92 percent (from 49 to four);
- Crashes causing only property damage decreased by 2 percent (from 49 to 48); and
- The total number of crashes dropped 47 percent (from 101 to 54).



Aerial of U.S. 222 Roundabout at PA 662 in Richmond Township, Berks County

The main characteristics of a modern roundabout include a generally circular shape; yield signs at the entrances; geometry that forces slower speeds; and counterclockwise circulation of traffic. Also, unlike traffic signals, roundabouts do not depend on electricity to function, so they are not susceptible to power outages.

Although roundabouts are safer and typically more efficient than traditional signalized intersections, in many cases they may not be the best option due to topography or other reasons, such as property impacts, capacity issues and proximity to other intersections.

Roundabouts are frequently installed to address intersections with safety issues but may also be installed to improve traffic flow as well as other reasons such as traffic calming, and to facilitate pedestrian mobility.



Top: Proposed roundabout at I-80 Exit 310

Bottom: Roundabout construction at Interstate 80 Exit 310 (PA 611/Delaware Water Gap) interchange in Monroe County



FOCUSING ON WORK ZONE SAFETY: STUDENTS PRESENT INNOVATIVE SOLUTIONS

By Rich Kirkpatrick, Bureau of Innovations

As part of Work Zone Safety Week, PennDOT hosted the statewide judging of the second annual PennDOT Innovations Challenge, which asked students across Pennsylvania to broach innovative approaches to persuade drivers to keep aware and be safe in work zones in Harrisburg.

The students from 11 high schools presented their ideas to Secretary Richards and a panel of PennDOT officials on April 10.

Leela Pinnamaraju and Isha Das, the team from North Allegheny High School, were named the winners. Their innovation was the "Safe Drive" app, which would allow users to see their work zone violations in real time. The app's interface would reward drivers with points for good behavior and penalize drivers for violations. They were mentored by faculty advisor Laura Prosser.

Drew Mashack and Tyler Wolfgang from North Schuylkill Jr./Sr. High School in PennDOT's Engineering District 5 and Caroline Cohen and Kevin Karatassos from Seneca Valley Senior High School in PennDOT's Engineering District 10 were named runners-up. The North Schuylkill team proposed a comprehensive digital sign approach and the Seneca Valley team proposed deploying special flexible speed bumps to slow traffic.

The winning team was awarded with a trophy and \$1,500 from the Pennsylvania Chapter of the American Traffic Safety Services Association.

Other finalists were students from Farrell High School, Mercer County; Juniata High School, Juniata County; Northeast Bradford High School, Bradford County; Dallas High School, Luzerne County; Academy Park High School, Delaware County; Hershey High School, Dauphin County; Somerset Area High School, Somerset County; and Norwin High School, Westmoreland County.

Ideas ranged from using technology and enhanced signage to control and track speeds through work zones, to offering incentives with the use of tracking apps to reward safe driving and track infractions, to installing smart speed bumps, to physically narrowing work zones.

"I was so impressed by the thought put into the presentations, the research, the knowledge of modern technology and the use of technology to allow us to speak to young and new drivers and the public," Secretary Richards said. She spent the day talking with each team, presenting them with certificates and posing for photos with them.

She added that the department will review the ideas and look for ways to continue to engage young people regarding transportation innovations.



Both the faculty advisors and students were impressed with their experience in the Innovations Challenge.

"Outstanding," said Kelly Stone, faculty advisor for the STEM team from North Schuylkill Jr./Sr. High School, who proposed personalized digital signs. "The (PennDOT) staff cared about the kids and their ideas. We'd love to come back. PennDOT did a great job."

Homer Kreinbrook, faculty advisor for the team from Somerset Area High School, who proposed using existing on-board technology to activate speed governors in vehicles to automatically slow them down in work zones, said it was the first time his school participated in the Innovations Challenge.

"I was impressed with the organization (of the event) and how well everything flowed," he said. "It was nice getting the kids to think on a technical level rather than just on classroom topics. Any time things are hands on, it's better."

Leela Pinnamaraju from the North Allegheny High School team said she has witnessed a work zone crash. "It was scary to watch," she said. "When we had the Innovations Challenge, we knew we could do something about it."



PENNDOT'S ALTOONA-AREA DISTRICT ERECTS MEMORIAL TO HONOR FALLEN

By Tara Callahan-Henry, Community Relations Coordinator, District 9



Last year was a tough year for the PennDOT family — particularly those working in District 9, which lost two co-workers in the line of duty. The district covers Bedford, Blair, Cambria, Fulton, Huntingdon, and Somerset counties.

In February, Blair County foreman Bob Gensimore was placing flares for a crash when he was struck and killed. After that incident, a team of county and district staff came together to raise funds and honor this loss. As part of the honor, a permanent marker was installed in the front yard of the district office in Hollidaysburg to honor the eight employees of District 9 who have been killed while on the job since PennDOT was created.

The memorial concept was to be a large stone with a bronze plaque listing the names, their work location, and when they were lost. While in the process of completing the submission for the plaque manufacturer, a second employee, operator Bryan Chamberlain, was killed during a widening activity. He also from Blair County. Shortly after his passing, the memorial project was expedited.

At the request of Bob Gensimore's parents, a trip was made to the Gensimore family farm to select a stone for the memorial. His family wanted to help honor their son and the others that have been lost.

The plaque — now with nine names — was ordered and cast. It was funded with generous donations by the Cesare Battisti, a local social club; the Altoona section of American Society of Highway Engineers; and from contributions by district staff.

In late fall 2018, the stone was set in the front yard of the district office and the plaque was attached by Blair County maintenance staff. Two solar LED lights were added to illuminate the memorial at night. This year, the district is planning a small ceremony to dedicate the memorial with the families of the fallen, their co-workers, and those who helped make it possible.

PennDOT also has a traveling workers' memorial that honors the 89 employees statewide who have been killed in the line of duty since 1970. Learn more about work zone safety at www.penndot.gov/safety.

TOMLINSON TACKLES MARATHON OF TRANSPORTATION SAFETY

By Suzy Atkins, Press & Policy Assistant



Doug Tomlinson envisions a safe, reliable, and efficient transportation network. It sounds simple enough, until he explains what it will take to get us there.

Tomlinson began his career with PennDOT in 1994. Over the years, he's focused on a wide-range range of topics including work zones, traffic signals, traffic calming, incident management, Intelligent Transportation Systems (ITS), and Transportation Systems Management and Operations (TSMO). Each subject has worked to broaden his knowledge and understanding of the traffic challenges we face every day.

When Tomlinson describes traffic operations and highway safety, he talks about traffic congestion, performance data, and crash statistics. He talks about the new age of technology where information is expected to be on-demand at your fingertips. These technological marvels offer great opportunities but can bring with them distracted driving as they compete for a driver's attention taking away their focus from the task at hand.

He talks about these subjects as if he has been training for a marathon. In December 2018, the starter gun went off as he began his new role as the chief of the Highway Safety and Traffic Operations (HSTO) Division within the Bureau of Maintenance and Operations. His marathon includes working to reduce fatalities and serious crashes, while striving for a less congested road network. Along the way, he's thinking about rumble strips that will warn drivers of erratic behavior, message signs that can help motorists make informed travel decisions, and pavement markings that will keep people traveling on the correct path.

For Tomlinson, his greatest personal accomplishment has been his running of the Boston Marathon in 2018 under very challenging weather conditions. His vision and determination for HSTO will be an even greater challenge, but his training and determination will surely lead us along a successful path to the finish line.



PENNDOT HIGHLIGHTS WORK ZONE SAFETY AS ROUTE 19 IMPROVEMENT PROJECT BEGINS IN PITTSBURGH

By Steve Cowan, Community Relations Coordinator, District 11

As part of National Work Zone Safety Awareness Week, PennDOT's Pittsburgh-area District 11 held a press event to discuss safe driving through construction zones and to provide information on a \$14.55 million improvement project on Route 19 in the City of Pittsburgh.

District Executive Cheryl Moon-Sirianni and Assistant District Executive for Construction Jason Zang were joined by Pittsburgh Police officials, PennDOT personnel, and Swank Construction Co. to highlight the importance of the project while focusing on keeping workers and drivers safe in work zones.

"The construction season has begun, and as crews work to create a safer road for the public, they too must be kept safe," Moon-Sirianni said. "As a result of the busy location of the Route 19 project, crew members constantly see aggressive drivers, especially speeding motorists."

In District 11 — which covers Allegheny, Beaver, and Lawrence counties — more than 1,300 work zone crashes occurred from 2013-2017. Unfortunately, 12 individuals died in those crashes.

Most of those crashes (86 percent) occurred in clear, dry weather.

"Practicing work zone safety is very important to the men and women who work on these roads daily, as well as their families," Moon-Sirianni said. "Please drive these roads like your loved ones are working on them."

Roadway reconstruction will occur on approximately 1 mile of Route 19 between I-376 (Parkway West) and the West End interchange. Additional improvements include the replacement of the Shaler Street Bridge over Route 19/51 using Accelerated Bridge Construction techniques, median barrier replacement, lengthening of the Wabash Street deceleration ramp, sign structure replacements, and ramp reconstruction work.

The 140-foot long Shaler Street Bridge, consisting of two spans, will be replaced by using a Self-Propelled Modular Transporter (SPMT). The new bridge will be constructed near the current structure site and the SPMT will move the two, 260-ton spans into place over the course of a weekend.

ENGINEERING A FUTURE FOR GIRLS

By Secretary Leslie S. Richards



"Science is not a boy's game, it's not a girl's game. It's everyone's game. It's about where we are and where we're going."

— Nichelle Nichols, former NASA Ambassador and Star Trek actress

It's no secret that women continue to lag behind their male counterparts in the science, technology, engineering, and math (STEM) fields. Even after all these years, we're still trying to solve that complex equation to lead more women, girls and members of minority groups toward a career path that requires science and engineering skills.

Women make up half of the total U.S. college-educated workforce, but only 29 percent of the science and engineering workforce, according to statistics from the National Science Foundation. When there's only one gender representing most of the ideas in a field, it's clear that a whole segment of potential innovators is untapped.

The opportunities are there – we just need to lead the way. Over the last decade, career opportunities in STEM fields have grown three times faster than in non-STEM fields, according to the U.S. Department of Commerce.

That's why PennDOT celebrates Introduce a Girl to Engineering Day (or Girl Day), part of National Engineers Week. We've made it a priority to mentor young women who want to explore PennDOT careers in engineering, to recruit diverse candidates into our workforce, and to nurture an inclusive

organization that shines a light on our similarities and differences. Employees of all genders, nationalities, races, and orientations are important to PennDOT in achieving an organization that represents the diversity of the very people we serve in Pennsylvania.

The truth is, if we want to continue to make the kinds of cutting edge technological and engineering advances that keep the U.S. competitive, we need the insight and creativity of women and girls to help solve the problems, new and old, that face our nation and the world. And we not only want to pique their interest in STEM, we must help them succeed and remain in these careers for decades to come.

Interestingly, an article in the New York Times last week makes the case that access to technology like smartphones, tablets, laptops and gaming devices actually helps put girls on par with boys when it comes to tech or exceed them in some respects. The message is simple – give girls the confidence and a fighting chance to think like an engineer, and they just might surprise you.

Movements like Girl Day are important to help girls in your community realize that they can make the world a better place through an engineering career. You can also get involved by signing up to be a Girl Day Role Model and help girls realize their full potential.

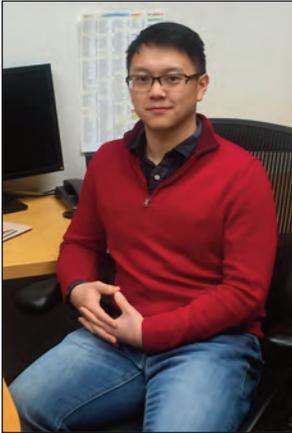
The future is bright, if we continue to engineer a future for girls.

ENGINEERS PLAY CRUCIAL ROLE AT PENNDOT

Over the last decade, career opportunities in science, technology, engineering, and math (STEM) fields have grown three times faster than in non-STEM fields, according to the U.S. Department of Commerce. Pennsylvania is a national leader in STEM, but we need more people with these skills and knowledge to enter the field.

It takes a lot of careful planning and expertise in STEM fields to figure out how to best move people and goods from one place to another, to build safe bridges and roadways, and to provide communities with a high-performing multimodal transportation system.

PennDOT's engineers play a crucial part in the overall success of the department, which is why we wanted to highlight a few in honor of National Engineers Week which was held in February.



Allen Peng
Civil Engineer,
PennDOT District 11

"When I see something I'm always thinking, 'How can I make it better, how can we make it more efficient, what tools do we have to fix the issues?'" he said.

He aspired to work for PennDOT ever since college.

"I really enjoy working for the people and bringing direct changes to the public, it's very

humbling," he said. "The work we do here is truly phenomenal and a huge part is because of the people that make up this organization."

Aside from his job in the bridge unit in PennDOT's Pittsburgh-area District 11, Peng enjoys participating in volunteer and outreach program for students.

"It's one thing to be doing work that benefits the traveling public, but it's another thing to dedicate our time to inspiring the youth to become passionate about the jobs that we do here at PennDOT," he said. "I had no idea what bearings or diaphragms meant when I was in high school, but middle schoolers are already being exposed to those terms."



Nexa Castro
Project Manager,
PennDOT District 8

In 1996, Nexa Castro moved to Harrisburg to take care of her ailing mother-in-law. She previously lived in Puerto Rico, where she obtained her degree in industrial engineering science after being inspired to pursue engineering at a young age.

"My dad took me to see the construction of the Segovia Towers in San Juan," she explained. "I was amazed at the complexity and was inspired. I told my parents that I will be an engineer and someday I will design similar structures."

But when she came to Pennsylvania, she didn't have a strong grasp of the language, so she worked part-time at a department store to build her skills. After four years, she felt confident enough to join PennDOT as an engineering technician.

In her nearly 19-year career, Castro became the first Hispanic female project manager for District 8 and was part of a team that received a Diamond Award for Engineering Excellence from the American Council of Engineering Companies. And she is extremely proud of PennDOT and the work it does.

"We have come a long way as a department and we are still working on sustaining a diverse and inclusive environment where women can be successful," she said. "I'm proud we can say 'We are PennDOT and you belong.'"



Check out our "This Is PennDOT" video featuring the many STEM opportunities at the department:

<https://www.youtube.com/watch?v=elo-knc53qY&list=PL90uZRd80y1NBulm31RVT1aYNeCGsws0s>



Leanne Davis
Project Manager,
PennDOT District 2

Leanne Davis says she chose to enter civil engineering based on her love for math in high school, as well as following her dad's career in the construction field.

She is the only woman with a professional engineer license in the construction unit at Clearfield-based District 2, and was a recipient of a Star of

Excellence Award in 2015. This is PennDOT's highest honor and is given to those employees that show intense dedication to their jobs and serve as examples for their co-workers.

"I encourage young women to explore the vast engineering opportunities within the transportation industry which extend well beyond the expected highway design," she said.

"Transportation engineering includes all facets of planning, infrastructure, intelligent communication, construction, and maintenance required to provide the public — our customers — with an effective and sustainable transportation system.



Maggie Jackson
Project Manager,
PennDOT District 3

Maggie Jackson co-manages the largest capacity-adding project in the state — the Central Susquehanna Valley Transportation Project in Montoursville-based District 3.

Through high school, she was strong in math and science, and was encouraged by her dad to pick a technical degree. But it

wasn't until her second year of college that she decided to pursue a career in civil engineering after rediscovering a passion for bridges.

"I would strongly encourage young women to consider engineering, especially if they have a love for math and science," she said. "They shouldn't be intimidated to be a minority in the field or discouraged if their mind doesn't process information exactly like their male counterparts. It's important to have a diverse work force that allows for innovative thinking."



Mirlene Saintval
Senior Civil Engineer,
PennDOT District 6

Mirlene Saintval grew up in Haiti, where pursuing a career in STEM was engrained in her at a young age.

"I fell in love with engineering when I was 8 years old," Saintval said. "I was inspired to build my own clay furnace after watching local bakers make bread."

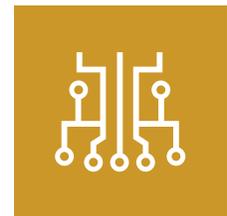
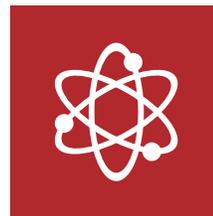
Her passion grew when living in New York City, where she says she had access to "endless" resources, such as books, public, schools, libraries, and museum. "I had no excuses except to learn."

Saintval started with PennDOT in 2012 through the Civil Engineer Trainee program.

"I liked the idea of a 12 months rotation program that enabled civil engineers to learn all the different facets of transportation engineering," she explained.

Now, as a project manager, she oversees preliminary engineering and final design efforts on a multitude of roadway and bridge projects. And she works hard to instill that same passion for STEM in her own children, including her young daughter.

"There is no better time than now for women to become engineers," she said. "It takes commitment, hard work, and a willingness to stay in a learning mode. The revolution for girls, young woman, and mothers in engineering or any other related STEM fields is now."



S · T · E · M

NOT SO ELEMENTARY FOR MARCUS HOOK STUDENTS

By Brad Rudolph, Community Relations Coordinator, District 6

Dozens of Marcus Hook Elementary School first-and second-graders donned hard hats and safety vests for an educational tour of PennDOT's ongoing Route 452 (Market Street) bridge replacement project in Marcus Hook Borough and Lower Chichester Township, Delaware County.

"I thought it was kind of cool to share what we do out here," said Scott Rinck, Road-Con Inc. project manager, who helped organize the school field trip. "I wish someone would have done this when I was a kid."

The students, joined by teachers and the school's principal, got an opportunity to walk across the newly-built section of the bridge to get a birds-eye view of the area and the Amtrak and SEPTA railroad tracks below. The children asked questions about how bridges are constructed, what abutments and piers are, and what kind of materials are used in construction. The visit coincided with what the students were learning in class, like distinguishing between shapes, and how to construct a paper bridge.

Rinck says he was impressed with the students and their questions, including one from a curious second-grader who



noticed that a crew was preparing to line stripe the travel lanes, so they could temporarily reopen the bridge before Christmas. He asked why PennDOT wasn't striping the pavement red and green for the holiday.

Under this improvement project, PennDOT is replacing the 17-span reinforced concrete T-beam bridge with a new four-span, continuous prestressed box beam bridge. will be built on a new alignment and widened to meet current design standards. This project will be completed in late fall.

PENNDOT ANNOUNCES FIRST USE OF FLASHING YELLOW ARROW SIGNALS IN MERCER COUNTY

By Jill Harry, Community Relations Coordinator, District 1

Mercer County recently got its first flashing yellow arrow signals, which are proven to improve left turn safety.

The signals were placed at the intersections of East State Street and Ellis Avenue, and East State Street and North Kerrwood Drive/ South Kerrwood Drive, both in the City of Hermitage. They were officially turned on January 15 and 16.

Flashing yellow arrow signals were first introduced in Pennsylvania in 2016 and have become commonplace across the United States over the last 10 years. Based on many national studies and transportation agency testimonials, these signals improve left-turning safety by helping motorists recognize that they should yield while making left turns when there is oncoming traffic and pedestrians.

According to research funded by the Federal Highway Administration, left turn crashes can be reduced by as much as 20 percent after the installation of the flashing yellow arrow signal. Also, these signals can be adjusted depending on the time of day, reducing delays and improving mobility.

The current signal configuration features a green left arrow to allow left turns followed by a yellow arrow and then a circular green indication. The new configuration will feature four left turn arrows:

- Steady green left arrow meaning the left turn is protected and oncoming traffic is to stop.
- Flashing yellow arrow meaning drivers must yield to oncoming traffic and pedestrians before completing the left turn.
- Steady yellow arrow meaning left turns should stop because the signal is about to change to red.
- Steady red arrow meaning left turns must stop and cannot proceed.

Check out our YouTube video "New Flashing Yellow Arrow Turn Signals:"

<https://www.youtube.com/watch?v=80nuENJCeA8>.



PENNDOT PROVIDES VARIETY FOR ITS EMPLOYEES

By Jill Harry, Community Relations Coordinator, District 1

For Nikita "Nik" Tsikouris, professional development and career advancement are important aspects of employment with the Pennsylvania Department of Transportation.

When District 1 — covering the northwestern part of the state — began talks about creating a Civil Engineer (CE) Council, he knew it was a good fit for him.

Tsikouris, who serves as the elected leader of the voluntary Council, sees many advantages to the newly-formed group.

District Executive Jim Foringer and Assistant District Executive for Design Brian McNulty had proposed the idea based on experiences in other regions of PennDOT.

"CE Councils have been proven to work well in other Districts," Tsikouris said. "We definitely felt there was a need for something like this in District 1."

The goal of the group, which includes members from the construction, design, and maintenance units, is to strengthen the department by helping to recruit new hires and provide them with opportunities to succeed through training and networking. The group looks to help members obtain their civil engineering degree and fundamentals of engineering and professional engineer licenses.

The target audience is Civil Engineer Trainees, Engineer Trainees, and engineering summer interns.

"The majority of the group is made up of engineers with less than seven years of experience. However, anyone who works for PennDOT District 1 can join," Tsikouris said.

The CE Council philosophy aligns with what made PennDOT an attractive employment option for the Ohio resident about seven years ago.

"I worked for the Ohio Department of Transportation while I was a student at Youngstown State University," he said. "I enjoyed the work and recognized the benefits of working for a state department of transportation very early on in my experience."



Tsikouris was drawn to PennDOT because of the larger size of the organization and the greater opportunities to learn and advance.

"I appreciate the wide range of opportunities to do other job assignments, such as cross training and acting positions," he said.

Tsikouris, who is raising two young children, Sophia and Michael, with his wife Bridget, doesn't shy away from taking on a new challenge.

Over the years, he has served as the acting ADA Coordinator, completed cross training in the Bridge Unit, and was named an Inspector-in-Charge for the Construction Unit. He is currently acting as the structure control engineer.

"Working with other units and in other positions gives you a chance to see things from a different perspective, and can benefit you in your day-to-day position," Tsikouris said. "Also, being challenged with a new or different job assignment keeps things interesting and helps you grow professionally."

PENNDOT INCREASED LIQUID FUELS DISTRIBUTION TO MUNICIPALITIES FOR LOCAL ROADS AND BRIDGES

PennDOT has committed \$500.7 million in liquid fuels payments to help certified municipalities maintain their roads and bridges.

The March 1 distribution marked a \$11.7 million, or 2.4 percent, increase over the \$489 million distributed in 2018. Act 89 of 2013 made more funding available for locally owned roadways. Before the law, municipalities received \$320.8 million in liquid fuels payments.

PennDOT's annual distributions assist with municipalities' highway and bridge-related expenses such as snow removal and road repaving. There are 120,039 miles of public roads in Pennsylvania. There are 72,992 miles owned by municipalities and eligible for liquid fuels. The formula for payments is based on a municipality's population and miles of locally-owned roads.

To be eligible for liquid fuels, a roadway must be formally adopted as a public street by the municipality, meet certain dimension requirements, and be able to safely accommodate vehicles driving at least 15 mph.



For the complete list of local payments, visit the "Municipal Liquid Fuels Program" page at www.penndot.gov under the "Doing Business" Local Government page.

PICKING UP LITTER IS A JOB FOR EVERYONE

By Michael Taluto, Safety Press Officer, District 4

The saying goes that March comes in like a lion and out like a lamb. For PennDOT, you could say March comes in on a snowplow and out on a paver.

PennDOT moves from winter operations to summer construction and maintenance in April. Filling potholes, repairing bridges, replacing broken signs and paving roads are some of the items on our 2019 to-do list. There is one activity, though, that almost anyone can do. And doing so can help make Pennsylvania a much more beautiful place. Pick up litter!

Every year, PennDOT crews spend many hours cleaning litter along Pennsylvania roads. While this is important, it also means those crews are not spending that time filling potholes or paving roads. They are also doing the one job the public can do, too.

Right now, you can help keep Pennsylvania beautiful by volunteering in the Great American Cleanup of PA.

Volunteering is easy. People can organize their own local event and register it, or can take part in an already registered event. Gloves, trash bags, and safety vests will be provided by PennDOT, the state Department of

Environmental Protection, and the GLAD Products Company, a national sponsor.

Also, during "Pick It Up, PA Days," April 13 – May 6, registered cleanup events have access to reduced or free disposal at participating landfills, through support from DEP and the Pennsylvania Waste Industries' Association.

Remember to always use extreme caution when driving past crews alongside the road. Put down the phone and focus on the task at hand so that we can all make it home at the end of the day.



BE VISIBLE AND CONSPICUOUS WHILE RIDING YOUR BIKE

By Roy Gothie, Statewide Bicycle and Pedestrian Coordinator

The keys to roadway safety when riding a bicycle are being predictable and following the rules of the road, but no matter how carefully you adhere to the law, if other roadway users don't see you and your bicycle, the potential for a crash increases.

Visibility vs Conspicuity

Both conspicuity and visibility matter when riding a bike. Conspicuity differs from visibility in that it includes an element of identification. If visibility is seeing something, conspicuity is seeing what something is.

Riding in Low Light or Darkness

In 2017, almost 50 percent of fatalities involving people on bicycles occurred during non-daylight hours in Pennsylvania, according to PennDOT data. Approximately 25 percent of injuries occurred during the same time.

Pennsylvania laws require that bicycles in use between sunset and sunrise be used with:

- a white front lamp (visible from 500 feet)
- a red reflector (visible from 500 feet), and
- amber reflectors on each side.

Lights worn by the bicycle rider comply with law if they meet the visibility requirements.

Lights

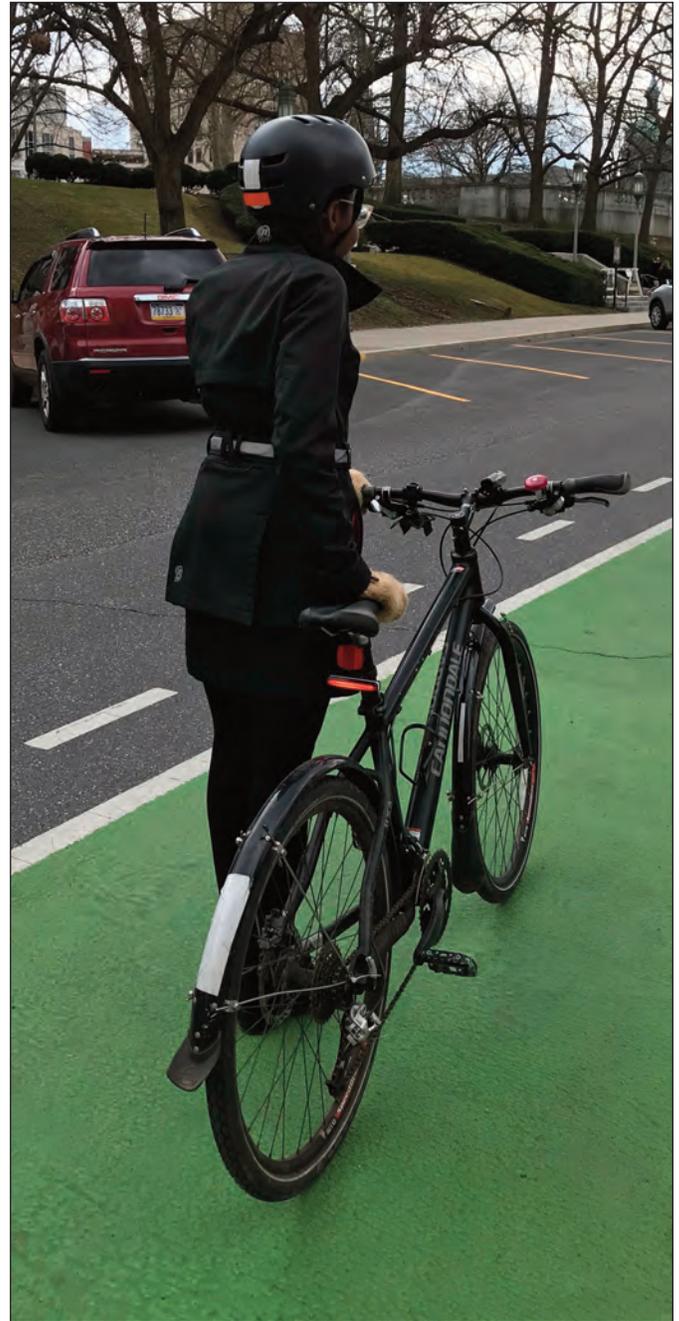
Lights are required for low light and dark riding conditions, but even in the daylight a bright light makes you more visible. Front lights should be in the range of 200-500 lumens and rear lights need to be around 20 lumens or more for conspicuity during daylight riding.

Flashing lights, however, can be problematic for the 5 percent of young children and 3 percent of adults suffering from photosensitive epilepsy. Lights that flash between 3-30 times per second are the most problematic. A steady beam should be used in low light or dark conditions.

Reflectors on Bicycles

One of the challenges for bicycle riders is that the reflectors on the bike are retro-reflective and thus are most effective sending directly back to the source. For many larger vehicles (SUVs or box trucks) less light will reach the driver's eyes.

In addition, if the bicycle reflector is obscured or misaligned the effectiveness of the single reflector is drastically reduced. The cost-effective solution is to add more reflective surfaces to your bicycle and to your helmet with white retro-reflective tape. This retro-reflective tape can also be added to the crank arm of the pedal or front or rear forks for additional visibility from the side.



Fluorescents or Reflective Clothing and Gear on the Rider

Fluorescent colors stand out in contrast to their environment and improve recognition from a greater distance and appear brighter in daylight than conventional colors. These are not effective at night without natural light. Headlights and street lamps don't emit the necessary ultraviolet spectrum.

In low light conditions, reflective materials are the proper option. They shine brightly and when worn on the chest and on the ankles/knees drivers recognize a bicycle rider 94 percent of the time.



STATE OFFICIALS TOUT CYCLING IMPROVEMENTS, OPPORTUNITIES AND BENEFITS IN PENNSYLVANIA

To mark the start of Bike to Work week, PennDOT announced a series of planned improvements and opportunities for bicyclists during an event featuring a bike ride around Harrisburg by cabinet members and other state officials.

Since 2017, PennDOT awarded more than \$20 million in funding for 33 grants through the Multimodal Transportation Fund for projects that include improvements

to bicycle and/or pedestrian facilities. In addition to the Multimodal Grant Funds, PennDOT provided \$13.4 million in support for on-road bicycle facilities through federal funds.

See the governor's proclamation of May as Bike Month in PA at "Ride a Bike" page under "Travel In PA" at www.penndot.gov.

PENNDOT'S BICYCLE PEDESTRIAN MASTER PLAN

PennDOT multimodal team members recently hosted a public open house and web cast to present the updated Bicycle and Pedestrian Master Plan initiatives. The goal of the meeting was to solicit comments on the proposed vision, themes, objectives and draft implementation recommendations.

When complete, the updated Bicycle and Pedestrian Master Plan for Pennsylvania will outline a vision and framework for improving conditions for walking and bicycling across Pennsylvania, most notably for those Pennsylvanians who walk and bicycle out of necessity rather than for leisure and recreation. The Master Plan will also identify and help prioritize strategies that increase the number of people walking and bicycling, while supporting safety and multimodal connectivity throughout the state.

Those who wished to attend or watch the meeting in-person could do so at the Keystone Building, 400 North Street in Harrisburg or in one of the department's district offices outside of Harrisburg. The ultimate goal of the plan is outlined in the following themes;

- Enhance Safety
- Provide Transportation Equity
- Connect Walking and Biking
- Leverage Partnerships
- Improve Public Health
- Increase Economic Mobility

The plan is due to be completed in the fall of this year.

learn more about PennDOT's Bicycle Pedestrian Master Plan at the "Ride a Bike" page under the "Travel in PA" tab at www.penndot.gov.

PENNDOT CONNECTS TAKES THE NATIONAL STAGE AT SXSW

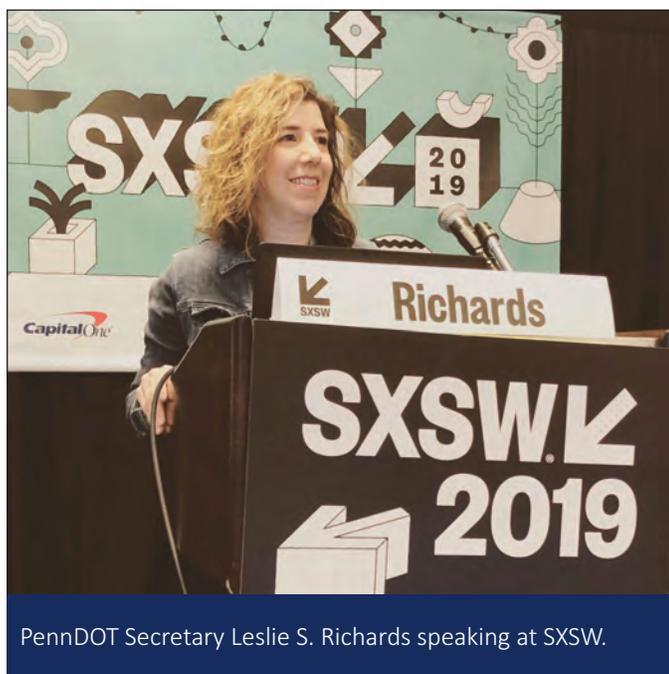
This past March, Secretary Richards traveled to Austin, Texas, for the annual South By Southwest (SXSW) conference. Selected to speak among thousands of applicants, the Secretary was invited to share how PennDOT Connects is building better, stronger communities with a national audience.

Founded in 1987, SXSW brings together leaders in the music, film, science, technology, and government industries to share creative ideas and stimulate change. Other speakers at the 2019 conference included Congresswoman Alexandria Ocasio-Cortez, award-winning journalist Katie Couric, and Foursquare co-founder Dennis Crowley. One transportation-themed session featured Chris Urmson, CEO of Aurora Innovation, and Malcolm Gladwell, author and host of Revisionist History, who discussed the future of automated vehicles.

The Secretary's presentation, "Building Bridges to Connect Communities," shared her views on the careful balance departments of transportation must make between maintaining the transportation system and improving the quality of life that same system serves. PennDOT Connects is part of a significant evolution from an agency focused on highways to a modernized agency focused on providing multimodal options for the communities it connects.

She quoted Congresswoman Madeleine Dean, who summarized the power of this initiative: "every dollar invested into one of your projects is a dollar invested into a community."

Through the innovative PennDOT Connects approach, the agency is considering community needs at the very beginning of every project. The Secretary illustrated this point when she told a story about how a designer met with a community first before designing a bridge. It saved time to build with the



PennDOT Secretary Leslie S. Richards speaking at SXSW.



Photo courtesy of Jonathan Todd

community's vision in mind from the start rather than assuming what he thought the community might need. She highlighted the importance of truly listening before beginning any project to maximize the value.

Secretary Richards also shared examples of PennDOT Connects projects and their impact. One example was a major road reconstruction in the Pocono Mountains. The community wanted to build a multi-use trail and PennDOT was able to incorporate a retaining wall on the road that allowed for a trail alongside of it. As a result, the community will be able to build the trail much sooner and at a reduced cost.

Another example was about a well-loved bridge that needed repair. The bridge was a favorite picture spot for big life moments in the community such as wedding and graduations. PennDOT was able to replicate the original design to preserve what the community loved and valued.

In Johnstown, PennDOT improved a confusing intersection that most people would bypass, making it safer with fewer accidents. In addition, the shoulder was widened to allow for a memorial path to be built from the location of the Twin Towers in New York City to the Pentagon in Washington, D.C., and to the Flight 93 National Memorial in Stoystown as a way to remember those lost on September 11, 2001.

Finally, she showcased a billion-dollar project where PennDOT will reconnect communities in Philadelphia to the Delaware River through creating more green space and wetland mitigation.

Secretary Richards reminded everyone how listening and building stronger relationships through PennDOT Connects has allowed PennDOT to respond better to emergencies and to ensure that every day is a beautiful day in our neighborhoods.

To listen to Secretary Richards's talk and learn more about SXSW, visit: <https://schedule.sxsw.com/2019/events/PP89247>.

CHEMIST IN AN ENGINEER'S WORLD

By Suzy Atkins, Press & Policy Assistant

Dave Kuniega feels like a chemist living in an engineer's world. Which is accurate: Kuniega is the chief chemist and manager of Chemistry, Instrumental and Physical Testing Sections at the Pennsylvania Department of Transportation's materials testing lab.

PennDOT's lab is divided into four parts: chemistry, instrumental, and physical testing; asphalt concrete and cement; and quality assurance. Most people don't realize the extent of checks and balances when it comes to materials PennDOT uses. A simple bag of rocks goes through rigorous testing based on state, national and international specifications and standards.

Kuniega's lab examines a material's physical properties (i.e., dimensions, strength, durability) composition properties (i.e. What do I need to make sure it survives?). He explained that his team's job is to test a material "to make sure it works the way it is intended and specifically to last the way it is intended. It is a challenge."

PennDOT has specific standards for distinct parts of the state.

"You don't need the same material if you don't have the same weather," Kuniega explained.

While PennDOT may have to replace a bridge in 50 years, Kuniega is testing materials to see if he can build a bridge to last a century. At the lab, they will test several types of steel, admixtures into concrete, or work with de-icers and paint formulas. Maintenance will direct them to review a few products such as beet brine vs. salt (or other agricultural products).



Often companies will provide the materials needed to test them.

"There is such a variety and many challenges," Kuniega said.

They test everything imaginable, in some fashion, before it is used. They first must approve the materials. Then, approved samples are tested before they can be used. Next, the material is monitored while in use. Finally, the lab team will check back to see if it fails. If it does fail, they ask why? What can they do differently to improve it?

Kuniega is well-known in the industry for pavement markings. That is his niche. The yellow or white stripes on Pennsylvania roads are repainted every three years or so. Two million gallons of traffic paint is used each year. Kuniega is testing reflective properties — placing glass beads in the paint to make them glisten or reflect light at night. He is moving this idea into a new direction as he is working on markings to help direct autonomous vehicles.

With all his knowledge of biology, physics, and chemistry, what is the question he is most frequently asked?

"When people learn that I work in the PennDOT lab, the first thing they ask me is, 'How do I get line paint off my car?'" Kuniega said with a smile.

PENNDOT ENGINEER'S IDEA IMPROVES 511PA

By Dave Thompson, Community Relations Coordinator, District 3

Gerald C. Wertz, a design plans engineer in PennDOT's District 3, is a prime example of how employees with experience in dealing with problems often are the best at finding solutions to those problems.

Wertz noted an incident at a department bridge project in Bradford County where a bridge that had been reduced to a single lane with a 10-foot width restriction had been struck by a vehicle.

He knew changes to the commonwealth's Road Condition Reporting System (RCRS) allowed dimensional restrictions to be input into the system. He submitted an idea to PennDOT's IdeaLink website recommending that dimensional restrictions input into RCRS also be viewable on construction projects identified on 511PA. 511PA is a web-based service that provides the public with real-time conditions on state-owned roads. This information includes,



among other things, road closures or lane restrictions due to construction projects, vehicle crashes, or weather. Much of the information contained on the site is automatically input when an RCRS report is created.

"My idea was to have the dimensional restriction entered into 511PA so people hauling oversized loads or operating oversized equipment could use 511PA to plan their travels," he said. "RCRS was already capturing the location of the project and other generic information. I wanted it to also include the dimensional restrictions."

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'PENNDOT CONNECTS' TRANSPORTATION PLANNING INITIATIVE IMPROVING COMMUNITIES



Project-planning collaboration and outreach with more than 750 municipalities is complete on more than 1,850 projects through the department's PennDOT Connects transportation planning process.

Successful project examples and more details on the initiative appear in a newly released PennDOT Connects Implementation report, which updates the public and partners on the deployment of the PennDOT Connects initiative implemented in 2016.

"I am gratified to see PennDOT Connects being embraced by our team, communities, and planning partners," Richards said. "Our report shows that we are hearing and considering community needs earlier in the process, resulting in outcomes that benefit our citizens and wisely use resources."

The new approach to project planning and development expands the department's requirements for engaging local

and planning partners by requiring collaboration with stakeholders before project scopes are developed. PennDOT Connects aims to transform capital and maintenance project development by ensuring that community collaboration happens early, and that each project is considered in a holistic way for opportunities to improve safety, mobility, access, and environmental outcomes for all modes and local contexts. Earlier collaboration will ensure that projects meet current and projected needs as much as possible and can reduce costly changes later in the project development process.

Specific areas for discussion during collaboration include but are not limited to: safety issues; bicycle/pedestrian accommodations; transit access; stormwater management; utility issues; local and regional plans and studies; freight-generating land uses and more.

For more information on PennDOT Connects, visit www.penndot.gov/connects.

PENNDOT CONNECTS INTRODUCES ONLINE TRAINING SERIES

Through PennDOT Connects, the department has been working with local governments to ensure that community needs are considered at the very beginning of every project.

As part of this innovative initiative, PennDOT has created online training courses that address a series of topics related to the project planning process.

Topics are:

- Access Management Regulations and the Coordinated Highway Occupancy Process
- Loan and Funding
- Sight Design and Roadway Standards
- Transit Revitalization Investment District (TRID)

- Capital Improvement Programing (CIP)
- Integrating Transportation and Land Use in Comprehensive Plans
- Traffic Operations
- Transportation Impact Fees

The topics were selected based on feedback received during workshops held across the state to introduce PennDOT Connects to municipal officials. Each course provides an overview of PennDOT Connects, defines the topic and course objects, explains the advantages and other consideration associated with each of the topics, identifies best practices, and provides the next steps toward implementation.

More information and resources are available on the PennDOT Connects website. www.penndot.gov/connects.

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Once the idea was deployed, dimensional restrictions were viewable on the 511PA interactive map. Haulers can search "active roadwork" icons (orange cones) on a specific route. Information on the project, including any dimensional restrictions, can be viewed by left clicking the icon.

This innovation could be helpful for haulers with annual hauling permits, especially when conditions change on a route due to construction, Wertz said. It also can be helpful to PennDOT and other state agencies that move heavy equipment from one location to the other, as well as industries such as agriculture. He estimates the department

could save thousands of dollars by reducing damage to property or equipment.

"A major benefit is the ability for annual (hauling) permit holders to plan their travel routes during the ever-changing construction season when situations vary from week to week," he said. "Additionally, the agricultural community can better plan spring and fall operations when they are using wide machinery.

"This is another valuable tool to improve the safety and increase the efficiency of moving over-width equipment throughout the commonwealth," he added.

MONITORING OF LONGWALL MINING UNDER INTERSTATE 70

By Joseph J. Szczur, District Executive, District 12

Coal mining has been a way of life in southwestern Pennsylvania since the late-1700s. No longer the pick-and-shovel process that it used to be, mining has evolved with the longwall process, which, driven by modern technology, has made it much more progressive and a challenge to surface integrity.

Longwall mining is a process of removing coal in long strips (channels) underneath the ground. A cutting head moves back and forth across a panel of coal about 1,200 to 1,400 feet in width and more than 10,000 feet in length, 300 to 1,300 feet underground. The cut coal falls onto a conveyor belt and is carted away for removal. The process is done under hydraulic roof supports (shields) that are advanced as the seam is cut. The roof in the mined-out areas falls behind the shield as it advances. When it falls, the surface also sinks.

PennDOT's District 12 first experienced longwall mining under Interstate 79 in Greene County in the summer of 1982. Since then, longwall mines have advanced underneath one of the district's interstates 24 more times over a 27-year period from 1982 to 2009. Longwall mining is expected under Interstate 70 in the district again nine more times over the next 19 years.

In January, Alliance Coal's Tunnel Ridge Mine had a working panel under I-70 between approximately 1,000 feet in West Virginia and the Claysville Interchange in Washington County. As a precaution to motorist safety, single-lane restrictions were established, and the speed limit was reduced to 45 mph in Pennsylvania to slow traffic. Additional Tunnel Ridge Mine panels will pass under I-70 nine times between 2019 and 2038.

When longwall mining occurs, the interstate can be expected to settle about 2-5 feet in some areas. Because of this concern, PennDOT has a multiphase monitoring plan in place to keep track of the interstate longwall mining activities:

- Alliance Coal Co. will provide daily updates on the mining conditions and the face positions.
- 3-D LiDAR scans will show the contour of the land before the mining occurs for continual comparisons.
- Tiltmeters, piezometers, and inclinometers were installed to show ground movement at the surface.

These devices are used as an alarm system. When the movement exceeds an allowable limit, a message is sent alerting personnel trained to respond.

- Continuous human inspection is provided at the site to monitor actual damage to the roadway. The inspector is in constant communication with appropriate personnel to coordinate remedial activities.

- Survey data is collected to monitor and plan for future events.

For minor damage such as cracking and compression bumps, PennDOT's county maintenance forces and contractors will keep the road safe for travel by milling and spot patching. After the mining is out from beneath the section of the interstate, and the ground settling has finished, we will use emergency contracts to repair the surface damage.



To help monitor the ground movement, PennDOT is using top-of-the-line innovative technology. We have enlisted the help of 3-D dynamic LiDAR scans. LiDAR, which stands for light detection and ranging, is a remote sensing method that uses light in the form of a pulsed laser to measure ranges (variable distances) to the Earth. These light pulses—combined with other data recorded by the airborne system—generate precise, three-dimensional information about the shape of the Earth and its surface characteristics.

LiDAR is fundamentally a distance/elevation technology. From an airplane or helicopter, LiDAR systems actively send light energy to the ground. This pulse hits the ground and returns to the sensor. Basically, it measures how long it takes for the emitted light to return back to the sensor. In the end, it gets a variable distance to the Earth. LiDAR data will be collected by airplanes and ground technology. GIS – Inertial Measurement Unit (IMU) tracks the planes' position.

Our main goal is to protect the traveling public and keep the millions of I-70 motorists moving across Pennsylvania.

PENNDOT RELEASES NEW REGISTRATION PLATES

The Pennsylvania Department of Transportation recently released a series of new registration plates, including two special funds plates that will help raise funds for worthy causes.

A new Distracted Driving Awareness registration plate is available for a motorcycle and a passenger car or truck with a registered gross weight of not more than 14,000 pounds or a motor home. The plate costs \$40 and proceeds will be used exclusively to advance public education and outreach on the dangers posed by distracted driving.

An Honoring Our Women Veterans registration plate that costs \$35, of which \$15 will be paid to the Veterans Trust Fund and shall be used for programs and resources that assist women veterans.

Five new military plates are also available. Most military plates require certification that an applicant has received a particular honor or served in a particular military conflict. The new plates include:

- **Soldiers Medal.** This registration plate is available for a fee of \$20 and is for passenger cars or trucks with a registered gross weight of not more than 14,000 pounds.
- **Veterans of an Allied Foreign Country.** This registration plate will be available for passenger cars or trucks with a registered gross weight of not more than 14,000 pounds and the fee for the plate is \$20.
- **Purple Heart Medal Motorcycle Plate.** This is available for motorcycles only. It costs \$11.
- **Legion of Merit.** This registration plate costs \$20 and is available for passenger cars or trucks with a registered gross weight of not more than 14,000 pounds.
- **Historic Military Vehicle plate.** The Historic Military Vehicle registration plate is for vehicles that were manufactured for use in any country's military forces and are maintained to represent the vehicle's military design and markings accurately. This plate is available for both historic military vehicles and historic military motorcycles. The fee for either military vehicle or motorcycle plates is \$75.



Additional information, including eligibility requirements and images of a variety of registration plates, is available in the Registration Plates section of the Driver & Vehicle Services website, www.dmv.pa.gov.