



# moving FORWARD

WINTER 2025

A quarterly review of news and information about Pennsylvania local roads.

## Preventative Maintenance of Bridge Deck Drainage

by Michael H. Fleming, ISMF LLC

Failing to perform scheduled preventative maintenance can and has resulted in bridge failures. The most recent major bridge structural failure occurred on January 28, 2022, when the Fern Hollow Bridge in Pittsburgh, Allegheny County, collapsed. As a result, the 447-foot-long bridge fell about 100 feet into the park below. The collapse began when the transverse tie plate on the southwest bridge leg failed due to extensive corrosion and section loss. The corrosion and section loss resulted from clogged drains that caused water to run down bridge legs and accumulate along with debris



A west-looking view shows the collapsed Fern Hollow Bridge from January 2022. Photo: NTSB

at the bottom of the legs, which prevented the development of a protective rust layer or patina. Although repeated maintenance and repair recommendations were documented in many inspection reports, the owner failed to act on them, leading to the deterioration of the fracture-critical transverse tie plate and the structural failure of the bridge. At the time of the collapse, a 2013 New Flyer articulated transit bus, operated by the Port Authority of Allegheny County, and four passenger vehicles were on the bridge. A fifth passenger vehicle

drove off the east bridge abutment after the collapse began and came to rest on its roof on the ground below. As a result of the collapse, the bus driver sustained minor injuries, and two bus occupants were uninjured. Of the six passenger vehicle occupants, two sustained serious injuries, one sustained a minor injury, two were uninjured, and the injury status of one was unknown.

The National Transportation Safety Board (NTSB) investigation determined that the probable cause of the collapse of the Fern Hollow Bridge was the failure of the transverse tie plate on the southwest leg of the bridge, a fracture-critical member (nonredundant steel tension member), due to corrosion and section loss resulting from the owner's failure to act on repeated maintenance and repair recommendations from inspection reports. Contributing to the collapse were the poor quality of inspections, the incomplete identification of the bridge's fracture-critical members (non-redundant steel tension members), and the incorrect load rating calculations for the bridge. Also contributing to the collapse was insufficient oversight of the bridge inspection program.

### ALSO IN THIS ISSUE

- LTAP Success Story..... 2
- Pedestrian Safety..... 3
- New Driver Work Zone Safety..... 3
- Build A Better Mousetrap ..... 5
- COSTARS-41 Program ..... 6
- STIC..... 7
- Upcoming Training..... 8
- Roads Scholars..... 8

*Continued on page 4*

## LTAP SUCCESS STORY

# Economy Borough, Beaver County

In August 2024, LTAP met with Travis Cavanaugh, from Economy Borough in Beaver County, to evaluate the traffic movements at the intersection of SR 989 (Ridge Rd Ext) and Longvue Circle. The Longvue Circle approach to the intersection has a wide throat with a small island in the center. The borough was concerned that motorists were navigating the intersection incorrectly by traveling on both sides of the island while entering and exiting as shown in Figure 1.

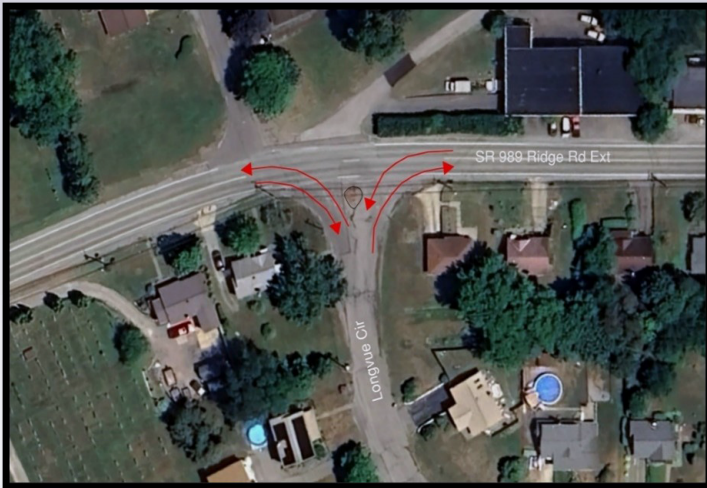


Figure 1: This is an aerial view of the intersection.



Figure 2: After installation of pavement markings and signage, improvements can be seen looking from Longvue Circle. Photo: PennDOT LTAP

During our field meeting it was observed that the Longvue Circle approach didn't have any pavement markings. Due to the wide pavement area and lack of pavement markings, drivers without local knowledge of the preferred traffic operations have difficulty knowing where to enter and exit the intersection.

Based on the field visit, LTAP recommendations for the intersection included adding additional signage and pavement markings. The borough installed a 24-inch stop bar across the entire right side of the island, four-inch white edge lines, and yellow transverse markings in the center around the island. They also installed a supplemental Stop sign on the left side of the approach and a Keep Right sign on the island as shown in Figures 2 and 3.

The borough has received positive feedback from residents of the neighborhood since the improvements were installed. 🗣️

Need help with conducting intersection studies in your municipality? Call 1-800-FOR-LTAP or email us at [LTAP@pa.gov](mailto:LTAP@pa.gov). For more information on pavement markings, check out our Pavement Markings: Applications and Maintenance Course.



Figure 3: After installation of pavement markings and signage, improvements can be seen looking from SR 989. Photo: PennDOT LTAP



## Lighting for Pedestrian Safety

The illumination of pedestrian facilities plays a major role in increasing safety for vulnerable road users such as pedestrians, mobility impaired individuals, and bicyclists, but it also is a means of increasing the performance of the road network for all users.

The Federal Highway Administration lists lighting as a proven safety countermeasure that can significantly reduce fatal and injury crashes for pedestrians at marked crossings. Adequate lighting for both horizontal and vertical illuminance levels is based on research and subsequent recommendations made by the Illumination Engineering Society (IES) as published in ANSI/IES RP-8-22, Recommended Practice for Design and Maintenance of Roadway and Parking Facility Lighting. Providing nighttime lighting for both horizontal and vertical illuminance levels as recommended by IES also provides additional benefits in terms of personal security for pedestrians, wheelchair users, and other mobility impaired users.

Current practices in lighting for pedestrians primarily focus on providing horizontal illuminance, which is the level of lighting from above to the ground surface. This provides sufficient lighting for pedestrians; however without assessing vertical illuminance a pedestrian crossing a road at night may be cast in shadow making it difficult for an approaching vehicle to detect the conflict. This is a common vertical illuminance issue.

With this understanding, colleges and universities have become some of the earliest adopters of the IES standards for horizontal and vertical illuminance (above the minimum acceptable standards), especially at locations on their campus grounds where



Lighting was used at the crosswalk to improve visibility for drivers to see pedestrians.  
Photo: PennDOT LTAP

pedestrian and vehicular conflicts are of concern, specifically at roadway crossings and within parking lots.

Penn State University recently incorporated the IES standards within its Design and Construction Standards, applicable to its University Park (Main) Campus and to all its Commonwealth Campuses. To date, Penn State has undertaken several studies to examine existing illumination levels to the IES recommendations at all pedestrian crossings, critical zones within all parking facilities, and along key pedestrian pathways. The studies helped determine areas of need and over light locations. Recently the university has begun planning, budgeting, and implementing plans for lighting upgrades at the University Park Campus – with improvements made along several major roads on the University

*Continued on page 8*



## New Driver Work Zone Safety Training

Share the news with high schools in your area!

Pennsylvania Department of Transportation (PennDOT) and the Pennsylvania Turnpike Commission (PTC) have joined forces to develop a [New Driver Work Zone Safety Program](#) to teach new drivers how to navigate in work zones with confidence and safety.

The free, 35-minute virtual training program equips participants with the knowledge they need to drive safely through work zones in Pennsylvania.

It covers safe driving practices in work zones, simulates real-life scenarios drivers might encounter, and explains work zone laws.

Work zones can be hazardous for both drivers and workers, but by understanding our state's work zone laws, we can prepare Pennsylvanians to safely navigate the road ahead.

### What will participants learn in this course?

The New Driver Work Zone Safety Program teaches drivers

about many important safety aspects of work zones, including:

- Safe driving behaviors;
- Work zone signage and devices;
- Work zone characteristics;
- Navigating lane closures and merging;
- PA work zone laws and regulations;
- What to do if you break down in a work zone;
- And more! 🚧

### Resource

- Website: <https://www.penndot.pa.gov/TravelInPA/Safety/TrafficSafetyAndDriverTopics/WorkZone/Pages/new-driver-work-zone-safety-program.aspx>

## Preventative Maintenance *continued from page 1*

The complete investigation by NTSB includes thousands of pages, encompassing 68 dockets of reports and can be found here: <https://www.nts.gov/investigations/Pages/HWY22MH003.aspx>.

Proper bridge deck drainage operation and maintenance of bridge drainage systems are important elements of bridge preventive maintenance. Deck drainage is required for proper maintenance of bridges since the lack of proper drainage affects many elements of the structure. Poor drainage is normally due to the accumulation of antiskid material and other debris within the drainage system preventing proper operation. Backed up water might then freeze and rupture the pipe. Should the drainage water contain corrosive chemicals, this leaked water will attack structural elements of the bridge. Bridge drainage systems consist of the following: scuppers – drop through and piped, gratings (open steel grid floors), open joints with troughs, and all associated piping.

### 1) Scuppers

Scuppers are provided in bridge decks to collect the water on the deck and direct the water through a short drop through pipe or into a closed drainage system of relatively small diameter. Each type of downspout pipe presents its own individual problems; these problems — long downspouts, horizontal runs with inadequate slope, sharp directional changes, and small-diameter discharge pipes — are all conducive to clogging. Short drops through pipes that drain directly under the bridge may cause corrosion of structural steel and concrete surfaces of piers and abutments and erode abutment earth slopes. All scuppers should be examined frequently for proper operation and cleaned when necessary. Antiskid or other debris should be removed by water pressure or metal probes. Particular attention should be applied when flushing antiskid from decks to prevent it from entering the drainage systems and compounding the problem. Protective coating may be applied to piers, structural steel, and any other elements exposed to the corrosive liquids from drop through scuppers to prevent or retard corrosion.



A simple older drop through scupper in a concrete barrier that has been cleaned and maintained.  
Photo: ISMF LLC



A simple drop through scupper seen here at the base of a concrete barrier that has been cleaned and maintained. Photo: ISMF LLC

### 2) Gratings

Open grid decks (open steel grid floors) provide particularly good drainage of the deck but do not protect the superstructure and substructure elements from the damaging corrosive elements that accumulate on the structural members below the deck. All debris should be removed from beams, girders, pier caps and bearings. Yearly inspection and cleaning are necessary to prevent this accumulation.

### 3) Open Joints and Troughs

Troughs under open joints are susceptible to debris accumulation with subsequent backup of drainage which contributes to the accelerated deterioration of concrete, corrosion of steel, and erosion of earth. These troughs should also be inspected for tears and clogging at frequent intervals and repaired or cleaned as required. 🛠️

Looking for more training or assistance with municipal bridges? Go to the LTAP website to learn more about classes and technical assistance or call 1-800-FOR-LTAP or email us at [LTAP@pa.gov](mailto:LTAP@pa.gov).

## Resources

Additional information on bridge deck maintenance can be located within PennDOT Publication 23, Maintenance Manual, Chapter 16: Bridge Maintenance. <https://www.dot.state.pa.us/public/PubsForms/Publications/PUB%2023/Pub%2023-Chapter%2016%20.pdf>

Additional information on several types of scupper details and installation types can be found within PennDOT Bridge Construction drawings BC-751M. [https://www.dot.state.pa.us/public/Bureaus/BOPD/Bridge/2008/BC/BC751M\\_all.pdf](https://www.dot.state.pa.us/public/Bureaus/BOPD/Bridge/2008/BC/BC751M_all.pdf)



# Show Off Your Road Crew's Innovative Gadgets and Ideas by Entering the 2025 Build a Better Mousetrap Innovation Challenge

Has one of your employees recently built an innovative gadget or come up with a better way to do a job? If so, now is the time to show it off by entering the 2025 Build a Better Mousetrap Innovation Challenge.

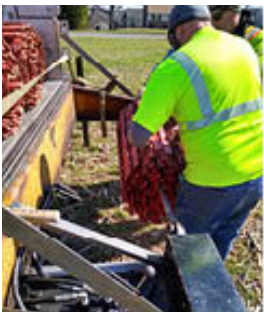
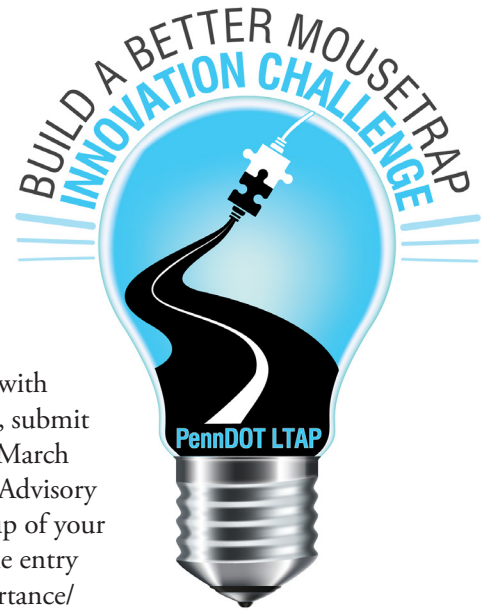
Municipalities must use limited budgets and resources to serve the needs of residents and innovation can be the mission-critical factor that helps bridge that gap. Local road practitioners continually implement incremental changes in their processes, tools, and services to reflect changes in technologies and best practices. In their roles as innovators, municipal staff leverage their considerable creativity, technical expertise, and diverse talent pool to suggest changes that are useful, valuable, and impactful to their local system. The Build a Better Mousetrap Innovation Challenge showcases the most clever and creative practices and tools from across the state. By sharing these innovations with one another, local road departments can adopt these new tools and practices, and deliver more efficient, cost-effective services to their communities.

LTAP is looking for innovations from municipal employees or road crews, such as the development of tools and equipment, modifications to processes that increase safety, reduce costs, or improve efficiency or quality of transportation. Technological innovations and unique use of new tools such as drones, apps, computers, smartphones, tablets, etc., are welcome.

If you have an innovation to share with other municipalities, submit your entry form by March 7, 2025. The LTAP Advisory Committee – a group of your peers – will judge the entry on recognized importance/impact, originality, applicability to others, cost effectiveness, time savings, agency or community benefit, and the overall quality of the application. The winners will be chosen in March and recognized at the annual conference of the winners' respective municipal association.

The top entries will be submitted to the national Build a Better Mousetrap recognition program. Winners of the national program will be announced at the annual LTAP national conference this summer.

To download entry forms for the 2025 Build a Better Mousetrap, go to [gis.penndot.gov/ltap](https://gis.penndot.gov/ltap) and click on "Build A Better Mousetrap Innovation Challenge log". Complete the entry form and return it by March 7 to PennDOT-LTAP, c/o PSATS, 4855 Woodland Drive, Enola, PA 17025 or email it to [katkinson@psats.org](mailto:katkinson@psats.org). For more information, call Karen Atkinson at (717) 763-0930, ext. 156. 🚧



## Past Winners

Are you looking for ideas from previous submissions?

The Past Build a Better Mousetrap Pennsylvania Winners book includes descriptions and photos of the past winners. [https://gis.penndot.gov/BPR\\_PDF\\_FILES/Documents/LTAP/BBMT\\_History\\_PA.pdf](https://gis.penndot.gov/BPR_PDF_FILES/Documents/LTAP/BBMT_History_PA.pdf)

# Addressing Roadway Drainage and Stormwater Issues with Pennsylvania's COSTARS-41 Program

Municipalities across Pennsylvania face the critical task of maintaining roads, bridges, and other infrastructure, and also managing the growing challenge of stormwater. Unchecked stormwater can cause severe damage to roads, leading to costly repairs and can create safety risks for travelers. The COSTARS-41 program provides a valuable tool for Pennsylvania municipalities to address stormwater management in their communities and can be a valuable program for keeping their transportation infrastructure in good condition.

## What is COSTARS-41?

COSTARS-41 is part of Pennsylvania's COSTARS cooperative purchasing program. COSTARS-41 is designed to help municipalities access stormwater management products and services at pre-negotiated prices. By streamlining the procurement process, municipalities can save time and money while addressing critical infrastructure issues, such as stormwater runoff, erosion, and roadway flooding.

This program allows local governments to buy from a list of vetted suppliers without going through the traditional bidding process, which can often be time-consuming and adds project costs. This makes it easier for municipalities to integrate stormwater solutions into transportation projects, enhancing the safety and longevity of their roads.

## Simplifying the Procurement Process

One of the key advantages of COSTARS-41 is its simplicity. Municipalities can quickly find pre-approved suppliers and products through the program's online portal, avoiding the need for lengthy bidding processes. The pre-negotiated contracts save both time and administrative costs, allowing public works departments to focus on project implementation rather than paperwork.

To assist municipalities in managing stormwater runoff from or impacting roadways, here's a partial list of products and services that can be purchased under the COSTARS-41 program, focusing on stormwater management related to transportation infrastructure:

- 1) Culvert Replacements: Replacing aging or damaged culverts to improve drainage under roadways and prevent flooding.
- 2) Flood Control Measures: Including barriers, levees, or overflow channels to prevent road flooding during heavy rain events.
- 3) Catchbasins and Filters:
  - Purchase, installation, and maintenance of catchbasins to collect stormwater runoff.
  - Sediment and debris filters to prevent clogging and reduce pollution.

- 4) Permeable Pavements: Installation of permeable surfaces to allow water infiltration and reduce runoff from roads and parking areas.
- 5) Stormwater Detention/Retention Systems:
  - Above-ground or below-ground systems to store and slowly release stormwater.
  - Can be used adjacent to roadways to prevent flooding.
- 6) Green Stormwater Infrastructure (GSI): Installation of GSI elements like bioswales, rain gardens, and tree trenches to capture and treat runoff near roads.
- 7) Stormwater Control Measures (SCMs):
  - Designing and installing SCMs to manage runoff volume and improve water quality.
  - Inspection and maintenance services to ensure ongoing functionality.
- 8) Inspection and Maintenance Contracts: For regular inspection, cleaning, and maintenance of stormwater systems (culverts, basins, SCMs, etc.).
- 9) Complete Street or Green Street Stormwater Elements:
  - Designing and constructing complete or green streets that incorporate stormwater management into the roadway.
  - This includes permeable pavers, vegetative strips, and other elements to capture stormwater.
- 10) Roadside Ditches and Swales: Constructing or maintaining roadside ditches to direct runoff away from roadways.
- 11) Stormwater Conveyance Systems: Installation or repair of underground stormwater pipes to safely transport runoff.
- 12) Stormwater Pump Stations: For areas prone to high water levels, pump stations can be installed to manage stormwater and prevent roadway flooding.
- 13) Erosion Control Products:
  - Products like erosion blankets, silt fences, or riprap to prevent soil erosion along roads.
  - These products manage water flow and protect infrastructure.
- 14) Street Sweeping Equipment: Regular street sweeping to remove debris and pollutants that can enter storm drains, protecting stormwater systems.

These items reflect the broad scope of stormwater management needs a municipality may encounter in relation to its transportation infrastructure, offering practical solutions for flood prevention, runoff management, and system upkeep. Program users should refer to the program specifications and review the particular offerings of the COSTARS-41 vendors to see how COSTARS-41 could possibly be used in their community.

Roadway Drainage continued from page 6

### Conclusion: A Smart Solution for Municipalities

COSTARS-41 is a valuable tool that helps Pennsylvania municipalities address critical stormwater management and infrastructure challenges. By simplifying the procurement process and providing access to a range of high-quality products and services, this program helps communities keep their roads safe, resilient, and compliant with environmental regulations.

For municipalities looking to enhance their transportation networks and protect their roads from stormwater damage, COSTARS-41 offers a smart, cost-effective solution. Through this program, local governments can take proactive steps to ensure safer, longer-lasting infrastructure for their residents and travelers alike.

### How to Access and Utilize COSTARS-41

To take advantage of the COSTARS-41 contract, municipalities follow these steps:

**Become a COSTARS Member:** Register for free through the Pennsylvania Department of General Services (DGS) on the COSTARS website. <https://www.dgs.pa.gov/COSTARS/pages/default.aspx>

**Explore the Contract:** Access the COSTARS Contract Search portal, select “41-Stormwater Management Products and

### Leveraging COSTARS-41 for Safer, More Sustainable Transportation

By using COSTARS-41, municipalities can improve the safety, durability, and sustainability of their transportation infrastructure. With its streamlined procurement process and access to high-quality vendors, COSTARS-41 helps municipalities maintain their transportation networks, protect the environment, and keep travelers safe. This program is a critical resource for municipalities that want to implement long-term solutions for both transportation and stormwater management.

Services,” and browse available suppliers and services.

**Select a Supplier:** Choose a pre-approved supplier from the list, eliminating the need for issuing RFPs, saving time and administrative costs.

**Place an Order:** Contact the supplier directly to procure the necessary stormwater management services or materials with pre-negotiated terms.

**Monitor the Contract:** Track supplier performance and receive ongoing support to ensure compliance and resolve procurement issues. 🚩

## Federal Highway Administration

FHWA Pennsylvania Division



A State-based model that identifies and deploys proven, yet underutilized innovations — saving time, money and resources that can be used to deliver more projects.

<https://www.fhwa.dot.gov/innovation/everydaycounts/>

Sign up today to receive information on EDC at [U.S. DOT Federal Highway Administration \(govdelivery.com\)](https://www.fhwa.dot.gov/innovation/everydaycounts/).

### EDC-7 Innovations (2023-2024)

Watch the EDC-07 Overview Video (3:26) at

<https://www.youtube.com/watch?v=Eo2ELZb6BQI>.



**Find Proven Innovations**  
Explore innovations >>



**Learn from Others**  
Explore success stories >>

[https://www.fhwa.dot.gov/innovation/everydaycounts/edc\\_innovation.cfm](https://www.fhwa.dot.gov/innovation/everydaycounts/edc_innovation.cfm)

<https://www.fhwa.dot.gov/innovation/resources/success.cfm>



*State-Based Innovation Deployment — The STIC Network is about establishing a group of representatives from various levels of the highway community in each State to comprehensively and strategically consider all sources of innovation. **Learn more about STIC >>***

<https://www.fhwa.dot.gov/innovation/stic/>.

### STIC Incentive Program

Offers technical assistance and funds—up to \$125,000 per year—to support the costs of standardizing innovative practices in a State transportation agency or other public sector STIC stakeholder.

[Click here for a list of STIC Incentive Projects Awarded >>](https://www.fhwa.dot.gov/innovation/stic/incentive_projects/)

[https://www.fhwa.dot.gov/innovation/stic/incentive\\_projects/](https://www.fhwa.dot.gov/innovation/stic/incentive_projects/).

### Contact Information

Yathi Yatheepan, P.E.  
Pavement & Materials Engineer/Research and Innovation Coordinator  
FHWA, Pennsylvania Division  
[yathi.yatheepan@dot.gov](mailto:yathi.yatheepan@dot.gov)  
717-221-4512



# Upcoming LTAP Training

Classes are being held in person and virtually. Check the website, [gis.penndot.pa.gov/LTAP](https://gis.penndot.pa.gov/LTAP), for the latest listing. If you would like to receive email alerts about upcoming training, send a request to [ltap@pa.gov](mailto:ltap@pa.gov). Here is a sampling of upcoming scheduled classes. **All classes are free!**

## AMERICANS WITH DISABILITIES ACT (ADA)

March 19, 2025 – Cambria County

## MUNICIPAL STORMWATER FACILITIES PROGRAM

March 12, 2025 – Monroe County

## ROADSIDE VEGETATION CONTROL

March 27, 2025 – Bradford County

Check the website for new classes or reach out to your Planning Partner or LTAP to schedule a class at your facility.

### Archived Training: Catch up online!

Recorded sessions and handouts from previously held drop-ins and webinars are available on the LTAP website, [gis.penndot.pa.gov/LTAP](https://gis.penndot.pa.gov/LTAP). On the home page, click the "Resources and Technical Information" tile or go to: [https://gis.penndot.pa.gov/ltap/Public/LTAP\\_Resources.aspx](https://gis.penndot.pa.gov/ltap/Public/LTAP_Resources.aspx). Sessions cover a variety of topics from asset management to truck restrictions. Check out the full list online and take advantage of this free training from the comfort of your home or office.

### Course Handouts Are Now Online

Did you misplace a workbook or handout from a course? Do you wish you had the handouts in an electronic format? All the handouts from LTAP courses are now online and available for download. Go to [gis.penndot.pa.gov/LTAP](https://gis.penndot.pa.gov/LTAP) and under the Training Descriptions tab, click on the course and then scroll to the bottom of the course information to see a list of course handouts.

If the handout for a class is three or six slides to a page, there is a full PowerPoint workbook you can download on the website. These have PowerPoint slides with the workbook content below the slide. They are designed to make it easy to follow the virtual classes and provide all the notes for the in-person classes.

### Congratulations to the following Roads Scholars!

The following scholars were certified between July 31 and September 30, 2024.

#### Roads Scholar I:

- Israel Santiago – Ontelaunee Township, Berks County
- Craig Anderson – Ferguson Township, Centre County
- Paul C. Walk – Ferguson Township, Centre County
- Wayne Warefield – Ferguson Township, Centre County
- David J. Wollerton – West Hanover Township, Dauphin County

#### Roads Scholar II:

- Greg Watts – Derry Township, Dauphin County

#### Roads Scholar Administrative:

- David Mantz – Perkasio Borough, Bucks County

- Chuck L. Beck – Halfmoon Township, Centre County
- Eric M. Kimmel – Lower Paxton Township, Dauphin County
- David Milsteen – Swatara Township, Dauphin County
- James A. Whitall – Millersburg Borough, Dauphin County
- Reem Q. Abduljabbar – City of Philadelphia, Philadelphia County
- Brian Snyder – Shohola Township, Pike County

#### Roads Scholar Police:

- David Mantz – Perkasio Borough, Bucks County
- David Milsteen – Swatara Township, Dauphin County

**Roads Scholars, Share the News!** LTAP has a press release you can modify and use to announce your accomplishment to your local media. To obtain a copy of the release, go to [gis.penndot.pa.gov/LTAP](https://gis.penndot.pa.gov/LTAP) and look for the release under "Roads Scholar Program."

### Lighting *continued from page 3*

Park Campus within the past year. With today's advancements in LED lighting, Penn State has been able to not only improve pedestrian safety and security but realize savings in electrical consumption and efficiency by specifically designing lighting utilizing current advancements in LED fixtures, with the upgrades designed to specifically meet IES horizontal and vertical illuminance standards. 🌟

Wondering if lighting may be a low-cost safety countermeasure for a specific intersection or pedestrian crossing? LTAP can provide assistance in learning how lighting may improve safety in an area. Call 1-800-FOR-LTAP or email at [LTAP@pa.gov](mailto:LTAP@pa.gov) for assistance.

#### LTAP Contact Information:

400 North Street, 6th Floor, Harrisburg, PA 17120  
1-800-FOR-LTAP (367-5827) Fax: (717) 783-9152  
Email: [ltap@pa.gov](mailto:ltap@pa.gov) Web: [gis.penndot.pa.gov/LTAP](https://gis.penndot.pa.gov/LTAP)

All LTAP services are free to municipalities.