pennsylvania
DEPARTMENT OF TRANSPORTATION

PennDOT Local Technical Assistance Program

moving FORWARD

WINTER 2013

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

A Sinking Concern:

The Importance of Understanding Sinkholes in Your Area

by John Henning, P.E., Director, Geotechnical Services, Dawood Engineering

Almost weekly, across Pennsylvania, a story about a new sinkhole seems to make the news. The scary truth about sinkholes is that they are not discriminatory; they can occur in urban or rural areas throughout Pennsylvania.

This large sinkhole opened up at a construction site.

The first step to deter the risk of sinkholes in your community is to be proactive. Educate yourself on the origins of sinkholes and why they occur, understand the geology and sinkhole history in your municipality, and take steps to minimize the occurrence of sinkholes.

What are sinkholes, and why do they occur?

A sinkhole is the localized sinking of the land surface to a variable depth. Sinkholes occur in areas of carbonate rock, such as limestone or dolomite, and they are generally characterized by a circular outline with a distinct breaking of the ground surface and downward movement of soil into the network of subterranean channels and voids of the bedrock.

The principle cause of sinkhole formation is the solution or dissolving of the limestone bedrock or other soluble bedrock by the infiltration and groundwater recharge of slightly acidic rainfall. Over geologic time periods, the infiltrating groundwater forms a network of voids and channels within the carbonate bedrock. Within this network of conduits, the groundwater is capable of flowing and also transporting soil materials. Loss of the soil may eventually manifest into a collapse feature known as a sinkhole.

What are the signs of a possible sinkhole in my community?

Knowing the local geology of your area is important to understanding potential sinkhole development. An experienced eye can detect depressions on the land surface that may be precursors to eventual collapse features. Sudden cracks in building foundation walls and floor slabs should signal immediate concern. Other indicators, such as disappearing streams and ponds and sudden loss of water in swimming pools, will warrant investigation into possible sinkhole development.

Identifying a potential sinkhole during the early stages of development can result in significant cost savings to property owners and the municipality. If you feel that your area is prone to possible sinkholes, it is important to seek a professional to provide support. Look for licensed professional

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ALSO IN THIS ISSUE

Bridge Condition Ratings

Corrosion of Bridges, Part 2

In the Fall 2013 issue of* Moving Forward*, corrosion of reinforcement in concrete bridges was explored. In this issue, we take a look at the deterioration of metal and timber on bridges.

by Patrick Trasborg, Graduate Student, Lehigh University,
and Clay Naito, Associate Professor, Lehigh University

With more than 32,000 bridges in the state of Pennsylvania, chances are you traverse several bridges every day. What you might not realize is that about 20 percent of these bridges are considered to be "structurally deficient," meaning that one or more of the bridge's components has undergone some amount of deterioration.

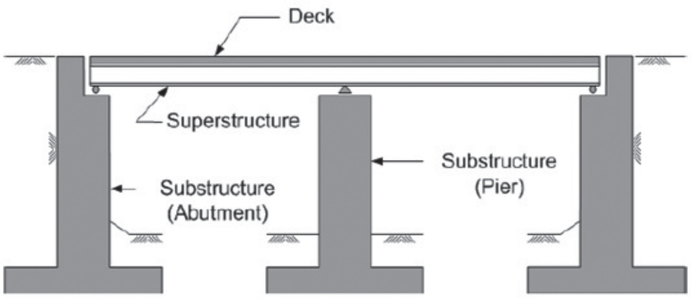
A structurally deficient bridge is not necessarily unsafe. Most bridges in this category are still able to either carry their full design load or have postings that limit the allowable vehicular traffic to maintain safety. However, if a structurally deficient bridge is neglected year after year, it may become unsafe for travel.

Fortunately, the Federal Highway Administration (FHWA) developed regulations in 1968 to help ensure the safety of travelers. The National Bridge Inspection Standards (NBIS) established requirements for inspection procedures, frequency of inspections, qualifications of personnel, inspection reports, and maintenance of bridge inventory. In 1988, the Surface Transportation Assistance Act was enacted to require all bridges over 20 feet in length to be inspected at least once every two years, while bridges with lower "condition ratings" were to be inspected more frequently.

How is the "condition rating" of a bridge determined?

The FHWA provides three condition rating numbers to a bridge ranging from zero, which is given to a failed component, to nine, which is given to a bridge with minor or no signs of deterioration. One number is given to the bridge deck, one to the structure supporting the bridge deck (superstructure), and one to the part of the bridge that supports the superstructure and is directly in contact with the earth (substructure).

These components come in a variety of shapes, sizes, and material. Some of the most common materials used in bridge building today, due to their excellent mechanical and economical properties, are concrete (both prestressed and reinforced), metal (namely steel although older bridges may be iron), and timber. Although each material type has benefits, each also has specific ailments that bridge inspectors keep an eye out for during the biennial inspection.



The three components of a bridge: the deck, the superstructure, and the substructure.

If a structurally deficient bridge is neglected year after year, it may become unsafe for travel.

How does steel deteriorate?

Before the advent of steel, old metal bridges (pre-1900) were often built out of wrought or cast iron, which has limited strength and elasticity compared to steel. Today, metal bridges are typically constructed of steel due to its strength, ductility, and reliability, with shapes ranging from wire/cable to rolled shapes and built-up sections (combination of various steel plates). Although steel is an excellent construction material, it is subject to a number of deterioration issues that need to be monitored over the life cycle of the bridge.

Unprotected steel will rust (corrode), especially in areas with high humidity and salt content, such as marine environments or regions where deicing salts are used. The corrosion process is an electrochemical reaction, meaning the material properties of the steel change due to an exchange of electrons between the steel and surrounding environment. Depending on the extent of corrosion (penetration depth into the steel member), the effective cross-sectional area of the steel can be reduced, thereby also reducing the stiffness and strength compared to the original, unrusted member. In extreme cases of neglect, rust can penetrate entirely through a member to create holes. Additionally, rust can "freeze" parts of the bridge by preventing expansion and contraction with environmental temperature changes, and this can result in a substantial increase in member stresses.

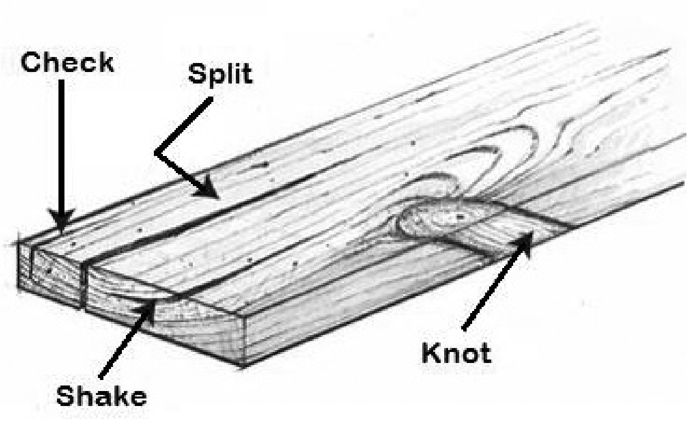
Methods to mitigate the effects of corrosion include applying a protective coating, such as paint, metalizing, or galvanizing. Weathering steels, which are specially designed to rust only on the surface, thus preventing corrosion from penetrating deeply into the member, are often used. Adequate drainage of water from the bridge deck and superstructure can also mitigate the effects of corrosion.

Although the steel used in bridge construction today is often able to be welded, precautions must be taken to ensure that defects are not introduced during the welding process. Similar to bolting or riveting, welding is a common method used to connect steel members together. Steel members are heated up to their melting point, often with a filler metal, and are cooled back to solid state, forming a strong connection between each member.

As one can imagine, this destructive process can create a variety of imperfections in the steel, including porosity, cracking, embrittlement, and residual stresses. In many cases, an imperfect weld will not result in an immediate problem with the steel bridge component. However, over time, imperfections can propagate and grow, possibly leading to a reduction in the load-carrying capacity of the steel member. Employing proper field-welding techniques can significantly reduce the chance of welding imperfections.

Finally, steel is infamous for fatigue problems. Each time a car or truck passes over a bridge, the steel members are loaded and unloaded. Similar to what happens when a paperclip is repeatedly bent, this repeated live-load cycle can eventually lead to cracking or fracture of a steel member.

Fatigue life is correlated to an "S-N" curve, which depicts the number of cycles (N) the material can resist at a given stress level (S). The resistance to fatigue failures is dependent on several factors, including traffic frequency, load magnitude, ambient temperature, and quality of the material. Fatigue problems are most likely to occur at connections between steel members, especially if initial imperfections exist, such as poorly manufactured or designed welds. Careful design and detailing can mitigate the effects of fatigue and fracture of steel members.



The natural defects in timber often serve as starting points for decay.

What about timber?

Timber bridge construction is not as prevalent today as in the past; however, timber construction is still used due to the high strength-to-weight ratio, economics, pleasing aesthetics, and availability. Just as with steel construction, timber is subject to a variety of deterioration modes.

Unlike steel, wood serves as a food source for fungus, insects, and some animals. Plant life growing on the timber can decompose the surface, gradually decreasing the cross-sectional area of the member. Similarly, insects such as termites and ants often bore holes and hollow out the inside of a wooden member for food or shelter, thereby drastically decreasing the cross-sectional area and load-carrying capacity of the timber. Treating the wood with chemicals and repellants can help to mitigate the effects of fungus, insects, and animals.

Wood is also prone to distinct environmental demands. Sunlight, water, and heat can all affect the moisture content of the wood, resulting in a change in strength and dimensions. A wood member that undergoes significant shrinkage can actually fail or loosen the connection of the member, radically altering the load-carrying capacity.

Additionally, wood suffers from the "creep" phenomenon. Creep is a continual increase of member strains under a constant, sustained load. An increase in member strains generally leads to an increase in stress. Protective coatings can limit large fluctuations in member moisture content, while decreasing the magnitude of a sustained load can eliminate creep.

Finally, wood as a material has a unique characteristic. Unlike steel, which is fabricated in a manufacturing facility, wood is derived from nature. As a result, no two pieces of wood are identical, and each has inherent defects from growth that can significantly affect deterioration mechanisms. Some common timber defects include "checks" (separation of wood fiber perpendicular to the grain), "splits" (a check completely through a wood member), "shakes" (separation of wood fiber parallel to the grain), and "knots" (separation of fibers due to the trunk growth around a defect). These defects often serve as starting points for decay.

What is the effect of component deterioration?

The severity of the various deterioration modes in metal and timber bridges dictates the component condition rating of the bridge deck, superstructure, and substructure. Following biennial inspections, inspectors provide structural engineers with detailed reports indicating the extent of component deterioration.

Structural engineers use this information to calculate the current load-carrying capacity of the bridge and compare it to the original load-carrying capacity. If the engineer finds the bridge to be structurally deficient (condition rating of four or less), the weight limit posting of the bridge may be lowered to maintain public safety. If any of these deterioration mechanisms are seen, notifying PennDOT can expedite remediation and assist in keeping bridges safe for the traveling public.

A Sinking Concern

continued from page 1

engineers and geologists with experience handling complex soil, bedrock, and groundwater issues. Trained professionals can employ a variety of geophysical methods to provide a detailed evaluation of an area and pinpoint features of concern.

The safety of your residents is your top priority. By understanding the origins of sinkholes and the possible risks in your area, you are taking a proactive approach to protecting your community from these dangerous features.


This small sinkhole appeared in a stormwater detention basin.

Changes at Passive Railroad Grade Crossings: Who is Responsible?

by Mark Hood, P.E., Pennoni Associates

Recent modifications made to the Manual of Uniform Traffic Control Devices (MUTCD) include a new requirement for installing YIELD or STOP signs on the Crossbuck assembly and placing retroreflective strips on the back of the signs and the front and back of the sign supports at passive railroad grade crossings. Who is responsible for installing and maintaining these devices?

In general, the railroad companies are, but municipalities do have a role to play in ensuring that the correct traffic-control devices are installed at locations where the only warning devices are signs and pavement markings.

What are the standards?

The modifications made to the MUTCD include two standards on traffic-control devices at passive highway-rail grade crossings:

1) YIELD or STOP signs must be installed at all passive railroad grade crossings, except when road users are directed by an authorized person (Section 8B.04). A YIELD sign is the default device unless an engineering study determines that a STOP sign is appropriate. The YIELD or STOP sign may be installed on the same Crossbuck assembly or installed on a separate post (*see graphics below*).
2) Retroreflective strips must be installed on the back of Crossbuck signs and on the front and back of supports for Crossbuck signs at passive railroad grade crossings (Sections 8B.03 and 8B.04).

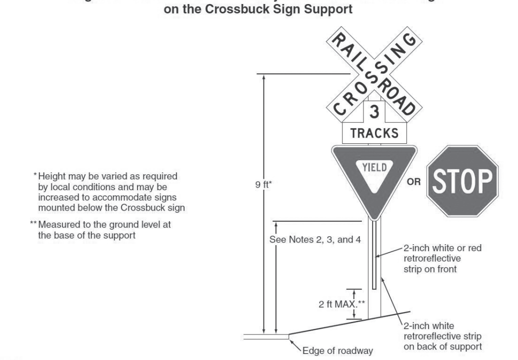
The MUTCD defines a passive grade crossing as "a grade crossing where none of the automatic traffic-control devices associated with an Active Grade Crossing Warning System are present and at which the traffic-control devices consist entirely of signs and/or markings." An Active Grade Crossing Warning System includes "the flashing-light signals, with or without warning gates, together with the necessary control equipment used to inform road users of approaching, or present, rail traffic at grade crossings."

The compliance date for the requirements for traffic-control devices was recently extended to Dec. 31, 2019, to allow railroad companies and highway agencies to avoid unnecessary expense and achieve greater economies by sending sign crews to crossings only once rather than twice to take care of both items.

Whose responsibility?

Given these MUTCD requirements, who is responsible for installing the YIELD or STOP signs and retroreflective strips? Section

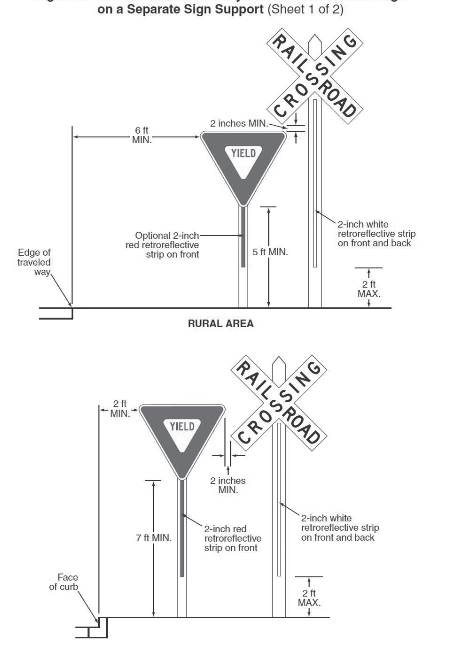
Figure 8B-2. Crossbuck Assembly with a YIELD or STOP Sign on the Crossbuck Sign Support



Notes:
1. YIELD or STOP signs are used only at passive crossings. A STOP sign is used only if an engineering study determines that it is appropriate for that particular approach.
2. Mounting height shall be at least 4 feet for installations of YIELD or STOP signs on existing Crossbuck sign supports.
3. Mounting height shall be at least 7 feet for new installations in areas with pedestrian movements or parking.

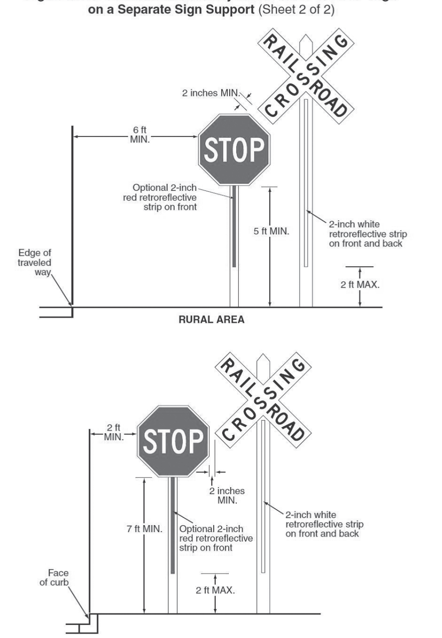
The MUTCD provides information on the standards for installing a YIELD or STOP sign and placing retroreflective strips on the front and back of Crossbuck signs and supports used at passive railway grade crossings.

Figure 8B-3. Crossbuck Assembly with a YIELD or STOP Sign on a Separate Sign Support (Sheet 1 of 2)



Notes:
1. YIELD signs are used only at passive crossings.
2. Place the face of the signs in the same plane and place the YIELD sign closest to the traveled way. Provide a 2-inch minimum separation between the edge of the Crossbuck sign and the edge of the YIELD sign.

Figure 8B-3. Crossbuck Assembly with a YIELD or STOP Sign on a Separate Sign Support (Sheet 2 of 2)



Notes:
1. STOP signs are used only at passive crossings and only if an engineering study determines that it is appropriate for that particular approach.
2. Place the face of the signs in the same plane and place the STOP sign closest to the traveled way. Provide a 2-inch minimum separation between the edge of the Crossbuck sign and the edge of the STOP sign.

Municipalities should send a letter to the railroad reminding it of the MUTCD requirements and requesting notification when changes to the traffic-control devices used at passive rail grade crossings have been made.

A YIELD or STOP sign must be installed at passive highway-rail grade crossings. In general, the rail company is responsible for installation and maintenance of these signs.

212.5 of Title 67 (PennDOT Pub 212) outlines Pennsylvania's regulations regarding responsibilities for traffic-control device installation and maintenance responsibilities. According to Section 212.5(b)(1)(iv)(I), the Railroad Crossbuck Sign (R15-1), Track Sign (R15-2), Emergency Notification Sign (I-13a), and other signs, gates, or lights that are within the railroad company's right-of-way are to be installed by the railroad company.

In general, the railroad company is responsible for installing YEILD or STOP signs at all passive railroad grade crossings and retroreflective strips on the front and back of supports for Crossbuck signs at passive railroad grade crossings since these devices are generally in the railroad company's right-of-way. The decision whether the YEILD or STOP signs are mounted on the Crossbuck assembly or installed on a separate post is also up to the railroad.

However, the municipality in which the crossing is located may still have a role in ensuring that the correct traffic-control devices are installed. According to Section 8B.04, paragraphs 5 and 6, of the MUTCD:

> *A YIELD sign shall be the default traffic-control device for Crossbuck assemblies on all highway approaches to passive grade crossings unless an engineering study performed by the regulatory agency or highway authority having jurisdiction over the roadway approach determines that a STOP sign is appropriate. The use of STOP signs at passive grade crossings should be limited to unusual conditions where requiring all highway vehicles to make a full stop is deemed essential by an engineering study. Among the factors that should be considered in the engineering study are the line of sight to approaching rail traffic (giving due consideration to seasonal crops or vegetation beyond both the highway and railroad or LRT rights-of-ways), the number of tracks, the speeds of trains or LRT equipment and highway vehicles, and the crash history at the grade crossing.*

If a municipality determines that a STOP sign is warranted at a passive grade crossing and wishes to have one installed, it must first file an application with the Public Utility Commission (PUC) to seek approval to do so. The PUC has jurisdiction at all public highway-rail grade crossings, and any questions regarding this process should be directed to the PUC's Rail Safety Engineering Section.

It is recommended that municipalities send a letter to the railroad reminding it of the MUTCD requirements and requesting notification when changes have been made. Municipalities should also inspect the installations to ensure the requirements in Part 8 of the MUTCD have been satisfied, including proper installation heights. If a municipality believes that the traffic control should be a STOP instead of a YIELD sign, it should work with the railroad company to conduct an engineering and traffic study to justify the STOP control.

Responsibilities of the Municipality

When it comes to the installation of appropriate traffic-control systems at a passive highway-rail grade crossing, municipalities should take the following recommended actions:

- Send a letter to the railroad company reminding it of the MUTCD requirements and requesting notification when changes to the traffic-control systems have been made.
- Inspect installations of the traffic-control systems to ensure the requirements in Part 8 of the MUTCD have been satisfied, including proper installation heights of signs.
- Work with the railroad company to conduct an engineering and traffic study if a municipality feels that the traffic control should be a STOP instead of a YIELD sign.
- File an application with the Public Utility Commission (PUC) if a municipality determines that a STOP sign is warranted at a passive grade crossing and wishes to have one installed.

Meet the Expert

Michael H. Fleming, LTAP instructor

Third in a series of profiles on LTAP instructors

Michael H. Fleming takes a break from a busy fall LTAP training schedule to spend a day surf fishing at Assateague Island in Maryland. Although he is miles from paved roads and bridges, Mike is able to keep in touch with civilization and the LTAP Roads Scholars.

Tell us about yourself.

I have more than 30 years of progressive civil engineering and local government maintenance experience. I started working for a land surveying and civil engineering firm in York during high school, and after completing my associate's degree in civil engineering technology, I went to work for the city of York's Engineering Office. For three years, I worked for the city by day and attended York College in the evenings. After graduating from college, I worked the next 23½ years as the public works director for two different townships of the second class in York County. Although college can make a person "book smart," it was my involvement with the LTAP program that helped me to understand the PennDOT system of publications, bulletins, road construction standards, and specifications. In addition to my education and work experience, I have been active in the York County branch of the American Public Works Association (APWA) and within the Central PA APWA Chapter.

I live in York County (home of the original York peppermint patty) and since last spring have been providing LTAP services across the entire state. I have instructed or provided technical assistance from Pittsburgh to Philadelphia and from the most northeastern county in the state to the Mason-Dixon Line.

What has been your history with LTAP?

My history with LTAP dates back to the mid-1980s when Ed Stellfox was the only instructor in the original Pennsylvania Local Roads Program, called RTAP. I worked for the city of York at the time, and Al Gesford, the public works director, scheduled a Roads Scholar course for the public works staff of York and Lancaster. I thought Ed Stellfox had the best job in the world since he was able to travel around the state of Pennsylvania and instruct public works employees about current hot topics concerning maintenance and safety training. At that point, I became hooked on the free training offered to local government and have been actively involved with the LTAP program since then. I completed the Roads Scholar I program in 1992 and the Roads Scholar II program in 1995. I also served on the LTAP Advisory Board at various positions between 1996 and January 2013.

What is your role now with LTAP?

Since April, I have been instructing LTAP courses and specializing in road and bridge infrastructure management classes, including Warm-Mix Asphalt, Full-Depth Recycling, Liquid Bituminous Seal Coats, Principals of Paving, Project Estimating, Geosynthetics, Managing Utility Cuts, Road Surface Management, Asphalt Roads Common Maintenance Problems, Bridge Maintenance and Inspection, and Winter Maintenance. I have instructed approximately 450 participants at 26 road shows. I also teach flagger training for PSATS and have instructed approximately 230 participants across the state in the last six months. This past summer, I spent a fair amount of time visiting projects around the state involving GRS bridges, microsurfacing, liquid bituminous seal coats, and cold in-place road recycling. I have taken thousands of photographs and videos of various construction projects to use within our LTAP presentations.

What is your favorite part about being an LTAP instructor?

Being able to provide free assistance to others. It's very rewarding to travel around the state and see the interest of road show participants when I tell them about new approved technology and construction methods that can save them money and last longer than previous construction techniques. Many participants have come up to me after the class and expressed their appreciation for help with their maintenance projects through the LTAP program. I also enjoy seeing the participants' reactions when we show them videos of different processes, such as cold in-place recycling and seal coats with fiberglass, and explain why warm mix asphalt is the paving material of the future.

Explain your work in providing technical assistance to municipalities.

I have been involved with 10 maintenance and construction tech assists over the last six months. About 30 percent of those assists were helping elected and appointed officials and roadmasters over the telephone to locate answers to their drainage issues and utility cut programs. The remainder of the assists was conducted in the field to address drainage issues, bridge deck repairs, and road widening and reclamation projects.

What I like the most about the tech assists is using my past maintenance experiences to provide free assistance to municipal employees and/or elected officials. Most of my past experiences in the road maintenance field have been favorable, and I can offer those ideas for maintaining roads and bridges to others while at the same time relaying a few of the failures that have occurred.

What are you surprised to learn when interacting with municipal personnel or officials?

I recently had an elected official with 18 years of experience ask how much it would cost to provide LTAP training for his employees. He was unaware that LTAP services are offered *free* to municipal governments.

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Upcoming 2014 Classes

To Register:
PHONE: 1-800-FOR-LTAP (367-5827)
WEBSITE: www.ltap.state.pa.us
This represents some of our scheduled courses. Look for updates on the website.

Liquid Bituminous Seal Coat
Feb. 11, Lehigh County
April 1, Chester County
April 3, Venango County
April 4, Mercer County

Warm Mix Asphalt
March 5, York County
March 11, Chester County

Roadside Vegetation Control
Feb. 11, York County

Traffic Signs
March 25, Schuylkill County
May 13, Bucks County

Posting & Bonding of Local Roads
April 22, Clearfield County

Full-Depth Reclamation
April 22, Chester County

Roadside Safety Features
April 22, Monroe County

Work Zone (Temporary) Traffic Control
Aug. 19, Bucks County

Drainage: the Key to Roads that Last
April 8, Bucks County

Americans with Disabilities Act
Oct. 21, Bucks County

Unpaved & Gravel Roads: Common Maintenance Practices
April 1, Clearfield County

Asphalt Roads: Common Maintenance Practices
June 10, Bucks County

Risk Management Strategies
Sept. 23, Bucks County

New DEP Online Tool Speeds Permit Preapplication Process

by John Poister, Communications Specialist, DEP Southwest Regional Office

Municipalities doing bridge replacement and other road construction activities that may require a permit from the state Department of Environmental Protection (DEP) will be interested to hear that DEP has developed an online tool to make applying for permits more efficient.

DEP developed the Permit Application Consultation Tool (PACT) to help applicants who are considering siting a new project in Pennsylvania or expanding or relocating an existing operation to quickly and easily determine which types of environmental permits, authorizations, or notifications may be required for their specific projects. Because of the complexity of potential projects and the diverse nature of state and federal environmental regulations, no tool can substitute for a detailed analysis of individual project plans. However, municipalities will find the tool serves as a useful foundation for a preapplication conference with DEP to discuss and verify tool results and permit coordination.

Municipalities that use PACT will see significant savings of both time and resources, especially when multiple permits or authorizations are needed.

This online tool will aid in implementing DEP's Permit Review Process and Permit Decision Guarantee, finalized in November 2012. This policy established a standardized review process and processing times for all DEP permits and guaranteed timeframes for a subset of permits. Staff is now required to follow this department-wide standard permit review process for receiving, prioritizing, accepting, reviewing, denying, and approving applications for permits or other authorizations.

"PACT is another example of DEP's commitment to improving efficiency without sacrificing the quality or transparency of our reviews," says Acting DEP Secretary Chris Abruzzo. "Since the original Permit Decision Guarantee was implemented last year, DEP has resolved 66 percent of all backlogged applications. This allows us to move much more efficiently on new permit applications, ensuring that they meet their target timeframes."

Here are some tips for making the most of your use of PACT:

- Before starting the tool, determine the proposed location of the project and be familiar with the general plans for both construction and operation.
- Once you are on the PACT site, respond to the questionnaire regarding your project. Based on your responses, the tool will generate a report that provides further information on necessary permits, authorizations, or notifications.
- Consult the references, also provided in the PACT-generated report, for more information about the applicability of identified requirements, links to application forms, and relevant instructions.
- Schedule a preapplication conference with DEP after you have reviewed the report. To assist in this process, the tool will automatically forward the report to the appropriate assistant regional director or District Mining Office at your DEP regional office.

For more information about PACT, visit www.dep.state.pa.us, select "Permits, Licensing and Certifications," and then click on the PACT link. By clicking on the "Start PACT" button at the bottom of the page, you will be able to access the Preapplication Information Tool and the questionnaire.

Have You Built a Better Mousetrap?

Show it off by entering PennDOT LTAP's competition seeking innovative gadgets, improved transportation

Deadline: Friday, March 7

Nazareth Borough in Northampton County won the 2013 competition with its design of a storage unit to make and store brine that the public works department can apply to the borough's streets.

Has one of your township employees recently built an innovative gadget or developed an improved way to do a job? If so, now is the time to show off a project your township is proud of in the Build a Better Mousetrap Competition.

PennDOT is looking for projects that municipal employees or road crews designed and built. It can be anything from the design of tools and equipment modifications to the development of processes that increase safety, reduce cost, improve efficiency, and improve the quality of transportation.

If you have something you think would qualify for this competition, submit your entries by **Friday, March 7**. A state winner will be chosen and announced in March. Entries will be judged by a committee of municipal road employees on cost, savings/benefits to the community, ingenuity, transferability to others, and effectiveness.

The winning entry will be submitted into a national competition to compete for prizes and, of course, bragging rights. Winners of the national competition will be announced at the annual LTAP/TTAP national conference next summer. All entries at the national level will be posted on the LTAP/TTAP program website and compiled into an electronic booklet.

More details will be available in December. The entry form can be accessed online at the LTAP website. To enter the competition, complete the entry form and return it by Friday, March 7, to PennDOT/LTAP, c/o PSATS, 4855 Woodland Drive, Enola PA 17025, or by email to katkinson@psats.org.

Meet the Expert

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What have you learned recently while at a training or tech assist?

During a recent tech assist in Wayne County, I learned that old railroad tank cars are 6 feet 2 inches in diameter and make excellent drainage culverts! Work performed by a utility construction company recently damaged a culvert (rail tank car), and when I visited with the elected officials I explained to them that pipe lining might possibly be a good repair method for their situation because of environmental concerns near the culvert.

What advice do you have for municipalities about taking advantage of LTAP services?

All the safety and infrastructure management services offered by LTAP are free. How can a municipality go wrong with free assistance! We are not in the position to take work away from the municipal engineers, but we can offer free assistance and/or ideas on how to maintain roads and bridges based on proven PennDOT specifications and practices.

Any parting words?

To ensure that participants remember me and how my past experiences may be able to benefit them through LTAP's free services, I hand out a York peppermint patty at the end of my classes. I remind them that if they ever need free assistance maintaining their municipal roads or bridges, they should call LTAP at 1-800-FOR-LTAP (367-5827) and ask for "Mike from York."

WANTED *LTAP Advisory Committee Members*

PennDOT is seeking candidates to fill four spots on the LTAP Advisory Committee. Township supervisors and borough council persons from PennDOT Engineering Districts 1, 4, 9, and 12 are welcome to apply. Knowledge of the LTAP Program or certification as an LTAP Roads Scholar is desirable. This position is strictly as a volunteer, although expenses are reimbursed for all LTAP-related travel, including mileage, food, and lodging. The LTAP Advisory Committee, which meets twice annually, serves a critical role as program advocates and assists PennDOT by attending training courses, reviewing course materials and content, and functioning in an advisory role on a variety of LTAP issues. For more information, please contact LTAP Program Director Lou Ferretti at (717) 787-2598 or lferretti@pa.gov.

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