

moving FORWARD

SUMMER 2008

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

Case Study: Penn Township, Perry County Tech Assist Improves Roadway Safety



After Tech Assist

PennDOT's Local Technical Assistance Program (LTAP) transfers technology information to municipalities throughout the state to help improve the maintenance and safety of their roadway systems. For many, the mention of LTAP brings to mind training courses or Technical Information Sheets, but LTAP also

offers additional services, including Local Safe Roads Communities, Walkable Communities, Tech Assists, Proactive Tech Assists, and Tech Assists for a Day. Each of these programs offers knowledge that when implemented may improve the safety and quality of a municipality's roadway system.

Tech assists are opportunities for municipalities to seek information about specific maintenance or safety issues they are facing. LTAP engineers who are experts in roadway maintenance or transportation engineering will respond to queries by e-mail, telephone, or site visits. Tech assists may vary from answering single, specific questions to participating in a Tech Assist for a Day, where an engineer visits a municipality for a day to assist with more complex and often multiple interrelated maintenance

and safety issues. To understand the tech assist process better, let's follow a recent tech assist in Penn Township, Perry County, from its initial contact with LTAP through implementation of recommended safety measures.

A Dangerous Curve

Randy Plummer, Penn Township's roadmaster and vice chairman of the board of supervisors, first contacted LTAP about a dangerous curve on one of the township roads that had a history of crashes, including runoffs and sideswipes. The curve along Linton Hill Road (T-347) is adjoined by a very steep, vegetated slope topped by woodland on the inside radius and a more gentle slope on the outside radius. The slope on the outside radius contains a privately owned yard and residence punctuated by mature trees. Another township road lies at the bottom of this slope.

Plummer's initial request raised the issue of placing a guiderail along the curve. At the suggestion and with the assistance of LTAP engineers, Plummer conducted a traffic speed and volume study and a curve speed study using a ball-bank indicator. Accident data from the township police department and PennDOT revealed that most of the documented crashes occurred at night and were caused by excessive speed, suggesting that increasing visibility and encouraging drivers to slow down may help to diminish the crash rate. (The "Before" photo on page 5 shows that drivers were given little indication that a curve exists, where it is located, and at what speed it might be safely negotiated.)

ALSO IN THIS ISSUE

Employing Extra Eyes	2
Local Safe Road Community	3
Sign Inventory	3
Oil and Gas Exploration	4
Municipal Services Pocket Guide	4

continued on page 5

Employing Extra Eyes for Road and Street Maintenance

Rust never sleeps, new pavements begin to deteriorate almost as soon as they're built, and newly installed road signs sometimes disappear overnight. Washouts, potholes, clogged pipes, shoulder drop-offs, broken water mains, icy spots, out-of-control vegetation, dead animal removal, and objects in roadway are all conditions that can hinder safety, cause crashes, and cost your municipality a lot of money.

With nearly 74,000 miles of municipal-owned and operated roads and streets in our state, local road and street crew know to be constantly on the lookout for maintenance issues and problems on the roadway.

Yet, as good as your maintenance crew is, it may have to respond to multiple problems. One big storm can knock down trees onto the streets, blow away stop signs, create major erosion, and wash boulders and other debris onto the roads. Even without a major storm to wreak havoc, your maintenance crew often has a number of critical issues it must deal with at any given time.

Because municipal road crews can't be everywhere at once to scan for maintenance problems, you may want to implement a program in which you rely on residents to alert you to roadway issues. With some simple education through pamphlets or municipal newsletter articles, you can recruit residents to be that extra set of eyes you need to report on problems with the roads.

Camp Hill Borough in Cumberland County has operated a pothole hotline, of sorts, since 1996. The hotline is staffed by borough employees during regular work hours and connected to the police department during evenings and weekends. A tip sheet directs employees and police officers on whom to contact in the event of a burned-out traffic signal, a water main problem, a sewer issue, or a dead animal on the road.

"Many urgent but nonemergency calls related to streets, signs, and signals are relayed to the police via the 911 system," says Ed Knittel, the former Camp Hill Borough manager. "It's very helpful for the police to have a detailed list of whom to contact when these issues arise."

In Dayton, Ohio, an "extra eyes" program initiated in 2005 recruits volunteers from throughout the city to assist road crews and other municipal employees with real-time information on downed or vandalized signs, loose manhole covers, and open fire hydrants. But, it's the police who have benefited the most from the initiative when citizens also began reporting suspicious or criminal activity.

"It takes everyone working together to keep our streets and our entire community safe," says Dayton Mayor Rhine McLin.

This same approach has been instituted in Montgomery County, Md., where the police department has gleaned impressive results from the "extra eyes" program. In addition to a steady stream of reports about fallen trees and dead deer on the roadways, the program has resulted in an increased awareness of other criminal activities.

"We've had a 32 percent increase in impaired driving arrests and 29 criminal arrests that have resulted from the good work of the 'extra eyes' volunteers," says Lt. David Fancinelli of the county police department. "In addition, the volunteers distributed more than 800 traffic and pedestrian educational brochures."

Public response to the program has been great. "We've had more

than 10 positive TV interviews, eight newspaper articles, three magazine articles and many letters to the editor and editorials praising the 'extra eyes' program," Fancinelli says.

PennDOT's 1-800-FIX-ROAD program is yet one more example of how extra eyes on the roadway have helped to improve road maintenance in the commonwealth. Thousands of motorists throughout Pennsylvania have taken advantage of this year-round hotline to report problems that they encounter on the roads. The hotline is staffed 8 a.m. to 4:30 p.m., Monday through Friday, and calls are recorded after hours. Calls are automatically routed to the PennDOT county office where the problem has been reported.

To demonstrate how effective keeping your eyes open to problems can be for municipal road and street maintenance crew members, LTAP uses the "Joe's Ride at Work" instructional video as part of its Spring Road Maintenance class. The strategies and tips mentioned in this video can be shared with the residents of your community to recruit them in looking out for potential problems. Contact LTAP at 1-800-FOR-LTAP (367-5827) or www.ltap.state.pa.us to learn more about information on starting an "extra eyes for maintenance" program in your municipality.

'Eyes' on the Lookout

The following is a list of hazardous road conditions that your municipality may want to look out for and incorporate into its "extra eyes for maintenance" program:

- Potholes/sinkholes—any sizeable cracks or blemishes in the street.
- Shoulder deterioration—drop-offs, erosion, and washouts.
- Water and icy spots—water running onto or across the street creating icy spots in the winter and hydroplaning conditions in the summer. Water problems can indicate subsurface pipe breaks.
- Damaged guiderail—any guiderail with missing, damaged, or bent sections, ends, or crash cushions.
- Signs that are damaged, obscured, distorted, or missing.
- Work zone problems, which should be reported immediately. Municipal workers are at significant risk when work zones are not operating properly.
- Overgrown vegetation, which can hinder sight distances, particularly at intersections.
- Dead animals along roadways—animal carcasses can result in unpleasant and unsafe conditions.
- Other hazardous conditions, such as loose manhole covers, open drain grates, and boulders, trees, limbs, and other large objects in the streets.

How to Become a Local Safe Road Community

About 15 percent of all traffic fatalities and a tragic 58 percent of all crashes in Pennsylvania happen on municipally owned roads and streets. These sobering statistics and the real people that they represent have led PennDOT's Bureau of Highway Safety and Traffic Engineering to launch a new local government safety initiative. This initiative, known as the Local Safe Road Community program, provides a systematic process to improve road and street safety at the local level.

To initiate the program, LTAP staff has begun working with dozens of municipalities over the next few years to publish Local Safe Road Community plans. "Reducing crashes and the severity of crashes is our mission," says Rick Sesny, PennDOT's project manager for the Local Safe Road Community program. "We have a statewide goal of no more than one fatality per 100 million miles traveled in our state. To achieve this goal, it's critical that PennDOT partner with local governments."

The Local Safe Road Community methodology uses a five-step process that is very similar to the process used in traditional Road Safety Audit Reviews. These steps include a scoping discussion, data collection, interviews with local officials, field visits, and documentation.

High-crash locations throughout Pennsylvania have been identified, and LTAP staff members are in the process of contacting officials in those municipalities to determine their interest in participating in the program. A review team is then developed for each municipality that agrees to participate in the process. This team includes municipal representatives, PennDOT officials, and local planning professionals who may be able to assist with follow-up recommendations and funding once the documentation is submitted.

Hanover Borough in York County was the first community in Pennsylvania to complete the Local Safe Road Community program

process. With a rate of 10.9 crashes per 100 citizens, Hanover was seeking new approaches to safety improvements.

The Local Safe Road Community program provided the blueprint to attack these crash statistics. Ten high-risk locations were identified and prioritized based on crash records and other historical information. Then, field observations were conducted, background and issue statements were developed for each location, and potential solutions were suggested by the LTAP engineer.

For example, Hanover has struggled for years to find a pedestrian-friendly crosswalk configuration near the Utz Quality Foods office building, which is located on a busy state highway. Employees who work at the industrial facilities on one side of the road have to cross the highway to access parking and commercial operations, including restaurants and stores, on the other side.

"We appreciated the fresh eyes of the LTAP engineer in tackling several areas of concern," says Bruce Rebert, Hanover Borough's manager. He says the process was helpful but not perfect.

"The pedestrian crossing recommendations were very useful and confirmed our plans. And some of the intersection proposals that were unworkable in Hanover may work in another community," Rebert says. As a result of his borough's experience with the Local Safe Road Community program, several suggestions for improvement to PennDOT's safety initiative program have already been incorporated into the process.

Your community can benefit from these program improvements and from a similar blueprint for your municipality. To learn more about the Local Safe Road Community program, please contact an LTAP staff member at ltap@state.pa.us or 800-FOR-LTAP (367-5827). You may also want to discuss this program with your PennDOT district municipal services representative.◆

Can Everyone Read the Signs in Your Municipality?

Sign inventory management system may help reduce traffic fatalities

Did you know that only about one-quarter of the trips made in a vehicle occur at nighttime? Yet, a disproportionate number of traffic fatalities—more than half—take place during these nighttime hours. While the causes of nighttime crashes are widespread, research indicates that a major contributor is signs that cannot be easily read or understood.

To help address this problem, new traffic sign retroreflectivity and sign inventory management requirements have been included in the latest update to the Manual of Uniform Traffic Control Devices or MUTCD, published by the Federal Highway Administration.

Retroreflectivity helps to quantify nighttime visibility of road signs and pavement markings. A wide number of factors, including driver age and needs, the type, orientation and location of signs, the sign sheeting, and vehicle headlamp brightness and adjustment, may affect the actual retroreflective performance and condition of the signs in your municipality. By purchasing and maintaining the correct signs

and pavement markings, you can help to improve nighttime safety on your roadways.

"Your signs and pavement markings need to be part of your municipality's maintenance program," says Mark Hood, who serves as the key LTAP instructor on safety issues. "Be prudent in the length of time that you plan for a typical sign to last."

Hood offers several suggestions for developing a sign inventory management system for your municipality:

- Make adequate sign maintenance a priority. Scheduled maintenance should include inspecting signs during both day and night, cleaning signs, and replacing signs on a regular basis.
- Encourage employees, police officers, and others whose duties include traveling your roadways to immediately report any damaged, deteriorated, or obscured signs that they see.

Getting Ready for the Next Oil Boom

Oil was first discovered in the northwestern part of Pennsylvania in the 1850s, but over the decades oil and gas exploration in our own backyard had taken a back seat to other more favorable locations throughout the country and world. With gasoline prices now topping \$4 per gallon, Pennsylvania unexpectedly finds itself once again front-and-center in the search for oil and gas reserves.

Most of our state sits on top of one of the world's biggest supplies of petroleum in this hemisphere. The problem is that these supplies lie deep beneath the Earth's crust and thus require large-scale drilling operations to locate the reservoirs.

As oil and gas exploration heats up in rural townships in the central and northeast parts of Pennsylvania, municipalities are wise to arm themselves in preparation for this type of development. Two excellent tools to help you do this are the Municipalities Planning Code and the Pennsylvania Vehicle Code.

Municipalities Planning Code

Charles E. Zaleski, an attorney based in Carlisle and a land use expert, says the Municipalities Planning Code could be of limited help to municipalities. He recently cautioned a group of municipal officials in Lycoming County by saying, "The zoning tools that are typically available in the Municipalities Planning Code will not be as helpful with oil and gas exploration operations."

The Planning Code specifically turns over typical municipal land use tools, such as setbacks, densities, buffer zones, and structure height restrictions, to the Department of Environmental Protection via the Oil and Gas Act. Although zoning ordinances are preempted by the Oil and Gas Act in section 603(b) of the Municipalities Planning Code, municipal subdivision ordinances are not.

However, two Commonwealth Court decisions in 2007 (*Huntley v. Oakmont*, 929 A.2d 1252, and *Great Lakes Energy v. Salem Twp.*, 931 A.2d 101) found that provisions of both zoning and subdivision ordinances were preempted by the Oil and Gas Act.

"Until the court changes its opinion," says Zaleski, "the Oil and Gas Act will prevail and efforts to regulate oil or gas wells by zoning or subdivision ordinances are likely to fail."

Vehicle Code

In townships where drilling operations have begun, a major concern is damage done to local roadways by the large trucks that are part of these types of operations. Posting and bonding roads is one way municipalities can help to protect their roadways.

Section 4902 of the Pennsylvania Vehicle Code authorizes PennDOT to publish posting and bonding procedures for municipally owned roads and streets. These procedures are found in PennDOT's Publication #221.

Municipal officials are urged to work with their solicitor to make sure that the correct documents are in place to post roads and to require bonds. In most cases, municipalities must conduct engineering and traffic studies, adopt ordinances, erect signs, advertise the changes, notify known users of roads, and document the condition of roadways (preferably with a video camera). Each of these steps takes time so the earlier you start the better.

Contact LTAP to obtain a copy of Publication #221, which contains the maintenance agreements, permits, certificates of insurance, and examples of the acceptable types of security that you will need. Also, consider hosting or attending an LTAP session on posting and bonding of municipal roadways. ♦

Pocket Guide Updated and Loaded with Practical Information

The Municipal Services Pocket Guide, which PennDOT distributes at educational conferences, equipment shows, and LTAP training classes, was recently updated with the help of several industry groups, and the guide's checklists on road construction and maintenance are now even more useful to municipalities.

"This is the most valuable publication, next to the state map, that PennDOT produces," says Jerry Andree, manager of Cranberry Township in Butler County.

The pocket guide, officially known as Publication #372, contains tons of useful charts and check-off lists that municipalities can use to make sure that contractors and road crews deliver products and services that meet PennDOT standards and specifications. The updated publication contains six parts, ranging from an inspector's guide for road construction to road and highway maintenance tables to checklists on paving and material applications.

"If your municipal inspectors follow these checklists, we can just

about ensure that you will get an excellent hot-mix pavement," says Ron Cominsky of the Pennsylvania Asphalt Paving Association, who was helpful in making sure that the asphalt paving inspection checklists were up-to-date and accurate.

Steve Fulk of the Pennsylvania Association of Asphalt Materials Applicators was consulted regularly about the chip seal application checklist. "PAAMA is happy to endorse this excellent guide, and our membership really hopes that it will be used by every municipality in our state," he says.

Staff members from the Pennsylvania Chapter of the American Concrete Paving Association and the Pennsylvania Aggregates and Concrete Association helped to write the concrete paving checklist. John Becker, president of the Pennsylvania chapter, says, "I encourage everyone to request a copy and to use the pocket guide. It's literally a one-stop powerhouse of the information that your municipality

Case Study: Penn Township, Perry County

continued from page 1

Interestingly, the number of official crash reports is much lower than the anecdotal crash history of the curve. According to official crash reports, about seven incidents had occurred at that site over a five-year period. Anecdotally, the number of crashes appears to be closer to twice that many. Most likely, what occurs is that drivers leave the roadway and come to rest in the yard of the private residence that is located downslope from the outside radius of the curve. Rather than report the accident, drivers leave the scene by driving through the property owner's yard to the township road below. At least four trees on the private property show evidence of vehicle collisions.

Increasing Safety

Based upon curve safety studies from PennDOT and FHWA, LTAP engineers suggested several options for improving safety at the site. To increase visibility at the curve, Penn Township enlarged the size of the curve warning arrow panel and placed retroreflective curve delineators along the edge of the curve. To reduce vehicle speed, it placed 20 miles per hour speed advisory panels on the approach signs and improved pavement markings, including adding white edge of pavement markings and double yellow center striping, to delineate travel lines.

In addition, white "slow" and curve symbol markings were painted on the roadway at the approaches to the curve. Because a guiderail would not meet PennDOT warrants, the township elected not to install guiderails at this time. (The changes that Penn Township made to the signs and markings at the curve can be seen in the "After" photo shown on page 1.)

Taken together, these measures have helped to improve the safety of the curve by warning approaching drivers that a curve is ahead in the road and that they should reduce vehicle speed to 20 miles per hour to safely negotiate the curve.

"The LTAP tech assist got us the help we needed and saved us money," says Roadmaster Plummer.

The field visit, studies, and suggestions by LTAP engineers are services provided free of charge by the LTAP program. The costs for the safety improvements made to the curve were limited to Plummer's time and the materials, such as roadway marking paint, sign panels and posts, and curve delineators, used for the project. ♦



Before Tech Assist

**Contact LTAP for a Tech Assist:
1-800-FOR-LTAP (367-5827)
LTAP@state.pa.us**

Pennsylvania Department of Transportation
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Can Everyone Read the Signs

continued from page 3

- Make sure that weeds, trees, shrubbery, and construction, maintenance, and utility materials and equipment do not obscure the face of any sign.

The main question you should ask yourself is, "Can everyone read the signs in my community?" A simple sign inventory, maintenance, and replacement program helps to ensure that the answer is "Yes." To learn more about this program, call your district municipal services representative or contact LTAP at www.ltap.state.pa.us or 717-FOR-LTAP (367-5827). ♦



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Pocket Guide Updated

continued from page 4

needs to know to ensure that you're building the best possible concrete pavements and structures."

Rich Stirling, the new products coordinator for the Bureau of Municipal Services in PennDOT, spearheaded the update to the pocket guide. He has several decades of experience in the maintenance and construction field.

"I was able to apply my personal knowledge and experience to drafting the pocket guide," he says. "And I can assure you that it's loaded with practical and useful information that's easy to find." he said.

Shirl Barnhart, roadmaster of Morgan Township in Greene County, tells his fellow municipal officials, "Get the guide, keep it handy, and use it. It works for me, and it will work for you, too."

To obtain copies of the *Municipal Services Pocket Guide*, contact an LTAP staff member at ltap@state.pa.us or 800-FOR-LTAP (367-5827). You may also request copies of the guide from your PennDOT district municipal services representative or pick up a copy at an upcoming PennDOT conference, equipment show, county convention, or conference.◆