PennShare Allows Online Access to Transportation-Related Maps and Data

PennShare, brought to you by Pennsylvania Department of Transportation, Local Technical Assistance Program, is a collaborative, cloud-based statewide platform that gives municipalities and the public access to maps, documents, and other resources that are invaluable for planning and programming.

PennDOT, municipalities, and the public have access to maps, data, and documentation related to the transportation planning process through a new collaborative, cloud-based statewide platform called PennShare. This one-stop shop for planning and programming will allow users to access a variety of ready-to-use maps, available data sets, visualizations, and PennDOT applications and documents as they become available. The online platform, hosted by PennDOT, can be explored by content (layers, maps, applications, and documents) or category (roadway, bridge, projects, boundaries, and planning and environmental layers).

The roadway category, for example, provides a collection of layers, including segments, administrative, and traffic data, based on PennDOT’s Roadway Management System (RMS). The bridge category uses data from PennDOT’s Bridge Management System (BMS2) and the Local Road and Bridge Collection initiative.

PennShare was evaluated and tested by PennDOT’s Central Office and districts, other state agencies, and the Metropolitan and Rural Planning Organizations (MPOs/RPOs). The result is a product that will enable PennDOT and its partners to access the latest data for their planning needs.

Currently on the PennShare website, visitors will find many ready-to-use maps, such as the National Highway System, Functional Class Roads, and Non-State Federal Aid Roads. The PennShare Program Center has also developed several maps and applications, such as the Pennsylvania Traffic Signals map, Committed and Potential Lets, and the 2015 Cumulative Lettings Dashboard, which have been requested through a new web form. The site is continually updated as new resources become available.

In addition to maps, users of PennShare can access more than 50 other layers, including roadways, bridges, Multi-Modal Project Management System (MPMS) projects, and boundaries that can be added to existing maps or used to create a custom project. All layers include a description and a data dictionary to help users understand and attribute information, codes, acronyms, and definitions. PennShare also acts as a portal for visitors to find links to many of PennDOT’s most popular web pages and applications, including 511 PA and MPMS-IQ.

Interested in requesting or creating your own map? Contact the PennShare Program Center at RA-PDPENNSHARE@pa.gov. To get started with PennShare, go to pennshare.maps.arcgis.com.

PennShare gives municipalities and the public access to maps, documents, and other resources that are invaluable for planning and programming.
How to Develop a Program to Improve Curve Safety

The good news is that crashes, deaths, and injuries have been on a steady decline over time, but there is still room for improvement, particularly with crashes involving a single vehicle hitting a fixed object while negotiating curves. Following an organized method/plan to implement appropriate countermeasures will help municipalities effectively and efficiently improve safety on local roads.

by Wendy C. Kelley, P.E., Pennoni Associates

On average in Pennsylvania, three people are killed each day in reportable traffic crashes, according to the 2014 Pennsylvania Crash Facts and Statistics. This correlates to one death every eight hours. Based on Pennsylvania’s 2013 population (12,787,209 people), one out of every 46 people was involved in a reportable traffic crash.

The good news is that crashes, deaths, and injuries have been on a steady decline over time. However, there is still room for improvement, particularly with crashes involving a single vehicle hitting a fixed object (for example, trees, guide rail, or utility poles) while negotiating curves. According to FHWA Publication FHWA-SA-12-009, Proven Safety Countermeasures, recent data analysis shows that approximately 28 percent of all fatalities occur along horizontal curves.

Two issues that contribute to these statistics are that drivers are unaware of an approaching curve and/or drivers underestimate the radius or sharpness of the curve. In addition, inconsistent use of warning signs has been identified as an important factor contributing to the high incidence of crashes on curves. Early driver perception and appropriate reaction to changes in the roadway greatly improve the safety of the curve. Several countermeasures are available to mitigate these issues, but how do you know what to implement and where?

Following an organized method/plan to implement appropriate countermeasures will help municipalities effectively and efficiently improve safety on local roads. The steps outlined in this article provide guidance on how to make good decisions for implementing appropriate and consistent countermeasures.

Identify Curves and Issues

Step 1: Set five-year or 10-year plans to analyze a set number of curves each year. One approach is to analyze a percentage of curves based on the number in the municipality. For example, analyzing 20 percent of a municipality’s curves each year would take five years to analyze all the curves.

Step 2: Prioritize high-crash areas along curves based on the latest five years of reportable and nonreportable crash data, factoring in fatalities and severity of injuries. Set thresholds for the number of crashes or severity of crashes to help in prioritizing and determining the types of countermeasures to be considered for implementation at each curve. PennDOT Publication 638, District Highway Safety Guidance Manual, discusses thresholds and provides recommendations.

Step 3: Further analyze the crash data at each curve for crash trends that will illustrate where and why crashes are happening. For example, a crash trend may show that all crashes are happening in one direction or during wet conditions. A crash trend due to motorists traveling too fast for conditions around a curve may indicate that motorists are unaware of the severity of the curve rather than a speeding problem. Looking at crash trends will allow the municipality to focus on the issue that may not otherwise be apparent.

Gather Field/Engineering Data

Step 4: Evaluate and document the existing safety features and their condition (i.e., retroreflectivity, damage, mounting height and offset) at each curve.

Step 5: Conduct curve speed studies at the first group of curves using a ball bank indicator in accordance with Section 2.5 of PennDOT Publication 46, Traffic Engineering Manual, to determine the recommended safe speed (advisory speed) for the curve or turn. Based on the advisory speed, be sure to select the appropriate warning sign. If the recommended speed on the curve is 30 miles per hour or less, use the TURN series signs, and if the recommended speed on the curve is greater than 30 miles per hour, use the CURVE series signs.
Select Countermeasures

Step 6: Based on the difference between the speed limit of the roadway and the recommended safe speed (advisory speed) for the curve, determine what warning devices are required, recommended, or optional in accordance with Table 2C-5, Chapter 2C, of the MUTCD.

<table>
<thead>
<tr>
<th>Type of Horizontal Alignment Sign</th>
<th>Difference Between Speed Limit and Advisory Speed</th>
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<tbody>
<tr>
<td></td>
<td>5 mph</td>
</tr>
<tr>
<td>Turn (W/1-1), Curve (W/1-2), Reverse Turn (W/1-3), Reverse Curve (W/1-4), Winding Road (W/1-5) and Combination Horizontal Alignment/Intersection (W/1-6) (see Section 2.07 to determine which sign to use)</td>
<td>Recommended</td>
</tr>
<tr>
<td>Advisory Speed Plate (W/1-7)</td>
<td>Recommended</td>
</tr>
<tr>
<td>Chevron (W/1-8) and One Direction Large Arrow (W/1-9)</td>
<td>Optional</td>
</tr>
<tr>
<td>Exit Speed (W/1-10) and Ramp Speed (W/1-13) on high ramps</td>
<td>Optional</td>
</tr>
</tbody>
</table>

Note: Required means that the sign and/or plaque shall be used; recommended means that the sign and/or plaque should be used, and optional means that the sign and/or plaque may be used.

See Section 2C.06 for roadways with less than 1,000 AADT.

Step 7: Select the appropriate countermeasure based on existing conditions, what is required and recommended, number and severity of crashes, crash trends, and engineering judgment. For example, if few or no existing safety features are present and only a small number of crashes are reported (<5), only a few basic treatments may be appropriate (implement only that which is required or recommended in Table 2C-5 above). Conversely, if a large number of crashes are reported (>15) and there are numerous existing safety features present, larger and more drastic countermeasures or enhanced treatments, such as flashing beacons, oversized signs, and/or PennDOT curve advanced markings, may be appropriate. Crash trends such as opposite-direction sideswipe crashes may indicate the need for centerline rumble strips or raised pavement markers (RPMs) if more crashes occur in dark conditions. Crash trends such as wet pavement crashes may indicate the need for High-Friction Pavement Surface Treatment, for example. Use the list of countermeasures (see table at the bottom left corner of this page), categorized from low-cost, basic improvements to higher-cost, major improvements in accordance with FHWA 2009 Publication FHWA-HRT-09-003, Low-Cost Safety Improvements for Horizontal Curves.

Implement Safety Features

Step 8: Once each of the curves in the group set in Step 1 is analyzed and countermeasures have been selected, organize documentation and sketches at each curve with appropriate installation guidance to ensure proper placement of each safety feature. Use PennDOT Publication 236, Handbook of Approved Signs, for installation information of each sign. Additionally, use the following references for guidance on proper placement of some common safety features.

General Sign Placement
- Mounting Height (MUTCD 2A.18)
- Lateral Offset (MUTCD 2A.19)
- Orientation (MUTCD 2A.20)
- Placement of Warning Signs (MUTCD 2C.05, PennDOT Pub 46 Section 2.5)
- Placement of Chevron Alignment Signs (MUTCD 2C.09, PennDOT Pub 46 Section 2.5)
- One-Direction Large Arrow Sign (MUTCD 2C.12, PennDOT Pub 46 Section 2.5)
- Posting of Regulatory Speed Limits and Advisory Speeds (PennDOT Pub 46 Section 2.4)
- Object Marker Placement (MUTCD 2C.63, PennDOT Pub 46 Section 3.3)

Pavement Markings
- Raised Pavement Markers (PennDOT Pub 111, TC-8602, PennDOT Pub 46 Section 3.2)
- Slow Curve Arrow (PennDOT Pub 111, TC-8600)
- Speed Limit Lane Marking (MUTCD 3B.20, PennDOT Pub 46 Section 3.2)
- Optical Speed Bars / Speed Reduction Markings (MUTCD 3B.22)

Delineators
- Delineator Placement and Spacing (MUTCD 3F.04, PennDOT Pub 212 Section 212.203, PennDOT Pub 46 Section 3.4, & PennDOT Pub 111 TC-8604)

Rumble Strips
- Milled Longitudinal Rumble Strips (PennDOT Pub 72M RC-22, PennDOT Pub 638 Section 5.5.9, & PennDOT Pub 46 Section 9.3)
- Thermoplastic Transverse Rumble Strips (PennDOT Pub 383 Chapter 6)
**Improved Specification of Crushed Aggregate Antiskid Adopted**

PennDOT recently adopted an improved specification of crushed aggregate antiskid. Because of a need to separate the crushed aggregate from coal residue products, several antiskid materials were transferred to Publication 447, *Approved Products for Lower Volume Local Roads*.

These anti-skids, Type 1, Type 1A, and Type 4, now reside in Pub 447 under the heading 0450-0001 Anti-Skid for Municipal Use. Types 1 and 1A are products from cinders, coke, crushed coal boiler bottom ash, or a combination of these. Bottom ash is a residue of molten ash obtained from coal-burning boilers. Type 4 is burned anthracite coal mine refuse. All antiskids are subject to testing and approval of the PennDOT Lab and when approved are listed in Pub 447.

Currently, seven suppliers are approved for municipalities to use Liquid Fuels Funds for purchase of antiskid material. As required for a Liquid Fuels audit, the material must be certified by the supplier as meeting the specification. Current approved producers are:

- **Ash Resources, Inc.,** Schuylkill Haven, Pa.
  *Producing site:* Washingtonville, Montour Co.
- **Lloyd Aggregates,** New Milford, Pa.
  *Producing site:* Dickson City, Lackawanna Co.
- **Mineral Reclamation LLC,** Pittston, Pa.
  *Producing site:* Hanover Township, Luzerne Co.
- **Valley Stone Quarry,** Laflin, Pa.
  *Producing sites:* Mayfield, Lackawanna Co., and Plains Township, Luzerne Co.
- **Waste Management Processors,** Frackville, Pa.
  *Producing sites:* Frackville, Schuylkill Co.
- **Talen Energy,** York Haven, Pa.
  *Producing sites:* York Haven, York Co.
- **McClure Enterprises,** Scranton, Pa.
  *Stockpile location:* West Wyoming, Luzerne Co.

To obtain a copy of the specification or ask any questions, please contact Tom Welker at twelker@pa.gov or 717-783-3721.

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**Prepare for a Storm Using the PennDOT Storm Center**

**Is a storm headed your way?** Check the LTAP website for the PennDOT Pre-Storm Report. This report will provide a forecast for areas expecting severe weather and will include a description of the actions PennDOT has taken in preparation for the storm. By sharing its preparation plans, PennDOT is hopeful that municipalities will be better able to make their own preparation plans and decisions. The report will be on the LTAP website under “Links” and “Resources/Local Resources.”

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**Flash Beacon, Dynamic Curve Warning System**
- Warning Beacons (MUTCD 4L.03 & PennDOT Pub 46 Section 4.3)

**High-Friction Pavement Surface Treatment**
- Skid Resistance Levels (PennDOT Pub 242 Section 5.6)

**Step 9:** Determine funding. Preparing organized documentation and sketches will allow the municipality to investigate means of funding for each curve. Some of the basic and even enhanced treatments are low-cost signs/pavement markings that can be integrated into the maintenance budget or as part of a sign management system to maintain retroreflectivity of regulatory and warning signs throughout the municipality. An additional benefit of a well-constructed plan is that it will increase the chances of obtaining grant monies, such as ARLE grants.

**Evaluate**

**Step 10:** Once the safety features are implemented, evaluate their effectiveness at each location. A good approach is to revisit the site within a few weeks to observe driver behavior, check sign installations, and ensure the devices are functioning as expected. Then, compare crash data after six months or one year of implementation to the previous years. If the countermeasures are decreasing crashes, then no action is necessary. If there are still issues, then additional steps or more drastic countermeasures may be necessary.

Making good decisions and implementing appropriate countermeasures are key components to effectively and efficiently improving safety on local roads. Following the plan presented above may seem daunting, but remember, LTAP is always available to help. Don’t hesitate to call LTAP for further guidance or clarification on the method/plan on any one of the steps involved.

**PennDOT publications cited within this article can be found at www.penndot.gov at the Forms, Pubs & Maps tab.**
STIC Spotlight

Intelligent Transportation Systems

The Intelligent Transportation Systems Technical Advisory Group (TAG) of the State Transportation Innovation Council (STIC) explores possible technological initiatives that could improve transportation efficiency and safety across the state. Here are two such initiatives that have been recommended by the TAG and reviewed by the STIC.

Smart Applications: Automated Road Condition Reporting

This initiative aims to improve the collection and sharing of data and information to improve incident management, winter services, traffic operations, and roadway conditions. This smart application would allow automatic reporting of road condition information directly from the windshield of a snow plow into PennDOT's Road Condition Reporting System and then into other applications, such as 511PA.

What are the benefits?
- Means more timely information captured and reported to the public, leadership, and emergency management partners.
- Provides more reliable traveler information to the public through 511PA.
- Improves situational awareness of all personnel involved in winter operations.
- Improves efficiency by eliminating manual entry.

What does the future hold?
PennDOT began research efforts during winter 2013-2014. Initial results were promising, and the team is currently scoping phase 2, which will include a proof of concept and other potential elements, such as pulling video from cell phone cameras and accessing video images from a central location.

Transportation Operations Data Warehousing & Management

This initiative brings PennDOT and its partners together to develop a plan for establishing a common framework for archiving and using transportation operations data. This data may include road closures, work zone information, signal timing plans, speed and volume data, weather information, and transit times. Creating a statewide transportation operations data business plan is the first step in developing an efficient, innovative, and performance-based system that addresses all modes of transportation in the state.

To learn more about Intelligent Transportation Systems, visit www.fhwa.dot.gov www.moderndot.pa.gov

STIC
State Transportation Innovation Council (STIC) (717) 772-4664 RA-pdPennDOTSTIC@pa.gov www.moderndot.pa.gov
2016
Build a Better Mousetrap Competition:
Recognizing Innovative Inventions and Improvements

PennDOT Local Technical Assistance Program (LTAP)

Applications Due: Friday, March 4, 2016

Have You Built a Better Mousetrap?

Have you or one of your coworkers 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 municipality is proud of in the annual Build a Better Mousetrap Competition.

PennDOT is looking for projects that you, your employees, or crew designed and built. It can be anything from the development of tools, equipment modifications, and/or 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 4, 2016. 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 to a regional and national competition to compete for recognition and, of course, bragging rights. Winners of the national competition will be announced at the annual LTAP/TTAP national conference this summer. All entries at the national level will be posted on the LTAP/TTAP program website and compiled into an electronic booklet.

To enter the competition, complete the entry form.
The form is located on the LTAP website under the “News” section.
The form is due by Friday, March 4, 2016.

Questions?
Email ltap@psats.org, or call Karen Atkinson at PSATS at (717) 763-0930 ext. 156.
Congratulations to the following Roads Scholar recipients!
(certified between June 2 and September 15)

- Wayne Barker, London Grove Township, Chester County
- Frank Fehlinger, South Whitehall Township, Lehigh County
- Richard Kratz, Warrior Run Borough, Luzerne County
- Jack Lee Jr., Summit Township, Erie County
- Patty Smith, Susquehanna Township, Dauphin County
- Daniel Zmuida, Upper Uwchlan Township, Chester County

The Roads Scholar Program, offered by the PennDOT LTAP, provides an opportunity for municipal employees to be trained by LTAP’s professional team in the latest road-related technologies and innovations related to maintenance and safety. The program provides professional certification to municipal employees and officials who attend 10 LTAP workshops within a three-year period. For more information on the Roads Scholar Program, go to www.ltap.state.pa.us and click on “Roads Scholar Program.”

Upcoming 2016 Classes

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<thead>
<tr>
<th>Topic</th>
<th>Date</th>
<th>Location</th>
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<tbody>
<tr>
<td>Asphalt Roads</td>
<td>May 4, Lycoming County</td>
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<tr>
<td>Bridge Maintenance</td>
<td>April 6, Lycoming County</td>
<td></td>
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<tr>
<td><em>Updated Course</em></td>
<td>April 12, Lycoming County</td>
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<tr>
<td>Drainage</td>
<td>April 26, Chester County</td>
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<tr>
<td><em>Updated Course</em></td>
<td>December 7, Chester County</td>
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<tr>
<td>Engineering &amp; Traffic Studies</td>
<td>Full-Depth Reclamation</td>
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<td>Roadside Vegetation Control</td>
<td>March 15, Lebanon County</td>
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<tr>
<td><em>Updated Course</em></td>
<td>March 31, Lebanon County</td>
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<tr>
<td>Stormwater Facility Operation &amp; Maintenance</td>
<td>May 17, Lycoming County</td>
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<td>Safe Driver</td>
<td>September 21, Chester County</td>
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<tr>
<td>Traffic Calming</td>
<td>June 1, Chester County</td>
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<tr>
<td>Unpaved &amp; Gravel Roads</td>
<td>June 8, Lycoming County</td>
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<tr>
<td>Winter Maintenance</td>
<td>January 14, Wyoming County</td>
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<td>Work Zone (Temporary) Traffic Control</td>
<td>January 28, Tioga County</td>
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<td>February 10, Bradford County</td>
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LTAP Introduces New Course on Sign Retroreflectivity Inspections

A new LTAP course will instruct municipal staff on the Federal Highway Administration’s rules related to traffic sign maintenance, asset management, and retroreflectivity standards. The course, Conducting Sign Retroreflectivity Inspections, will reinforce the value of a traffic sign asset management system and demonstrate the tools and techniques available for measuring traffic sign retroreflectivity. The concepts of luminance and retroreflectivity will be discussed. This new course can be scheduled starting in 2016. Call LTAP at 1-800-FOR-LTAP (367-5827) or email LTAP@state.pa.us to schedule a free course in your municipality.

Attention, Road Scholars: Share the News!

Did you know LTAP has a press release that you can use to announce your accomplishment of becoming a Roads Scholar through the PennDOT Local Technical Assistance Program (LTAP)? The press release can be modified to add your personal information, including your name and the name of your municipality, and then forwarded to your area newspapers and other media.

To obtain a copy of the press release, go to www.ltap.state.pa.us and look for the release under the “News” section.
New Rules Change Filing Requirements for Driver Vehicle Inspection Reports

Drivers of non-passenger carrying commercial motor vehicles (CMVs) only have to make a driver's vehicle inspection report when a “defect” has been found on their vehicle, according to recent changes to the federal CMV interstate regulations (49 CFR 396.11(a)). This change automatically updates Pennsylvania’s CMV intrastate commerce regulations (67 Pa. Code Chapter 231.7(8)).

Previously, federal and state regulations required all CMV drivers to prepare a driver’s vehicle inspection report, referred to as a DVIR, at the completion of their shift for each vehicle they operated. This daily report was submitted to their employer for retention so that any necessary safety-related vehicle repairs could be made. It also provided documentation that the driver had made a complete pre-trip inspection of the vehicle prior to dispatch.

Under the new regulations, drivers must still do a daily pre-trip inspection of their vehicle, but they only have to file a post-trip DVIR with their employer if defects that would affect the safe operation of the vehicle or result in its mechanical breakdown are discovered. The employer must review the report and take appropriate action to fix the defect or deficiency before the vehicle is dispatched again.

Keep in mind that this regulatory change does not alter the fundamental requirements of the Federal Motor Carrier Safety Agency to ensure safe operation of a vehicle by requiring systematic inspection, repair, and maintenance programs (including preventative maintenance). The agency still requires motor carriers to complete periodic or annual inspections and maintain documentation for the individuals who perform periodic inspections as well as individuals who perform brake-related inspection, repair, and maintenance tasks. Furthermore, commercial motor vehicles will continue to be subject to roadside inspections.

To comply with these agency requirements, employers must maintain records that prove measures are being taken to reduce the risk of mechanical problems. For that reason, employers may still want to require documentation that their drivers performed the requisite pre-trip inspection.

In short, both the previous and new regulations place shared responsibility on drivers and their employers to ensure that CMVs used in inter- or intrastate state commerce are in safe and proper operating condition. This new rule does not change a driver’s obligation to report on the condition of his or her vehicle, including any defects or deficiencies that could affect the safety of its operation.

The PSATS Commercial Driver’s License (CDL) program has forms and paperwork that will help municipalities comply with all requirements of CDL drivers. All these forms are available by clicking on the truck button at cdl.psats.org. 🌐