Country Roads & City Streets

WV Local Technical Assistance Program

Winter 2009 College of Engineering & Mineral Resources Vol. 24 No. 4

City Plows Get a New Look

Kim Carr, Program Coordinator, WV LTAP

WestVirginiaUniversity.

ltap West Virginia

http://wvltap.wvu.edu

This winter, the city streets in Morgantown, West Virginia will be more scenic as the Morgantown Public Works Department plows the winter snow. This is the second time that Bill Rumble, Assistant Public Works Director and Terry Hough, City Engineer and Public Works Director, have partnered with local art teachers and students for the snow plow painting program. Students from six different schools in Monongalia County were invited to paint murals on the City of Morgantown's snow plow blades.

In September, plow blades were provided to six different schools: Morgantown High School, North Elementary School, South Middle School, Suncrest Middle School, Trinity Christian School, and Woodburn Elementary School. With the exception of the plow provided to Trinity Christian School, all of the plows were primed by employees of the Morgantown Public Works Department prior to being painted, and were covered with clear protective coats afterward to protect the painted scenes. (The plow provided to Trinity Christian School was a new poly plow, so the public works department is eager to see how well the painted mural sustains its appearance on this particular material.) The students were provided with nothing more than the plows, some basic guidelines, and paint. The rest was left to their imaginations. *(Article continued on pages 4 and 5)*

These plows were painted by South Middle School, Woodburn Elementary School, and Trinity Christian School.

In This Issue

Country Roads & City Streets is published quarterly. The purpose of this newsletter is to provide information that is beneficial to decision makers, elected officials, and roadway construction, maintenance and management personnel.

The material and opinions included in this newsletter are those of the WV LTAP and do not necessarily reflect the views of the Federal Highway Administration or the West Virginia Department of Transportation. Every effort has been made to ensure the integrity and accuracy of both original and borrowed material; however, the WV LTAP does not assume responsibility for any information that is found to be incorrect.

The WV LTAP is part of the nationwide Local Technical Assistance Program, which is funded by the Federal Highway Administration. WV LTAP also receives funding from the West Virginia Department of Transportation.

Mission:

The mission of the WV LTAP is to foster a safe, efficient, and environmentally sound surface transportation system by improving skills and increasing knowledge of the transportation workforce and decision makers.

To help achieve this mission, training, demonstrations, personalized technical assistance, and resource materials are provided.

Deer Dangers: Wildlife–Vehicle Collisions

Adapted from article in Public Roads, authored by Mary Gray

This stock photo shows a white tail buck deer in the traveling path of an SUV. Both the deer and the vehicle reportedly escaped unharmed.

Hunting season is in full swing in West Virginia and while this sport helps control the deer population, there are still many wildlife-vehicle collisions in the state every year. Measures are increasingly being taken throughout the United States and countries around the world to decrease the number of collisions. The following information, taken from "Advances in Wildlife Crossing Technologies," printed in the 2009 September/October edition of *Public Roads* discusses tests currently being conducted to decrease collisions.

According to the FHWA, animal-vehicle collisions increased by approximately 50% from 1990-2004. These collisions can have a broad range of consequences for both people and animals. The most common results are wildlife mortality, vehicle damage, secondary motor vehicle crashes, and [physical and] emotional trauma for motorists. The collisions can also require the assistance of law enforcement personnel, emergency services, and road maintenance crews for repairs and carcass removal.

For animals, collisions with vehicles present an immediate danger to their individual survival. In addition, certain threatened and endangered species can face even greater reductions in their numbers, potentially affecting their ability to survive as a population. The FHWA has documented 21 federally listed threatened or endangered animal species in the United States for which road mortality is a threat to survival of the species or population. According to FHWA *Report to Congress*, "State and local transportation agencies are looking for ways to balance travel needs, human safety, and wildlife conservation."

Highway agencies are already using wildlife crossings, such as overpass and underpass structures, along with installation of fencing to restrict animals to using those structures and voiding other long segments of roadway. These methods, however, are not always conducive to installation and maintenance. New studies now underway are investigating better methods for preventing wildlife-vehicle collisions.

Animal Detection Systems

These systems use sensors to detect large animals as they approach the road. Employing break-the-beam sensors and intrusion detectors allows the system to be triggered so that two signs for each direction of travel light up when an animal is detected. Other detection techniques include geophones that record vibrations in the ground when large animals approach, buried sensors that record changes in the electromagnetic spectrum, and radio collars combined with receivers located in the roadway right-of-way.

Pros and Cons of Detection Systems

These systems are less restrictive to wildlife movement than fencing, and they allow animals to use existing paths to the road or to change them over time. Unlike wildlife crossing structures, animal detection systems have the potential to grow and usher in economies of scale through mass production. Because these technologies have not been extensively deployed and are still a relatively new approach, the cost of long-term maintenance is not known at this time. Currently, these technologies only sense large animals, such as deer, elk, and moose. Smaller animals are harder to detect, and these systems do not warn drivers about their presence on or near the road.

The systems being designed and implemented are promising, but still leave a lot of questions unanswered. The one thing we know for sure, is that any system capable of effectively and cost-efficiently reducing the number of wildlife-vehicle collisions is worth examination.

Best Practices Manual

The FHWA recently completed and posted online a comprehensive *Best Practices Manual: Wildlife Vehicle Collision Reduction Study* as a followup to the November 2007 study and report to Congress on wildlife-vehicle collisions. Congress mandated the study, report, and best practices manual in 2005 under the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users.

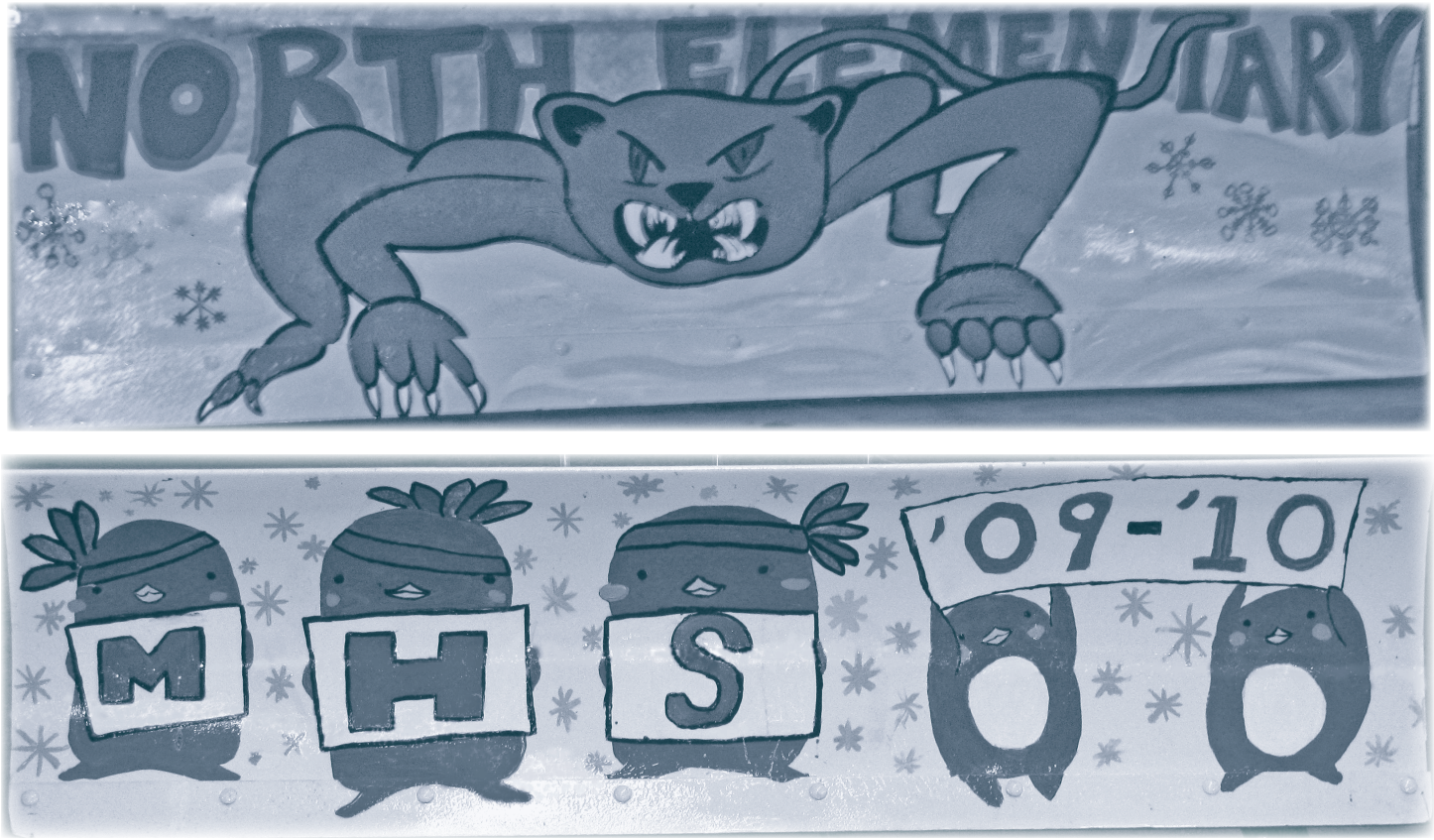
The best practices manual covers the complete range of strategies for reducing wildlife-vehicle collisions, from statewide and regional planning through site-specific mitigation. Design and implementation guidelines for wildlife fencing, wildlife underpasses and overpasses, animal detection systems, vegetation management, and wildlife culling are also part of this manual.

Specifically, the document includes the following features:

- **Regional and statewide tools important to wildlife-vehicle collision reduction, specifically for statewide data collection plus identification of regional priority locations.**
- **Guidance on incorporating collision reduction measures into roadway design by consideration of alternate alignments, possible adjustments in elements of highway design, and identification of crossing locations for mitigation efforts.**
- **Guidance on reducing collisions involving large animals and threatened and endangered species.**
- **Guidance on monitoring and evaluating collision mitigation practices.**
- **Checklist for implementing a collision reduction program.**
- **List of potential funding sources.**

To access the Best Practices Manual: Wildlife Vehicle Collision Reduction Study, visit http://www.fhwa.dot.gov/environment/hconnect/wvc/index.htm. This publication is also available through the WV LTAP lending library, and can be borrowed by contacting WV LTAP Technical Assistant, Kevin Butler.

City Plows Get a New Look *continued from page 1*



Top Photo: Students from North Elementary School showed their creativity with this larger than life depiction of a panther, their school mascot.
Bottom Photo: Morgantown High School students demonstrated their school spirit on this plow's mural and are looking forward to seeing it in action.

Benefits of the Program

The benefits of this program are numerous and range from the public works department, to the students, to the teachers, and to the community as a whole. The primary purpose of this program is to help students, teachers, and parents learn more about public works. This program is a great way to provide outreach to school children ranging from elementary school to high school levels and increase their interest and knowledge about public works as a whole—specifically winter maintenance activities.

The students benefit by learning to work together as a team in developing a concept and executing their ideas. The students become more skilled at using oil-based paints and working on a non-traditional medium. This program provides art teachers with an innovative method that helps inspire and encourage creativity. The public works department and area residents benefit by having snow plows that stand out positively and are more visible. One of the biggest benefits in bringing these different groups together, however, is the learning that occurs and the positive exposure received by the public works department and the participating schools. The students are excited and interested in knowing that their plows will actually be used by the city snow plow truck drivers and that they may see their plows around town this winter. They were equally excited when they discovered they would be debuting in the city's December Holiday Parade. Each team member was given the opportunity to walk beside their plow in the parade as a way of proudly displaying the work they accomplished and their participation in the snow plow painting program.

Starting A Snow Plow Painting Program

Starting a painted snow plow blade program is inexpensive and relatively easy to implement. The steps listed on the next page are a general guideline if you want to start a program in your own public works department.

A Step-by-Step Process to Starting A Snow Plow Blade Painting Program

1. Explain the program to your decision makers and get their support and approval.

2. Decide on the number of schools you want or need to participate. Each school is supplied with one plow, so the number of schools you decide to contact may depend on the number of plows your department has available.

3. Decide the make-up of your schools. Do you want a combination of elementary, middle, high, and private schools?

4. Do you want to make this a competition between the schools, or simply use it as a fun and creative way for the students to get some recognition?

5. Once you have completed steps one - four, contact your County Board of Education, Partner in Education, or area school art teachers.

6. Explain that your department will provide the plow, which will be dropped off to their school's art department, primed and ready to paint, along with the paint they can use for the murals. (You may want to contact your local home improvement or paint stores to see if they would be willing to either donate the paint or provide it at cost.)

7. Provide some basic parameters regarding themes, the final deadline for project completion, and photo release forms signed by the parent or guardian for any of the children that plan to attend the open house and be photographed with the plow they worked on.

8. Pick the completed plows up from each of the schools and bring them back to the public works department shop.

9. Place a protective clear coat on each of the snow plow blades to help protect the painted murals.

10. Set a date and invite all of the participating students, teachers, parents, school officials, city officials, media, etc to an open house at your public works facility to learn more about your facility and see all of the completed plows. (This is a wonderful opportunity to showcase your department.)

11. If possible, debut the plows in your city parade and offer the opportunity to the students to walk with their plows.

12. Thank everyone for their participation and get them excited for future programs!

If you would like to get more information on the City of Morgantown's program, please contact Bill Rumble by email brumble@CityofMorgantown.org or by phone 304-284-7412. You can also contact Kim Carr. The WV LTAP staff is available to answer any questions you may have and would love to hear if your department decides to start a similar program.

Center Staff & Contact Information

WV LTAP
West Virginia University
PO Box 6103
Engineering Sciences Building
Rms. 651 and 653-B & C
Morgantown, WV 26506
Phone: (304) 293-9924
Fax: (304) 293-7109
Email: wvltap@mail.wvu.edu
Website: http://wvltap.wvu.edu

Staff

Dr. John Zaniewski
Director
(304) 293-9955
John.Zaniewski@mail.wvu.edu

Kim Carr
Program Coordinator
(304) 293-9924
Kim.Carr@mail.wvu.edu

Andrew Morgan, P.E., PTOE
Program Coordinator
(304) 293-9939
Andrew.Morgan@mail.wvu.edu

Kevin Butler
Technical Assistant
(304) 293-9922
Kevin.Butler@mail.wvu.edu

Sabrina DeVall
Public Relations Assistant
(304) 293-9930
Sabrina.DeVall@mail.wvu.edu

Dr. Ron Eck, P.E.
Senior Advisor
(304) 293-9931
Ronald.Eck@mail.wvu.edu

Bill Wyant
Senior Volunteer
WWyant@hsc.wvu.edu

Snow and Ice Control Workshop Overview

Sabrina DeVall, Public Relations Assistant, WV LTAP

Ron Tinney, from the WVDOH, discusses proper calibration techniques during the outdoor demonstrations portion of the workshop.

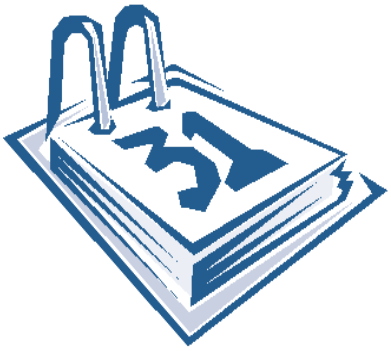
Roadway workers from throughout the state joined at the Days Conference Center in Flatwoods, WV on September 30, 2009 to attend the 19th Annual Snow and Ice Control Workshop, hosted by the WV LTAP. One hundred nine attendees learned about topics ranging from preparing for the season to proper plowing methods to liquid calcium chloride to tort liability. Attendees also participated in outdoor demonstrations where calibration, pre-trip inspections, and ATV brine spray bars were discussed.

New to the workshop this year was a breakout session called "What Should You Do?" that placed participants into interactive groups and presented typical weather scenarios. The groups were then asked to discuss what they would do, why they would do it, and how they would do it to most appropriately and effectively deal with the situation.

We were very pleased with the turnout at this year's workshop and we want to sincerely thank all those who attended and made the event possible. We look forward to seeing you next year and hope you have a safe and successful snow fighting season.

Upcoming Training

2010 is shaping up to a busy year of training. The courses listed below are what we have currently scheduled and more will be added to the calendar soon. Remember to also check the website for updated training information and for a listing of our currently available workshops.



January

- 25 - Work Zone Traffic Control, Proper Signs and Markings; Princeton
- 26 - Successful Supervision, Winter Maintenance; Princeton
- 27 - Work Zone Traffic Control, Proper Signs and Markings; Charleston

February

- 8 - Drainage and Asphalt Roads; Princeton
- 9 - Drainage and Asphalt Roads; Charleston
- 10 - Successful Supervision, Winter Maintenance; Charleston
- 23 - Tort Liability; Princeton
- 24 - Road Safety Fundamentals; Princeton
- 25 - Tort Liability; Charleston

Do you know What Training Your Employees Want or Need?

As a manager or supervisor, are you really in-tune with the training wants and needs of your employees? Do you seek your employees' input on what would make them more effective in their job? Helping employees hone their skills and keep abreast of both current and new technologies is essential to having an effective department. Getting employee input and buy-in, and sending the right employees to the right training can help your department become more efficient. To help you get started, below are a few simple questions you can ask in your next staff meeting, safety meeting, supervisor or peer led focus groups, or during one-on-one discussions. As always, please feel free to contact the WV LTAP staff to schedule training or assistance.

1. What type of training would you like to attend?
2. What have been some of your favorite training courses? Why?
3. Are you interested in equipment operation and safety training? If so, specifically what equipment would you like to receive training on?
4. How do you feel about traveling and perhaps having an overnight stay to attend training?
5. What do you like most about attending training? What do you like least about attending training?

Environmentally Conscious Snow Disposal

Winter weather poses many challenges for those in public works and roadway management fields. From removing snow and ice on the roads, to maintaining vehicles and other necessary equipment, to heavy and sudden snow storms, the inclement weather associated with winter makes roadway maintenance difficult. Aside from the more commonly addressed issues of snow and ice control, a lesser discussed problem of winter weather is snow disposal.

West Virginia rarely has to deal with issues of snow disposal, but there are certainly times when areas of the state receive more snow than they are able to push aside until melting begins. In case this occurs, it is important to realize that there are environmental concerns to disposing of excess snow. As communities, municipalities, and businesses clear roads, parking lots, bridges, and sidewalks, they should keep in mind that the snow contains various pollutants, such as salt, sand, litter, animal waste, and automotive pollutants like metals and oil. For this reason, snow must be properly disposed of to ensure the impact on the environment is minimal.

Many states have guidelines established to help in the planning of site selection and site preparation and maintenance for snow disposal. In some areas, such as states in New England where average annual snowfall can reach over 100", there are not only guidelines, but laws as well, that ensure environmentally conscious snow disposal.

When disposing of snow, it is important not to deposit the snow in any body of water, including rivers, reservoirs, ponds, or wetlands. This type of disposal impacts water quality and flooding, and can also cause navigational hazards. Snow should also not be deposited in landfills or gravel pits. Melting snow will create more contaminated leachate, which poses a great risk to groundwater and provides little opportunity for pollutants to be filtered out. Another area to avoid is storm drain catch basins, drainage swales, or ditches. Snow polluted with sand and debris may block drainage systems, causing localized flooding. Due to the hazardous nature of the pollutants in snow, it is especially important not to dispose of snow in areas immediately adjacent to private or public drinking water well supplies.

When selecting sites for snow disposal, it is important that highway departments, public works agencies, boards of health, and the department of environmental protection work together to select appropriate sites. Consider the following when selecting a snow disposal site:

1. Estimate how much capacity is needed so that an adequate number of sites can be selected and prepared.

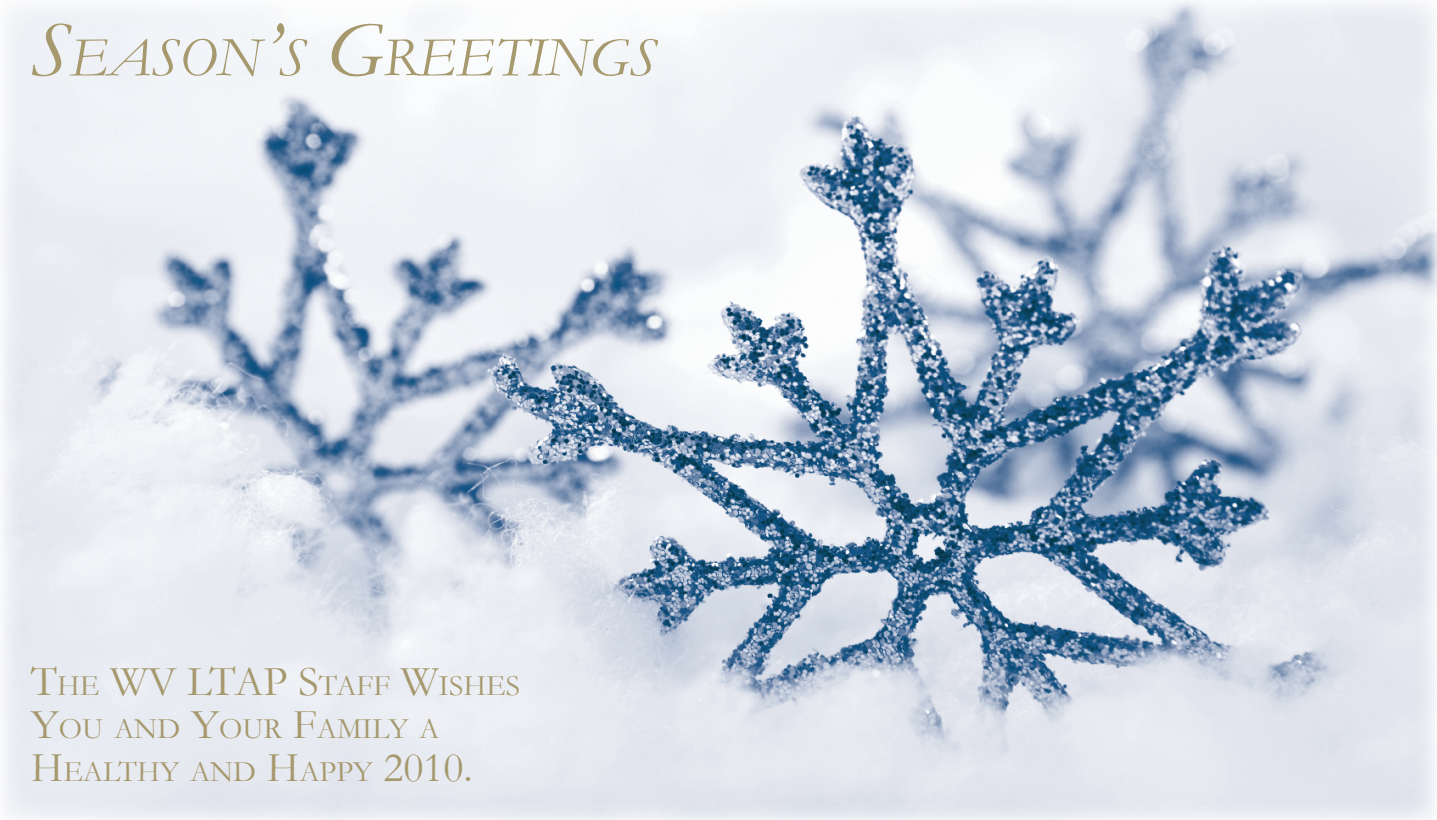
2. Identify community or municipal open space sites with the appropriate soils, slopes, and flow patterns for potential disposal sites.

3. Prioritize the potential snow disposal sites that will have the least environmental impact.

After selecting the proper sites for snow disposal, and before the snow season begins, prepare and maintain the site to maximize its effectiveness. A barrier should be placed on the downgradient side of the site. To filter pollutants out of melted snow, a vegetative buffer should also be maintained before winter between the disposal site and any adjacent water. The site should be cleared of all debris before and after the snow season.

While most areas of West Virginia will not be significantly impacted by snow disposal, some areas, particularly in the higher elevations, will need to prepare beforehand for excessive snow amounts. Take the time to carefully consider the dangerous affects of inappropriately depositing snow and ensure that your snow disposal techniques will be good for your organization, the community, and the environment.

Season's Greetings



The WV LTAP Staff Wishes
You and Your Family a
Healthy and Happy 2010.

West Virginia Local Technical Assistance Program
West Virginia University
College of Engineering and Mineral Resources
Department of Civil and Environmental Engineering
PO Box 6103
Morgantown, WV 26506-6103

Change Service Requested

Non-Profit Organization
U.S. Postage Paid
Morgantown, WV
Permit No. 34

Thank you to everyone who returned the Needs Assessment Survey. The results are being analyzed and will be implemented soon to ensure we are providing the best service possible. Thank you for your support.

The WV LTAP website is undergoing a facelift that will be unveiled in January. The site features a new look, menu options, and improved navigation. Check it out at http://wvltap.wvu.edu. Questions or comments should be directed to Sabrina.DeVall@mail.wvu.edu