Dirt and Gravel Program Funding

You have probably heard an increasing amount of buzz about the potential for additional transportation funding in Pennsylvania. Center Staff (on behalf of the Dirt and Gravel Road Program) have been active in the Keystone Transportation Funding Coalition that has been working to develop recommendations to the Governor for a “comprehensive” transportation funding package. The Center is seeking additional funding for the Program as part of any “comprehensive” funding package that is sent to the Governor. Additional funding for the Program would focus funding on rural Pennsylvania and would go a long way to addressing the backlog of 14,000 identified worksites already on the books statewide. The Program, which has not seen a funding increase since it began in 1997, is in need of additional funding to make up for lost buying power due to inflation and rising costs.

2011 Annual Maintenance Workshop

Attendees visit a wind farm access road at the 2011 Workshop in Wilkes-Barre.

The 2011 Annual Maintenance Workshop was held September 27th and 28th in Wilkes-Barre, PA. The event attracted over 130 attendees from around the state including Consecration District, Bureau of Forestry, Municipal Government, DEP, private vendors, and others.

Day-one included a field trip to discuss wind power and erosion issues on a wind farm access road, pictured above. The field trip also visited several completed projects in the Lackawanna State Forest where attendees saw several French mattresses, pipe installations, underdrain, DSA, and more.

Day-two entailed a day-long field trip into the Marcellus region of Susquehanna County. It included a stop at a previously completed Dirt and Gravel Road Project that had been subjected to Marcellus hauling. It also included a stop at an active well site thanks to Carrizo Oil & Gas. The group also looked at several roads to discuss various impacts that the Marcellus gas play is having on the Program and on public roads in general.

Workshop proceedings, including all information given out at the workshop, pictures, and more, will be available soon on the Center’s website. The location and timing of the 2012 Maintenance Workshop has not been determined yet.
“Bud Byron Award” Presented to Matt Beaver (PA Bureau of Forestry)

“Bud Byron Award”

The “Bud Byron Award” recognizes an individual who has demonstrated an outstanding commitment to the fundamental principles of the Dirt and Gravel Road Program.

The award is named in honor of the former President of PA Trout Unlimited, Bud Byron, who spearheaded the statewide campaign to bring the impact of sediment pollution to PENNDOT. Trout Unlimited led the effort that resulted in the creation of the Dirt and Gravel Road Maintenance Program in 1997. The “Bud Byron Award” is only given out on an “as-deserved” basis. This is only the sixth time it has been awarded.

2011 Award: Matt Beaver

Matt Beaver oversees the Bureau of Forestry’s annual $1 Million allocation through the Dirt and Gravel Road Program. While the Dirt and Gravel Road Program is just one of Matt’s many duties, he began to make the Program a priority for the Bureau. Since he transferred to Forestry’s Central Office in 2001, Matt has steadily refocused Forestry’s Program to put a greater emphasis on training and on funding specific projects with environmental impact. Here are some of the improvements that Matt has made in the way Forestry runs their Program over the years.

Matt has:

• developed an equitable system for the annual allocation of funds to the 20 individual Forest Districts, covering over 2000 miles of Dirt and Gravel Roads.
• insured that all Forestry project sites MUST have an environmental focus to address stream pollution issues in order to be funded.
• dedicated part of the funding to an annual “Demonstration Project” in a different Forest District to showcase projects and highlight innovative practices.
• mandated that all staff associated with the Program must attend the ESM training once every 5 years.
• pushed for the use of a Geographic Information System, similar to the one Conservation Districts use, to track forestry’s Dirt and Gravel Road Projects.
• required the use of DSA over traditional aggregates on all funded sites. He has also placed an emphasis on DSA quality by encouraging aggregate testing.
• made sure that the Program’s ESM techniques were added to the road section of Forestry’s “Oil and Gas Guidelines” guidance manual and upcoming Bureau Road Manual.

Matt takes a very hands-on approach to the Dirt and Gravel Road Program. He knows the name of almost everyone in all 20 Forest districts, from the District Forester to the grader operator. Matt visits nearly every site that the Bureau’s Program Funds. NEARLY EVERY SITE. Sometimes repeatedly. Matt deserves this award for continually going “above and beyond” what was necessary in support of the goals and ideals of the Dirt and Gravel Road Program.
Mixed Bag

“ANF” Road Sediment Study
The Center is nearing completion of a sediment quantification study on shallow oil well access roads in the Allegheny National Forest. The Center’s rainfall simulator was used on 14 existing road sites owned by both the ANF and oil company. Preliminary findings were that sediment production averaged 1,300 pounds per road mile from a single 30 minute 0.6” rain event (~1 month return interval). The Center is currently working to complete additional testing on four sites where a new surface has been placed on the road (2 limestone DSA sites, and 2 traditional “pit-run” sites). Look for the full write-up and a research summary in early 2012.

Centre Activities Outside PA
• The Center recently presented at the 2011 “Missouri Association of County Transportation Officials” conference in Kansas City about the principles of Environmentally Sensitive Road Maintenance.
• Center staff will be traveling to Southern Missouri to conduct an ESM training event sponsored by “Top of the Ozarks Resource and Conservation Inc.”.
• The Center has been working with The Nature Conservancy in Maryland on various training and research projects including use of the rainfall simulator.
• Center staff will participate in a half-day session on “Environmental Impacts of Low-Volume Roads” at the January 2012 Transportation Research Board international conference in Washington, D.C.
• The Center has been chosen as the host for the Transportation Research Board’s “11th International Conference on Low-Volume Roads” to be held in Pittsburgh in 2015. This conference is only held once every four years.
• The Center recently won a “best poster” award during a poster session at the 2011 Chesapeake Bay Watershed Forum in Shepherdstown, WV. The subject of the poster was a summary of the Center’s rainfall Simulator studies.

A Note on Recent Events at Penn State
This is one of the saddest times in the history of Penn State. This is a terrible tragedy for everyone involved, and it will take some time to bring a measure of understanding and resolution to the community.

Penn State has a long and storied tradition that has endured for more than 150 years. Our roots are deep, our constitution is resilient, and the importance of our work is as vital today as it was last month- perhaps even more so in the face of such adversity. We are 96,000 students, 46,000 employees, and more than a half a million alumni. We are 24 campuses across the Commonwealth and a World Campus. We are a university that is committed to its core values of honesty, integrity, and community. We are a university that will rebuild the trust and confidence that so many people have had in us for so many years.

-Rodney Erickson, Interim Penn State President

The Center’s staff share that commitment. Thank you for being part of Penn State.
The two-day ESM training covers many aspects of road maintenance and focuses on practices to reduce maintenance costs and environmental impact from unpaved roads.

Have questions or want to schedule an ESM training? Want to receive future newsletters?

Contact Kathy Moir at: 1-866-No-To-Mud (1-866-668-6683) dirtandgravel@psu.edu www.dirtandgravelroads.org

Two-Day ESM Training Schedule

Greene: Mar 21-22  
Armstrong: Apr 17-18  
McKean: May 15-16

Additional 2012 Trainings are currently open for scheduling.

Contact the Center to register for a training, or to discuss hosting one (814-865-5355).

Other Events

2012 SCC Meetings: Jan 19 (w/PACD), Mar 13, May 15, Jul 10, Sep 11, Nov 13

2012 Dirt and Gravel Maintenance Workshop: Fall 2012, date and location TBD.
Project Overview:
Tannery Road is located in the 27,345 acre Lackawanna State Forest in the southern tip of Lackawanna County. The road provides access to the State Forest, several miles of hiking and snowmobile trails, and the Spruce Swamp Natural Area. This project is located on the eastern end of the road where Sand Spring Creek, a High Quality tributary to the Lehigh River (also HQ) crosses the road. The road passes through many springs, seeps, and flow channels in this area. To further complicate things, the stream crossing was undersized causing frequent road washouts. The Bureau of Forestry used a large French Mattress with embedded pipes to elevate the road out of the “swamp” and create a stable road base.

The Problem:
The adjacent Natural Area is called “Spruce Swamp” for a reason. Where Tannery road crosses Sand Spring Creek, it encounters numerous flow channels, springs, seeps and generally saturated conditions. The elevation of the road was very low compared to the surrounding terrain, causing a constantly saturated road base that was prone to potholes and rutting and required frequent maintenance. To further complicate the site, the undersized stream pipe was prone to overtopping during high flow events. Since the road was the lowest point in the area, the stream would run down the road for hundreds of feet when it overtopped the pipe. Water regularly flowed over the road at several other locations as well.

The Solution:
Because of the low road elevation and extremely saturated conditions, a large French Mattress was used to raise the road elevation. The mattress provided the necessary elevation to get the road above the saturated forest floor, and created an excellent road base. Several cроссpipes were also placed in the French Mattress at ground level to handle extreme flows. The original stream pipe was left in place as an overflow while a larger 49”x33” “squash” pipe was installed a few feet downstream at a lower elevation. An emergency overflow was also constructed at the new pipe to direct extreme flows alongside the road and into a secondary pipe. If this pipe were to fill or plug, water could enter the French Mattress to cross the road.

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Before and After: Notice the elevation of the road compared to the stream. **BEFORE**, when water overtopped the road, it would flow down the edge of the road and eventually cross the road surface, tearing the road apart as it went. **AFTER**, the pipe has an “emergency spillway” on the left. Just before water would overtop the pipe, it hits the “spillway” and continues down the road. Because the road is elevated, the surface of the road is not affected. The overflow water is then directed to a newly placed crosspipe just out of view. Furthermore, any water that bypassed this second crosspipe would then be able to cross under the road in the French Mattress which contains several more crosspipes.

Notice the elevation of the road compared to the trees. **BEFORE**, a recent overtopping of the road has sent surface aggregate into the woods. **DURING**, the French Mattress is being installed. **AFTER**, notice the elevation of the road compared to the trees now. The inlet of an embedded pipe is located behind the rock labeled in the image.

Evolution of a Project

This section of Tannery Road was first addressed in 2003 when 3 crosspipes were and approximately 2,000 tons of aggregate were added to the road. In 2004, the remnants of Hurricane Ivan overtopped the stream pipe and washed away much of the road surface, which had to be replaced. In 2006, another flood cause the same damage and required additional aggregate. Later in 2006, the District decided to look for a more permanent solution and came up with the elevated road over a French mattress with overflow pipes you see today. In 2009, a larger stream pipe was installed. In 2010, 12 additional crosspipes were installed (away from stream crossing) and DSA was placed on the road. The system was tested in October of 2010 when a stalled front dumped 9” of rainfall on the watershed in a single day with no damage to this site.

This project illustrates how site plans can “evolve” over time. The District learned lessons from early problems to design a project that will handle the extremely wet and “flashy” watershed, while providing a stable road that requires minimal maintenance.

Stream pipe replacement: The new 49”x33” “squash” pipe is shown during installation in 2009. The existing smaller pipe was left in as an overflow channel.