PA Dirt and Gravel Road Program

15 years? That must be a typo! Those who have been involved since the beginning may find it hard to believe that 15 years have passed since the Dirt and Gravel Road Program became a reality. The Program has completed over 2,200 road projects in 65 counties to date. While Program funding has remained constant, in-kind contributions have risen over time (now at $0.42 for every Program $1) as Program participants try to “stretch” their money further.

It is important to remember that the value of the Program is more than just the projects and dollars it puts on the ground. This is because those Program dollars and projects often serve as “seed money” to build relationships between “conservation professionals” and “road professionals.” Education and partnership-building have always been Program priorities. One real measure of the Program’s success is when townships and other road-owning entities tell us of incorporating Dirt and Gravel practices on their own, without Program funding. For more details, see newsletter insert containing 2011 Summary Report and 15 year Program Perspective.

2012 Annual Maintenance Workshop
Online Registration Now Open!
www.dirtandgravelroads.org

September 25&26: Treasure Lake: Dubois, PA

The Center’s 2012 Annual Dirt and Gravel Road Maintenance Workshop will be held at Treasure Lake in Clearfield County, just north of Dubois, PA. The workshop will feature class sessions and field trips to local demonstration sites. Sites will include past and current projects, a “Geosynthetically Reinforced Soil” (GRS) bridge structure, and a stop at the Elk Viewing and Visitor Center. More details and online registration are available on the Center’s website at www.dirtandgravelroads.org. Look for “2012 Workshop” at the top right of the Center’s homepage.
“Beyond the Program”: a look at some new and innovative conservation topics that are slightly “outside the realm” of normal Dirt and Gravel Road Program news.

**Dirt and Gravel Program Note:** The information in this section is being provided as an educational resource to be shared with the conservation and road maintenance community. Please note that because of the nature of Program funding, trail work and bridge construction are NOT allowable expenses of Dirt and Gravel Road Program funding.

**Who Else is Eligible for Dirt and Gravel Funds?**

- **Game Commission:** more than 35 contracts have been completed on gameland roads to date.
- **PA Fish and Boat Commission:** both access roads and boat ramps are eligible as projects.
- **PennDOT:** the relatively few miles of unpaved state roads are also eligible.
- **State and County Parks:** a handful of sites have been funded on state and county park roads.

These roads are subject to the same application process and ranking criteria as municipal roads. Program requirements to be eligible for funding are that the road must be “publicly owned” and open to public vehicle traffic at least part of the year.

Have a question? Submit it to dirtandgravel@psu.edu

**Trail Surface Aggregate (TSA) Placement on Pine Creek**

Approximately 6 miles of Trail Surface Aggregate (TSA) was placed on the Pine Creek Rail Trail in northwestern Lycoming County in early May 2012 (starting at Tioga County border and heading south). This represents the first large-scale paver-placed TSA project between the Center and DCNR-Bureau of Forestry (BOF).

**Trail Surface Aggregate**

TSA is a gradation of aggregate for use on trails that is designed to achieve maximum compaction. It was designed a few years ago based on the Center’s Driving Surface Aggregate (DSA) specification that has been in use by the Dirt and Gravel Road Program for many years. TSA has a smaller aggregate top size and overall gradation than DSA. TSA creates a smooth surface for multi-use trails that see many bikes and strollers, while still resisting erosion. The TSA specification was updated in May to include a TSA recipe (for smaller jobs) and gradation (for larger jobs). More info can be found under the “Trails” link at www.dirtandgravelroads.org.

**Pine Creek Rail Trail Project**

The Pine Creek Rail Trail runs 62 miles through the beautiful Pine Creek Valley, from Wellsboro in Tioga County, to Jersey Shore in Lycoming County. The trail is maintained by the BOF, which has a second 5-6 mile TSA placement planned for later this year. These TSA projects are replacing former AASHTO #10 topdressings overtop the railroad ballast that have not withstood the high-impact use from bike and hike traffic, including seasonal heavy rains and spring runoff.

**Preliminary Feedback**

“The BOF has had nothing but extremely positive feedback from users of the trail. Many comments related to the surface hardness quality and smooth travels – this equates to less effort on user’s behalf to complete their experience. The BOF staff that have oversight of the Rail Trail’s maintenance are ‘sold’ on the product – it rolled perfectly and they’ve had no washouts of the product following a few seasonal torrential downpours since its application this Spring.”

- Steve Bloser (CDGRS)
“Beyond the Program”: a look at some new and innovative conservation topics that are slightly “outside the realm” of normal Dirt and Gravel Road Program news. CONTINUED

Geosynthetically Reinforced Soil (GRS) Technology for Low-Cost Bridges

Geosynthetically Reinforced Soil (GRS) technology uses alternating layers of compacted granular fill material and sheets of geo-textile fabric reinforcement to provide support for the bridge (instead of traditional poured concrete footers). GRS provides a smooth transition from the bridge onto the roadway, and alleviates the "bump at the bridge" problem caused by uneven settlement between the bridge and approaching roadway. The technology offers unique advantages in the construction of small bridges, including:

1) Reduced construction time and cost. Costs reduced 25 to 60 percent.
2) Easy to build with common equipment and materials; easier to maintain.
3) Flexible design that's easily modified in the field for unforeseen site conditions, including unfavorable weather conditions.

You will be hearing lots more about GRS technology in the coming years as PennDOT is working to approve the practice. The 2012 Dirt and Gravel Road Maintenance Workshop will feature a classroom introduction to the topic as well as a stop at the site pictured above. For more information, visit the FHWA website: www.fhwa.dot.gov/everydaycounts/technology/grs_ibs.

Aquatic Organism Passage at Stream Crossings

“AOP” is a philosophy that designs road/stream crossings for the passage of aquatic species and ecological connectivity. Many traditional undersized road culverts create barriers to all sizes and shapes of aquatic and semi-aquatic species. Far from being just a “salmon passage thing out West,” AOP is quickly gaining momentum on the East Coast as well. The U.S. Forest Service has been leading the AOP charge, holding week-long courses in AOP crossing design and “stream simulation” through road crossings. Courses have been held in Pennsylvania and New York, with Maryland hoping to hold one in the near future. For more information, please visit the USFS site: http://www.stream.fs.fed.us/fishxing/index.html

This GRS bridge in Clearfield county will be visited during the 2012 workshop.

This road culvert in California created a major obstacle for aquatic organisms including salmon. The new AOP crossing maintains streambed throughout the pipe.

The Program’s “Quality Assurance/Quality Control” effort:

Round Two of QAQC visits is underway. Three successful QAQC visits were done in 2011. A full round of 8 QAQC visits is planned for 2012. Center and Program staff are currently working to select counties. If your District is selected, expect to be contacted soon about potential dates for the visit.

For questions about the QAQC process, contact Karen Books at the State Conservation Commission at kbooks@pa.gov or 717-787-2103.

FY 2012-13 Conservation District Allocations

Fiscal year 2012-13 Conservation District Dirt and Gravel Road Program allocations were approved at the May 15th State Conservation Commission meeting. This will be the second year of a three-year phase-in of the new allocation formula. Details of the formula and changes made can be found on the Center’s website. Conservation Districts should expect to receive their upfront allocation checks in August or September as in previous years.

July 2012
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

2013 training requests currently being accepted.

Contact the Center to register for a training, or to discuss hosting one (814-865-5355).
Registration is also available online at www.dirtandgravelroads.org under “edu/training”.

Other Events

2012 SCC meetings: Jul 10 (w/PACD), Sept 11, Nov 14

2012 Dirt and Gravel Maintenance Workshop: Sept 25-26, Treasure Lake, Dubois, PA
Pennsylvania Dirt and Gravel Road Maintenance Program

15th Anniversary
2011 summary report

PROGRAM BACKGROUND

Pennsylvania’s Dirt and Gravel Road Maintenance Program provides grant funding to local municipalities in order to eliminate stream pollution caused by runoff and sediment from unpaved roads. The Program was enacted into law in April 1997, as Section 9106 of the PA Vehicle Code, with $4 Million in annual funding for “environmentally sensitive road maintenance”. Each year, the State Conservation Commission allocates this funding, based on identified need, to County Conservation Districts. Townships and other road-owning entities apply to their local Conservation District for these funds to address identified pollution problems using environmentally sound road maintenance practices. All grant applicants must have completed a 2-day training course entitled “Environmentally Sensitive Road Maintenance” focused on lowering maintenance costs and reducing stream pollution.

KEY PROGRAM FACTS:

• Stresses site-specific, long-term solutions to prevent erosion and pollution stemming from public unpaved roads, not “band-aid” fixes.
• Reduces pollution while promoting sustainable unpaved roads.
• Tight administrative limits result in 80% of funding being spent on projects.
• Emphasis on informed local control puts decision-making at local level.
• Quality control through central training, technical assistance, site visits.
• 16,500+ miles of public unpaved road have been inspected, resulting in the mapping of 16,600 “Worksites” where road runoff negatively impacts water quality.
• Program uses a 2-page grant application and a computerized GIS system for project tracking and central reporting to insure minimal paperwork.

The road below was raised to restore natural drainage, reducing stream impacts and maintenance costs.

Before-2001  After-2002  2010

This document is based on data submitted by County Conservation Districts as of January 15, 2012.

Document produced by Penn State University: Center for Dirt and Gravel Road Studies

Additional copies available at www.dirtandgravelroads.org (under PA Program/Resources)
In the Beginning...

It is hard to believe now that this Program began in the cars of Trout Unlimited Volunteers over 15 years ago as they identified over 900 pollution sites in special protection watersheds statewide. The Program has maintained its simple mantra of “minimal paperwork” and “local control” to become one of the most efficient and well-liked State Programs in history. Visit www.dirtandgravelroads.org for a complete Program History.

Program Spending Efficiency

- Although no in-kind is required, the Program has received over $17 Million in in-kind contributions from townships. ($0.42 in-kind for every $1 in Program funding spent on the road)
- Statewide and County-level administration and education efforts amount to ~20% of Program spending since 1997, meaning that ~80% of Program funding has been dedicated to “on the ground” payments for materials, equipment, and labor at the local (largely municipal) level.
- The above means that, even before outside grants are included, the in-kind generated through the Program is more than enough to balance out the limited administration and education spending, making the Program effectively >100% efficient.

By the Numbers (1998-2011)

197 two-day ESM road trainings held in PA.
6,500 attendees at those 197 ESM trainings.
2,275 individual road contracts funded statewide.
7,500 new drainage and stream pipes installed.
568 miles of Driving Surface Aggregate placed.
185 acres of reinforcing fabric used.
190 miles each of road ditch and bank stabilized. 1.5 Million tons of road base material added.

Bureau of Forestry’s Dirt and Gravel Road Program

Although their statistics are not included in the figures in this report, the PA Bureau of Forestry also receives an annual allocation of $1 Million to implement the Dirt and Gravel Road Maintenance Program on over 2,250 miles of public State Forest Roads. The Bureau conducts an annual Demonstration Project to highlight new and innovative practices. Many additional road projects are completed each year throughout 18 Forest Districts Statewide. They also report Forestry Program accomplishments annually to the PA legislature. The bureau has put over 1,000 people through the 2-day ESM road training course over the past decade.

NOTE: forestry worksites are not included in map or figures in this document.
2011 Summary

Contracts were completed on 185 individual worksites in 2011 with a total of $2.5 Million spent in Program funding, $1.4 Million in-kind from participants, and $2.3 Million in outside grants. The 2011 township in-kind rate of $0.59 for every $1 of Program money was third highest (to 2009 and 2010) since the Program began. When outside grants are included with in-kind, the Program generated $1.52 of additional funds for every $1 in Program money spent on projects. As costs continue to rise, Districts continue to encourage cost-sharing and seek out additional sources of funds to complete Dirt and Gravel Road Projects. In addition to these completed projects, there were also 166 signed contracts for future projects totaling over $3.5 Million as of data reported January 15, 2012.

Quality Assurance / Quality Control

The QAQC effort is conducted jointly by Program and Center staff. The QAQC team visits each individual County Conservation District to insure the Dirt and Gravel Road Program is being administered properly at the local level. It also provides an educational and idea-sharing opportunity between the Program, Center, and District. The first round of QAQC visited all 64 counties from 2003-2008. The QAQC process has been improved and three trial visits were conducted in 2011. The QAQC process will continue to visit approximately 8 Districts each year.

An “In-Kind” Surge from Outside Grants

2011 showed an extreme jump in the use of outside grants to either partially or completely fund Dirt and Gravel Road projects. The “American Recovery and Reinvestment Act” (stimulus funds) of 2009 played the largest role in this sudden surge in outside funds. Several counties, Armstrong and Erie in particular, took advantage of these funds to reduce their backlog of worksites that were awaiting Dirt and Gravel Road Funding. PA’s Growing Greener Grant program has historically provided funding for projects as well. As the Program’s buying power is slowly being eroded by inflation, outside grant funds such as these provide an excellent opportunity to build on the successes of the Dirt and Gravel Road Program.
Funding

Consistent funding can be both a blessing and a curse over the long haul. Program Funding has remained at $5 Million (including Forestry) annually since the Program began in 1997. Unfortunately, that $5 Million in 1997 dollars translates into about $3.5 Million today. To combat this loss of buying power, many Conservation Districts are using new strategies such as: the requirement or emphasis of in-kind; the de-emphasis of costly Driving Surface Aggregate; and the funding of smaller projects. At the state level, representatives for the Program have been active to make sure that the Dirt and Gravel Road Program is not left behind in any “comprehensive transportation funding package” that may come out of Harrisburg. Until more funding is available, the Program will do as it has done for the past 15 years, make the biggest impact it can with the funding it has. One indicator of the Program’s success is that more and more participants say they are applying practices learned in the Program into their regular road maintenance.

Spending Trends

The graph to the right illustrates a shift from aggregate-focus to drainage-focus in the Program. The use of Driving Surface Aggregate (DSA) is on the decline, partially because the cost has risen with fuel costs in recent years. Another reason is that many Districts are de-emphasizing DSA in favor of implementing more drainage practices. Road base or fill is often imported to correct long-term drainage issues on roads. The increase in road base and decrease in DSA has occurred as Districts try to get the most environmental “bang for their buck.”

National Interest

The success of Pennsylvania’s Dirt and Gravel Road Maintenance Program has not gone unnoticed around the country. Calls are routinely fielded from all over the country on various low-volume road issues. Entities in several states are attempting to establish their own Dirt and Gravel Road Program based on Pennsylvania’s model. Versions of the Program’s 2-day ESM training course have been held for groups in Arkansas, Missouri, Michigan, Maryland, and West Virginia over the past few years. Also, the Transportation Research Board has chosen to hold its 11th annual “International Conference on Low-Volume Roads” in Pittsburgh in 2015. This conference, held every four years, draws an international crowd to present papers relating to low-volume road research. The Center and Program will act as the Local Liaisons for the 2015 conference which will include a field trip to a Dirt and Gravel Road project.

Marcellus Impacts

The Marcellus Gas play will continue to have major impacts on unpaved public roads over much of the State for years to come. Over 70% of the Program’s funded worksites are underlain by the Marcellus Shale. Although well-intentioned, some gas companies are unknowingly undoing some of what the Program has worked to accomplish. Considerable effort has been made by the Program, Center, and Conservation Districts to work with the gas companies to avoid losing ground. These entities will continue to work to establish a dialog and working relationship with energy companies for the benefit of everyone involved.