

Why are Roads a Problem?

Low-volume (low-traffic) roads transverse all of our rural landscapes from forests to farmlands. These roads frequently cut across natural drainage patterns to intercept both overland and sub-surface water flows. Traditional roadside ditch systems convey runoff directly to nearby streams, resulting in sediment pollution, an increase in flood flows, and a decrease in groundwater recharge through infiltration. The combined "rural storm-water system" is a large, but frequently overlooked cause of stream and watershed degradation and impairment.



A badly eroded ditch on its way to a nearby stream

How can we address the problem?

Many of the Environmentally Sensitive Maintenance (ESM) Practices advocated by the Center are designed to "disconnect the rural storm-water system" to reduce sediment pollution, encourage infiltration, and reduce long-term maintenance costs.

ESM Principles:

- Avoid concentrating drainage.
- Minimize flow volumes.
- Reduce effects of concentrated drainage.
- Prevent surface erosion.
- Reduce maintenance cost and frequency.



"There's not a problem in America today, crime, drugs, education, divorce, delinquency that wouldn't be remedied, if we just had more Dirt Roads, because Dirt Roads give character."

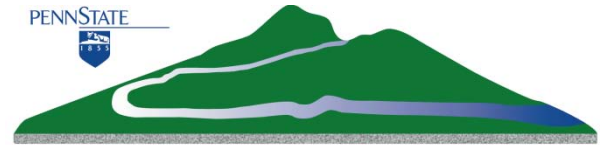
-Paul Harvey

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Center for Dirt and Gravel Road Studies



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Providing education, guidance, and technical assistance to minimize the impact of unpaved roads and trails on natural landscapes and hydrology.



The Center is a non-profit entity associated with the Thomas D. Larson Pennsylvania Transportation Institute under the College of Engineering at Penn State University.

www.dirtandgravelroads.org

The Center for Dirt and Gravel Road Studies (Center)

Established in 2000, the Center is housed under Penn State University's "Thomas D. Larson Pennsylvania Transportation Institute." The Center teaches and implements "Environmentally Sensitive Maintenance (ESM) Practices" to reduce runoff and sediment pollution coming from low-volume transportation corridors such as rural roads and trails. In addition to reducing stream pollution, these ESM Practices are designed to reduce the long term maintenance costs on the road or trail. The Center maintains and presents a two-day "ESM-training" that is delivered to road maintenance professionals throughout Pennsylvania. Center staff also provides technical assistance, Geographic Information System services, research, technical documentation, annual workshops, seasonal newsletters, and more to road maintenance and conservation professionals throughout Pennsylvania and the Nation.

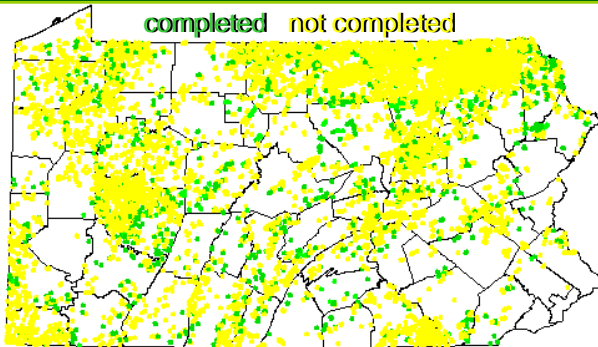
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PA's 17,000+ stream pollution sites on unpaved roads

The Dirt and Gravel Road Maintenance Program

The Center's "core funding" comes through the PA State Conservation Commission and PA Bureau of Forestry from the Dirt and Gravel Road Maintenance Program. This innovative program provides an annual \$5 Million apportionment to reduce sediment pollution from the State's 20,000+ miles of unpaved public roads. The Program is administered at the local level by Pennsylvania's network of 66 County Conservation Districts. Public road-owning entities such as township apply to their local County Conservation District to receive funding for individual road projects. The Program stresses "Environmentally Sensitive Road Maintenance Practices" that reduces sediment generation and delivery to streams (not paving). The Center provides education, training, quality control, project tracking, and project technical assistance to entities involved in the PA Dirt and Gravel Road Program.

The Center's Other Educational and Research Efforts

In addition to the training and technical assistance provided through the Dirt and Gravel Road Program, the Center has several other education and research related contracts and grants including:

- USFS Road Guide: Creating a field guide to ESM road maintenance with the US Forest Service. *(current)*
- DOE-NETL Grant: Study to quantify sediment from oil well roads in the Allegheny Nat Forest. *(complete)*
- Chesapeake Bay Commission Grant: Study to quantify sediment reductions of ESM practices. *(complete)*
- Lebo Road: Side-by-side comparison study of limestone and sandstone Surface Aggregates. *(complete)*
- Educational Efforts: The Center has presented the two-day "ESM Training" in Michigan and Arkansas.
- Outreach Efforts: The Center has presented at various professional meetings around the Country.

Information about the projects above, and many others, can be found at www.dirtandgravelroads.org.



Sampling road runoff in Potter County, PA.



A biker avoids a badly eroded trail in Blair County, PA.

The Center's Future

While providing education and technical assistance services to the Dirt and Gravel Road Program remains the Center's primary focus, recent years have seen an increase in interest from other parties. The Center has been working with several other States to share the knowledge and accomplishments obtained through PA's Dirt and Gravel Road Program. Research projects will continue to be a part of Center activities as opportunities and funding become available. The Center is always looking for new education and research projects to advance the Environmentally Sensitive Maintenance of rural transportation corridors. If your company or organization has some ideas and wishes to discuss some potential collaboration with the Center, please contact us using the information above.

Many technical resources and additional information available at: www.dirtandgravelroads.org