

Environmentally  
Sensitive  
Maintenance of

# Dirt & Gravel Roads



The Center for Dirt and Gravel Road Studies at Penn State maintains and delivers a two-day course specifically designed for anyone responsible for maintaining unpaved roads. The course focuses on simple and effective techniques to implement long-term solution to maintenance and pollution problems stemming from unpaved roads.

## About the Instructors:

The three course instructors come from a construction and environmental background. Each year they spend a great deal of time in the field implementing the ESM practice that they teach. They bring this real-world experience to the classroom in a way that relates to the audience. The three current instructors have given the two-day ESM course a combined 121 times to road maintenance professionals throughout Pennsylvania since the Program's inception in 1997.

## About the Materials:

The over 1,500 slides that make up the ESM course have been developed by the instructors through the ten years of Pennsylvania's Dirt and Gravel Road Maintenance Program. Slides consist largely of project pictures and graphical illustrations. Instructors speak with first-hand knowledge of most projects used in the curriculum. The course continues to grow and evolve as chapters are added and updated each year. A take-home CD and reference book are included.

Environmentally Sensitive Maintenance

Center for Dirt and Gravel Roads  
207 Research Unit D  
The Pennsylvania State University  
University Park, PA 16802



## Environmentally Sensitive Maintenance of Dirt and Gravel Roads

A comprehensive two-day course focusing on innovative and effective practices to reduce maintenance costs and sediment pollution from unpaved roads

Non-Profit Org.  
US Postage  
PAID  
State College, PA  
Permit No. 1



# Dirt & Gravel Roads

*Innovative and effective practices to reduce maintenance costs and sediment pollution from unpaved roads*

## A Few of the Course Topics:



## Course Description:

### **Background:**

This 2-day course has been developed through Pennsylvania's Dirt and Gravel Road Maintenance Program to promote practices that reduce maintenance costs and sediment pollution from unpaved roads. The intent of this course is to share the lessons learned and practices developed through Pennsylvania's Program with other road maintenance professionals.

### **Course Content:**

The two-day ESM course consists of 13 individual chapters:

1 Overview of PA Dirt and Gravel Road Program (optional)

*Ideal for anyone looking to start similar efforts*

2 "Natural Systems" and how they affect your roads

*Effect of basic natural principles effect on your road and how to work WITH them*

3 Introduction to Environmentally Sensitive Maintenance Practices

*On-the-ground ESMs are the basis of the rest of the course.*

4 Off Right-of-Way Influences

*Driveways, trails, farm lanes, more*

5 Roadside Vegetation Management

*Selective thinning, seeding, more*

6 Roadside Banks

*Bank benches, underdrains, soil properties, more*

7 Road and Stream Interfaces

*Stream crossings, high-water bypasses, more*

8 Parallel Road Ditches

*Flow reductions, channel linings, ditch elimination, more*

9 Ditch Outlets (turnouts, culverts, etc.)

*Shallow pipe installations, culvert/turnout placement, pipe alignment, more*

10 Driving Surface Aggregate

*Surface aggregate properties, geo-synthetics, more*

11 Road Surface Maintenance

*Grading frequency, tips, and techniques, more*

12 Road Surface Drainage

*Crown, insloping, outsloping, grade-breaks, more*

13 Additional Maintenance Techniques

*Dust control, full-depth reclamations, more*



Course development funded by the  
PA State Conservation Commission  
through the Dirt and Gravel Road  
Maintenance Program

**1.3 Continuing  
Education Units**  
from Penn State University,  
College of Engineering

## Who Will Benefit:

**Anyone who maintains  
unpaved roads!**

- Municipalities
- State and National Forests
- State & County DOTs
- Timber operations
- Oil and gas companies
- Landowner associations
- Private road/trail associations

This course is not about paving or chip-sealing, rather about maintaining dirt and gravel roads as a viable and sustainable part of the transportation network.

Course chapters are modular. One-day or smaller courses can be arranged. Over 4,800 road maintenance professionals have taken the course in PA, references available.

## Interested?

If you or your organization are interested in sponsoring an ESM course in your area, please contact Kathy Moir at the Center for Dirt and Gravel Road Studies.

  
**Center for Dirt and Gravel Road Studies**  
Toll Free: (866)-668-6683  
dirtandgravel@psu.edu  
[www.dirtandgravelroads.org](http://www.dirtandgravelroads.org)