



# Better Unpaved Roads for Nature and People



## Eroding Roads



*Runoff flows along the road, causing surface material to erode*



*Weak road base material and construction lead to erosion and poor driving conditions*



*Roadside ditch delivers sediment runoff directly to the stream*

## Unpaved Roads

Unpaved roads are the transportation backbone for rural communities and for many economic sectors in Arkansas, including timber, agriculture, ranching, and energy. These dirt and gravel roads are also our connection to hunting, fishing, boating, hiking and other recreation in the natural and wild places we love.

By the Numbers:  
Over 85% of Arkansas  
county roads are unpaved.

## The Problem

Eroding unpaved roads can channel rainfall runoff, increasing erosion and sediment delivery to our streams, rivers and lakes.

This sediment can have negative effects for both people and nature. It can fill in gravel stream beds, causing the loss of in-stream habitat for game and non-game fish and other aquatic species alike, make freshwater sources more expensive to treat for drinking water, and ultimately contribute to loss of lake capacity, further jeopardizing these drinking water sources. Economies that depend on recreational fishing and boating may also suffer from degraded water quality.

Eroding unpaved roads are expensive to maintain, requiring continual grading to smooth out the effects of concentrated drainage flowing across the road surface. Problem roads can also cause excessive wear and tear on vehicles and contribute to high levels of road dust, a significant issue in many rural areas.

By the Numbers:  
Lake Wister, nearby in  
Oklahoma, lost nearly 24%  
of its reservoir capacity from  
1985 to 2001 alone.

## The Challenge

Best Management Practices (BMPs) for construction and maintenance of unpaved roads are broadly accepted by road engineers and maintenance professionals as the most effective approach to managing roads that minimize sediment impacts to adjacent water bodies and aquatic habitat.

Use of BMPs reduces erosion and sedimentation by providing better drainage to the road system, stabilizing erodible ditches and drainage outlets, and creating a more durable driving surface. BMPs can reduce long-term costs by greatly reducing the need for replacing road surface gravel and reducing the need for road grading.

Road managers often do not have sufficient training to prescribe and implement BMPs appropriate to the unique conditions of their road systems. Even managers with knowledge and experience with BMPs may not have the budget needed to implement these practices. Though BMPs can reduce long-term costs, they may require greater up-front costs.

## The Solution

In early 2013, the Arkansas Association of Counties, The Nature Conservancy, and a dozen public and private partner organizations joined forces to establish the Arkansas Unpaved Roads Program.

The program's vision is to establish a proactive, incentive-based unpaved roads management program that results in the utilization of best management practices on rural, unpaved roads to minimize erosion, stretch county dollars farther, and maintain and improve the health of priority lakes and rivers.

By the Numbers:  
Effective BMPs can reduce erosion  
on roads by as much as 95%.

## The Program's goals are to:

- Establish dedicated funding sources and mechanisms for distribution of the funds.
- Fund safe, efficient and environmentally sound projects for the maintenance of dirt and gravel roads that have been identified as sources of sediment or dust.
- Provide training to road maintenance professionals on techniques of dirt and gravel road maintenance that minimize negative impacts to water and air quality.
- Conduct demonstrations of new and innovative techniques of dirt and gravel road construction and maintenance to assist in training of road crews and to more broadly share BMP's.

## Program partners:

Arkansas Association of Conservation Districts  
Arkansas Farm Bureau  
Arkansas Forestry Association  
Arkansas Forestry Commission  
Arkansas Game and Fish Commission  
Arkansas Highway and Transportation Department  
Arkansas Natural Resources Commission  
County Judges  
Natural Resources Conservation Service  
The Association of Arkansas Counties  
The Nature Conservancy  
University of Arkansas  
US Fish and Wildlife Service

## During Construction



*Alternative maintenance practices for stream crossing known as geo-cells*



*Geo-textiles used to strengthen road base and prevent loss of road material*



*Placing gravel aggregate with a paver*

## Post Construction



**Best Management Practices workshop - classroom**



**Best Management Practices workshop - Stone county grading demonstration site**



**Best Management Practices workshop - Johnson County demonstration site**

The partners envision a program that provides a sustainable source of funding to implement projects, trainings, and demonstrations. Counties or other road managers will leverage program funding for projects by matching one-to-one with cash or in-kind contributions and be eligible to apply for funding once they have completed an unpaved roads BMP training workshop.

Project proposals will be reviewed by a board of directors to prioritize limited funds. Preference will be given first to proposed projects in priority watersheds, which are identified by a criteria committee to include endangered species, drinking water sources, and other important characteristics.

## The Start

Prior to securing sustainable funding, the partners are seeking public and private funding to develop the program and establish five to ten demonstration projects in priority watershed areas throughout the state. These projects will demonstrate the effectiveness of the program to the public, decision makers, and funders, building support to ensure that the program will be sustainably funded, implemented statewide, and broadly effective in its goals.

### For more information, contact:

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The Nature Conservancy   
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