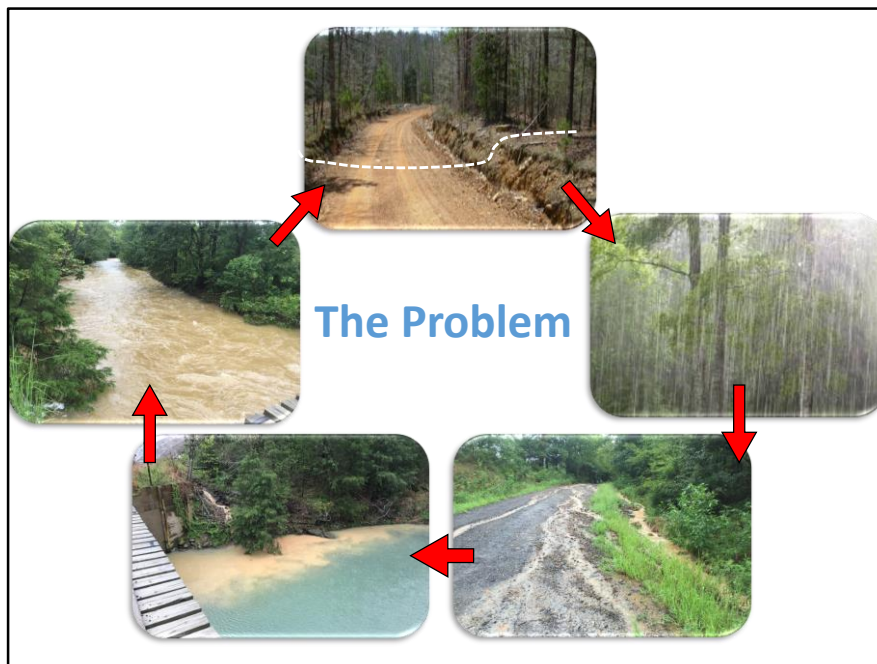So we'll take a deeper dive into unpaved roads. The unpaved roads program addresses sediment as it drains over the landscape by implementing BMP's

Unpaved roads are the transportation backbone for rural communities and for many economic sectors in Arkansas, including timber, agriculture, and energy

The Problem

Eroding unpaved roads are one of the greatest sources of sediment to our streams, rivers and lakes.

- Years of erosion and maintenance as lead to entrenched roads
- Essentially a dry creek bed until we get a rain event
- Ditches and road bed concentrates runoff which leads to erosion and sediment directly into streams – Because of how many unpaved roads and associated ditches are currently maintained, they become the conduit of sedimentation to the streams

IT ADDS UP TO A LOT OF SEDIMENT

And it adds up to a lot of sediment.

In our assessments of rivers with a forested corridor, like the Buffalo, unpaved roads are 40-60% of the sediment. Notice the amount of sediment flowing into Greers ferry Lake following a rain.

The positive – 90% of the sediment comes from less than 10% of the overall unpaved roads systems.

Simply, by investing and improving those segments of road that serve as direct conduits to streams and rivers we can make great progress in sediment reduction.
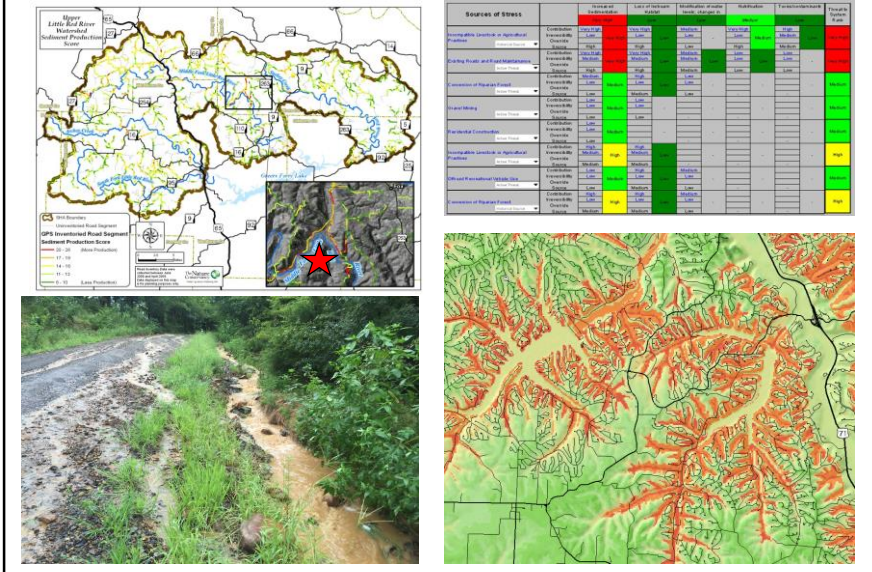
A way to help prioritize projects is to develop a Roads Assessment - identify the worst sections of eroding county roads - that are problems for the river/lake and for the county. It is important to of prioritize and identify overlapping tough problematic areas to create a win-win project.

Implementation: Prevent water from flowing onto roadway

Divert Surface Runoff from adjacent land uses, right-of-ways, access roads

Divert Sub-Surface Water from springs and seeps
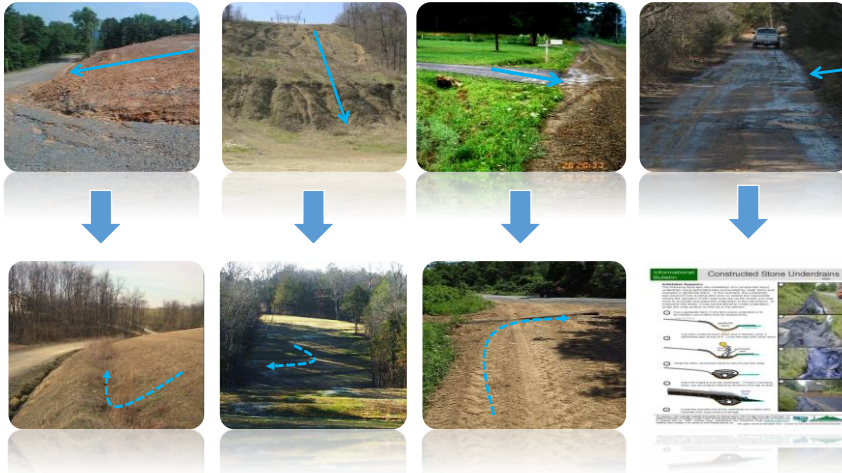
Implementation: Shed water off road early and often

Improve road **prism** with **crown, slope and/or elevation**

Eliminate **berms**

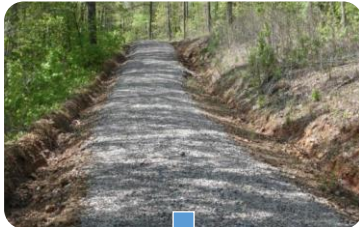Shed water with **grade breaks, broad based dips and/or other diversions**

Implementation: Shed water out of road ditches often

Eliminate ditches by **outsloping**, raising road **elevation**, eliminating **berms**

Increase **outlet frequency**, **shorten** ditch lengths

Increase **outlet distance** from **stream**

Implementation: Prevent surface erosion on vulnerable soils

Stabilize roadside cutslopes and fill slopes

Stabilize the **road surface**

Implementation: Reduce the effects of stream and wetland crossings

Design crossings that minimize erosion

Design crossings to transport flood flows and sediment

Design crossings that allow for aquatic migration

Design crossing that allow for transport of wetland flows

Implementation: Pilot Projects

Before — Construction — Construction — After
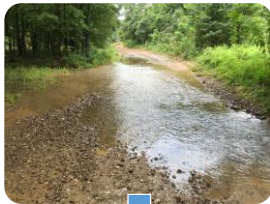
Meadow Creek Piolet Project as an example. Looks like a typical relatively steep, unpaved road when dry. Entrenched, Water flows directly over the road. Ditch is a direct conduit to the stream. Project consists of raising and building up the road bed, adding culverts, head walls so the culvert entrance doesn't erode, move the water out into the forest to be filtered before it gets to the stream. Add a driving surface aggregate that won't erode as much.
 - Pilot Projects are selected based on data from roads assessments. Road segments identified as areas contributing the majority of the sediment to the streams are likely the same road segments costing the counties in frequent maintenance costs.

Where are we now

By The Numbers:
22 Projects Funded
$2 Million in BMP Projects
17 Environmentally Sensitive Maintenance Workshops
200+ Road Professionals
50+ Counties and Municipalities

Completed 22 Arkansas Unpaved Roads BMP Projects

17 workshops with over 200 road professionals attending representing over 50 counties and municipalities

Projects are funded 50% by the program and 50% by the county. Start up funding was provided by the Arkansas Game and Fish Commission and The Nature Conservancy totaling $500,000.
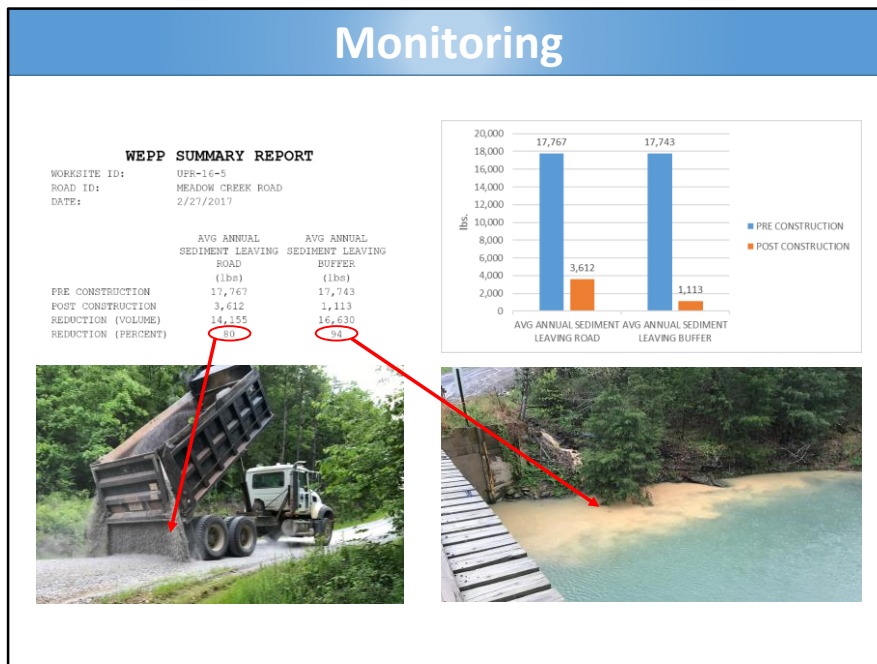
Monitoring:
Then we asses the progress to determine water quality improvement and cost saving to the county. IN this example we used a model called WEPP – Water Erosion Prediction Project (USFS)

80% Arrow – This means counties will be spending less time and money on maintenance
94% Arrow – This means less dirt and sediment is going into our streams, rivers and lakes.

How does implementing BMPs save counties time and money?
        Improved unpaved roads and stream crossing require less maintenance after
        rain events