NEW

Effective Maintenance

For Ranch, Fire and Utility Access Roads

~ WILDLAND SOLUTIONS FIELD GUIDE SERIES ~

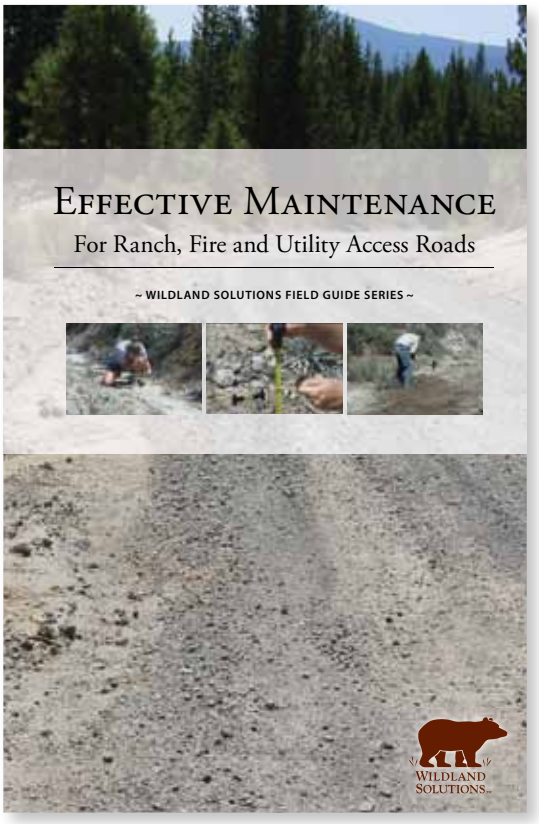
Ranch, fire and utilities access roads can be a maintenance headache.

Could you use some practical solutions that are…

Easy to understand
Environmentally friendly
Able to reduce costs and prevent problems

"The field guide provides maintenance strategies that focus on opportunities rather than rules."

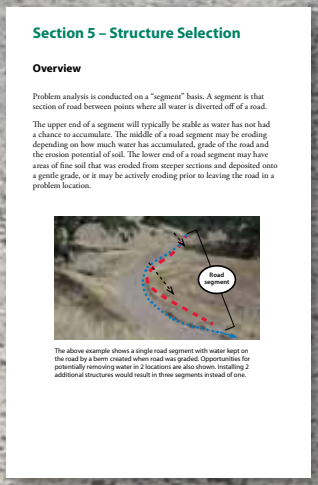
"There is a focus on techniques that prevent problems instead of repairing problems."



"The adverse impacts of limited budgets can be reduced by providing employees and clients with self-study tools such as the Effective Maintenance field guide."

Finally! **An easy to read field guide that communicates important access road design and maintenance principles with the use of highly effective graphics.** There are many road publications that discuss how to build new roads, usually from an engineer's point of view. This field guide is unique in that it focuses on what most ranchers and utility access road managers actually need; which is a better understanding of why problems occur, how to identify potential problems and determine cost effective solutions for their specific situation.

1



Section 5 – Structure Selection

Overview

Problem analysis is conducted on a "segment" basis. A segment is that section of road between points where all water is diverted off of a road.

The upper end of a segment will typically be stable as water has not had a chance to accumulate. The middle of a road segment may be eroding depending on how much water has accumulated, grade of the road and the erosion potential of soil. The lower end of a road segment may have areas of fine soil that was eroded from steeper sections and deposited onto a gentle grade, or it may be actively eroding prior to leaving the road in a problem location.

The above example shows a single road segment with water kept on the road by a berm created when road was graded. Opportunities for potentially removing water in 2 locations are also shown. Installing 2 additional structures would result in three segments instead of one.

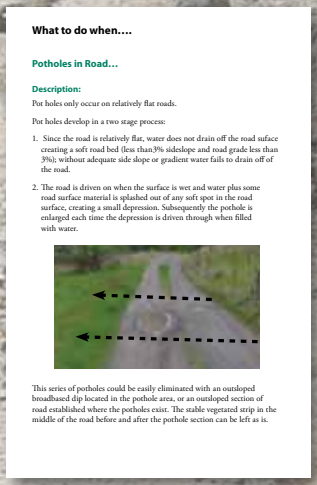
2

6. Structure size needs to reflect road intended use

A long rolling dip with 25-50 foot approaches is appropriate for an access road that has moderate use and traffic speeds of 20-25 miles per hour.

A short rolling dip or water bar with approaches of 2-4 feet is appropriate for a seldom used 4x4 road with typical speeds of 10-15 miles per hour. Note: the bottom of the new structure is constructed with the same 5% gradient as the road grade above the rolling dip to prevent sediment accumulating in the ditch.

3



What to do when....

Potholes in Road...

Description:

Pot holes only occur on relatively flat roads.

Pot holes develop in a two stage process:

1. Since the road is relatively flat, water does not drain off the road suface creating a soft road bed (less than3% sideslope and road grade less than 3%); without adequate side slope or gradient water fails to drain off of the road.
2. The road is driven on when the surface is wet and water plus some road surface material is splashed out of any soft spot in the road surface, creating a small depression. Subsequently the pothole is enlarged each time the depression is driven through when filled with water.

This series of potholes could be easily eliminated with an outsloped broadbased dip located in the pothole area, or an outsloped section of road established where the potholes exist. The stable vegetated strip in the middle of the road before and after the pothole section can be left as is.

Ranch owners, managers and equipment operators responsible for maintenance of access roads can easily relate to and understand this field guide's common sense approach to road maintenance.

Agency personnel will find this field guide to be a very useful tool that assists in communicating sometimes complex ideas and concepts to clients.

Managers of public utility access roads need to be leaders in maintaining an environmentally friendly road system. The field guide helps utility managers and their equipment operators provide needed access while protecting the environment.

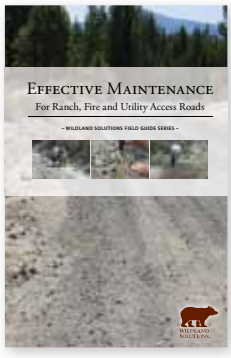
Workshops:

Wildland Solutions offers workshops that can be customized to the specific needs and issues a client may have. After attending a workshop, participants are able to better understand what causes access road maintenance problems and are prepared to reduce undesirable access road problems.

This example is of a 5% steepness road grade, with a 3% reverse grade at the lower end of the rolling dip. The road sideslope is 0%. The angle of the rolling dip is 60 degrees. The bottom of the rolling dip is outsloped equal to the road grade of 5%.

How to Order:

"Effective Maintenance for Ranch, Fire and Utility Access Roads" field guides can be ordered at:
www.wildlandsolutions.com/products



Contact:

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