Better ditch maintenance

Identifying and correcting road problems that are bad for the environment is the primary focus of the field guide

EFFECTIVE DRAINAGE is necessary to keep paved and unpaved roads in good condition and reduce maintenance costs. Well-constructed and maintained roadside ditches are the answer for most local roads in Wisconsin.

A recently published field guide about environmentally sensitive maintenance for dirt and gravel roads includes practical advice on ditch maintenance that is useful whether the road is paved or unpaved, adjacent to an environmentally sensitive area or not. Maintaining a ditch in good condition to slow the velocity and reduce the volume of water in the road drainage system will reduce erosion and allow the runoff to infiltrate naturally.

Correcting problems

Identifying and correcting road problems that are bad for the environment is the primary focus of the helpful field guide produced by the Pennsylvania State University Center for Dirt and Gravel Road Studies in conjunction with the United States Forest Service. *Environmentally Sensitive Maintenance Practices for Dirt and Gravel Roads* visually communicates strategies for maintaining unpaved roads that run near streams and rivers. Besides preventing adverse effects on natural areas, the authors contend that environmentally sensitive practices keep maintenance costs in check and help roads last longer.

Chapter-by-chapter, the guide presents visuals that show common road problems and details practical solutions for correcting them.

Ditch maintenance

Chapter Four deals specifically with roadside ditches. It defines the criteria for using this method to disperse water and discusses alternatives that restore natural-surface drainage patterns.

The chapter has information on reading the ditch, an important step in diagnosing problems and identifying the best solution. *Environmentally Sensitive Maintenance Practices* describes a process that helps local road crews assess specific conditions so they can address problems with drainage rather than the symptoms. It calls for detecting subtle changes in the landscape and road to see where to apply appropriate maintenance practices. To *read the ditch*, a worker would:

- walk downhill along ditch to document frequency of outlets
- look for signs of erosion or downcutting
- record signs of debris and scour from runoff events
- estimate ditch stability and how long before it needs additional outlets
- check for locations above erosion point to create new outlet if needed
- document condition of ditch and outlets
- identify any water from offsite sources that increase the existing volume flowing through the ditch

Other topics include raising the road profile and berm removal. This "secondary ditch," caused by improper grading of unpaved roads or washout of shoulder materials along a paved road, can lead to erosion and road-edge deterioration.

A further discussion of ditch maintenance techniques illustrates options that improve how systems collect and disperse surface water and high groundwater from springs or seeps.

Reading the ditch lets local road crews assess specific conditions so they can address problems with drainage rather than the symptoms.

Evaluate outlets

The field guide also discusses how to evaluate cross-drain culverts and ditch outlets to spot problems with erosion. Photos and illustrations compare solutions to show which are ecologically friendly and low maintenance. One example contrasts the benefits of a shallow cross-pipe approach that positions the outlet at ground level and avoids the need for extensive excavation versus traditional deep culvert construction that concentrates runoff and cause more pollution. Other strategies covered in the section on outlets are through-the-bank pipes placed in the downslope that drain water away from the road and the use of headwall and endwalls.

Local governments in Wisconsin that plan to modify roadside ditches and culverts should contact their Department of Natural Resources Transportation Liaison early in the planning stages to determine if they need a permit.

They also can discuss with DNR staff members how the project will protect both the road and the natural creeks, streams and lakes where the road ditches empty. Go to the link under *Resources* on this page for liaison contact information.

Reduce need for repairs

One point made in the Forest Service publication is that well-designed roads are less costly to maintain and have minimal impact on natural resources. Conclusive research by the Wisconsin DNR and other experts shows that the fine soil particles from erosion that occurs on construction sites, unpaved roads and improperly maintained road drainage systems will degrade nearby tributaries and natural bodies of water over time. Good ditch and culvert maintenance reduces the need for repairs to the drainage system and to the road. ■

Resources

http://www.fs.fed.us/eng/pubs/pdf/11771802.pdf

Link to downloadable copy of US Forest Service publication on environmentally sensitive maintenance practices for dirt and gravel roads.

http://dnr.wi.gov/topic/sectors/transportation.html

Wisconsin Department of Natural Resources page describes the Transportation Liaison program and has links to a list of contact numbers for representatives around the state.