Public Roadside Drainage Systems in Worcester County, Maryland

In Worcester County, roadside ditches are the typical means for providing flood control for roads, but if not managed optimally, these ditches can also contribute to water pollution.

The purpose of this fact sheet is to provide Worcester County citizens with information about the roadside drainage system, specifically, where does roadside drainage occur, how it is maintained, why certain maintenance techniques are preferable, and what actions citizens can take to ensure optimal road safety and water quality associated with the drainage system.

What is the Purpose of Roadside Ditches?

Roadside ditches, swales or similar drainage features are installed to move water from rain and runoff from the road to a pond, creek, or other waterway. A ditch may require design and maintenance that is based upon specific local characteristics and needs to ensure adequate road drainage as well as safety.

Bare soil in this ditch will erode and contribute to pollution downstream. *Photo by Bruce Nichols, NRCS*

Who is Responsible for Drainage in Worcester County?

All public roads are located within land which is referred to as the road right-of-way (R-O-W). Roadside drainage features, typically ditches, are also located within road R-O-Ws. The R-O-W is typically owned and managed by a public entity, such as the County or a homeowners' association. The Worcester County Department of Public Works has jurisdiction over, and is responsible for managing, County road R-O-Ws.

Importantly, the role of a ditch or other drainage feature within the road R-O-W is to drain the road, not the adjacent private property. Drainage of private properties is the responsibility of homeowners' associations, Public Drainage Associations (these exist primarily in agricultural areas) or individual property owners.

Sediment traps and protective buffers improve water quality downstream. *Photo by Bruce Nichols, NRCS*

How Can a Ditch be Designed and Managed to Minimize Pollution?

Pollutants from the roadway as well as sediment can be transported from the road R-O-W to surface waters or groundwater, and ultimately, to the bays. Adequate vegetation and/or ponding slow and filter runoff. To ensure water quality is protected, the County creates gentle slope drainage swales wherever possible; uses seed and matting to stabilize new drainage; does not cut trees or remove stumps, except when necessary to improve road drainage or for safety reasons; and mows only 5 times per year.

Aren't "Clean" Ditches the Best Way to Assure Drainage?

Removing vegetation and exposing soil does not improve ditch drainage, and can pollute downstream waters with additional sediment and clog drainage.

Should There be Water Standing in the Ditch?

The open drainage system is suited to our coastal, rural landscape. It also helps protect water quality by slowing the movement of stormwater and providing some settling of sediment and uptake of pollutants before it reaches creeks or bays. Unlike dense urban areas, Worcester County does not use closed pipe systems to convey stormwater. Closed pipe systems are expensive and they can cause costly damage to water quality.

Photo by Katherine Munson

What Design and Management Techniques Both Protect Water Quality and Provide Adequate Drainage?

- Shallow, wet ditches remove nutrients and settle out sediments better than deep, narrow ditches.
- Stable, vegetated ditch sides prevent erosion.
- Small pools, if it is possible to provide them, trap sediment.
- Ditching should be avoided in areas where the road R-O-W consists of tidal marsh, because roadside drainage will usually not be improved while sediment pollution will increase.
- Should trees be removed from a road R-O-W, stumps should be left in place to prevent erosion and retain stability unless drainage is impeded.
- Grass buffers adjacent to a ditch/drainage area help reduce erosion, therefore reducing the need for maintenance.

A wide, shallow drainage area can reduce erosion and control sediments. *Photo by Bruce Nichols, NRCS*

But What About Mosquitoes?

Unfortunately, mosquitoes are part of life on the coast. Because mosquitoes sometimes carry diseases that affect humans, there are certain actions and precautions both government and you can take to minimize human exposure. Mosquitoes breed best in standing water without natural predators. The best example of this situation is a container left about that fills with rainwater. Draining County roadside ditches will have no significant effect on local mosquito populations if wetlands or salt marsh is nearby. Ditches that drain within 30 hours of a storm event will not breed mosquitoes. Some ditches provide some habitat for mosquito predators, such as fish, which can minimize the mosquito population.

Photo by Katherine Munson

How Can Citizens Contribute to Road Safety and Water Quality?

Landowners adjacent to road R-O-Ws can work with the County to ensure that both public safety and the environment are protected. Recognizing the purpose of the roadside drainage system and qualities of effective, environmentally friendly drainage is the first step. Adjacent landowners should **NOT** do the following activities in a road R-O-W and ditch:

- **Scrape or excessively mow, exposing bare soil, as this can contribute to erosion and sediment pollution.**
- **Fertilize or apply herbicides, as this may pollute water.**
- **Place any materials in the R-O-W including: yard debris such as grass clippings or leaves, landscaping such as trees or rocks, or pavement as this may impede road drainage.**

Landowners who are interested in working with the county to install practices that enhance water quality associated with roadside drainage may contact the Department of Comprehensive Planning at 410-632-5651.

For more information or to report a problem with road drainage, please contact Worcester County Department of Public Works, Roads Division, 410-632-2244.

Adjacent property owners can reduce pollution by avoiding over-mowing, fertilizing or placing stone, wood or cement in the R.O.W. *Photo by Bruce Nichols, NRCS*

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