

## Roadway Drainage

### A one-day course

Fee: \$50

Time: 8:30 am to 4:00 pm

Class Size: 35

Locations: Classes are held in various locations around Washington State

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### Instructor

William F. Heiden, P.E., L.S.

Mr. Heiden is a professional engineer and retired land surveyor. He has a background of over 40 years experience as a county road engineer and contractor working in the construction and maintenance of roads in Larimer and Gilpin Counties in Colorado. Since 1999 he has consulted and lectured in New Mexico, Arizona, South Dakota, Texas, Utah, Oklahoma, Indiana, Idaho, Oregon, Alaska, Wyoming, as well as in Washington State and British Columbia. Mr. Heiden is recognized throughout the United States for his expertise on drainage and gravel roads. He has a wealth of knowledge on practical business measures that can help cut costs for your agency.

### Target Audience

This workshop is for anyone who works with rural roads and has responsibility for maintenance and/or construction of roadways. Maintenance operators and supervisors of city, county, tribal, state, utility districts, contractors, state and forest service roads, BLM, and other agencies will expand their knowledge about roadway drainage.

### Course Description

This one-day workshop will discuss appropriate methods to use in determining proper size of ditches and pipes as well as the proper method of constructing and maintaining each.

### Subjects to be Addressed

- Basic Road Design Characteristics
- Basic Soil Characteristics
- Basic Hydrology
  - Drainage Areas
  - Runoff Factors
  - Rainfall Intensity
- Hydraulics
  - Culvert Materials
  - Sizing Culvert
  - Sizing Ditches



- Placement of Culverts
- Culvert End Treatments
- Culvert and Ditch Maintenance

Students will receive a course manual “Roadway and Roadside Drainage” by David P. Orr, from the Cornell Local Roads Program, Ithaca, New York.

For further information contact Judy McDonald, Training Program Coordinator, at (360) 705-7355 or [McdonJT@wsdot.wa.gov](mailto:McdonJT@wsdot.wa.gov).

