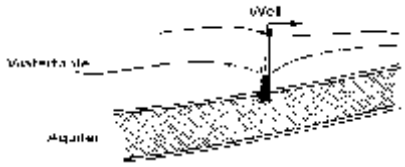
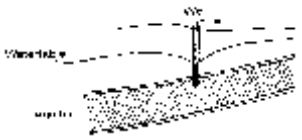


Subwatershed Category: Aquifer Protection

Description:	Subwatershed where surface water has a strong interaction with groundwater and where groundwater is the primary source of potable drinking water.*
Goal:	Maintain or enhance the quantity/quality of shallow ground- water.
Subwatershed Planning Objectives:	• Maintain recharge rates to aquifer. • Meet drinking water standards at public and private wells. • Prevent pollutants/pathogens from entering groundwater. • Prevent rapid conveyance/entry of stormwater into groundwater.
Special Watershed Analyses:	• Delineate wellhead protection and general recharge areas. • Enact hydro-geologic studies to define surface/groundwater interactions. • Inventory potential contaminant source areas. • Compute groundwater pumping/drawdown rates.
Indicators of Success:	• Positive trends in selected water quality parameters within test wells. • Selected bioindicators at springs/seeps (e.g., salamanders, fish, macroinvertebrates).
Unique Stakeholders and Institutions:	Wellhead protection plans, underground injection permittees, community and private well owners.
Key Issues to Consider:	• What are the effects of agricultural groundwater inputs and withdrawals? • What are the effects of hazardous waste sites on groundwater quality?

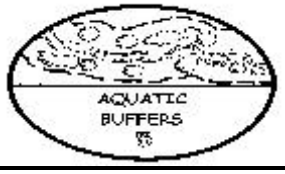
* This particularly applies to karst regions that are underlain by carbonate rock. This landscape is typified by springs, caves, and sinkholes and has a rapid and strong surface/ groundwater interaction.



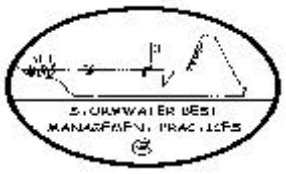
Subwatershed Plan Criteria: Aquifer Protection

- Use overlay zoning on recharge areas.
- Direct development away from significant recharge zones.
- Limit creation of new impervious cover in recharge zones.
- Prevent sinkhole formation (in karst regions).

- Insulate or prevent groundwater interaction with solid or hazardous waste sites.
- Protect sinkholes, caves, losing streams, springs (Karst regions).
- Preserve native vegetation on the landscape.



- Provide a substantial buffer from public and private wells.
- Provide “vertical” and lateral buffers to groundwater for stormwater and wastewater disposal (minimum separation distances).
- Employ buffers around critical karst features.



- Prevent infiltration from stormwater hotspots.
- Fully treat stormwater prior to sub-surface discharge.
- Require liners and geotechnical tests for ponds in karst areas.
- Emphasize non-structural practices that spread water evenly over landscape.
- Provide discharge rate and location analysis to ensure acceptable water balance.

- Septic system siting, technology, and maintenance.
- Encourage hazardous materials collection and proper disposal.

- Conduct education programs on groundwater protection
- Fertilizer and pesticide application use education.
- Encourage/ require commercial, residential and industrial pollution prevention.
- Monitor private wells for contamination.

- Emergency spill response.
- Contingency planning.
- Groundwater injection permits.
- Underground storage tank (UST) and SARA 312 Inventories.