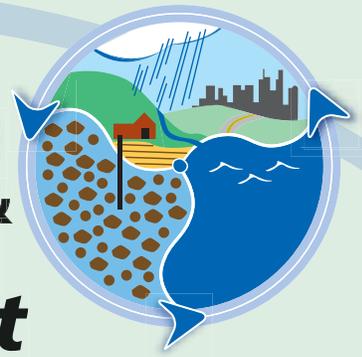


# Ground Water & Land Use Planning and Development



## Key Message

Ensuring enough quality water to support various land uses and economic development can be the driving force toward increased ground water protection efforts at the local level. As uses change from rural to urban or agricultural to suburban lifestyles, we must pay careful attention to how we modify the natural environment. Land-use decisions that fail to consider the long-term quality, availability, and susceptibility of ground water resources create conditions that contribute to loss of ground water recharge, overuse of water resources, and human health and ecological impacts resulting from ground water contamination. On the other hand, land-use practices that protect and conserve water resources and maintain or even increase aquifer recharge are key to maintaining long-term water availability and economic vitality.

## why land use matters to ground water...

Each time the use of a land area changes, it can affect the hydrologic makeup of the landscape. Highways, shopping centers, housing developments, industrial sites, businesses, agricultural operations, golf courses, feedlots, waste disposal sites, airports, ski slopes, and sewer systems (to name a few) have the potential to directly or indirectly impact the quantity or quality of both ground water and surface water.

Land-use planning and development decisions must routinely take into account such factors as the location, quality, yield, vulnerability, and recharge potential of aquifers and the projected availability of water for the long term. To be truly effective, this information must be incorporated into local comprehensive plans and policies. Fortunately, there is a growing body of land-use tools that provide effective ways to protect ground water and the environment, as a whole, and to

maintain and improve our quality of life. But it is essential that local decision makers have access to these tools and that they apply them to land-use planning, zoning, and land acquisition decisions. When they do this, they can effectively protect and sustain their local ground water resources.

*A ground water spring emerges from a group of trees at the base of Fredrick's Hill in Middleton, Wisconsin, and flows south through a marsh to Lake Mendota. The marsh is being surrounded on all sides by housing developments. There is concern that paved surfaces and increased ground water pumping will threaten both the spring and the wetland.*





## Recommended Actions



### To Congress:

- Support and provide funding to the USGS and state geologic surveys and water resource agencies to support increased ground water resource characterization. The availability of this kind of information will enable local and state governments to direct development in ways that are compatible with the quality, availability, and sustainability of water resources.
- Include ground water protection targets and continue to provide funding for federal conservation and revitalization programs (e.g., Environmental Quality Incentives Program, Conservation Reserve Program, Land and Water Conservation Fund, Army Corps of Engineers water resources funds, Urban Parks Restoration and Recovery program, EPA Brownfields grant program, EPA watershed grant programs, NOAA Coastal and Estuarine Land Preservation programs).

### To Federal Land Management Agencies (e.g., BLM, Forest Service, USDA):

- Direct program efforts toward managing lands in a manner that is protective of ground water; specifically focus conservation and protection programs on preserving land within critical ground water recharge and source water protection areas.

### To USGS:

- Support and conduct mapping of ground water resources for use by local governments.
- Support and conduct research to provide a scientific basis for understanding how specific land-use practices and land-use changes affect ground water, emphasizing local community needs.

### To USEPA:

- Enhance EPA Smart Growth/low-impact development outreach and assistance activities and materials to support ground water protection to the same extent as surface water protection, including the following:
  - Support research to provide a scientific basis for understanding how specific land-use practices and land-use changes affect ground water.
  - Encourage state water-quality programs and local governments to utilize available land-use tools to protect ground water.

### To Governors and State Legislatures:

- Enact legislation to develop state criteria for local governments to incorporate ground water and source water protection elements into zoning regulations and comprehensive planning processes.

### To Local Governments:

- Ensure that land-use policies and plans recognize and incorporate the protection of ground water resources as integral to sustaining the long-term social, economic, and environmental health of our communities.



*An organic garden that is part of a preserved open space designed into the East Lake Commons in Decatur, Georgia.*

- Impacts are cumulative. The more we modify the hydrologic cycle—runoff, evapotranspiration, infiltration—the more we risk reducing or losing water resources over time. The good news is that we can prevent and even repair many of these problems if we act quickly to institute science-based land-use management measures. Often, this is most doable at the local level, where governing bodies have sufficient authority to control land-use activities and conditions that threaten their ground water, particularly if it is an existing or potential drinking water source.

Photo: Village Habitat Design, LLC

This summary sheet is taken from the "Land Use Planning and Development" chapter of the Ground Water Protection Council's (GWPC) *Ground Water Report to the Nation: A Call to Action*. Contact GWPC for the full report.