

## Comprehensive Rainfall Runoff Model for the Yahara River System

Decisions facing watershed managers of the Yahara River and Lakes Mendota, Monona, Waubesa and Kegonsa in Dane County are complex, and will become more so given watershed growth trends. The impacts of these trends can cause the lakes to rise to high levels more often, to higher levels than ever before, and require longer periods to return to desirable levels. The Dane County Land and Water Resources Department (LWRD) recognized a need to develop better tools for managing lake levels and river flows in the Yahara River chain of lakes, and contracted with Baird & Associates to develop a coupled hydrologic and hydraulic model to quantify the effects of a wide range of Yahara River watershed changes.

Total model development cost was \$189,500, the majority of which was provided by the Madison Gas and Electric Company. A \$10,000 DNR Lake Planning grant (LPL-999-05) also supported model development.

The completed model, expected in April 2007, will enable LWRD to understand the long-term effects of urbanization and other watershed changes. The model will also allow LWRD to optimize decisions regarding policy (e.g. riparian zoning), lake level management (especially during high flow events so that released flow doesn't exacerbate downstream flooding), biological and environmental concerns (e.g. providing adequate flow and levels for fish spawning), and infrastructure improvements (e.g. repair and replacement of locks and dams).