

## Natural Resources

# Plan conservation practices faster, more accurately online

### Key Points

- Online software offers time savings and accuracy in conservation planning.
- New programs help plan and estimate costs for waterways and wetlands.
- The programs can only be used in counties with LiDAR data available.

By LYNN BETTS

**D**ESKTOP planning for conservation practices got off to a good start in some states a little more than a year ago, when online computer programs called PondBuilder and BasinBuilder were introduced to conservationists who plan and design conservation practices for farmers and ranchers.

The programs were touted for significant time savings in their ability to locate a proposed practice on the landscape and to generate an accurate cost estimate. The one-of-a-kind PondBuilder, for instance, can place a proposed pond in the landscape; generate an aerial photo with the pond's permanent and temporary pool areas clearly drawn; estimate the cubic yards of earthmoving and size and length of pipe needed; and generate an accurate cost estimate — in less than 15 minutes.



#### LANDSCAPE LOCATION:

WaterwayBuilder will locate the centerline of the proposed waterway on an aerial map, measure its length and show multiple reaches.

That rapid turnaround time compares to several months using current methods in most parts of the country, where it takes time for conservationists in USDA field offices to schedule and make a field site visit for preliminary surveys, then take more time back in the office to make the calculations for sizes and costs.

#### WetlandBuilder, WaterwayBuilder

Now, the company behind the first two programs is introducing online planning programs for two more practices — waterways



STAN BUMAN

and restored wetlands. WetlandBuilder works much like PondBuilder, locating the dike on an aerial map, estimating costs for pipe and building the dike, and drawing a pool area. In addition, it uses shades of blue to show projected water depth in the wetland at levels of 0-1 foot, 1-2 feet, 2-4 feet, and greater than 4 feet over the entire pool area (providing you don't move earth from the wetland area to build the dike).

There's no limit on the drainage-area size for the online tool, but it works for dikes only as high as 10 feet, because side slopes, spillways and other features change when a dam exceeds 10 feet. Dams higher than that use the PondBuilder program.

WaterwayBuilder is a popular program as well.

All the programs use LiDAR, or Light Detection and Ranging, elevation data that government agencies are making available, county by county.

LiDAR is the key to online planning; programs are available for use only in counties that have made LiDAR available.

LiDAR's three-dimensional location and elevation sketches — accurate to within a



**VISUALIZING WATER DEPTHS:** Screen shots in the WetlandBuilder program are color-coded to show the varying water depths that will be created. The shots also show contour lines and where the dike will be, and they draw a boundary for the drainage area of the wetland.

foot in most terrain — save time from traditional on-site land surveys for planning purposes.

WetlandBuilder is available now, and WaterwayBuilder is expected to be available in licensed counties by March or April this year.

"The tools will help us make better use of LiDAR technology and the people we have in the field. Using them is good for all of us — the state and federal agencies, local districts and landowners. As we get more of the pieces added, including terraces, they will be even better," says Jim Gillespie of the Iowa Department of Agriculture and Land Stewardship.

Online planning, he says, could well one day be the standard for quick, efficient planning. For more information, contact Buman at [stan@agreninc.com](mailto:stan@agreninc.com) or online at [agreninc.com/conservation.php](http://agreninc.com/conservation.php).

Betts writes from Johnston, Iowa.

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