

## Making Waves in Floodplain Mapping

### *Winnebago County Modernizes Land Records*

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**W**innebago County—known for its abundant water resources—has taken a step to more accurately chart the waters when they run wild. The county has recently modernized its land records as part of the Winnebago County Geographic Information (WINGS) project. Although the project is broad in scope, one immediate measurable benefit of the modernization effort is the impact that up-to-date information has had on property values and flood insurance costs for homeowners and businesses that lie within the Lake Winnebago floodplain, which includes the Fox and Wolf Riversheds. (See *Summary of Benefits* sidebar, and Table 1)

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#### **WHAT CHANGES HAVE BEEN MADE?**

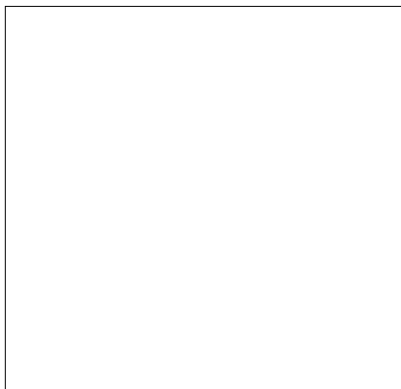
##### **A multipurpose land information system**

The WINGS project was designed to allow local government agencies, public utilities and private enterprise to share their resources to better serve 150,000 people residing in a 578-square-mile area. The new, sophisticated land information system (LIS) contains 85,000 land parcels and 65 layers of specialized information; it also provides a common base map with a horizontal accuracy of two feet. Seven political jurisdictions joined together in 1989 to develop this integrated land information records system. Its purpose is to:

- Eliminate the redundant capture, storage and retrieval of land records,
- Standardize the recording and storage of land records, and
- Serve the public more efficiently at less cost.

##### **New land information technologies acquired**

The LIS for the WINGS project can be described as primarily a Genamap system, which is a geographic information system (GIS) software package. It runs on a UNIX platform and uses a fiber-optic network to share data with the city of Oshkosh. The fiber network now is being extended to include the cities of Neenah and Menasha.



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## HOW ARE THE BENEFITS REALIZED?

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### Quick, Accurate Response

The Winnebago County Office of Planning and Zoning is responsible for issuing land use permits for new construction in the county. WINGS has allowed the county's staff to evaluate land use restrictions more quickly, more accurately, and with much greater ease. One issue the staff must evaluate is whether the property is in the floodplain (defined here as the extent of land inundated by "1% chance," or sometimes referred to as 100-year floods).

### 'Customers' receive new and improved products and services

The digital format of the land records and faster access of documents is resulting in better and new services for the general public. The system has made it possible for the staff to issue land use permits and to provide much faster responses to inquiries with greater accuracy and confidence. The county is also able to produce new map products for customers who are not able to analyze the digital data themselves.

In addition, a new Winnebago County Website now offers public access to Federal Emergency Management Agency (FEMA) maps in addition to the county's digital land records and other data. (Website: <http://www.clients.camber.com/wings>)

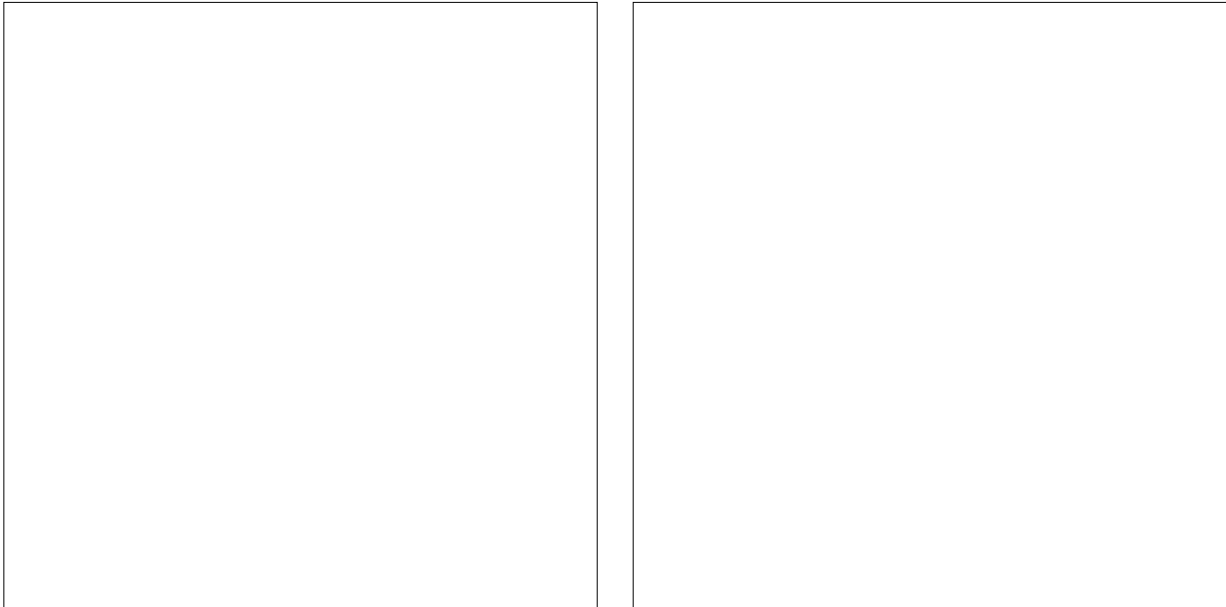
### Equitable floodplain zoning

Under federal and state law, flood insurance rate maps (FIRMs) produced by FEMA must be adopted by localities in their floodplain zoning ordinances. The zoning office uses FIRMs to determine where, and how, new structures can be built. Banks that provide mortgages use these maps to determine whether or not homeowners will be required to purchase flood insurance to obtain a loan.

Due to differences in scale, the old FIRMs did not fit Winnebago County's new large-scale mapping format. To allow the floodplain mapping to be used in the county land information system, digital terrain models and GIS capabilities were used to redelineate floodways and floodplains. Thanks to the new high-quality data and the reliability of the analysis, the county—with the approval of the Wisconsin Department of Natural Resources—is using these new digital floodplain maps for issuing building permits. The revised mapping showed that many homes had been inappropriately located in or out of various flood zones. FEMA is now in the process of revising the hard-copy FIRMs based on this better information. (Figure 1)

## SUMMARY OF BENEFITS

- **Money:** Annual insurance savings of \$300-\$500 for approximately 1,100 households. There is also a reduced burden on emergency and disaster-relief funds.
- **Home values:** Home values have increased by more than \$1 million for affected homes.
- **Better maps:** Two-foot contour maps have led to more accurately determined flood-prone areas and Flood Insurance Rate Maps (FIRMs) (the old FIRMs relied on 10-foot contour maps).



**Figure 1. The original floodplain map (left) shows the old floodway and a large flood fringe area containing a number of structures. The redelineated floodplain (right) shows a redefined floodway and structures that now clearly fall outside the floodplain.**

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**WHAT ARE  
SOME SPECIFIC BENEFITS?**

**The way it was**

Prior to 1995, FEMA flood insurance rate maps for Winnebago County identified 5,700 structures in the floodplain. What did this mean to the homeowners? Because lenders referred to FIRMs to see if a property needed flood insurance, many owners who felt they were not in the floodplain were required to purchase costly flood insurance in order to obtain a loan. Or, they could pay in excess of \$5,000 to prove they *were* outside the floodplain. In addition, a floodplain ruling devalued the worth of their buildings and property.

**Lower insurance, higher home value**

The new, more accurate floodplain delineation showed that 2,400 of the 5,700 structures in the old FIRMs were actually outside the floodplain; however, 1,300 other buildings outside the original FIRM floodplain were, in fact, within the floodplain. Overall, that's a net decrease of 1,100 structures in the floodplain.

Typical insurance savings for a home lying outside the floodplain is estimated at \$12,000 over the life of a 30-year mortgage. For 1,100 properties, that adds up to nearly \$14 million in savings for Winnebago County homeowners. In addition, the county estimates that home values for the affected properties have, in total, increased by more than \$1 million.

**Benefits on the side**

Owners of the 1,300 properties recently shown to lie *within* the floodplain can now be spared the potential heartbreak of being flooded with no insurance protection. In addition, development will be tightly regulated in these newly identified flood-prone areas, which will reduce risks to life and property while reducing public costs for rescue, relief and disaster assistance.

*For more information, contact David Schmidt, Director, Winnebago County Planning and Zoning, Administration Building, Room 210, 448 Algoma Boulevard, Oshkosh, WI 54903; 920-236-4840.*

**Table 1. Benefits of Winnebago County Multipurpose Land Information System**

Winnebago County's accomplishments include:	Efficiency				Effectiveness		Equity	
	Reduce/ Eliminate Costs	Avoid Costs	Faster	Easier	Better Service	New Service	Equal/ Improved Access	Equal Treatment
• Replaced traditional FEMA maps with sophisticated, accurate GIS containing 85,000 land parcels and detailed floodplain models			√	√	√			√
• Improved existing services in both timeliness, accuracy and quality; new map products for public; reduced need for emergency and disaster-relief services	√	√			√	√	√	
• Annual flood insurance savings of \$300 to \$500 for approximately 1,100 households	√							√
• Estimated \$1 million-plus increase in home values for homes no longer identified as lying in "high-risk" flood zones								√

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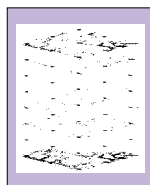
## SELECTED REFERENCES

Lulloff, Alan R. (WDNR) and Cynthia Pollnow (FEMA). 1993. "Winnebago County Floodplain Redelineation Project," in Proceedings of the Association of State Floodplain Managers, Atlanta, GA, March 1993, pp. 102-106.

Lulloff, Alan R. 1994. "Winnebago County Floodplain Redelineation Project," in Proceedings of Urban & Regional Information Systems Association, Milwaukee, WI, August 1994, pp. 675-679.

## ACKNOWLEDGEMENTS

The Land Information & Computer Graphics Facility would like to thank David Schmidt and the Winnebago County Planning and Zoning Department, and Alan Lulloff, Wisconsin Department of Natural Resources for their assistance in preparing this Bulletin. We also recognize the support of the National Center for Resource Innovations (NCRI); the UW-Madison College of Agricultural and Life Sciences, School of Natural Resources; UW Cooperative Extension; and the Community Natural Resources and Economic Development Program (CNRED).



**LAND  
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**Land Information Bulletin**      **No. 2, Summer 1998**  
 Produced by Land Information & Computer Graphics Facility  
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Editing/Design: Bill Keenan  
 Photograph/Graphics courtesy of Wisconsin Department of Natural Resources