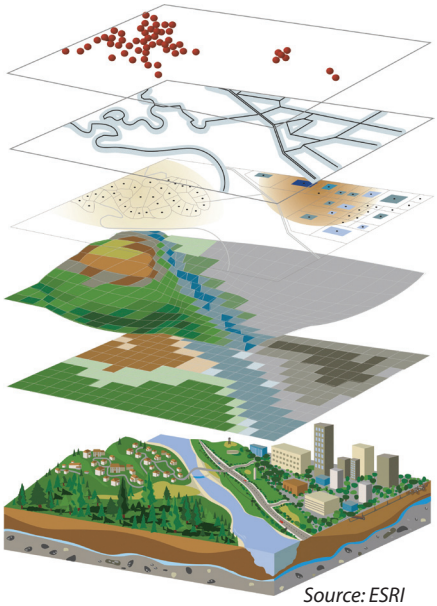


Source: ESRI

**This article is one in a series exploring GIS implementation among Wisconsin's municipal, county, and regional planning agencies.**

**Current or forthcoming articles explore topics such as GIS use in public planning agencies, GIS training, GIS-related planning applications, and the benefits and challenges of GIS use for Wisconsin public planning agencies.**

G3872-03

# Geospatial data issues in Wisconsin public planning agencies

**Z. Aslıgül Göçmen, Stephen J. Ventura, and Amy B. Seeboth**

Data is a cornerstone of the successful implementation of geographic information systems (GIS). Local and regional planning agencies rely heavily on geospatial data for their day-to-day efforts, such as identifying residents near a proposed development, as well as long-term planning activities like creating future land-use scenarios. As such, they depend heavily on accurate, up-to-date, and detailed geospatial data that is reasonable in cost, given the budget challenges most agencies face.

Findings from our web-based study of 521 practitioners in Wisconsin's public planning agencies in 2007 indicate that acquiring and using geospatial data (referred to as "data" hereafter) may be one of the most significant hurdles local and regional governments face in successful GIS implementation.[1] Many agencies that **use** data depend wholly or in part on the acquisition of, or access to, data created by other agencies and companies. For these agencies, challenges are primarily related to data access issues such as availability, cost, restrictions, and quality. Some agencies also **produce** data; their challenges include technical procedures and contracting to create data, data update processes and cycles, documentation, funding, and data access policies. For instance, when asked what could be done on a local or state level to strengthen and/or promote GIS activities related to planning, a GIS user in our study indicated challenges in accessing repositories of geospatial data by specifying:

> *"(We need) better access to detailed data that can easily be downloaded via standard measures or an FTP site. And above all: affordable or free. Smaller communities have every need for this type of information that large ones do. So long as we have to pay for that data, we'll be behind the larger communities in terms of GIS development and use."*

This publication is part of a series reporting on the findings of a web-based survey conducted in the spring and summer of 2007 and follow-up interviews with 20 survey respondents conducted in spring of 2008[2]. Although we invited individuals holding planning-related positions across Wisconsin to participate in our study, we recognize there is a diverse range of backgrounds and specializations among the survey respondents. Recognizing that these specializations likely influence geospatial data uses and needs, we often broke apart response groups to explore the views and experiences of respondents by four specializations for the analysis described in this publication: planning, conservation, GIS, and zoning.[3]

[1] This particular topic, "challenges to GIS use for planning," will be analyzed in greater detail in a future publication (G3872-05).

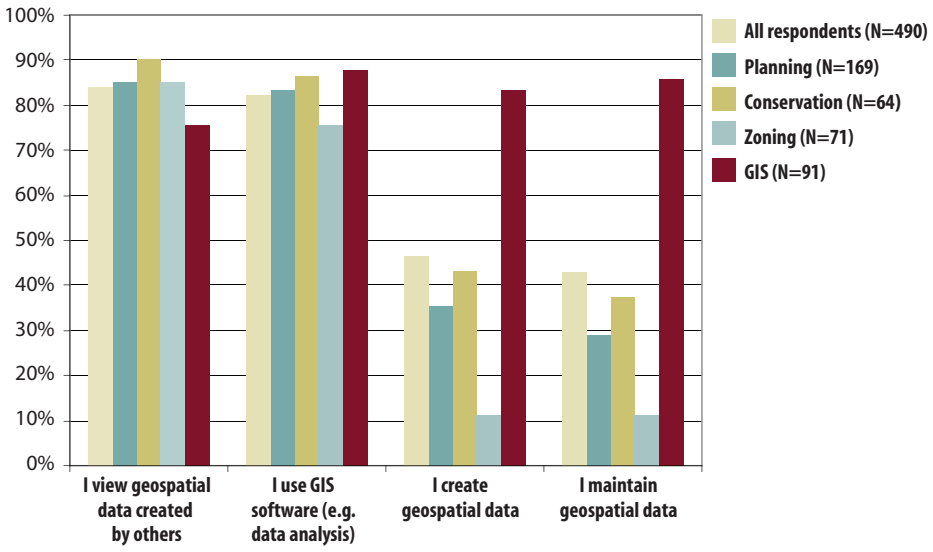
[2] The survey sampled planning and planning-related practitioners of Wisconsin regional planning commissions (RPCs), counties, and municipalities. For more information about this study and its participants, please refer to Göçmen et al., 2008.

[3] While still other planning-related positions responded to the survey, these four specializations made up the greatest percentage of our respondents (approximately 92%), and, when separated, display a distinct pattern.

# Data use

Our survey found a high usage of GIS or geospatial data on the part of practitioners in that 92% of respondents indicated they used it to some extent. Among those who used such data for their job, over four-fifths of the respondents use GIS actively, such as to make maps, conduct analysis, create or maintain spatial data, or manage or coordinate GIS efforts within their jurisdiction. As might be expected, the findings indicated that GIS specialists tend to have a much greater role in the maintenance and creation of data than those in other planning-related specializations do (figure 1). Zoning specialists appeared to be on the other end of the spectrum with respect to actively using, creating, or maintaining data.

**Figure 1. GIS use by position**

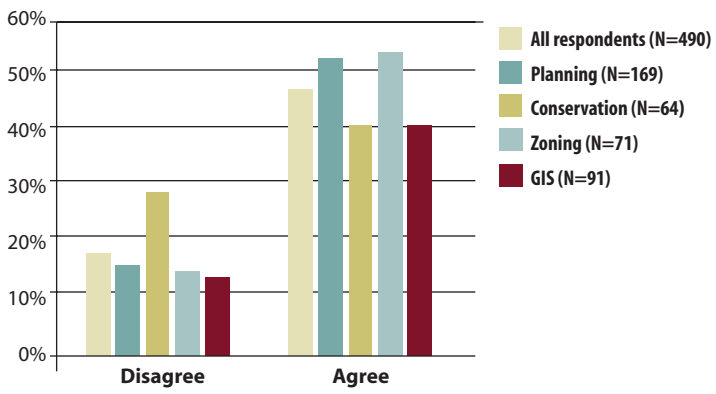



# Data access

The majority of respondents (74%) in our sample stated that their department develops or creates at least some of its own data. Municipalities were slightly less likely to create or develop their own data than were RPCs or county governments. Nearly half (45%) of respondents outsource at least some of their GIS work, and the majority of this outsourcing is related to data. Around half of the respondents who outsourced GIS work reported that they outsource database development and maintenance, and a similar number reported that they outsource spatial data capture and creation work.

In general, a significant proportion of the respondents reported that the data they need is available. Among the 10% of the respondents who thought the data they need is not available, most practiced in smaller departments; over three-quarters practiced in departments of 10 staff members or fewer. In keeping with the finding that GIS specialists tend to create their own data, GIS specialists were also the most likely to believe the data they need is available (reflected by 58% of responses). On the other hand, conservation specialists, who usually demand very detailed and longitudinal data, most readily agreed that data they need is not available. Overall, respondents agreed they would use GIS more often or more effectively if they had easier access to more data (figure 2). Zoning and planning specialists agreed most strongly with this statement (54% and 53%, respectively).

**Figure 2. Percentage of survey respondents who agreed or disagreed with the statement: "I would use GIS more often or more effectively if I had easier access to data."**



# Data sharing

Wisconsin's open records law creates an imperative for local governments to provide access to most of the data they produce. Due to ambiguity in the law leading to differing interpretations and to pressures for cost recovery, Wisconsin jurisdictions have adopted a wide range of policies and practices for access to GIS databases. A number of issues, therefore, may prevent data sharing or lead to data duplication, including differing standards used by data developed by different agencies, difficulty in converting between different formats and projections, and the cost of purchasing data from others. Further, collaborating to develop data-sharing systems may be more costly to agencies than simply creating new data.

The majority of respondents (70%), however, stated that their agency shared GIS data at least among departments within their organization. Forty-five percent also shared among other jurisdictions. Very few (4%) of respondents reported that their department did not share data at all. According to respondents, cost was less prohibitive to data sharing than our research team initially suspected it might be. One-third of the respondents reported that cost was an inhibiting factor in data sharing. When asked about data duplication, around half of the respondents reported they believed that other departments/organizations were not creating or collecting the same geospatial data as their organization. Only 16% of respondents reported knowledge of data duplication, but that proportion is significant when we consider the costs associated with the creation of data.

# Areas of concern

Respondents also reported on a number of concerns they held relating to data. Data standards are a fundamental part of developing and retaining quality data. They assure consistency in data collection and storage over time. Many respondents (40%) reported that their organizations had data standards that were well defined and in place. GIS specialists had the strongest agreement, by a small percentage. Conservation specialists, who again tend to use more detailed and longitudinal data, stood out for having significantly lower agreement with this statement than did any other group.

Around 60% of the respondents believed that their department's geospatial data was accurate and up-to-date. Nearly 80% of GIS specialists (often responsible for maintaining the geospatial data for a department) agreed with this statement, while only 50% of those holding zoning specializations (who rarely engage in data creation or maintenance) agreed.

The cost of data was reported as a concern by around one-third of the respondents. While our survey did not prompt respondents to provide more information about this concern, comments made to an open-ended question asking about the greatest challenges or barriers to GIS use within their department's planning activities suggested that cost may be a greater concern than responses to the original question acknowledge. Many of the concerns discussed above, after all, translate easily into cost: staff time needed to create new data, research data sources, or maintain data; the cost of acquiring data; and costs associated with data-sharing systems.

# Implications for UW-Extension educators

Many of the data challenges outlined above relate to resource access and coordination. Resources can be difficult to come by. While having an in-house GIS specialist or purchasing existing data layers may be the simplest ways to improve data quality or quantity, these methods are not always possible. Establishing geospatial data standards and inventories is an in-house step that can easily promote a greater quality of data among Wisconsin public planning agencies and one that does not require a significant amount of time or money. RAMONA, a national effort with many states collaborating (see the WiscLINC entry under **Resources** for further information), is a step in this direction; we encourage agencies to participate in this effort. Coordinating among agencies to share resources is one other way that can help improve the data access and quality of Wisconsin public planning agencies both individually and as a whole.

Extension educators can assist their local governments in meeting their data needs in a number of ways. They can:

- Offer workshops on data standards and best practices, helping overstretched agencies get ahead in planning for long-term data needs.
- Help create inventories of data and assess data needs among governments within their jurisdictions to promote coordination and sharing when possible.
- Provide guidance in how to access data that is available for their jurisdictions or for the state as a whole.
- Participate in policy decisions and improve regional communication to help Wisconsin move forward in establishing a universalized data-sharing system.

# Resources

Apart from University of Wisconsin-Extension's GIS State Specialists, who are available to assist Extension educators or practitioners, these resources may be helpful to Extension educators in any efforts to improve data access and quality in Wisconsin public planning:

**Göçmen, Z. A. and K. Van Gilder.** "A Handbook of Environmental Geospatial Data for Wisconsin's Planners." University of Wisconsin–Madison Department of Regional and Urban Planning, urpl.wisc.edu/extension/reports/environmentalgeospatialdata.pdf.

**Wisconsin Geographic Information Coordination Council (WIGICC):** A council dedicated to promoting the coordination of geospatial information and technology in the state (for more information, see www.wigicc.org). The Council was formed after the completion of our study, in which several respondents mentioned the need for just such a coordinating entity in response to our question about what could strengthen or promote GIS activities at the local and state level.

**Wisconsin Land Information Clearinghouse (WiscLINC):** A website maintained by the State Cartographer's Office (www.sco.wisc.edu/wisclinc). Among the information provided at the WiscLINC site is the RAMONA study of Wisconsin GIS Inventory Survey. RAMONA is a federal effort in collaboration with the state governments. In Wisconsin, the effort is based extensively on the earlier efforts of the Wisconsin Land Information Program, which detailed the status and characteristics of different geospatial data annually in the late 1990s and early 2000s. From the RAMONA survey, individuals can get an idea of the characteristics of data layers including status, currency, and source of data (www.sco.wisc.edu/wisclinc/survey/index.php). For a report on summary of findings, please see Herreid and Wortley, 2009.

**University of Wisconsin–Madison's Robinson Map Library's site:** A statewide catalog of online geospatial data sources (such as the Wisconsin Department of Natural Resources' FTP site) available at www.geography.wisc.edu/maplib/gis.htm.

# References

Göçmen, Z. A., S. J. Ventura, and A. B. Seeboth. 2008. *GIS Use in Wisconsin's Public Planning Agencies* (G3872-01). Madison, WI: UW Extension–Cooperative Extension Publishing.

Herreid, P. and A. J. Wortley. 2009. "Wisconsin GIS Inventory: 2009 Report on County GIS Data Systems." A joint report of the Wisconsin Department of Administration and the University of Wisconsin–Madison State Cartographer's Office, ftp://ftp.wi.gov/DOA/public/comprehensiveplans/2009_GIS_Report/FINAL_County_GIS_Inv_Report_May2009.pdf.

UW Extension Cooperative Extension



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