



# Flyer 238

The ARL Geographic Information  
Systems Literacy Project

March 1999

## INTRODUCTION

Geographic Information Systems (GIS) is a term used to denote a collection of computer hardware, software, geographic data, and personnel designed to collect, manipulate, analyze, and display spatially referenced information. The result is usually a map, image, or chart that can reveal patterns and relationships among data that may not otherwise be apparent. By the early 1990s, libraries, especially those that are depositories for U.S. government documents, were receiving large quantities of such information in electronic form, but many of them lacked the system components necessary to allow the information to be used most effectively.

The availability of more powerful and affordable desktop computers and workstations and the development of GIS software supplied part of the need. To help supply the rest, ARL, in partnership with Environmental Systems Research Institute, Inc. (ESRI), launched the GIS Literacy Project in 1992. Member libraries were invited to send one or two of their librarians to ESRI for free training in using that company's GIS software, which was also furnished free of charge. The response so far exceeded the places available that ARL quickly scheduled a second phase of training to meet the demand.

This survey was conducted to see how, in the years since the GIS Literacy Project began, ARL libraries have organized their delivery of GIS. The questions fall into four main categories: (1) general information about the library's role in delivering GIS services; (2) the number, level, and academic preparation or other training of staff involved; (3) the amount and kind of equipment, software, and data files that support GIS in the library; and (4) the kind of service offered and by whom it is used.

## SURVEY RESULTS

*General Information.* Surveys were sent to 121 member libraries and returned by 72 institutions (60%), of which 64 reported that they provide GIS services. These services are administered by the library at 53 of the 64

institutions (83%) and by academic departments offering GIS courses at 45 institutions (70%). Clearly, at many institutions, both the library and academic departments administer GIS services. Among libraries that offer GIS services but do not administer them, the most common activity is offering guidance in finding appropriate data sets.

GIS services in responding libraries are usually situated in either the government documents center (48%) or the map library (52%). Subject bibliographers offer the service at 23% of responding institutions. Only three libraries (5%) report having a discrete GIS unit and only seven (11%) provide the service at the general reference desk. Given that so much of the data for GIS in libraries is supplied as government documents and the most common GIS output is a map, these are results one would expect. In addition, the training of librarians under the ARL GIS Literacy Project has been aimed at documents and map librarians.

*Staffing.* A librarian holding an MLS is the typical staff member in charge of a library's GIS services (81%). In addition to the MLS, 54% of GIS librarians hold at least one additional graduate degree. The "typical" ARL library devoted the following staff resources to GIS services: a librarian, a support staff member, a graduate assistant (10 hours per week), and a student worker (10 hours per week), with librarians and support staff having other duties, of course. The most common GIS training among respondents was at ARL's GIS Literacy Project, to which 37 libraries sent librarians. GIS librarians at 31 institutions have had training by GIS software providers, and at 28 they have learned GIS in coursework. Technical support for GIS hardware or software is provided by library staff at 51 institutions (80%).

*Infrastructure.* The most popular GIS software by far at ARL libraries is ESRI's ArcView, which is used by 78%. Designed to handle 60%–80% of typical GIS requests,

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this software operates on Windows-based machines as well as on UNIX platforms and is relatively inexpensive and simple to install and use. Two-thirds of respondents also use other GIS software instead of or in addition to ArcView.

The most common operating platform is Windows 95/NT, used at 58% of responding libraries, followed closely by Windows 3.1, in use at 56%. DOS platforms were in use for GIS at 14 institutions, UNIX at seven and Macintosh at only four. These findings indicate that some institutions are using more than one operating platform for GIS services. The most common peripheral equipment for GIS at ARL libraries is the printer. Fewer than 20% of respondents provide digitizers, external storage devices, large format plotters, or scanners. Sixty-one percent of ARL libraries use computer networks to search for GIS data or to provide it to users. Digital data files are received as part of the Government Printing Office depository program at 83% of institutions and are supplemented through purchases at 67%. Funds for such purchases total less than \$2,000 per year at 45 responding libraries (70%) and exceed that amount at only 12 institutions.

*Service.* Assistance to users of GIS in libraries is available 20 hours per week or less in 38 responding libraries. Seventeen libraries offer more, and three offer none at all. The largest number of users assisted in a typical week was 120 at one library, but the mean for all respondents was seven users. At the typical ARL library, about half of the GIS users assisted are students; the remainder are fairly equally distributed among faculty, other university staff, citizens, businesses, and local government. Half of GIS users require much assistance, few require little or no assistance, and the rest need some. Few responding libraries charge for GIS services, but among the 17% that do, the most common charge is for printing.

## ISSUES AND TRENDS

GIS services in libraries differ from others in several important ways. Unlike other, more familiar specializations, which were usually subject-based, that of GIS is technical and interdisciplinary. It has been used for everything from geological reports to analyses of regional dialect distribution to studies relating poverty

to the availability of public transportation. Except for the specialist in the discipline, self-service in GIS is usually not adequate; producing satisfactory results for GIS users requires more knowledge and time than librarians are asked to provide by most other patrons. And while developments in all kinds of software for delivering information steadily raise the requirements for our computer hardware, GIS imposes especially heavy demands for large, fast, expensive computers and peripherals.

The results of this survey show that ARL libraries are prominent suppliers of GIS services at their institutions. While as depository libraries they receive much spatially referenced data free of charge, they have dedicated scarce resources for staff and equipment to provide these services. The degree of training of GIS staff by ESRI and the widespread use of that company's software in ARL libraries are clear evidence of the influence of the ARL Literacy Project in bringing GIS into the mainstream of services offered by libraries.

*This SPEC Flyer and Kit were prepared by D. Kevin Davie, James Fox, and Barbara Preece, Southern Illinois University at Carbondale, as part of the OLMS Collaborative Research/Writing Program.*

See also *Geographic Information Systems, Transforming Libraries* no. 2, February 1997. This was issued by ARL as SPEC Kit #219.

Information on the ARL GIS Literacy Project is available at <<http://www.arl.org/info/gis/index.html>>.

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