URISA Salary Survey for IT/GIS Professionals

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Background

The Urban and Regional Information Systems Association (URISA) is a nonprofit professional and educational association that promotes the effective and ethical use of spatial information and information technologies for the understanding and management of urban and regional systems. It is a multidisciplinary association where professionals from all parts of the spatial data community can come together and share concerns and ideas.

Since 1963, URISA has been the professional home of choice for public sector geographic information systems (GIS) and information technology (IT) executives throughout the United States, Canada, and other countries worldwide.

URISA's mission is to facilitate the use and integration of spatial information technologies to improve the quality of life in our urban and regional environments. To carry out this mission, URISA will:

1. Provide high-quality professional education,
2. Foster communications among spatial information resource management professionals, and
3. Encourage a multidisciplinary approach to the design and use of urban and regional information systems.

Survey Objectives

URISA conducted a comprehensive survey of information technology (IT) and geographic information systems (GIS) professionals to develop a better understanding of the professionals it serves.

Specific areas studied included:

- Job title/position
- Salary
- Type of employer
- Location of employment
- Staff size
- Departments served
- Years of professional experience
- Education
- Computer skills
- Other job requirements
- Demographic characteristics

The *primary* objective of this survey was to determine specific data with regard to IT/GIS positions and salaries. The data presented has been culled from the results of URISA's salary survey that targeted a comprehensive and representative sample of both the IT and GIS communities. Salary data is presented according to region, job title, type of organization, etc.

Significant changes from the 2007 salary survey results are highlighted for comparison purposes.

Methodology

When URISA's salary survey was conducted in 1988, a questionnaire was distributed only to the members of URISA. Overall, the 1998 survey received 444 usable responses. To reach a larger

group in 2000, URISA gathered survey results via an online questionnaire on the URISA Web site (http://www.urisa.org) and encouraged responses by mailing postcards to approximately 20,000 individuals in URISA's database (both members and nonmembers of the association). There were 837 responses to that survey.   In 2003, similar methodology was used and the result was more than 2,000 responses.   The most recent survey, conducted in 2010, received 1,022 responses.

The questions the current URISA Salary Survey attempts to answer include:

- How have salary levels changed since 2007?
- Have GIS departments increased in size?
- Are more nontechnology skills required?
- What GIS software proficiencies are necessary?
- What benefits do organizations typically offer?
- How long is the average workweek?
- How has GIS certification impacted salaries?
- Are GIS professionals actively pursuing continuing education?

An Executive Summary is included in this publication, along with tables of survey results and cross-tabulation tables.

Executive Summary of Results

The results of this survey provide an interesting and useful analysis of the current state of the IT and GIS professions. This paper summarizes the key results of the survey.

Where Do They Work?
As in the previous survey, most respondents (65.9%) are employed within some level of government, from local through federal agencies. However, this figure is up slightly from 2006 (63.7%) and 2003 (71.7%). Another 26.3% are employed in the private sector, which is a decrease of about 0.5% from 2006 (26.8%) and an increase of about 7% from 2003 (19.3%).

Slightly less than two-fifths of survey respondents work in municipal (18.2%) or county (20.5%) government. Both are significantly less than 2003 (24.9% and 23.1%) and slightly less than 2006 (19.1% and 20.3%).

What Are Their Positions?
Because job titles are not standardized across this industry, URISA compiled an extensive list of model job descriptions, which detail job responsibilities under various titles. Brief descriptions of these job titles along with their basic responsibilities can be found beginning on page 12. Respondents were asked to read the descriptions and indicate which job titles most closely match their current positions. As expected, most respondents to this survey (88.4%) hold GIS-related titles, with many possessing management responsibilities. Compared to 2006, there were significantly more GIS Technicians in this year's study. In ranking order, survey respondents held the following titles:

Table 1. Job Titles Held by Respondents

Job Title	2003	2006	2010
GIS Manager	17.9%	21.6%	21.7%
GIS Coordinator	12.5	16.5	16.7
GIS Specialist	11.7	15.3	13.9
GIS Data Analyst	7.8	10.4	13.0
GIS Technician	5.7	6.9	8.1
GIS Systems Software Analyst/Programmer	5.8	6.3	5.6
Director of Geographic Information Systems/Geographic Information Officer (GIO)	4.2	5.3	4.0
Other	4.7	6.0	4.0
User of GIS (Heavy)	13.8	2.4	3.5
Educator	1.8	2.9	1.9
IT/IS Manager	2.0	1.9	1.6
Independent Consultant	2.2	0.8	1.5
Director of Information Systems/Chief Information Officer (CIO)	1.6	1.0	1.4
Student	N/A	1.0	1.1
IT/IS Data Analyst	0.7	0.3	0.5
Trainer	0.5	0.1	0.3
IT/IS Specialist	1.0	0.3	0.3
IT/IS Coordinator	1.3	0.5	0.2
IT/IS Technician	1.2	0.3	0.2
IT/IS Systems Software Analyst/Programmer	0.9	0.2	0.2

Public or Elected Official	0.5	0.1	0.2

A variety of other GIS-related job titles exist within their organizations (in addition to the respondents). More than one-fourth also have a GIS Technician (41.6%), GIS Specialist (36.8%), GIS Manager (34.4%), GIS Data Analyst (27.1%), and IT/IS Manager (26.9%). In 2006, about one-third have a GIS Technician (57.9%), GIS Specialist (45.6%), GIS Manager (38.7%), GIS Data Analyst (36.5%), and IT/IS Manager (33.4%). The top job titles have no significant difference.

Less than one-fourth (23.2%) had changed their jobs or occupations within the past three years. In 2006, more than one-third (33.9%) had changed their jobs.

These professionals are divided fairly evenly among those who work in a single department (32.0%), multiple departments (32.4%), or enterprise-wide, where all departments use a central IT/GIS department (33.3%). In 2006, the situation is almost the same as in 2010, with these professionals working in a single department (31.4%), multiple departments (34.4%), or enterprise-wide, where all departments use a central IT/GIS department (34.2%).

Department and organization sizes vary greatly. In 2010, more than half (56%) of the respondents are in departments with fewer than 15 staff members and, on average, there are 68 staff members in respondents' departments. More than one out of four respondents (27.6%) work for organizations with 1,000 or more employees. On average, 2,619 individuals are employed, in total, by their organizations. In 2006, more than half (52.9%) of the respondents are in departments with fewer than 15 staff members and, on average, there are 75 staff members in respondents' departments. More than one out of four respondents (27.4%) work for organizations with 1,000 or more employees. On average, 2,593 individuals are employed, in total, by their organizations.

When specifically asked about GIS staff, the survey shows an average of seven GIS staff members in respondents' departments and an average of 48 GIS employees organization-wide. A majority of respondents (65.8%) have fewer than five GIS staff members in their departments and less than ten in their entire organizations (64.8%). With the similar situation, there were an average of eight GIS staff members in respondents' departments and an average of 61 GIS employees organization-wide in 2006. And a majority of respondents (58.9%) have fewer than five GIS staff members in their departments and less than ten in their entire organizations (57.8%) in 2006.

About 38% of respondents indicated that they had seen an increase in the number of GIS staff employed by their organizations over the past five years. The data has significantly decreased from 2006 (63.8%).

When asked to indicate the department in which they work, respondents offered a great variety of responses. Three out of ten respondents (30.2%) indicated that they work in a GIS Department, followed by MIS/IS (12.5%), Other (9.7%), and Planning (8.2%). The result is similar to the survey of 2006, in which three out of ten respondents (30.1%) indicated that they work in a GIS Department, followed by MIS/IS (12.4%) and Planning (8.4%).

Respondents regularly work with numerous departments within their organizations, with 40% or more working with GIS (64.3%), Planning (53.7%), and Engineering (47%). Compared with 2006, respondents working with Transportation decreased from 40.0% to 35.8%.
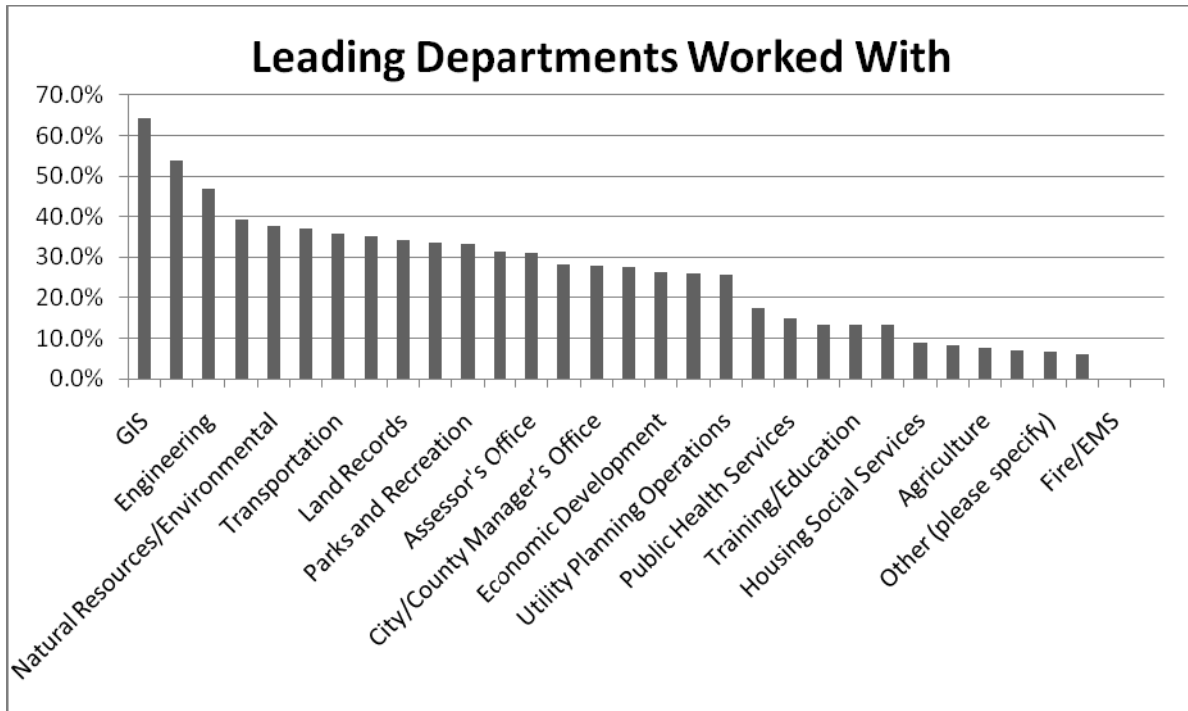
Figure 1. Leading Departments Worked With by Respondents

Respondents possess an average of 14.1 years of professional experience and 10.8 years of GIS professional experience. Both figures are higher than in 2006, which had an average of 13.8 years of professional experience and 9.6 years of GIS professional experience.

Respondents work, on average, 41.7 hours in a typical week, which is less than in 2006 (42.5 hours), with more than half (56.9%) working a 40-hour week. Interestingly, the number of respondents who indicated that they work 50 hours or more in a typical week jumped from 6.8% in 2003 to 15.5% in 2006, then slightly decreased to 12.4% currently.

Most (88.2%) respondents hold a bachelor's degree or higher, with more than one-third of the respondents (39.3%) earning a postgraduate degree. Both results are higher than in 2006 (85.0% respondents hold a bachelor's degree or higher, 37.3% respondents earning a postgraduate degree).

Most often, their educational degrees were in geography (43.7%), GIS (36.9%), environmental science (15.7%), and planning (12.3%). However, computer science decreased from 11% to 9.4%.

In addition, slightly more than one out of three respondents are certified GIS professionals (34.9%). Of those who are not currently certified, more than half (54.2%) plan to apply for certification in the next three years. The percentage of respondents who are certified GIS professionals increased compared to 2006 (28.1%).

Computer Skills/Requirements

According to the results of this survey, respondents' jobs require them to be at least somewhat proficient with a variety of GIS software. Similar to the results of the 2006 survey, ESRI products were most popular. The leaders included ArcGIS 9.x (71.7%), ArcGIS 10.x (66.8%), SDE/GeoDatabase (44.6%), ESRI Extensions–Network Analyst, 3D Analyst, Spatial Analyst (43.6%), ArcGIS Server (38.7%), ArcPad (26.8%), AutoDesk AutoCAD (18.3%), ArcIMS (14.8%), and ArcView (13.6%).

Notable declines from 2006 included ArcGIS 9.x (down from 91.2% to 71.7%), ArcInfo (down from 20.8% to 6.9%), ArcView (down from 34.3% to 13.6%), and AutoDesk's AutoCAD (down from 22.8% to 18.3%).

Most respondents use the Windows XP operating systems (76%), followed by Windows 7 (50%) and Windows 2008 (19.8%).

Excel (75.1%) and Access (72.5%) continue to be the most frequently used database management or spreadsheet programs, with SQL Server usage at 49.9%. Spatial Database Engine (SDE) (27.6%), dBase (23.6%), and Oracle (19.8%) are all used by more than one out of four respondents as well.

Programming/customization languages most widely used by respondents in the completion of their duties are Visual Basic (43.5%), Python (40.8%), HTML (27.1%), Java Script (20.4%), XML (19.9%), and Flex (12.2%). From 2006, Arc Macro Language–AML saw a large decline (from 33.6% to 9.8%) but still is used by almost one out of ten respondents. Fewer than one out of four indicated that they do not use programming/customization languages in their work (23%).

A great number of GIS and geospatial technology skills are required for respondents' jobs. A majority of respondents indicated a job requirement for these skills:

	2006	2010
Data analysis	85.0%	85.5%
Editing and querying GIS data	80.0%	81.9%
Data acquisition and creation	79.1%	81.2%
Data manipulation	79.5%	80.5%
Cartography and visualization	76.5%	78.1%
Database maintenance	71.2%	71.2%
Database design	68.3%	65.4%
Map composition	64.0%	63.4%
Geocoding	54.6%	58.8%
Data visualization and reporting	57.6%	58.4%
Quality assurance/Quality control	56.8%	58.1%
Global positioning systems (GPS)	56.0%	56.9%
Project planning and implementation	58.5%	54.5%
Data modeling	53.0%	51.3%

A variety of other skills also are required by respondents in their jobs; a majority of respondents indicated that they must have the following abilities:

	2006	2010
Project management	77.3%	73.7%
Technical support	74.1%	73.4%
Teaching/Training	65.2%	60.7%
Research	61.2%	60.2%
Report writing	61.1%	57.1%
Public speaking	62.0%	56.8%
Personnel management	52.6%	46.2%
Budgeting	53.2%	44.5%

Of course, these skills vary greatly by job title, with directors and managers more likely to be involved with report writing, public speaking, and personnel management, and analysts and technicians more involved with technical support.
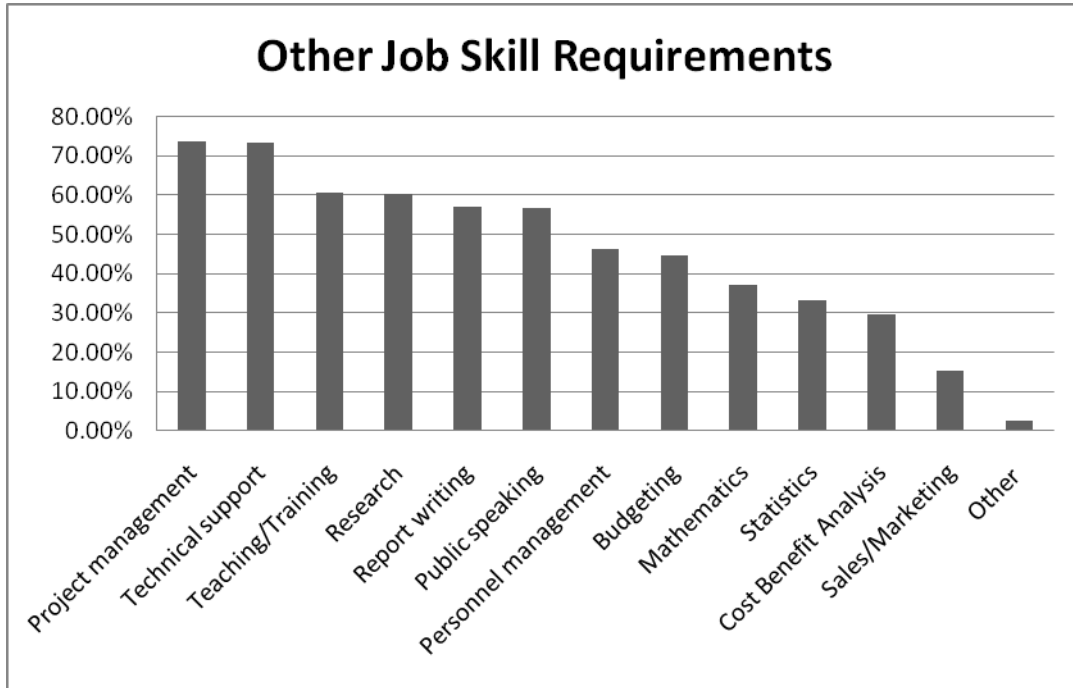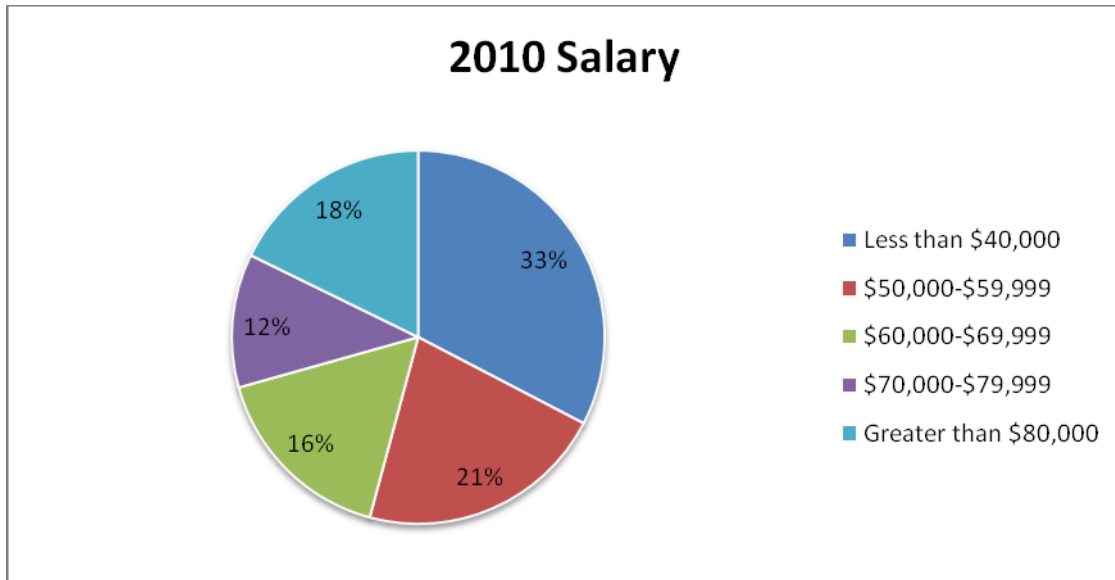
Other Job Skill Requirements

Figure 2. Job Skills Required by Respondents

Salary and Benefits

On average, survey respondents will earn a salary of $61,540 in 2010. This represents an increase of 2.5% over the 2006 average of $60,050.

Figure 3. Respondents' Average Salaries

Average salaries, by job title, are as follows:

Table 2. Respondents' Average Salaries by Job Title

Title	2006	2010	% Change
Director of Information Systems/ Chief Information Officer (CIO)	$82,031	$93,750	14.3%
Director of Geographic Information Systems/Geographic Information Officer (GIO)	$84,620	$82,656	-2.3%
Consultant	$96,785	$81,818	-15.5%
IT/IS Manager	$72,175	$50,000	-30.7%
Educator	$63,508	$61,154	-3.7%
GIS Manager	$67,302	$69.842	3.8%
IT/IS Systems Software Analyst/ Programmer	—	$65,000	—
GIS Systems Software Analyst/ Programmer	$59,063	$64,872	9.8%
IT/IS Coordinator	$52,250	$45,000	-13.9%
Public or Elected Official	—	$70,000	—
GIS Coordinator	$57,633	$57,849	0.4%
IT/IS Specialist	—	$61,667	—
GIS User (Heavy)	$51,436	$57,000	10.8%
GIS Specialist	$52,315	$53,538	2.3%
GIS Data Analyst	$50,242	$52,526	4.5%
Trainer	—	$58,333	—
IT/IS Technician	—	$75,000	—
IT/IS Data Analyst	—	$50,000	—
GIS Technician	$37,782	$39,630	4.9%
Student	$36,875	$40,000	8.5%

Of course, salaries vary based on employer type, region, and professional and GIS experience. Numerous cross-tabulations of the salary data are included in this publication, beginning on page 31.

Average Salary by Employer Type

Table 3. Respondents' Average Salaries by Employer Type

Employer Type	2006	2010	% Change
Municipal Government	$59,361	$61,711	4.0%
County Government	$55,208	$56,607	2.5%
State or Provincial Agency	$56,341	$60,942	8.2%
Regional Consortium / Regional Agency	$60,842	$52,500	-13.7%
Federal Agency	$71,032	$66,875	-5.9%
Private Sector	$65,236	$65,675	0.7%
Public Utility	$55,663	$67,652	21.5%
University/Research Organizations	$61,956	$58,900	- 4.9%
Student	$31,731	$21,667	-31.7%
Other	$58,750	$57,935	-1.4%

A majority of organizations offer additional forms of compensation, including health insurance (83%), retirement plans (62.9%), paid conference attendance (62%), paid training (51.6%), 401(k) plans (50.8%), and payment of membership dues in professional organizations (46.7%). Many also offer college tuition reimbursement (40.6%), professional certification reimbursement or support (40%), and flex time (35.5%).

As in the 2006 survey, about two-thirds (65.4%) of the respondents to the 2010 survey were male.

The average age of those responding was 40.8 years.

Most respondents (97.3%) work in the United States, 11 respondents work in Canadian provinces and territories, and 12 represented international countries.