



2009 Minnesota GIS Profession and Salary Survey

Fall 2009

Minnesota GIS/LIS Consortium

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Introduction

The Minnesota GIS/LIS Consortium is a forum for communicating information to, and improving cooperation among, those interested in geographic information systems (GIS) and land information systems (LIS) throughout the state of Minnesota. Members include GIS users in local, state and federal government agencies; business and industry; and educational institutions.

The Consortium's mission is *to develop and support the GIS professional in Minnesota for the benefit of our state and its citizens*. With this mission in mind the Consortium has again sponsored a salary survey of its membership.

History/Background

The MN GIS/LIS Consortium conducted its first GIS salary/skills survey in 1998 and published those results in early 1999. A subsequent survey, conducted in 2002 attempted to parallel the 1998 survey in order to draw comparisons and expose trends in the industry over the four year period between the two surveys. For the 2009 survey it was decided to simplify the survey and results evaluation process, focusing more directly on salary, job type, and education. Therefore, direct historical comparisons and trend analysis were not possible.

Result summaries of these previous surveys can be found on the [Consortium's website](#).

Survey Procedures and Timeframe

Similar to the 2002 survey, the Consortium chose to conduct the survey on-line through the Consortium's web site. A printable version was available for mailing to the Consortium; however, no responses were received using this method. The format and responses were tested by a control group and test results were evaluated for validity over a period of 30 days. The final survey form was posted on the web site September 8, 2009. Weekly reminders to encourage completion of the survey were e-mailed to the Consortium's member list through September 25 and the survey was concluded on September 28 after receiving responses from 242 GIS users.

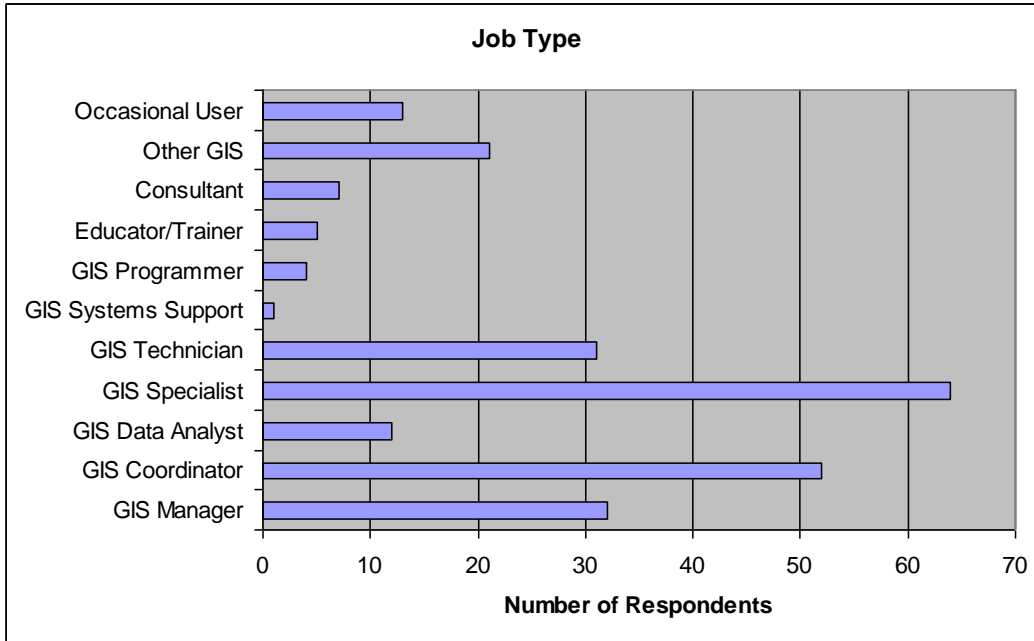
Survey Results

The results of the survey are reported herein, having undergone some analysis. The direct responses are provided first, followed by a median salary breakdown for most questions and responses.

Survey Questionnaire Responses

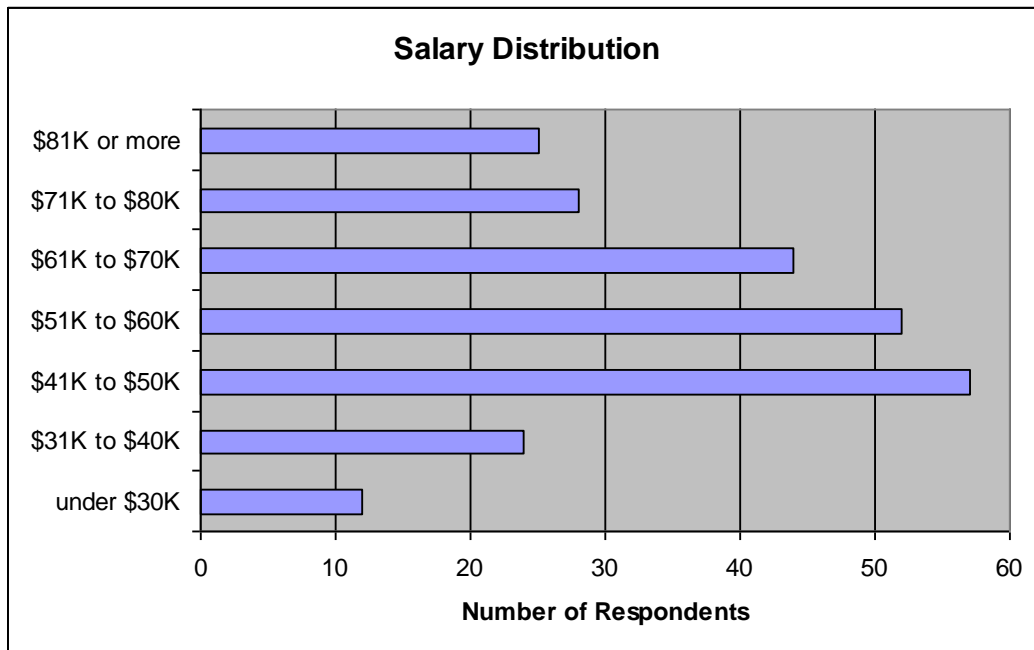
1. Which of the following most closely describes your job position?

Respondents were presented a list of 11 job types and asked to pick the type that most closely matched their position. The list and its definitions were taken from the URISA Salary Survey. Three-fourths of all jobs (74%) fell into four categories: GIS Specialist (26%), GIS Coordinator (21%), GIS Manager (13%), and GIS Technician (13%).



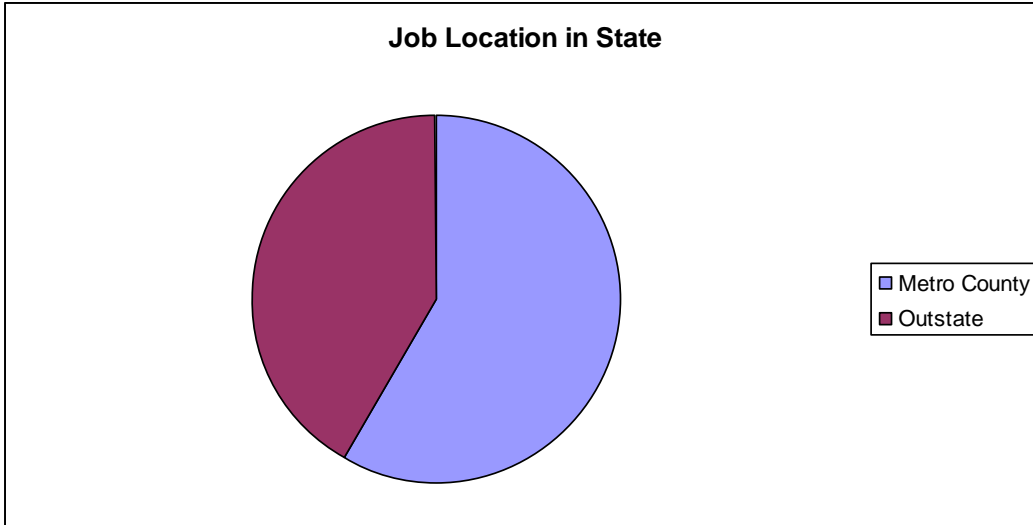
2. What is your annual salary range?

Most respondents make over \$40,000/year.



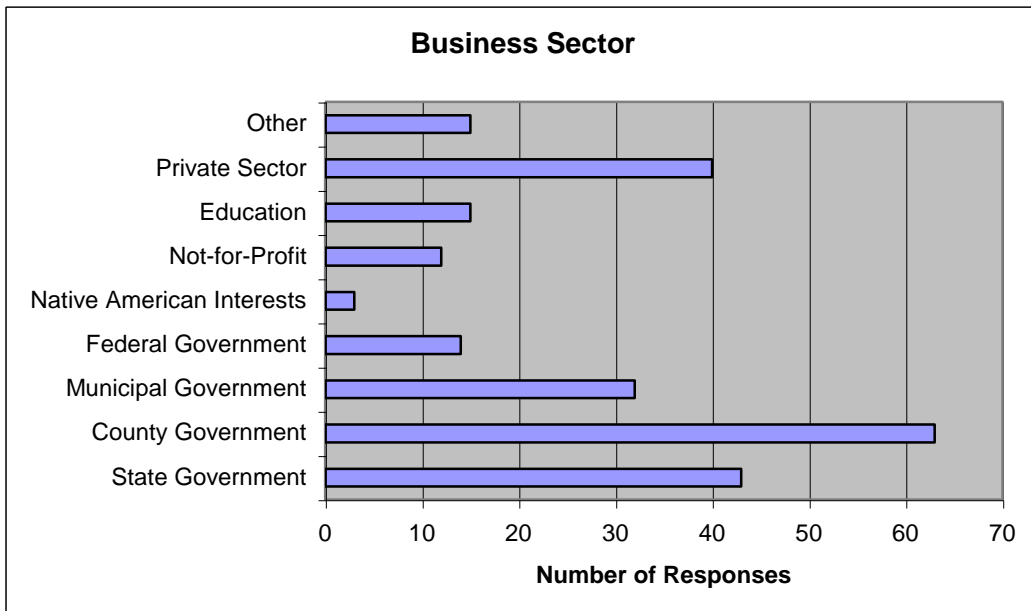
3. Please choose the county in which your office is located.

Reflecting the state’s population, over half of the respondents (58%) work in the 7-county Twin Cities Metropolitan Area. See Appendix A for a map of the number of respondents per county.



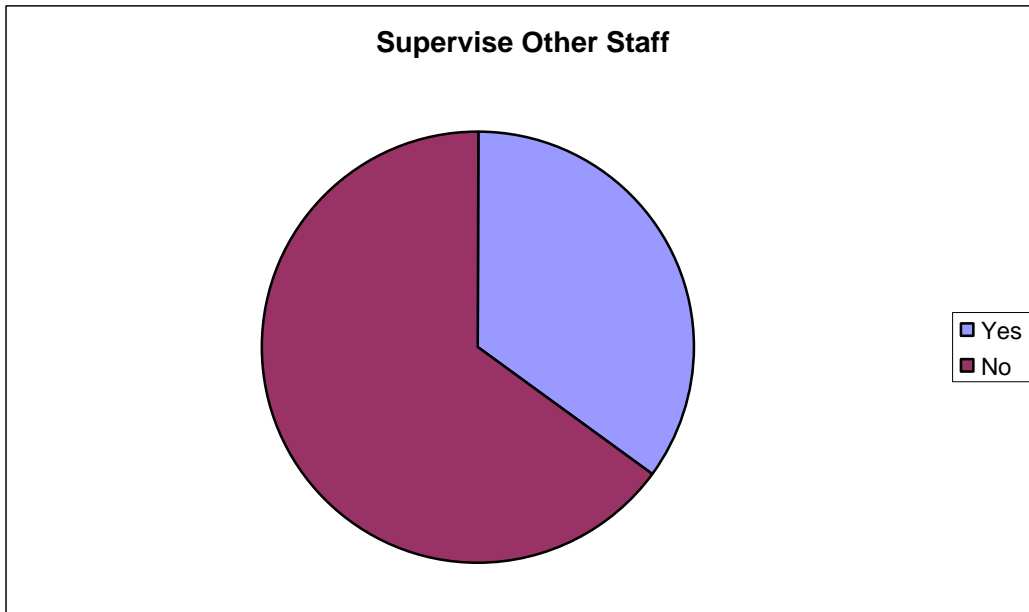
4. Please indicate your company’s principal business sector.

Most respondents work in Government; primarily County Government. Most of the “Other” respondents indicated that their organization was a regional or other governmental unit.



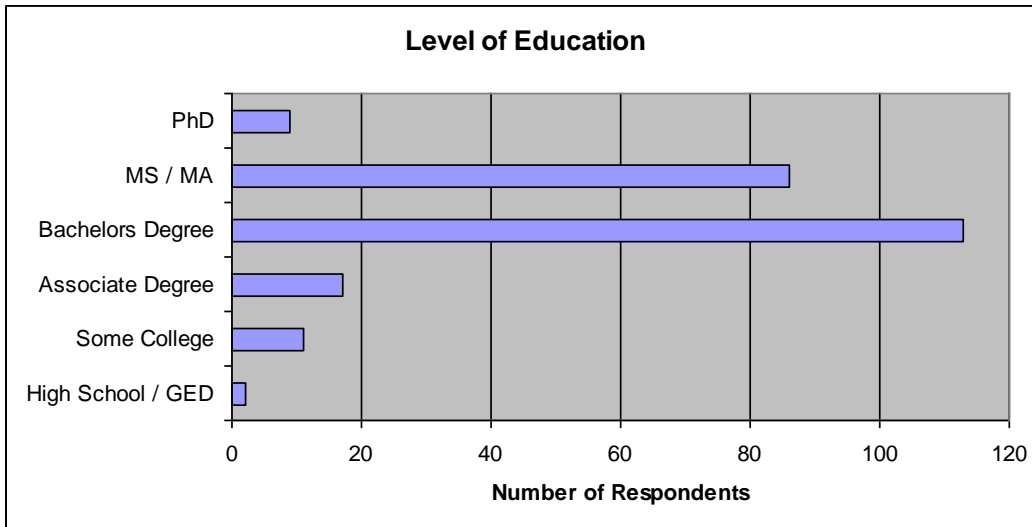
5. Do you have supervisory responsibilities of other GIS staff?

Just over one-third of respondents (35%) supervise other GIS staff.



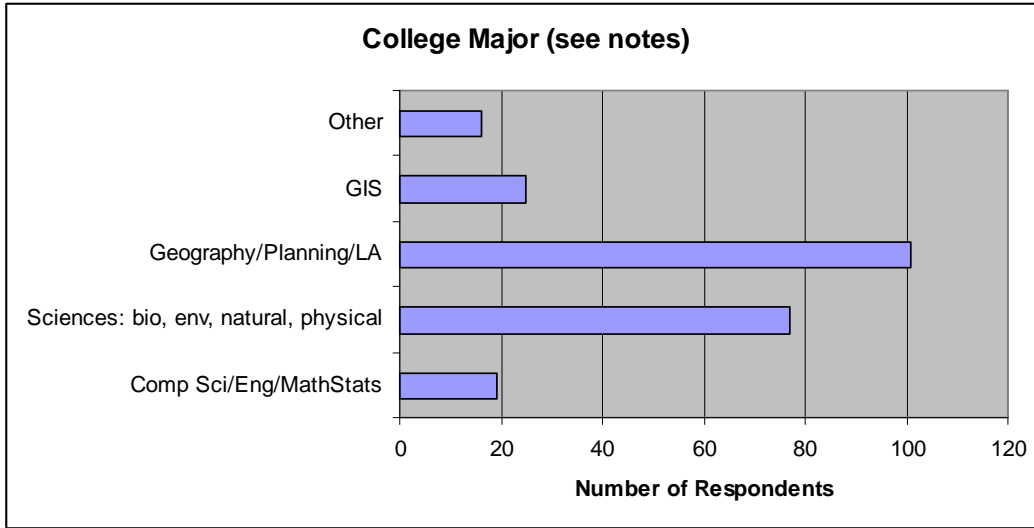
6. What is your level of education?

Nearly one-half of respondents (47%) have a Bachelor degree. Another 40% have a Master or Doctorate degree. Only 12% have less than a Bachelor degree.

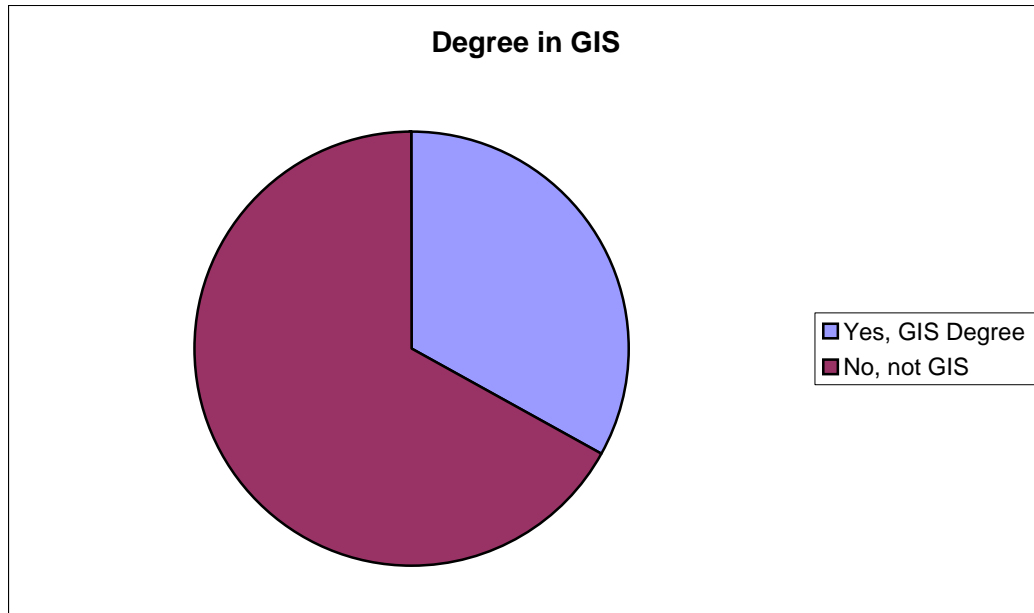


7. Please indicate the major program of your degree(s).

Given multiple degrees and majors, there were over 50 distinct mixes of majors. In order to clarify results for this report a hierarchical coding scheme was defined, placing responses in one of five categories. For example, if a person had a degree in computer science *and* anything else, they were coded in the category with computer science. If they did not have a computer science/eng/math/stats degree but a degree in biology, geology, or any other science, they were coded in the sciences category. Despite this hierarchical system, 42% of respondents were classified as geography, planning or landscape architecture. Just over 10% listed GIS as their primary degree.

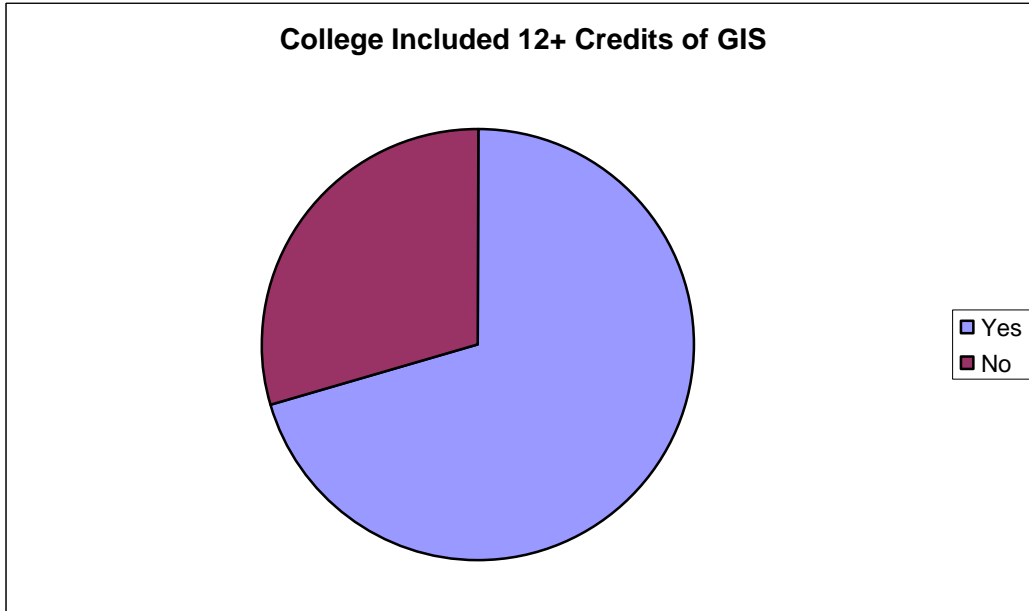


A separate analysis looked at whether one of the degrees was in GIS. This changed things a lot. One-third of respondents had a GIS degree, triple the number in the preceding analysis for this question. Two out of every three people with a GIS degree also have a degree in another field.



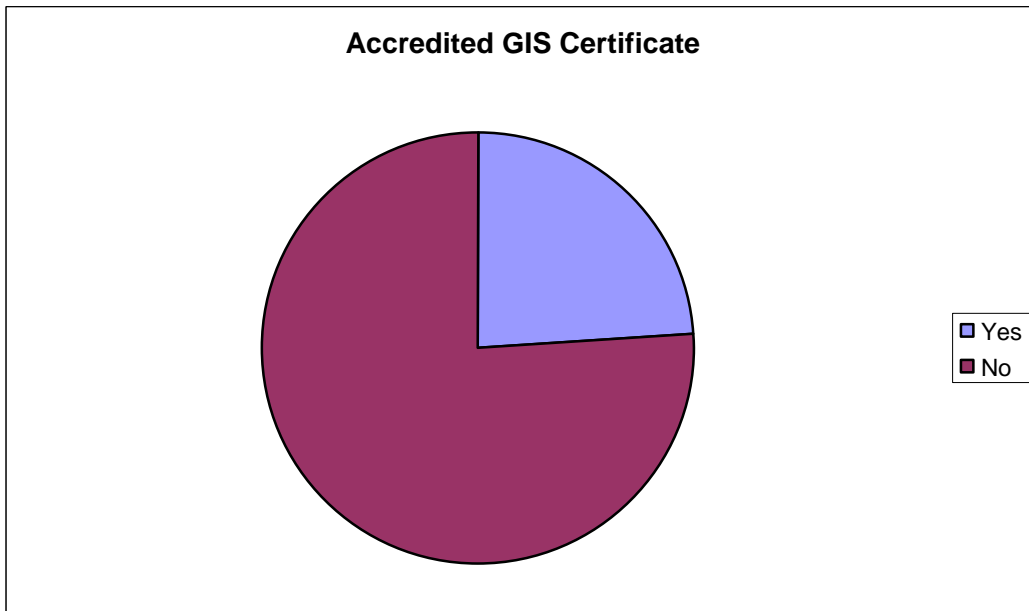
8. Did your academic training include at least 12 GIS related credits?

The survey asked people about the number of GIS related courses they took while pursuing their degree. Specifically, “12 credits” was used as the cutoff, the same level the Consortium requires for a school to participate in its Scholarship Program. Over two-thirds of respondents (70%) had at least 12 credits of formal GIS education.



9. Have you earned a GIS certificate from an accredited technical or community college or university?

Another way to get GIS training is to earn a GIS Certificate from an accredited technical or community college or university. Just under one-quarter of respondents (24%) have such a certificate.



10. Have you been certified as a GIS Professional (GISP) by the GIS Certification Institute?

The GIS Certification Institute (GISCI) certifies GIS professionals by examining the applicant's portfolio of formal education, work experience and service. One-in-seven respondents (14%) are GISP certified.

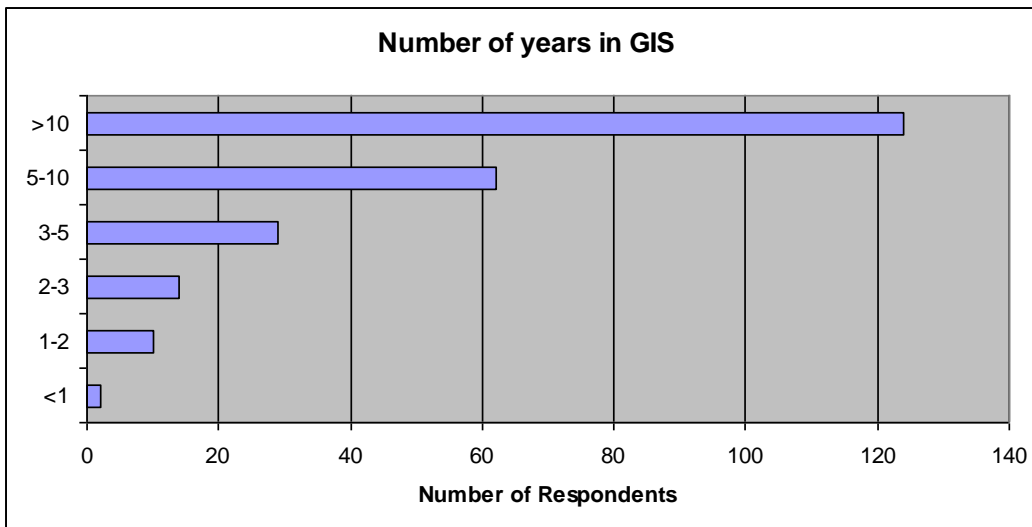


11. Does your employer offer a salary benefit for having your GISP certification?

Most of the 34 GISP-certified respondents (91%) admit that their employer does not offer a salary benefit for such certification. However, as shown in the next section, the GISP professional earns significantly more salary than uncertified workers.

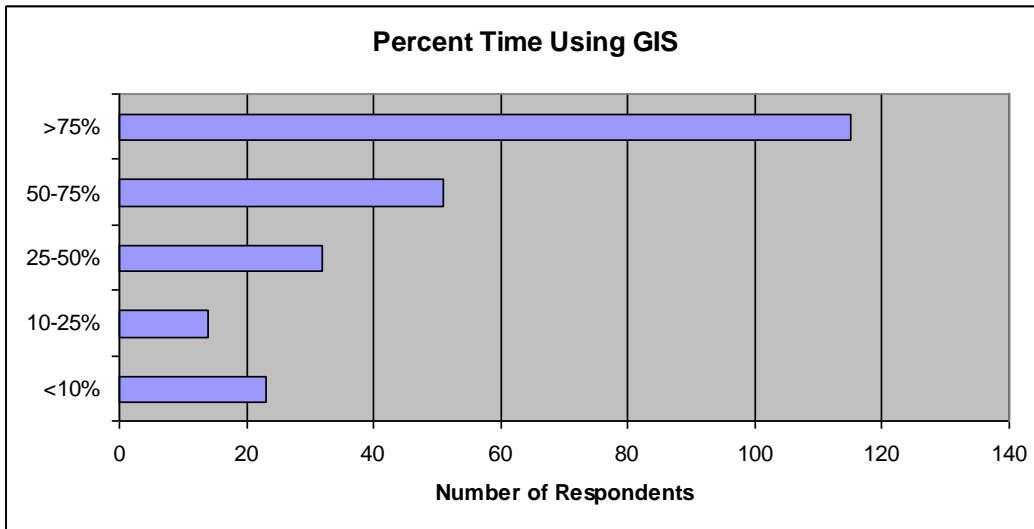
12. How many years of GIS experience do you have overall?

Over half the respondents (51%) have worked in GIS for more than 10 years. At the other end of the spectrum, only 11% have been in the field for less than 3 years.



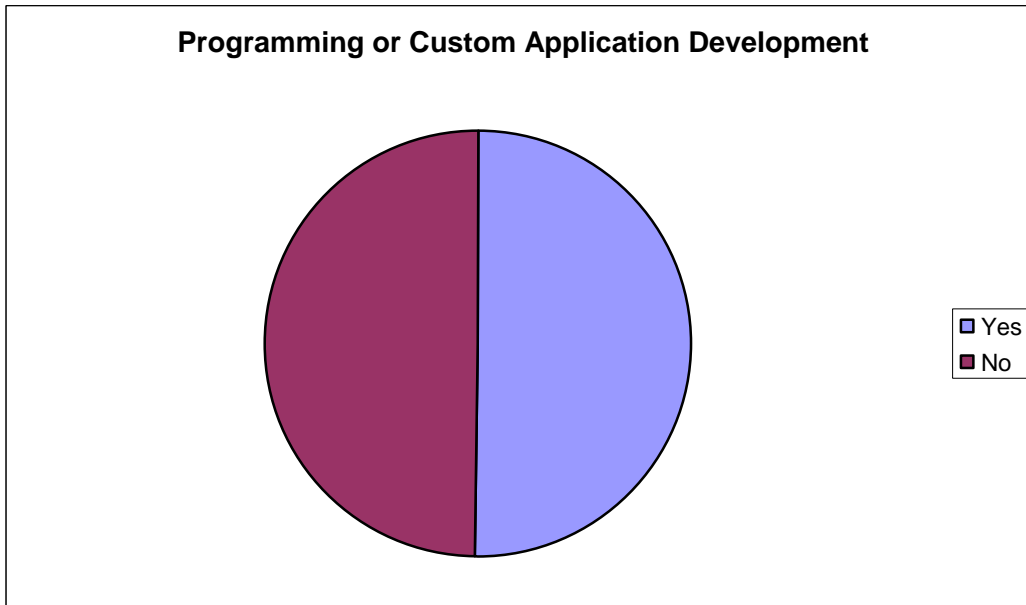
13. How much of your time is spent using GIS?

The vast majority of respondents spend over half their time using GIS. Almost half (49%) spend 75% or more of their time with GIS.



14. Is programming or custom application development part of your job?

At the higher skill levels, GIS professionals are programming or developing custom applications. Approximately half the respondents are doing such work as part of their job.



Salary Breakdown by Personal Characteristics

The overall median salary of people in this survey was \$55,000. However, there is interest in seeing more than average salary, such as what characteristics are related to higher or lower salaries. This section provides information about this; however, with only 242 responses, it does not provide great detail. Because of potential sampling errors, information is shown only for categories that have more than 20 responses. In instances with ranked answer categories, categories were combined to reach this 20 case threshold. The Median Salary columns in the tables below are assigned “na” for categories with fewer than 20 responses.

The measure for the salary breakdowns is *median annual salary*. Because the salary question only offered \$10,000 class intervals the following process was implemented: The median is defined as the midpoint, where half the people earned above that salary and half below. The median was computed by interpolating into these class intervals. For example, if all income classes up to the \$40-50K class had 45% of the cases and the \$40-50K class itself had 8% of the cases. Just 5% of that 8% is needed to reach the goal. In other words, it needs 5/8ths of the \$40-50K class. Assuming that individual salaries are evenly distributed across this \$10K wide class, 5/8ths of the way across the \$40-50K class is \$46,250. This is rounded and shown as \$46,000.

Caution should be taken when looking at these numbers. What looks like a significant difference in a single category may be related to something quite different. Number of years in GIS, as it is in any job, is a major determinant of salary. Managers are the highest paid job category, but most of them have been in the business for more than 10 years. The value of a degree in GIS appears to be low, but this is a fairly new degree; most people with this degree are relatively young and/or just starting out in the field.

Which of the following most closely describes your job position?

Category	Median Salary
GIS Manager	\$72,000
GIS Coordinator	\$62,000
GIS Analyst	na
GIS Specialist	\$51,000
GIS Technician	\$40,000
GIS Systems Support	na
GIS Programmer	na
Trainer/Teacher	na
Consultant	na
Other GIS	na
Occasional User	na

Please choose the county in which your office is located.

Category	Median Salary
Metro County	\$62,000
Outstate	\$49,000

Please indicate your company's principal business sector.

Category	Median Salary
State Government	\$56,000
County Government	\$50,000
Municipal Government	\$57,000
Federal Government	na
Native American Interests	na
Not-for-Profit	na
Education	na
Private Sector	\$50,000
Other	na

Do you have supervisory responsibilities of other GIS staff?

Category	Median Salary
Yes	\$65,000
No	\$51,000

What is your level of education?

Category	Median Salary
Less than bachelor degree	\$47,000
BA/BS	\$52,000
Master degree or above	\$63,000

Please indicate the major program of your degree(s). (see method above for multiple majors)

Category	Median Salary
Computer Science, etc	\$72,000
Sciences: bio, env, natural, etc	\$55,000
Geography, Planning, LA	\$57,000
GIS	\$53,000
Other	\$48,000

GIS Degree (from previous question)

Category	Median Salary
Yes	\$56,000
No	\$55,000

Have you earned a GIS certificate from an accredited technical or community college or university?

Category	Median Salary
Yes	\$51,000
No	\$57,000

Have you been certified as a GIS Professional (GISP) by the GIS Certification Institute?

Category	Median Salary
Yes	\$64,000
No	\$54,000

How many years of GIS experience do you have overall?

Category	Median Salary
Under 3 years	\$40,000
3-5 years	\$42,000
5-10 years	\$50,000
More than 10 years	\$65,000

How much of your time is spent using GIS?

Category	Median Salary
Under 10%	\$68,000
10-25%	na
25-50%	\$60,000
50-75%	\$56,000
More than 75%	\$52,000

Is programming or custom application development part of your job?

Category	Median Salary
Yes	\$60,000
No	\$50,000

Comments from Respondents

The survey also allowed respondents the opportunity to offer comments. Some of these comments were very helpful in compiling the more unique response situations. Others were simply useful and interesting comments about the GIS user community. Below is a paraphrased compilation of these comments.

I'm currently unemployed, am hoping for a permanent position, or will be leaving a student intern position soon and searching for full-time employment.

I've been involved with GIS for more than 20 years. It may be interesting to expand some survey categories to identify the more "senior" respondents as educational opportunities, position descriptions, etc. have changed.

Some additional questions concerning staff supervision and/or peripheral responsibilities such as budgeting, project planning, etc. might be fitting.

It would be interesting to know the defined pay ranges established by employers for GIS related positions.

Do you have additional comments to offer in reference to the survey of this summary document? Please contact the MN GIS/LIS Consortium via [the website](#).

Conclusion

Nearly all GIS professionals in Minnesota have some post-secondary education; most hold a bachelor or master degree. While there are many mixes of majors, the most common are classified as Geography, Planning or Landscape Architecture. Whether combined with another degree or as a single major, one-third of respondents have a degree in GIS. Over two-thirds of professionals had at least 12 credits of formal GIS education, while nearly one-quarter have a GIS certificate from an accredited educational institution. Finally, only 14% of respondents have a professional GIS certification (GISP) from the GISCI.

Government entities are the largest employer of GIS professionals in the state, particularly at the county level. The vast majority of all jobs fall into four categories of GIS positions: Manager, Coordinator, Specialist or Technician. Just over half of the respondents work in the Seven County Metropolitan Area.

More than half of GIS professionals have over ten years experience working with GIS, while only 11% have been in the field less than three years. Well more than half of respondents earn between \$40,000 and \$70,000 annually. Additionally, over half of the GIS professionals are programming or developing custom applications as part of their job, and about one-third are supervising other GIS staff. Finally, most GIS professionals are spending more than half their workday using GIS products and procedures. In fact, nearly half of respondents spend over 75% of their time using GIS.

Appendix A

Salary Survey Response Map

Appendix B

Salary Survey Questionnaire



2009 Minnesota GIS/LIS Consortium Salary Survey

This salary survey is intended to help the GIS professional in Minnesota. Results will be published in summary form as they were in [2002](#). Responses are confidential.

Participation is voluntary. The survey should take only 5-10 minutes to complete.

You must log in as a Consortium member to take this survey on-line. Membership is free and we [invite you to join](#). Responses will not be linked to or tracked with your member log-in.

Members who take the survey on-line will be entered into a drawing to receive a \$20 discount off the 2010 Fall Workshops & Conference (a total of 10 prizes will be given).

If you do not wish to respond on-line, please print this PDF, complete the questionnaire and return by mail or fax to:

MN GIS/LIS Consortium
1000 Westgate Dr
Suite # 252
St. Paul, MN 55114

Phone: (651) 203-7242
Fax: (651) 290-2266

(You do not need to return this page.)

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2009 Minnesota GIS/LIS Consortium Salary Survey

Job Detail

1. Which one of the following most closely describes your job position?

(URISA has developed some job descriptions that may be useful to you, attached at the end of this document or [online](#))

- | | |
|---|--|
| <ul style="list-style-type: none"> <input type="radio"/> GIS Manager <input type="radio"/> GIS Coordinator <input type="radio"/> GIS Specialist <input type="radio"/> GIS Software Programmer <input type="radio"/> GIS Data Analyst <input type="radio"/> GIS Technician <input type="radio"/> GIS Systems Support <input type="radio"/> GIS Sales <input type="radio"/> Educator / Trainer <input type="radio"/> Consultant | <ul style="list-style-type: none"> <input type="radio"/> Other GIS (specify)
_____ _____ _____ <input type="radio"/> Occasional GIS User (specify)
_____ _____ _____ |
|---|--|

2. What is your annual salary range?

- | | | | |
|----------|----------|----------|----------|
| < \$30k | \$31-40k | \$41-50k | \$51-60k |
| \$61-70k | \$71-80k | > \$80k | |

3. Please indicate the county in which your office is located (location of employment).

_____ County

4. Please indicate your company's principal business sector. (your actual employer, not source of contracts)

- | | |
|--|--|
| <ul style="list-style-type: none"> <input type="radio"/> Federal Government <input type="radio"/> State Government <input type="radio"/> County Government <input type="radio"/> Municipal Government <input type="radio"/> Native American Interests <input type="radio"/> Not-for-Profit | <ul style="list-style-type: none"> <input type="radio"/> Private Sector <input type="radio"/> Education <input type="radio"/> Other (specify)
_____ _____ _____ |
|--|--|

5. Do you have supervisory responsibilities of other GIS staff?

- Yes
- No

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Formal Education

Please restrict your answers to education that is related to your current field of employment.

6. What is your level of education?

- High School / GED
- Some College
- Associate Degree
- Bachelors Degree
- MS / MA
- PhD

7. Please indicate the major program of your degree(s). (mark all that apply)

- Business
 - Computer Science
 - Engineering
 - Environmental Sciences
 - Geography
 - Geology / Physical Sciences
 - GIS
 - Marketing
 - Mathematics / Statistics
 - Natural Resources
 - Planning
 - Political Science
 - Surveying
 - Other (specify)
- _____
- _____
- _____

8. Did your academic training include at least 12-GIS-related credits?

- Yes
- No

9. Have you earned a GIS certificate from an accredited technical or community college or university?

- Yes
- No

Professional Certification

10. Have you been certified as a GIS Professional (GISP) by the GIS Certification Institute?

- Yes
- No

11. Does your employer offer a salary benefit for having your GISP certification?

- Yes
- No
- Unknown

Experience and Technical Expertise

12. How many years of GIS experience do you have overall?

< 1 1-2 2-3 3-5 5-10 > 10

13. How much of your time is spent using GIS?

< 10% 10-25% 25-50% 50-75% > 75%

14. Is programming or custom application development part of your job?

- Yes
- No

Comments

15. Please feel free to provide any additional comments that might be pertinent to compiling the results of this survey:

End of Survey – Thank you for your participation!

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Appendix C

Model GIS/IT Job Descriptions – URISA 2006

Model GIS/IT Job Descriptions – URISA 2006

GIS Manager - The GIS Manager balances technical skills and administrative knowledge to ensure that GIS technology is being used properly and efficiently. The GIS Manager must be informed as to what the current GIS demands are, and if the present department, personnel, and software can meet them. A working knowledge of the agency's database and software is required of the successful manager. As in most technical fields, a capable manager must know more than project oversight and staff supervision, and a technical background is a necessity. The manager must have the skills and abilities to ensure a project's completion from beginning to end. Successful managers need to set goals and objectives, project completion dates, and establish methods of completion, on a number of ongoing projects. Project management can often be a daunting task, requiring individuals who are detail oriented and have foresight. The GIS Manager must also be prepared to coordinate GIS activities between different groups, agencies, departments, or individuals.

GIS Coordinator - The coordinator lies just below the manager on the hierarchy of GIS professionals. They provide technical support to other agencies, individuals, and governments. It is the responsibility of the coordinator to aid both GIS users and non-users in the development and application of geographical technology. The coordinator must have an extensive working knowledge of the department's software and capabilities. The coordinator handles all the data sharing, report and map generation, as well as meeting planning, between departments. Other departments and levels of government are relying on GIS technology in increasing amounts, and it is the responsibility of the coordinator to provide the correct information and assistance.

GIS Specialist - In some cases, specialists are individuals with specific and intense training in one aspect of GIS technology. In other cases, the title may be applied to individuals who handle certain ongoing projects related to the department. Larger public and private agencies offer the position as a way to concentrate on specific and vital projects. The specialist, often in a team environment, provides customer and technical support under the direction of a GIS Manager. Where the position differs from that of the coordinator is that most of a specialist's duties are internal. The specialist shares in project development rather than collaboration with other agencies or governments. Some specialists have a less formal GIS background and are hired due to their knowledge of a specific subject or function. For example, if the department is working on a transportation project, the specialist might have a concentrated background in planning or highway development, rather than GIS. The specialist helps send projects through the pipeline, coordinating the activities of the department with the goals and directives of an individual project.

GIS Software Programmer - The GIS Programmer is a heavily technical position that demands an extensive technical background and a constant need for reeducation. Almost every programmer designs, creates, updates, or manages GIS software applications. A programmer divides one's time between the maintenance of the current software and design of new applications. The programmer may also be called upon to do GIS mapping, provide internet and web based support, develop spatial and non-spatial databases, as well as provide technical support to other GIS professionals. The programmer is expected to know a large number of programming languages and applications. On average, familiarity with AML, Microsoft NT, Avenue, SQL, VB (Visual Basic), C, C++, Java, and Oracle is required. The qualified and successful programmer will not only be familiar with these applications, but will be able to use them to run and improve the current GIS program.

GIS Data Analyst - The GIS Analyst's responsibilities are often two-fold. The first aspect of the analyst position concentrates on data and programming knowledge. The position demands proficiency with mapping and database software. The analyst must be familiar with database derived information, for it will be from this that the second aspect of the position comes into play: data analysis. The analyst's duties include a high amount of data conversion, application, and implementation. It is the role of the analyst to transfer data from a database with certain parameters and to ultimately prepare reports or make decisions from this created information. The analyst makes practical sense out of processed data and then applies it to real world applications.

GIS Technician - The GIS Technician is the beginning rung on the GIS hierarchy ladder in most cases. Most of the duties assigned to this type of position are routine, involving heavy amounts of database entry and management and the eventual generation of maps and plats from this data. The technician does little or no interpretation after the data has been stored in the database software. Outside the main responsibilities of database management and mapping, the technician will also complete work relating to: digitizing, math, surveying, and technical writing. If any position in GIS were designed for the recent college graduate or novice in the field it would be the position of technician.