

GIS SPECIALIST 1-4

CLASS DESCRIPTION

General Responsibilities:

This classification series is designed to describe professional Geographic Information Systems (GIS) and Computer Aided Design (CAD) work to aid in workflow development, asset management, operations and overall data management. Positions in these classes are usually found in the public works, transportation and planning divisions. This series is expected to cover multiple departments and agencies, so not all duties and responsibilities described below will be applicable to all departments. It is a general guide of basic duties and responsibilities.

Unless specifically indicated, this series is structured to provide advancement from GIS Specialist 1 to GIS Specialist 2 and GIS Specialist 2 to GIS Specialist 3, as a function of the employee's career development and generally occurs after two years at each level. Progression to a GIS Specialist 4 is not automatic, but rather is dependent upon the incumbent taking on additional duties and responsibilities as well as the needs of the department and is generally accomplished through competition or a position study.

GIS Specialist 1

This is entry-level professional GIS/CAD work performed in the office or field to aid in an agency's overall data management and maintenance processes. This position performs routine and/or focused assignments, which are received from higher-level specialists, engineers, or supervisors who will set up the project, define the scope of the project, review the work in progress and upon completion and certify the results. The work is characterized by the application of GIS/CAD theories and practices and the attainment of the procedural knowledge through on-the-job training and expertise.

GIS Specialist 2

This is intermediate-level professional GIS/CAD work performed in the office and/or field in connection with an agency's overall data management systems and goals. Assignments are received from higher-level specialists or supervisors who define the scope of the work, review the work in progress and upon completion, and certify the results. The work is characterized by the application of expanded professional expertise encompassing both theoretical concepts and operational considerations gained through experience. It is expected that the Specialist 2 position can do all of the work of the Specialist 1 with greater professional expertise, independence, discretion, complexity and responsibility for the task at hand.

GIS Specialist 3

This is higher-level professional GIS/CAD work performed in the office and/or field in connection with the design, management, and construction of a wide variety of projects. Assignments are received from a GIS Specialist 4 or supervisor who generally defines the scope of the work, reviews progress periodically and upon completion, and certifies the results, if necessary. This work may include a significant role in project based work creation and some leadership responsibility on specific projects, as assigned. The work is characterized by the exercise of independent technical

and professional judgment, the broader application of professional expertise, proficiency in the operational and procedural aspects of the work and City's processes, and with emphasis on the more technically complex and responsible activities. As an agency's sole GIS employee, serves as an operational subject matter expert for their respective agency staff by responding to technical and software questions, vetting issues, and determining resolutions.

GIS Specialist 4

This is advanced-level professional GIS/CAD leadership and project supervision work performed in the office and/or field in connection with the planning, design, management and construction of a wide variety of projects. This position may also be responsible for high-level scripting, programming and data processing workflows. Work is performed with considerable emphasis on project leadership or technical leadership for the most complex and diverse GIS duties, functions and responsibilities, and includes crafting the technical vision and guiding their agency path for GIS. Assignments are received from a higher-level supervisor or section head and the work involves the application of independent professional judgment to define the project; determine the best methods of addressing the situation(s), including the assignment of project components to lower-level staff, and certification of the results. This work includes cross agency interaction. The work is performed under the general direction and coordination of a higher-level professional supervisor or section head and regularly involves the supervision (assigning, reviewing and managing workload) of lower-level staff.

Examples of Duties and Responsibilities:

GIS Specialist 1

Perform basic quality assurance/control of various databases and datasets using aerial photography, plans, or other data.

Digitize off of aerial photography.

Collect data in the field using hand held GPS or tablets.

Fulfill basic map, print and data requests.

Prepare basic reports for public information meetings or analysis.

Maintain process documentation.

Perform routine data updates in the division's data management systems.

Perform related work as required.

GIS Specialist 2

Perform all the work of a GIS Specialist 1 with a higher degree of independence, discretion, expertise, efficiency, quality, complexity and implicit responsibility.

Set-up and identify schedule for quality assurance/control routines and processes, and perform more complex quality assurance/control tasks.

Help setup projects and tasks.

Perform more complex data entry that uses analysis, scripting, querying or other tools.
AutoCAD/ARCGIS

Maintain data by looking at the overall health of the data, suggesting improvements or efficiencies to make data better across the department or agencies, or serving as the subject matter expert of the dataset.

Receive and review map, print and data requests from the public and other agencies. Determine the level of effort and either assigning them down or completing more complex ones. Follow through with the requestor to make sure the task was completed.

Train lower level and less technical staff on software, applications and workflows.

Create and update workflow and process documentation.

Create and make changes to simple datasets.

Perform CAD/GIS interoperability processes using software tools.

Perform database queries through predefined software interfaces.

Create reports and report templates using appropriate reporting tools.

Perform related work as required.

GIS Specialist 3

Perform all the work of a GIS Specialist 2, with increased professional expertise, independent, discretion, efficiency, quality, complexity and implicit responsibility for the completion of major projects.

Perform advanced data editing through use of Topology. Consume and integrate vendor database design.

Perform project/contract management work on smaller projects and/or components of larger projects, including: setting up the project; making sure the specifications are known to all working on the project; providing activity schedule, technical consultation and training to lower level staff; overseeing work of lower level specialists; working with the contractors, stakeholders, and agency heads on issues; and ensuring the work is completed.

Work with software vendors and IT on updates, budgets, downloads and installs.

Create and run complex GIS/CAD interoperability and ETL (extract, translate, load) processes.

Perform higher level scripting to aid in workflow and process development.

Write and develop RFPs for smaller projects.

Manage database by ensuring the overall health of the database is intact and efficient.

Writing training manuals and document complex workflow processes

Create complex products presentation for use with Boards, Commissions and Committees

Higher-level reporting and presentations to various internal and external audiences.

Dashboard creation and presentations to various boards.

Using IT's online mapping software, create, maintain and enhance maps for public and interagency consumption.

Using ETL, programming/scripting, and/or out of the box GIS/CAD software extensions, develop analysis tools and methodology to aid in the agency's decision making processes for budgets, research, and workflows

Administer GIS policies of the specific work programs within the agency.

Perform related work as required

GIS Specialist 4

Perform all work of a GIS Specialist 3, with increased emphasis on project/technical leadership/management for the completion of major projects and the most complex GIS duties, functions and responsibilities.

Work with Agency/Section head or supervisor on budget development.

Oversee and prioritize workload and work quality of lower level staff.

Develop and implement complex workflow processes using programming, scripting, ETL, and database tools.

Manage agency-wide enterprise systems.

Write, develop and execute RFPs for complex CAD/GIS software and data projects.

Serve on citywide teams.

Collaborate with IT on managing agency specific server(s).

Collaborate with all pertinent agencies to develop citywide solutions and advocate for the needs of their division/section in such solutions.

Research new technologies and emerging trends, and determine how they can fit into the agency's long-range plans.

Develop the agency's/section's technology training and development plan.

Maintain and monitor the section's work plan.

Perform related work as required.

QUALIFICATIONS

Knowledge, Skills and Abilities:*

GIS Specialist 1

Working knowledge of the principles, theories, and practices of GIS/CAD as they relate to the agency's overall goals. Working knowledge of and ability to use computer software applicable to the duties of the position. Knowledge of general principles of how databases (RDMS) work including joins and relates. Knowledge of how scripts and programming work and the ability to run them inside software packages. Ability to draft and create basic cartographic map layouts. Ability to create and work in spreadsheets, documents, PDFs, and other document software and tools. Ability to use analytic and critical thinking skills. Ability to communicate effectively, both orally and in writing. Ability to develop and maintain effective relationships with supervisors, co-workers, and other parties. Ability to maintain accurate records. Ability to work with multicultural communities. Ability to maintain adequate attendance.

GIS Specialist 2

Thorough knowledge of the principles, theories, and practices of GIS/CAD as they relate to the agency's overall goals. Thorough knowledge of and ability to use computer software applicable to the duties of the position. Working knowledge of editing and querying databases (RDMS). Ability to draft and create basic cartographic map layouts. Ability to use the advanced functions of the GIS/CAD software. Ability to create very basic scripts and queries to aid in QA/QC, data update and maintenance and routine tasks. Ability to help identify process inefficiencies and errors. Ability to communicate effectively, both orally and in writing. Ability to develop and maintain effective relationships with supervisors, co-workers, contractors, the general public and other parties. Ability to maintain accurate records. Ability to inspect or assign others to inspect public works construction projects. Ability to work with multicultural communities. Ability to maintain adequate attendance.

GIS Specialist 3

Thorough knowledge of the principles, theories, and practices of GIS, CAD, database theories, practices and standards as they relate to the industry. Thorough knowledge of and ability to use computer software applicable to the duties of the position. Working knowledge of the procedural aspects of the City's contracting and capital budgeting processes. Ability to create GIS products and outputs using current GIS tools in the City's technology portfolio. Ability to design and/or coordinate routine projects and provide necessary follow-through to completion. Ability to recognize and advocate for agency/division solutions. Ability to exercise significant professional geo-spatial expertise and judgment in the resolution of workflow and data process problems. Ability to communicate effectively, both orally and in writing. Ability to develop and maintain effective relationships with supervisors, co-workers, contractors, the general public and other parties. Ability to maintain accurate records. Ability to inspect or assign others to inspect public works construction projects. Ability to work with multicultural communities. Ability to maintain adequate attendance.

GIS Specialist 4

Thorough knowledge of the principles, theories, and practices of GIS, CAD, Database theories, practices and standards as they relate to the industry. Thorough knowledge of and ability to use computer software applicable to the duties of the position. Thorough knowledge of the procedural aspects of the City's contracting and capital budgeting processes. Ability to design and/or coordinate complex projects and provide necessary follow-through to completion. Ability to understand complex issues as they impact both department and division processes and take steps for fix them. Ability to supervise lower level staff in the design and coordination of data management projects. Ability to exercise significant professional geo-spatial and database expertise and judgment in the

resolution of workflow and data process problems. Ability to communicate effectively, both orally and in writing. Ability to develop and maintain effective relationships with supervisors, co-workers, contractors, the general public and other parties. Ability to maintain accurate records. Ability to inspect or assign others to inspect public works construction projects. Ability to work with multicultural communities. Ability to maintain adequate attendance.

*Specific knowledge, skills, and abilities may be added for particular expertise as required on a position basis.

Training and Experience:

Generally, positions in this classification will require:

GIS Specialist 1

Graduation from an accredited college or university with a Bachelor's degree in geography or GIS, or a Bachelor's degree in planning, engineering or a closely related field to the hiring agency, which includes the completion of GIS coursework. Other combinations of training and/or experience which can be demonstrated to result in possession of the knowledge, skills, and abilities necessary to perform the duties of this positions will also be considered.

GIS Specialist 2

Two years of professional experience in the GIS/CAD field using software, geo-spatial and database theories, and project tasks similar to that gained as the GIS Specialist 1 with the City of Madison. Such experience would normally be gained following graduation from an accredited college or university with a Bachelor's degree in geography or GIS, or a Bachelor's degree in planning, engineering or a closely related field to the hiring agency in addition to the completion of GIS coursework. Other combinations of training and/or experience which can be demonstrated to result in possession of the knowledge, skills, and abilities necessary to perform the duties of this positions will also be considered.

GIS Specialist 3

Two years of professional experience in the GIS/CAD field using software, geo-spatial and database theories, and project tasks similar to that gained as the GIS Specialist 2 with the City of Madison. Such experience would normally be gained following graduation from an accredited college or university with a Bachelor's degree in geography or GIS, or a Bachelor's degree in planning, engineering or a closely related field to the hiring agency in addition to the completion of GIS coursework. Other combinations of training and/or experience which can be demonstrated to result in possession of the knowledge, skills, and abilities necessary to perform the duties of this positions will also be considered.

GIS Specialist 4

Two years of varied professional experience in the GIS/CAD field using software, geo-spatial and database theories, and project tasks similar to that gained as the GIS Specialist 3 with the City of Madison. Such experience would normally be gained following graduation from an accredited college or university with a Bachelor's degree in geography or GIS, or a Bachelor's degree in planning,

engineering or a closely related field to the hiring agency in addition to the completion of GIS coursework. Other combinations of training and/or experience which can be demonstrated to result in possession of the knowledge, skills, and abilities necessary to perform the duties of this positions will also be considered.

Specific training and experience requirements will be established at the time of recruitment.

Necessary Special Qualifications:

Ability to meet the transportation needs of the position.

Physical Requirements:

Work is primarily sedentary in nature and performed in an office environment. Employees will be expected to use standard office equipment such as a telephone, computer, calculator, copier, and fax machine. Employees must have the physical strength, coordination and acuity inherent to set up, install and test computers as assigned. Employees may be expected to visit sites throughout the City in order to troubleshoot issues.

| Department/Division | Class Title | Comp. Group | Range |
|----------------------------|--------------------|--------------------|--------------|
| Various | GIS Specialist 1 | 18 | 6 |
| Various | GIS Specialist 2 | 18 | 8 |
| Various | GIS Specialist 3 | 18 | 10 |
| Various | GIS Specialist 4 | 18 | 12 |

Approved:

Erin Hillson
Human Resources Director

Date