



## Career Service Authority

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# Senior Geographic Information System Analyst

### GENERAL STATEMENT OF CLASS DUTIES

Performs complex full-performance statistical and spatial analysis, display location (mapping), produces relevant text, presents graphics and makes recommendations utilizing multiple Geographic Information System software packages and modules and applies analysis to complex situations based upon multiple (3 or more) complex datasets. Performs Information Technology (IT) technical work supporting desktop software, legacy systems or databases and Geographic Information System (GIS) functions. Performs documentation of workflows and business standards.

### DISTINGUISHING CHARACTERISTICS

This is the third class in a three class series. Senior GIS Analyst is distinguished from the *GIS Technician* because the main responsibilities of this position involve collecting, translating, and maintaining data within multiple databases. The GIS Technician is responsible for entry level Information Technology (IT) system and software support while the Senior GIS Analyst is responsible for full-performance system and software support. In addition, the Senior GIS Analyst is responsible for the full-performance statistical and spatial analysis.

This class is distinguished from the *GIS Analyst* by the level of independence and the complex nature and number of data sets. In addition, The Senior GIS Analyst is responsible developing and recommending standards for GIS data development and cartography. Finally the Senior GIS Analyst is responsible for training employees/users in GIS concepts and creating documentation of workflows and business standards.

### ***Guidelines, Difficulty and Decision Making Level:***

Guidelines are generally but not always clearly applicable, requiring the employee to exercise judgment in selecting the most pertinent guideline, interpret precedents, adapt standard practices to differing situations and recommend alternative actions in situations without precedent.

Duties assigned are generally complex and may be of substantial intricacy. Work assignment is performed within an established framework under general instructions but requires simultaneous coordination of assigned functions or projects in various stages of completion.

Employee is responsible for determining time, place and sequence of actions to be taken. Unusual problems or proposed deviations from guidelines, practices or precedents may be discussed with the supervisor before being initiated.

***Level of Supervision Received and Quality Review:***

Under general supervision, the employee receives assignments and is expected to carry them through to completion with substantial independence. Work is reviewed for adherence to instructions, accuracy, completeness and conformance to standard practice or precedent. Recurring work clearly covered by guidelines may or may not be reviewed.

***Interpersonal Communications and Purpose:***

Contacts with the public or employees where explanatory or interpretive information is exchanged, defended, gathered. Discretion and judgment are required within the parameters of the job function.

***Level of Supervision Exercised:***

By assignment may perform lead work.

**ESSENTIAL DUTIES**

Participates in and assists in coordinating the planning, development, implementation, and training of automated applications in an effort to align information technology solutions with customer business requirements and initiatives.

Creates, develops and presents processes, reports, maps and charts of data displayed by geographical region for analysis and presentation to the public and agency staff, and generates statistical analysis on complex data provided by agencies.

Applies spatial interpolation techniques and multiple modeling methods to create geostatistical surfaces, street and/or facility networks that can be modeled, analyzed and applied to multiple complex problems to provide and present recommendations and solutions.

Acts as a liaison between a "user group" or a department and an Information Technology unit to communicate problems and possible solutions.

Utilizes spatial autocorrelation techniques to measure the association of various geographic features.

Designs, develops and loads spatial databases to enable statistical analysis, geographic analysis and mapping using GIS software and maintains GIS databases.

Develops and initiates new methods of representing spatial data cartographically to support agency initiatives; develops and recommends standards for GIS data development and cartography (implements with supervisor approval), updates and maintains existing map collections and applies data for map production, quality assurance and quality control (QA/QC) procedures, problem solving and analysis and assigns geographic coordinates to addresses and inputs the data into GIS system for analysis.

Installs, reviews, and tests desktop software and provides technical support in a formal or informal help desk setting to users with problems on database issues and legacy software including logging, troubleshooting, resolving or referring problems to the appropriate information technology resource.

Interprets aerial photographs and satellite data to prepare new GIS data sets, and inputs spatial features into GIS databases by utilizing methodologies such as trace digitizing, coordinate geometry (COGO), surveyor notations and graphic input into digital formats.

Interprets new and complex spatial data and applies the appropriate mathematical and data conversion techniques to project, re-project, transform, rubber-sheet, conflate and accurately register it to city coordinates.

Performs quality control procedures such as file integrity, positional and dimensional accuracy and metadata documentation.

Under instruction modifies software programs including coding, testing and documentation for use with multi-application, multi-user database systems.

Trains employees and users in GIS concepts and data maintenance and cartographic techniques, and demonstrates successful application of training.

Uses Global Positioning System (GPS), wireless GIS systems and field visits to collect or verify the accuracy of GIS data.

Performs other duties as assigned.

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Any one position may not include all of the duties listed.  
However, the allocation of positions will be determined by  
the amount of time spent in performing the essential duties  
listed above.  
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## MINIMUM QUALIFICATIONS

### ***Competencies, Knowledges & Skills:***

**Conflict Management** - Manages and resolves conflicts, grievances, confrontations, or disagreements in a constructive manner to minimize negative personal impact.

**Creative Thinking** - Uses imagination to develop new insights into situations and applies innovative solutions to problems; designs new methods where established methods and procedures are inapplicable or are unavailable.

**Customer Service** - Works with customers to assess needs, provide assistance, resolve problems satisfy expectations; knows products and services; is committed to providing quality products and services.

**Influencing/Negotiating** - Persuades others to accept recommendations, cooperate or change their behavior, works with others toward an agreement; negotiates to find mutually acceptable solutions.

**Information Management** - Identifies a need for and knows where or how to gather information; organizes and maintains information or information management systems.

**Interpersonal Relationship** - Demonstrates competency in working with multiple department/agency, out side organizations, and the public with diverse expectations and requirements.

**Oral Communication** - Expresses information to individuals or groups effectively taking into account the audience and nature of the information; makes clear and convincing oral presentations; listens to others, attends to nonverbal cues, and responds appropriately.

**Problem Solving** - Identifies problems; determines accuracy and relevance of information; uses sound judgment to generate and evaluate alternatives, in addition, to make recommendations.

**Teamwork** - Encourages and facilitates cooperation, pride, trust, and group identity; fosters commitment and team spirit; works with others to achieve goals.

**Time Management** - Manages time and resolves time conflicts, recognizes priorities, determines resource requirements, coordinates with others, monitors progress in a constructive manner to achieve the project set goals.

**Writing** - Recognizes or uses correct English grammar, punctuation and spelling; communicates information in a succinct and organized manner; produces written information, which may include technical material that is appropriate for the intended audience.

Knowledge of computer hardware and software sufficient to be able to perform a variety of duties as needed.

Knowledge of geographic information systems sufficient to be able to perform a variety of duties related to the work assignment.

Knowledge of information technology hardware and software sufficient to be able to perform basic functions, troubleshoot problems and perform data entry, retrieval and analysis.

Knowledge of information technology systems analysis, including system design, sufficient to be able to maintain current systems.

Knowledge of training techniques sufficient to be able to train others to perform the duties of the work assignment.

Skill in checking information for accuracy and completeness and correcting errors.

Skill in computing geometric areas.

Skill in establishing and maintaining effective working relationships with other employees, organizations and the public.

Skill in evaluating existing policies, procedures, and objectives and recommending changes for improvement.

Skill in exercising initiative, judgment, and decision making in solving problems and meeting organizational objectives.

Skill in independently adapting, interpreting and applying written guidelines, precedents and standardized work practices to a variety of unprecedented or problematic situations.

Skill in performing GIS database backups.

Skill in reading and interpreting detailed geographical maps.

Skill in using geographical databases.

Skill in utilizing the principles and practices of effective and persuasive communications to elicit and/or present explanatory or interpretive information.

***Physical Demands:***

Sitting: remaining in the normal seated position.  
Reaching: extending the hand(s) and arm(s) in any direction.  
Handling: seizing, holding, grasping, or otherwise working with hands.  
Fingering: picking, pinching, or otherwise working with fingers.  
Talking: expressing or exchanging ideas by means of spoken words.  
Hearing: perceiving the nature of sounds by the ear.  
Repetitive motions: Making frequent movements with a part of the body.  
Eye/hand/foot coordination: performing work through using two or more.  
Near acuity: ability to see clearly at 20 inches or less.  
Accommodation: ability to adjust vision to bring objects into focus.  
Color Vision: ability to distinguish and identify different colors.

***Working Environment:***

Subject to many interruptions.  
Pressure due to multiple call and inquiries.

***Education Requirement:***

Baccalaureate Degree in Geography, Urban Planning, Engineering, GIS, Geology, Computer Science, Information Technology, Cartography, Landscape Architecture, Remote Sensing or a directly related field.

***Experience Requirement:***

Three years of professional hands-on GIS analyst experience.

***Education/Experience Equivalency:***

A Baccalaureate Degree in an unrelated field plus either a certificate in GIS or Land Information Systems (LIS) or 12 semester hours completed in GIS/LIS coursework may be substituted for the minimum education requirement. **OR** Additional appropriate experience and education may be substituted for the minimum education and experience requirement.

***Licensure and/or Certification:***

None

**CLASS DETAIL**

***FLSA CODE:*** Exempt

**ESTABLISHED DATE:** 01/16/2005

**REVISED DATE:** 03/18/2007

**REVISED BY:** Melissa Palmer

**CLASS HISTORY**

1/16/05 - This class is a consolidation of two classes originally established 9/16/95, the GIS Photogrammetry Analyst and GIS Data Analyst. It is the second level in a new series of GIS analyst classes.

2/13/07 - Revisions were made to the minimum qualifications and the distinguishing characteristics. The GIS Technician will be incorporated into the GIS progressive series.