



June 2008

GEOGRAPHIC INFORMATION SYSTEMS PROGRAMMER/ANALYST

DEFINITION

Under general supervision, performs a variety application development and analysis functions of the City-wide Geographic Information System (GIS); evaluates and personally participates in the functions necessary to implement and sustain the creation, maintenance, and use of the GIS databases and applications; oversees all aspects of the program's structure and design for effective use, both within the City and in coordination with outside public, regulatory, and public safety agencies, and business organizations; ensures the expansion and maximization of GIS technology throughout many City departments; performs related work as required.

SUPERVISION RECEIVED AND EXERCISED

Receives general supervision from the Geographic Information Systems Coordinator. Exercises no supervision over staff.

CLASS CHARACTERISTICS

This is an experienced-level professional class that performs a variety of Geographic Information System (GIS) application and programming activities. Incumbents exercise a high level of discretion and independent judgment in performing the full range of routine and complex assignments. Successful performance of the work requires thorough knowledge of GIS applications and basic knowledge of the City's information systems infrastructure. This class is distinguished from GIS Technician by the performance of more complex professional-level duties, including GIS programming. This class is distinguished from other information technology classes by the level of specialized technical knowledge of and emphasis on GIS software applications.

EXAMPLES OF ESSENTIAL JOB FUNCTIONS (Illustrative Only)

Management reserves the right to add, modify, change or rescind the work assignments of different positions and to make reasonable accommodations so that qualified employees can perform the essential functions of the job.

- Designs, writes, develops, and implements Geographic Information System (GIS) applications through commonly used programming languages to create custom GIS web applications for City departments; tests and debugs GIS programs; monitors and modifies existing applications as needed.
- Manages and completes assigned projects; develops detailed design specifications, definitions, diagrams, performance criteria, and testing methods; writes, develops, and documents operational procedures for data elements and sources; devises schedules of GIS application implementation.
- Performs ad-hoc mapping duties including advanced spatial analysis; writes applications to find logical errors in the GIS database and to translate data from GIS to other systems or from other systems into the GIS database.

- Provides training and technical guidance to users and staff in the use of new or modified systems and procedures.
- Provides consulting advice and technical expertise to City departments regarding GIS needs analysis, evaluation of proposed solutions, systems integration, and solutions implementations; identifies and recommends appropriate standards to meet the City's needs.
- Identifies opportunities for improving service delivery methods and procedures; reviews with appropriate management staff and implements improvements; works with City staff to maintain, revise, or improve the overall functionality of GIS; participates in the development of City-wide and departmental GIS plans.
- Serves on or provides support to a variety of committees and user groups as necessary.
- Performs other duties as assigned.

QUALIFICATIONS

Knowledge of:

- The capabilities, methods, technical standards, and programming languages of GIS technology.
- Programming logic and code for use in GIS web applications.
- Data systems, hardware, and software related to GIS, geo-databases, functions, and management.
- Database management concepts and structures, analysis methods, design, practices, and procedures.
- Software applications related to spatial data concepts and related functionality.
- Principles, practices, methods, and techniques of GIS, cartography, and map design.
- Current developments, trends, and technologies within the GIS field.
- Data management concepts and structures.
- Record keeping principles and procedures.
- Modern office practices, methods and computer equipment.
- Computer applications related to the work.
- English usage, grammar, spelling, vocabulary, and punctuation.
- Techniques for dealing effectively with the public, vendors, contractors and City staff, in person and over the telephone.
- Techniques for providing a high level of customer service to public and City staff, in person and over the telephone.

Ability to:

- Program and write code for use in GIS web applications.
- Use computer-related programs and software applications related to the area of assignment.
- Analyze situations and identify and troubleshoot pertinent technical problems/issues; collect relevant information; evaluate realistic options; and recommend/implement appropriate course of action.
- Develop and implement GIS-related projects with sufficient speed and accuracy.
- Review, analyze, customize, and implement software packages and applications related to GIS projects.
- Perform complex analysis of geospatial and tabular data and develop mapping products.
- Interpret, apply, and explain technical materials to non-technical users; elicit user needs and develop and implement appropriate solutions.
- Document programs and procedures.
- Prepare clear and effective reports, correspondence, policies, procedures and other written material.
- Make accurate arithmetic, financial, and statistical computations.
- Organize and prioritize a variety of projects and multiple tasks in an effective and timely manner; organize own work, set priorities and meet critical time deadlines.

- Operate modern office equipment including computer equipment and specialized software applications programs.
- Comprehend and use English effectively including producing all forms of communication in a clear, concise, and understandable manner to intended audiences.
- Use tact, initiative, prudence and independent judgment within general policy, procedural and legal guidelines.
- Establish, maintain, and foster positive and harmonious working relationships with those contacted in the course of work.

Education and Experience:

Any combination of training and experience which would provide the required knowledge, skills and abilities is qualifying. A typical way to obtain the required qualifications would be:

Equivalent to graduation from an accredited four-year college or university with major coursework in geographic information systems, geography, computer science, or a related field, and two (2) years of professional experience in designing, programming, supporting, and implementing GIS applications.

License:

- May be required to possess or have the ability to obtain, a valid driver's license by time of appointment.

PHYSICAL DEMANDS

Must possess mobility to work in a standard office setting and use standard office equipment, including a computer; vision to read printed materials and a computer screen; and hearing and speech to communicate in person, before groups and over the telephone; may be required to operate a motor vehicle and to visit various City and meeting sites. This is primarily a sedentary office classification although standing in work areas and walking between work areas may be required. Finger dexterity is needed to access, enter and retrieve data using a computer keyboard or calculator and to operate standard office equipment. Positions in this classification occasionally bend, stoop, kneel, reach, push and pull drawers open and closed to retrieve and file information. Employees must possess the ability to lift, carry, push, and pull materials and objects weighing up to 40 pounds.

ENVIRONMENTAL ELEMENTS

Employees work in an office environment with moderate noise levels, controlled temperature conditions and no direct exposure to hazardous physical substances. Employees may interact with upset staff and/or public and private representatives in interpreting and enforcing departmental policies and procedures.