



**City of Tigard
Finance & Information Services Department**

**Senior Geographic Information Systems Programmer-Analyst
Job Description**

DEFINITION

Under general supervision, provides technical and analytical leadership to City-wide GIS and IT staff. Performs a variety of advanced application development and analysis functions of the City-wide enterprise Geographic Information System (GIS). Evaluates and personally participates in the functions necessary to implement and sustain the creation, improvement, 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 duties/work as required.

SUPERVISION RECEIVED AND EXERCISED

Receives general supervision from the Geographic Information Systems (GIS) Program Administrator. Exercises no direct supervision of staff, but may provide training, guidance, and technical and/or functional direction to GIS Technicians or other GIS users as required.

CLASSIFICATION CHARACTERISTICS

This is an experienced senior-level professional class that performs a variety of Geographic Information System (GIS) application and programming activities. The incumbent exercises a high level of discretion and independent judgment in performing the full range of routine and complex assignments. Successful performance of the work requires advanced knowledge of GIS applications and 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 the GIS Programmer Analyst by the performance of more advanced integration and networking skills and providing leadership to City-wide GIS and IT staff on GIS enterprise systems. This class is distinguished from other information technology classes by the level of specialized technical knowledge of and emphasis on GIS applications.

ESSENTIAL JOB FUNCTIONS

- Provides technical and analytical GIS leadership for GIS and IT staff; 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.
- Analyzes, recommends, and designs GIS components and solutions to integrate with the larger, complex City-wide internal/external-facing enterprise GIS environment.
- 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 development to production workflows; develops detailed design specifications, definitions, diagrams, performance criteria, and testing methods; enforces adherence to change/version control principles.
- Performs ad-hoc mapping duties including advanced spatial analysis; writes applications to find logical errors in the GIS database and to translate data between GIS and other inter-related systems.
- Conduct data analysis, conversion, and corrections in non-GIS business systems as related to integration with the enterprise GIS ecosystem.
- Writes, develops, and documents operational procedures for data elements and sources; devises schedules of GIS application implementation.

- Writes reports for both technical and non-technical audiences in order to communicate the results of spatial analyses performed to support decision and policy making.
- Develop manual and/or automated protocols to ensure GIS data integrity. Analyze and problem-solve data integrity issues that arise, and manage the implementation of solutions.
- Develop, oversee, and maintain technical documentation of enterprise GIS system and GIS workflows.
- Design, develop, and implement mobile applications in support of field data collection efforts. Manage GPS hardware and software as well as workflow for check-out/check-in of data and quality control. Train staff on field device/application use.
- Implement reverse proxy rules, security protocols, and DB/file level security mechanisms to ensure the authorized use of the City's GIS data.
- Manage and administer GIS database backups and recoveries.
- 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.
- Develops and maintains GIS/data partnerships, where applicable, with external agencies and organizations.
- Coordinates and integrates GIS/data services and activities with other departments and City offices.
- Attends and/or participates in meetings and conferences; with the GIS Program Administrator, makes presentations to groups and individuals.
- Serves on or provides support to a variety of committees and user groups as necessary.
- Performs other duties as assigned.

Job and Conduct Requirements:

- Maintains regular job attendance and adherence to working hours, consistent with applicable policies.
- Complies with applicable city, state, local, and federal laws, rules, and regulations; Follows and maintains knowledge of all City policies and procedures.
- Observes safe work methods; reports safety, sanitary, and fire hazards immediately to supervisor and follows prescribed policies for safety.
- Maintains work areas in a clean and orderly condition, including securing equipment at the close of the workday.
- Provides needed information and demonstrations concerning how to perform certain work tasks to new employees in the same or similar class of positions.
- Participates effectively at regular team meetings using appropriate interpersonal skills and problem-solving skills and conflict resolution strategies.
- Maintains appropriate certifications and training, as required.
- Interacts thoughtfully and courteously with staff and community; Acts and resolves conflict in a professional manner.

JOB QUALIFICATIONS

Knowledge of:

- Principles, practices, methods, and techniques of GIS, cartography, and map design.
- Current developments, trends, and technologies within the GIS field.
- 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.
- Computer and software applications related to the work including spatial data concepts and related functionality.
- Applicable Federal, State, and local laws, codes, ordinances, and departmental rules and regulations.
- Modern office practices and procedures, including the use of standard office/computer equipment.

- Fundamentals of writing and composition as it relates to publications and internet applications.
- English usage, grammar, spelling, vocabulary, and punctuation; business letter writing and the standard format for reports and correspondence.
- Research and reporting methods, techniques, and procedures.
- Record keeping principles and procedures.
- Techniques for dealing effectively with the public, contractors, and City staff, in person and over the telephone.
- Techniques for effectively representing the City in contacts with governmental agencies, community groups and various business, professional, educational, regulatory, and legislative organizations.
- Techniques for providing a high level of customer service to public and City staff, in person and over the telephone.

Skill in:

- Use of personal computers, various related software programs, and standard office equipment to produce documents and files, e-mail, use internet software and computer programs used by the City including MS Office Word, Excel, and PowerPoint.
- Programming tools and writing code for use in GIS Web applications, including Python, Visual Studio, and Flex Builder.
- Database management tools including SQL Server Management Studio.
- ESRI Arc products including ArcMap, ArcCatalog, ArcSDE, ArcGIS Server, and ArcPad.
- Internet and web server/reverse proxy (IIS).
- Oral and written communication skills to understand written information (including instructions, descriptions, and ideas), and to express such information verbally and in writing so that others will understand and, at times, be convinced or persuaded.
- Active listening skills and interpersonal skills.
- Make accurate arithmetic, financial, and statistical computations.
- Conflict resolution skills and problem-solving skills/techniques to resolve issues.
- Organizational and time management skills to organize own work, set priorities, and meet critical time deadlines.

Ability to:

- 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.
- Document programs and procedures and ensure the maintenance of all required files, records, and documentation.
- Prepare clear and effective written materials including reports, correspondence, and other written material; ability to write in a creative, descriptive, technical, and/or factual manner to intended audiences.
- Interpret, apply, and explain technical materials to non-technical users; elicit user needs to develop and implement appropriate solutions.
- 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.
- Effectively conduct meetings, present information, and respond effectively to questions in one-on-one, small group, and large group situations to a variety of audiences.
- Establish, maintain, and foster positive and harmonious working relationships with those contacted in the course of work including community members.
- Plan, organize, and carry out assignments with minimal direction.
- Organize and prioritize a variety of projects and multiple tasks in an effective and timely manner.

- Adapt to quickly changing plans, priorities, and circumstances.
- Understand, interpret, and respond to internal and external customer needs and expectations.
- Understand the organization and operation of the assigned department, program, and of outside agencies as necessary to assume assigned responsibilities.
- Interpret, apply, and explain Federal, State, and local laws, codes, regulations, and departmental policies and procedures.
- Apply sound, creative problem-solving techniques to resolve program issues and problems.
- Operate modern office equipment including computer equipment and specialized software applications programs.
- Remain open to and consider others' ideas and contribute to building a positive team spirit.
- Identify and appropriately address safety and security threats.
- Maintain appropriate certification and training as required.

MINIMUM QUALIFICATIONS

Minimum Education/Experience Requirements:

Any combination of training and experience, which would provide the required knowledge, skills and abilities, to perform the essential functions of the position, may be 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
- A minimum of two (2) years' professional experience in designing, programming, supporting, and implementing GIS applications.

Preferred Qualifications:

- Experience and/or training in programming languages, database management tools, ESRI Arc products, and Internet web server/proxy rules.

License and Certification Requirements:

- Possession of a valid driver's license with a clean/satisfactory DMV driving record report.

WORKING CONDITIONS

Work Environment:

The duties for this job will be performed primarily in an office environment with moderate noise levels, controlled temperature and ventilation conditions, and rare to no direct exposure to hazardous physical substances. The duties for this job may require interaction in difficult interpersonal situations with both staff, public, and/or external representatives in interpreting and enforcing departmental policies and procedures.

Physical Demand/Manual Dexterity:

The duties for this job require 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 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, crouch, reach, and push and pull drawers open and closed to retrieve and file information. Employees must possess the ability to lift, carry, push, and pull materials, supplies, and objects weighing up to 40 pounds as well as stand, sit, use hands for fine manipulation, handle or feel and reach with hands and arms. The employee may occasionally climb

stairs. Specific vision abilities required by this job include close vision, distance vision, ability to adjust focus, and peripheral vision.

The physical demands described here are representative of those that must be met by an employee to successfully perform the essential functions of this job. Management is receptive to receiving requests from employees for accommodations related to disability, will engage in the interactive process with employees who make such requests and, where accommodation is needed and reasonable, is committed to providing accommodation, unless doing so would impose an undue hardship on the operation of the business.

Revision:

February 2015: establishment of new classification