



## GIS PROGRAMMER/ENGINEER, LEAD

**Department:** Finance  
**Job Class #:** 632100  
**Pay Range:** Professional 17

**FLSA:** Exempt  
**Represented:** No

Classification descriptions are intended to present a descriptive list of the range of duties performed by employees in this class and are not intended to reflect all duties performed within the job.

### **GENERAL FUNCTION:**

This is lead-level professional, technical, analytical, and customer-oriented work in the GIS Division of the Information Technology Division of Finance. An employee in this classification programs, maintains, enhances, and supports GIS business programs and large, countywide, enterprise GIS databases or mission critical applications. The GIS Programmer/Engineer, Lead may include any or all of the essential functions listed below.

### **SERIES CONCEPT:**

This is the lead-level in the series. This classification is distinguished from other GIS Programmer/Engineers by performing a broad range of technically complex projects on multiple platforms and acting as a lead or technical expert for various GIS teams and projects.

### **ESSENTIAL FUNCTIONS:**

- Perform lead-level professional functions in GIS data construction, programming, database management, GIS analysis, system implementation and project management. Act as technical lead or project manager on large scale or complex projects.
- Serve as a technical lead for GIS enterprise systems or technology and manage multiple application development projects with the responsibility for data and application development projects:
  - data management- geo-database design, ArcSDE administration, database optimization, data integrity, metadata development and production database automation; and
  - Application management: needs assessment, GUI design, system architecture, software development, implementation processes, integration testing, performance tuning, documentation, and system rollout.
- Program, maintain, enhance, and support GIS business systems/programs.

#### Business Analysis

- Work with business customers to translate customer requirements into formal contracts/agreements and plans to conclude in customer acceptance of results.
- Perform critical role in the identification of business and functional requirements.
- Extend new or existing business systems through the integration of GIS systems and web services.
- Configure new or 3<sup>rd</sup> party system software and integrate existing business systems with GIS.
- Apply advanced spatial, geo-statistical, network, 3D, image analysis or business GIS concepts and other complex techniques to geographic data analysis.
- Analyze and evaluate IT projects that make use of GIS technologies and develop project designs and architectures to integrate systems.

#### Data Construction and Management

- Act as technical lead for data administration responsibilities and provide data administration expertise for enterprise, regional, multi-agency production GIS data sets across multiple hardware platforms and operating systems.
- Provide coordination regarding the use, delivery, and publication of geographic data resources.

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- Plan, design and automate GIS database construction and quality controls.
- Manage data development and access with department users, system, operation, and technical support staff. Protect the safety, integrity, and privacy of data.
- Optimize database performance, troubleshoot, test designs, and recommend operational improvements.
- Plan, coordinate and implement security measures with developers to safeguard information in systems against accidental or unauthorized damage, modification or disclosure

#### **Software Development**

- Provide technical expertise in designing, developing, deploying and administering the enterprise GIS in support of local government needs. Manage multiple application development projects.
- Plan, design, develop, test and monitor GIS programs and systems.
- Program new GIS system software and integrate existing business systems with GIS. Construct scalable GIS systems and web services that are able to serve new purposes or improve a workflow
- Develop, implement, enhance, and maintain complex, multi-tier enterprise GIS systems for county business, scientific, or engineering applications across multiple platforms.
- Implement business systems or spatial analysis projects to solve complex technical problems or automate a business process.
- Use object-oriented programming languages and web services as well as client and server applications development processes and internet technologies to construct new GIS software systems.
- Determine computer software or hardware needed to setup or alter a system and associated costs, licenses, and integration risks.
- Implement and integrate 3<sup>rd</sup> party software packages that utilize GIS technology with the enterprise GIS.
- Perform complex data manipulation, data model development and automate data construction.
- Advise senior management on software development schedules and costs, project implementation, and system capabilities.

#### **System Support**

- Support mission critical GIS systems in the Emergency Operations Center during emergencies and activations.
- Organize and coordinate system roll-outs and solve GIS technology problems proactively.
- Lead problem resolution and troubleshoot software malfunctions involving software, hardware, and networking.
- Coordinate and manage technology vendors, partners, or contractors to resolve problems.
- Recognize and resolve user requirement problems.
- Maintain up-to-date GIS knowledge and build expertise among colleagues in the Information Technology Division.

#### **Implementation Services**

- Manage large interagency projects with the responsibility for the performance of work groups to achieve desired outcome.
- Create and manage the scope, cost, schedule, work plans, budgets and contractual deliverables through the application of planning, tracking, quality assurances, change control and risk

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management.

- Manage subcontractors and client relationships and expectations and lead resolution of technical problems.
- Monitor, organize, instruct, and direct the work of staff to facilitate accomplishment of complex tasks or initiate corrective action.
- Serve as lead programmer/engineer on assigned projects: plan, organize and assign work; conduct meetings; monitor schedules and budgets; perform research; develop work products, recommendations and action plans.
- Create new GIS technology processes, implement enterprise-wide systems, and produce specific GIS analysis.
- Perform complex spatial analysis of data themes such as spatial query software tools, data density analysis, grid analysis, terrain modeling, network analysis, dynamic segmentation, and image processing.
- Market services, projects, and resources effectively.

**Training**

- Coordinate, train, instruct, and support county staff on the productive use of GIS software systems and databases.
- Create advanced GIS training, workshops, special events, and management seminars to expand the knowledge of GIS.
- Support, assist and train internal and external GIS clients on the productive use of County systems and data.
- Deliver excellent customer service, assist in measuring and creating customer satisfaction, and enhance customer's relationship with the Information Technology Division.

**Communication and Project Management**

- Monitor, organize, instruct, and direct the work of staff to facilitate accomplishment of complex tasks or initiate corrective action.
- Manage contracts, project performance, provide deliverables and support to GIS external and internal clients.
- Work in a teamwork based environment, communicating effectively with all levels of staff and management.
- Coordinate and manage technology vendors, partners, or contractors to resolve problems.
- Independently complete or lead a team to complete multi-agency GIS technical projects.
- Advise senior management on software development schedules and costs, project implementation, and system capabilities.
- Act as liaison between departments and IT to communicate any potential issues/questions and provide IT solutions.
- Deliver excellent customer service, assist in measuring and creating customer satisfaction, and enhance customer's relationships with the Information Technology Division.

**OTHER JOB FUNCTIONS**

- Manage own schedule and workload.
- Manage time and resources.
- Prepare reports and delivers presentations.
- Perform administrative tasks and other job functions as required.

**SUPERVISION RECEIVED AND EXERCISED:**

The GIS Programmer/Engineer, Lead provides direction and leadership in a lead capacity to the lower levels of GIS programmer/Engineers but does not supervise. An employee in this class works under the general direction of a GIS Programmer/Engineer, Expert/Supervisor who observes work through assignments and projects to evaluate results achieved.

**WORK ENVIRONMENT:**

The work environment characteristics described herein are representative of those an employee encounters while performing the essential job functions. Work is performed in an office and field environment. Work may involve frequent sitting, standing, walking, bending, and lifting and carrying field gear, working in all weather conditions, and driving to and from job sites. Field data collection (GPS), lifting of catch basin lids and traveling to various departments may be included. Ability to work after normal County business hours, including weekends, for customer support, a scheduled function, or in an on-call capacity required.

**PHYSICAL REQUIREMENTS:**

The physical demands described herein are representative of those that must be met by an employee to successfully perform the essential functions. Physical activities required are hand and finger dexterity necessary to operate equipment used in the position, talking, seeing and hearing. Walking, sitting, bending/stooping, pushing/pulling, driving and unassisted lifting associated with the job duties is required.

**KNOWLEDGE, SKILLS, AND ABILITIES**

Knowledge of:

- GIS technologies, techniques and practices.
- Mapping systems, coordinates and spatial data accuracies.
- ESRI software products, operations, and structures.
- Internet and network skills, including HTML, XML/XSLT, HTTP, SSL, TCP/IP.
- UNIX, Windows or Linux environments.
- Training techniques.
- Understanding of current GIS information technologies and the County GIS system.

Skill in:

- Use of independent judgment and effective decision-making in the application of a wide variety of laws, policies and procedures and in effective problem-solving.
- Java skills and object oriented design, including working knowledge of core libraries, design patterns, JSP and servlets.
- Database design and SQL and open source database systems.
- Significant development experience in a Unix/Linux environment.
- Experience with Python and C++, Javascript, and/or SOAP desired.
- Knowledge of session management, object relational mapping, XML web services, and agile development methodologies desired.
- Use of independent judgment and effective decision-making in the application of a wide variety of laws, policies and procedures and in effective problem-solving.
- Advanced project management.

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Ability to:

- Lead teams of GIS professionals.
- Work effectively and productively with others.
- Contribute to analyzing and compiling results of decision issues in IT.
- Research, verify, edit, and update data bases and GIS spatial data.
- Integrate computing on multiple computing platforms.
- Define, track, and assure responsiveness to clients' information service problems.
- Contribute to analyzing and compiling results of decision issues in GIS.
- Research, verify, edit, and update data bases and GIS spatial data.
- Communicate effectively verbally and in writing to audiences of various social, cultural, ethnic, educational and economic backgrounds.
- Effectively coordinate, perform and complete multiple duties and assignments concurrently and in a timely manner.
- Maintain regular, predictable and punctual attendance during regularly scheduled work hours at assigned worksite.
- Work a flexible schedule, which may include evenings, weekends, and holidays. May be subject to responding to emergency situations on twenty-four hour basis.
- Establish and maintain effective working relationships.
- Work and contribute as a member in a teamwork-based environment.
- Meet the travel requirements of the position, if any.
- Physically perform the essential job functions of the classification.

**MINIMUM REQUIREMENTS TO APPLY:**

Bachelors Degree in Science, Technology, Engineering, Geography or related field and six or more years of information technology/GIS experience required. Additional education or experience may substitute for the recruiting requirements.

**SPECIAL REQUIREMENTS AND/OR QUALIFICATIONS:** A valid Washington State driver's license may be required when travel is required of the position. Ability to successfully complete a Pierce County background investigation. Fingerprint and in-depth criminal history check may be required for certain law enforcement system support assignments.