



## GIS and SCADA Systems Engineer

### DEFINITION:

Under direction, coordinates, maintains, supports, and utilizes all aspects of the District's specialized operational technology systems which include but are not limited to: Supervisory Control and Data Acquisition (SCADA), Geographic Information Systems (GIS); coordinates, support, and utilizes Computerized Maintenance Management System (CMMS), and Computer Aided Design and Drafting (CADD) participates in the planning, design, procurement, installation, operation, maintenance, repair, integration, training and modification of assigned systems; oversees mapping projects and prepares maps, construction drawings, and exhibits and displays.

### SUPERVISION RECEIVED AND EXERCISED:

Receives direction from assigned management and supervisory staff. Exercises technical and functional direction over and provides training as necessary to District staff and outside agency technical personnel.

### CLASS CHARACTERISTICS:

This is a fully qualified journey-level classification. Positions at this level perform the full range of duties as assigned, working independently, and exercising judgment and initiative. Positions at this level receive only occasional instruction or assistance as new or unusual situations arise and are fully aware of the operating procedures and policies of the work unit.

### EXAMPLES OF ESSENTIAL FUNCTIONS (Illustrative Only):

*Reasonable accommodations may be made, on a case-by-case basis, to enable individuals with disabilities to perform the essential functions of the job.*

- Coordinates, maintains and utilizes all aspects of the District's specialized operational technology systems which include but are not limited to SCADA and GIS; produces maps, data and/or documents from these systems.
- Provides support for, coordination with, and utilizes CMMS and CADD systems.
- Performs ongoing system support and maintenance; troubleshoots, repairs, programs, configures, and tests systems to ensure optimal operations.
- Participates in short and long-term planning associated with assigned systems and the Capital Improvement Program (CIP) or other programs which require specialized technology; collaborates with District staff and consultants to evaluate the future needs for hardware, software and instrumentation and to develop technology master plans; assists prepares preliminary cost estimates for improvements and comprehensive budget documents.
- Participates in the identification of hardware, software and instrumentation best suited to meet the needs of the District for SCADA and GIS; coordinates the acquisition and implementation and installation of systems; software and hardware components including subsequent upgrades.

- Prepares project specifications and related contract documents for Requests for Proposals; evaluates and participates in the selection of consultants and contractors; undertakes project management tasks including developing budgets and schedules; ensuring consultant or contractor compliance with project specifications and quality expectations; monitors budgets and schedules to make certain these are complied with; closes out projects.
- Performs database development, administration and management tasks; maintains databases on a continuous basis; programs and generates system reports.
- Performs and/or oversees programming changes to system software; develops and maintains software and control system logic.
- Performs and coordinates training and or training events for all levels of system users.
- Works closely with other District personnel as applicable on matters involving District Systems.
- Maintains and updates District utility mapping and map filing systems; oversees mapping projects and approves work of contracted resources.
- Updates existing maps with as-built information; coordinates with various operating groups in the District to gain necessary information to update maps and records; prepares charts, graphs, layouts, maps and visual aids.
- Develops required inventory for replacement parts and consumables for assigned systems.
- Organizes and maintains assigned systems technical documentation; updates as necessary.
- Researches and evaluates new developments in the fields of SCADA systems, GIS and related technologies.
- Performs other related duties as assigned.

<b>MINIMUM QUALIFICATIONS:</b>
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*Any Combination of education and/or experience that provides the required knowledge, skills, and abilities to perform the essential functions of the position. A typical combination includes:*

#### EDUCATION AND EXPERIENCE:

Equivalent to a bachelor's degree from an accredited four-year college or university with a major in engineering, computer science, or information systems and three (3) years of professional experience supporting specialized SCADA or GIS programs.

#### KNOWLEDGE OF:

- Operations and services of a comprehensive water and wastewater operation as it relates to specialized technology needs.
- A diverse range of programming languages.
- Principles and practices of database management and administration.
- Project management principles and practices, including planning, budgeting, scheduling and control.
- Industry standard communication protocols for SCADA, including telemetry and networking.
- The methods, materials, and techniques commonly used electrical and instrumentation maintenance and repair.
- Operational characteristics of programmable logic controllers (PLC) and Human Machine Interface (HMI) as they relate to SCADA system design and implementation.
- Network system and affiliated components security measures.
- Operational characteristics of GIS system hardware and software.
- Methods and techniques of managing data within GIS programs.
- Methods and techniques of designing maps and charts using technology programs.
- Principles and practices of contract management.

- Methods and techniques of evaluating hardware and software effectiveness in meeting District needs.
- District and mandated safety rules, regulations, and protocols.
- The structure and content of the English language, including the meaning and spelling of words, rules of composition, and grammar.
- Modern equipment and communication tools used for business functions as well as program, project, and task coordination, including computers and software programs relevant to work performed.
- Techniques for providing a high level of customer service by effectively dealing with the public, vendors, contractors, and District staff.

#### ABILITY TO:

- Provide professional support to the District's specialized operational hardware and software in SCADA, GIS and CADD systems.
- Conduct systems analysis and evaluation and make recommendations for technology improvements to meet changing business needs.
- Provides Engineering support for troubleshooting water and wastewater control systems, equipment and instrumentation.
- Prepare clear and concise engineering maps, design drawings, and related mapping documents.
- Perform project management duties.
- Manage and administer databases.
- Read, interpret, plan and lay out projects from blueprints, electrical diagrams, schematics, manufacturer instructions, directions and verbal instruction.
- Maintain records in the form of manuals, ladder logic, blueprints, plans and specifications for industrial electrical and instrumentation, equipment and devices.
- Perform technical research and makes detailed analyses relative to the development and maintenance of assigned District systems.
- Monitor and maintain project and departmental budgets.
- Independently organize work, set priorities, meet critical deadlines, and follow-up on assignments.
- Effectively use computer systems, software applications relevant to work performed, and modern business equipment to perform a variety of work tasks.
- Communicate clearly and concisely, both orally and in writing, using appropriate English grammar and syntax.
- Use tact, initiative, prudence, and independent judgment within general policy, procedural, and legal guidelines.
- Establish, maintain, and foster positive and effective working relationships with those contacted in the course of work.

#### LICENSES AND CERTIFICATIONS:

- Possession of, or ability to obtain within eighteen (18) months, California State Water Resources Control Board (SWRCB) Water Treatment Operator Certification Grade 2 (T2).
- Possession of, or ability to obtain within eighteen (18) months, California State Water Resources Control Board (SWRCB) Water Distribution Operator Certification Grade 2 (D2).
- Possession of a valid driver's license along with a driving record acceptable to the District and the District's insurance carrier.

**TOOLS AND EQUIPMENT USED:**

Voltmeters, multimeters, logic analyzers, amp meters, infrared pyrometers, digital analyzers, frequency generators, oscilloscopes and other specialized test equipment along with electrical hand tools. Personal computer, and Microsoft Windows based software, Microsoft Project, AutoCAD and ArcGIS. Motor vehicle.

**PHYSICAL DEMANDS:**

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 in compliance with the Americans with Disabilities Act (ADA) requirements. Reasonable accommodations may be made, on a case-by-case basis, to enable individuals with disabilities to perform the essential functions.

Work is performed mostly in office setting. Some outdoor work is required for onsite troubleshooting at District facilities. Must possess mobility to work in a standard office setting and use standard office equipment, including a computer and to operate a motor vehicle to visit various District and meeting sites; vision to read printed materials and a computer screen; and hearing and speech to communicate in person and over the telephone. 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 move up to 25 pounds.

This position also requires routine field work at all the District facilities. This includes entering vaults and pump stations, climbing ladders, and working over, under, and around equipment.

**ENVIRONMENTAL CONDITIONS:**

Employees work mainly 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 over the course of performing the work. The noise level in the standard work environment is usually quiet to moderate.

While performing the duties of this job, employees occasionally works in outside weather conditions and can be exposed to dust, pollens, and fumes. Employees occasionally work around moving mechanical parts and in high, precarious places and are occasionally exposed to wet and/or freezing cold conditions, fumes or airborne particles, toxic or caustic chemicals.