

ENGINEERING GIS SPECIALIST

JOB SUMMARY

Under general supervision, develops, analyzes, tests, implements, and maintains the District's Geographical Information System (GIS)/Automated Mapping (AM)/Facilities Mapping (FM), and Computer Aided Design and Drafting (CADD) systems and databases; prepares construction drawings; prepares record drawings and maps; scans drawings and files; performs basic customer service functions; and performs related work as required.

EXAMPLES OF DUTIES

(Duties include but are not limited to the following):

- Reviews, structures, edits, reformats, updates, posts, processes and maintains digital and hard copy data for inclusion in GIS system database; adds objects and modifies object relationships; reviews and tests databases; resolves data problems and posts to production; merges production databases and Arc View.
- Converts existing District digital geographic and facilities data into formats for inclusion in the GIS database; performs quality control and assurance processes for converted data; reconciles and resolves discrepancies in databases.
- Develops and implements routine automated tools to achieve more effective utilization of GIS and CADD applications and outputs; develops queries to automate data QC review; makes changes to model style using tools.
- Develops, maintains and operates and GIS/AM/FM/CADD applications to create, maintain and update facilities and mapping records. Tests GIS application modifications and writes user manuals.
- Formats, generates, and researches various mapping products such as record maps, parcel maps, record of surveys, road maps and assessor parcel maps for multiple engineering, planning and research projects.
- Formulates and seeks out system application modification requests to be performed by consultants; defines logic and data requirements and manages consultants.
- Trains users and provides end user support in the uses and operations of GIS applications; oversees and performs QC on data download processes; troubleshoots and resolves non-matches and other problems.
- Designs and maintains databases and develops reports such as Metro Scan, consultant database, pipeline inventory, plan rooms, Access, and department equipment.
- Converts non-graphic information into computerized cadastral maps and performs GIS/GPS data collection.
- Drafts construction drawings including civil, structural, and mechanical plans both manually and on CADD; prepares record drawings upon completion of projects.
- Administers and maintains department scanning, printing and GIS equipment and expendables, including negotiating service contracts and the scanning of reports, plans, and other documents.
- Prepares a variety of maps, charts, and illustrations for District departments and Board presentations in ink, pencil, and/or CADD, and prepares legal plat maps under the direction of the engineer or surveyor.

- Communicates with other departments and outside agencies for pertinent information required for the preparation of maps, drawings and reports.
- Participates in continuous improvement; develops standards, guidelines, and productivity indicators, and documents processes.
- Performs construction inspections on an as needed basis.
- Performs other related duties as assigned.

EMPLOYMENT STANDARDS

Knowledge of:

- Basic mapping and civil engineering (reading and interpreting records drawings/plans).
- GIS system concepts and analytical techniques, including computer mapping and digital data conversion, manipulation and analysis.
- Basic operating principles, parameters, methods, practices and limitations of computer platforms and networks.
- Principles and practices of systems analysis and design applicable to GIS programs.
- Application development methods, tools and utilities applicable to the GIS system.
- Object-oriented programming languages.
- Computer-aided drafting (CADD) and design principles, techniques and equipment.
- The terminology, methods, practices and techniques of civil engineering and drafting.
- Principles of plane surveying.
- English usage, spelling, grammar and punctuation.
- Use and maintain COGO, GIS and other engineering software and related software.
- Access database and other database applications
- Algebra, geometry and trigonometry as used in the preparation and maintenance of engineering drawings and maps.

Ability to:

- Collect, interpret and integrate geographic and facilities data from multiple sources
- Perform engineering drafting work.
- Read, interpret and analyze record maps, construction drawings, graphs, satellite and aerial images and geographic conditions; perform spatial analysis and other related data used for mapping and design.
- Understand, use and apply relational database management systems, tools and techniques.
- Independently perform responsible GIS assignments with initiative and creativity.
- Prepare accurate GIS cartographic products and other outputs
- Use drafting instruments, equipment and materials such as scales, templates, compasses, and drafting machines.
- Making neat, accurate drawings and basic arithmetical calculations accurately.
- Understand and follow oral and written instructions.
- Freehand letter and use a mechanical lettering set.
- Interpret legal descriptions, deeds, maps and highway design drawings.
- Make area computations and related angular calculations.
- Establish and maintain effective relationships with those contacted in the course of work.

Experience and Education:

Any equivalent combination of experience and education sufficient to provide the required knowledge and abilities to successfully perform the job would be qualifying. A typical way to obtain the knowledge and abilities would be:

Experience: Three years experience using GIS (Geographic Information System), Computer-Aided Drafting (CADD) products, with experience in the water/wastewater industry or a related field is preferred.

Education: Supplemental training or coursework in the principles of computers, GIS, geography, computer-aided drafting, survey, math including trigonometry; or, completion of college level core courses leading to an Associate of Science degree in engineering or a related field is desirable; a Bachelor's is preferred.

Licenses and Certificates:

Possession of a valid California driver's license, Class C, with ability to maintain insurability under the District's insurance carrier.

Physical Demands:

Sit or stand for prolonged periods; see to read fine print; have depth perception; hearing and vision within normal ranges; use hands and fingers to manipulate small objects and print legibly; be able to effectively communicate orally, both in person and over the telephone, and in writing; lower body mobility to stand, walk, stoop, bend, crawl and extend legs; frequently lift up to 25 pounds.

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