

The Maryland-National Capital Park and Planning Commission

Title: Senior GIS Specialist
Series: Information Technology

Code: 1359

Grade: 24
EEO: Professional

Date: 8/26/2020
FLSA: Exempt

Class Definition:

Under direction, performs a full range of geographic information system (GIS) duties and responsibilities; which includes database administration, GIS systems administration, data production, data management, software development, mapping assistance/end-user support and project assistance. Administers geospatial databases that requires geospatial analytical skills. Some work can be confidential. As an individual contributor, work results in completed assignments that have a direct impact on the area(s) of assignment. Applies considerable knowledge of GIS in conjunction with knowledge of information technology (IT) project processes, information system (IS) network and system architectures, data mining, data quality assurance (QA) and data quality control (QC), diagnostics and tuning, and programming languages. Independently performs various types of analyses and solves conventional, non-standard and challenging problems. Interacts with people inside and outside the organization to exchange information, coordinate, instruct, guide, advise and obtain agreement. Performs other duties as assigned.

Work is assigned in terms of functions, priorities, requirements of specific assignments, known or suspected problems. The incumbent independently plans and carries out the work in conformance with these parameters, established policies, procedures and accepted practices of the field of work, and resolves commonly encountered problems by selecting and applying, or adapting and adjusting, the appropriate guides. Incumbent is expected to keep the supervisor informed and to seek assistance only for unusual matters. Work is expected to be effective – the incumbent is held responsible for results; work is evaluated in terms of quality, quantity, timeliness, teamwork, customer service and such other factors.

Examples of Important Duties (Estimated Percentages):

1. Core Functions ($\pm 70\%$) – assigned functions vary by position

- Database Administration. Provides database design, implementation, maintenance and quality control of spatial databases; contributes to the development of applications through programming scripting, modeling, and assists in data processing. Implements and documents database metadata, backup and archive procedures. Assists in design/automation of data management workflows between disparate systems. Applies database structures in appropriate software that meet the specified job requirements. Assists with the development of reporting routines and quality control reviews among data owners.
- GIS Systems Administration. Provides procurement and installation of hardware and software, configuring servers, managing user accounts, developing and overseeing backup procedures, monitoring system usage and evaluating and installing applications.

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- Data Production. Creates geographic map layers based on internal and external requirements as needs are identified through interactions with data consumers (customers). Evaluates ongoing GIS maintenance work programs (i.e. parcel, zoning and address). Recommends data acquisitions, for example, elevation (Light Detection and Radar (LiDAR), and planimetric (i.e. building, pavement) data. Assists in managing the procurement and receipt of datasets and evaluates purchased datasets for timeliness, and correctness. Maintains connectivity between geographic datasets and disparate management systems. Develops 3-D models.
 - Data Management. Assists in overseeing enterprise spatial databases, produces and extracts data, evaluates and coordinates data purchases. Distributes and exchanges digital data with customers (i.e. government agencies, educational institutions, businesses and citizens). Reviews and maintains baseline geospatial metadata.
 - Software Development. Assists in the development of prototypes, creates, maintains and reengineers complex and sophisticated geospatial applications by reviewing business processes and workflows. Streamlines and integrates agency databases through web map services. Documents related business processes with related enterprise information systems (i.e. Relational Database Management Systems, SharePoint, Document Imaging). Designs, develops and maintains custom applications (web-based interactive maps and internal desktop applications) as required by using application development software.
 - Mapping Assistance/End-User Support. Provides spatial analytical decision documents in static and printed mapping support, as well as web based analytical mapping products that support regulatory and planning workflows. Changes data maintenance workflows or identifies data management projects. Provides technical assistance and support to staff and end-users regarding information systems of unit. Identifies, diagnoses and resolves information system technical issues. Works with software developers to resolve technical problems. Provides formal system application training to staff and end-users.
 - Project Assistance. May help develop requests for proposals (RFPs) for contractor work to include specification of scope, deliverables, quality and timelines. May assist with quality assurance and quality control of deliverables through monitoring, evaluation, testing and other means. Participates in contractor performance and in the negotiation and amendments to the contract.
2. Other (±30%).
- Develops geospatial layer production and image processing (from digital and non-digital sources) for a range of spatial layers for example, parcel, political, land use, planimetric and elevation boundaries; production of cartographic maps; and ensures quality assurance and quality control.

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- Assists in conducting and coordinating system analysis; plans, designs, tests and recommending new systems and upgrades. Analyzes and recommends user hardware and software; develops and/or implements plans for configuring, testing and installing geospatial systems. Researches and identifies hardware and software capabilities and compatibility with existing systems; develops technical specifications. Assists with establishing, design and managing GIS internet/intranet access.
- Installs, configuration, testing, debugging, and repair of hardware/software. Installs and tests application and operating software, patches, and fixes; and installs, supports and resolves software and hardware conflicts.
- Researches, identifies and evaluates new computer hardware/software development and cost/benefits. Develops and recommends implementation strategy for new technology.
- Develops and recommends geospatial standards and procedures; coordinates activities with other work units. Maintains and documents existing GIS hardware and software used by reviewing technical manuals, attending training classes, and utilizing other sources of information, as appropriate. Participates in documenting and developing procedures and techniques for entering and manipulating geospatial data.
- Collaborates with staff, management, consultants, and others in the accomplishment of goals and objectives; and increases interagency coordination by working closely with internal and external geospatial users.
- Performs and coordinates data conversion, maintenance and quality control in the production of geospatial data.
- Analyzes, responds, and produces internal and external requests for high quality and cartographically correct custom maps and digital reports.
- Prepares communication to management, users, contractors and customers; prepares justification for suggested procurements. Presents work programs at meetings and professional conferences. Establishes, maintains or enhances working relationships with internal and external contacts. Provides information for scheduled project status reports.
- Uses non-geospatial databases (i.e. Microsoft Access and Excel) software to populate or process geospatial databases and uses document management systems and Enterprise Asset Management (EAM).
- Stays informed of field of work and associated guidelines, materials, methods, techniques and practices.

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Important Worker Characteristics:

- A. Considerable knowledge of, and skill in applying (1) the principles, standards, practices, and techniques of GIS technology (including geocoding, layering and mapping techniques, ArcGIS, GIS database administration and GIS desktop and web applications development); (2) IT project processes, IS network and system architectures; (3) data mining, database quality assurance and quality control, programming languages (i.e. Microsoft's .NET framework, Visual Studio, HyperText Markup Language (HTML), and JavaScript); (4) land records (i.e. deeds, plats, property boundaries and assessor data) and cartography and; (5) Commission organization policies and procedures*.

**Typically acquired or fully developed primarily after employment in this job class.*

- B. Skill in problem solving to select, organize and logically process relevant information (verbal, numerical or abstract) to solve a problem.
- C. Skill in communication to understand verbal and written information (including facts, assertions and arguments), draw inferences, form hypotheses and develop logical arguments, and to express such information so that others will understand and comply. This includes skills in actively listening to ascertain key information, including concerns, wants and needs of others, and in coordinating to obtain desired results including agreement or compliance. Examples include presenting work program to staff and at professional conferences.
- D. Interpersonal skills to interact with business contacts in a businesslike, customer service-oriented manner; this includes skill in establishing and maintaining effective working relationships and working as a member of a team.
- E. Skill in: using a computer and modern office suite software (i.e. Microsoft Office) for planning/scheduling, communicating, entering/manipulating data, word processing, researching (i.e. Internet) and enterprise software or specialized software for providing geospatial products and services, reporting time and attendance, budgeting, requisitioning and performing other functions.

Minimum Qualifications (MQs):

1. Bachelor's Degree in Geography, Remote Sensing, Computer Science, Information Technology, Photogrammetry, Cartography, Surveying or any related field.
2. Two (2) years of experience in GIS that includes geospatial data query and manipulation, map production, data mining and data quality assurance and quality control; programming and application development involving spatial or non-spatial data.
3. An equivalent combination of education and experience may be substituted, which together total six (6) years.

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4. Depending on area of assignment, a valid driver's license in accordance with both State and Commission rules and regulations. Driver's license must be unencumbered by restrictions, revocations, suspensions, or points that could limit the employee's ability to drive Commission vehicles or perform driving duties required by the position of assignment.

Working Conditions:

Work is performed in an office setting. Work is performed in an environment with moderate pressure to meet deadlines and perform accurate work. May require occasional overtime, after-hours, weekend or on-call work.