



4.02.05 Examples of Job Descriptions for GIS Staffing

Technology innovations, increased demand, and new found applications have caused the field of GIS to expand. And as the field becomes more varied and complex, the individual job requirements for GIS continue to branch out. The organizational structure and management direction will determine the type of GIS organization to be created. The changes in the organization must be based on existing technology and experiences which have accumulated over the years. Policies are continuously being formulated to provide more efficient procedures in managing GIS activities. These, too need to be considered in managing the changes in the GIS organizational structure. Future trends in the field of information technology indicate that spatial data will become an integral part of every information infrastructure as shown with the increasing demand for geographic-based data.

Despite the different approaches in installing a GIS environment, a GIS organization must be structured based on the functions of the technology. These functions include **customer support, operations, data management, and applications management and support**. GIS units may also have staff dedicated to **project management**. GIS units require staff support for these functions. A large municipality may even have multiple staff positions supporting each of these functions while a low-income LGU has to rely on an IT unit with regard to all functions except from actual operations.




Based on research on GIS job classifications in national and local government, the model job descriptions can be divided into six special categories based on job responsibilities. These are:

-  Managers;
-  Coordinators;
-  Specialists;
-  Programmers;
-  Analysts;
-  Technicians.

These jobs can be broken down and analyzed according to educational background, salary grade, specific skills, etc. Existing job titles and proposed new position titles along with the existing duties and responsibilities of the positions are presented in matrix form.

A brief job description of the positions follows below:

GIS Director

-  Conduct a planning workshop to formulate an <agency> plan for GIS long-term growth and short-term operations;
-  Provide leadership and focus on the economic development aspect of GIS management;
-  Manage the agency's GIS functions in coordination and conjunction with the GIS needs of other offices;



- ✎ Perform on-going objective evaluation of GIS effectiveness; recommend and implement changes necessary to meet the <agency's> goals;
- ✎ Interact regularly with staff from other offices and organizations to ensure that GIS functions meet both <agency> needs and external public needs.

GIS Manager

- ✎ Lead GIS implementation and maintenance activities including resource planning, policy and procedures development, departmental needs assessment, systems analysis, inter-governmental agreements;
- ✎ Coordinate and supervise GIS activities and personnel (spatial analysis, data modeling, development and management of databases, metadata, digital mapping, and GIS data standards and quality assurance procedures);
- ✎ Manage GIS data development and/or conversion projects including providing technical expertise, obtaining milestones, and meeting deadlines;
- ✎ Provide technical expertise and assistance to meet the needs and requests of other government agencies and the general public related to the GIS system.

GIS Coordinator

- ✎ Responsible for coordinating activities related to the development, deployment, and use of GIS;
- ✎ Provide guidance and training to users;
- ✎ Facilitate interdepartmental cooperation, database administration and GIS web site administration;
- ✎ Assist in the development and administration of the GIS budget, and work closely with user departments, consultants, vendors, external users, and the general public in the coordination and utilization of GIS services.

GIS Senior Developer/Project Manager

- ✎ Serve as the project manager for GIS development projects;
- ✎ Lead hands-on technical role in planning for and implementing GIS data model migration;
- ✎ Provide GIS analytical and technical expertise for the analysis, design, development, testing and implementation of GIS-based applications;
- ✎ Provide GIS software and programming expertise;
- ✎ Geo-spatial data administration, database design and development;
- ✎ Execute complex geo-spatial analysis using GIS software tools and techniques;
- ✎ Write technical user documentation for application products;
- ✎ Troubleshoot problems associated with existing GIS applications and tools.

GIS Specialist/Sr. GIS Specialist/Sr. Programmer/Analyst

- ✎ Generate and maintain geodatabases layers and associated attribute information;
- ✎ Work as a high level technical expert in design, development, implementation, and testing of complex GIS applications or significant enhancements to existing GIS applications.
- ✎ Act as highest-level technical expert, addressing issues of standards, strategy, technical requirements, and long-term administration and maintenance;



- ✎ Implement, operate, populate, analyze and maintain GIS applications and databases. Work includes the translation of various software datasets, manipulation of intricate data and execution of complex queries, as well as, maintenance and updates of GIS databases, application of standard spatial analysis functionality, training and documentation activities;
- ✎ Provide applications development and programming services, spatial database administration and development, computing systems administration and analytical support;
- ✎ Design and develop efficient program logic for the enhancement of existing systems, including appropriate system documentation; preparing test cases and carrying out unit integrations to ensure that modified systems perform correctly;
- ✎ Analyze systems documentation, program logic and manuals, including on-site review of user procedures to achieve a thorough understanding of the various systems functions;
- ✎ Coordinate projects with peers, supervisors and management to ensure that project and departmental objectives are met.

GIS Developer

- ✎ Support the needs of clients;
- ✎ Provide expertise on GIS development technologies;
- ✎ Participate in application design and programming teams;
- ✎ Create software specifications and estimates;
- ✎ Write and document GIS application code;
- ✎ Maintain and update existing applications used by clients;
- ✎ Assist GIS technical staff with general programming support;
- ✎ Troubleshoot application problems;
- ✎ Assist with client implementation, installation and support of GIS applications.



GIS Analyst, Senior

- ✎ Provide geographic information services utilizing GIS systems to various departments;
- ✎ Analyze, define, model, implement, and maintain databases;
- ✎ Lead and/or participate as team member in large projects;
- ✎ Lead and/or participate in geospatial data conversion projects;
- ✎ Collect and update geospatial data documentations, including metadata.




GIS Analyst

- ✎ Participate in all aspects of GIS analysis and application development, including design, analysis, programming, testing, documentation, training, and user support;
- ✎ Provide GIS software and programming expertise;
- ✎ Apply sophisticated geospatial analysis techniques;
- ✎ GIS database design, development and maintenance;
- ✎ Write technical and user documentation;
- ✎ Troubleshoot problems associated with existing GIS applications and data;
- ✎ Collaborate closely with other developers and GIS professionals;
- ✎ Provide on-going support for GIS programs and functions requiring programming and analysis;



-  Collect, create, edit, operate, maintain, analyze, distribute, and plot simple and complex GIS/GPS data;
-  Prepare technical reports and proposals, and provide technical support to project managers.

GIS Technician

-  Perform mapping and data analysis tasks including producing graphic and tabular data;
-  Create and keep GIS coverages, digitize geographic data and input non-geographic data;
-  Collect, create, edit, operate, maintain, analyze, distribute, and plot simple GIS/GPS data.

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In a **low-income LGU**, however, GIS development will evolve from the Planning and Development Office which at the outset will shoulder both a corporate and a departmental/sectoral responsibility. A **Corporate GIS** assists all government departments and requires extensive planning since all of the control and operation functions are needed. The **Department GIS** supports one critical area of an organization and is managed within the department that it supports. If the CLUP GIS is the first initiative of the municipality in terms of using GIS, the MPDO will most probably play the role of GIS Coordinator, in addition to his other duties. Likewise, the Planning Assistant /Cartographer will have to take supplementary courses to become a GIS Technician. A major municipality/city is likely to be able to introduce a GIS Unit with several positions that is described above.