

The Maryland-National Capital Park and Planning Commission

Title: CAD/GIS Technician III
Series: Paraprofessional Engineering, Drafting

Grade: F Code: 4222
Date: 3/23/99

Class Definition

Under direction performs advanced technical mapping and specialized graphics work in support of Commission planning initiatives. Work involves: serving as a technical resource on drafting and graphics related issues; conferring with planning staff to determine the nature of requirements; researching data and information needed to prepare maps and other materials; producing maps, charts, and other graphics through use of traditional drafting media, CAD technology, and GIS; and preparing videos, 3-D CAD images and graphics, and other advanced materials for special presentations. An employee in this class is responsible for the accuracy of planimetrics and property maps and determines information needed and methods to be used to complete projects.

Examples of Important Duties

CAD and Graphics

1. Supports a major, multi-disciplinary work program by using traditional drafting media, cameras, computer aided software, and innovative graphic techniques in the development of master plans, functional plans, site plans, project plans, and special projects.
2. Researches and analyzes site plans and other drawings. Analyzes graphic problems and data. Determines appropriate techniques to accomplish objectives. Researches information to be plotted from various records and official documents.
3. Generates maps from GIS databases and converts to CAD drawings.
4. Uses advanced graphics techniques and a variety of graphics software to prepare charts, displays, and related materials.
5. Prepares maps to scale using legal descriptions, ownership information, and other information pertaining to topology, variances, restrictions and closures; plots angles and closures; draws curvilinear and irregular features (mechanically and with CAD technology).
6. Coordinates large projects including responsibility for tracking and reporting on work progress and ensuring accuracy of work.
7. Posts record plats using CAD or COGO software, traditional drafting media, or other appropriate technique.

8. Prepares special displays, graphics, charts, video documentation, and other drawings for regular assignments as well as key meetings and presentations; uses mechanical drafting techniques, computer design software, and other media.
9. Creates 3D images and graphics using CAD software.
10. Interacts with other members of planning department staff to provide maps and graphics to support projects; confers with staff to determine project requirements; and prepares written and oral reports of project methods and status.
11. Maintains hard copy of products.
12. Uses and maintains copy camera, plotters and related equipment.

Geographic Information Systems (GIS)

1. Produces complete original maps with thematic overlay and complete documentation using a variety of GIS software. Updates and prepares new GIS databases by collecting, reviewing, digitizing, and entering data (e.g., property, geographic, land use, topographic, and political) into GIS databases. Collects information from planners and other sources for incorporation into GIS databases. Reviews source data to identify data to be entered into the database and to check for accuracy; converts data, if necessary, from non-digital maps and raw data into digital form using specialized software and enters other data elements.
2. Checks and evaluates the compliance of consultants' planimetric and property map deliverables with the GIS contract specifications.
3. Creates scripts for own use and use of the section.
4. Provides leadership to other Technicians; provides training in procedures for, maintaining and updating GIS databases and tables; coordinates large projects including responsibility for tracking and reporting on work progress and ensuring accuracy of work.
5. Participates in documenting and developing procedures and techniques for entering and manipulating GIS data.
6. Uses database, spreadsheets and other applications to complement information in GIS.
7. Posts record plats using COGO software.

8. Interacts with other members of planning department staff to provide maps to support projects; confers with staff to determine project requirements; and prepares written and oral reports of project methods and status.
9. Performs GIS digital map maintenance routines (feature coding, attributing, annotating and adding record plat information) using standard GIS software such as ArcView and ArcInfo. Creates scripts or modifies existing scripts.
10. Performs (or assists in) quality control checks.
11. Responds to public and inter-departmental requests for property information and maps. Produces hard copies of computer-generated maps.
12. Uses and maintains equipment.

Other Duties

1. Trains other staff including less experienced technicians in use of mechanical and computerized drafting and graphics techniques.
2. May provide leadership to other technicians.
3. Identifies and recommends procurement of supplies, equipment, materials, and services.
4. Performs related duties as assigned.

Important Worker Characteristics

Knowledge of:

CAD/Graphics: 1) the terminology, techniques and practices of drafting (traditional and computer aided); 2) drafting nomenclature and symbols and cartographic design; 3) mathematics including algebra, trigonometry, and plane geometry; 5) advanced graphics techniques.

GIS: 1) modern GIS programs (e.g., ARC/INFO and ArcView) including thorough understanding of various data sets used and manipulated within GIS and techniques for developing and maintaining GIS coverages; 2) cartographic design 3) basic knowledge of methods and techniques used in state-of-the art GIS software.

Skill in:

CAD: 1) traditional drafting techniques; 2) use of computer aided drafting and design software; 3) preparation of computer and manually generate graphics and charts; 4) use and care of mechanical drawing instruments, computers and related equipment 5) competency in creating 3D images and graphics using CAD software.

GIS: 1) digital map maintenance routines; 2) producing complete, original maps with thematic overlay and complete documentation.

Ability to:

CAD: 1) understand and follow oral and written instructions and sketches; 2) make mathematical computations accurately; 3) plan and organize major drafting, graphics, and/or GIS projects; 4) determine accuracy and acceptability of data provided by consultants.

GIS: 1) understand and follow oral and written instructions and sketches; 2) plan and organize major GIS technical projects; 4) determine accuracy and acceptability of data provided by consultants.

Minimum Qualifications:

1. A high school diploma with, or supplemented by, courses in geography, mathematics, and drafting; and
2. Four years of work experience:

CAD: Using traditional drafting media, computer aided design media.

GIS: Using geographic information systems technologies to maintain and produce new maps; or

3. An equivalent combination of education and experience. (An Associates Arts degree in a relevant discipline or equivalent training in CAD or GIS can be substituted for two years of work experience).

Working Conditions

Work is performed in an office. Work requires close attention, involves pressure to meet deadlines and requires sustained operation of a computer.