

MAJOR FUNCTION

This is technical work in civil engineering, architecture, drafting, traffic control, right-of-way route identification and establishment, and utility construction, maintenance and repair support, performed in the field or office. Assignments are performed with independence. Work is performed under general supervision and is subject to review by a higher-level employee while in progress, upon completion, through oral and written reports, and by observation.

ESSENTIAL AND OTHER IMPORTANT JOB DUTIES**Essential Duties (applicable to all positions, as appropriate, unless designated otherwise below)**

Interprets survey notes and plots cross sections, centerlines, and grades. Computes excavation and fill quantities, percentage of grade, and elevations. Transfers proposed grades to cross section sheets and plots proposed templates. Plots and drafts right-of-ways and easements from survey notes and easement descriptions. Plots and revises right-of-way and route maps, topographic and hydrographic maps and transfers parts or entire topographic drawings and route data to the same or a different scale. Prepares sketches and finished drawings in connection with the construction of new buildings and the repair and alteration of existing structures. Prepares working drawings for such features as site, foundations, floor and roof plans for front, rear, and side elevations; and for cross sections through buildings. Prepares drawings for such architectural features. Calculates cost estimates for the installation or relocation of the city underground and overhead utilities. Prepares working drawings of mechanical, electrical, and structural systems. Uses microcomputers to perform CADD drafting. Assists in the investigation of public complaints regarding encroachments and conditions on City rights-of-way, limits of mowing maintenance, flooding conditions, poor road conditions, electric system requirements, parking, etc. and participates in dispute or complaint resolution. Performs related work as required.

Traffic Control: Conducts machine and manual traffic and pedestrian counts. Conducts a wide variety of traffic studies, including but not limited to spot speed, travel time, delay, gap, and accident. Maintains and repairs electronic and mechanical count equipment. Investigates public complaints, suggestions or questions concerning traffic flow situations. Develops and maintains right-of-way maintenance route maps and street sweeping, route maps using AUTOCAD. Perform route optimization functions and upgrade maps after annexation. Performs related work as required.

Underground Utilities: Draws maps showing location of maintained rights-of-way and City utilities such as water mains, valves, fire hydrants, electric lines, wells and tanks, gas mains, sewers, manholes, and pump stations. Conducts field reviews of pending project sites to establish location of underground utilities. Accurately measures distances and depths of utilities, prepares field sketches, and photographs "before" conditions during field reviews. Assists in the review of developer submittals for utility improvements for compliance with City specifications. Investigates and reports on utility availability. Conducts paper and web-based research on technical issues for lead engineers and designers. Maintain project records and project drawings. Performs related work as required.

Stormwater Management: Makes inquiries in order to generate appropriate graphs, charts and reports and updates or reconciles related information in official databases. Researches databases and compiles information and reports upon request. Reviews and updates Access databases on an on-going basis. Prepares and files reports and other correspondence related to Stormwater programs. Collects and processes citizen's data for property acquisition projects and loan programs. Performs field measurements and basic hydrologic/hydraulic calculations. Performs support tasks such as filing, typing and copying as assigned. Performs duties in the field as assigned. Performs related work as required.

Electric Utility: Obtains field information for existing electric distribution facilities and prepares plans for extension of facilities to serve new customers. Reviews developers' submittals and designs single-phase and three-phase electric distribution lines using AutoCAD. Calculates rating of equipment, such as transformers and switches and proper sizing of conductors and cables. Designs and draws street light system and area lights where required. Calculates material and labor cost estimates for new underground and overhead electric facilities and extension of existing facilities. Reviews "as built" drawings for entering into GIS database.

Other Important Duties (applicable to specific positions, as appropriate)

Obtains utility and other information necessary for roadway improvement. Use Global Positioning System (GPS) and surveying equipment to maintain accurate as-built drawings for city utilities. Maintains valve location ties. Maintains files for fixed assets of water and gas main extensions. Develops illustrations and charts for publication and presentations. Assists in the investigation of public complaints regarding electric, gas, water, stormwater or sewer service. Assists in the creation of graphics for signs placed in parks. Photographs department activities, sites and special events for promotional slide presentations and publications. Coordinates parts procurement and upgrades of electronic equipment and software. Performs related work as required.

DESIRABLE QUALIFICATIONS

Knowledge, Abilities and Skills (applicable to specific positions, as appropriate)

Considerable knowledge of the terminology, methods, practices, and techniques of civil engineering/drafting. Considerable knowledge of the standard methods, practices, tools and materials for repair and maintenance of electronic and solid state electrical system. Considerable knowledge of the application of methods for route map development and establishment. Considerable knowledge of bearings, azimuths, and angles. Knowledge of mathematics, trigonometry and geometry as applied to the use of the basic principles of civil engineering, particularly as applied to road and utility work. Knowledge of the principles, materials and methods of road and underground utility construction. Knowledge of the basic principles of civil engineering as related to construction. Ability to make routine engineering computations. Ability to apply field notes in performing drafting work and simple engineering design. Ability to convert and perform computations involving bearings, azimuths, and angles. Ability to use microcomputers to perform CADD. Ability to read and interpret engineering plans and specifications. Ability to understand and follow complex oral and written instructions. Ability to keep coherent records and make reports. Ability to work from service manuals and blueprints or diagrams. Ability to follow oral and written instructions without immediate supervision. Ability to work independently and deal effectively and efficiently with citizens on a regular basis. Skill in drafting plans for a variety of engineering projects and maintenance of route maps. Skill in the care and use of pertinent equipment and instruments. Skill in the use of personal computers and associated applications and programs necessary for successful job performance.

Minimum Training and Experience (applicable to all positions, unless designated otherwise below)

Possession of a high school diploma or an equivalent recognized certificate and four years of drafting experience; or an equivalent combination of training and experience.

Traffic Control: Successful completion of a two-year vocational or college level program in electronics and two years of technical experience that includes electronic troubleshooting and repair; or possession of a high school diploma or an equivalent recognized certificate and four years of technical work experience involving at least two of the following areas, computer spreadsheets and databases, electronic troubleshooting and repair or drafting; or an equivalent combination of training and experience.

Underground Utilities: Successful completion of a two-year vocational or college level program in computer drafting and two years of technical experience that includes AutoCAD or surveying; or possession of a high school diploma or an equivalent recognized certificate and four years of technical work experience involving at least two of the following areas, computer spreadsheets and databases, construction, surveying or drafting; or an equivalent combination of training and experience.

Stormwater Management: Successful completion of a two-year vocational or college-level business, technical, or scientific program and two years of computer experience that includes the creation and maintenance of databases and spreadsheets or possession of a high school diploma or an equivalent recognized certificate and four years of staff or higher level experience that includes use of database, word processing and spreadsheet software systems, as well as processing customer inquiries and requests, or an equivalent combination of training and experience.

Electric Utility: Two years of post high school training that includes course work in math, drafting design, engineering, or engineering technology, and two years of technical or paraprofessional experience that includes drafting or engineering; or an equivalent combination of training and experience.

Necessary Special Requirements

(At the department director's discretion the noted license may not be required). Must possess a valid class E State driver's license at the time of appointment.

Public Works: Designated positions allocated to this class must to obtain a Pipeline Assessment Certification Program (PACP) certification as issued by the National Association of Sanitary Sewer Companies (NASSCO) within one year of initial employment and maintain same certification as a condition of continued employment.

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