

## **SENIOR ENGINEERING TECHNICIAN**

### **NATURE OF WORK**

Serves the public with responsible technical work in the survey, design, and inspection of civil engineering construction projects, including traffic engineering projects.

### **DISTINGUISHING FEATURES**

An employee in this class is responsible for conducting field surveys, collecting and analyzing technical data, designing construction improvement projects such as roadway reconstruction, roadway rehabilitation, traffic signals and controls, parking lots, water mains, and drainage improvements. An employee in this class is also responsible for preparing accurate drawings and plans, developing specifications, and computing material and cost estimates. Additionally employee is responsible for the field layout of proposed improvement projects, the coordination of project activities with contractors and utility representatives, the inspection of construction work in progress, and the testing of construction materials. This classification is distinguished from the Engineering Technician by the higher level of difficulty and diversity of the duties performed, and by complexity and scope of the projects assigned. An employee in this class must have good knowledge of field surveying, computer drafting, construction project design, construction inspection methods and practices, and construction materials testing.

### **ESSENTIAL FUNCTIONS** *(These essential duties are only illustrative.)*

Conducts field surveys; collects engineering data using electronic and standard surveying equipment; uploads data into computer for review and analysis.

Designs civil engineering construction projects such as roadway reconstruction, roadway rehabilitation, installation and upgrading of traffic control devices, water main installations, and drainage improvements.

Prepares accurate drawings and detailed plans using *AutoCad* and related computer software and/or standard drafting tools and equipment; writes construction specifications; conducts field lay-out of projects; calculates material and cost estimates.

Develops and implements a data conversion plan from non-GIS formats into GIS.

Develops new GIS databases, maintains and updates current data, generates maps, tables, and queries, and maintains base maps.

Inspects construction in progress for adherence to plans, specifications and standards; conducts tests on construction materials; coordinates construction activities with contractors and utility representatives; inspects streets during winter months and verifies snow removal.

Attends public meetings and provides information regarding construction details and concerns.

Provides technical information in response to inquiries; investigates and resolves complaints.

Maintains records and files in an acceptable GIS format; prepares reports.

Performs related duties as assigned or directed.

Maintains reasonable and predictable attendance.

### **SUPERVISION RECEIVED**

Work is performed under general supervision of the City Engineer, Senior Civil Engineer, Traffic Engineer, Project Manager, or other administrative superior with some latitude and independence in carrying out tasks and assignments to completion. Work is reviewed through reports and meetings for timely accomplishments of tasks, for overall results achieved, and for adherence to construction design, specifications and standards.

### **SUPERVISION EXERCISED**

Supervision is not usually a responsibility of positions in this class. An employee may assist in orienting and training new employees, or may supervise one or more engineering interns during the summer months. They also may supervise co-op students using GIS applications for data collection and field verification. They may also assist in training a current employee in the use of GIS, answer GIS related questions or aid in problem solving using coded applications and GIS analysis applications. Employees may provide training, technical assistance and advise regarding assigned areas.

### **WORKING CONDITIONS & PHYSICAL DEMANDS**

Work is performed in an engineering office and at various survey and construction sites throughout the city, and frequently requires employee to work around moving construction equipment and moving vehicles. Work exposes employee to traffic, noise, vehicle exhaust fumes, dust, dirt, and weather extremes. Work activities require frequent sitting for long periods of time, standing, bending, squatting, walking on uneven ground, lifting and carrying objects weighing over 50 pounds, reaching in front of body and stretching overhead, using hands and fingers to operate survey equipment, computers and vehicles.

### **SUCCESS FACTORS (KSAs)**

Considerable knowledge of the civil engineering design principles and practices.

Considerable knowledge of traffic engineering design principles and practices as required by the position.

Considerable knowledge of construction methods, principles, practices, and materials associated with the design and construction of engineering projects.

Considerable knowledge of land survey methods, principles, practices, and equipment.

Considerable knowledge of drafting techniques, principles and practices, including computer aided drafting.

Considerable knowledge of mathematics, including algebra, trigonometry, and geometry.

Considerable knowledge of ESRI GIS software and related products that may be adopted as a standard by the City.

Skill in conducting field surveys, collecting and analyzing engineering data, and developing construction design criteria.

Skill in the design and drafting of civil engineering construction projects.

Skill in the preparation of engineering drawings and plans, and in the use of *AutoCad*, GIS, and related computer software programs.

Ability to use and apply GIS systems as they relate to planning and train other staff in GIS applications.

Skill in conducting construction inspections and materials testing.

Ability to read and interpret construction plans and specifications, to recognize deviations from such plans in the construction process, and to obtain compliance in a firm and tactful manner.

Ability to make mathematical calculations rapidly and accurately.

Ability to present technical information in an effective manner, both orally and in writing.

Ability to keep records and files, and to prepare reports.

Ability to manage multiple assignment of varying complexity and overlapping deadlines.

Ability to establish and maintain effective working relationships with superiors, other City employees and officials, representatives of utility companies, contractors, and the general public.

### **EDUCATION, TRAINING & EXPERIENCE**

Possession of an Associate's Degree in Engineering Technology, Construction Management, Geographic Information Systems, or a related field. Three years of experience in project design, drafting, construction inspection, or related experience which provides the knowledge, abilities and skills required by the position. Any satisfactory combination of experience and training which ensures the ability to perform the work may be substituted for the required experience.

### **NECESSARY SPECIAL REQUIREMENTS**

ATSSA Certification as a Worksite Traffic Supervisor or ability to obtain certification within a reasonable time period after employment.

Possession of a valid Illinois Driver's License.

Residency requirement: Classified employees hired after January 1, 1984 may live anywhere in Winnebago County or anywhere within an area fifteen (15) miles from the Public Safety Building within six (6) months of their date of completion of probation. Employees hired prior to January 1, 1984 shall be subject to their conditions of employment in effect at that time.