Rev. 4/98

City of San José

PRINCIPAL ENGINEERING TECHNICIAN (3715)

CLASS PURPOSE

Under direction, performs work of considerable difficulty supervising a unit of Engineering Technicians engaged in sub-professional engineering work in design, construction, engineering development, engineering services and maintenance, architecture, landscape architecture, drafting, transportation and traffic engineering, traffic signal design, computer mapping, structural, electrical and mechanical engineering. Performs related work as required.

TYPICAL DUTIES AND RESULTS (Any one position may not include all the duties listed, nor do the examples cover all the duties which may be performed.)

- Assigns and supervises the work of a large technical staff in the preparation of drawings and improvement plans, in the writing of specifications, and the development of cost estimates in connection with the construction of municipal buildings, traffic signals, traffic signal systems, roadway improvements, subdivision or other major project improvements within the City.
- Reviews plans and specifications for engineering and/or architectural soundness and conformance to established standards and codes; aids in the establishing of project programs and budgets; consults with public and private engineers, architects, community groups, contractors and subdividers relative to proposed buildings, streets, curbs, gutters and sanitary sewers in new subdivisions.
- Supervises the preparation of necessary resolutions, contracts, bonds, and construction agreements to accompany subdivision, building, and street improvement plans for final approval; administers service contracts in various engineering and/or maintenance work.
- Supervises the City-wide traffic signal system; coordinates traffic signal operations with other traffic control facilities; supervises the development of signal systems and computer programs and the preparation of equipment specifications.
- Oversees the infrastructure management systems such as pavement, storm, sanitary, bridge, or traffic operations.
- Conducts special studies to determine the feasibility of new procedures and methods relative to the management of maintenance, special assessment, and improvement district programs.
- Performs and supervises field engineering studies to determine efficiency of cycle lengths, splits, offsets, and phasing; develops programs for traffic signal operations at isolated intersections and for arterial and grid systems or inter-connected signalized intersections.
- Performs transportation studies using computerized models, traffic flows, arterial and grid systems.
- Meets with representatives from engineering, police, public, and other jurisdictions on traffic control problems.
- Performs preliminary and final architectural and landscape architectural design for the construction of buildings and landscape projects complying with applicable programs, building codes and ordinances; manages the construction of projects.
- Oversees the design of traffic signals and systems or other electrical systems; acts as traffic signal design consultant to design teams.

- Coordinates the flow or procedural steps in direct special assessment and assessment districts from their inception to completion, and reviews assessment projects for their overall conformance to City and State laws.
- Prepares reports and Council memos on City projects; organizes, acquires and maintains office records and files information; prepares and coordinates consultant agreements; represents the City with contractors, consulting firms and public agencies in matters related to traffic signal design; reviews plans and specifications for conformance to new or established standards.
- Supervises large land annexation projects; provides technical knowledge of research, engineering and drafting of annexation maps; performs mathematical calculations and writes legal descriptions.
- Testifies on behalf of the City in any legal action involving a project.
- Supervises the administration and inspection of utility permits and permit ordinances, quality control, hazardous waste and sidewalk permits.
- Supervises the preparation of bidding documents, soliciting of bids and award of contract; administers the contract, interprets plans and specifications, consults on field problems and signs final completion notices.
- Supervises a staff of Engineering Technicians and other assigned personnel.
- Supervises aviation easement program; furnishes department-wide coordination of airline/tenant requirements.

Typical End Results Include

Timely and accurate vehicle/pedestrian volume counts; current and accurate radar speed lists to user-agencies; accurately developed and fully documented annexation and redevelopment project maps; functional facilities which accomplish established program goals through thorough design/phasing; improved efficiency and effectiveness through the development and implementation of new procedures and methods in the repair and maintenance of streets, sewer, traffic markings and signs implemented; full assistance to property owners in obtaining improvements through the use of assessment proceedings; timely, complete, and accurate preparation of CALTRANS reports on designing and construction, and special provisions to State standard specifications on FAU (Federal Aid Urban) projects; efficient processing of utility permits; full compliance by utility companies ensuring street excavations meet City requirements and are properly restored; effective and efficient programming of traffic signals to create a smooth flow of traffic; minimized disruptions to the public by effectively coordinating traffic signal design, installation, and operation with other departments and jurisdictions; effective and efficient design and construction of municipal buildings that are aesthetically proper, meet all program requirements, within budget, and free from maintenance problems; effective and efficient planning, development, and construction of balanced landscape environments that afford pleasing recreational or passive areas for community involvement and enjoyment that are aesthetically pleasing, meet program requirements, are within budget and free from maintenance problems.

DISTINGUISHING CHARACTERISTICS

Incumbents supervise a technical unit that performs sub-professional engineering and/or architectural work in architectural and landscape architectural design, drafting, traffic engineering, and office engineering, under the direction of a Senior Civil Engineer, Senior Architect, or Deputy City Traffic

Engineer. This class differs from the lower class of Senior Engineering Technician in that incumbents of the latter may work under the direction of a Principal Engineering Technician.

QUALIFICATIONS

Minimum Knowledge, Skills and Abilities

- Knowledge of mathematics, including algebra, geometry, trigonometry.
- Knowledge of principles, techniques, and terminology of civil, mechanical, electrical engineering, architecture, landscape architecture, traffic engineering and operations, and maintenance operations and engineering.
- Knowledge of building construction methods, materials and equipment.
- Knowledge of the principles and practices of supervision and management.
- Knowledge of survey principles, problems, techniques and instruments used in making cross-section, profile, location, topographic and construction layout surveys.
- Knowledge of the methods, materials, and equipment used in the testing of materials.
- Knowledge of principles, techniques, and terminology relating to inspection, drafting, surveying, and other engineering functions.
- Knowledge and ability to use computer applications in CAD, GIS, engineering and maintenance project or inventory management, word processing, and spreadsheets.
- Ability to make complex engineering computations.
- Ability to maintain effective public relations.
- Ability to supervise, plan, direct, train and evaluate the work of a large technical staff.
- Ability to plan and design architectural and landscape architectural projects.
- Ability to use and adjust surveying instruments.
- Ability to analyze situations and take the proper action.

Competency Knowledge Skills and Abilities

- Ability to manage a major sub-professional engineering, architectural or landscape architectural project or program.
- Ability to design, coordinate, and manage the construction of various Capital Improvement Budget (CIB) building projects.
- Ability to independently carry out special assignments and/or analyses.
- Ability to prepare and control the unit budget.
- Ability to supervise and direct the activities of a technical staff.

Education

Completion of high school, General Educational Development (G.E.D.) Certificate, or California Proficiency Certificate.

Experience

Nine (9) years of increasingly responsible sub-professional engineering and/or technical support experience of which three (3) years must have been in a position comparable to the level of a City of San José Senior Engineering Technician, Senior Construction Inspector, Survey Field Supervisor, or close equivalent.

Acceptable Substitutions

Successful completion of two (2) academic years or sixty (60) semester units of college level engineering technology courses or related field may be substituted for the remaining two (2) years of sub -professional engineering/technical support experience. There will be no substitute for the education requirement.

Licenses/Certificates

Possession of a valid driver's license authorizing operation of a motor vehicle in the State of California may be required.

(5/2/80), (Rev. 2/2/84), (Rev. 4/98)
3715s001.doc