

## **TRAFFIC SIGNAL TECHNICIAN/ELECTRICIAN**

### **DEFINITION**

Performs journey level electrical work required to maintain, install, repair, or alter electrical systems found in City buildings, street lights, and facilities. Performs a full range of skilled and complex tasks to ensure that electrically controlled and operated equipment and systems function properly. This includes coordinating and participating in skilled technical work in the installation, repair, maintenance, and upgrade of traffic signal devices; electrical construction, installation, maintenance and repair of municipal facilities, public buildings, traffic lights and street lighting systems.

### **SUPERVISION RECEIVED AND EXERCISED**

Receives general direction from the Community Services Director

### **EXAMPLES OF ESSENTIAL FUNCTIONS** - *Essential functions may include, but are not limited to, the following:*

Perform journey level skilled electrical installation, maintenance, and repair work involving municipal facilities, buildings, and street lighting systems;

Perform preventive maintenance on street lighting, electrical systems, motors, and equipment, which includes the safe operation of an aerial bucket truck and large construction equipment;

Administer and coordinate a traffic signal and street lighting program;

Inspect newly installed electrical equipment and lighting to ensure safe operation as well as code compliance;

Inspect, diagnose malfunctions of, and make field repairs to traffic signal controls and auxiliary equipment;

Maintain accurate records of work performed, materials used, and associated costs; Repair or replace defective or worn electrical parts, components, and controlling software in electrical systems and devices, electrical motors, generators, pumps, controllers, heating and air conditioners, lighting systems, and other fixtures and equipment;

Perform associated work including digging, trenching, occasional concrete finishing and removal, and lifting electrical equipment, conduit, and pipe.

Troubleshoot malfunctioning equipment to determine the nature of the problem;

Repair electronic components of electrical equipment as required for continued operation;

Make emergency electrical repairs to traffic signals, street lighting, generators, parking garages and pumps, as required;

Repair knockdowns to traffic signal equipment including poles, signal heads, and hardware;

Make signal timing changes as directed and ensure that proper timing is restored after repairs have been made;

Install all or part of signalized intersections;

Investigate complaints and reports of signal malfunctions and perform adjustment or repair as required to solve the problem;

Repair, replace, or modify signal head components, microprocessors, relays, switches, fuses, and cabinet parts;

Install loops and vehicle detectors;

Inspect and test equipment installed by contractors;

Make shop repairs of electronic components, small and large electrical appliances;

Design and construct specialized electronic test equipment;

Make field and bench repairs to traffic control and street lighting equipment including, but not limited to, electronics, poles, luminaries, wiring signal heads, and all related hardware and software required to operate a traffic signal and street lighting division;

Draw and read electrical and electronic blueprints and diagrams;

Perform related duties as assigned.

## **MINIMUM QUALIFICATIONS**

### **Knowledge of:**

Methods, materials, tools, equipment, and procedures used in the installation, maintenance, repair, replacement, and alteration of electrical equipment and upgrades of traffic signal control devices;

Components and parts used in modern electrical wiring systems such as pumps, motors, controls, and lighting;

Basic principles and components found in electronic control and micro processing devices;

Occupational hazards and safety precautions necessary in electrical work. In addition, a basic understanding of overhead line construction, Public Utilities Commission (PUC) Order #95, National Electric Code and Federal and State Occupational Safety and Health Administration (OSHA) standards is required.

Methods, materials, tools, equipment, and practices used in the installation, maintenance, repair, and upgrade of traffic signal control devices;

Electronics and electricity as related to traffic signals and associated equipment;

Standard electronic test equipment;

**Ability to:**

Work independently and make sound decisions regarding work methods and tools;

Read, interpret, apply, and enforce applicable codes and standards as related to electrical installation;

Apply State, Federal, and local safety regulations and codes to municipal electrical work;

Work safely both independently and as a crew member on high voltages up to 600 volts A.C.;

Work safely near energized PG&E primary and secondary lines with voltages up to 4160 A.C.;

Understand and interpret written and oral instructions;

Comprehend and make inferences from written material;

Read and interpret blueprints, wiring diagrams, and work orders;

Prepare and maintain records, reports, and work estimates;

Communicate effectively with those contacted in the course of work;

Learn through oral instruction in an on the job setting;

Program, replace, maintain and repair traffic signal control devices;

Use and care for tools and equipment used in programming, replacing, maintaining and repairing electronic and electrical devices;

Work in emergency and hazardous situations;

Draw or utilize maps or diagrams of intersections that illustrate direction of signals or equipment placement;

Safely change traffic signal light bulbs, replace traffic signal equipment, and adjust traffic signal heads;

Prepare cost estimates for projected intersection upgrades.

Perform work at heights and in emergency and hazardous situations.

**Education:**

Graduation from high school or GED equivalent.

**Experience:**

Sufficient experience as a journey level electrician in a municipal, commercial or industrial environment and installation, maintenance, repair, and upgrade of electrical and electronic traffic control devices to demonstrate possession of the knowledge and abilities listed above;

**Or**

Any combination of education and experience that would provide the required knowledge and abilities.

**Additional Requirements:**

This classification requires the use of a personal or City vehicle while conducting City business. In order to drive, individuals must be physically capable of operating the vehicles safely and must possess and maintain throughout employment a valid California Class A commercial motor vehicle operator's license and a current medical examiner's certificate.

Possession of International Municipal Signal Association (IMSA) Level I certification in traffic signal maintenance is required; and possession of or ability to obtain a Level II International Municipal Signal Association (IMSA) certification in traffic signal maintenance is required within one year of employment.

**TYPICAL WORKING CONDITIONS**

Incumbents in this classification are required to use common hand tools such as hammers, saws, and screw drivers; make precise arm-hand positioning movements when working with electrical hand tools, for example, when using a socket wrench on overhead luminaries; climb ladders or steps to reach objects; make continuous, repetitive arm-hand movements when working with screwdrivers or tightening or loosening lamps and photocells; coordinate movement of more than one limb simultaneously and make fine, highly controlled muscular movements while operating equipment used to set such items as street light poles; bend and stoop repeatedly or continually over time when working in electrical panels or picking up cones; work in a variety of weather conditions with exposure when working on street light system; observe or monitor such items as electrical meters and truck hydraulic lifts for compliance with safety standards; make skillful, controlled manipulations of small objects when connecting bolts on breakers to live panels or working with fuses; use arms above shoulder level when installing overhead conduit or fixtures; work in small, cramped areas when working in a bucket or with panels that are difficult to access; work while standing on extension ladders or lift trucks at heights greater than 25 feet, such as when servicing or repairing street lights; hear alarms and other auditory warning devices such as vehicle back-up bells or electrical panel audible alarms; use stomach and lower back muscles to support the body when lifting heavy electrical equipment during installation, or when climbing in and out of the truck cab or bucket; walk over rough, uneven or rocky surfaces to access work sites in City parks; move electrical

components or fixtures weighing up to 50 pounds short distances; discriminate among colors or match colors of electrical wires; communicate orally both face to face and using a telephone when receiving or communicating status of work assignments; and sit for extended periods of time with the ability to move about at will when working on ground level electrical facilities.

**This class specification lists the major duties and requirements of the job and is not all-inclusive. Incumbents may be expected to perform job-related duties other than those contained in this document.**