

Summary of Duties: A Traffic Signal Electrician performs skilled technical work and acts as a lead for and works with a signal construction crew constructing, maintaining, modifying, and repairing electric traffic signals; and does related work.

Distinguishing Features: A Traffic Signal Electrician does journey level work installing, modifying, and repairing traffic signal equipment at intersections. A Traffic Signal Electrician acts as a lead worker of a crew of helpers and laborers. The work involves exposure to hazards from heavy traffic and relatively low voltage electricity. A Traffic Signal Electrician must be able to work from ladders, aerial lifts, and cranes. An employee in this class is responsible for crew safety and the use of safe work practices.

A Traffic Signal Electrician receives assignments from a Signal Systems Supervisor in the form of verbal instructions, work orders, plans, intersection layouts, wiring schematics, and route maintenance schedules.

The classes of Traffic Signal Electrician and Signal Systems Electrician are different because:

- * A Signal Systems Electrician modifies, tests, and repairs microprocessor based traffic signal control equipment.
- * A Traffic Signal Electrician constructs and maintains traffic signal equipment.
- * A Traffic Signal Electrician may replace microprocessor based signal control components but does not troubleshoot or repair them.

Examples of Duties: A Traffic Signal Electrician:

- * Works with a signal construction crew as a lead worker to:
 - * Install temporary traffic signals or stop signs and place safety cones before starting work.
 - * Excavate foundations, pull boxes, and loop detectors.
 - * Install signal standards, controller cabinets, signal heads, loop detectors, and railroad and bus preemption modules.
 - * Pull wire cables through conduits and signal standards.
 - * Reconstruct or replace vandalized or broken traffic signal equipment.
- * Coordinates work with other personnel such as boom truck or cement crews, Traffic Officers, and Water and Power crews.
- * Splices and weatherproofs wires in signal heads, pull

boxes, and controllers.

- * Plugs signal controller into controller box wiring harness.
- * Turns on and tests the basic operation of traffic signals and control devices.
- * Does preventive maintenance work in the field.
- * Uses multimeters, megohmmeters, and frequency meters and other analog and digital electronic instruments.
- * Uses wire cutters, pliers, crimpers, wrenches, and other hand tools.
- * Uses drills, soldering guns, jack hammers, and other pneumatic and power tools.
- * Works from ladders and aerial lifts.
- * Studies engineering plans such as intersection layouts, location of electric and gas conduits, and work orders.
- * Determines the number and types of interconnecting conductors needed to install a traffic signal system.
- * Checks signal coordination and timing to engineering plans.
- * Prepares work reports, work orders and requisitions.
- * May modify engineering plans to show the final signal equipment configuration for an accurate record of each installation.
- * May answer emergency traffic signal trouble calls.
- * May inspect signals installed as part of permit or contract work.

May be assigned to other duties for training purposes or to meet technological changes or emergencies.

Qualifications: Incumbents must have the following knowledges and abilities:

A Good Knowledge of:

- * Basic electricity and electronics applicable to installing and repairing complicated electrical systems.
- * Devices, methods, and products for splicing and waterproofing electrical conductors.
- * Various types of traffic signal equipment such as intersection controllers, cabinet assemblies, and systems equipment.
- * Methods, materials, tools, and equipment used to install, test, maintain, repair, and modify electric and electronic traffic signal and related equipment.
- * Standard traffic signal and control terminology.
- * Location of the principal City streets controlled by traffic signals.
- * Safety principles and practices for working in heavily traveled streets and with electrical equipment.
- * First aid, including CPR and treatment of electrical shock and burns.

A Working Knowledge of:

- * Standard ITE (Institute of Traffic Engineers) symbols and terminology for traffic signals.
- * The National Electric Code regarding wire sizes, color codes, types of connectors and conductors, and insulation used in traffic signal repair and installation work.

Qualifications: (cont.)

A Working Knowledge of: (cont.)

- * Functional limitations of peripheral devices such as loop sensors, AC/DC isolators, and railroad and bus preemption modules.
- * USA (Underground Service Alert) requirements such as mark-outs and identification of substructures before digging.

The Ability to:

- * Read and interpret plans, specifications, and wiring schematics used in traffic signal work.
- * Estimate personnel, materials, time, and equipment requirements of work orders.
- * Lay out work to cause the least interference with traffic.
- * Use various hand, pneumatic, and power tools to install, repair, and modify traffic signal systems.
- * Interpret the readings from a variety of electrical test equipment such as multimeters, megohmmeters, and frequency meters to detect faulty equipment.
- * Communicate with a variety of individuals including crew members, other City employees, and the public.
- * Deal tactfully and effectively with employees and the public.
- * Prepare work reports and keep operating records.
- * Work under the pressure of varying and adverse traffic and weather conditions, time constraints, and conflicting job demands.
- * Work at heights of up to 30 feet.

Minimum Requirements:

Completion of a recognized apprenticeship or attainment of journey-level rank as an electrician.

OR

Four years of full-time paid experience at the level of Electrical Craft Helper installing, maintaining, or repairing traffic signals or electrical or electronic controls.

License: A valid California driver's license is required. A Commercial driver's license may be required for some of the positions.

Physical Requirements: A person in this class must:

- * Be able to lift at least 70 pounds and sometimes over 70 pounds.
- * Have body agility and equilibrium to climb and balance under precarious conditions.
- * Have back and leg coordination to stoop, kneel, and crouch to an unusual extent.

Qualifications: (cont.)

A Working Knowledge of: (cont.)

- * Have arm, hand, and finger dexterity with both hands for reaching, handling, and feeling.
- * Have good speaking and hearing ability and good eyesight.

Because this class has been designated as Safety Sensitive in accordance with City policy, a drug

Physical Requirements: (cont.)

and alcohol screening test may be required prior to appointment.

Those with medical limitations may be able to perform the duties of some of the positions in this class with reasonable accommodation. The decision to accommodate someone's limitations will be made on an individual basis and depends on the types of limitations, what the hiring department can reasonably do to accommodate them, and the specific qualifications for the job.

As provided in Civil Service Commission Rule 2.5 and Section 4.55 of the Administrative Code, this specification is descriptive, explanatory, and not restrictive. It is not intended to declare what all the duties and responsibilities of any position shall be.