



## TRAFFIC SIGNAL AND LIGHTING TECHNICIAN TRAINEE/I/II

### DEFINITION

Under general supervision from supervisory or management staff, performs a variety of technical and support work in the area of traffic operations in the field and in the office; performs electronic and electrical work related to the installation, modification, maintenance, and repair of traffic signal and lighting equipment; may have responsibility for the day-to-day operations of an assigned technical engineering support area; provides lead direction.

### SUPERVISION RECEIVED AND EXERCISED

Receives close supervision, general supervision, or direction from an assigned supervisor or manager. Exercises no direct supervision over staff.

### CLASS CHARACTERISTICS

*Traffic Signal and Lighting Technician Trainee:* This is an on-the-job trainee-level classification in the Traffic Signal and Lighting Technician class series where the emphasis is on learning the basic skills, methods, tools, materials, and equipment used to construct, install, operate, maintain, and repair electrical and electronic traffic signal and lighting systems. Basic training is received on Federal, State, and local laws, codes, and regulations related to traffic control systems. Incumbents receive paid work training from journey-level technicians and on-the-job education before being assigned equipment or tasks. Trainees participate in on-the-job training and may be assigned various duties, including tasks that will assist them in learning to read traffic plans, blueprints, wiring, and electronic circuit diagrams. Work is performed under close supervision to complete initial tasks, understand procedures, comprehend complex regulations, and acquire the ability to apply the knowledge obtained during the training period. Trainees are given the opportunity to perform increasingly difficult tasks to prepare them for the entry-level Traffic Signal and Lighting Technician I classification.

*Traffic Signal and Lighting Technician I:* This is the entry-level class in the traffic signal and lighting series. Under close supervision, incumbents learn and perform various traffic signal and lighting maintenance and repair duties. This class is alternately staffed with Traffic Signal and Lighting Technician II, and incumbents may advance to the higher level after gaining experience and demonstrating proficiency that meets the qualifications of the higher-level class.

*Traffic Signal and Lighting Technician II:* This is the fully qualified journey-level classification in this series. Incumbents perform a wide range of traffic signal and lighting maintenance, repair, and construction with considerable independence. Incumbents handle more complex tasks and/or workloads independently with consultation as needed by Sr. Traffic Signal and Lighting Technician. Positions at this level are distinguished from the I-level by performing the full range of duties as assigned, working independently, and exercising judgment and initiative. Positions at this level receive only occasional instruction or assistance as new or unusual situations arise and are fully aware of the operating procedures and policies of the work unit.

Positions in the Traffic Signal and Lighting Technician class series are flexibly staffed. Positions at the II-level are normally filled by advancement from the I-level, and positions at the I-level are normally filled by advancement from the trainee-level, after gaining the knowledge, skill, and experience which meet the qualifications for and after demonstrating the ability to perform the work of the higher-level class.

### **EXAMPLES OF DUTIES (Illustrative Only)**

- Installs, operates, troubleshoots, maintains, repairs, or replaces traffic controllers, vehicle detectors, Internet protocol (IP) cameras, variable message signs (VMS), and fiber optic cabling in the field and the shop.
- Uses Geographic Information System (GIS) and other software to research, file, and produce maps for visual reference; records maps and plans and maintains databases.
- Perform and/or coordinate with maintenance staff to perform maintenance, repair, and modify traffic signals, flashing beacons, and appurtenances. Modification to traffic signals is limited to those that do not require engineering re-design.
- Administers contracts for the maintenance of traffic signals.
- Programs Signal Controllers.
- Investigates complaints regarding signal operations.
- Diagnoses and repairs traffic signals and appurtenances.
- Provides 24-hour emergency response for signal callouts.
- Modifies traffic signals to improve operation and safety where engineering re-design is not required.
- Operates Personnel Hoist Vehicle for signal maintenance operations.
- Coordinates purchase and testing of signal hardware for signal projects.
- Maintains records for traffic signals.
- Attendance and punctuality that is observant of regularly scheduled hours.
- Performs other duties as assigned.

### **QUALIFICATIONS**

*Some knowledge and abilities may be gained by positions at the trainee and entry (I) level while in a learning capacity.*

#### **Knowledge of:**

- Knowledge of circuit boards, processors, chips, electronic equipment, and computer hardware and software, including applications and programming for traffic signal and lighting systems
- Methods, tools, materials, and equipment used in the construction, installation, operation, maintenance, and repair of electrical and electronic traffic signal and lighting systems
- Principles, practices, and terminology of engineering technical support for Traffic Operations.
- Fundamental engineering mathematics.
- Data collection and analysis.
- Use of computers and computer applications related to engineering work.
- Principles, methods, practices in the design of traffic signals, timing plans; and signal phasing.
- Provisions of relevant Vehicle Codes and Caltrans Traffic Manual.
- Standard office practices and procedures.
- Business writing and grammar.
- Contract administration.
- Principles of traffic control.

#### **Ability to:**

- Perform maintenance, repair, and modification of traffic signals, flashing beacons, and appurtenances. Modification to traffic signals is limited to those that do not require engineering re-design.
- Coordinate, organize, and carry out support functions of Traffic and Signal Operations.
- Analyze and evaluate statistical data and information, developing sound recommendations.
- Develop accurate records and notes.
- Troubleshoot and repair traffic signals and appurtenances.
- Read contract drawings.
- Read wiring diagrams and electronic circuit diagrams.
- Prepare correspondence, notes, reports, and other written materials.
- Make thorough field inspections and obtain compliance with plans and specifications.

- Interpret and read signal and lighting plans and specifications.
- Follow complex written and oral technical instructions.
- Make accurate mathematical calculations.
- Use a computer and computer applications in the performance of technical support work.
- Prepare cost estimates for traffic control system components and equipment
- Operate and maintain various hand and power tools and specialized vehicles and equipment used in the work.
- Properly place cones, barricades, and warning devices and direct traffic flow at job sites.
- Exercise independent judgment and initiative in daily work situations.
- Understand and follow oral and written instructions.
- Establish and maintain effective working relationships with those contacted during the work.

**Education and Experience:**

*A combination of the required experience, education, and training that would provide the essential knowledge, skills, and abilities qualify; however, education may not solely substitute for the required experience.*

Traffic Signal and Lighting Technician Trainee:

Equivalent to graduation from high school

AND

One (1) year of manual labor experience.

Traffic Signal and Lighting Technician I:

One (1) year of experience equivalent as a Traffic Signal and Lighting Technician I

OR

Two (2) years of experience in maintaining and repairing roadways, electronics, or traffic control systems.

OR

Equivalent to an associate degree from an accredited college or university with major coursework in pre-engineering, electronics, electrical technology, or a closely related field

OR

Possession of an IMSA certification in Work Zone Temporary Traffic Control Technician

Traffic Signal and Lighting Technician II:

Three (3) years of journey-level experience in the installation, modification, maintenance, and repair of traffic signals, lighting control equipment, or other industrial/commercial electrical systems.

OR

Possession of a valid California certificate as an Engineer-in-Training

**Licenses and Certifications for II level:**

- Possession of the International Municipal Signal Association (IMSA) Traffic Signal Technician II certification.

**Licenses and Certifications for all levels:**

- Possession of, or ability to obtain and maintain, a valid California or Nevada Driver's License and a satisfactory driving record.

**PHYSICAL DEMANDS**

May require lifting and carrying of objects weighing up to sixty (60) pounds. Must have visual and color acuity adequate to successfully perform the essential functions of the job. Must be willing to work overtime and off-hour shifts in emergency situations.

**ENVIRONMENTAL CONDITIONS**

Must be willing to work outdoors in various weather conditions, with exposure to traffic. Must be willing to perform work at heights thirty (30) feet and higher above ground on equipment and structures during bad weather conditions. Work with live electrical circuits. Work on rough, uneven terrain and in close and/or tight spaces

**HISTORY**

Created: November 2022