SR. TRAFFIC SIGNAL AND LIGHTING TECHNICIAN

DEFINITION

Under general supervision, performs a variety of the most difficult and complex technical and paraprofessional engineering support work in the area of traffic operations in the field and the office; may serve as a lead worker over subordinate specialist or technical staff supporting an assigned program or function, and/or may coordinate the activities of a distinct program, function, or work unit; performs skilled electronic and electrical work related to the installation, modification, maintenance and repair of traffic signal and lighting equipment; responsible for the day-to-day operations of an assigned technical engineering support area; provides lead direction and training for other staff.

SUPERVISION RECEIVED AND EXERCISED

Receives direction from assigned supervisory or management personnel. May provide functional and technical leadership over subordinate specialist or technical staff. May coordinate a program, function, or work unit. May exercise direct supervision over specialist or technical support staff.

CLASS CHARACTERISTICS

This is the lead working position and deep subject matter expert performing traffic signal system work. Incumbents in this class are responsible for performing the most difficult, complex, and/or sensitive assignments related to the maintenance and repair of traffic signal systems, highway/street lighting systems, and related electrical/electronic systems and equipment. Positions in this class provide technical assistance and training to supervise, guide, check, and correct the work of assigned staff.

Incumbents in this class report to management personnel. In order to complete projects/assignments, incumbents must be able to plan, schedule, and supervise the daily work of a specified employee or group of employees.

EXAMPLES OF DUTIES (Illustrative Only)

- Plans, prioritizes, assigns, reviews, and may supervise the daily work of specialist and technical staff responsible for installing, operating, troubleshooting, maintaining, repairing, or replacing traffic control systems and components, including traffic controllers, vehicle detectors, Internet protocol (IP) cameras, pedestrian controls, and fiber optic cabling in the field or the shop; coordinates and performs emergency repairs and other electrical work as needed.
- Coordinates and reviews the work plan for assigned functions, services, and activities; assigns work activities and projects; monitors workflow; reviews and evaluates work products, methods, and procedures; meets with staff to identify and resolve problems; ensures work is performed accurately and that timelines are met; ensures compliance with established policies, procedures, and related regulations.
- Resolves complex problems in installing, operating, troubleshooting, maintaining, repairing, or replacing traffic and pedestrian traffic systems to include traffic controllers, vehicle detectors, and cameras.
- Operates vehicular equipment to make continuous and detailed field checks on County transportation installations, respond to system failure requests, and inspect complex signal control, auxiliary equipment, and street lighting systems to ensure correct installation and operation.
- Relocates or replaces signal standards and relamps traffic set ups and program monitoring equipment.
- Responds to and coordinates with management to resolve non-routine customer inquiries and complaints.
- Provides lead direction, supervision, training, and mentoring to staff in accordance with established policies and procedures; assists, guides, and instructs group members in the performance of their duties; provides technical direction and problem-solving in response to staff work questions and problems.

- Performs routine replacement of equipment and traffic signal devices; constructs special test equipment for testing of electronic components.
- Researches Underground Service Alert (USA) requests; locates and marks underground conduit runways and loop wires to prevent damage.
- Develops circuits and wiring systems for traffic signal controllers and configures controller cabinets in accordance with established policies, procedures, and related regulations.
- Maintains daily records of work accomplished, accurate uses of tools, materials, supplies, and equipment; uses specialized software to capture data electronically and generate reports.
- Uses Geographic Information System (GIS) to research, file, and produce maps for visual reference; records maps and plans; and maintains databases.
- Maintains and installs electrical control equipment on County transportation installations having electrical control devices and systems.
- Monitors inventory of tools, supplies, equipment, and materials necessary to perform the work of the section; maintains stock levels of regularly used items based on usage rate, available storage space, product shelf-life, and delivery time; assists in recordkeeping and reporting of products ordered, received, issued, stocked and warehoused.
- Coordinates work assignments; monitors work for progress and quality; ensures work is completed in a timely and efficient manner; reviews work; recommends improvements and modifications to work processes, adapts work procedures to meet changing needs, and resolves more complex work problems.
- Troubleshoots and repairs interconnect and fiber communication lines.
- Installs firmware updates to traffic signal devices and equipment as needed; troubleshoots and maintains traffic signal control IP network connectivity; implements upgrades as technology developments are released and become available.
- May supervise the work of professional, technical, and/or administrative support staff, including responsibility for work activities as well as staff selection, training, motivation, and evaluation; prioritizes and coordinates work assignments; provides and/or coordinates staff training; reviews work for accuracy; may work with employees to correct deficiencies.
- Performs related duties as assigned.

QUALIFICATIONS

Knowledge of:

- Electronic, electro-mechanical, microprocessor, solid-state control, and computer network devices 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 and practices of electrical, electronic, and computer theory
- Principles and practices of supervision, discipline, leadership, mentoring, and training techniques
- Applicable Federal, State, and local laws, codes, and regulations to include, but are not limited to, the National Electric Code, Electrical Safety Orders of the Division of Industrial Safety, and California Manual on Uniform Traffic Control Devices (MUTCD) standards and specifications
- Video detection and video surveillance operation and calibration
- Copper-to-fiber and fiber-to-copper interface units
- Office procedures, methods, and equipment, including computers and applicable software applications such as word processing, spreadsheets, databases, and other specialized applications related to the area of assignment
- Operation and maintenance of a wide variety of hand and power tools and equipment common to the field.
- Provisions of the California Motor Vehicle Code related to traffic painting and signing operations and the State Uniform Sign Chart and Caltrans Traffic Manual.
- Safe work methods and safety regulations pertaining to the work.

Ability to:

- Select, supervise, train, and evaluate staff
- Read, interpret, and work from plans, maps, detailed drawings, and specifications including, but not limited to, blueprints, wiring, and electronic circuit diagrams
- Collect and compile a variety of data and information and write reports
- Operate motor vehicles required for maintenance and installation functions
- Plan, coordinate, assign, and review the work of subordinate staff
- Communicate clearly and concisely, both verbally and in writing
- Work independently, prioritize work, coordinate activities, and meet critical deadlines
- Interpret and apply applicable Federal, State, and local laws, codes, and regulations
- Develop complex circuits and wiring systems for traffic control to meet changing needs
- Read and write logic statements for traffic operation computers
- Prepare procedural instructions
- Prepare cost estimates for traffic control system components and equipment
- Operate and maintain a variety of 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.
- Prepare records and reports.
- Understand and follow oral and written instructions.
- Establish and maintain effective working relationships with those contacted in the course of 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.

Equivalent to the completion of the twelfth (12th) grade and 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. Possession of an Associate's Degree in pre-engineering, electronics, electrical technology, or closely related curriculum, or possession of a valid California certificate as an Engineer-in-Training may substitute for two (2) years of the required experience.

Other Requirements:
Possession of the International Municipal Signal Association (IMSA) Traffic Signal Technician II certification.
Possession of 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 more 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

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