

POSITION DUTY STATEMENT

PM-0924 (REV 7/2014)

CLASSIFICATION TITLE Transportation Electrical Engineer	OFFICE/BRANCH/SECTION Specialty Region / Maintenance	
WORKING TITLE Transportation Electrical Engineer	POSITION NUMBER 3609	EFFECTIVE DATE 01/27/2015

As a valued member of the Caltrans team, you make it possible for the Department to provide a safe, sustainable, integrated, and efficient transportation system to enhance California's economy and livability. Caltrans is a performance-driven, transparent, and accountable organization that values its people, resources and partners, and meets new challenges through leadership, innovation and teamwork.

GENERAL STATEMENT:

Under the general guidance of the Region Manager, position performs various electrical / electronic works such as design, construction, maintenance inspections, specification preparation and estimating for highway systems, such traffic management, traffic signals, lighting, toll bridges, vehicular tunnels and tubes, movable bridges, drainage pumping plants, safety roadside rest areas, maintenance stations, truck weigh and inspection stations, Toll Plaza. Works on associated electrical and electronic equipment and devices such as 2070 / 170 traffic controller, TOS, RM, CCTV, HAR, sub-stations, power distribution, aids to navigation, SCADA and other traffic management and facilities-related electrical and electronic systems. Position may require incumbent to work at considerable heights above the ground and water.

TYPICAL DUTIES:

Percentage Essential (E)/Marginal (M) ¹	Job Description
50% E	Manage various electrical service contracts of Specialty Region such as Bay Area Enhance Security, high voltage, weigh stations, inductive loops, lighting upgrades to LED, knockdowned poles, TOSNET and various service contracts for Vehicular Tunnels and Tubes. Determine and evaluate Service Contract needs for electrical / electronic system, equipment or device and initiate as needed. Managing involves all phases of the contract from making request to payroll to closing and make new request if necessary.
20% E	Assist field personnel in working with the more complex electrical / electronic system, equipment and devices such as 2070 controllers, "smart corridor system," TOS elements, SCADA system, Programmable Logic Controller, and other new equipment system use to enhance the operation of traffic signal system, lighting system, navigational aids, alternative power source, environment friendly devices and equipment. Prepare research proposals, investigate applications of new technology, conduct research, perform statistical analysis on research data and make recommendations on implementation, and monitor research projects.
20% E	Investigate problems in transportation electrical systems and recommend solutions Review electrical plans, inspect and review electrical installations during and after construction; evaluate and develop new electrical and electronic traffic control and lighting equipment; review and consolidate field reports; prepare contract documents, plans, specifications, estimates, correspondence and reports. Prepare cost estimates of electrical systems, material lists for electrical layouts and requisitions for the purchase of electrical materials and components. Inspect construction, maintenance and repairs. Test completed work for compliance with contract specification
10% E	Acts as liaison between Specialty Region and various Departments and other agencies dealing with complex electrical / electronics issues that needs an electrical engineer's expertise. Represents Specialty Region in Department and other agencies meetings that requires the position's expertise.

¹ESSENTIAL FUNCTIONS are the core duties of the position that cannot be reassigned.

MARGINAL FUNCTIONS are the minor tasks of the position that can be assigned to others.

SUPERVISION OR GUIDANCE EXERCISED OVER OTHERS

Position does not supervise any employee.

ADA Notice

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KNOWLEDGE, ABILITIES, AND ANALYTICAL REQUIREMENTS

• The Electrical Engineer's assignment within the Specialty Region should have an experience in the following areas and his expertise ranging from conceptual stage to actual installation down to repair of the equipment / system - Traffic Signals, TOS elements; Navigational Aids; LED lighting, SCADA. Position will manage various service contracts of Specialty Region.

Knowledge of: Computer theory and operation, including state-of-the-art technology, CADD, personal computers, stand-alone interactive systems and various technical aids; Mathematics related to electrical engineering; theory principles, standard practices, techniques and methods used in electrical, electronic and computer engineering; modern electrical apparatus, communications, instrumentation; direct and alternating current circuits; methods, materials, tools and equipment used in electrical, electronic or computer work; various code; basic occupational safety and health regulations governing the design and installation of electrical and electronic equipment, including the National Electric Code and Title 8 Industrial Relations, Electrical Safety Orders of the Division of Occupational Safety and Health.

Ability to: Do electrical or electronic design work; make neat and accurate drawings and technical sketches; use state-of-the-art technology, i.e., CADD, personal computers, stand-alone interactive systems and various technical aids; make electrical calculations; inspect electrical installations; specify necessary equipment and materials; accurately interpret drawings, circuit diagrams and specifications; read and understand highway plans, drawings and field data which relate to transportation and traffic management-related electrical and electronic systems and installations; establish and maintain friendly and cooperative relations with those contacted during the course of inspections and other work; analyze situations accurately and take effective action; communicate effectively; originate correspondence and prepare effective reports.

RESPONSIBILITY FOR DECISIONS AND CONSEQUENCES OF ERROR

Errors in planning, managing, engineering works, judgment and decision making could affect public safety or result in tort liability for the department. The work environment could also be rendered unsafe for employees involved in the project.

PUBLIC AND INTERNAL CONTACTS

Incumbent will routinely contact or interact with other state agencies, city, county and Caltrans personnel, contractors, engineering consultants and the general public. These contacts may take the form of verbal or written communications relating to state facilities.

PHYSICAL, MENTAL, AND EMOTIONAL REQUIREMENTS

Physical: Incumbent must be physically capable of utilizing writing instruments, hand tools and electric tools. Incumbent may be required to bend, stoop, twist, power grab, use fine manipulation, stand, sit, squat, lift and pull during performance of their duties. Incumbent must have good balance for walking on uneven surfaces, climbing ladders, climbing scaffolding and working on other structures associated with state facilities. Incumbent should have visual and color acuity adequate for performing the essential functions of the job. Incumbent must be comfortable working at extreme (200-500ft) heights on bridge structures over bodies of water and on towers supporting bridge structure.

Mental: Incumbent must be capable of understanding and performing the essential functions of the job in a reasonable and prudent manner, using logic and deductive skill to provide and end product that is safe and usable.

Emotional: Incumbent must have the capacity for stable and reasonable interaction with all department personnel, contractors, vendors and the general public during the performance of their duties.

WORK ENVIRONMENT

The Transportation Electrical Engineer may work under various climates and conditions. Work may be performed inside of climate controlled buildings, but most operations will take place alongside, over or upon state highways and bridges and right of way. The incumbent will be exposed to noise, inclement weather, dirt, odors, uneven surfaces, heights up to 550 feet above pavement or water, confined spaces, concrete products, cleaning solvents, high speed traffic conditions and moving construction equipment.

I have read, understand and can perform the duties listed above. (If you believe you may require reasonable accommodation, please discuss this with your hiring supervisor. If you are unsure whether you require reasonable accommodation, inform the hiring supervisor who will discuss your concerns with the Reasonable Accommodation Coordinator.)

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EMPLOYEE (Print)

EMPLOYEE (Signature)

DATE

I have discussed the duties with, and provided a copy of this duty statement to the employee named above.

SUPERVISOR (Print)

SUPERVISOR (Signature)

DATE
