

**POSITION DUTY STATEMENT**

DOT PM-0924 (REV 01/2025)

CLASSIFICATION TITLE Transportation Engineer (Elect)	OFFICE/BRANCH/SECTION Office of Traffic Operations/Traffic Design/Electrical Design	
WORKING TITLE Transportation Engineer (Electrical)	POSITION NUMBER 907-352-3609-016	REVISION DATE

As a valued member of the Caltrans team, you make it possible to improve lives and communities through transportation.

**GENERAL STATEMENT:**

Under general guidance and supervision of the Senior Transportation Electrical Engineer (Supervisor/Design Manager), the Transportation Engineer Electrical functions as a Project Engineer in the Office of Traffic Design. Incumbent periodically receives guidance from the Office Chief. Assists with coordination of project requirements and field review of project site/s to determine the proper action to complete the design and development tasks resulting to constructible project/s. Assists with assigning and reviewing the work of others to prepare Project Plans, Specifications and cost estimates (PS&E) and related bid documents; maintains responsible charge over all delegated tasks and processes to assure that high quality products are prepared and delivered in a timely manner. The incumbent may also assist and follow the directions of other lead person(s) on assigned projects.

**CORE COMPETENCIES:**

As a Transportation Engineer (Elect), the incumbent is expected to become proficient in the following competencies as described below in order to successfully perform the essential functions of the job, while adhering to and promoting the Department's Mission, Vision, Values, Strategic Imperatives and Goals. Effective development of the identified Core Competencies fosters the advancement of the following Leadership Competencies: Change Commitment, Risk Appetite, Self-Development/Growth, Conflict Management, Relationship Building, Organizational Awareness, Communication, Strategic Perspective, and Results Driven.

- **Flexibility and Managing Uncertainty** : Adjusts thinking and behavior in order to adapt to changes in the job and work environment. (Safety - Integrity)
- **Decision Making**: Makes critical and timely decisions. Takes charge. Supports appropriate risk. Makes challenging and appropriate decisions. (Safety - Integrity, Stewardship)
- **Reliability**: Ability to demonstrate dependability in meeting commitments, and providing a consistent work product. Takes responsibility for individual actions in order to meet deadline demands. (Employee Excellence - Stewardship)
- **Conflict Management**: Recognizes differences in opinions and encourages open discussion. Uses appropriate interpersonal styles. Finds agreement on issues as appropriate. Deals effectively with others in conflict situation. (Safety - Collaboration)
- **Fostering Diversity**: Capable of working with a diverse work group, including but not limited to differences in race, nationality, culture, age, gender, and differently able. Makes everyone feel valuable regardless of diversity in personality, culture, or background. Fosters a diverse culture to create best solutions. (Equity - People First)
- **Customer Focus**: Considers, prioritizes, and takes action on the needs of both internal and external customers. (Employee Excellence - Integrity, People First)
- **Communication**: Expresses oneself clearly in all forms of communication. Gives feedback and is receptive to feedback received. Knows that listening is essential. Keeps others in the Division and other functional units informed as appropriate. (Safety, Employee Excellence - Collaboration)
- **Analytical Skills**: Approaches problems using a logical, systematic, and sequential approach. Weighs priorities and recognizes underlying issues. (Employee Excellence - Stewardship)
- **Thoroughness**: Ensures that work and information is complete and accurate. Ensures that assignment goals, objectives, and completion dates are met. Documents and reports on work progress. (Employee Excellence - Integrity, Stewardship)

**TYPICAL DUTIES:**

Percentage                      Job Description  
Essential (E)/Marginal (M)<sup>1</sup>

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45%	E	Prepares (PS&E) packages; for minor and major projects consisting of design/traffic/project development while utilizing manuals and other guidelines; uses good engineering judgment and effective communication; using the required tools and techniques including desk top computers, micro stations and design software applications, models and simulations as well as field instruments to design, create, and develop new or modified Traffic Control Signals, Lighting, and Sign Illumination installations statewide; prepares staging plans for the Traffic Management System (TMS) elements, detection systems, Flashing Beacons, Extinguishable Message Sign (EMS), Traffic Monitoring Station/Vehicle Detection Station (VDS), Microwave Vehicle Detection System (MVDS), Automatic Vehicle Classification Station (AVC) , Ramp Metering System (RMS), and Weigh-In-Motion (WIM) systems. Prepares designs for the Americans with Disabilities Act (ADA) compliant facilities; and completes street and context sensitive design alternatives. Prepares related designs, installation details, contract plans, quantity calculations, cost estimates, specifications and provisions to deliver the contract bid PS&E packages necessary to advertise and award projects that implement the scope of above improvements.
25%	E	Prepares Project Initiation Documents (PID); Provides substantial engineering documents that contain a report of preliminary engineering, a detailed alternatives analysis, of cost, schedule, and scope information. Assists with or prepares project study reports, project reports, technical reports and specifications; drafts, reviews and analyzes various types of technical studies, reports and complex engineering data and documents.
10%	E	Assists the Supervisor/Design Manager with estimating project resource needs, setting project schedules, monitoring resource expenditures. Assists with performing task management and timely identifies project risks and mitigation measures.
10%	E	Reviews and checks plans, designs, and quantities; participates in field tests for acceptance of safety systems and equipment; performs walk-through inspections prior to facility hand-over to construction or maintenance forces; reviews survey data and other information covering pre and post-design conditions that recommend improvements to Electrical and safety systems; confers with the manufacturers' agents and contractors regarding acceptability of products or bid acceptance. Researches as-built files and conducts field investigations and measurements. Coordinates with other functional units to ascertain requirements of the project and makes appropriate recommendations on related traffic issues.
10%	M	Attends various staff meetings, project status and project development meetings within Caltrans and with other public agencies. Drafts memorandums, emails and reports and properly maintains hard copy and/or electronic project files.

<sup>1</sup>ESSENTIAL 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**

Incumbent has no direct administrative supervision of others. The incumbent in a Range D may act as a Lead Person. On occasion, the incumbent may be assigned to assist another Project Engineer on a portion of a specific project including Lead Person responsibilities.

**KNOWLEDGE, ABILITIES, AND ANALYTICAL REQUIREMENTS**

Incumbent should have an understanding of electrical and electronic theory. Understanding of the various codes, safety orders, standard regulations, the material and construction codes for the installation of highway lighting and traffic control equipment. Understand the operation of traffic signal controller assemblies and exercise sound judgment in making recommendations. An understanding of the scope of projects covering safety, operational and functional improvements; Determine adequate conductor size, calculation of Voltage Drop and Short Circuit Analysis; Understand the Electrical Fault Protection. Knowledge of or ability to learn various resources including the California Manual on Uniform Traffic Control Devices (MUTCD), National Electrical Codes (NEC), Project Development Procedures Manual, Highway Design Manual, American Association of State Highway and Transportation Officials ( AASHTO) and other guidelines is necessary. The incumbent will have extensive use of and the operation of Computer-Aided Design(CADD) workstation to complete plan drawings and must have the ability to write correspondence and prepare reports. Incumbent in a Range D must possess a valid certificate of registration as an Electrical Engineer issued by the California State Board for Professional Engineers and is in responsible charge of the assigned work. Knowledge and ability to occasionally work on Data Entry, Microsoft Word and Excel.

**RESPONSIBILITY FOR DECISIONS AND CONSEQUENCES OF ERROR**

This position is responsible for making independent action and taking initiative to carry out assigned duties. The incumbent's decisions and actions have a direct impact on the Traffic Operations Program and the Department. Inability to carry out this position's responsibilities could result in: adversely affecting public safety and/or result in tort liability for Caltrans; increased expenses resulting from lost Transportation System productivity; litigation that could delay and/or add substantial cost to essential projects or activities; inability to quantify performance in meeting the Department's strategic goals and safety and mobility commitments; loss of credibility and public confidence in Caltrans as a responsible public agency.

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**PUBLIC AND INTERNAL CONTACTS**

The incumbent assists the Supervisor/Design Manager with the preparation of correspondence and inquiries from the public. Coordination with other District Divisions and occasionally with headquarters is required on a regular basis. Preparation of project information for outside agencies, citizens groups, and the public is required. Contact may be made with people representing other districts, departments, outside agencies, consultants, and the public through formal/informal meetings, presentations, and written correspondence.

**PHYSICAL, MENTAL, AND EMOTIONAL REQUIREMENTS**

Physical requirements include the ability to travel to work sites away from the office, perform field work on uneven surfaces in rugged areas that are near freeways and highways. Will be required to wear field safety equipment to fieldwork, including eye protection (safety glasses), earplugs, safety vest, and hard-hat. The incumbent may be required to sit for long periods of time using a keyboard and video display terminal. The incumbent may be required to move large or cumbersome plans and diagrams from one location to another. Occasionally, may be required to work beyond normal work hours to complete assigned responsibilities and/or during emergencies. Mental requirements include ability to sustain mental activity necessary for report writing, problem solving, analysis, reasoning and judgment that relates to public safety, emergencies and traffic safety. Must have the ability to multi-task, adapt to changes in priorities, and complete tasks or projects on time. Must grasp the essence of new information and master new technical knowledge.

Emotional requirements include ability to resolve emotionally charged issues reasonably and courteously. Must be able to develop and maintain cooperative working relationships. Behaves in a fair and ethical manner toward self and others and demonstrates a sense of responsibility and commitment to public service.

**WORK ENVIRONMENT**

While at the base of operation, the incumbent will work in a climate-controlled office under artificial lighting. Incumbent may also be required to travel and work outdoors and may be exposed to dirt, noise, uneven surfaces, and/or extreme heat or cold. The incumbent may be required to work outside normal office working hours and may occasionally remain in field locations in rural areas without facilities.

This position may be eligible for telework. The amount of telework is at the discretion of the Department and based on Caltrans's evolving telework policy. Caltrans supports telework, recognizing that in-person attendance may be required based on operational needs. Employees are expected to be able to report to their worksites with minimum notification if an urgent need arises. The selected candidate will be required to commute to the headquartered location as needed to meet operational needs. Business travel may be required and reimbursement considers an employee's designated headquartered location, primary residence, and may be subject to CalHR regulations or applicable bargaining unit contract provisions. All commute expenses to the headquartered location will be the responsibility of the selected candidate.

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.)

I agree that by providing my electronic signature for this form, I agree to conduct business transactions by electronic means and that my electronic signature is the legal binding equivalent to my handwritten signature. I hereby agree that my electronic signature represents my execution or authentication of this form, and my intent to be bound by it.

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

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