

POSITION DUTY STATEMENT

PM-0924 (REV 01/2025)

CLASSIFICATION TITLE Transportation Engineer (Elect)	OFFICE/BRANCH/SECTION Electrical Design	
WORKING TITLE Transportation Engineer (Electrical)	POSITION NUMBER 2010-904-351-3609-XXX	EFFECTIVE DATE 07/01/2026

As a valued member of the Caltrans leadership team, you make it possible for the Department to provide a safe and reliable transportation network that serves all people and respects the environment.

GENERAL STATEMENT:

The Transportation Engineer (Electrical), under the supervision of a Senior Transportation Engineer, performs professional electrical engineering work in the Electrical Design Branch of Project Development. The incumbent is responsible for the design and delivery of highway lighting, traffic signals, and Transportation Management Systems (TMS) field elements including cameras, changeable message signs (CMS), detection systems, and communication infrastructure.

Duties include preparation of contract plans, specifications, and estimates (PS&E); providing design support during construction; coordinating with utilities, local agencies, and internal Caltrans functional units; and reviewing electrical plans and documents prepared by consultants, local agencies, and permittees to ensure compliance with Caltrans standards and requirements. All incumbents are expected to apply Caltrans Standard Specifications, Standard Plans, the Plans Preparation Manual, Electrical Systems Design Manual, Roadway Lighting Manual, California Manual on Uniform Traffic Control Devices (California MUTCD), and follow Caltrans policies, directives, and procedures in carrying out their assignments.

Incumbents at Range D (PE licensed) may serve in responsible charge, review and stamp plans, and provide technical guidance and mentoring to staff.

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.

- **Creativity and Innovation:** Thinks beyond the confines of traditional models to recognize opportunities, seek creative solutions and take intelligent risks. (Safety First, Enhance and Connect the Multimodal Transportation Network, Strengthen Stewardship and Drive Efficiency - Innovation, Integrity, Pride)
- **Decision Making:** Makes critical and timely decisions. Takes charge. Supports appropriate risk. Makes challenging and appropriate decisions. (Safety First, Strengthen Stewardship and Drive Efficiency - Integrity, Pride)
- **Initiative:** Ability to identify what needs to be done and doing it before being asked or required by the situation. Seeks out others involved in a situation to learn their perspectives. (Safety First, Cultivate Excellence, Enhance and Connect the Multimodal Transportation Network - Innovation, Integrity, Pride)
- **Problem-solving and Decision-making :** Identifies problems and uses logical analysis to find information, understand causes, and evaluate and select or recommend best possible courses of action. (Safety First, Cultivate Excellence, Enhance and Connect the Multimodal Transportation Network - Innovation, Integrity, Pride)
- **Teamwork and Collaboration:** Sets team structure. Organizes, leads, and facilitates team activities. Promotes team cooperation and encourages participation. Capable of cross functionality and working well with others on a team to achieve personal goals, team goals, and organizational goals. Takes responsibility for individual actions in order to achieve consistent results. (Cultivate Excellence, Strengthen Stewardship and Drive Efficiency - Engagement, Equity, Integrity)
- **Customer Focus:** Considers, prioritizes, and takes action on the needs of both internal and external customers. (Safety First, Cultivate Excellence, Strengthen Stewardship and Drive Efficiency - Engagement, Equity, Innovation)
- **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 First, Enhance and Connect the Multimodal Transportation Network, Strengthen Stewardship and Drive Efficiency - Engagement, Equity, Innovation)
- **Analytical Skills:** Approaches problems using a logical, systematic, and sequential approach. Weighs priorities and recognizes underlying issues. (Safety First, Cultivate Excellence, Enhance and Connect the Multimodal Transportation Network, Strengthen Stewardship and Drive Efficiency - Innovation, Integrity)
- **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. (Safety First - Engagement, Innovation, Integrity, Pride)

ADA Notice

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TYPICAL DUTIES:

Percentage		Job Description
Essential (E)/Marginal (M) ¹		
50%	E	Electrical Design: Prepare complete PS&E packages for electrical systems including traffic signals, highway lighting, and TMS field elements. Apply Caltrans Standard Specifications, Standard Plans, Plans Preparation Manual, Electrical Systems Design Manual, Roadway Lighting Manual, California Manual on Uniform Traffic Control Devices (California MUTCD), and Caltrans policies, directives, and practices. Perform field reviews, as-built research, and prepare design calculations. Develop conduit layouts, pull box locations, service points, and lighting analysis using design software. Review and check electrical plans, reports, and estimates prepared by consultants, local agencies, and permittees for compliance with Caltrans standards and policies.
30%	E	Project Support and Coordination: Provide design support during construction, review contractor submittals, and respond to Requests for Information (RFIs). Coordinate with utility companies for new service connections, relocations, and joint trench agreements. Review electrical designs prepared by consultants, permittees, and local agencies for compliance with Caltrans standards and policies. Participate in Project Development Team (PDT) meetings and Plans, Specifications, and Estimates (PS&E) review meetings.
10%	M	Interdisciplinary and Stakeholder Coordination: Integrate electrical systems with roadway, structures, and environmental design units. Assist in the development of specifications to ensure electrical elements are clear, biddable, and consistent with Caltrans standards. Prepare technical memorandums, design exceptions, and cost estimates. Interact with local agencies, contractors, and the public regarding electrical elements
10%	M	Other Duties: Attend training to maintain technical proficiency in design standards and software. Support emergency response as assigned. Perform miscellaneous office or field tasks as needed.

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
This position is non supervisory. However, the incumbent may be assigned as a lead worker within the branch, providing routine or clerical authority over others. May occasionally act as the senior transportation engineer.

KNOWLEDGE, ABILITIES, AND ANALYTICAL REQUIREMENTS
The incumbent must have the following knowledge, skills, and ability:

- 1) Knowledge of electrical theory and design principles for highway lighting, traffic signals, detection systems, and Transportation Management System (TMS) field elements.
- 2) Knowledge of materials, equipment, construction methods, and cost considerations for electrical systems.
- 3) Knowledge of traffic signal operations, lighting analysis, and Transportation Systems Management and Operations (TSMO) considerations that affect electrical design.
- 4) Knowledge of the Caltrans project development process and familiarity with manuals, standards, and codes including the Plans Preparation Manual (PPM), Electrical Systems Design Manual, Roadway Lighting Manual, California Manual on Uniform Traffic Control Devices (California MUTCD), Caltrans Standard Specifications, Caltrans Standard Plans, and the National Electrical Code (NEC).
- 5) Ability to prepare Plans, Specifications, and Estimates (PS&E) using computer-aided drafting (CAD) and lighting analysis software, and to produce accurate design details, computations, and reports.
- 6) Ability to analyze data, resolve design issues, and apply sound engineering judgment to complex problems.
- 7) Ability to conduct field reviews, perform as-built research, and integrate findings into electrical designs.
- 8) Ability to communicate clearly in oral and written form and to interact effectively with Caltrans staff, utility companies,

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consultants, contractors, and the public.

9) Ability to organize work, manage multiple projects, meet deadlines, and collaborate within a multidisciplinary team.

RESPONSIBILITY FOR DECISIONS AND CONSEQUENCES OF ERROR

The incumbent must exercise sound professional judgment in all aspects of electrical design. Decisions directly affect the safety, constructability, and maintainability of traffic signals, highway lighting, and Transportation Management System (TMS) field elements. Errors in design, estimates, or coordination could result in unsafe roadway conditions, construction delays, increased costs, or liability exposure to the Department. Poor decisions may also affect the Department's ability to deliver projects on schedule, meet program commitments, and maintain public confidence.

PUBLIC AND INTERNAL CONTACTS

The incumbent has regular contact with Caltrans staff in design, construction, traffic operations, environmental, right of way, and maintenance. Frequent coordination is required with utilities, consultants, contractors, local agencies, and other public agencies to resolve electrical design issues and ensure project delivery. Occasional contact with the public, elected officials, and stakeholder groups occurs to provide information, address concerns, or represent the Department at meetings.

PHYSICAL, MENTAL, AND EMOTIONAL REQUIREMENTS

The incumbent must be able to work at a computer for extended periods, prepare detailed plans and reports, and travel to project sites for field reviews. Field work may require walking on uneven terrain, standing for long periods, and exposure to traffic, noise, heat, or inclement weather.

The position requires sustained attention to detail, analysis of technical information, and the ability to apply engineering judgment to resolve issues. The incumbent must be able to manage multiple tasks, adapt to shifting priorities, and meet deadlines.

Emotional requirements include the ability to work effectively in a team environment, maintain professional relationships with diverse groups, communicate clearly under pressure, and exercise patience and diplomacy when addressing conflicts or public concerns.

WORK ENVIRONMENT

The incumbent will work in a climate-controlled office with artificial lighting, with extended use of a computer and telephone. The position also requires frequent travel to field locations, including active construction zones and highway rights-of-way, where the incumbent may be exposed to traffic, noise, dust, uneven terrain, and extreme weather conditions. Work may occasionally be required at night or on weekends to support construction activities, field reviews, or emergency response. Personal protective equipment such as safety vest, hard hat, safety glasses, and hearing protection must be used when performing field duties.

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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.)

EMPLOYEE (Print)

EMPLOYEE (Signature)	DATE
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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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