

POSITION DUTY STATEMENT

PM-0924 (REV 01/2022)

CLASSIFICATION TITLE Transportation Engineer (Elect)	OFFICE/BRANCH/SECTION Systems Development / ITS & Electrical Services Branch	
WORKING TITLE Electrical Plans and Specifications Engineer	POSITION NUMBER 913-350-3609-917	REVISION DATE 11/05/2024

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:

Under the direction of the Branch Chief of Systems Development, a Senior Transportation Electrical Engineer (Supervisor), the incumbent, a Transportation Engineer (Electrical), serves as the Electrical Plans and Specifications Engineer in the Intelligent Transportation Systems (ITS) and Electrical Engineering Services Branch .

The incumbent reviews, develops, approves, and standardizes specifications, plans, and Non-Standard Special Provisions (NSSP's) for Transportation Management System (TMS) elements, communication networks, and other electronic/electrical systems utilized in traffic signal operations, traffic surveillance and management, highway lighting, operation, and control of freeway electrical equipment.

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.

- **Managing Change:** Demonstrating support for organizational changes needed to improve the department's effectiveness; supporting, initiating, sponsoring and implementing change. (Safety First, Cultivate Excellence, Enhance and Connect the Multimodal Transportation Network, Strengthen Stewardship and Drive Efficiency, Lead Climate Action, Advance Equity and Livability in all Communities - Engagement, Equity, Innovation, Integrity, Pride)
- **Decision Making:** Makes critical and timely decisions. Takes charge. Supports appropriate risk. Makes challenging and appropriate decisions. (Safety First, Cultivate Excellence, Enhance and Connect the Multimodal Transportation Network, Strengthen Stewardship and Drive Efficiency, Lead Climate Action, Advance Equity and Livability in all Communities - Engagement, Equity, Innovation, Integrity, Pride)
- **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. (Safety First, Cultivate Excellence, Enhance and Connect the Multimodal Transportation Network, Strengthen Stewardship and Drive Efficiency, Lead Climate Action, Advance Equity and Livability in all Communities - Engagement, Equity, 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, Strengthen Stewardship and Drive Efficiency, Lead Climate Action, Advance Equity and Livability in all Communities - Engagement, Equity, 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. (Safety First, Cultivate Excellence, Enhance and Connect the Multimodal Transportation Network, Strengthen Stewardship and Drive Efficiency, Lead Climate Action, Advance Equity and Livability in all Communities - Engagement, Equity, Innovation, Integrity, Pride)
- **Organizational Awareness:** Contributes to the organization by understanding and aligning actions with the organization's strategic plan, including the mission, vision, goals, core functions, and values. (Safety First, Cultivate Excellence, Enhance and Connect the Multimodal Transportation Network, Strengthen Stewardship and Drive Efficiency, Lead Climate Action, Advance Equity and Livability in all Communities - Engagement, Equity, Innovation, Integrity, Pride)
- **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, Cultivate Excellence, Enhance and Connect the Multimodal Transportation Network, Strengthen Stewardship and Drive Efficiency, Lead Climate Action, Advance Equity and Livability in all Communities - Engagement, Equity, Innovation, Integrity, Pride)

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- **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, Lead Climate Action, Advance Equity and Livability in all Communities - Engagement, Equity, Innovation, Integrity, Pride)
- **Technical Expertise:** Depth of knowledge and skill in a technical area. (Safety First, Cultivate Excellence, Enhance and Connect the Multimodal Transportation Network, Strengthen Stewardship and Drive Efficiency, Lead Climate Action, Advance Equity and Livability in all Communities - Engagement, Equity, Innovation, Integrity, Pride)

TYPICAL DUTIES:

Percentage		Job Description
Essential (E)/Marginal (M) ¹		
35%	E	Reviews, develops, and maintains standard plans, special provisions, standard specifications, and Non-Standard Special Provisions (NSSP's) used by the districts and consultants to prepare plans, specifications, and estimates for TMS related construction projects. Ensures that contracts are clear, concise, correct, complete, and in compliance with Federal Highway Administration (FHWA) guideline oversight for NSSP's and modifications to standard plans and specifications. Works with the Office of Construction Standards (OCCS) and the Division of Construction to develop bi-annual Revised Standard Specifications (RSS) and Revised Standard Plans (RSP) submittals. Reviews, coordinates with, consults with, and contributes to work performed by district engineers, consultants, system integrators, and academia. Provides technical assistance and responds to inquiries from districts, manufacturers, other transportation agencies, and the public regarding Caltrans specifications, standards, and policies related to electrical systems.
30%	E	Develops, writes, and provides support to the districts in implementing technical manuals and guidelines such as the Caltrans Roadway Lighting Manual and the Electrical Systems Design Manual. Maintains these manuals and guidelines as living documents and makes updates to ensure clarity and to address Headquarters (HQ) and district content and concerns. As a technical writer and subject matter expert, prepares and delivers technical information specific to technical and non-technical audiences. Prepares and delivers technical training modules and presentations for technical manuals and guidelines such as the statewide Roadway Lighting Manual and the Electrical Systems Design Manual.
20%	E	Reviews new electrical products submitted through the Caltrans Product Evaluation Program (PEP). Serves as a committee member of the Electrical Product Evaluation Program Committee (EPEPS) and works with the districts and other HQ offices to determine if the submitted product meets existing standards or if there is a statewide need for the product. Provides support to Materials Engineering and Testing Services (METS) with managing their Authorized Material List (AML) for contractor furnished electrical materials. Provides objective, impartial, consistent, and timely evaluation of products for use in the construction, maintenance, and operation of the state's transportation system. This includes new products that may be added to the existing AML specified in Caltrans construction specifications.
10%	E	Develops fact sheets, presentations, and data analytics on electrical systems and mobility matters for districts, HQ, and executive management. Creates, reviews, updates, and maintains content on the ITS and Electrical Engineering Services Branch intranet website. Participates and contributes to committees such as the statewide Electrical Statewide Specification Committee (ESSC), the Sustainability and Innovation Committee, and the Traffic Electrical Systems Committee (Electrical Systems New Productions Evaluations). Assists with the preparation and facilitation of monthly meetings (including collaborating with other entities to set agenda items and prepare materials), prepares and presents technical information, and supports meeting related business before, during, and after each meeting. Prepares bill analysis, deputy directives, and responses to public requests, legislative inquiries, and internal requests on electrical systems issues. Develops, maintains, and updates a desk manual that helps train new employees, and serves as a reference tool for team members.
5%	M	Completes a variety of special projects and assignments as needed by the Division Chief, Deputy Division Chief, Office Chief, and Branch Chief. Performs other work commensurate with the Transportation Engineer (Electrical) classification.

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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
None. May act in a lead capacity on special projects.

KNOWLEDGE, ABILITIES, AND ANALYTICAL REQUIREMENTS

Requires knowledge of: Computer theory and operation, including state-of-the-art technology (i.e. 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 codes; 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.

Requires the 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.

Requires the ability to collaborate with multi-disciplinary, technical staff; communicate effectively (both orally and in writing) with multiple audiences; establish and maintain cooperative relationships with individuals and organizations contacted in the course of work; participate in public contact and represent Caltrans; serve in a consulting capacity to other divisions and districts; and respond appropriately to difficult situations.

Must be able to apply sound judgment in problem solving; work productively in a busy and often changing environment; perform multiple tasks simultaneously; maintain a project schedule; accurately and timely follow-up on issues; and effectively interact with many levels of people in a cooperative manner. Must be decisive, take appropriate actions, and complete tasks or projects with a short notice. Requires proficiency with Microsoft (MS) Office programs (including MS Word, MS Excel, MS PowerPoint, MS Outlook, MS Teams), Adobe Acrobat, Cisco WebEx, and using the Internet.

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.

PUBLIC AND INTERNAL CONTACTS

The incumbent must maintain the highest level of professionalism and integrity, exhibit tact and diplomacy, and effectively communicate with all internal/external contacts.

Internal contacts include various Caltrans districts and divisions (including Design, Construction, Maintenance, External Affairs, and Engineering Services). External contacts include the Legislature, Governor's Office, CHP, FHWA, construction industry representatives, local agencies, other states, national experts, academia, the private sector, and the general public.

The incumbent must communicate effectively orally and in writing, by telephone, via email, and by web conferencing. The incumbent is also required to facilitate, participate in, and host meetings.

PHYSICAL, MENTAL, AND EMOTIONAL REQUIREMENTS

The incumbent must: quickly adapt behavior and work methods in response to new information/priorities and unexpected obstacles; multi-task; effectively interact with many levels of people in a cooperative manner; be decisive; take appropriate

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actions; and complete tasks or projects with a short notice. Must be able to maintain focus and intensity, yet remain optimistic and persistent, even under adversity. The incumbent shall act in a fair and ethical manner toward others; value cultural diversity and other individual differences in the workforce; and demonstrate a sense of responsibility and commitment to public services. The incumbent must be able to develop new insights into situations and apply innovative solutions to make organizational improvements; grasp the essence of new information and master new technical and business knowledge, particularly in the area of outreach; and facilitate and maintain a work environment that encourages creative thinking and innovation.

Must have the ability to work with a computer and have manual dexterity. Required to sit for long periods of time using a computer, monitors, phone, and other office equipment. The incumbent must be able to occasionally lift up to 25 pounds without assistance. Bending, stooping, and pulling may be required within the normal course of performing some of the responsibilities associated with this position. May be required to speak in front of large groups.

WORK ENVIRONMENT

This position's headquartered location is Sacramento, CA. While at the base of operation, the incumbent works in a climate-controlled office under natural and artificial lighting. Due to periodic issues with heating and air conditioning, building temperatures may fluctuate. Multi-floor buildings are equipped with elevators and stairs.

The incumbent may be required to travel periodically to other office buildings (federal and state offices, district offices, local agencies, etc.) and indoor/outdoor field locations. While at field locations, the incumbent may be exposed to uneven surfaces, noise, and varying climate conditions. The incumbent may be required to travel within the state and may be required to travel out-of-state for business operations. Possession of a valid driver's license is required to operate a State owned, leased, and/or personal vehicle. The environment is fast-paced, demanding, and busy; and requires considerable flexibility in managing time, priorities and assignments. Vacations may be restricted during peak times.

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.

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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

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

SUPERVISOR (Print)

SUPERVISOR (Signature)

DATE