

POSITION DUTY STATEMENT

DOT PM-0924 (REV 01/2025)

CLASSIFICATION TITLE Transportation Engineer (Elect)	OFFICE/BRANCH/SECTION Maintenance Engineering /TMS Maintenance	
WORKING TITLE TMS Maintenance Engineer (TME)	POSITION NUMBER 903-600-3609-XXX	REVISION DATE 06/15/2026

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

GENERAL STATEMENT:

Under the direction of the Senior Transportation Electrical Engineer (Supervisor), the Transportation Engineer (Electrical) supports the reliable performance of the District's Transportation Management System (TMS). The incumbent conducts electrical engineering, analysis, and system monitoring to ensure continuous, high-quality operation of TMS field elements, including traffic management, electrical, electronic, and communication components within the State Highway System. The TME assists with diagnosing device and communication issues, applying engineering-level networking fundamentals to identify connectivity impacts while coordinating with IT as needed. The incumbent also supports asset management, project coordination, and performance evaluations, working with Maintenance, Construction, Design, IT, and Traffic Operations to ensure TMS elements meet operational needs and align with departmental standards.

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. (Employee Excellence - Innovation, Stewardship)
- **Decision Making**: Makes critical and timely decisions. Takes charge. Supports appropriate risk. Makes challenging and appropriate decisions. (Safety, Employee Excellence - 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. (Employee Excellence - Integrity, Pride, Stewardship)
- **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. (Prosperity, Employee Excellence - Innovation, Stewardship)
- **Teamwork/Partnership**: Develops, maintains, and strengthens partnerships with others inside or outside of the organization through effective communication and collaboration. (Employee Excellence - Collaboration, Innovation)
- **Customer Focus**: Considers, prioritizes, and takes action on the needs of both internal and external customers. (Safety, Equity - Equity, Pride, Stewardship)
- **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. (Employee Excellence - Collaboration)
- **Analytical Skills**: Approaches problems using a logical, systematic, and sequential approach. Weighs priorities and recognizes underlying issues. (Prosperity, Employee Excellence - Innovation)
- **Diagnostic Information Gathering**: Identify information needed to clarify a situation, seeking that information from appropriate sources. (Safety, Employee Excellence - Integrity)

TYPICAL DUTIES:

Percentage
Essential (E)/Marginal (M)¹ Job Description

ADA Notice

This document is available in alternative accessible formats. For more information, please contact the Forms Management Unit at (279) 234-2284, TTY 711, in writing at Forms Management Unit, 1120 N Street, MS-89, Sacramento, CA 95814, or by email at Forms.Management.Unit@dot.ca.gov.

POSITION DUTY STATEMENT

DOT PM-0924 (REV 01/2025)

50%	E	Provides maintenance and restoration support to sustain reliable and responsive TMS field elements by monitoring TMS unit up-time, reviewing system health reports, and identifying performance trends that affect reliability. Performs initial troubleshooting of electrical, electronic, and communication-related issues impacting TMS devices, and generates TMS TRAC tickets for defective or non-operational units while tracking repairs in IMMS. Applies engineering-level networking fundamentals—including IP addressing, subnetting, VLAN behavior, and switch connectivity—to assist in diagnosing communication issues affecting TMS field elements, coordinating with District IT and HQ IT. Conducts engineering evaluations of device outages, supports the development of standardized troubleshooting practices, and provides technical guidance to electricians, technicians, and contractors involved in restoring TMS elements. Participates in field reviews to verify proper operation of communication pathways such as fiber, wireless links, and cabinet-level networking hardware; ensures TMS elements integrate correctly into existing communication architectures; and documents configuration information relevant to engineering activities. Works with field staff to ensure District LOS goals for TMS maintenance activities are met and uses performance insights to recommend actions that address recurring or systemic performance challenges.
30%	E	Performs TMS asset inventory and life-cycle management activities by maintaining, validating, and updating TMS element data in IMMS and related databases, working with the District Signal Lighting Coordinator (SLC) to ensure new, replaced, and modified devices are accurately recorded. Develops and carries out maintenance and asset health management tasks for TMS elements, including Closed Circuit Television (CCTV) cameras, Changeable Message Signs (CMS), Traffic Monitoring and Vehicle Detection Stations (TMS/VDS), traffic signals, ramp metering (RM) systems, Highway Advisory Radio (HAR) systems, network infrastructure, and associated components. Identifies TMS units with recurring or chronic performance issues and provides recommendations to Traffic Operations for early life-cycle replacement. Coordinates directly with Field Maintenance to perform restoration efforts, functional tests, and field verifications on TMS elements, and completes required documentation following field activities. Performs replacement activities involving TMS field elements and their subcomponents, ensuring proper configuration and integration into existing systems. Works collaboratively with Maintenance, Traffic Operations, and external partners to support project development efforts aimed at improving TMS health, uptime, and overall performance, and carries out tasks associated with maintenance service contracts for TMS elements.
10%	E	Meets with Electrical Maintenance, Construction, Design and Traffic Operations and assists with the development and successful implementation of TMS projects. Meets with District Maintenance, and other Traffic Operations personnel to discuss TMS policy, planning, technical, and administrative details which may affect Maintenance operations. Coordinates with Maintenance and Traffic Operations personnel to ensure level of service and system performance expectations are met.
10%	M	Provides engineering, maintenance and technical support for electrical/electronic systems, and other TMS related activities; coordinate, monitor and assist with the development of various projects. Conducts field surveys to ensure that electrical/electronic, communications systems projects are fully completed, operational and in accordance with the Department's policies, guidelines and/or specifications. Works with HQ and District personnel in establishing best practices for analysis, management and standardization of TMS and highway electrical systems.

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

May act as lead to provide technical direction for technicians, electrical engineers and student assistants as the need arises. May act as the Branch Chief when required.

KNOWLEDGE, ABILITIES, AND ANALYTICAL REQUIREMENTS

The employee must have current knowledge of: Caltrans' and Traffic Operations' mission, vision, goals and strategic management plan. Traffic engineering, traffic management, and traffic operations. Electrical and electronic theory as applied to traffic control systems, components, circuits and troubleshooting. Knowledge and experience with state contracting administration and procedures for contracts such as professional services, construction and agreements such as maintenance agreements. Methods, tools, and equipment used in electrical and electronic construction work Project development, specifications and general knowledge of design, construction and maintenance techniques. Office applications, word processing, spreadsheets, presentations, take minutes at meetings and prepare meeting calendars. The incumbent must possess the following General Competency Skills: Analytical Thinking: Approach a problem by using a logical, systematic, sequential approach. Communication: Listen to others and communicate in an effective manner. Customer Focus: Identify and respond to current and future client needs, and provide excellent service to internal and external clients. Ethics and Personal Credibility: Uphold ethics

ADA Notice

This document is available in alternative accessible formats. For more information, please contact the Forms Management Unit at (279) 234-2284, TTY 711, in writing at Forms Management Unit, 1120 N Street, MS-89, Sacramento, CA 95814, or by email at Forms.Management.Unit@dot.ca.gov.

POSITION DUTY STATEMENT

DOT PM-0924 (REV 01/2025)

and personal integrity, and demonstrate trustworthiness, reliability and responsibility. Relationship Building: Maintain, and strengthen relationships with others inside or outside the organization who can provide information, assistance, and support. Teamwork: Work effectively with other team members to achieve common goals, and complete assignments in a group setting.

RESPONSIBILITY FOR DECISIONS AND CONSEQUENCES OF ERROR

The incumbent is responsible for the reliability and accuracy of all actions, decisions, and recommendations in his/her capacity. Effective communication, proper use of equipment, correct methods analysis, and timely meeting of all deadlines are the responsibility of the incumbent. Errors may lead to the delay in schedules which may adversely affect the outcome of project delivery and increase in cost of solutions to critical problems as well as adversely affect the payback for expended efforts of team members and the loss of opportunities to make California roadways safe and efficient. Lack of sensible decisions could lead to use of defective equipment, contract and project completion delays, lawsuits for damages, late or unauthorized payments, costly complaints, and failure to secure funding for purchased products.

PUBLIC AND INTERNAL CONTACTS

Frequent contact with District units and HQ personnel will be required. Periodic contact with consultants and other public agencies.

PHYSICAL, MENTAL, AND EMOTIONAL REQUIREMENTS

The incumbent is required to sit for long periods of time using a keyboard and video display terminal, and maintain long periods of concentration during analysis. Must have a strong desire and willingness to deliver, and possess knowledge and ability to operate modern office equipment including computers and software programs such as MS Office. Must possess the ability to sit, stand, walk, kneel, and lift 25 lbs. The incumbent must be able to interact cooperatively with many people, deal effectively with pressure; multi-task; adapt to changing priorities; maintain focus and intensity; remain optimistic and persistent even under adversity. Must be receptive to change and new information; adapt behavior and work methods in response to new information; changing conditions or unexpected obstacles; adjust rapidly to new situations warranting attention and resolution. Must be prepared to meet deadlines and complete assignments on time and occasionally under pressure. Must be available for occasional travel to various locations throughout California and perform fieldwork, observations, measurements, and studies. The incumbent must be able to maintain a professional work ethic while communicating and coordinating with others under all conditions. Must behave in a fair and ethical manner toward others, demonstrate a sense of responsibility and commitment to public service, and value cultural diversity and individual differences in the workforce. The incumbent needs to be comfortable fielding large numbers of inquiries for information and to respond immediately with assistance in solving problems. The employee needs to be able to work with others on projects and deliver results by deadlines. The incumbent needs to work effectively under pressure of imminent due dates and persistent tasks.

WORK ENVIRONMENT

Normally, the incumbent will work in a climate-controlled office under artificial lighting. On occasion, the incumbent may be required to visit the District offices and Headquarters. The incumbent shall possess a valid State of California Driver's License. The incumbent will be required to drive either a personal or state vehicle to some locations. The incumbent may also be required to use public transit (bus or train) or fly to Caltrans sanctioned meetings or training. Occasionally, the incumbent may be required to work outdoors to do field reviews, investigations, and monitor traffic problems, and may be exposed to dirt, noise, uneven surfaces, and/or extreme heat or cold. While in the field, the incumbent must follow safety training and regulations, be constantly alert and responsible for personal safety when working alongside the roadway.

POSITION DUTY STATEMENT

DOT PM-0924 (REV 01/2025)

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

ADA Notice

This document is available in alternative accessible formats. For more information, please contact the Forms Management Unit at (279) 234-2284, TTY 711, in writing at Forms Management Unit, 1120 N Street, MS-89, Sacramento, CA 95814, or by email at Forms.Management.Unit@dot.ca.gov.