

POSITION DUTY STATEMENT

DOT PM-0924 (REV 01/2025)

CLASSIFICATION TITLE Transportation Engineer (Elect)	OFFICE/BRANCH/SECTION Maintenance / Maintenance TMS	
WORKING TITLE Maintenance TMS Engineer	POSITION NUMBER 912-601-3609-918	REVISION DATE 08/10/2026

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

GENERAL STATEMENT:

Under the general supervision of a Senior Transportation Electrical Engineer, the incumbent will perform the transportation field and office electrical, electronic and related maintenance engineering work relating to Transportation Management Systems (TMS) elements, Traffic Signals, sign and lighting systems, communication systems, and other electrical systems. Incumbent will prepare and review reports, plans, and specifications, and estimates (PS&E) for the installation, repair and maintenance of aforementioned electrical systems. Incumbent will coordinate with the Electrical Maintenance, Traffic Operations (TO) and Construction for operational status of all field elements reporting to and from the Transportation Management Center (TMC) and other systems. Incumbent will act as maintenance engineering support in all aspects of TMS field elements.

Appointment to Range D requires a valid Professional Engineering License (Electrical) issued by the California Board of Registration for Professional Engineers.

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, Employee Excellence - Integrity)
- Decision Making**: Makes critical and timely decisions. Takes charge. Supports appropriate risk. Makes challenging and appropriate decisions. (Safety, Employee Excellence - Equity, Innovation, Stewardship)
- Continuous Professional Development**: Seeks to obtain knowledge and improve performance while supporting others in doing the same. (Employee Excellence - Integrity)
- 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, Employee Excellence - Integrity, Stewardship)
- Teamwork/Partnership**: Develops, maintains, and strengthens partnerships with others inside or outside of the organization through effective communication and collaboration. (Safety, Employee Excellence - Integrity, Stewardship)
- 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. (Employee Excellence - Integrity)
- 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 - Innovation)
- Planning and Results Oriented**: Organizes and executes work to meet organizational goals and objectives while meeting quality standards, following organizational processes, and demonstrating continuous commitment. (Safety - Integrity)
- Commitment/Results Oriented**: Dedicated to public service and strives for excellence and customer satisfaction. Ensures results in their organization. (Safety, Employee Excellence - Integrity)

TYPICAL DUTIES:

Percentage Essential (E)/Marginal (M) ¹	Job Description
30% E	Design Engineering: Prepare reports, PS&E for a wide variety of transportation facilities; perform the necessary field work, calculate quantities, prepare estimates, and design Traffic Signals, TMS elements, sign and lighting systems, communication systems, and other electrical and electronic systems for Minor B projects. Incumbent will use computer-aided drafting in the performance of their duties.

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20%	E	TMS Engineering: Maintain the full operational status of all TMS elements reporting to the TMC and other systems. Duties can include field visits, adjustment of traffic management systems and communication settings. Develop a working knowledge of all deployed TMS field elements to determine cause of failure, initiate repairs and/or projects for corrective action. Coordinate with Electrical Maintenance and contractors to maintain and repair commissioned TMS elements. Coordinate with the District's Traffic Electrical, Electrical Design and Electrical Construction units on all TMS elements during all phases of project development.
20%	E	HM4-TMS Coordinator: When assigned, the duties will include developing and coordinating workplans for HM4-TMS projects. The goal of the HM4-TMS program is to address TMS elements at the end of their life cycle. Coordinator will collaborate with District Maintenance and Traffic Operation units, HQ Maintenance and TO, district Asset Management, district and HQ Budgets units for the delivery of HM4-TMS projects. Duties include but not limited to: ensuring all AMT work bands are updated during all PS&E phases, coordinate entries and updates of element status in TRAC, in the HQ TO TMS database, in the Asset Management Tool (AMT) Performance Measures and IMMS. Ensure projects are: established in Project Control, projects are assigned for PS&E delivery, milestones are met during the PS&E process to Award. Be able to resolve any risks, issues, concerns, and provide updates to HQ Maintenance and TO inquires for HM4-TMS projects.
10%	E	Support construction staff for Maintenance designed projects. Support the TMS asset management strategy, develop and update TMS and electrical asset inventory, identify field assets near or at the end of life-cycle for replacement. Utilize various corporate tools like IMMS, TRAC, RMIS, PeMS, AMT and other applications. Serves as manager of select service contracts. Record tasks performed in designated databases and workplans.
5%	E	Review reports, district PS&E to ensure conformance to established practices and standards. Incumbent to provide recommendations during all phases of project development.
5%	E	Software: Develop a working knowledge of all ITS software for state furnished controllers and proprietary controllers. Consult with Traffic Operations engineers when new applications or software updates are deployed in field units.
5%	E	Hardware Implementation: Develop a working knowledge of electrical and electronic equipment used in the plans and specifications for systems such as, but not limited to, Ramp Metering Systems (RMS), Closed Circuit TV (CCTV), Changeable Message Signs (CMS's), Highway Advisory Radios (HAR's), weather stations (RWIS), fiber optics (F/O), security systems, computer and communication networks.
5%	M	Sit on various local and Statewide committees and take an active role to further advance the department's TMS goals. Perform general office duties.

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
Incumbent does not supervise. However, if called upon, the incumbent must assist with providing training for new staff including student interns and volunteers. May occasionally act as lead engineer or act in the absence of the Branch Chief.

KNOWLEDGE, ABILITIES, AND ANALYTICAL REQUIREMENTS
The incumbent must:

- Possess knowledge and understanding of the fundamentals of traffic engineering.
- Possess thorough knowledge of the applications and use of the Highway Capacity Manual, Highway Design Manual, CA MUTCD (Manual of Uniform Traffic Control Devices), Traffic Safety Systems Guidance, Transportation Management Plan Guidelines, California Manual for Setting Speed limits, Highway Safety Improvement Program Guidelines, Transportation System Improvement Program Guidelines, and the Institute of Transportation Engineers publications.
- Able to analyze the effectiveness of traffic control plans and traffic control systems; evaluates traffic volumes and travel trends; determines appropriate windows for construction, maintenance, and permit work.
- Able to perform accurate engineering calculations; uses logical analysis and exercises good judgment when recommending appropriate action.
- Able to work under pressure, maintain focus and intensity; remain positive and persistent even under adverse conditions.

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- Able to proficiently communicate information and concepts in English both orally and in writing.
 - Able to work in the office and remotely proficiently with personal computers and network information systems, Microsoft Office, computer-aided drafting (i.e., AutoCAD, Microstation), and various traffic engineering (i.e., Synchro, VISSIM, Paramics, SIDRA, etc.) software applications.
 - Able to analyze field data, draw conclusions, implement traffic safety improvements and prepare written reports.
 - Possession of a valid California Driver's License is required when operating State-owned and leased vehicles. If operating a vehicle, must do so in a safe, responsible, and respectful manner, and on a variety of road types and surfaces including rough, steep, narrow, rocky, sandy remote roads, and under a variety of weather.
 - Able to develop and maintain a tracking database of tasks.
 - Able to perform accurate mathematical calculations and check the accuracy of own work and others'.
 - Able to read, write, edit, develop, review, comprehend and interpret standard plans and specifications, special provisions, contract change orders, and encroachment permits.
 - Follows Caltrans Code Of Safe Practices and maintains alertness to the changes in the work environment either day or night.
 - Able to travel for training and meetings including transportation partners, elected officials, public meetings, stakeholders, Regional Transportation Planning Agencies and County Transportation Commissions.
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RESPONSIBILITY FOR DECISIONS AND CONSEQUENCES OF ERROR

- Responsible to obtain, plot, chart, analyze and evaluate traffic data accurately.
- Provides reports on recommendations for improvements and investigations that can affect traffic operations, safety, project delivery, department programs, objectives, and policies.
- Works independently, organizes, prioritizes and exercises initiative in carrying out assigned duties in a timely manner.
- Makes decisions regarding traffic control modification to reduce congestion and to enhance safety elements of the transportation system.

Errors in analysis or judgment could impact traffic operations or compromising the public safety, result in litigation and/or a poor public perception of the Department, its management, and employees.

PUBLIC AND INTERNAL CONTACTS

- Incumbent must maintain an effective, cooperative, and professional working relationship with Department staff, partners, local agencies, consultant staff, and the public at large.
 - Incumbent may have contact with Public Information Office, California Highway Patrol (and local police enforcement agencies), District Director and Deputy Directors, and Department Headquarters personnel regarding road conditions and project development.
 - Incumbent is expected to represent Traffic Operations in various meetings with other agencies and the public outside of normal office hours as needed.
 - Acts as liaison between Caltrans and external parties to ensure that requests are addressed within reasonable time.
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PHYSICAL, MENTAL, AND EMOTIONAL REQUIREMENTS

Incumbent is required to:

- Work at a workstation or desk within a shared office space.
 - Sit for long periods of time in a vehicle to observe/monitor traffic patterns while using a computer.
 - Work effectively under pressure; maintain focus and intensity; remain positive and persistent even under adverse conditions.
 - Able to work full time between the hours of 6:30 a.m. and 5:30 p.m. from Monday through Friday.
 - Willing to modify work schedule at the beginning or end times to meet workload needs.
 - Travel off-site, away from office, to conduct field investigations, take measurements, and conduct traffic counts.
 - Travel (which may involve travel and overnight lodging) to Caltrans' Headquarters and other Districts to participate in meetings and trainings.
 - Able to transport, lift, and carry a laptop computer, projector, equipment and electronic devices, easels and other display items that can weigh up to 30 pounds. Responsible for setting up this equipment and participating in various public meetings during the day and evening, outside of normal working hours as needed.
 - Discuss adverse opinions with supervisor before responding to ensure satisfactory customer service and to provide consisting opinions of the Department.
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WORK ENVIRONMENT

Incumbent will work in a climate-controlled office under artificial light at their base of operations and in various field office locations (maintenance stations and construction field offices). However, due to periodic problems with the heating and air conditioning, the building temperature may fluctuate.

The incumbent will be exposed to various work environments including outdoor traffic, sun, wind, rain, dirt, noise, uneven surfaces and extreme hot or cold during field work. Field work will take place at various times of the day or night and will require work under a variety of lighting and environmental conditions.

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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.)

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
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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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