

POSITION DUTY STATEMENT

PM-0924 (REV 01/2022)

CLASSIFICATION TITLE Senior Transportation Electrical Engineer, Supervisor	OFFICE/BRANCH/SECTION System Operations/Electrical Systems and TMS	
WORKING TITLE STEE	POSITION NUMBER 2070-904-351-3164-006	REVISION DATE 01/02/2025

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 a Supervising Transportation Engineer (Electrical), the STEE manages staff responsible for the planning, development, high-level design and daily operations of traffic control devices, traffic signals, electrical systems, control systems, lighting, bridge, tunnel and tube electrical systems, power distribution systems, weigh in motion (WIM), Transportation Management Center (TMC), Transportation Management System (TMS) field elements, transportation software and technologies, and Smart Corridors. The STEE coordinates operations and project delivery activities, analyzes complex electrical and traffic situations, provides responses to internal and external inquiries, resolves technical issues and oversees project resources and schedules.

Must possess a valid certificate of registration as an electrical engineer issued by the California Board of Registration for Professional Engineers. Supervises a team of Transportation Engineers(electrical) and other staff as needed.

CORE COMPETENCIES:

As a Senior Transportation Electrical Engineer, Supervisor, 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. (Strengthen Stewardship and Drive Efficiency - Engagement, Pride)
- **Decision Making:** Makes critical and timely decisions. Takes charge. Supports appropriate risk. Makes challenging and appropriate decisions. (Cultivate Excellence - Integrity)
- **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. (Strengthen Stewardship and Drive Efficiency - 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. (Cultivate Excellence - Integrity)
- **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 - Integrity)
- **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. (Enhance and Connect the Multimodal Transportation Network - Equity)
- **Influencing Others:** The ability to gain the support of others for ideas, proposals, projects and solutions. (Cultivate Excellence - Engagement)
- **Forward Thinking:** Anticipates the implications and consequences of situations and takes appropriate actions to be prepared for possible contingencies. Anticipates and prepares for future developments. (Strengthen Stewardship and Drive Efficiency - Innovation)
- **Managing Performance:** Responsible for employee performance, setting clear goals and expectations, tracking progress against departmental and unit goals, providing feedback, and addressing performance issues promptly. (Cultivate Excellence - Integrity)

TYPICAL DUTIES:

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

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40%	E	<p>Supervises staff performing the following duties:</p> <ul style="list-style-type: none"> - Planning, development, implementation/commissioning, construction support, asset management, and maintenance of TMS elements, electrical systems, and related traffic control systems. - Operates and configures TMS elements. Ensures TMS elements are functional and provide timely and accurate traffic data. Performs condition assessments of TMS elements and recommends improvements. - Operates and configures traffic signals and associated central systems. Ensures traffic signals are timed and configured for efficiency and safely and coordinated with cities and regional agencies. Implements corridor algorithms and advanced operational strategies. - Monitors corridor and traffic signal performance and compliance with applicable policies and manuals. - Collects of traffic data through field monitoring and retrieval from external sources. - Analyzes current performance of the state highway system using a variety of information sources and analytical tools, including but not limited to the Performance Measurement System (PeMS), Traffic Operations Analysis Report (TOAR), Traffic Impact Study reports, district system planning documents, MPO's Travel Demand Models, comprehensive microsimulation-based corridor studies, weigh-in-motion count data and other data. - Assists with development of Project Study Reports (PSR), Project Reports (PR), Project Plans and Specifications, systems design, traffic studies and reports, operational agreements, and memorandum of understandings. - Reviews of plans and specifications of permits and projects with impacts to TMS and traffic signal operations. - Assists with planning and development of projects and activities to improve TMS health and performance. - Provides training and expertise to maintenance staff. - Reviews maintenance service contract activities. - Timely and accurate updates to systems documentation and manuals, and As-Builts, inventories, and system diagrams. - Investigate inquiries and customer service requests (CSR) about TMS operations.
20%	E	<p>Works with internal and external customers to plan, design, and implement TMS/ITS, TMC, and a variety electrical and power systems following system engineering and Department practices and guidelines. Reviews work products and provides technical guidance to staff. Addresses complex situations, monitors risks, and develops context sensitive solutions. Ensures TMS assets remain in good conditions and develops strategies to address performance gaps. Coordinates with Department functional units and external stakeholders to ensure work is completed on-time, safely and within established budget.</p> <p>Partners with cities and regional agencies on traffic operations issues. Implements Transportation Systems Management and Operations (TSMO) practices and promotes unified real-time regional traffic operations within area of responsibility. Performs and supports systems engineering and system management.</p> <p>Assists HQ and other divisions with the planning and development of TMS, traffic management, asset management, and traffic data inventories. Attends Statewide functional managers and traffic operations resource meetings. Provides technical direction, guidance, and leadership in reviewing new policies, Deputy Directives, TOPDs, Standard Plans, and Specifications.</p>
10%	E	<p>As required, interacts with staff of other public agencies, elected officials, law enforcement agencies, private citizens, consultants, contractors, etc, regarding TMS and traffic operations related issues. With support of public information officers, represents the Department and the District at meetings and public hearings on TMS. Helps with presentations, and provides consultant services related to TMS to local, regional and federal agencies, as well as community groups.</p>
10%	E	<p>Participates in planning and delivering the District's Capital Outlay Support Program, including close review of planned highway improvement projects from the design stage through construction acceptance to ensure preservation of existing and implementation of new TMS elements, traffic control devices, safety systems, Broadband, and other TSMO strategies.</p>

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10%	E	Manages the workload and develops a staffing plan which identifies work priorities. Schedules and monitors progress of work and assures timely delivery of the office's products and services, in coordination with Headquarters' and District management, and external stakeholders. Verifies proper time-sheet charging practices are consistent with workload standards. Verifies staff activities are captured in Statewide tracking systems and staff workload is balanced meeting Department needs. Develops, monitors, and reports appropriate information relating to workload standards, performance measures, delivery of products and services, and expenditure of personal services and operating budgets, on a monthly basis, in coordination with the Division's administrative units. Reviews staff performance and products. Develops and executes individual development and training plans for all employees. Participates in recognizing excellent service and superior accomplishments. Closely monitors leave balances and time sheet submittal and ensures compliance with Department guidelines and procedures.
5%	M	Participates in, and keeps abreast of, research, development, deployment, testing, and operation of emerging TSMO standards and ITS technologies, national ITS standards, Connected and Autonomous Vehicles (CAV), electronics/electrical engineering, communication, and software engineering activities within the transportation engineering industry.
5%	M	Performs other duties, including but not limited to work on various technical or non-technical committees and task forces, cooperative effort with partnering agencies, and emergency response or disaster management. Supports the emergency operations center (EOC) as required. Serve as acting Office Chief or duty officer when designated.

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

The incumbent supervises Transportation Electrical Engineers and other engineering staff, as needed.

KNOWLEDGE, ABILITIES, AND ANALYTICAL REQUIREMENTS

The incumbent must have the following knowledge, skills, and abilities:

- 1) Knowledge of the basic principles of physics, chemistry and mathematics as applied to electrical engineering, analog and digital electronics, electrical power, control systems, Internet Technology (IT) communications, telecommunication systems, wireless communication, traffic-simulation software, and computer processing systems; methods and equipment of electrical fault diagnosis and troubleshooting; engineering construction and economics.
- 2) Knowledge of general traffic analysis, traffic signal operations, TMS hardware and software, transportation systems management and operations (TSMO), and general traffic handling, stage construction and maintenance activities.
- 3) Ability to effectively interact with people in many diverse functions within the Department.
- 4) Ability to address an audience effectively, analyze situations accurately and adopt an effective course of action, and communicate effectively orally and in writing.
- 5) Knowledge of TMC operations, traffic management and traffic handling methods for maintenance, emergency, and construction activities.
- 6) Comprehensive analytical capabilities to provide solutions to complicated electrical and transportation engineering problems.
- 7) Ability to prepare complex plans, specifications and estimates using computer-aided-drafting (CAD), write correspondence and prepare reports, analyze data and situations using software applications and tools and take effective action to accomplish the assigned tasks and resolve issues.
- 8) Ability to do simple mapping and drafting and make neat and accurate computations, engineering notes, and reports.
- 9) Awareness of Caltrans project development process and be familiar with the various State and National manuals, codes, laws, regulations, warrants, standards, etc. relating to traffic engineering and have the ability and judgment to apply the knowledge and decide in a timely manner.

RESPONSIBILITY FOR DECISIONS AND CONSEQUENCES OF ERROR

The STEE is responsible for the decisions that affect the development and operations of traffic management systems, lighting, traffic signals and a variety of electrical systems, which directly impact traveling public on the State Highway System. Engineering evaluations and judgments may affect Department programs, projects, and credibility. Errors in judgments could result in adverse impacts to highway traffic performance and safety including increased delay, congestion, and potential for tort liability.

PUBLIC AND INTERNAL CONTACTS

firms, and the public. This position involves contact with outside agencies and members of the public.

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PHYSICAL, MENTAL, AND EMOTIONAL REQUIREMENTS

Physical requirements include the ability to work on a keyboard, exhibit manual dexterity, sit for long period of time, frequent travel to work sites away from the office to perform field work on uneven surfaces in rugged areas that are near freeways and highways. Will be required to wear protective equipment to perform field work, including eye protection (safety glasses), earplugs, safety vest, and hard hat.

Mental requirements include ability to sustain mental activity necessary for report writing, problem solving, analysis and reasoning when it comes to 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. Ability to sit for prolonged periods of time and may be required to work beyond normal work hours during emergencies. Must grasp the essence of new information and master new technical and business knowledge.

Emotional requirements include ability to: develop new insights into situations and apply innovative solutions to make organizational improvement, create and sustain an organizational culture which encourages others to provide the quality of service essential to high performance, resolve emotionally charged issues reasonably and diplomatically, develop and maintain cooperative working relationships, behave in a fair and ethical manner toward others and demonstrates a sense of responsibility and commitment to public services, value cultural diversity and other individual differences in the workforce and ensure that the organization builds on these differences and that employees are treated in a fair and equitable manner.

WORK ENVIRONMENT

The incumbent will work in a climate-controlled office under artificial lighting. The building temperature may fluctuate. The incumbent will be required to frequently travel, work outdoors, and be exposed to traffic, noise, uneven surfaces, and/or extreme heat and cold. Working at night and weekends may be required.

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

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