

**CALIFORNIA DEPARTMENT OF TRANSPORTATION
DUTY STATEMENT
PARF 51-5-023**

CLASSIFICATION TITLE Transportation Engineer Electrical (TEE)	DISTRICT/DIVISION/OFFICE HQ/Traffic Operations/Office of Technology	
WORKING TITLE ITS Field System Engineer	POSITION NUMBER 913-350-3609-xxx	EFFECTIVE tbd

As a valued member of the Caltrans team, you make it possible for the Department to improve the mobility across California by being innovative and flexible; reporting to work as scheduled; working cooperatively with team members and others; and treating others fairly, honestly and with respect. Your efforts are important to each member of the team, as well as those we serve.

GENERAL STATEMENT: Under general supervision of the Chief, Field Systems Branch in the Office of Technology (Senior Transportation Electrical Engineer), the ITS Field System Engineer, under direction of a Senior Transportation Electrical Engineer Transportation Engineer, provides technical support for Intelligent Transportation System (ITS) projects and contract management.

TYPICAL DUTIES:

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

25% (E)	Provides technical support for the Universal Ramp Metering Software (URMS), Universal Ramp Metering Remote Configuration Software (URMS-RC) and the Model 2070 Controller to the Caltrans Districts. Supports software development, installation, configuration and troubleshooting procedures. Develops new and updates existing URMS documentation. Tests new versions of URMS software using standardized test procedures. Develops, designs and builds ramp metering test equipment. Analyzes and documents communication protocols for devices that connect to the URMS. Develops, executes and manages contracts that support URMS deployments and adds functionality to the District ramp metering systems. Attends URMS Change Control Board (CCB) meetings.
25% (E)	Develops Master Purchase Agreements for state furnished materials (SFM) for electrical and electronic traffic control equipment. Maintains equipment purchases and inventory levels consistent with forecasted project delivery timelines and the demands of the Transportation Laboratory, the Division of Maintenance, and the Districts. Verifies and authorizes invoice payment of received equipment. Monitors vendor

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	performance, and review warehouse inventory reports. Contact Districts to assess SFM forecasted needs for construction projects.
20% (E)	Provides technical and contract support for the Advance Variable Message Sign (AVMS) deployment. Verifies that contractors have provided products that are compliant to the Caltrans contract specifications and scope of work. Develops AVMS sign documentation. Develops, tests and installs AVMS Sign System software. Develops, executes and manages contracts in support of the development of the AVMS. Attends AVMS Change Control Board (CCB) meetings.
20% (E)	Maintains strong communication with internal stakeholders. Coordinates with district contacts to assess and plan State Furnished Material forecasted needs. Understand and work within the costs, benefits, risks, and implications of services performed by and the needs-of other Divisions: Material Operations (Warehouse), and the District Traffic Operations and Maintenance divisions. Identifies possible problems and approaches using logical and systematic methods. Clarifies contract terms to districts and manufacturers; responds to technical inquiries.
5% (M)	Creates and Modifies AVMS Specification Drawings using Bentley Microstation Software.
5% (E)	Prepares and delivers correspondence, reports, and presentations.

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 EXERCISED OVER OTHERS

None. This incumbent may provide direction to a student assistant.

KNOWLEDGE, ABILITIES AND ANALYTICAL REQUIREMENTS

The employee must have current knowledge of:

- The Department’s mission & vision, goals and values; organizational structure; Director’s Policies and Deputy Directives; Division principles; and Office/Branch functions, procedures and processes.
- The various regulations and codes, plans, specifications, standards, and field practices governing the requirements for installation of ITS components, traffic signal control equipment; the SFM and construction for the elements.
- Department’s policies for state furnished materials.
- The State and Federal standards and regulations as they apply to Traffic Control Equipment.
- California rules and regulations regarding contract management.

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- Technical expertise in the use of terminal emulation software, Ethernet communication technologies, Windows, Linux and HP_UX Operating systems, Remote Desktop and Bentley Microstation Software.
- Technical knowledge of C-programming and proper documentation.

The employee must have the ability to:

- Work effectively either independently, or with others as an interdisciplinary team member both in person and electronically.
- Use Microsoft Word, Excel, Project and Visio software applications.
- Communicate effectively both orally and in writing with industry representatives or management personnel, participate in public presentations, and solicit outside expertise when required.
- Exhibit a high degree of technical expertise in order to gain the support and confidence of both management and industry professionals.
- Apply logic, education and job experience to develop proposals, research and obtain solutions, recognize erroneous data, and review and comment on the work of other technical professionals.
- Use terminal emulation software such as Hyperterminal, Procomm or PowerTerm.
- Configure Ethernet for communications and use both FTP and Telnet protocols.
- Install and modify Windows, Linux and HP_UX Operating system installations.
- Use Bentley Microstation Software to create and modify existing Computer Aided Design (CAD) drawings.

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 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 and cooperatively with other team members to achieve common goals, and complete assignments in a group setting.

The incumbent must possess the following Technical Competency Skills:

- Systems Engineering: Applying engineering to solve a complete problem by systematic assembly and matching of parts in the context of the lifetime use of the system.
- Project Management: Define and manage a project's scope, time, resources and materials within budget and time.

CONSEQUENCE OF ERROR/RESPONSIBILITY FOR DECISIONS

The Incumbent is responsible for the reliability and accuracy of all actions, decisions, and recommendations in their capacity. Accepting or rejecting equipment and authorizing payment for equipment before acceptance are decisions made by the incumbent. Effective communication, proper use of equipment and methods of analysis and timely meeting of all deadlines are the responsibility of the incumbent. Errors may lead to the delay in schedules 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 completion delays, lawsuits for damages, late or unauthorized payments, costly complaints, and failure to secure funding for purchased products. Lack of planning for the Department's equipment inventory could negatively impact the timely delivery, funding and/or availability of SFM to State Projects and maintenance inventory.

PUBLIC AND INTERNAL CONTACTS

It is important that the incumbent work with other employees, public clients, and private citizens in a manner that will impart confidence in the expertise of the Office of ITS Projects and Standards. Frequent contact with Districts, headquarter' personnel and other state agencies will be required.

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 Headquarters Warehouse and Translab in Sacramento. 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 California locations.

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.

