

POSITION DUTY STATEMENT

PM-0924 (REV 7/2014)

<p>CLASSIFICATION TITLE Transportation Engineer, Electrical (Ranges A, B, C and D)</p>	<p>OFFICE/BRANCH/SECTION District 51/Operations/Technology</p>	
<p>WORKING TITLE TMS Corridor Engineer (Statewide)</p>	<p>POSITION NUMBER 913-350-3609-xxx</p>	<p>EFFECTIVE</p>

As a valued member of the Caltrans team, you make it possible for the Department to provide a safe, sustainable, integrated, and efficient transportation system to enhance California’s economy and livability. Caltrans is a performance-driven, transparent, and accountable organization that values its people, resources and partners, and meets new challenges through leadership, innovation and teamwork.

GENERAL STATEMENT:

Caltrans uses Transportation Management Systems (TMS) to manage and monitor the performance of the State Highway System. TMS, also known nationally as Intelligent Transportation Systems (ITS), provides the foundation for improving mobility on the highway system and leverages technology to provide cost benefits, depending upon the element type (detection, ramp meters, changeable message, signs and cameras).

Under the direction of the Transportation Management Systems Engineering Branch Chief, a Senior Transportation Electrical Engineer, the incumbent performs various office duties, which include the research, analysis, inventory and support of a variety of vehicle detection associated with TMS/ITS electrical installations and transportation management systems as part of the BCP pilot corridor study. He/she serves as a consultant to other district engineers on systems operation and application related to ITS elements and Advanced Transportation Management Systems (ATMS) associated with the study corridor.

TYPICAL DUTIES:

Percentage	Job Description
Essential (E)/Marginal (M) ¹	
30% (E)	<p>Working with district counterparts, evaluate ITS system integration from the field element to the central systems such as ATMS to ensure data integrity. Study and verify that system configurations are correct and providing complete and accurate detection data.</p> <p>Assist districts in the configuration and use of the Performance Measurement System (PeMS) by developing necessary procedures and configuration documents to properly integrate detection data. Working with the Office of Performance, determine training opportunities that will enhance the district staffs understanding of PeMS. Regularly participate in the Statewide PeMS user group meetings.</p>

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.

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- In coordination with the district analyze PeMS data to better identify sources of data error.
- Coordinate and document weekly technical meetings with districts staff to discuss system concerns or issues with ITS integration that impact the pilot corridor.
- Provides support for the district to establish best practices for analysis and surveillance of a variety of TMS and highway electrical installations, which include, but not limited to ATMS hardware, software and network, closed circuit television (CCTV) cameras, changeable message sign (CMS), traffic monitoring stations, traffic signals, ramp metering (RM) systems and highway advisory radio (HAR) systems.
- 30% (E) Supports the integrity of the ITS inventory by working with HQ and District Operations and Maintenance staff to confirm accuracy of the Statewide ITS database and the corresponding IMMS inventory.
- Lead work to address a standardized approach for the use of ATMS and TMCAL event management information needed for reporting. Incorporate findings into TMC standard operating procedures.
- Assist the BCP pilot corridor project manager and districts with developing processes to collect data to be used for performance monitoring and evaluation of the corridor.
- 20% (E) Assists the districts by developing procedures for collecting, reviewing and validating freeway and arterial system (Traffic Signal Monitoring and Surveillance System - TSMSS) data for use in preparing quarterly corridor performance reports. The performance reports are part of the transportation systems reporting required to be provided to Department of Finance to demonstrate the effectiveness of TMS resources. Provide technical assistance to district staff on the proper usage of the Trac system for documenting BCP pilot corridor activities
- Prepare and distribute Trac usage and status reports for analysis by BCP pilot personnel to ensure proper charging practices.
- Utilize ITS element dashboard, based on Trac tickets, to monitor district support efforts and facilitate follow on actions.
- Evaluate the use of third party historical detection data to determine applicability to the BCP pilot corridor analysis and use as a validation and verification tool. Investigate the use of third party data for purposes of base lining system performance data.
- Meet regularly with HQ Maintenance to review IMMS charging by Electrical Maintenance staff.
- Investigate innovative solutions that may address short terms needs for reliable operation of the ITS.
- 15%(E) Monitor and evaluate detector research and testing efforts occurring within the department and nationally. Recommend detection research that may address system deficiencies. Working with ITS equipment engineers, review and revise state furnished detector specifications to improve detection quality and reliability.
- 5% (E) Prepare and maintain TMS system documentation, specifications, and operation manuals.

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Revised: 1/17/14

Last Reviewed: 3/10/15

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SUPERVISION OR GUIDANCE EXERCISED OVER OTHERS

None. Range D may be required to work in lead capacity over engineers and other staff.

KNOWLEDGE, ABILITIES AND ANALYTICAL REQUIREMENTS

Knowledge

Knowledge of electrical and electronic theory as applied to traffic signals and safety lighting, freeway lighting, sign lighting, tunnel lighting, ramp metering, flashing beacons, extinguishable message signs, vehicular detection, and count stations. Knowledge of the various codes, safety orders, standard regulations, the material and construction codes for the installation of highway lighting and traffic controls equipment. Knowledge of CADD software such as Microstation and Visio to draw plans and network diagrams.

Ability

- The ability to make neat and accurate electrical computations and engineering notes and to prepare effective reports.
- The ability to read and understand highway plans, drawings and field data which relate to transportation and traffic management-related electrical and electronic systems and installations
- The ability to establish and maintain friendly and cooperative relations with those contacted in the course of the work, and to communicate effectively.
- The ability to inspect electrical installations and specify necessary equipment and material.
- The ability to travel to and work at construction sites throughout California.
- The ability to use state-of-the-art hardware and software used to aid electrical engineering design and troubleshooting.

RESPONSIBILITY FOR DECISIONS AND CONSEQUENCES OF ERROR

Engineering evaluations and judgments may affect Department programs, projects and credibility. Errors in judgments could result in adverse impacts to highway traffic performance including increased delay, congestion, and potential for tort liability.

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PUBLIC AND INTERNAL CONTACTS

Required to meet with other Caltrans staff, law enforcement personnel, and staff from other agencies, engineering firms, utility companies and the public. These contacts will be verbal or written, as needed, to perform assignments.

PHYSICAL, MENTAL, AND EMOTIONAL REQUIREMENTS

Physical requirements include the ability to travel to work sites away from the office, to move around on uneven surfaces in rugged areas that are near freeways and highways. May be required to stand or sit for long periods of time using a keyboard and video display terminal. Required to physically operate a motorized vehicle and drive for extended periods of time to field locations.

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. 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. Must maintain and follow safe work practices, including operation of vehicle amber lights in an appropriate and safe manner.

Emotional requirements include ability to develop new insights into situations and apply innovative solutions to make organizational improvement. Ability to resolve emotionally charged issues reasonably and diplomatically. Must be able to 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 service.

WORK ENVIRONMENT

The work environment will consist of a combination of indoor office and outdoor field situations.

While at their base of operation, employees will work in a climate-controlled office under artificial lighting. However, due to periodic problems with the heating and air conditioning, the building temperature may fluctuate.

Travel to the field may be required as necessary to configure or troubleshoot various district TMS/ITS elements. Employees will be exposed to walking on varied terrain and in various climates.

Incumbent must possess a valid Driver's License and maintain the license in good standing at all times.

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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)

STAN SLAVIN

Supervisor (Signature)

Date
