

**CALIFORNIA DEPARTMENT OF TRANSPORTATION
DUTY STATEMENT**

CLASSIFICATION TITLE Electrical Engineer Technician II	DISTRICT/DIVISION/OFFICE District 1 – Traffic Operations	
WORKING TITLE	POSITION NUMBER	EFFECTIVE 2011

As a valued member of the Caltrans team, you make it possible for the Department to improve mobility across California by being innovative and flexible; reporting to work regularly and on time; 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 the direction of the Traffic Operations Office Chief, a Senior Transportation Engineer, incumbent will perform moderate transportation electrical engineering work involved in the design, construction, or operation of traffic signals, lighting, and other electrical and electronic systems. This is the full journey level class of the Electrical Engineering Technician series. Duties include but are not limited to:

TYPICAL DUTIES:

Percentage Essential (E)/Marginal (M)	Job Description
25% (E)	Develops and revises signal timing plans, time space diagrams, operational strategies, simulation and computer optimization analysis. Acts as Quicnet and CTNet system assistant.
25% (E)	Performs timing, surveillance and review of coordinated and isolated traffic signal systems, makes positive improvements if necessary and maintains records.
25% (E)	Assist in performing or at times conducts field investigations, studies physical characteristics of intersection, channelization and other traffic movement areas and collects engineering data.
10% (E)	Provides assistance, consultation and technical support to Construction, Maintenance, Permits, Traffic Safety, Legal, Project Development, Planning, and other Caltrans functional offices, local agencies and general public responding to complaints regarding signal timing and operations.
5% (E)	Reviews traffic studies and plans and specifications for completeness and accuracy submitted by project development, consultants, local agencies and permits for traffic signal lighting and other electrical systems to be installed on State highways in conformance with Caltrans' standards.
5% (E)	Reviews proposed projects, field reports, analyzes traffic flow and accident data and determines when traffic signals, lighting and other electrical systems are justified. Initiates and develops PIFs for operational and safety improvement projects. Makes green time and capacity studies and calculations. Provides input for Project Studies reports.
5% (E)	Prepares design plans, specifications and estimates of traffic signal, lighting and other electrical systems. Reviews and makes recommendations for isolated and coordinated traffic signal systems.

SUPERVISION RECEIVED

This position receives supervision and direction from the Chief, Traffic Operations Branch, a Senior Transportation Engineer. Will also work under the guidance and direction of a Leadworker, a Transportation Engineer (Electrical).

SUPERVISION EXERCISED

None.

KNOWLEDGE AND ABILITIES AND ANALYTICAL REQUIREMENTS

Knowledge of electrical and signal timing theory as applied to the design, operation and construction of highway lighting and traffic signal control systems. Thorough knowledge of modern highway lighting and traffic signal control equipment and apparatus; knowledge of operation of timing of traffic signals including fixed time and traffic-activated systems. Knowledge of computers and computer software applicable to traffic operations which include MS Word and Excel. Knowledge of signal controller equipment and software, including TRFM, C8, Synchro and CTNET. Knowledge of transportation facility design; knowledge of methods, materials, tools, and equipment used in the construction and installation of highway lighting and traffic signal control systems; computer application for transportation engineering. Knowledge of factors that may influence the impact of highway and other transportation facilities on the environment, principles and practices involved in utility relocation.

Ability to troubleshoot traffic signal control equipment, including signal controller units and cabinets, vehicle detection, communication, electrical and electronic systems. Ability to draw and understand geometric design, write and prepare specifications and cost estimates, ability to analyze situations accurately and to take effective action. Ability to prepare design plans and specifications for project and perform difficult and responsible drafting, inspect construction work and determine if it meets specification requirements. Evaluate and implement utility relocation plans and reports. Analyze situations accurately and take effective action. Prepare correspondence and reports; communicate effectively orally and in writing. Ability to follow directions and work independently.

Understand basic transportation and engineering design principles. Make accurate engineering and electrical calculations. Ability to research and compile statistical data and prepare calculations for a variety of highway lighting and traffic signal control improvement projects. Ability to evaluate and select proper elements of electrical facilities and to coordinate electrical design with highway facilities using existing Design Manuals, Traffic Manuals, and computer programs. Able to evaluate and check the work of others and to develop complete Plans, Specifications, and Estimates. Understand intersection operations and highway capacity theory in order to propose improvement projects.

CONSEQUENCE OF ERROR/RESPONSIBILITY FOR DECISIONS

The decisions from this position will provide for more efficient movement of public traffic, both private and commercial on existing highways, where there are future improvements and where adjacent development modifies traffic circulation on the highway. If this work is not properly pursued congestion and delays to traffic will occur and unsafe conditions may develop resulting in injuries or loss of life and expose the Department to lawsuits.

