

**CALIFORNIA DEPARTMENT OF TRANSPORTATION
DUTY STATEMENT**

CLASSIFICATION TITLE Transportation Engineer (Civil), Range D	DISTRICT/DIVISION/OFFICE 56 (HQ)/Maintenance/Structure Maintenance & Investigations – Office of Investigations (North)	
WORKING TITLE Area Bridge Maintenance Engineer (ABME)	POSITION NUMBER 913-622-3135-918	EFFECTIVE DATE

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 the supervision of the Branch Chief, a Senior Bridge Engineer, the incumbent is responsible for performing routine and special field engineering investigations, for some of the 22,500 existing highway bridge structures on the State and Local highway networks statewide and reporting the results of those investigations in a comprehensive written engineering report. Incumbent will be required to develop inspection plans. During emergency situations, the incumbent may be required to work off-peak hours, seven days a week to respond to bridge damage and direct field crews in the repair and stabilization activities of damaged bridge structures. Incumbent must possess and maintain a valid certificate of registration as a Civil Engineer in California, and a Class C California Driver License.

TYPICAL DUTIES:

Percentage

Essential (E)/Marginal (M)¹

Job Description

40% (E)

Performing routine and special field structural investigations of approximately 400 structures yearly to detect evidence of deterioration and/or damage due to environmental or accidental causes utilizing various tools such as hammers, laser measuring devices, or chains to obtain precise measurements and perform visual observations that may require structural components be accessed via climbing, crawling or walking; making sound judgements in evaluating structural components; preparing inspection reports accurately describing structural conditions reflecting the amount of deterioration or distress measured; developing inspection plans; certifying/signing inspection results; consulting with supervisors and local agencies to determine the structural integrity and safety of these State highway structures and determining any required maintenance or corrective action necessary to keep the bridges in a safe and functional condition.

40% (E)

Writing comprehensive engineering reports for utilization by local agencies, municipalities and the Federal Highway Administration for determining

¹ ESSENTIAL 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

needed maintenance work on bridge structures statewide; originating correspondence to cities, counties, and local agencies, pertaining to particular structures and coordinate work; making bridge maintenance recommendations, bridge condition judgements, suggestions for preventative maintenance, and/ or recommendations for emergency repair.

- 5% (M) Give instructions to co-workers and outside contractors, and direct operations (sometimes in emergency conditions) for the stabilization, repair and service of damaged bridge structures.
- 5% (M) Perform specific analysis on highway bridge structures to determine the maximum safe load capacity for legal and extra-legal vehicles considering existing conditions and materials.
- 5% (M) Prioritize bridge maintenance work within the STRAIN (HA21) program.
- 5% (M) Incumbent is required to attend and participate (as technical expert) in public hearings, if inspection results mandate that a public hearing be held prior to commencement of maintenance on structure.

SUPERVISION EXERCISED OVER OTHERS:

This position does not supervise other employees. However, the incumbent may lead or coordinate the work of other employees and outside contractors depending on the situation.

KNOWLEDGE, ABILITIES AND ANALYTICAL REQUIREMENTS:

Must possess a thorough knowledge of the principles and procedures relative to the design, construction and maintenance of bridge structures to certify and approve inspection reports.

The ability to make neat and accurate engineering field notes and prepare concise engineering reports.

The ability to apply sound engineering judgement in field conditions and analyze factors affecting the safe load capacity of bridges.

The ability to collect physical and statistical data in field conditions and accurately maintain that data in a comprehensive database.

The ability to work independently and make decisions with a minimum of direction or supervision.

The ability to travel and work throughout Northern California on a routine basis.

The ability to safely drive State vehicles and operate a variety of bridge inspection tools and equipment.

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CONSEQUENCES OF ERROR/RESPONSIBILITY FOR DECISIONS:

Errors in judgement and/or decisions could directly affect public safety. Inaccurate, delayed or incomplete bridge investigation and reporting activities may result in a reduction of public mobility, increased maintenance/operations costs, inaccurate project scope, unnecessary delays in bridge rehabilitation or replacement projects and potential tort liability for the Department.

PUBLIC AND INTERNAL CONTACT:

Must maintain oral and written contact with District and local agency maintenance operations, Division of Engineering Services, Office of Project Development Procedures and various Department offices and branches. May be required to present the results of field investigations to Headquarters and District personnel. May be required to provide expert background and recommendations to technical committees in subjects relating to bridge maintenance. Will at times attend, participate in or conduct public hearings when posting local agency bridges.

WORK ENVIRONMENT:

The work environment is split approximately 50% between a base of operation and various field locations throughout Northern California. Extensive travel may be required, therefore, incumbent must be able to travel using a car or commercial transportation. Travel might involve being away from the base of operations for a significant amount of time consecutively. While at their base of operation, the employee will work in a climate-controlled office under artificial lighting. While in the field, the employee is required to drive State vehicles and work outdoors, sometimes at night, and may be exposed to animals (such as snakes, bats or owls), dirt, dust, loud noises, traffic, chemicals, uneven surfaces, plants, and a variety of sometimes extreme weather conditions and climates. While in the field, the employee could be exposed to various physical conditions that exist around bridge structures including working at heights, around water, in confined spaces, around traffic, in boats and on under bridge inspection equipment or lift equipment.

PHYSICAL, MENTAL AND EMOTIONAL REQUIREMENTS:

The employee is required to make critical safety decisions in emergency conditions relative to bridge structural stability, with little supervision. The employee must be able to participate in first aid/safety training and may be required to administer first aid in the field in the event of an injury.

Hearing and sight are both essential to job performance because the employee must be able to hear directions, traffic and equipment, and must see to perform his/her duties safely. The employee should be able to travel with and work closely with other engineers and act as a team member. The employee is required to sit for long periods of time while driving or using a keyboard and video display terminal.

A bridge inspection might require an employee to walk up or down a steep incline, climb fences as high as eight (8) feet, and push or pull doors or scaffolding. Incumbent may be required to climb interior or exterior ladders, catwalks or scaffolding, and perform his/her inspection duties at heights as high as 700 feet above water or land.

