

POSITION DUTY STATEMENT

PM-0924 (REV 01/2022)

CLASSIFICATION TITLE Transportation Engineer (Civil)	OFFICE/BRANCH/SECTION 56-Maintenance/Structure Maintenance and Investigations	
WORKING TITLE Bridge Load Rating Engineer, Range A-D	POSITION NUMBER 913-626-3135-046	REVISION DATE 01/23/2024

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 general direction of a Branch Chief, a Senior Bridge Engineer, the incumbent receives general direction, consisting of assignments, review of work progress and project supervision for assuring conformance with policies and applicable design and analysis specifications.

The incumbent is required to perform structural analysis to determine load ratings for all types of bridge structures that exist in the California State and Local Agency bridge inventory. The primary purpose of analysis/load ratings is to determine the safe load capacity for legal and extra-legal vehicles and construction loads.

It is highly desirable that the incumbent possesses and maintains a California Driver's License, and an Engineer In Training (EIT) Certificate or California Professional Engineering License (Civil).

CORE COMPETENCIES:

As a Transportation Engineer (Civil), 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.

- **Flexibility and Managing Uncertainty** : Adjusts thinking and behavior in order to adapt to changes in the job and work environment. (Safety First, Cultivate Excellence - Innovation, Integrity)
- **Decision Making**: Makes critical and timely decisions. Takes charge. Supports appropriate risk. Makes challenging and appropriate decisions. (Safety First, Cultivate Excellence, Strengthen Stewardship and Drive Efficiency - Engagement, Innovation, Integrity)
- **Ethics and Integrity**: Demonstrated concern to be perceived as responsible, reliable, and trustworthy. Respects the confidentiality of information or concern shared by others. Honest and forthright. Conforms to accepted standards of conduct. (Safety First, Cultivate Excellence - Equity, 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. (Safety First, Cultivate Excellence - Engagement, Innovation, 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 - Engagement, Equity, Integrity, Pride)
- **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. (Safety First, Strengthen Stewardship and Drive Efficiency - Engagement, Integrity, Pride)
- **Interpersonal Effectiveness** : Effectively and appropriately interacts and communicates with others to build positive, constructive, professional relationships. Tailors communication style based on the audience. Provides and is receptive to feedback. (Strengthen Stewardship and Drive Efficiency - Engagement, Integrity)
- **Analytical Skills**: Approaches problems using a logical, systematic, and sequential approach. Weighs priorities and recognizes underlying issues. (Safety First, Cultivate Excellence, Strengthen Stewardship and Drive Efficiency - Engagement, Innovation, Integrity)
- **Technical Expertise**: Depth of knowledge and skill in a technical area. (Safety First, Cultivate Excellence - Innovation, Integrity)

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TYPICAL DUTIES:

Percentage		Job Description
Essential (E)/Marginal (M) ¹		
40%	E	Perform live load rating analysis for all structure types in the State and Local Agency bridge inventory. In performing this analysis, the incumbent must read and interpret bridge plans and field reports, account for the existing condition of the structure and unusual vehicle configurations. Both hand calculations and sophisticated structural analysis programs are used to conduct the bridge analyses.
25%	E	Prepare load rating documentation in a neat and thorough manner, to be understandable by others, and to be considered as a part of the permanent bridge record.
15%	E	Conduct limited field investigations related to Bridge Analysis and Maintenance Design Projects. Typical field investigation activities include taking measurements of bridge elements to be analyzed, assessing the condition of structural materials and verifying information contained in the bridge records.
15%	E	Conduct analyses of bridges for exceptionally heavy extra legal weight loads and construction loads crossing or operating on existing State highway bridges.
5%	M	Use commercially available software to automate engineering calculations, and conduct special engineering studies pertinent to bridge analysis.

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
May be involved with mentoring and training of new hires and student assistants.

KNOWLEDGE, ABILITIES, AND ANALYTICAL REQUIREMENTS
Knowledge of the principles of Civil Engineering with a structural emphasis is highly desirable.
Should be competent in the analysis of statically determinate and indeterminate structures.
Advanced programming skills: Excel macro development and finite element based software proficiency are highly desirable.
Knowledge of the functions of Bridge Maintenance, Bridge Design, and Bridge Construction is desirable.
A working knowledge and understanding of Caltrans and AASHTO Standard Specifications for Highway Bridges is desirable.

RESPONSIBILITY FOR DECISIONS AND CONSEQUENCES OF ERROR
Incumbent will be directly involved in decisions affecting safety; determining safe loading of existing bridges, etc; and making decisions regarding potential repairs and/or alterations on bridges. Errors in judgment or lack of ability could result in the collapse or failure of a highway structure causing serious consequence and high public cost.

PUBLIC AND INTERNAL CONTACTS
Employee maintains communication with all personnel assigned to his/her project. He/She holds meetings and discussions with other groups within Caltrans to resolve questions and problems concerning the project, and also handles routine communications with District personnel regarding the project.

PHYSICAL, MENTAL, AND EMOTIONAL REQUIREMENTS
Ability to work under stressful situations; develop and maintain cooperative working relationships; respond to difficult situations; recognize emotionally charged issues and problems; and acknowledge various responses.

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. 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. The employee is required to lift and operate bridge inspection tools and equipment, which weigh as much as 65 pounds. These operations require grasping, fine manipulation, reaching overhead with the tools or equipment, twisting, lifting, squatting, balancing or bending while carrying the tools and equipment through confined spaces, on ladders or scaffolding, and then observing and recording the results of their operations.

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WORK ENVIRONMENT

Incumbent will be exposed to various work environments. In the office setting, incumbent must be able to stand or sit for prolonged periods of time, and will be exposed to artificial lighting in a climate-controlled area. Hybrid-Telework, when available, will require the incumbent to maintain a fully functional home office. Travel and occasional fieldwork are required, therefore, incumbent must be able to travel using a car and/or public and/or commercial transportation. Incumbent may be exposed to dust, loud noises, chemicals and extreme weather conditions.

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