

**POSITION DUTY STATEMENT**

PM-0924 (REV 7/2014)

CLASSIFICATION TITLE Transportation Engineer (Civil)	OFFICE/BRANCH/SECTION DES/Structure Design/Structure Office Engineer	
WORKING TITLE Cost Estimates Engineer	POSITION NUMBER 559-240-3135-xxx	EFFECTIVE DATE 08/12/2015

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:**

This position exists in the Division of Engineering Services (DES), Structure Design, Structure Office Engineer. Under the direction of a Senior Bridge Engineer (Supervisor), incumbent prepares complex cost estimates for bridges and transportation-related structures. The Cost Estimates Engineer provides the item costs for the Engineer Estimate for all bridge and highway related structures.

As part of your employment with DES, there is a mandatory TE-Civil Professional Development Rotation Program that applies to all permanent full-time TE-Civils hired after May 19, 2000.

**TYPICAL DUTIES:**

Percentage	Essential (E)/Marginal (M) <sup>1</sup>	Job Description
50%	E	Prepares complex cost estimates for bridges and transportation-related structures. The Engineer's Estimate is entered into the Basic Engineering Estimate System(BEES) by the Cost Estimate Engineer. BEES is a computer program used for storing estimated quantities and prices for each item of a project. BEES is a sub-system of the Project Information System and Analysis(PMCS) and the Standardized Item List. Structure estimates are prepared using Crystal Ball Software to create a Probabilistic Cost Estimate Model. The estimate is available for bid opening purposes and for contract progress payments.
		In accordance with the requirements of the State Contract Act, the Engineer must prepare full, complete and accurate plans, specifications and estimates of cost, before entering into any contract. The estimate, known as the "Engineer's Estimate," lists the total quantity and estimated price for each item and is used as a basis for requesting authority to advertise a project. After bids are received, the Engineer's Estimate is used as a basis for determining if the bid estimates are reasonable. This cost estimate data, along with the special provisions and contract plans, make up the Structure's portion of the Plans, Specifications & Estimates (PS&E) package. Structure cost estimates are provided for all phases of Project Development.
25%	E	Determines and reviews working day schedules for construction. The Cost Estimates Engineer determines the number of working days, using the critical path method, necessary to construct the structure construction contract work for PS&E. Information such as Traffic Control, Stage Construction and other restrictions and constraints, are necessary to provide an acceptable working day schedule. The working days schedule is created using Primavera P6 Professional Project Management software.
15%	E	Assists with Project Delivery of the PS&E. Works with Specifications Engineer to review Standard Special Provisions for pay clauses, consistency with plans, and permit restrictions.
05%	E	Develops Bid Item Studies based using historical contract bid data. Performs research on comparative data, such as Bridge Removal, Bridge Removal (Portion), Prestressing, Piling, Ground Anchors, Soldier Pile, Precast Girders, etc. These studies are incorporated into our RBIP database(Reasonable Bid Item Prices).
05%	M	Reviews Department-advertised Contract bid openings, Engineering News-Record, Material Trends and the Bridge Cost Index to stay abreast of current prices.

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<sup>1</sup>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.

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## SUPERVISION OR GUIDANCE EXERCISED OVER OTHERS

Employee does not supervise.

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## KNOWLEDGE, ABILITIES, AND ANALYTICAL REQUIREMENTS

- Knowledge of principles of cost estimating.
  - Knowledge of methods, procedures, tools, and equipment used in bridge design and construction.
  - Knowledge of properties and uses of construction materials.
  - Knowledge of construction stages and sequences.
  - Knowledge of the PS&E process.
  - Knowledge of mathematics and computer programs used in cost estimating.
  - Ability to read and interpret complex bridge engineering plans and specifications.
  - Ability to analyze designs for construction feasibility.
  - Ability to determine working days and costs for construction operations.
  - Ability to analyze engineering plans, construction methods and materials, in developing accurate cost estimates and working day schedule required to construct all types of bridges and transportation-related structures.
  - Must have effective writing skills.
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## RESPONSIBILITY FOR DECISIONS AND CONSEQUENCES OF ERROR

Responsible for the accuracy of estimates, working day schedule requirements, and their compatibility with specifications and design requirements. Responsible for post-bid justifications to the District. Has professional responsibility to develop structure cost estimates and working day schedules in a timely manner, while ensuring quality and accuracy. Errors in judgment and decisions could affect project delivery for the Department. Errors could lead to projects not having adequate funding to move forward, therefore, impacting the traveling public.

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## PUBLIC AND INTERNAL CONTACTS

Has contact with all Structure Office Engineer staff, District and DES Office Engineer, Structure Design, Construction, and Maintenance personnel. Has contact with material suppliers, fabricators, contractors and others concerning costs and time for the construction of bridge and transportation-related structure projects.

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## PHYSICAL, MENTAL, AND EMOTIONAL REQUIREMENTS

- Ability to perform tasks utilizing a personal computer and sit for long periods of time.
  - Ability to grasp the essence of new information and master new technical and business knowledge.
  - Ability to master new technical and business knowledge.
  - Ability to organize and prioritize workload.
  - Ability to concentrate in order to review and create documents, and meet strict deadlines.
  - Ability to maintain cooperative relationships with others.
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## WORK ENVIRONMENT

Works in a climate-controlled office under artificial light. May be required to travel.

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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.)

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EMPLOYEE (Print)

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EMPLOYEE (Signature)

DATE

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I have discussed the duties with, and provided a copy of this duty statement to the employee named above.

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SUPERVISOR (Print)

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SUPERVISOR (Signature)

DATE

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