

CLASSIFICATION TITLE Transportation Engineer Tech	OFFICE/BRANCH/SECTION Construction Services/Materials Lab	
WORKING TITLE Materials Lab Technician	POSITION NUMBER 904-501-3175-XXX	REVISION DATE

As a valued member of the Caltrans team, you make it possible to improve lives and communities through transportation.

**GENERAL STATEMENT:**

Under the direction and supervision of a Senior Transportation Engineer, the incumbent shall perform a variety of transportation engineering tasks related to the Construction and Design pavement and materials engineering program. The incumbent will perform engineering work related to Materials Laboratory testing, including field investigations and preparing final reports regarding the laboratory test results. The incumbent also conducts research on new pavement materials and participates in statewide task groups to improve pavement specifications and testing practices.

**CORE COMPETENCIES:**

As a Transportation Engineer Tech, 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.

- **Learning on the Fly:** Learns quickly, is open to change, experiments, and is flexible. (Safety, Prosperity - Collaboration, Equity, Integrity)
- **Dealing with Ambiguity (Risk):** Can comfortably handle risk and uncertainty, as well as make decisions to act without having the total picture. (Safety - Collaboration)
- **Reliability:** Ability to demonstrate dependability in meeting commitments, and providing a consistent work product. Takes responsibility for individual actions in order to meet deadline demands. (Safety, Climate Action - Innovation, Pride)
- **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, Equity, Prosperity - Collaboration, Integrity)
- **Teamwork/Partnership:** Develops, maintains, and strengthens partnerships with others inside or outside of the organization through effective communication and collaboration. (Safety - Collaboration, People First)
- **Customer Focus:** Considers, prioritizes, and takes action on the needs of both internal and external customers. (Employee Excellence - Collaboration, Stewardship)
- **Communication:** Expresses oneself clearly in all forms of communication. Gives feedback and is receptive to feedback received. Knows that listening is essential. Keeps others in the Division and other functional units informed as appropriate. (Safety, Climate Action, Employee Excellence - Collaboration, Equity, People First)
- **Analytical Skills:** Approaches problems using a logical, systematic, and sequential approach. Weighs priorities and recognizes underlying issues. (Equity - Innovation, Stewardship)
- **Technical Expertise:** Depth of knowledge and skill in a technical area. (Safety, Climate Action - Collaboration)

**TYPICAL DUTIES:**

Percentage Essential (E)/Marginal (M) <sup>1</sup>	Job Description
40%    E	Perform sampling and testing of construction materials for all phases of roadway construction projects. This sampling and testing includes, but is not limited to, Hot Mix Asphalt (HMA) samples, Portland Cement Concrete (PCC) samples, and soil samples such as structure backfill, aggregate base, shoulder backing, and lime- or cement-treated soil. Laboratory physical testing is required for construction projects to verify that the HMA, PCC, soil, and aggregate materials meet the requirements of State Standard Specifications. Sampling and testing methods follow AASHTO and CTM standards, and the incumbent will be trained and certified in the necessary CTM and AASHTO test methods. He/she is required to operate testing equipment such as a compactor, press, shaker, pulverizer, and stabilometer to perform the above tests under the general direction of a Lead Worker.

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25%	E	Assists with material testing to determine HMA (including Open-Graded and Rubberized) and PCC designs, Cement Treated Base mix designs, and Lime- or Cement-treated soil mix designs for construction contracts. The incumbent will operate a coring rig within Caltrans' right-of-way to obtain roadway and structural samples for laboratory testing, verify the pavement structure of roadways, confirm materials placed for contract compliance, and support other units in executing their requested tests. In addition, the incumbent will be required to maintain the coring rig, ensure equipment is scheduled for routine maintenance, coordinate supplies for each project, and communicate with Maintenance or Construction to schedule required work.
20%	E	Performs engineering computations to evaluate test data by using volumetric property of the aggregates for backward calculation. This ensures Contractor's operations are in compliance with the plans and specifications.
10%	E	Assists with training of other Transportation Engineer Technicians on various laboratory tests. Assists with research for investigative work on transportation engineering materials. Perform preliminary calibration and maintenance of testing equipment as necessary.
5%	M	The incumbent will perform other duties as required to ensure the Materials Laboratory is run safely and efficiently. Attends training courses, provides formal or informal training to others, participates in internal and external teams and committees, and attends meetings. The incumbent may perform other duties within the scope of the unit as required.

<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.

SUPERVISION OR GUIDANCE EXERCISED OVER OTHERS

None. May occasionally act as a lead person, assisting the Senior in the supervision and training of engineers and technicians.

KNOWLEDGE, ABILITIES, AND ANALYTICAL REQUIREMENTS

This position requires the knowledge and the ability to apply basic engineering mathematics and materials science. A background in basic Soil Mechanics is desirable. The incumbent must be able to understand the operation of precision testing equipment. He/ She must be able to analyze test results of construction materials and recognize situations that indicate potential or actual problems.

RESPONSIBILITY FOR DECISIONS AND CONSEQUENCES OF ERROR

Errors, if not immediately recognized and corrected, could result in problems ranging from annoyance to serious inconvenience and, in some cases, may result in delays or costly remedial action on a project.

PUBLIC AND INTERNAL CONTACTS

Public contacts are normally limited to vendors and suppliers of test equipment and construction materials. Other contacts are with the employee's counterparts in city, county and private testing laboratories. Internal contacts are normally Resident Engineers, Field Laboratory Supervisors, and Construction Testing and Inspection personnel.

PHYSICAL, MENTAL, AND EMOTIONAL REQUIREMENTS

The incumbent shall be a trustworthy person, able to function on his/her own with minimal, or no supervision. Is willing to work in an environment that is subject to dust and fumes. Incumbent must recognize the importance of safely working around and adjacent to testing equipment and power tools. Must be able to stand long periods while operating various types of laboratory equipment and must be able to work overtime as necessary and work under pressure. Incumbent must be able to safely carry 50 lbs. test sample sacks/boxes without inflicting self-injury. Must be able to develop and maintain cooperative, professional working relationships as a valued member of the Materials Laboratory Staff. Incumbent must possess a Valid California Driving License and capable of driving state vehicle in a safe and responsible manner.

WORK ENVIRONMENT

While at their base of operation, employee will work in a climate-controlled field office under artificial light. The Senior Transportation Engineer will set working hours, overtime and night work may be required, and vacations may be restricted, during peak times of the construction project. Employee may work at another construction field office or may work for another senior and/or a different project due to operational needs.

ADA Notice

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In the field, the employee may be exposed to loud noise, dust, odors, fumes, machinery activity and extreme weather conditions at the project sites. Use of personal protective equipment will be required to comply with the Department's Illness and Injury Prevention Program.

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.)

I agree that by providing my electronic signature for this form, I agree to conduct business transactions by electronic means and that my electronic signature is the legal binding equivalent to my handwritten signature. I hereby agree that my electronic signature represents my execution or authentication of this form, and my intent to be bound by it.

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