

CLASSIFICATION TITLE Transportation Engineer (Civil)	OFFICE/BRANCH/SECTION Pavement Program/Concrete Pavements/Pavement Support	
WORKING TITLE Pavement Engineer	POSITION NUMBER 913-601-3135-918	REVISION DATE 05/08/2025

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

GENERAL STATEMENT:

Under the direction of the Pavement Support Branch Chief, a Senior Transportation Engineer (Supervisor), the incumbent will assist Senior Transportation Engineers (Specialists) and/or the Office Chief in performing pavement related design and analysis, develop recommendations regarding pavement engineering, construction, maintenance, and preservation statewide, perform pavement research, review pavement designs and strategies, and prepare and review reports on complex problems/issues relating to pavements. Incumbent will also develop or evaluate pavement related plans, specifications, costs, software or other tools. May partner with industry, academia, local agencies, and national/international organizations on pavement engineering and pavement maintenance issues.

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.

- **Creativity and Innovation:** Thinks beyond the confines of traditional models to recognize opportunities, seek creative solutions and take intelligent risks. (Safety, Equity - Collaboration, Innovation, Stewardship)
- **Decision Making:** Makes critical and timely decisions. Takes charge. Supports appropriate risk. Makes challenging and appropriate decisions. (Climate Action - Collaboration, Integrity)
- **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. (Employee Excellence - Collaboration, Integrity, People First, Stewardship)
- **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, Employee Excellence - Collaboration, Integrity)
- **Teamwork/Partnership:** Develops, maintains, and strengthens partnerships with others inside or outside of the organization through effective communication and collaboration. (Employee Excellence - Collaboration, Equity, Stewardship)
- **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, Equity, Climate Action, Prosperity, Employee Excellence - Collaboration, Equity, Innovation, Integrity, People First, Pride, 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. (Employee Excellence - Collaboration, Integrity, Pride)
- **Analytical Skills:** Approaches problems using a logical, systematic, and sequential approach. Weighs priorities and recognizes underlying issues. (Employee Excellence - Collaboration, Innovation, Pride, Stewardship)
- **Technical Expertise:** Depth of knowledge and skill in a technical area. (Safety, Prosperity, Employee Excellence - Collaboration, Innovation, Integrity, Pride, Stewardship)

TYPICAL DUTIES:

Percentage Essential (E)/Marginal (M) ¹	Job Description
30% E	Under the direction of the Pavement Support Branch Chief, the incumbent provides support to the Branch Chief, the Office Chief, and the Office Staff on issues related to Pavement Engineering. The incumbent provides support in managing Pavement Program Contracts and Task Orders associated with those contracts. The incumbent will work with other Caltrans functional units and may work with transportation industry, academia, local agencies, and national/international organizations on pavement engineering and maintenance issues.

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15%	E	Assist Senior Transportation Engineers to develop and update statewide technical standards, guidance, procedures, and practices related to concrete materials, concrete pavements and pavement foundations. The incumbent maintains pavement related specifications, standard plans, and pavement engineering software. The incumbent also assists to develop and maintain specialized training on concrete materials, concrete pavements and pavement foundations.
15%	E	Conduct reviews and analysis of statewide asphalt and concrete pavement products to ensure conformance with established pavement policies and procedures as detailed in the Department manuals, bulletins, directives, specifications, plans, guides, and other tools for pavement materials and foundations. Maintain pavements tool on Life Cycle Cost Analysis (LCCA), and Environment Life Cycle Assessment for Pavements (eLCAP) Software. Maintain Non-standard Special Provisions (nSSPs), Pilot Project pavement and other pavement database.
10%	E	Conduct forensic investigations on concrete materials, concrete pavements and pavement foundations. Conduct reviews on test procedures, and other pavement engineering issues in design, construction, maintenance and management. Provide technical assistance in reviewing new products and/or monitoring of pavement pilot projects.
10%	E	Assist Senior Transportation Engineers in responding to inquiries and providing interpretation of pavement standards for their practical applications in various technical subjects related to pavement engineering, concrete pavement design, concrete pavement maintenance, and pavement foundations.
10%	E	Assist Senior Transportation Engineers in communicating the policies, standards, and best practices established by the Pavement Program with other functional units in the Headquarters, Districts, industry, local agencies, national/international organizations, and other stakeholders of related pavement issues. Attend technical meetings and conferences both within and out of the State on behalf of the Pavement Program.
5%	E	Prepare written correspondences and issue papers to promote uniformity in interpretation and implementation of standards, guides, policies and procedures related to concrete pavements, pavement foundations and pavement engineering.
5%	M	Maintain pavement engineering technical files and reports. Update technical contents for pavement websites and assist with ADA compliance.

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

No direct supervision responsibilities. May serve as a lead person over other Transportation Engineers for specific tasks.

KNOWLEDGE, ABILITIES, AND ANALYTICAL REQUIREMENTS

- Knowledge of Caltrans' organization and Departmental policies, procedures, standards, and other factors that need to be considered in concrete pavement and pavement foundation practices with materials, design, construction, maintenance, and management.
- Knowledge and experience with Caltrans project development procedures both for capital outlay and maintenance projects, as well as, engineering experience related to materials, design, construction and maintenance operations with a particular emphasis on pavement engineering.
- Knowledge of legal truck weights, size, and methods of data gathering and analysis to determine the impact of truck loading and volume on costs to the State highway system.
- Knowledge of climate and how it affects pavement.
- Knowledge of the basic principles of physics; chemistry and mathematics as applied to civil engineering; stress analysis; mechanics; strength of materials; properties and uses of engineering construction materials; methods and equipment of engineering construction.
- Knowledge of the basic principles of engineering economics, such as life cycle cost analysis and benefit/cost analysis, as applied to pavement type selection, planning, preservation, and management.
- Based on engineering experience and expertise, ability to act independently and exercise good judgment on matters relating to the planning and engineering of pavement structures for transportation facilities.
- Ability to effectively communicate and coordinate both orally and in written form with management and employees of the Pavement Program, in the Department Headquarters, Districts, transportation industry, and other personnel outside the organization.
- Ability to write technical reports, and be able to interpret results from technical studies.
- Ability to assimilate technical and procedural input from various sources on a given subject, evaluate that input, develop alternative courses of action, make objective recommendations and follow-up with implementation through written and oral

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communications.

- Ability to use engineering software to analyze pavements and their performance.
 - Ability to comprehend and analyze specification requirements, survey procedures, and test methods, as they relate to pavement engineering, preservation, and management; develop workable, effective specifications; analyze survey/test results and understand the significance and application of said methods.
 - Ability to establish and maintain friendly and cooperative relations with those contacted in the course of daily work.
 - Ability to travel to meetings, and field sites throughout California and the nation.
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RESPONSIBILITY FOR DECISIONS AND CONSEQUENCES OF ERROR

Decisions to implement new pavement products, materials and/or procedures are based on, historical and research data gathered from all pertinent functional areas in the Pavement Program, Department Headquarters, Districts, as well as from the Federal Highway Administration (FHWA), the transportation industry, and other concerned Local, State, and Federal agencies. Caltrans' input is gathered from the functional areas of engineering, materials testing, research, construction, operations, preservation, and management. The consequences of not considering all pertinent factors, data and input in decisions and actions taken could result in significant economic loss to the State, inconvenience and economic loss to highway users, and loss of credibility with public agencies and the general public.

PUBLIC AND INTERNAL CONTACTS

Incumbent must work well, and communicate with other personnel in the Pavement Program, other Department Headquarters functional units, Districts/Regions, other state agencies, FHWA, and other Federal Agencies, Local Agencies, representatives of transportation industry, academia, consultants, and the general public to provide the necessary analysis and recommendations on pavement structural sections for transportation projects.

PHYSICAL, MENTAL, AND EMOTIONAL REQUIREMENTS

The incumbent may be required to sit for long periods of time, at their desk, using a keyboard, and video display terminal. Manual dexterity, and sustained periods of mental activity are needed for report reviewing, report writing, problem solving, analysis and reasoning. The incumbent may also be required to: travel via airplanes, cars, vans, and buses; stay overnight in motel/hotel accommodations; drive a motor vehicle. The incumbent may occasionally be required to move materials weighing up to 50 lbs, move large and/or cumbersome plans and diagrams from one office location to another. The incumbent will need to establish and maintain friendly and cooperative working relationships with those contacted in the course of the work, and communicate effectively by recognizing emotionally charged issues or problems, acknowledging the various responses, and responding appropriately and professionally to difficult situations. Possession of a valid driver license issued by the Department of Motor Vehicles is required. Possession of a valid certificate of registration as a civil engineer issued by the California State Board of Registration for Professional Engineers is desirable.

WORK ENVIRONMENT

While at base of operation, the incumbent will work in a climate-controlled office under artificial lighting. Occasionally, the employee will be required to travel inside and outside the State to meetings, construction projects, material production plants and to observe the effectiveness of pavement design and construction practices. The incumbent will also be required to occasionally work outdoors which may cause exposure to dirt, dust, noise, uneven ground surfaces, allergens in the air and/or hot or cold temperature extremes.

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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.)

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

SUPERVISOR (Print)

SUPERVISOR (Signature)	DATE
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