

POSITION DUTY STATEMENT

PM-0924 (REV 7/2014)

CLASSIFICATION TITLE Transportation Engineer (Civil), Range D	OFFICE/BRANCH/SECTION 56/Maintenance/Pavement Management & Performance	
WORKING TITLE Pavement Management Engineer	POSITION NUMBER 913-601-3135-XXX	EFFECTIVE DATE

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:

Under the direction of the Branch Chief, a Senior Materials and Research Engineer, the Transportation Engineer will load and validate the Automated Pavement Condition Survey (APCS) data into the Department's Pavement Management System called Pavem. The incumbent will create Jasper reports, Geographic Information System (GIS) maps, Esri Maps and Excel charts from APCS and Pavem data. The Pavem system is run to prioritize existing projects as well as create new projects for the Department to consider. The incumbent must be able to create GIS and Esri maps that combine the condition of the pavements with the potential projects to repair that distress. The incumbent will collect the data from a contractor to load into to the Pavem database and present it for use in the annual State of the Pavement Report. The incumbent will perform, coordinate, and/or monitor technical studies and prepare and review reports on complex problems/issues relating to pavements.

TYPICAL DUTIES:

Percentage Essential (E)/Marginal (M) ¹	Job Description
50% E	Creates and produces Excel reports, Jasper reports, GIS maps, and Esri maps for District management, District reviewers, and the State Pavement Engineer. Maps will display data that is helpful to the selection of the most optimized pavement rehabilitation projects based on Pavem information. Produces GIS maps for each District from APCS data that is provided on a monthly basis. Works with the Branch Chief to develop reports that are helpful to District Maintenance Engineers as well as to the State Pavement Engineer. Creates Jasper reports that display information helpful to the management and selection of projects for pavement repair. Using quality principles and tools, will implement and maintain continuous quality improvement processes for all of the specific duties and responsibilities under their management. Prepares and maintains work plans for assigned projects and products.
30% E	Maintains and oversees data for the Pavement Condition Survey (PCS). Produces GIS Maps for each District from PCS data that is provided on a monthly basis. Maps will display data that depict pavement conditions measured by the Caltrans PCS crew.
10% M	Provides training to the Districts and Headquarters staff so that they may utilize the Pavem software. Coordinates arrangement of meetings, collects and reports status of projects on a regular basis.
5% E	Liaison with the Divisions of Design, Traffic Operations, Environmental Services and Construction, at the Headquarters level, on technical issues of mutual value regarding the engineering, construction, and pavement condition collection standards, policies, and procedures.
5% M	Performs analysis on complex problems and issues affecting the Department relating to pavement engineering, construction, and preservation. Provides technical engineering analysis and recommendations on pavement condition related issues. Works to develop and update models that represent pavement performance.

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

None. May serve as lead worker on assignments involving more than one person.

KNOWLEDGE, ABILITIES, AND ANALYTICAL REQUIREMENTS

The incumbent must have knowledge of Caltrans' organization and Departmental policies; knowledge of pavement policies, procedures, standards and other factors that need to be considered in the engineering, construction,

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maintenance and rehabilitation of pavement.

The incumbent must have knowledge of computer programming, database management and the ability to write Structured Query Language (SQL) procedures and Groovy Scripts. The incumbent must have knowledge of the Microsoft Office Suite and Visual Basic for Applications (VBA) scripting; knowledge of pavement management techniques and pavement rehabilitation strategies. The incumbent must have knowledge and experience with Caltrans Project Development procedures both for Capital Outlay and Maintenance projects and engineering experience related to design, construction and maintenance operations with a particular emphasis on pavements. The incumbent must have knowledge of organizational relationships, both within and outside Caltrans that pertain to the design, construction, operation, maintenance, and pavement management of California highways. The incumbent must have 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.

The incumbent must have the ability to, based on engineering experience and expertise, act independently and exercise good judgment on matters relating to the planning and engineering of pavement structures for transportation facilities; effectively communicate and coordinate both orally and in written form with management and employees of the Pavement Management unit, Department Headquarters, Districts, the transportation industry and other personnel outside the organization. The incumbent must have the ability to sort important information from large data files for the development of annual Caltrans reports; write technical reports and be able to interpret results from technical studies; 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 communications. The incumbent must have the ability to use engineering software to analyze pavement performance; comprehend and analyze specification requirements; survey procedures and test methods as they relate to pavement engineering, preservation and management. The incumbent must have the ability to develop workable, effective specifications; analyze survey/test results; and understand the significance and application of said methods. The incumbent must be able to establish and maintain friendly and cooperative relations with those contacted in the course of the work and communicate effectively.

RESPONSIBILITY FOR DECISIONS AND CONSEQUENCES OF ERROR

Based on engineering experience and expertise, this position is responsible for providing accurate and thorough guidance on pavement engineering, preservation and management standards, policies and procedures. Before decisions are made and actions are taken to implement new products, materials and/or procedures, historical and research data is gathered from all pertinent functional areas in the Division of Maintenance, 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 especially pertinent from the areas of engineering, materials testing, research, construction, operations, preservation and management. The consequences of not considering all pertinent factors 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

The incumbent must work well, and communicate with other personnel in the Division of Maintenance, 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 and writing; problem solving, analysis and reasoning. The incumbent may also be required to travel via airplanes, operate a motor vehicle, use rental cars, vans and buses, and stay overnight in motel/hotel accommodations. The incumbent may occasionally be required to move materials weighing up to fifty (50) lbs and 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. The incumbent will need to communicate effectively by recognizing emotionally charged issues or problems, acknowledging the various responses, and responding appropriately and professionally to difficult situations. The incumbent must possess and maintain a valid certificate of registration as a Civil Engineer issued by the California State Board of Registration for Professional Engineers.

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WORK ENVIRONMENT

While at the base of operation, the incumbent will work in a climate-controlled office under artificial lighting. The incumbent will be required to travel throughout California and the nation to attend meetings, construction projects and material production plants. The incumbent will also be required to occasionally work outdoors, exposed to dirt, dust, noise, uneven ground surfaces, allergens in the air and hot or cold temperature extremes.

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
