

POSITION DUTY STATEMENT

PM-0924 (REV 01/2022)

CLASSIFICATION TITLE Senior Transportation Engineer, CT	OFFICE/BRANCH/SECTION DES/GS/OGDPP	
WORKING TITLE Geotechnical Seismic Specialist	POSITION NUMBER 559-325-3161-xxx	REVISION DATE 04/30/2024

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 direction of the Office Chief, the Senior Transportation Engineer will serve as a geotechnical seismic specialist who will develop and maintain seismic related guidance and support Geotechnical Services (GS) design staff on projects. The incumbent shall be well versed Department's geotechnical policies and practices in order to assist staff at various stages of projects including planning investigations, evaluating proposed analyses, and/or evaluating mitigation measures related to seismic design of structures. The incumbent shall lead or collaborate on technical teams and committees who are responsible for developing proposed DES seismic design guidance to be used on both Caltrans and local agency projects. The specialist will also assist in evaluating proposed research and innovative technologies related to geotechnical seismic design. The specialist will lead or assist with the development and delivery of training for GS staff and DES cross-functional units.

CORE COMPETENCIES:

As a Senior Transportation Engineer, CT, 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. (Strengthen Stewardship and Drive Efficiency - Integrity)
- **Decision Making**: Makes critical and timely decisions. Takes charge. Supports appropriate risk. Makes challenging and appropriate decisions. (Cultivate Excellence, Strengthen Stewardship and Drive Efficiency - 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. (Strengthen Stewardship and Drive Efficiency - Engagement)
- **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. (Cultivate Excellence, Strengthen Stewardship and Drive Efficiency - Engagement)
- **Teamwork/Partnership**: Develops, maintains, and strengthens partnerships with others inside or outside of the organization through effective communication and collaboration. (Cultivate Excellence, Strengthen Stewardship and Drive Efficiency - Engagement, Integrity)
- **Customer Focus**: Considers, prioritizes, and takes action on the needs of both internal and external customers. (Cultivate Excellence, Strengthen Stewardship and Drive Efficiency - Engagement)
- **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. (Strengthen Stewardship and Drive Efficiency - Engagement, Integrity)
- **Analytical Skills**: Approaches problems using a logical, systematic, and sequential approach. Weighs priorities and recognizes underlying issues. (Cultivate Excellence, Strengthen Stewardship and Drive Efficiency - Innovation)
- **Technical Expertise**: Depth of knowledge and skill in a technical area. (Cultivate Excellence, Strengthen Stewardship and Drive Efficiency - Innovation, Integrity)

TYPICAL DUTIES:

Percentage	Job Description
Essential (E)/Marginal (M) ¹	

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30%	E	Perform project reviews during all phases of project delivery, based on established geotechnical seismic design standards and guidelines. Provide technical design support to GS staff on projects with potential seismic hazards to ensure site investigation plans are effective and proposed recommendations being utilized are appropriate, constructible and cost effective.
30%	E	Lead or participate on GS technical teams tasked with developing or maintaining geotechnical policies, guidelines, specifications, and tools. Lead and participate in developing and delivering training for GS staff, Caltrans cross-functional units and industry.
15%	E	Participate on DES committees who are responsible for evaluating proposed design strategies to mitigate potential seismic hazards on both Caltrans and local agency projects.
15%	E	Review seismic design guidance and tools for Division of Engineering Services (DES) cross-functional units
5%	E	Evaluate proposed new technologies and research related to geotechnical engineering or earthquake engineering.
5%	M	Work on special projects as designated by the Office Chief.

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

Supervision is not a requirement of this position but the incumbent may need to act as a lead worker over other employees in the Transportation Engineer (Civil), Engineering Geologist, Transportation Engineering Technician, Foundation Driller, and administrative classifications.

KNOWLEDGE, ABILITIES, AND ANALYTICAL REQUIREMENTS

- Extensive knowledge and experience in the design of shallow and deep foundations, earth retaining systems, micro-piles, vertical ground anchors, below grade structures, soundwalls, overhead signs and other transportation related structures. This includes associated laboratory testing, in-situ testing, geotechnical field instrumentation as it relates to geotechnical investigations.
- A thorough knowledge of soil mechanics principles, soils behaviors under various stress systems, static/seismic settlement, laboratory testing, in-situ testing and procedures.
- Advanced course-work and knowledge specifically directed towards geotechnical engineering, earthquake engineering, seismic hazards, faulting mechanisms, and ground motions time history analysis.
- A thorough knowledge of seismic related design guidance in the Geotechnical Manual (e.g. liquefaction, lateral spreading, downdrag, design ground response analysis).
- A thorough knowledge of seismic related guidance including but not limited to Caltrans Seismic Design Criteria, California Building Code, American Society of Civil Engineer/Structure Engineering Institute (ASCE/SEI 7), California Geologic Survey Seismic Hazard publications, Caltrans ARS Online, USGS Seismic Design Hazard Maps and Tools.
- The ability to acquire new knowledge through coursework and self-study in geotechnical and earthquake engineering.
- The ability to perform independent geotechnical analysis and design in an effective and efficient manner. The incumbent must reliably diagnose potential geotechnical problems and evaluate their probable effects on design options and provide viable geotechnical solutions and recommendations to Geotechnical Services staff and cross-functional units.
- A thorough knowledge of project delivery at Caltrans.
- The ability to produce concise, organized, logical, and effective reports, evaluations, and presentations.
- The ability to communicate effectively, both in written and oral form; ability to give effective presentations and training to GS staff.
- The ability to work in teams and interact with individuals and groups from the Department, governmental agencies, and private consulting firms.
- The ability to work with various geotechnical and earthquake engineering software.

RESPONSIBILITY FOR DECISIONS AND CONSEQUENCES OF ERROR

This position requires effective communication and timely response in all aspects of preparing and/or reviewing geotechnical design reports for internal-designed or contracted-out projects, requests for technical design support and emergency response. Delays in response to requests for services or failure to detect omissions and/or inadequacies in design and recommendations can affect public safety, result in tort liability, and result in contract delays, construction difficulties, wasteful practices and design, and substandard performance of completed work.

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PUBLIC AND INTERNAL CONTACTS

This position requires frequent contact with personnel in the Department concerning engineering matters related to in-house developed projects and projects developed by consultants. The incumbent will also have regular communication with engineering consultants, contractors, manufacturers, vendors, local and federal agencies, and other government agency personnel. The incumbent is required to make project-related presentations to internal functional units and external groups including the general public.

PHYSICAL, MENTAL, AND EMOTIONAL REQUIREMENTS

The incumbent may be required to sit and/or stand for long periods of time in both an office and field setting. The incumbent will use a telephone, keyboard/mouse and video display terminal. Must sustain physical and mental alertness while working in and about heavy equipment and the motoring public. Will be required to develop and maintain cooperative working relationships and respond appropriately to difficult situations. Employee may be required to drive a motor vehicle and may travel statewide. Employee may occasionally be required to move materials weighing up to 50 pounds.

The incumbent must be able to sustain the mental activity needed to conduct necessary research, analysis, and synthesis of issues and make well-reasoned recommendations to management.

The workload is subject to frequent, substantial and unexpected changes that could affect the scheduling or completion of assignments. The incumbent must be able to handle multiple tasks, adapt to changes in priorities, and complete tasks or projects with short notice and work with others in a cooperative manner. The incumbent must have the ability to develop and maintain cooperative, collaborative working relationships and recognize difficult, emotionally charged and/or sensitive situations and handle them effectively and appropriately. Must deal effectively with pressure, maintain focus and intensity yet remain optimistic and persistent, even under adversity. The incumbent must be able to quickly recall Department policies and use their experience to quickly address issues.

The incumbent must behave in a fair and ethical manner toward others and demonstrate a sense of responsibility and commitment to public service. The incumbent must value cultural diversity and other individual differences in the workforce.

WORK ENVIRONMENT

While at their base of operation, employees will work in a climate-controlled office setting under artificial lighting. As a statewide organization, DES adjusts to periods of fluctuating workload to successfully deliver projects. The incumbent will be required to travel and perform fieldwork and will be exposed to dirt, uneven surfaces, extreme temperatures, noise, vibration, and odor associated with fieldwork as described in the previous section. The incumbent will be required to work around bulky/heavy materials and equipment used near project sites, and in close proximity to vehicles traveling on active roadways. DES employees may be given temporary assignments on DES projects throughout the State as workload demands.

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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.)

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