

POSITION DUTY STATEMENT

DOT PM-0924 (REV 01/2025)

CLASSIFICATION TITLE	OFFICE/BRANCH/SECTION	
Senior Trans Electrical Engineer (Specialist)	HQ/DRISI/ Safety Innovation & Cooperative Research	
WORKING TITLE	POSITION NUMBER	REVISION DATE
Research Implementation Engineer	913-155-3163-051	07/09/2026

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

GENERAL STATEMENT:

Under the general direction of the Chief, Office of Safety Innovation and Cooperative Research (Supervising Transportation Engineer), the Senior Transportation Electrical Engineer (Specialist), with the working title of Research Implementation Engineer (RIE), serves as Caltrans' lead expert on implementing innovative electrical systems and technologies for transportation related research engineering projects. The RIE provides technical leadership to advance high-value research into practice. The RIE develops transportation related electrical research implementation guidance; manages the implementation website; oversees implementation teams; and works with project managers to execute implementation plans for Caltrans' sponsored and national research projects.

CORE COMPETENCIES:

As a Senior Trans Electrical Engineer (Specialist), 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. (Climate Action - Collaboration)
- **Decision Making:** Makes critical and timely decisions. Takes charge. Supports appropriate risk. Makes challenging and appropriate decisions. (Climate Action - Collaboration)
- **Initiative:** Ability to identify what needs to be done and doing it before being asked or required by the situation. Seeks out others involved in a situation to learn their perspectives. (Employee Excellence - 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 - Innovation)
- **Relationship Building:** The ability to develop and maintain internal and external trust and professional relationships, which includes listening and understanding to build rapport. (Equity - Collaboration)
- **Customer Focus:** Considers, prioritizes, and takes action on the needs of both internal and external customers. (Equity - Collaboration)
- **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 - People First)
- **Analytical Skills:** Approaches problems using a logical, systematic, and sequential approach. Weighs priorities and recognizes underlying issues. (Safety - Integrity)
- **Commitment/Results Oriented:** Dedicated to public service and strives for excellence and customer satisfaction. Ensures results in their organization. (Prosperity - Innovation)

TYPICAL DUTIES:

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

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40%	E	Serve as Caltrans' lead expert on implementing innovative electrical systems and technologies for transportation related research engineering projects, including power distribution, lighting, communication, controls, and security systems. Work with Caltrans' customers and staff to identify high value research projects that include, but are not limited to, Zero Emission Vehicles, Connected and Automated Vehicles, Unmanned Aircraft Systems, Intelligent Transportation Systems, Artificial Intelligence, Generative Artificial Intelligence and Machine Learning, which can be implemented by using implementation funding. Assess the viability of the research implementation considering the Caltrans' network, system communication, electrical equipment (hardware and software) and power needs. As a senior engineer, validate that electrical specifications and codes are met. Review and comment on implementation plans and work with Research Project Managers to execute implementation plans. Provide technical engineering oversight for various stages of difficult and complex implementation work, which is critical to the Department's mission and of statewide significance. Prepare and review technical plans, specifications, and cost estimates for research-driven electrical engineering solutions to ensure compliance with departmental standards, codes, and project requirements. Conduct field inspections, testing, and troubleshooting of prototype or pilot electrical systems; document findings and recommend improvements to enhance safety, reliability, and operational effectiveness.
30%	E	Work with customers to evaluate the electrical systems and technologies related research findings and place the research in context with Caltrans' operations. Report to the Division Chief and the Research and Deployment Advisory Committee (RDAC) to update and obtain approval to fund and implement electrical engineering research projects. Provide technical electrical engineering leadership to advance high-value research into practice. Track the implementation of research projects. Responsible for preparing summary documents of the problems studied and of the expected use and benefit. Create methodologies, tools and policies to quantify the result of electrical engineering research projects and help the division meet established performance measures. Record the process used to implement each project including scope, cost and schedule details. Manage and update implementation guidance. Maintain the implementation manual, web-pages, and implementation-specific sections of research manual. Collaborate with multidisciplinary teams—including architects, civil engineers, mechanical engineers, and external stakeholders—to integrate research outcomes into practical engineering applications and ensure successful project delivery. Develop and disseminate standard plans, specifications, and technical reports for new electrical technologies and systems, supporting the transfer of research innovations into statewide transportation infrastructure
20%	E	Oversee multiple implementation teams. Coordinate with Research Project Managers, customer representatives, researcher, the Project Panel and the Division of Research, Innovation, and System Information (DRISI) through the implementation process project initiation through successful final implementation. Provide expert level electrical engineering consultation support to other Research Project Managers for their research results and liaison with implementation customers. Assist Caltrans' National Cooperative Highway Research Program (NCHRP) panelists apply for implementation assistance funding to expedite NCHRP research in California. Develops methods appropriate and necessary to independently complete specific tasks. Provides staff work, as necessary, to the Office of Safety Innovation and Cooperative Research. Participates in related professional activities, including the development of technical publications and involvement in technical committees of professional societies.
5%	E	Facilitate the communication and dissemination of newly implemented electrical engineering research into practice and ensure that innovations reach the appropriate operational units within Caltrans. Lead the development and revision of policies, specifications, guidelines, and training materials influenced by research outcomes. Organizes events such as workshops, training, and demonstrations.
5%	M	May act on behalf of the Office Chief during their absence from the office and may act on behalf of other professional staff in the office. Contribute to strategic planning efforts, special projects, or task forces aligned with the goals of DRISI and Caltrans. Participate in technical reviews, internal working groups, and external stakeholder meetings as a representative of the Research Implementation function. Stay current on industry trends, emerging technologies, and national research initiatives to inform Caltrans' research priorities and implementation strategies. Perform other job-related duties within the scope of the classification may be assigned.

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
The RIE does not provide direct supervision to any employees. The RIE provides research implementation expertise and

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direction to DRISI and other HQ units involved in the a research project.

KNOWLEDGE, ABILITIES, AND ANALYTICAL REQUIREMENTS

- Graduate work in Engineering is highly desirable but not required.
 - Knowledge of principles of research, project delivery, and with research implementation processes.
 - The ability to manage and provide leadership to ensure the continued development and improvement of the research implementation process.
 - Knowledge and/or experience in conducting, administering, and managing research is highly desirable.
 - Knowledge of and the ability to develop and administer projects and contracts.
 - In addition to technical, contract management, and collaboration skills, the ability to communicate effectively, both orally and in writing.
 - The incumbent should be able to perceive trends, needs, and problems; integrate new discoveries into Caltrans's practices; and establish research directions that lead to successful solutions for Caltrans.
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RESPONSIBILITY FOR DECISIONS AND CONSEQUENCES OF ERROR

The REI is responsible for all decisions, actions and the resulting consequences inherent to the planning, organizing, and directing research implementation activities. Sensitive, controversial, or precedent setting decisions are made by the Chief, Office of Safety Innovation and Cooperative Research or higher authority. Errors in judgment or lack of prompt action could result in the delay of valuable products and loss of funds. Implementation activities must be managed properly to see that expenditures are cost-effective and appropriate. Furthermore, the incumbent must perform research implementation activities within the approved time and budget to comply with Caltrans and the Federal Highway Administration (FHWA) requirements. Inappropriate decisions that delay or preclude the completion of implementation projects can result in lost opportunities to improve the transportation infrastructure and safety. The ultimate consequences include higher costs and a reduction in both safety and trip quality for the traveling public. Furthermore, inappropriate decisions can result in the loss of resources, funding support, Federal reimbursement, and/or legislative support for the Program.

PUBLIC AND INTERNAL CONTACTS

The incumbent has frequent contact with research customers: Caltrans managers, staff, other public employees (Federal government and other states as well as cities and counties), and the general public. The incumbent will also act as a peer to partners in research (other government and industry representatives), and provide technical direction, and contract management for, academic personnel, consultants, and other contract principal investigators.

PHYSICAL, MENTAL, AND EMOTIONAL REQUIREMENTS

Employees will be required to work at various locations throughout California. When at their base office setting, employees may be required to use a keyboard and video display terminal. In the course of the employee's work, must maintain a cooperative working relationship within the working environment, with peers, subordinates, contractors, and their employees. The incumbent may occasionally be required to assist in the use of electronics laboratory test equipment (e.g., oscilloscope, multimeter, power supply, etc.). The incumbent must have the ability to grasp the essence of new information and master new technical and business procedures; must have the ability to multi-task, adapt to changes in priorities, and complete tasks or projects with short notice; develop new insights into situations and apply innovative solutions to make operational improvements; and be able to develop and maintain cooperative working relationships. The incumbent must be able to consider risks and initiate actions that involve deliberate risk to achieve a recognized benefit or advantage.

WORK ENVIRONMENT

The incumbent is required to travel and work outdoors and may be exposed to dirt, noise, odors, dust, extreme weather conditions, uneven surfaces, and/or extreme heat or cold while doing field research. The incumbent must be able to work with and around a variety of materials, construction, and testing equipment. While at the base of operation, the incumbent will work in a climate-controlled office under artificial lighting. This position may be eligible for telework. The amount of telework is at the discretion of the Department and based on Caltrans's evolving telework policy. Caltrans supports telework, recognizing that in-person attendance may be required based on operational needs. Employees are expected to be able to report to their worksites with minimum notification if an urgent need arises. The selected candidate will be required to commute to the headquartered location as needed to meet operational needs. All commute expenses to the headquartered location will be the responsibility of the selected candidate.

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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

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

SUPERVISOR (Print)	
SUPERVISOR (Signature)	DATE