

POSITION DUTY STATEMENT

PM-0924 (REV 01/2022)

CLASSIFICATION TITLE Mechanical Engineer	OFFICE/BRANCH/SECTION DES/SES/OEMWW	
WORKING TITLE Mechanical Engineer	POSITION NUMBER 559-220-3583-007	REVISION DATE 06/14/2024

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:

This position exists within the Office of Electrical, Mechanical, Water & Wastewater Engineering (OEMWW). Under direction from the Branch Chief, the incumbent performs a wide variety of mechanical engineering design, specification preparation, estimating, and inspection work involved in the design, construction, and maintenance of Department facilities and systems. Facilities include: storm water drainage pumping plants, sewage lift stations, vehicular tunnels, movable bridges, safety roadside rest areas, highway maintenance stations, equipment repair shops, toll plazas, truck weigh and inspection facilities, office buildings, warehouse buildings, vehicle/equipment storage buildings, fueling facilities (gas, diesel, CNG) at maintenance stations, and other transportation-related facilities.

Must have and maintain a valid California Driver License.

CORE COMPETENCIES:

As a Mechanical Engineer, 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 First, Cultivate Excellence - Engagement, Innovation)
- **Decision Making:** Makes critical and timely decisions. Takes charge. Supports appropriate risk. Makes challenging and appropriate decisions. (Safety First, Cultivate Excellence - Engagement, Integrity)
- **Ethics and Integrity:** Demonstrated concern to be perceived as responsible, reliable, and trustworthy. Respects the confidentiality of information or concern shared by others. Honest and forthright. Conforms to accepted standards of conduct. (Safety First, Cultivate Excellence - Integrity)
- **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 First, Cultivate Excellence - Engagement, Integrity)
- **Relationship Building:** The ability to develop and maintain internal and external trust and professional relationships, which includes listening and understanding to build rapport. (Safety First, Cultivate Excellence - Engagement, Integrity)
- **Customer Focus:** Considers, prioritizes, and takes action on the needs of both internal and external customers. (Safety First, Cultivate Excellence - Engagement, Integrity)
- **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 First, Cultivate Excellence - Engagement, Integrity)
- **Analytical Skills:** Approaches problems using a logical, systematic, and sequential approach. Weighs priorities and recognizes underlying issues. (Safety First, Cultivate Excellence - Engagement, Integrity)
- **Organizational Skills:** Keeps work prioritized and organized. Logically approaches situations. (Safety First, Cultivate Excellence - Engagement, Integrity)

TYPICAL DUTIES:

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

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45%	E	Performs professional work such as designing and preparing plans, specifications and estimates for mechanical systems such as heating, ventilating, air conditioning, plumbing, water, sanitary, piping systems, pump selection, and mechanical equipment associated with storm water drainage pumping plants, sewage lift stations, vehicular tunnels, movable bridges, safety roadside rest areas, highway maintenance stations, equipment repair shops, toll plazas, truck weigh and inspection facilities, office buildings, warehouse buildings, vehicle/equipment storage buildings, fueling facilities (gas, diesel, CNG) at maintenance stations, and other transportation-related facilities. Design duties typically consist of conducting site visits to determine existing field conditions, using engineering principals, methods, codes, design guides, publications, equipment and computers to create engineering drawings showing the information necessary for constructing facilities requested by the stakeholder. These drawings include layouts, typical sections, cross-sections, elevations, details and equipment schedules. Coordinates with project design team and stakeholders to ensure contract documents are accurate, complete, and satisfy the project requirements. Project design team includes architects, civil engineers, structural engineers, electrical engineers, water & wastewater engineers, specification engineers, estimators, construction engineers, and project managers. Stakeholders include district personnel, state fire marshal, local agencies, contractors, suppliers, and consultants.
25%	E	Provides bid, design, and construction support for in house designed projects, consultant designed projects, design build projects, contract manager general contractor (CMGC) project, and others. Acts as checker and checks designs, plans, specifications, and cost estimates for in house designed projects, consultant designed projects, and design build projects for transportation facilities to ensure conformance with Office and Department standards, for accuracy, completeness and applicable codes. Provide verification that installed equipment/systems complies with contract documents. Bid and construction support involves bid inquires, requests for information, submittal review, intermediate construction inspection, final construction inspection, and inspection punch list.
10%	E	Provides technical and administrative support for consultant design task orders. Which includes writing task orders for consultants, providing task order descriptions, providing task order technical scope, providing scope of milestone deliverables, providing support for task order delivery schedule and consultant fee review, and verifying final plans, specifications, and estimate are in compliance with the task order.
10%	E	Assists in conducting annual, bi-annual, or tri-annual maintenance inspections of pumping plants, tunnels, movable bridges, safety roadside rest areas, truck weigh and inspection stations.
10%	M	Writes reports, analyzes and prepares correspondence.

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

This position does not supervise other employees but may lead the work of others.

KNOWLEDGE, ABILITIES, AND ANALYTICAL REQUIREMENTS

Knowledge of:

- Mechanical engineering methods, materials and equipment used in the design, construction and maintenance of storm water drainage pumping plants, sewage lift stations, vehicular tunnels, movable bridges, safety roadside rest areas, highway maintenance stations, equipment repair shops, toll plazas, truck weigh and inspection facilities, office buildings, warehouse buildings, vehicle/equipment storage buildings, fueling facilities (gas, diesel, CNG) at maintenance stations, and other transportation-related facilities.
- Various codes, guides, safety orders, and regulations governing the design and installation of mechanical equipment.

Ability to:

- Prepare/check plans, specification and estimates for mechanical equipment/systems at transportation-related facilities.
- Direct or make construction and maintenance inspections of mechanical installations.
- Establish and maintain relations with those contacted in the work.
- Analyze situations and adopt an effective course of action.
- Accurately convey technical engineering information in English both verbally and in writing.
- Use various software (excel, word, power point, energy pro), Micro Station CAD drafting software, and various communication software (outlook, teams, webex)

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- Direct the work of others.

RESPONSIBILITY FOR DECISIONS AND CONSEQUENCES OF ERROR

Responsible for assuring the safety of the traveling public at a cost that is an effective use of public funds. Errors in judgment and decisions could affect public safety or result in liability for the Department. Inaccurate, delayed or incomplete contract plans and estimates may result in added costs due to higher estimates or changes. Mechanical failure can be catastrophic leading to loss of life, disruption in goods movement, and/or delays to the traveling public.

PUBLIC AND INTERNAL CONTACTS

Employee communicates with all personnel assigned to the project. Holds meetings and discussions with District design personnel and with other Branches of the Department, such as Architectural, Structural, Electrical, Water and Wastewater to resolve questions and problems concerning the project. Communicates with Resident Engineers, Structure Construction representatives, contractors and suppliers during the construction phase of projects. Communicates with District and Structures Maintenance personnel on both routine and emergency maintenance issues.

PHYSICAL, MENTAL, AND EMOTIONAL REQUIREMENTS

Employee must be able to :

- Lift and carry up to 40 pounds.
- Climb multiple 20 foot ladders, separated by landings, up to 150 feet in total length.
- Travel throughout the State via airplanes, and vehicles (State-owned or personal).
- Be in a seated position at a computer, in a car, or on an airplane for an extended period, 8 hours, of time.
- Work on elevated catwalks and landings.
- Work in confined spaces and near operating heavy machinery.
- Work along active highways, active construction sites, operating machinery, and operating equipment.

WORK ENVIRONMENT

While at their base of operation, the employee will work in a climate-controlled office under artificial lighting or telecommute from and approved location if allowed. As a statewide organization, DES adjusts to periods of fluctuating workload to successfully deliver projects. 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. May work around bulky/heavy materials and equipment used in the vicinity of inspection areas. May also be exposed to the motoring public. DES employees may be given temporary assignments on DES projects throughout the State as workload demands.

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

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