



Transportation Engineer (Electrical)

Exam Code: 0TR42

Department: California Department of Transportation

Exam Type: Departmental, Open

Final Filing Date: Continuous

CLASSIFICATION DETAILS

Transportation Engineer (Electrical) – \$5,849.00 - \$10,956.00per month.

View the [Transportation Engineer \(Electrical\) classification specification](#).

APPLICATION INSTRUCTIONS

Final Filing Date: Continuous

Who Should Apply:

Applicants who meet the minimum qualifications as stated on this bulletin may apply for and take this examination.

Once you have taken this examination, you may not retake it for **6 months**.

How To Apply:

The link to connect to the Training and Experience Evaluation is located farther down on this bulletin in the “Taking the Exam” section.

Special Testing Arrangements:

If you require assistance or alternative testing arrangements due to a disability, please contact the testing department listed in the Contact section of this bulletin.

SPECIAL REQUIRMENTS

If you meet the Minimum Qualifications under [Pattern 2](#) a written examination covering basic engineering will be required to obtain qualification. To take the written examination you are required to submit the following documents to the address listed below:

1. [Standard State Application \(STD. 678\)](#).
2. A copy of your transcripts and
3. An evaluation of your transcripts from a member of the NACES (if applicable) to apply to take the written examination

MAILING ADDRESS:

Caltrans
Examination Services (MS 86)
P.O. Box 168036
Sacramento, CA 95816-8036

SUBMIT IN PERSON:

Caltrans
Examination Services (MS 86)
1727 30th Street, 1st Floor
Sacramento, CA 95816

Faxed or E-mailed applications will NOT be accepted. THE EXAMINATION TITLE MUST BE INDICATED ON THE APPLICATION.

Note: Testing locations may not be located in all areas. Candidates may be asked to travel to the nearest testing facility at their own expense.

MINIMUM QUALIFICATIONS

All applicants must meet the education and/or experience requirements as stated on this exam bulletin to be accepted into the examination. Part-time or full-time jobs, regardless of whether paid or volunteer positions, and inside or outside California state service will count toward experience. **Transportation Engineer (Electrical)**

EITHER 1

Graduation from a four-year curriculum in electrical, electronic or computer engineering accredited by the Accreditation Board for Engineering Technology (ABET). (Registration as a senior in such a curriculum will admit an applicant to the competition, but she/he must produce evidence of graduation before she/he will be considered eligible for appointment.) (Possession of a valid certificate as an Engineer-in-Training issued by the California State Board of Registration for Professional Engineers and Land Surveyors, or issued by another jurisdiction and accepted by the California Board in lieu of the first division of the examination as an engineer may be substituted for the required education.)

OR 2

Possession of equivalent qualifications may be demonstrated by graduation from an engineering curriculum which includes the basic electrical, electronic and computer engineering courses normally covered in a standard four-year engineering curriculum, and by qualifying in a written examination covering basic electrical and electronic and engineering. (Registration as a senior in such a curriculum will admit an applicant to the

qualifying examination, but she/he must produce evidence of graduation before she/he will be considered eligible for appointment.) **OR 3**

A master's or doctorate degree in an electrical, electronic or computer engineering curriculum from a college or university that has a baccalaureate degree program in electrical, electronic or computer engineering curriculum which is accredited by the Accreditation Board of Engineering Technology (ABET). (Registration as a candidate in such a curriculum will admit an applicant to the competition but she/he must produce evidence of graduation before she/he will be considered eligible for appointment.)

POSITION DESCRIPTION

Transportation Engineer (Electrical)

A Transportation Engineer (Electrical) performs, or assists in performing electrical or electronic design, and electrical construction and maintenance inspections, specification preparation and estimating for highway systems, such as traffic management, signal and lighting and transportation-related facilities (such as moveable bridges, drainage pumping plants, vehicular tunnels, safety roadside rest areas, maintenance stations, truck weigh and inspection stations, and toll plazas), and associated electrical and electronic systems (such as cathodic and stray current protection, power and power distribution, indoor and outdoor lighting, aids to navigation, and other traffic management and facilities-related electrical and electronic systems) using state-of-the-art technology, (i.e., Computer Aided Drafting/Designing (CADD)) and personal computers. Some positions may require incumbents to work at considerable heights above the ground.

The Transportation Engineer's (Electrical) assignment within the Department of Transportation will be in one of three major program areas:

TRAFFIC OPERATIONS: Incumbents review traffic and project reports; prepare plans, specifications and estimates of traffic control and highway lighting systems; prepare studies of the physical characteristics of traffic intersections, including channelization, obstructions and potential conflict areas; analyze traffic flow and accident data; prepare timing for new traffic control systems; adjust timing and review the operation of existing traffic control systems; develop strategies and software for traffic control equipment using mini-computers and microprocessors; investigate problems in transportation electrical systems and recommend solutions; inspect and review electrical installations during and after construction; assist in the evaluation and development of new electrical and electronic traffic control and lighting equipment; review and consolidate field reports; prepare contract documents; and assist district offices in the preparation of plans, specifications, and estimates; and prepare correspondence and reports.

STRUCTURES: Incumbents review plans and prepare plans, specifications and cost estimates of electrical systems; prepare material lists for electrical layouts and

requisitions for the purchase of electrical materials and components; inspect construction, maintenance, and repairs; check electrical shop plans and details and contractors' lists of equipment and construction details; test completed work for compliance with contract specifications; as required, may act as a lead worker and review the reports of other Transportation Engineers' (Electrical); and prepare correspondence and reports.

NEW TECHNOLOGY: Incumbents prepare research proposals; investigate applications of new technology; conduct research; perform statistical analysis on research data and make recommendations on implementation and monitor research projects; make engineering studies of current methods of materials testing (including operational requirements and procedures, service demands, equipment needs, and cost analysis); perform the design and development of automated data acquisition systems; perform field tests and collect data; perform design, development, and testing of new electronic equipment; may act in a lead capacity for specification compliance testing, research, or instrumentation; analyze and evaluate test data and correlate individual test results; make presentations; and prepare correspondence and reports.

EXAMINATION SCOPE

This examination consists of the following components:

Training and Experience Evaluation – Weighted 100% of the final score.

The examination will consist solely of a **Training and Experience Evaluation**. To obtain a position on the eligible list, a minimum score of 70% must be received. Applicants will receive their score upon completion of the Training and Experience Evaluation process.

All candidates will be required to complete a Training and Experience Evaluation. The Evaluation is designed to elicit specific information regarding each candidate's training and experience relevant to the Transportation Engineer (Electrical) classification. The information on the Training and Experience Evaluation will be competitively assessed based on pre-determined rating criteria.

The Training and Experience Evaluation measures the following areas determined to be important for success on the job: **Computer Skills, Written Skills, Engineering Skills, Technical Skills, Interpersonal Skills, and Speaking Skills**.

In addition, there are questions regarding work experience in jobs similar to Transportation Engineer (Electrical), personal characteristics, and work performance.

In addition to evaluating applicants' relative knowledge, skills, and ability, as demonstrated by quality and breadth of education and/or experience, emphasis in each exam component will be measuring competitively, relative job demands, each applicant's:

Knowledge of:

1. Computer theory and operation, including state-of-the-art technology, e.g., CADD, personal computers, stand-alone interactive systems and various technical aids.
2. Mathematics related to electrical engineering
3. Theory principles, standard practices, techniques and methods used in electrical, electronic or computer work
4. Various codes
5. Basic occupational safety and health regulations governing the design and installation of electrical and electronic equipment, including the national Electrical Code and Title 8 Industrial Relations, Electrical Safety Orders of the Division of

Occupations Safety and Health **Ability to:**

1. Do electrical or electronic design work
2. Make neat and accurate drawings and technical sketches
3. Use state-of-the-art technology, i.e., CADD, personal computers, stand-alone interactive systems and various technical aids
4. Make electrical installations
5. Specify necessary equipment and materials
6. Accurately interpret drawings, circuit diagrams and specifications
7. Read and understand highway plans, drawings and field data which related to transportation and traffic management-related electrical and electronic systems and installations
8. Establish and maintain friendly and cooperative relations with those contacted during the course of inspections and other work
9. Analyze situations accurately and take effective action
10. Communicate effectively
11. Originate correspondence and prepare effective reports

ELIGIBLE LIST INFORMATION

A departmental, open eligible list for the **Transportation Engineer (Electrical)** classification will be established for:

California Department of Transportation

The names of **successful** competitors will be merged onto the eligible list in order of final score regardless of exam date. Eligibility expires **12 months** after it is established. Applicants must then retake the examination to reestablish eligibility. Veterans' Preference will be granted for this examination. In accordance with Government Codes 18973.1 and 18973.5, whenever any veteran, or widow or widower of a veteran

achieves a passing score on an open examination, he or she shall be ranked in the top rank of the resulting eligible list.

Veterans status is verified by the California Department of Human Resources (CalHR). Information on this program and the Veterans' Preference Application (Std. 1093) is available [online](#). Additional information on veteran benefits is available at the Department of Veterans Affairs.

Career Credits **will not** be added to the final score of this examination, because it does not meet the requirements to qualify for Career Credits.

EXAMINATION INFORMATION

Caltrans is pleased to announce the posting of the **Transportation Engineer (Electrical)** examination. Employment from this examination may be offered in all Districts and Sacramento County.

Testing locations may not be located in all areas. Candidates may be asked to travel to the nearest testing facility at their own expense.

PREPARING FOR THE EXAMINATION

Here is a list of suggested resources to have available prior to taking the exam.

Employment History: Employment dates, job titles, organization names and addresses, names of supervisors or persons who can verify your job responsibilities, and phone numbers of persons listed above.

Education: School names and addresses, degrees earned, dates attended, courses taken (verifiable on a transcript), persons or office who can verify education, and phone numbers of persons or offices listed above.

Training: Class titles, certifications received, names of persons who can verify your training, and phone numbers of persons listed above.

TAKING THE EXAMINATION

Take the [Transportation Engineer \(Electrical\) examination](#).

TESTING DEPARTMENTS

California Department of Transportation

CONTACT INFORMATION

If you have any technical questions concerning this examination bulletin, including provision of reasonable accommodation for this testing process, please contact:

California Department of Human Resources
CalCareer Service Center

1810 16th Street
Sacramento, CA 95814
Phone: (866) 844-8671
Email: CalCareer@CalHR.CA.GOV

California Relay Service: 7-1-1 (TTY and voice)

TTY is a Telecommunications Device for the Deaf and is reachable only from phones equipped with a TTY Device.

If you have any administrative questions concerning this examination bulletin, including the Special Requirements section of this examination bulletin, please contact:

Caltrans
Examination Services
1727 30th Street, 1st Floor
Sacramento, Ca 95816 Phone
(916) 227-5181

EQUAL OPPORTUNITY EMPLOYER

The State of California is an equal opportunity employer to all, regardless of age, ancestry, color, disability (mental and physical), exercising the right of family care and medical leave, gender, gender expression, gender identity, genetic information, marital status, medical condition, military or veteran status, national origin, political affiliation, race, religious creed, sex (includes pregnancy, childbirth, breastfeeding, and related medical conditions), and sexual orientation.

DRUG-FREE STATEMENT

It is an objective of the State of California to achieve a drug-free State work place. Any applicant for State employment will be expected to behave in accordance with this objective, because the use of illegal drugs is inconsistent with the law of the State, the rules governing civil service, and the special trust placed in public servants.

GENERAL INFORMATION

Examination and/or Employment Application (STD 678) forms are available at the California Department of Human Resources, local offices of the Employment Development Department, and through your [CalCareer Account](#).

If you meet the requirements stated on this examination bulletin, you may take this examination, which is competitive. Possession of the entrance requirements does not assure a place on the eligible list. Your performance in the examination described in this

bulletin will be rated against a predetermined job-related rating, and all applicants who pass will be ranked according to their score.

The California Department of Transportation reserves the right to revise the examination plan to better meet the needs of the service, if the circumstances under which this examination was planned change. Such revision will be in accordance with civil service laws and rules and all applicants will be notified.

General Qualifications: Applicants must possess essential personal qualifications including integrity, initiative, dependability, good judgement, the ability to work cooperatively with others, and a state of health consistent with the ability to perform the assigned duties of the class. A medical examination may be required. In open examinations, investigation may be made of employment records and personal history and fingerprinting may be required.

Eligible Lists: Eligible lists established by competitive examination, regardless of date, must be used in the following order: 1) sub-divisional promotional, 2) departmental promotional, 3) multi-departmental promotional, 4) servicewide promotional, 5) departmental open, 6) open. When there are two lists of the same kind, the older must be used first. Eligible lists will expire in one to four years unless otherwise stated on the bulletin.

High School Equivalence: Equivalence to completion of the 12th grade may be demonstrated in any one of the following ways: 1) passing the General Education Development (GED) Test; 2) completion of 12 semester units of college-level work; 3) certification from the State Department of Education, a local school board, or high school authorities that the competitor is considered to have education equivalent to graduation from high school; or 4) for clerical and accounting classes, substitution of business college work in place of high school on a year-for-year basis.