



## **TRANSPORTATION ENGINEER (ELECTRICAL)**

**Departmental Open**

**Exam Code: 0TR42**

**Department: Caltrans**

**Bulletin Release Date: 09/21/2009**

**Cut-off Date: Continuous**

**Salary: Range A: \$5,327.00 to \$6,352.00**

**Range B: \$6,100.00 to \$7,632.00**

**Range C: \$7,055.00 to \$8,827.00**

**Range D: \$7,974.00 to \$9,978.00**

### **INTRODUCTION**

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.

### **EQUAL EMPLOYMENT OPPORTUNITY**

Caltrans is an equal opportunity employer to all, without regard to race, religious creed, color, national origin, ancestry, age, disability (physical or mental), medical condition (cancer and genetic characteristics), genetic information, marital status, sex (including pregnancy, childbirth, or related medical condition), gender, gender identity, gender expression, sexual orientation, political affiliation, or military and veteran status.

### **DRUG FREE STATEMENT**

It is an objective of the State of California to achieve a drug-free work place. All applicants will be expected to behave in accordance with this objective, as 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.

## WHO SHOULD APPLY?

Candidates who meet the minimum qualifications as stated on this announcement may apply for this examination.

Once you have list eligibility, you may not reapply for twelve (12) months from your eligibility date. **Candidates that are unsuccessful in the examination must wait six (6) months from the testing date before reapplying to take the examination.**

## FILING INSTRUCTIONS

**If you meet the Minimum Qualifications under Pattern II you are required to submit:**

**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 to the address below:**

Applications (STD 678) must be received or postmarked no later than the cut-off date. Dates printed on Mobile Bar Codes, such as the Quick Response (QR) Codes available at the USPS, are not considered Postmark dates for the purpose of determining timely filing of an application.

Faxed or E-mailed applications will NOT be accepted. Applications postmarked after the cut-off date, personally delivered, or received via interoffice mail after 5:00 p.m. on the cut-off date will be held for the next administration of the examination. THE EXAMINATION TITLE MUST BE INDICATED ON THE APPLICATION.

### **MAILING ADDRESS:**

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

### **SUBMIT IN PERSON:**

**Caltrans  
Examination Services (MS 86)  
1727 30<sup>th</sup> Street, 1<sup>st</sup> Floor  
Sacramento, CA 95816**

**\*Candidates are responsible for obtaining proof of mailing or submission of their application to Examination Services.**

## SPECIAL TESTING ARRANGEMENTS

If you have a disability and wish to participate in one of our testing services, programs, or activities and require a specific accommodation, please mark the appropriate box for Question #2 on the Examination Application form STD678. You will be contacted to make specific arrangements.

## POSITION STATEMENT

A Transportation Engineer (Electrical) performs, or assists in performing electrical or electronic design, and electrical and electronic 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/Design (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.

## ELIGIBLE LIST INFORMATION

A Departmental Open statewide eligible list will be established for Caltrans in all Districts, and Sacramento County. The names of successful competitors will be merged onto the list in order of final scores, regardless of date. Competitor's eligibility will expire 12 months after it is established unless the needs of the service and conditions of the list warrant a change in this period.

## REQUIREMENTS FOR ADMITTANCE TO THE EXAMINATION

All applicants must meet the education and/or experience requirements for this examination by the cut-off date. Your signature on the application indicates that you read, understand, and possess the minimum qualifications required, and that the information provided is true and complete to the best of your knowledge.

Click on the link below to review the California State Personnel Board class specification which contain the requirements for admittance to the exam:

<http://calhr.ca.gov/state-hr-professionals/pages/3609.aspx>

All applications must include: "to" and "from" dates (month/day/year), time base, civil service or private sector titles, the duties performed, and an original signature. Applications received without this information will be rejected.

**NOTE:** Qualifying experience may be combined on a proportionate basis if the requirements stated below include more than one pattern and are distinguished as "Either I," "or II," "or III," etc. For example, candidates who possess qualifying experience amounting to 50% of the required time of Pattern I, and additional experience amounting to 50% of the required time of Pattern II, may be admitted to an examination as meeting 100% of the overall experience requirements.

**It is your responsibility to make sure you meet the education and/or experience requirements stated below.**

**Graduates in electrical, electronic or computer engineering from a non-ABET accredited college or university will be required to pass a written test prior to taking the online examination.**

**If you have any questions concerning how to take the written test, please contact Department of Transportation at (916) 227-5181.**

## **MINIMUM QUALIFICATIONS**

### **EITHER I**

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 II**

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 III**

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.)

## **EXAMINATION INFORMATION**

This examination will consist of a Training and Experience Evaluation weighted 100%. In order to obtain a position on the eligible list, a minimum score of 70% must be attained.

All candidates will be required to complete a Training and Experience Evaluation. The Evaluation is designed to elicit specific information regarding each candidates' training and experience relevant to the Transportation Engineer (Electrical) classification. The information on the Training and Experience Evaluation will be completely 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.

## **KNOWLEDGE AND ABILITIES**

### **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 calculations
5. Inspect electrical installations
6. Specify necessary equipment and materials
7. Accurately interpret drawings, circuit diagrams and specifications
8. Read and understand highway plans, drawings and field data which related to transportation and traffic management-related electrical and electronic systems and installations
9. Establish and maintain friendly and cooperative relations with those contacted during the course of inspections and other work
10. Analyze situations accurately and take effective action
11. Communicate effectively
12. Originate correspondence and prepare effective reports.

## **VETERANS' PREFERENCE**

Veterans' Preference will be applied to those competitors who are successful in this examination and who qualify for, and have requested, Veterans' Preference through

the California Department of Human Resources. Veterans who have achieved permanent civil service status are not eligible to receive Veterans' Preference.

Effective January 1, 2014, in accordance with Government Codes 18973.1 and 18973.5, whenever any veteran, widow or widower of a veteran, or spouse of a 100 percent-disabled veteran achieves a passing score on an open examination, he or she shall be ranked in the top rank of the resulting eligibility list. This section shall not apply to any veteran who has been dishonorably discharged or released.

## CAREER CREDITS

Career Credits will not be added to the final score of this examination.

## CONTACT INFORMATION

If you have questions concerning this examination bulletin, please contact CalHR:

California Department of Human Resources  
Selection Division, Exam Services  
1515 "S" Street, North Building, Suite 400  
Sacramento, CA 95811  
(866) 844-8671

If you have questions regarding the written examination, please contact the Caltrans Exam Analyst at (916) 227-5181.

## GENERAL INFORMATION

**For an examination with a written feature**, it is the candidate's responsibility to contact **the testing department** three days prior to the written test date if he/she has not received his/her notice to appear.

**Examination Locations:** When a written test is part of the examination, it will be given in such places in California as the number of candidates and conditions warrant. However, locations of interviews or performance evaluations may be limited or extended as conditions warrant.

**Applications are available** at <https://jobs.ca.gov/pdf/std678.pdf>, California Department of Human Resources (CalHR) offices, and local offices of the Employment Development Department.

**If you meet the requirements** stated on this bulletin, you may take this examination, which is competitive. Possession of the entrance requirement does not assure a place on the eligible list. Your performance in the examination will be compared with the performance of the others who take this test, and all candidates who pass will be ranked according to their scores.

**Caltrans** 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 competitors will be notified.

**Candidates needing special testing arrangements** due to a disability must mark the appropriate box on the application and/or contact the testing department.

**General Qualifications:** Candidates must possess essential personal qualifications including integrity, initiative, dependability, good judgment, and 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) service-wide 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.

**Veterans' Preference:** Pursuant to Assembly Bill 372, Veterans' Preference will be awarded as follows, starting January 1, 2014:

1. Any veteran, widow or widower of a veteran, or spouse of a 100 percent disabled veteran, who achieves a passing score in an open examination, shall be ranked in the top rank of the resulting eligibility list.
2. Any veteran who has been dishonorably discharged or released is not eligible for Veterans' Preference.
3. Veterans' Preference is not granted once a person achieves permanent civil service status (Permanent State civil service status means the status of an employee who is lawfully retained in his/her position after completion of the applicable probationary period. This includes permanent intermittent, part-time, and full-time appointments. In addition, individuals who at any time achieved permanent State civil service status and subsequently resigned or were dismissed from State civil service are not eligible to receive Veterans' Preference).

Veteran status is verified by the California Department of Human Resources (CalHR). Directions to apply for Veterans' Preference are on the Veterans' Preference Application (CalHR Form 1093) which is available at <https://jobs.ca.gov/Public/Jobs/Veterans.aspx>, CalHR, and the Department of Veterans Affairs.



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

*For individuals with disabilities, this document may be available upon request in alternate formats. To obtain an alternate format, please call or write to Caltrans, Office of Examinations & Executive Selection Services, P.O. Box 168036, MS 86, Sacramento, CA 95816. Voice (916) 227-7858 California Relay Service: Voice 1-800-735-2922 or TTY 1-800-734-2929.*

## **TAKING THE EXAM**

**When you click the link below, you will be directed to the Training and Experience Evaluation. At the end of the Training and Experience Evaluation, it will be instantly scored when you click “Score My Exam.**

**\*Please remember to print a copy of your exam results for your records. It may take up to 5 business days for eligibility records to appear in your CalCareer profile.**

**[Click here to go to the Training and Experience Evaluation for Transportation Engineer \(Electrical\).](#)**