



Title: Principal Systems Engineer

FLSA Status: Exempt

BRIEF DESCRIPTION:

The purpose of this position is to plan, design, and direct systems engineering projects such as railway signaling, traction power and overhead catenary system, bus procurement and maintenance, light rail vehicle procurement and maintenance, bus fueling, and other transit facilities. This is accomplished by planning and supervising all phases of engineering and design programs, developing technical documents, reviewing technical reports, coordinating with various governmental agencies, administering consultant contracts, and establishing and controlling project budgets and schedules.

ESSENTIAL FUNCTIONS:

Note: This information is intended to be descriptive of the key responsibilities of the position. The list of essential functions below does not identify all duties performed by any single incumbent in this position. Additionally, please be aware of the legend below when referring to the physical demands of each essential function.

(S) Sedentary	(L) Light	(M) Medium	(H) Heavy	(V) Very Heavy
Exerting up to 10 lbs. occasionally or negligible weights frequently; sitting most of the time.	Exerting up to 20 lbs. occasionally; 10 lbs. frequently; or negligible amounts constantly; OR requires walking or standing to a significant degree.	Exerting 20-50 lbs. occasionally; 10-25 lbs. frequently; or up to 10 lbs. constantly.	Exerting 50-100 lbs. occasionally; 10-25 lbs. frequently; or up to 10-20 lbs. constantly.	Exerting over 100 lbs. occasionally; 50-100 lbs. frequently; or up to 20-50 lbs. constantly.

#	Code	Essential Functions	% of Time
1	S	Prepares plans and specifications by developing workplans, budgets and schedules, obtaining consultant services, managing staff and consultants, providing technical support and guidance, coordinating and interfacing with utilities, city, county, state and private parties, reviewing documents and providing technical feedback, preparing and/or supervising preparation of required applications for encroachment, storm water and development reviews, making presentations as needed to the Board of Directors or other public meetings, and coordinating with Legal and Procurement to update contract language for design services and construction.	50%
2	S	Develops designs by developing and supervising conceptual plans for proposed light rail extensions and facility improvements, developing cost estimates, evaluating impacts, determining feasibility, providing coordination and interface of utilities, city, county, state and private parties, providing recommendations to executive management and department managers, making presentations, and participating in technical committees and panels.	25%
3	S	Supports operations, facilities and construction by examining and identifying deficiencies within RT's existing train signaling, traction power, overhead catenary system, light rail vehicle and bus maintenance, and other RT facilities, preparing recommendations for proposed improvements, providing technical support to various	15%



		departments, preparing Engineering documents for other departments, coordinating proposed improvements among various departments, and participating in Configuration Control meetings to assure consistency in planned projects and day-to-day operations and maintenance activities.	
4	S	Supervises staff by planning and directing the work of professional engineers, assigning and monitoring technician workloads, preparing performance evaluations, and reviewing timesheets, developing proposals for selection of consultants, managing contracts, and assisting with management of subordinate engineers.	10%

JOB REQUIREMENTS:

-Description of Minimum Job Requirements-	
Formal Education	Work requires broad knowledge in a general professional or technical field. Knowledge is normally acquired through four (4) years of an accredited college or university resulting in a Bachelor's degree or equivalent in Engineering. Substitution of experience for the required education is not accepted.
Experience	A minimum of five (5) years of experience in engineering design, construction, or project management. Two (2) years of supervisory experience is preferred. Experience in transportation or transit facilities is preferred.
Supervision	Work requires supervising and monitoring performance for a regular group of employees or department including providing input on hiring/disciplinary actions and work objectives/ effectiveness, performance evaluations, and realigning work as needed.
Human Collaboration Skills	Recommendations regarding policy development and implementation are made and/or recommended. Evaluates customer satisfaction, develops cooperative associations, and utilizes resources to continuously improve customer satisfaction.
Freedom to Act	The employee normally performs the duty assignment according to his or her own judgment, requesting supervisory assistance only when necessary. Special projects are managed with little oversight and assignments may be reviewed upon completion. Performance reviewed periodically.
Technical Skills	Advanced: Work requires advanced skills and knowledge in approaches and systems, which affect the design and implementation of major programs and/or processes organization-wide. Independent judgment and decision-making abilities are necessary to apply technical skills effectively.
Budget Responsibility	Position has moderate fiscal responsibility. May be responsible for the billing, collection and/or accounting of funds. May be responsible for the handling and balancing of cash.
Reading	Advanced - Ability to read literature, books, reviews, scientific or



	technical journals, abstracts, financial reports, and/or legal documents. Ordinarily, such education is obtained in at the college level or above. However, it may be obtained from experience and self-study.
Math	Advanced - Ability to apply fundamental concepts of theories; work with advanced mathematical operations methods and functions of real and complex variables. Ordinarily, such education is obtained in at the college level or above. However, it may be obtained from experience and self-study.
Writing	Advanced - Ability to write editorials, journals, speeches, manuals, or critiques. Ordinarily, such education is obtained in at the college level or above. However, it may be obtained from experience and self-study.
Certification & Other Requirements	Professional Engineer license in the State of California is required.

KNOWLEDGE
<ul style="list-style-type: none"> • Traffic signal design as it relates to the interface with grade crossings, wayside signaling and train to wayside communications. • Construction materials, methods, and processes. • Design submittals and proof of design and acceptance testing to validate safety certification. • Engineering principles, theory, and practices relating to design, specification writing, and estimating. • Project planning and management principles, theory, and practices. • Public outreach principles, theory, and practices. • Teamwork principles, theory and practices. • Project controls functions. • Standards outlined in OSHA, FRA, CalTrans, PUC, AREMA, and ANSI/ASME. • Personnel management principles, theories, and practices. • Project development phases of work including NEPA and CEQA requirements. • Federal, State and local grant processes and requirements, including the Federal Transportation Improvement Plan.

SKILLS
<ul style="list-style-type: none"> • Advanced word processing, spreadsheet, presentation and database software. • Specialized software related to functional area.

ABILITIES
<ul style="list-style-type: none"> • Understand light rail transit systems, facilities, and operations. • LRV and track signal, interface, and control technologies. • National Electrical Codes as applied to power distribution and to rail vehicles. • Power substation equipment for the existing transit light rail systems. • Rail vehicle rehabilitation methods, techniques, and processes.



- Design of rail-highway grade crossings.
- Systems engineering related to traction power, wayside signaling, overhead catenary systems, fare vending equipment, communication systems, light rail vehicles, lighting and vehicle maintenance functions (bus and rail) and facilities.
- Learn the District's policies, procedures, plans, programs, and performance criteria.
- Represent the District in meetings with other governmental agencies and the public.
- Coordinate District projects with utilities, governmental agencies and private property owners as required.
- Develop clear, complete, and accurate engineering specifications, drawings, and estimates within mutually established timelines.
- Discuss and identify project problems, analyze situations, recommend solutions, and evaluate outcomes.
- Communicate effectively, both orally and in writing, with various levels of employees, public officials, and outside representatives at all skill levels, position levels, and backgrounds.
- Interpret, review, and approve design submittals, including drawings, descriptions, and schematics.
- Make field and site inspections for problem investigation.
- Monitor and direct consultant/contractor performance to meet project milestones and maintain high quality.
- Manage consultant contracts; including review of invoices.
- Write Issue Papers for presentation to the Board of Directors and technical reports.
- Provide leadership and mentor less experienced engineers.
- Solve complex technical problems with innovative solutions.
- Provide excellent customer service.



OVERALL PHYSICAL STRENGTH DEMANDS:

-Physical strength for this position is indicated below with "X"-

Sedentary	Light- X	Medium	Heavy	Very Heavy
Exerting up to 10 lbs. occasionally or negligible weights frequently; sitting most of the time.	Exerting up to 20 lbs. occasionally, 10 lbs. frequently, or negligible amounts constantly OR requires walking or standing to a significant degree.	Exerting 20-50 lbs. occasionally, 10-25 lbs. frequently, or up to 10 lbs. constantly.	Exerting 50-100 lbs. occasionally, 10-25 lbs. frequently, or up to 10-20 lbs. constantly.	Exerting over 100 lbs. occasionally, 50-100 lbs. frequently, or up to 20-50 lbs. constantly.

PHYSICAL DEMANDS:

C Continuously 2/3 or more of the time.	F Frequently From 1/3 to 2/3 of the time.	O Occasionally Up to 1/3 of the time.	R Rarely Less than 1 hour per week.	N Never Never occurs.
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Note: This is intended as a description of the way the job is currently performed. It does not address the potential for accommodation.

-Physical Demand-	-Frequency-	-Brief Description-
Standing	O	Making presentations, observing work site, observing work duties, communicating with co-workers
Sitting	C	Desk work, meetings, driving
Walking	O	To other departments/offices, around work site
Lifting	R	Supplies, equipment, files
Carrying	R	Supplies, equipment, files
Pushing/Pulling	R	File drawers, tables and chairs
Reaching	R	For supplies, for files
Handling	O	Paperwork
Fine Dexterity	F	Computer keyboard, telephone keypad, calculator, calibrating equipment
Kneeling	R	Filing in lower drawers, retrieving items from lower shelves/ground
Crouching	R	Filing in lower drawers, retrieving items from lower shelves/ground
Crawling	N	
Bending	R	Filing in lower drawers, retrieving items from lower shelves/ground
Twisting	O	From computer to telephone, getting inside vehicle
Climbing	R	Stairs, ladders, step stools
Balancing	R	On ladders, on step stools
Vision	C	Reading, computer screen, driving, observing work site
Hearing	F	Communicating via telephone/radio; to co-workers/public, listening to equipment
Talking	O	Communicating via telephone/radio; to co-workers/public
Foot Controls	O	Driving
Other (specified if applicable)		None

MACHINES, TOOLS, EQUIPMENT, SOFTWARE, AND HARDWARE:

Telephone, fax machine, copier, vehicle, radio, test instruments, computer and associated



hardware and software.

ENVIRONMENTAL FACTORS:

C Continuously	F Frequently	O Occasionally	R Rarely	N Never
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D Daily	W Several Times Per Week	M Several Times Per Month	S Seasonally	N Never
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-Health and Safety Factors-	
Mechanical Hazards	R
Chemical Hazards	N
Electrical Hazards	R
Fire Hazards	N
Explosives	N
Communicable Diseases	N
Physical Danger or Abuse	N
Other (see 1 below)	N

-Environmental Factors-	
Respiratory Hazards	N
Extreme Temperatures	S
Noise and Vibration	N
Wetness/Humidity	N
Physical Hazards	S

(1) N/A

PROTECTIVE EQUIPMENT REQUIRED: Work boots, Reflective Vest, Hard Hat, hearing protection, gloves and protective eyewear

NON-PHYSICAL DEMANDS:

F Frequently From 1/3 to 2/3 of the time	O Occasionally Up to 1/3 of the time	R Rarely Less than 1 hour per week	N Never Never occurs
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-Description of Non-Physical Demands-	-Frequency-
Time Pressure	O
Emergency Situation	R
Frequent Change of Tasks	O
Irregular Work Schedule/Overtime	O
Performing Multiple Tasks Simultaneously	F
Working Closely with Others as Part of a Team	F
Tedious or Exacting Work	R
Noisy/Distracting Environment	O
Other (see 2 below)	N/A

(2) N/A

PRIMARY WORK LOCATION:

Office Environment	X	Vehicle	
Warehouse		Outdoors	
Shop		Other (see 3 below)	X
Recreation/Neighborhood Center			

(3) Construction sites

The above statements are intended to describe the general nature and level of work being performed by individuals assigned to this position. They are not intended to be an exhaustive list of all responsibilities, duties, and skills required. This description is subject to modification as the needs and requirements of the position change.