

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES

DIVISION: Highways & Aviation, Maintenance & Operations		PCN: 25-2514 (Position Description Attached)	
JOB CLASS/TITLE: Maintenance Specialist, Electrician, Journey II/ Lead		WHEN POSITION IS NEEDED: ASAP	
WAGE GRADE: 51		DUTY STATION: Juneau	
<input checked="" type="checkbox"/>	Permanent Full-Time	<input type="checkbox"/>	Permanent Full-Time Seasonal
<input type="checkbox"/>	Permanent Part-Time	<input type="checkbox"/>	Permanent Part-Time Seasonal
<input type="checkbox"/>	Non-Perm Full-Time	<input type="checkbox"/>	Non-Perm Part-Time

CDL REQUIRED: <input checked="" type="checkbox"/> YES / <input type="checkbox"/> NO <input checked="" type="checkbox"/> At time of hire / <input type="checkbox"/> Within 90-days of hire TYPE OF CDL: Class A	WORK SCHEDULE: 4 day / 40 hr week TRAVEL REQUIRED: <input checked="" type="checkbox"/> YES / <input type="checkbox"/> NO
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PRE-EMPLOYMENT BACKGROUND CHECK: <input checked="" type="checkbox"/> YES / <input type="checkbox"/> NO Type: CDL history check DRUG/ALCOHOL TESTING: <input checked="" type="checkbox"/> YES / <input type="checkbox"/> NO	COMMENTS/SPECIAL REQUIREMENTS: Must be willing to travel
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CANDIDATE MUST BRING TO INTERVIEW:

- Completed Workplace Alaska Application (if not already submitted to the hiring manager by Local 71)
- Completed Certification of Employment as a Commercial Motor Vehicle Operator 10-year history form
- Criminal Convictions: Must provide a copy of the judgement from the Court for any Felony Conviction (regardless of date) and any Misdemeanor Conviction within the last 5 years. For positions requiring APSIN* clearance, must provide judgement for all convictions regardless of date.
- Copy of certifications and licenses
- Other: **Journeyman Electrician's License**

Note: Candidates who do not bring the required information to the interview may be rejected.

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2. Duties

2.1. In one or two sentences, state the main purpose of the position.

To repair and maintain all Southeast Region electronic traffic control equipment, signal systems, state highway/airport illumination systems for safe transportation of people and goods.

2.2. Starting from the most to the least important, list the functional areas assigned to the position. Within each functional area, describe the duty statement associated; estimate the percentage of time spent performing the duties; and define each area as essential (E) or marginal (M).

Functional Area Title: Maintenance Specialist Electrician Journey II/Lead -100%		
E/M	% of Time	Duty Statement
E	25 %	Perform Preventative and corrective maintenance on all electronic traffic control systems (Econolite VT4, Econolite KMC8000, Econolite ASC8000, Econolite ASC-2, Econolite D4000, Econolite D13000, Econolite KMC1000, TDS CF830, Automatic Signal MF-10, Automatic Signal FT300, Traconex HMP-290, Traconex HMP-390, Singer 2400) with the aid of digital loop tester, digital and analog multi-meters and miscellaneous hand tools. Identify and correct malfunctions of the controllers, switch packs, vehicle detection, fail-safe devices, relays, heaters, wiring, cooling fans and power supplies. Install and maintain a logbook in new and existing controllers. Modify the controller timing data either on site or remotely with the use of a computer.
E	25 %	Perform preventative and corrective maintenance on the state highways illuminations systems utilizing man lifts, multi-meters, megger, cable fault locators, trenchers and miscellaneous hand tools. Identify and correct problems with the lighting controllers (breakers, lighting contractors, photo cells), lighting fixture (1000 watt, 400 watt, 250 watt, 200 watt, 75 watt, high pressure sodium or mercury vapor lamps, ballasts) and wiring in voltages ranging from 120 volt AC to 480 volt AC. Repair and replace (due to knockdowns) the various illumination poles ranging in heights from 30 to 150 feet.
E	5 %	Perform preventative and corrective maintenance on all the traffic signal lamps, lenses, signal compartments, pedestrian heads and wiring with the use of man lifts, multi-meters, megger, cable fault locators and miscellaneous hand tools.
E	5 %	Perform preventative and corrective maintenance on all school flasher systems utilizing man lifts, multi-meters and various hand tools. Identify and correct problems with the controllers (timers, flashers, poles, lamps and wiring)
E	5 %	Perform preventative and corrective maintenance on the emergency vehicle (OPTICOM) systems with the aid of man lifts, opticom emitter, multi-meters, portable computer, and miscellaneous hand tools. Identify and correct problems with the phase selectors (168G, 262, 562 discriminators) detectors (100, 200 and 500 series) wiring and setting up the ranges for each intersection.

E	1 %	Fabricate and install vehicle detection when necessary at signalized intersections with the use of pavement saw, heat gun and miscellaneous hand tools. Wire in detector amplifiers, tune and setup configuration for proper operation with aid of multi-meters, loop tester.
E	10 %	Troubleshoot and repair defective electronic/electrical equipment down to the component level in the shop with the use of digital and analog meters, oscilloscopes, transistor analyzer, huntron tracker, capacitor analyzer, function generator, DC power supplies, frequency counter, detector amp tester, TDS controller tester, Econolite ASC8000 diagnostic tester, TDS controller tester, TDS prom programmer, EPROM programmer, UV EPROM eraser, FT300 controller tester.
E	5 %	Assist and make recommendations to the various State design and construction departments for the design and construction of the electronic traffic counting equipment and vehicle detection equipment.
E	1 %	Take delivery of and test out new traffic signal controller cabinets to make sure the functionality and design is correct for their respective intersection.
E	1 %	Perform preventative and corrective maintenance on the Non Directional Beacon and runway lighting at all SE certified and un-certified airports. This may include but not be limited to antenna repair, lighting control systems, NDB transmitter/receiver control system and repair of underground lighting cable malfunctions.
E	1 %	Perform preventative and corrective maintenance on the fiber optic display sign with the aid of man lifts, portable computer, multi-meters and miscellaneous hand tools. Identify and correct problems within the display and controller both on site and at the remote computer.
E	1 %	Interpret and understand electronic/electrical drawings, schematics and blueprints and maintain a library of electronic/electrical prints and manuals for all the various signal controller cabinets and the State Highway Illuminations Systems.
E	10 %	Purchase electronic/electrical parts from various suppliers as necessary. Maintain a library of electronic/electrical parts catalogs.
E	2 %	Devise and construct devices to aid in the test and maintenance of traffic signals and highway illumination such as loop testers, switch pack testers, traffic signal controller testers and traffic signal hoists.
E	1 %	Assist other State agencies in repair and maintenance of their illumination systems. Assist the sign crew to repair and replace damaged signs.
E	1 %	Provide advice and assistance to the City and Borough of Juneau, Ketchikan and Sitka signal maintenance personnel regarding questions and problems within their realm of responsibility.
E	1 %	Operate and maintain the Falling Weight Deflector meter unit to test the roadway for the State Weight Restriction Program. This includes repair and maintenance of the seismic detectors, hydraulic system, system interface controls, computer and wiring within the FWD.

3. Other Work Details

3.1. List the computer software and hardware used to perform the duties described. Estimate how often each is used (e.g. daily, 2-3 times a week, 1-2 times a month, etc.).

Acrelis Networks-Mata Asssist View, ATSI-Framview, ATSI -TS2 Virtual cabinet Interface, ATSI Testers-PCMT 2600,Eberle Design-EDI EComm,Iteris, INC - VRAS 3.1.5, Sensys Networks-Traffic DOT 1.10.0-2, Win PCAP 4.1.1, Wire Shark, Wavetronics-Smart Sensor Manager Matrix V1.3.1, ITS Software - Tactics Central. - These are used as needed to perform job duties.

Microsoft Outlook - Microsoft Word - Microsoft Excel - BSO - Used daily

3.2. List the equipment and materials used to perform the duties described, including machinery, tools, instruments, vehicles, etc. Estimate how often each is used (e.g. daily, 2-3 times a week, 1-2 times a month, etc.).

Machinery: concrete saw, drill press, pipe thread, welder, air compressor, and portable generator. Tools: Pick shovels, electric drill, pneumatic tools, conduit benders, soldering irons, elec heat gun, and misc hand tools. Equip and vehicles: 55-foot man lift, 29foot man lift, pickup, and falling weight deflectometer. Instruments: digital and analog multi-meter, oscilloscope, amprobe, megger digital IC tester, capacitor tester, digital loop tester, transistor analyzer, huntron tracker, capacitor analyzer function generator, DC power supplies, frequency counter, detector amp tester, detector loop tester, Econolite controller tester.

3.3. List the guides and references regularly used to perform the duties described. Examples include federal and state laws and regulations, professional standards, building codes, trade practices, contracts, and policy and procedure manuals. Explain how and why these guides and references are used. Estimate how often each is used (e.g. daily, 2-3 times a week, 1-2 times a month, etc.).

National Electrical Code, Alaska Traffic Manual, Manual on Uniform Traffic Control Devices, Alaska State Safety Code, OSHA Regulations, National Electrical Safety Code, State of Alaska DOT&PF Safety Guidelines, Alaska Highway Maintenance & Operations Manual, State of Alaska P&P` s State of Alaska Driving Laws, EPA Regulations.

3.4. Describe the level of authority and independence the incumbent of the position exercises. List the actions the incumbent takes or the decisions the incumbent makes on a regular basis without obtaining prior approval from a higher level employee. For example, explain how the position has the authority to commit the organization, or any parts thereof, to a course of action.

Virtually all maintenance decisions on traffic signals and highway illumination are made at this level.

3.5. Describe the nature of the contacts the incumbent has with other people in order to perform the duties described. Include who is contacted, the reason for the contact, and how often the contact is made.

Daily communications with supervisor to discuss daily concerns and operations.

Station Foremen - Weekly contact to discuss technical construction and maintenance issues.

M&O staff - daily contact. Coordinate support for budget and administrative issues.

Regional Design & Construction Engineers - Weekly. Discuss project work and specifications.

3.6. Describe the consequence of an error made by a prudent employee in the performance of the essential functions assigned to the position. What is the consequence of that error to individuals, operations, and programs?

An error may result in decreased level of service for State highways or airports, and may reduce level of safety for the traveling public. Errors could also result in projects not being completed on time or within specifications.

3.7. List critical requirements of the position not previously described (e.g., skills in keyboarding, writing, negotiating, communications, etc.).

Position requires substantial knowledge of highway, airports techniques.

Ability to effectively discuss and negotiate issues with trained agency personnel (FAA, FHWA, EPA, Consultants, etc.) to appropriately convey the departments position.

Ability to create a management communication system within the section, and the region, to effectively keep everyone apprised of situations pertinent to their duties.

3.8. List licenses, certifications, registrations, physical or other standards required by state or federal law or regulation to perform the duties described. Cite the specific authority (e.g. law or regulation, such as the OSHA Bloodborne Pathogens Act).

Class A CDL and Journeyman Electricians` s License.

State One Credit Card for purchases/procurements.

4. Work Demands

The following identifies some of the physical and mental demands and potential hazards typically encountered by this position. These are job demands which can be ***reasonably anticipated and are an expectation of the job***.

Keeping in mind the essential functional areas and duty statements described in section 2, select the rating that best matches the requirement of this position according to the following descriptions:

Rating **Description**

Not Required (N): Not required of this position.

Present (P): Requirement **is** present, but **is not** essential to the position. (For example, a receptionist may encounter aggressive or angry people, but this is not an essential assignment.)

Occasional (O): Required 33 percent of the time or less **and** essential to the position. (For example, a lifeguard swims only occasionally, but it is essential that a lifeguard be able to swim; a correctional officer must control aggressive/angry people who are life threatening.)

Frequent (F): Required over 33 percent of the time **and** essential to the position.

Items checked below must be consistent with the duty statements listed in section 2.

4.1 Physical Requirements

Title	Rating			
	N	P	O	F
Sitting				F
Walking			O	
Standing			O	
Running	N			
Jumping	N			
Bending or twisting			O	
Squatting or kneeling			O	
Crawling			O	
Reaching above shoulder level			O	
Reaching below shoulder level			O	
Ascending or descending using a ladder or other conveyance			O	
Climbing stairs			O	
Driving cars, light duty trucks				F
Driving heavy duty vehicles			O	
Using floor mounted foot controls to operate equipment (e.g., not driving a car)			O	
Repetitive motion of hands/fingers (e.g., keyboarding, turning pages)			O	
Fine manipulation with fingers			O	
Pinching with fingers			O	
Grasping with hand, gripping				F
Load, unload, aim, and fire handguns, shotguns or other firearms	N			

Lifting/carrying up to 25 pounds			O	
Lifting/carrying 26-50 pounds			O	
Lifting/carrying more than 50 pounds			O	
Pushing/pulling up to 25 pounds			O	
Pushing/pulling 26-50 pounds			O	
Pushing/pulling more than 50 pounds			O	
Balancing on moving surfaces			O	
Balancing on narrow surfaces			O	
Balancing on slippery surfaces			O	
Balancing on uneven surfaces			O	
Restraining/grappling with people in a public protection environment	N			
Seeing objects at a distance			O	
Seeing objects peripherally			O	
Using depth perception			O	
Seeing close work (e.g., typed print)			O	
Distinguishing colors			O	
Hearing conversations or sounds				F
Hearing via radio or telephone				F
Communicating through speech				F
Communicating by writing/reading				F
Distinguishing odors by smell			O	
Distinguishing tastes	N			

4.2 Work Environment

Title	Rating			
	N	P	O	F
Work in/exposure to inclement weather			O	
Work in/exposure to cold water			O	
Work/live in remote field sites			O	
Work in confined areas (under desks, in heating vents, etc.)			O	
Exposure to dust, chemicals, or fumes			O	
Exposure to hazardous equipment (e.g., guns, chainsaws, explosives)			O	
Exposure to electrical current (not outlets)				F
Swimming/scuba diving	N			
Work at heights up to 25 feet (e.g., towers, poles)			O	
Work at heights over 25 feet (e.g., towers, poles)			O	
Work in urban or highway traffic (other than driving)			O	
Work around moving machinery or mobile equipment			O	
Work around moving mechanical parts			O	
Work on and off moving equipment			O	
Work on slippery or uneven surfaces			O	
Work/travel in boat/small aircraft/helicopters			O	

Exposure to high noise levels			O	
Exposure to infection, germs, or contagious diseases (e.g., hospital, lab, clinic, etc.)	N			
Exposure to blood, body fluid, or materials potentially contaminated by blood or body fluids (e.g., hospital, lab, clinic, public protection environment)	N			
Exposure to needles or sharp implements (e.g., hospital, kitchens)	N			
Use of hot equipment (e.g., kitchen ovens, lab equipment)			O	
Exposure to wild/dangerous animals			O	
Exposure to insect bites or stings			O	
Exposure to aggressive/angry people in a public protection environment	N			

4.3 Other Work Demands

Title	Rating			
	N	P	O	F
There are no other work demands.				

4.4. Explain any special physical, mental, or behavioral requirements of the position that have not already been addressed.