SERIES PURPOSE:
The purpose of the Traffic Signal Technician occupation is the installation, maintenance, fabrication & programming of traffic signals/systems, highway lighting, miscellaneous electrical devices, wireless radios, networking equipment, fiber optic communication &/or electronic equipment related to the statewide Intelligent Transportation System (ITS).

At the first level, incumbents perform & assist with duties such as installation, maintenance, troubleshooting, & repairs on basic traffic signal/ITS & highway lighting equipment & components.

At the second level, incumbents perform duties such as installation, maintenance, fabrication, programming, troubleshooting, & repairs on more complex traffic signal/ITS & highway lighting equipment & components.

At the third level, incumbents independently program, install, troubleshoot, repair & maintain wireless radio systems, networking equipment, fiber optic communication, complex traffic signal devices & systems &/or install, service, diagnose, repair & perform maintenance on electronic equipment related to the statewide ITS.

Glossary: The following are definitions of terms that will be used in the classification specifications for the first level and beyond indicated by work on basic duties & equipment.

Diagnostic test equipment: equipment used to determine the scope of repair of traffic signals, flashing beacons, highway lighting & other electrical devices (e.g., laptop, line tester, multimeter, ground rod tester, underground utility locator, RF power meter, conflict monitor tester).

Final inspection: refers to inspection of traffic equipment that has been installed by a contractor. The traffic equipment installed is reviewed for the materials provided & functionality for compliance with ODOT standards, which are determined by plans, standard construction drawings, supplemental specifications, the OMUTCD & TEM. An inspection document is filled out & submitted to the contractor & a punch list is created noting all of the items that need addressed before the contractor has been given approval of their work.

Flashing beacon system: typically two flashing yellow LEDs that are activated due to an unsafe roadway condition that has been detected along the ODOT roadway network. The systems can warn for an urgent Highway Advisory Radio message, Tunnel Fire Alarm notification or Queue Warning.

Motorized equipment: aerial, bucket, auger &/or ladder trucks, forklift or electrical lift, trenchers, boom trucks & cranes (e.g., Aerial Broom Crane (ABC), Telescopic Boom Crane – Fixed Cab (TSS), Service Truck Crane (STC), digger derrick).

Mobile devices: a portable smart phone, tablet &/or data collection device with manufacturer/ODOT developed applications/software designed to interface with traffic signal/ITS, highway lighting or miscellaneous electrical devices & equipment.

Ohio Manual of Uniform Traffic Control Devices (OMUTCD): a manual which establishes statewide standards for the design & use of traffic control devices on any street, highway, bikeway, or private roads open to public travel in Ohio. The Ohio Revised Code (Section 4511.09) requires that ODOT adopt a manual for a uniform system of traffic control devices that conforms to the system approved by the Federal Highway Administration (FHWA). To this end, ODOT publishes the OMUTCD, which establishes standards for design & use of traffic control devices that conform to the national Manual on Uniform Traffic Control Devices (MUTCD) published by the FHWA. Section 4511.11 of the Ohio Revised Code requires that all local authorities in their respective jurisdictions, & owners of private property open to public travel, place & maintain traffic control devices in conformance with the OMUTCD.

Ohio Revised Code (ORC): contains all current statues of the Ohio General Assembly & is a reference for all active regulations assembled in the Laws of Ohio.

Road Weather Information System (RWIS): a network of Environmental Sensing Stations (ESS) located throughout the state within the ODOT right of way. Each ESS is comprised of numerous electronic sensors which measure things such as: air temperature, relative humidity, dew point, wind speed & direction, precipitation type & intensity, visibility, road surface temperature, road surface condition, salinity of moisture on roadway &/or subsurface temperature. These sensors communicate with a remote processing unit (RPU) at the site via NTCIP protocol for ESS’s & the RPU then transmits the data wirelessly through a cellular network modem or is directly connected to the ODOT network.
Traffic Engineering Manual (TEM): this manual is a consolidation of ODOT traffic engineering policies, guidelines, standards & best practices. It is intended that all ODOT traffic engineering information is found in this manual or is cross-referenced from it & it is primarily intended for use by ODOT.

Traffic equipment: traffic signal/ITS & highway lighting hardware/software.


Traffic signal software: types of software that are used for traffic signal operation & maintenance (e.g., detection, controller, conflict monitor, highway lighting, inspection & inventory).

Glossary: the following are definitions of terms that will be used in the classification specifications for the second level and beyond indicated by work on complex or advanced duties & equipment.

Adaptive signal system: a signalized traffic signal corridor that changes or adapts traffic signal timing by using real-time & historical vehicle data collection through both field equipment & software.

“As built” construction plans: plans that are modified from the original design during construction.

Cellular modems: programmable communication device that utilize cellular networks to transmit/receive data from a field device to a central ODOT server.

Central based software: configurable computer software that allows users to remotely communicate with traffic signal/ITS or highway lighting devices to give real-time health & functionality status, threshold alerts, performance metrics/error reports & active management capabilities to improve traffic flow & safety of the motoring public.

Communications systems: equipment used to receive & transmit data to/from traffic signal/ITS, highway lighting, or miscellaneous electrical devices to a central ODOT server where real-time data can be analyzed to optimize those systems. The data is received/transmitted through various mediums (e.g., cellular modems, high-speed wireless radio, & fiber optics).

Connected vehicle infrastructure: equipment including but not limited to road side units (RSUs), switches & networking equipment which sends & receives data in standardized format/code to relay messages including: safety, roadway & signal phasing & timing information. There are various channels of communication (e.g., Infrastructure to Vehicle (I2V), Vehicle to Vehicle (V2V), & Infrastructure to mobility applications).

Control center: an enclosure containing input & output electrical connections to manage a series of devices including but not limited to traffic signals/ITS & highway lighting controls.

Destination Dynamic Message Signs (DDMS): green highway guide sign that displays dynamically changing travel times in minutes in the small black LED panel inserts. Like the travel times on normal DMS, motorists can use these signs to get an idea of approximately how long it will take them to get to certain destinations based on the current conditions.

Dynamic Message Signs (DMS): large, electronic signs which overhang or appear along major highways in many Ohio metropolitan areas & are typically used to display information about traffic conditions, travel times, construction & road incidents. Travel time information is the default message that appears daily from 5:00 A.M. - 9:00 P.M. The signs are also used overnight if needed for construction, road incidents or other relative information. The signs are not used for public advertisements, weather information or any other type message unless approved by a statewide or nationwide campaign.

Fiber optic communication: is a method of transmitting information from one place to another by sending pulses of light through an optical fiber. Standard equipment of the system includes the optical fiber, managed switches, fiber patch panels, fiber optic splice kits, buried conduits & pull boxes, aerial fiber runs & connections. This hard-wire connection is the fastest & most secure means of receiving & transmitting data to/from field devices to central ODOT server.

Force Account: a term used to refer to circumstances under which ODOT is not required to competitively bid a construction project & may use its own labor force & equipment to complete the project; ODOT may perform a force account project if the estimated cost of the project is below the force account limits established under the law (ORC 5517.02).
Heavy motorized equipment: auger, trenchers, boom trucks & cranes (e.g., Aerial Broom Crane (ABC), Telescopic Boom Crane – Fixed Cab (TSS), Service Truck Crane (STC), digger derrick), trailers (e.g., tractor trailers, truck & trailer combinations, tanker vehicles, dump trucks, straight trucks, box trucks).

Highway Advisory Radio (HAR): an audio version of a DMS. HAR broadcast locations are marked by signs. By tuning into the specified radio station, you can hear information regarding traffic conditions, travel times, construction, road incidents, missing persons & other information deemed relevant to motorists. Signing for HAR’s generally tells the motorist to tune into the correct AM frequency for 24/7 traffic information & also has flashing beacon lights for traffic alerts. When flashing, there is a traffic alert & motorists are advised to tune into the appropriate AM station.

Intelligent Transportation System (ITS): electronics, communications, or information processing used singly or in combination to improve the efficiency or safety of a surface transportation system.


Networking equipment: devices required for communication & interaction between traffic signal/ITS, highway lighting & miscellaneous electrical devices & a computer network.

Optical Power Meter (OPM): a device used to measure the power in a fiber optic system. A typical optical power meter consists of a calibrated sensor, measuring amplifier & display. The sensor primarily consists of a photodiode selected for the appropriate range of wavelengths & power levels. On the display unit, the measured optical power & set wavelength is displayed.

Optical Time Domain Reflectometer (OTDR): an optoelectronic instrument used to characterize an optical fiber. An OTDR is the optical equivalent of an electronic time domain reflectometer. It injects a series of optical pulses into the fiber under test & extracts, from the same end of the fiber, light that is scattered (Rayleigh backscatter) or reflected back from points along the fiber. The scattered or reflected light that is gathered back is used to characterize the optical fiber. The strength of the return pulses is measured & integrated as a function of time & plotted as a function of fiber length.

Performance metrics: high-resolution data to support objectives & performance-based maintenance & operations strategies that improve safety & efficiency while cutting congestion & cost.

Preemption: the term used when the normal signal sequence at an intersection is interrupted & or altered in deference to a special situation such as the passage of a train, bridge opening, or the granting of the right of way to an emergency vehicle or for other special needs.

Radar detection: a programmable on-street detection unit that utilizes radar technology to place a call to a traffic signal controller when a vehicle is present. Radar detection is adaptable to any signalized intersection & offers flexibility to be reconfigured for any traffic approach scenario. Radar detection is also used to detect occupancy for ramp metering applications along the entrance ramps & mainline freeways.

Ramp meter: a highway traffic signal installed to control the flow of traffic onto a freeway at an entrance ramp or at a freeway-to-freeway ramp connection.

Time based signal system: a signalized traffic signal corridor that runs traffic signal timing that is pre-programmed into a controller based on historical counts & analysis.

Traffic responsive signal system: a signalized traffic signal corridor that changes or adapts traffic signal timing by using real-time & historical vehicle data collection through field equipment & configured in a controller.

Traffic signal system: 2 or more traffic signals that are coordinated with one another that contain complex traffic signal timings.

Truck parking systems: truck parking facilities play a key role in ensuring trucker & public safety by providing safe parking facilities with available parking & direct corridor access. The systems can include a control center which houses inputs for detection, outputs to display the available parking spaces on signs with dynamic displays, communication equipment between the infrastructure & devices & a communication system to bring the data back to a central system on an ODOT server.
**Tunnel fire alarm & notification system:** an electrical system consisting of a control center, fire alarm pull stations & fire detection sensors, which connects to notification warning signs/beacons for the travelling public & sends alarms to local Emergency Management Agencies (EMAs).

**Wireless radio:** a programmable high-speed Ethernet communication device that operates in the 5 GHz spectrum that provides large bandwidth which is optimal for streaming live video & for communicating to multiple field devices. Additionally, it can be defined as serial-based communications device using the RS232 port to transmit & receive bits of information in ODOT’s legacy communication systems between field devices.

**Variable speed limits:** speed limits that change based on pavement, traffic & weather conditions. The infrastructure to be installed & maintained includes the sensors for the data, the DMS that will display the speed limit & all communication equipment to receive & transmit the conditions to the signs & an ODOT central network. Variable speed limits offer considerable promise in restoring the credibility of speed limits & improving safety by restricting speeds during adverse conditions.

**Video detection:** programmable on-street detection unit that utilizes video technology to place a call to a traffic signal controller when a vehicle is present. Video detection, within its environmental means, is adaptable to any signalized intersection & offers flexibility to be reconfigured for any traffic approach scenario.

<table>
<thead>
<tr>
<th>JOB TITLE</th>
<th>JOB CODE</th>
<th>PAY RANGE</th>
<th>EFFECTIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traffic Signal Technician 1</td>
<td>53322</td>
<td>8</td>
<td>6/10/2018</td>
</tr>
</tbody>
</table>

**CLASS CONCEPT:**
The first performance level works under direction & requires basic knowledge of state & national electric code, methods, theories, & principles of electricity & electrical systems & electrical tools/equipment in order to install, maintain, & assemble basic traffic signal/ITS, highway lighting & miscellaneous electrical devices (e.g., signal/pedestrian heads, poles, foundations, cables, conduits, luminaries, controller cabinets, flashing beacons, school flashers) & troubleshoot & make adjustments/repairs.

<table>
<thead>
<tr>
<th>JOB TITLE</th>
<th>JOB CODE</th>
<th>PAY RANGE</th>
<th>EFFECTIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traffic Signal Technician 2</td>
<td>53323</td>
<td>10</td>
<td>6/10/2018</td>
</tr>
</tbody>
</table>

**CLASS CONCEPT:**
The second performance level works under minimal direction & requires considerable knowledge of state & national electric code, methods, theories, & principles of electricity & electrical systems & electrical tools/equipment in order to install, maintain, fabricate & program more complex traffic signal/ITS, highway lighting, & miscellaneous electrical devices (e.g., controller unit, conflict monitor, detection & communication systems) & troubleshoot & make adjustments/repairs; &/or review, process, & respond to Ohio Utilities Protection Services (OUPS) tickets; &/or conduct final inspections; &/or act as lead worker (i.e., provide work direction & training).

<table>
<thead>
<tr>
<th>JOB TITLE</th>
<th>JOB CODE</th>
<th>PAY RANGE</th>
<th>EFFECTIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intelligent Transportation System Specialist</td>
<td>53324</td>
<td>11</td>
<td>6/10/2018</td>
</tr>
</tbody>
</table>

**CLASS CONCEPT:**
The advanced level works under minimal direction & requires thorough knowledge of state & national electric code, methods, theories, & principles of electricity & electrical systems & electrical tools/equipment, programming, & software systems in order to independently program, install, troubleshoot, repair & maintain wireless radio systems, networking equipment, fiber optic communication, complex traffic signal devices & systems (e.g., routers, switches, modems, wireless radios, fiber optic equipment, satellite systems, railroad & emergency vehicle preemption, MMITSS, connected vehicle infrastructure, &/or install, service, diagnose, repair, & perform maintenance on electronic equipment related to the statewide ITS.)
Traffic Signal Technician 1

53322 06 6/10/2018 8

JOB DUTIES IN ORDER OF IMPORTANCE: (These duties are illustrative only. Incumbents may perform some or all of these duties or other job-related duties as assigned.)

Installs, maintains & assembles basic traffic signal/ITS, highway lighting & miscellaneous electrical devices (e.g., signal/pedestrian heads, poles, foundations, cables, conduits, luminaires, controller cabinets, flashing beacons, school flashers); pours concrete for installation of poles & control equipment; utilizes computer &/or mobile devices & related traffic signal software for traffic signal operation & maintenance in accordance with relative ORC sections, OUMTC manual & TEM to ensure public safety (e.g., motorists, pedestrians, cyclists); operates state vehicle to travel to worksites to complete work; under supervision, constructs foundation reinforcement cages; wires control cabinets; programs controllers & monitor cards; conducts annual inspections & monitor testing; troubleshoots & makes necessary adjustments &/or repairs to basic parts of traffic signals, flashing beacons, RWIS hardware & electrical connections, highway lighting up to 480 volt systems (e.g., transformers, fuses, ballasts, luminaires), devices & components using alternating current (AC), direct current (DC), & solar power & other electrical devices (e.g., loop detectors, load switches, pushbuttons, flasher motors) by utilizing diagnostic test equipment to determine scope of repair; performs utility locating of ODOT-owned traffic signal & highway lighting facilities; installs & maintains work zone traffic control including flagging; erects new or repairs or replaces span wire & overhead signs.

Operates computer &/or mobile devices to enter, maintain & retrieve data (e.g., charges items out by code; keeps track of vehicle miles; completes inspection reports on traffic control devices, traffic signal timing sheets & conflict monitor logs; collects asset management data; completes daily maintenance records).

Operates motorized equipment, traffic signal & highway lighting repair equipment & other miscellaneous tools; performs minor repairs & maintenance on equipment & tools; reports defective equipment problems & completion of projects to supervisor; references & reviews user guides &/or manuals for instructional or troubleshooting purposes; maintains stock carried on trucks; performs other duties as assigned (e.g., hauls materials & equipment, trims small branches/limbs/brush to protect electrical equipment or improve visibility, organizes & maintains inventory, assists with sign erection, detour & pavement marking).

Performs periodic inspections of traffic signals under construction to ensure work is in compliance with work plans, specifications & standards; assists upper-level Traffic Signal Technician(s) &/or management with final inspections of new traffic signals installed by contractors; responsible for face-to-face contact with public, school officials during repairs &/or maintenance.

MAJOR WORKER CHARACTERISTICS:

Knowledge of: Fractions, decimals, multiplication & division; basic electrical tools & equipment; state & national electrical code, methods, theories & principles of electricity & electrical systems; safety practices & procedures*; traffic control*.

Skill in: Operation of motorized equipment*, mobile devices &/or computer, diagnostic test equipment.

Ability to: Install, maintain, & repair electrical equipment; interpret traffic signal & highway lighting plans & understand technical instructions; cooperate with co-workers on group projects &/or work alone on some tasks; maintain accurate records; interpret variety of instructions in written, oral, or picture form; lift &/or transport at least 100 pounds.

(*)Developed after employment

MINIMUM CLASS QUALIFICATIONS FOR EMPLOYMENT:

12 mos. electrical trg. &/or exp. to include troubleshooting/repair of electrical circuits (e.g., operation of a multi-meter, wire splicing); valid driver’s license required.

-Or equivalent of Minimum Class Qualifications for Employment noted above.

TRAINING AND DEVELOPMENT REQUIRED TO REMAIN IN THE CLASSIFICATION AFTER EMPLOYMENT:

Must obtain & maintain Class B commercial driver’s license without air brake restriction regulated by Section 4506 of Ohio Revised Code within 12 months of entry into position.

UNUSUAL WORKING CONDITIONS:

Exposed to electrical hazards; work outside & exposed to inclement weather (e.g., temperature extremes, ice, snow, rain),
rough terrain, dust, dirt, fumes & noise; may be exposed to poisonous plants, insects, rodents, & snakes; may be exposed to moving traffic & motoring public; may be exposed to unpleasant surroundings (e.g., sewage, confined space); may be on call 24 hours per day, 7 days per week; may require overnight travel; may be required to work at heights up to 300 feet above ground/water.
Traffic Signal Technician 2

<table>
<thead>
<tr>
<th>JOB TITLE</th>
<th>JOB CODE</th>
<th>B. U.</th>
<th>EFFECTIVE</th>
<th>PAY RANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traffic Signal Technician 2</td>
<td>53323</td>
<td>06</td>
<td>6/10/2018</td>
<td>10</td>
</tr>
</tbody>
</table>

**JOB DUTIES IN ORDER OF IMPORTANCE:** (These duties are illustrative only. Incumbents may perform some or all of these duties or other job-related duties as assigned.)

Installs, maintains, fabricates & programs complex traffic signal/ITS, highway lighting & miscellaneous electrical devices (e.g., controller unit, conflict monitor, detection & communication systems); utilizes computer &/or mobile devices & related traffic signal software for traffic signal operation & maintenance in accordance with relative ORC sections, OMUTCD manual & TEM to ensure public safety (e.g., motorists, pedestrians, cyclists); operates state vehicle to travel to worksites to complete work; wires &/or directs wiring of control cabinets; programs controllers & monitor cards; determines type, size & quantity of cable & materials needed for completion of work assignment; conducts annual inspections & monitor testing; troubleshoots & makes necessary adjustments &/or repairs to components of traffic signals, flashing beacons, RWIS hardware & electrical connections, highway lighting up to 480 volt systems (e.g., transformers, fuses, ballasts, luminaries), tunnel fire alarm & notification systems, devices & components using alternating current (AC), direct current (DC), & solar power & other electrical devices (e.g., preemption features, radar/video detection, radio/cellular communications, control centers) by utilizing diagnostic test equipment to determine scope of repair &/or initiates & maintains contact with Ohio Utilities Protection Services (OUPS) to determine location of existing utilities prior to installation of cabling or poles; reviews OUPS tickets & determines validity through computer software & communication with contractors/excavators; tracks & responds to all OUPS tickets; responsible for face-to-face contact with public, school officials, etc. during repairs &/or maintenance &/or act as lead worker (i.e., provides work direction & training) over lower-level Traffic Technician(s) &/or other employees assigned to work crew in maintenance, rebuilding, repair & installation of traffic signals, highway lighting & related electrical items; explains/enforces policies & procedures as needed; has authority to stop work when policies & procedures are not being followed; contacts equipment manufacturers &/or suppliers to discuss hardware &/or software problems arising in equipment testing or cabinet wiring.

Operates computer &/or mobile devices to enter, maintain & retrieve data (e.g., charges items out by code; keeps track of vehicle miles; completes inspection reports on traffic control devices, traffic signal timing sheets & conflict monitor logs; completes daily maintenance records; maintains material inventories; places orders & makes necessary purchases when directed).

Operates heavy motorized equipment, traffic signal & highway lighting repair equipment & other miscellaneous tools; performs minor repairs & maintenance on equipment & tools; reports defective equipment problems & completion of projects to supervisor; references & reviews user guides &/or manuals for instructional or troubleshooting purposes; performs other duties as assigned (e.g., hauls materials & equipment, trims small branches/limbs/brush to protect electrical equipment or improve visibility, organizes & maintains inventory, assists with sign erection, detour & pavement marking).

Performs periodic inspections of traffic signals under construction to ensure work is in compliance with work plans, specifications & standards; conducts final inspections of new traffic signals installed by contractors; develops &/or creates punch list of items to be addressed after inspection.

Coordinates with other District personnel regarding assigned projects, use of traffic control equipment & personnel; performs duties of lower-level Traffic Technician(s).

**MAJOR WORKER CHARACTERISTICS:**

**Knowledge of:** Fractions, decimals, multiplication & division; electrical tools & equipment; state & national electrical code, methods, theories, and principles of electricity & electrical systems; safety practices procedures; traffic control.

**Skill in:** Operation of equipment, mobile devices &/or computer, diagnostic test equipment.

**Ability to:** Install, maintain, program, & repair electrical equipment; interpret traffic signal & highway lighting plans & understand technical instructions; cooperate with co-workers on group projects &/or work alone on some tasks; maintain accurate records; interpret a variety of instructions in written, oral, or picture form; lift &/or transport at least 100 pounds.

(*)Developed after employment
MINIMUM CLASS QUALIFICATIONS FOR EMPLOYMENT:
Undergraduate core in electrical engineering or engineering and transportation technology; 12 mos. exp. troubleshooting/maintaining &/or repairing of electrical circuits & traffic signal components; valid Class B commercial driver’s license without air brake restriction required.

Associate core in electrical engineering or engineering and transportation technology; 18 mos. exp. troubleshooting/maintaining &/or repairing of electrical circuits & traffic signal components; valid Class B commercial driver’s license without air brake restriction required.

-Or 36 mos. trg. &/or exp. in troubleshooting/maintaining &/or repairing electrical circuits & traffic signal components; valid Class B commercial driver’s license without air brake restriction required.

24 mos. exp. as a Traffic Signal Technician 1; valid Class B commercial driver’s license without air brake restriction required.

-Or equivalent of Minimum Class Qualifications for Employment noted above.

TRAINING AND DEVELOPMENT REQUIRED TO REMAIN IN THE CLASSIFICATION AFTER EMPLOYMENT:
Must maintain Class B commercial driver’s license without air brake restriction regulated by Section 4506 of Ohio Revised Code.

UNUSUAL WORKING CONDITIONS:
Exposed to electrical hazards; works outside & exposed to inclement weather (e.g., temperature extremes, ice, snow, rain), rough terrain, dust, dirt, fumes & noise; may be exposed to poisonous plants, insects, rodents, & snakes; may be exposed to moving traffic & motoring public; may be exposed to unpleasant surroundings (e.g., sewage, confined space); may be on call 24 hours per day, 7 days per week; may require overnight travel; may be required to work at heights up to 300 feet above ground/water.
JOB TITLE | JOB CODE | B. U. | EFFECTIVE | PAY RANGE
---|---|---|---|---
Intelligent Transportation System Specialist | 53324 | 06 | 6/10/2018 | 11

JOB DUTIES IN ORDER OF IMPORTANCE: (These duties are illustrative only. Incumbents may perform some or all of these duties or other job-related duties as assigned.)

Independently programs, installs, troubleshoots, repairs & maintains, wireless radio systems, networking equipment, fiber optic communication, complex traffic signal devices & systems (e.g., routers, switches, cellular modems, wireless radios, fiber optic equipment, satellite systems, railroad & emergency vehicle preemption, connected vehicle infrastructure, MMITSS, RWIS, tunnel fire alarm & notification systems); utilizes computer, diagnostic test equipment & other various tools (e.g., OTDR, copper network qualification & certification testers, OPM) & central based software for remotely monitoring traffic signal operation & maintenance; develops a basic understanding of relative ORC sections, OMO, CD manual to ensure compliance & public safety (e.g., motorists, pedestrians, cyclists); operates state vehicle to travel to worksites to complete work; monitors & verifies traffic signal system (e.g., adaptive, traffic responsive, time based) is synchronized, communicating & functioning as designed & makes necessary adjustments; utilizes computer & central based software to gather data (e.g., error logs, performance metrics, signal event & fault reports); contacts communications service providers when communication circuits are malfunctioning & sets up repair; conducts final inspections of complex traffic signal systems & components installed by contractors; develops &/or creates punch list of items to be addressed after inspection.

Gathers data, prepares documentation & maintains files for “as built” construction plans, cabinet drawings, timing charts & maintenance records; verifies/certifies timing records, monitor test reports, etc. for public records requests &/or court hearings; reviews materials & catalogs describing traffic control devices & gives recommendations to management; participates in research &/or evaluations of new devices or concepts by collecting data & preparing written reports of findings; documents benefits &/or downfalls of new devices or concepts in comparison to existing devices or concepts for Traffic Engineer(s); stays abreast of new technologies & industry standards.

&/OR

Installs, services, diagnoses, repairs & performs maintenance on electronic equipment related to statewide ITS (e.g. side fired radar detection, DMS, freeway surveillance cameras, ramp meters, fiber optics, network switches, network radios, HARs, truck parking systems, DDMS, variable speed limits, flashing beacon systems); utilizes computer to determine operational status & configuration of remote & local ITS field devices in accordance with relative ORC sections, OMO, CD manual to ensure public safety (e.g., motorists, pedestrians, cyclists); operates state vehicle to travel to worksites; conducts prequalification & performance testing of ITS devices to ensure that submitted equipment meets departmental specifications; confers with equipment manufacturers &/or suppliers to discuss hardware &/or software issues detected during testing or repair procedures; contacts manufacturers or suppliers to obtain repair estimates to report to supervisor for repair approval; operates state vehicle & heavy motorized equipment in order to inspect & maintain roadway information systems located throughout state; provides oral &/or written reports to supervisors based on testing & field conditions.

Reviews construction plans to ensure that ITS work proposed complies with departmental standards; calculates quantities & prepares work orders &/or plans for replacement of deficient equipment; organizes & maintains inventory; places orders & makes necessary purchases as needed.

Attends meetings, as directed, & provides direction &/or input, based on departmental standards to District construction engineers; visits construction projects to provide work direction & site approval to contractors & verify satisfactory installations.

Act as lead worker (i.e., provides work direction & training) over lower-level Traffic Technician(s) &/or other employees assigned to work crew in maintenance, rebuilding, repair & installation of traffic signals, highway lighting & related electrical items; explains/enforces policies &/or procedures as needed; has authority to stop work when policies & procedures are not being followed; serves on committees to develop new policies &/or procedures when changes in laws, new technology developments, &/or safety concerns arise.
MAJOR WORKER CHARACTERISTICS:
Knowledge of: Fractions, decimals, multiplication, & division; state & national electrical code, methods, theories, and principles of electricity & electrical systems; programming; software systems; safety practices & procedures; relative ORC codes*; OMUTCD manual*; TEM*.

Skill in: Operation of heavy motorized equipment, mobile devices &/or computer, diagnostic test equipment.

Ability to: Program, install, troubleshoot, repair, & maintain complex electrical equipment; interpret traffic signal/ITS & highway lighting plans & understand technical instructions; interpret a variety of instructions in written, oral, or picture form; cooperate with co-workers on group projects &/or work alone on some tasks; gather, collate & classify information about data, people or things; lift &/or transport at least 100 pounds.

(*)Developed after employment

MINIMUM CLASS QUALIFICATIONS FOR EMPLOYMENT:
Undergraduate core in electrical engineering or engineering and transportation technology; 36 mos. exp. troubleshooting/maintaining &/or repairing of electrical circuits & traffic signal components

60 mos. of combined electrical trg. &/or exp. to include 60 mos. traffic signal or ITS related trg. &/or exp. to include troubleshooting/repair of electrical circuits, networking/communication equipment & traffic signal or ITS components.

-Or 24 mos. exp. as a Traffic Signal Technician 2.

-Or equivalent of Minimum Class Qualifications for Employment noted above.

Note: If position will be assigned to operate motorized equipment of size & type regulated by Sections 4506.1, 4506.03 & 4506.12 of the Ohio Revised Code, applicant must also have valid commercial driver license; if required to operate state vehicle must have valid driver’s license.

UNUSUAL WORKING CONDITIONS:
Exposed to electrical hazards; works outside & exposed to inclement weather (e.g., temperature extremes, ice, snow, rain), rough terrain, dust, dirt, fumes & noise; may be exposed to poisonous plants, insects, rodents, & snakes; may be exposed to moving traffic & motoring public; may be exposed to unpleasant surroundings (e.g., sewage, confined space); may be on call 24 hours per day, 7 days per week; may require overnight travel; may be required to work at heights up to 300 feet above ground/water.