

## INTELLIGENT TRANSPORTATION SYSTEMS (ITS) ANALYST

### JOB DESCRIPTION

**Classification Responsibilities:** Under general supervision, the Intelligent Transportation Systems (ITS) Analyst performs advanced-level technical traffic engineering and system analysis duties in the design, analysis, monitoring, and updating of the City's Intelligent Transportation Systems. This class performs technical paraprofessional office and field traffic engineering studies (traffic signal) work at new and existing signals and provides assistance to the public regarding traffic signal timing complaints. Specific duties include: developing, monitoring, and updating traffic signal timing plans; implementing coordination plans using the centralized traffic signal computer systems; designing, managing, and implementing responsive or adaptive traffic signal timing networks; monitor traffic conditions and adjust traffic signal timings in response to changing traffic conditions; collecting and analyzing traffic data to improve traffic signal timing; integrating new technologies with existing systems and resolving any compatibility problems; preparing analytical studies and making recommendations; implementing changes to the traffic signal system; programming, repairing, and/or designing ITS equipment and systems; assisting the ITS Network/Communications Administrator with managing the network, servers and workstations, fiber optic infrastructure, etc.; implementing network/user security (anti-virus software, security applications, password policies); managing the design, operations, and maintenance of closed circuit television cameras, dynamic message signs, and detectors; and performing database management which involves backing up the database systems to evaluate the system functionality. This class performs other related work as required.

**Distinguishing Features:** An employee of this class performs specialized work in such technical areas as: signal timing and coordination, analysis of statistical data to identify signal system deficiencies and malfunctions, evaluation of signal timing software, conducting field observations and monitoring traffic signal operation to minimize driver delay and optimize progression, troubleshooting problems with the computer interface, developing system timing and progression plans, and producing optimum Signal Progression Plans. The employee assists in writing specifications for technical operational standards and special operational sequence standards for traffic signal controllers. Work is performed under the general direction of the ITS Engineer, Senior Transportation Engineer, or ITS Network/Communications Administrator who makes assignments and reviews work for compliance with standards as well as end results achieved. This class is FLSA exempt-administrative.

### QUALIFICATIONS

**Employee Values:** All employees of the City of Mesa are expected to uphold and exhibit the City's shared employee values of Knowledge, Respect and Integrity.

**Minimum Qualifications Required.** Any combination of training, education, and experience equivalent to graduation from an accredited college or university with an Associate's Degree with major coursework in civil or traffic engineering, or a related field. Extensive (5+ years) work experience in civil or traffic engineering, at least two years of which involved working with the design, operation or timing of traffic signals or related systems.

**Special Requirements.** Must possess a valid Arizona Driver's License by hire date.

**Substance Abuse Testing.** Due to the safety and/or security sensitive nature of this classification, individuals shall be subject to pre-employment or pre-placement alcohol, drug and/or controlled substance testing as outlined in City policy and procedures.

**Preferred/Desirable Qualifications.** An International Municipal Signal Association (IMSA) Levels I and II Traffic Signal Technician Certification is preferred.

## **ESSENTIAL FUNCTIONS**

One position may not include all of the essential functions, knowledge and abilities listed, nor do the listed examples include all the knowledge and abilities which may be found in positions of this classification.

**Communication:** Communicates with the general public, City employees, vendors, management, contractors, and public officials in order to relay information about traffic signals and ITS devices, and coordinate system operation and system function capabilities. Communicates with other municipalities over multi-jurisdictional issues, such as inter-city coordination. Resolves technical communication repair problems by working with service providers regarding outages. Communicates with signal system supplier and ITS device equipment manufacturers to correct deficiencies, and to plan for future expansion requirements. Instructs and explains in an informal setting the function of signal systems operations to signal technicians, staff, and management. Prepares written documents such as ITS specifications, recommendations, documentation, visual aids, and graphs with clearly organized thoughts using proper sentence construction, punctuation, and grammar. Prepares documentation of work performed.

**Manual/Physical:** Reviews the work of others to ensure compliance with standard operating procedures, federal and state regulations, and City of Mesa Traffic Signal Specifications. Prepares and updates maps, graphs, and schedules to provide information on ITS operations and activities. Develops, monitors and evaluates traffic signal timing plans to ensure correlation with prevailing traffic patterns. Installs and replaces cables, modems, filters, and/or drives to keep network equipment operating properly. Operates a City vehicle requiring a standard Arizona Driver's License to conduct field reviews, check installation, operation, and progression of traffic signals. Uses common hand tools such as a crimper, pliers, and screw drivers. Perceives the full range of the color spectrum in order to test and evaluate traffic signals and computer system harnesses. Operates standard office equipment such as a telephone, calculator, and personal computer (PC). Moves material such as central computer equipment, and exhibition demo equipment from one place to another using a hand truck and wheeled cart. Moves objects such as: a video monitor, PCs, or controllers a distance of 50 feet. Sets up traffic cones to comply with City of Mesa Traffic Barricade Manual and Transportation Safety Manual. Works in a variety of weather conditions while performing a field timing check of traffic signals. Detects traffic sounds when working near moving traffic, backup warning devices when working around moving equipment, sirens, and calls for help. Meets scheduling and attendance requirements.

**Mental:** Plans, organizes, and/or directs troubleshooting of traffic signal cabinets, communication problems, or modification to controller timing. Works with ITS Operations staff to ensure proper corrective measures and procedures are used for ITS operation and maintenance. Responds to timing sheet requests and other assigned duties. Resolves operational and other work-related problems.

Coordinates work activities such as traffic signal timing with other City departments, other cities, and Arizona agencies. Conducts research and analyzes data to identify deficiencies, malfunctions and evaluate signal timing software to determine optimum operational parameters at the lowest cost ratio. Performs mathematical calculations and statistical computations for cost analysis and related activities. Comprehends and makes inferences from written material such as policy and user manuals, and safety directories to conduct the operation and conform to regulations affecting traffic signals. Understands and interprets blueprints and other visual aids as necessary to repair and modify layout and/or configuration of a site plan or circuit. Estimates material cost from blueprints. Learns job-related material through on-the-job training regarding controller operation, highly sophisticated machine vision technology, and full motion traffic video.

**Knowledge/Skills/Abilities:**

Knowledge of:

principles and practices of computerized traffic control system design and maintenance including video-monitoring systems, automated traffic systems, responsive and adaptive traffic signal timing, and traveler information systems;  
current Intelligent Transportation Systems (ITS) theories and practices;  
traffic engineering and civil engineering principles, practices, and theories;  
operation and timing sequences of various types of traffic control devices;  
traffic signal field construction, construction plans, and specifications;  
principles of basic computer science, programming, and computerized traffic signal systems operations;  
system timing and progression plans through various software packages;  
traffic characteristics of the City of Mesa;  
industry standards and specifications such as: ITE, NEMA, MUTCD, MAG Standard Details, OSHA, etc.; and  
symbols and terminology used in analyzing arterial and grid progression schemes.

Skill in:

operating a computer, basic computer programming, and systems analysis;  
effective communication, both orally and in writing using mechanical instruments and tools; and  
designing computerized traffic control system software.

Ability to:

analyze, develop, and evaluate traffic signal timing plans;  
compile technical data and prepare statistical and narrative reports from field studies;  
conduct, analyze, and review traffic engineering studies for preparation and implementation of the traffic signal timing devices;  
conduct numerous software and hardware tests and recommend new design for key segments of the software;  
produce and analyze arterial and grid progression schemes, study results of progression programs, and select the most valid plan;  
update traffic signal operation and timing sheets for traffic signals in accordance with the Manual on Uniform Traffic Control Devices;

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coordinate with technical personnel to perform emergency signal maintenance work;  
diagnose Telecommunication problems;  
research alternate forms of communications; and  
handle all physical requirements of the class.

The duties listed above are intended only as general illustrations of the various types of work that may be performed. Specific statements of duties not included does not exclude them from the position if the work is similar, related, or a logical assignment to the position. Job descriptions are subject to change by the City as the needs of the City and requirements of the job change.

Revised 6/18

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EEO-Tech

JOB FCTN-TEC

INCREMENTS 46-200

PAY GRADE: 52

IND-5506

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