

Title: Engineering Technician	Effective Date: August 9, 2024	Grade: XI	Job Category: Professional
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CHARACTERISTICS OF WORK

Under immediate supervision, this position is responsible for assisting in various engineering related tasks as required.

EXAMPLES OF WORK

The following examples are intended only as illustrations of various types of work performed. No attempt is made to be exhaustive. Related, similar, or other logical duties are performed as assigned. The Department may require employees to perform functions beyond those contained in job descriptions. The Department may modify job descriptions based on Department needs. The Arkansas Department of Transportation is an "at will" employer.

- Perform engineering duties in planning, research, design, or the construction and maintenance of Arkansas' roadways and bridges.
- Receive specialized training from designated training personnel.
- Apply engineering techniques, procedures, and criteria within rules, regulations, specifications, and operating procedures of the Department.

ADDITIONAL EXAMPLES OF WORK APPLICABLE TO BRIDGE

- Evaluate survey, soil and hydraulic data, and design bridge types as directed for inclusion in the project plans.
- Produce layouts, structural details and related technical drawings using computer-aided design and drafting (CADD).
- Assemble design drawings, specifications and bid quantities, and make cost estimates for completed bridge projects.
- Analyze existing bridge structures for load capacity as part of the Department's continuing bridge inspection and rating program.
- Coordinate with structural detailers in plan preparation of projects which they have designed.

ADDITIONAL EXAMPLES OF WORK APPLICABLE TO HYDRAULICS

- Conduct hydrologic and hydraulic investigations and analyses for bridges and other hydraulic structures.
- Investigate highway related drainage problems.
- Coordinate hydrology and hydraulic design with other federal, state, and local agencies.
- Prepare detailed analytical reports in connection with hydrologic and hydraulic studies.

ADDITIONAL EXAMPLES OF WORK APPLICABLE TO MAINTENANCE

- Develop thorough knowledge of all phases of highway maintenance and the Asset Management Program.
- Maintain mutually beneficial relationships with District personnel and Area Maintenance Supervisors in order to assist in solving maintenance problems.
- Analyze and recommend solutions to maintenance problems.
- Asset Management
 - Perform pavement data analysis on data collected using nondestructive equipment, including but not limited to: the Falling Weight Deflectometer, Skid Truck, and Pavement Performance Data Collection Vehicle.
 - Conduct network level analysis using various pavement data types and evaluate project level pavement data to recommend appropriate rehabilitation strategies.
 - Ensure that QC/QA practices are implemented and followed at all levels in the data collection, analysis, and reporting processes.
 - Assist in project identification and prioritization for the State Transportation Improvement Program.
 - Provide pavement condition data to the Administration and other Divisions.

ADDITIONAL EXAMPLES OF WORK APPLICABLE TO MATERIALS

- Conduct quality assurance tests of materials used on Department projects.
- Recommend acceptance of test results of materials.
- Assist in the monitoring of materials problems and functions for construction and maintenance activities.

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ADDITIONAL EXAMPLES OF WORK APPLICABLE TO PLANNING AND RESEARCH

- Multimodal and Project Planning
 - Evaluate travel patterns, produce traffic models and project future traffic demand for project design purposes.
 - Analyze and recommend solutions to address transportation mobility and safety needs.
 - Perform transportation planning activities and conduct planning studies.
 - Assess transportation system performance.
- Research
 - Serve as Project Coordinator for contract research projects, including all project management activities (review reports, claims for reimbursement, changes in contracted work plans and requests for budget changes).
 - Serve as Principal Investigator for in-house research projects, including conducting research and project management activities.
 - Translate research findings into understandable and usable language and provide assistance in implementing research results.
 - Coordinate work between the various Divisions and Districts of the Department and research contractors.
- Traffic Safety
 - Conduct localized or systemwide highway safety studies to identify safety needs and priorities.
 - Identify safety countermeasures and evaluate their cost effectiveness.
 - Coordinate with the various Divisions and Districts of the Department to implement the Highway Safety Improvement Program.

ADDITIONAL EXAMPLES OF WORK APPLICABLE TO PROGRAM MANAGEMENT

- Assist in the coordination of local and state project activities.
- Prepare bid proposals, contract documents, etc.
- Assist with various local federal-aid programs.

ADDITIONAL EXAMPLES OF WORK APPLICABLE TO TRANSPORTATION SYSTEMS MANAGEMENT AND OPERATIONS

- Traffic Information System
 - Conduct traffic weight analysis for load spectra inputs.
- Traffic Operations
 - Assist and train in developing and reviewing plans, quantities, specifications, systems engineering, analyses, requests for proposals, photometrics, submittals, etc.
 - Assist and train in using CAD and modeling software to develop traffic signal, roadway lighting, radio, and Intelligent Transportation System (ITS) plans.
 - Assist in performing calculations for optimal signal timing, photometric values, power requirements, RF propagation, etc.
 - Provide input in the design, program, and certify at-grade interconnect signals.
 - Assist and train in the programming of network switches, routers, radios, and port-servers.
 - Assist and train in DMS, CCTV, RWIS, MaRWIS, Travel Time, etc.
 - Attend project planning, pre-construction, and safety meetings, along with any applicable workshops and training.
 - Participate and assist in inspections of contract and permitted work.
 - Use ATMS software to store, program, and troubleshoot traffic signal and ITS systems.
 - Assist in the development of statewide traffic signal, roadway lighting, and ITS asset databases.
 - Assist with traffic, roadway lighting, radio, and ITS design, review, inspection, and operations as needed.

ADDITIONAL EXAMPLES OF WORK APPLICABLE TO ROADWAY AND STATE AID DESIGN

- Conceive, design and evaluate various highway features and recommend alternates for inclusions in project plans.
- Establish horizontal and vertical alignment and right of way requirements for inclusion in plans.
- Compile data and write reports and specifications in conjunction with design plans.
- Compute project cost estimates and assemble estimated quantities for project plans.

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ADDITIONAL EXAMPLES OF WORK APPLICABLE TO SURVEYS

- Assist with the planning and execution of highway surveys; compile and analyze data.
- Assist with the review and submission of completed survey data to appropriate Divisions within the Department.
- Evaluate, test, and document advanced geospatial technologies for implementation.
- Provide training to survey crews and consultants in the use of Department data collection and CADD programs.
- Assist in the development and operation of the Department’s statewide control network.

ADDITIONAL EXAMPLES OF WORK APPLICABLE TO RESIDENT ENGINEER OFFICES

- Assure the effective and complete adherence of approved plans and specifications to result in correct construction of projects.
- Assist in the coordination of Inspectors to assure adherence to specifications.
- Maintain records using SiteManager software to ensure proper estimate payments.
- Analyze plans and recommend needed changes.
- Maintain mutually beneficial relationships with contractor and public to facilitate cooperation and coordination of the project.
- Perform survey work as required.

MINIMUM REQUIREMENTS

Education and experience:

Graduation from an EAC of ABET approved engineering curriculum or equivalent as judged by the Arkansas Board of Registration for Professional Engineers and Land Surveyors.

Knowledge, skills and abilities:

Ability to communicate both orally and in writing. Ability to organize, prioritize and multi-task. Knowledge of Microsoft Office products including Word, Excel and Outlook.

Working conditions:

Office or outdoor environment depending on location.

Licenses, registrations and certifications:

Valid driver’s license required for some positions.

APPLICABLE TO RESIDENT ENGINEER OFFICES

Frequently drive a Department vehicle to various locations within the District.

APPLICABLE TO TRAFFIC OPERATIONS

Knowledge of basic electrical circuit theory and electronics. Ability to read circuit diagrams. Basic knowledge of the Manual on Uniform Traffic Control Devices (MUTCD), National Electric Code (NFPA 70) and MicroStation preferred.

Licenses, registrations and certifications:

Valid driver’s license. Must obtain certification in Soils and Concrete Field Testing by the Technician Program at the Center for Training Transportation Professionals, or equivalent certification within one year of hire. Failure to obtain the certification within the allotted time period may result in demotion or immediate termination.

(“EAC of ABET” means Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology.)