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**AOT Temporary Job Specifications
Science, Technology, Engineering, and Math**

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Transportation Aide I

Job Code: 14800T

Pay Grade: 12

Occupational Category: Science, Technology, Engineering and Mathematics

Class Definition:

This is a pre-entry level class to the Vermont Agency of Transportation's Technician series. Work assignments are routine and involve repetitive activities in construction inspection, soils and aggregate testing, field surveys, video log activities, crash data entry, updating of Functional Class maps, conducting turning movement counts, pavement marking, sign installation and mapping. Work is performed under the close supervision of a higher-level technician, engineer, or administrative person. There are no supervisory responsibilities.

Examples of Work:

The following activities are indicative of the levels of difficulty and responsibilities involved: Inspects topsoil, seeding and mulching operations. Performs basic level rod duties on field surveys. Assists with subsurface investigations. Operate and control the paint guns on the marking truck and install and remove signposts and signs. Conduct turning movement counts at roadway intersections. Prepare simple drawings, displays and graphics. Perform chemical analysis of cements, pozzolans and admixtures. Compiles maps and route logs to be used in the field by the Video log Technician. Drive the ARAN survey van for video logging operation.

Knowledge, Skills and Abilities:

Working knowledge of basic mathematics including addition, subtraction, multiplication and division of whole and fractional numbers and computation and computation of areas and volumes of regular shapes.

Working knowledge of commonly used weights and measures.

Keyboarding skills and general computer skills.

Good communication skills.

Skill in the operation of a handheld calculator.

Ability to learn quickly the routine technical work of the unit to which assigned.

Ability to establish and maintain effective working relationships.

Working knowledge of Vermont Agency of Transportation rules, regulations, policies, and procedures as they pertain to project assignments.

Working knowledge of procedures for performance of assigned activities.

Ability to perform assigned activities in a timely and satisfactory manner.

Environmental Factors:

Duties are performed in office, laboratory, and field settings. Class incumbents may be required to carry equipment weighing up to 40 pounds, traverse rough wooded terrain and or steep terrain, travel in boats or work on structures above ground level. Duties may also require exposure to extreme weather conditions.

Minimum Qualifications:

High school diploma or equivalent.

NOTE: Current, valid driver's license required.

Transportation Aide II

Job Code: 14810T

Pay Grade: 14

Occupational Category: Science, Technology, Engineering and Mathematics

Class Definition:

This is a pre-entry level class to the Vermont Agency of Transportation's technician series for persons with one year of post-high school education and or experience performing engineering support tasks. Work assignments are routine and involve repetitive activities in construction inspection, soils and aggregate testing, bituminous plant inspection, Portland Cement Concrete inspection, research data collection, analysis and reduction, chemical analysis of cements and other materials, design of simple bridges or culverts, field surveys, videoing activities, crash data entry, updating of Functional Class maps, conducting turning movement counts and mapping. Work is performed under general supervision of a higher-level technician, engineer, or administrative person. New assignments are performed under close supervision. There are no supervisory responsibilities.

Examples of Work:

The following activities are indicative of the levels of difficulty and responsibilities involved: Inspecting topsoil, seeding, and mulching operations. Performs basic level rod duties and some instrument work on field surveys. Assists with subsurface investigations. Take samples of bituminous concrete mixture from haul vehicles and perform tests. Conduct sampling, testing and inspection of concrete making, materials, mid inspection of concrete production at batch plants. Perform ongoing field data collection on pavement life and bridge deck corrosion. Perform chemical analysis of cements, pozzolans and admixtures. Assigned as field team leader on two or more person turning movement counts at roadway intersections. Design simple bridges or culverts. Prepare or check bridge plan sheets. Calculate design quantities. Prepare displays and graphics. Compile maps and route logs to be used in the field by the Video log Technician. Drive the ARAN survey van for video logging operation.

Knowledge, Skills and Abilities:

Working knowledge of basic mathematics including solving equations with one unknown and calculations of areas and volumes of regular shapes.

Working knowledge of commonly used weights and measures.

Keyboarding skills and general computer skills.

Ability to communicate effectively orally and in writing.

Ability to maintain logs and records and to prepare clear effective reports.

Skills in the operation of handheld calculator.

Ability to learn quickly the routine technical work of the unit to which assigned.

Ability to establish and maintain effective working relationships.

Working knowledge of Vermont's Agency of Transportation rules, regulations, policies and procedures as they pertain to project assignments.

Ability to gather and analyze technical data.

Ability to read and understand specifications and reference manuals.

Working knowledge of basic drafting techniques and equipment.

Working knowledge of procedures for performance of assigned activities.

Ability to perform assigned activities in a timely and satisfactory manner.

Environmental Factors:

Duties are performed in office, laboratory, and field settings. Class incumbents may be required to carry equipment

weighing up to 40 pounds, traverse rough wooded terrain and or steep terrain, travel in boats or work on structures above ground level. Duties may also require exposure to extreme weather conditions.

Minimum Qualifications:

One (1) year of post-high school education.

OR

High school diploma or equivalent AND one (1) year of experience performing engineering support tasks.

OR

Two (2) seasons working for the Agency of Transportation as a Transportation Aide I.

NOTE: Current, valid driver's license required.

AOT Technical Apprentice I

Job Code: 15300T

Pay Grade: 12

Occupational Category: Science, Technology, Engineering and Mathematics

Effective Date: 02/01/09

Class Definition:

This is a pre-entry level class to the Vermont Agency of Transportation's Technical Apprentice Series. Work assignments are routine and involve repetitive activities in construction inspection, soils and aggregate testing, field surveys, video log activities, crash data entry, updating of Functional Class maps, conducting turning movement counts, pavement marking, sign installation and mapping. Work is performed under the close supervision of a higher level Classified VTrans Technician, Engineer, or Administrative person. There are no supervisory responsibilities.

Examples of Work:

The following activities are indicative of the levels of difficulty and responsibilities involved: Inspects topsoil, seeding and mulching operations, perform basic level rod duties on field surveys, assist with subsurface investigations, operate and control the paint guns on the marking truck, install and remove sign posts and signs, conduct turning movement counts at roadway intersections, prepare simple drawings, displays and graphics, compile maps and route logs to be used in the field by the Video log Technician, or drive the ARAN survey van for video logging operations.

Environmental Factors:

Duties are generally performed in both an office and field setting for which private means of transportation must be available. Fieldwork may involve exposure to hazardous materials, traffic hazards and construction sites during all weather conditions; and may involve traversing rough terrain and bodies of water. Class incumbents may be required to carry equipment weighing up to 40 pounds, traverse rough, wooded and steep terrain, travel in boats or work on structures above ground level. Duties may also require exposure to extreme weather conditions.

Knowledge, Skills and Abilities:

Knowledge of basic mathematics including addition, subtraction, multiplication and division of whole and fractional numbers, and computation of areas and volumes of regular shapes.

Working knowledge of commonly used weights and measures.

Ability to learn basic computer keyboarding skills.

Ability to communicate effectively orally and in writing.

Ability to learn quickly the routine technical work of the unit to which assigned.

Ability to establish and maintain effective working relationships.

Ability to become familiar with the Agency of Transportation's rules, regulations, and policies and procedures as they pertain to the incumbent's assignment.

Minimum Qualifications:

High School diploma or equivalent.

NOTE: Current, valid driver's license required, and transportation may be required for field assignments.

AOT Technical Apprentice II

Job Code: 15400T

Pay Grade: 14

Occupational Category: Science, Technology, Engineering and Mathematics

Effective Date: 02/01/09

Class Definition:

This is a pre-entry level class to the Vermont Agency of Transportation's Technical Apprentice series. Work assignments are routine and involve repetitive activities in construction inspection, soils and aggregate testing, bituminous plant inspection, Portland Cement Concrete inspection, research data collection, design of simple bridges or culverts, field surveys, video log activities, crash data entry, updating of Functional Class maps, conducting turning movement counts and mapping. Work is performed under general supervision of a Classified VTrans Technician, Engineer or Administrative person. New assignments are performed under close supervision. There are no supervisory responsibilities.

Examples of Work:

The following activities are indicative of the levels of difficulty and responsibilities involved: Inspecting topsoil, seeding and mulching operations, performs basic level rod duties and some instrument work on field surveys, assists with subsurface investigations, take samples of bituminous concrete mixture from haul vehicles and perform tests, conduct sampling, testing and inspection of concrete making materials and inspection of concrete production batch plants, perform on-going field data collection on pavement life and bridge deck corrosion, perform physical and chemical testing of highway construction materials, conduct research for experimental materials being used on construction projects, assigned as a field team leader on two or more person turning movement counts at roadway intersections, design simple bridges or culverts, or repair or check bridge plan sheets under the supervision of the Project Manager. Incumbent may calculate design quantities, prepare displays and graphics, and compile maps and route logs to be used in the field by the Video log Technician. Drive the ARAN survey van for video logging operations.

Environmental Factors:

Duties are generally performed in office and field settings for which private means of transportation must be available, or in the laboratory. Field work may involve exposure to hazardous materials, traffic hazards and construction site during all weather conditions; and may involve traversing rough terrain and bodies of water. Class incumbents may be required to carry equipment weighing up to 40 pounds, traverse rough wooded terrain and/or steep terrain, travel in boats or work on structures above ground level. Duties may also require exposure to extreme weather conditions.

Knowledge, Skills and Abilities:

Working knowledge of basic mathematics, including calculations of area and volumes.

Working knowledge of commonly used weights and measures.

Working knowledge of basic drafting techniques and equipment.

Awareness of transportation construction and maintenance technology.

Skill in the operation of a hand-held calculator.

General computer skills.

Ability to communicate effectively orally and in writing.

Ability to maintain logs and records and to prepare clear effective reports.

Ability to learn quickly the routine technical work of the unit to which assigned.

Ability to establish and maintain effective working relationships.

Ability to gather and analyze technical data.

Ability to read and understand specifications and reference manuals.
Ability to perform assigned activities in a timely and satisfactory manner.

Minimum Qualifications:

One (1) year of post-high school education.

OR

High school diploma or equivalent AND one (1) year of work experience.

OR

Two (2) seasons working as an AOT Technical Apprentice I with the State of Vermont.

NOTE: Current, valid driver's license required, and transportation may be required for field assignments.

AOT Technical Apprentice III

Job Code: 15500T

Pay Grade: 15

Occupational Category: Science, Technology, Engineering and Mathematics

Effective Date: 02/01/09

Class Definition:

The apprentice position prepares the participant for an entry level technical position within the Vermont Agency of Transportation. It is for those with an Undergraduate degree major area of study in a technical field and limited, if any, practical experience. Work experiences are directed toward exposing the Apprentice to a varied professional practical application covering a broad range of professional experiences. Work assignments require application of standard techniques, procedures and criteria in carrying out and making preliminary selections of technical alternatives best applied to well defined tasks at hand. Initial work assignments are completed under close supervision and oriented more toward training than productivity. Assignments are normally repetitive in nature when a relative independence of action is required, within the limited supervision from a more experienced technician, engineer, or administrative supervisor. There are no supervisory responsibilities.

Examples of Work:

Work assignments for technical apprentices exist in the following area: hydraulics; laboratory; route survey; environmental; historical preservation; roadway design; structures; construction inspection and other minor survey and design work. The following activities are indicative of the levels of difficulty and responsibilities involved: Inspecting earthwork operations, performs basic level rod duties and some instrument work on field surveys, assists with subsurface investigations, take samples of bituminous concrete mixture from haul vehicles and perform tests, conduct sampling, testing and inspection of concrete making materials and inspection of concrete production batch plants, perform on-going field data collection on pavement life and bridge deck corrosion, perform, physical and chemical testing of highway construction materials, conduct research for experimental materials being used on construction projects, assigned as a field team leader on two or more person turning movement counts at roadway intersections, design simple bridges or culverts, or repair or check bridge plan sheets under the supervision of the Project Manager. Incumbent may calculate design quantities, prepare displays and graphics, and compile maps and route logs to be used in the field by the Video log Technician. Drive the ARAN survey van for video logging operations.

Environmental Factors:

Duties are performed in office and field settings for which private means of transportation must be available. May be required on occasion to carry equipment weighing up to 40 pounds, traverse rough, wooded and/or steep terrain, or travel in boats. Field work may involve exposure to hazardous materials, traffic hazards and construction sites during all weather conditions. Duties may require exposure to extreme weather conditions.

Knowledge, Skills and Abilities:

Working knowledge of basic mathematics, including calculations of area and volumes.

Working knowledge of commonly used weights and measures.

Working knowledge of basic drafting techniques and equipment.

Awareness of transportation construction and maintenance technology.

Skill in the operation of a hand-held calculator.

General computer skills.

Ability to communicate effectively orally and in writing.

Ability to maintain logs and records, and to prepare clear effective reports.

Ability to learn quickly the routine technical work of the unit to which assigned.

Ability to establish and maintain effective working relationships.

Ability to gather and analyze technical data.

Ability to read and understand specifications and reference manuals.

Ability to perform assigned activities in a timely and satisfactory manner.

Minimum Qualifications:

High school diploma or equivalent AND one (1) year performing engineering/technical support tasks.

OR

One (1) year of full-time college coursework in science, engineering, environmental studies, or related technical field.

OR

Two (2) seasons working as an AOT Technical Apprentice II with the State of Vermont.

NOTE: Current, valid driver's license required, and transportation may be required for field assignments.

AOT Technical Apprentice IV

Job Code: 15600T

Pay Grade: 16

Occupational Category: Science, Technology, Engineering and Mathematics

Effective Date: 02/01/09

Class Definition:

Technical and administrative work at an entry level for the Agency of Transportation. Work assignments include routine and repetitive activities in construction inspection, field surveys, road and bridge design, hydraulic studies, materials testing, traffic and safety, environmental studies, planning, property administration and contract administration. Assignments are performed under general supervision of a higher-level technician, engineer, or administrative supervisor. New assignments are performed under close supervision. There are no supervisory responsibilities.

Examples of Work:

Inspects earthwork construction, performs soil gradation tests, tests soils densities using the Sand cone method, operates survey instruments for basic and intermediate level field surveys, Calculates design quantities. Tests densities using the nuclear gauge, may assist in the review of proposals for traffic signs and signals. Assists other technicians and engineers with field measurements, investigations and inspection, land surveying, environmental measurements, sampling. May assist in the development of site evaluation, inspection, and investigation reports, drafting plans and specifications utilizing Computer Assisted Design and Drafting (CADD). May participate in work groups and coordinate assignments with other staff. Performs related duties as required.

Environmental Factors:

Duties are generally performed in both an office and field setting for which private means of transportation must be available. Field work may involve exposure to hazardous materials, traffic hazards and construction sites during all weather conditions, and may involve traversing rough terrain and bodies of water. Class incumbents may be required to carry equipment, weighing up to 40 pounds, traverse rough wooded and steep terrain, travel in boats or work on structures above ground level. Duties may also require exposure to extreme weather conditions.

Knowledge, Skills and Abilities:

Knowledge of basic mathematics including calculations of areas and volumes.

Awareness of transportation construction and maintenance technology.

Ability to maintain logs and records and to prepare clear, effective reports.

Ability to learn to operate and maintain assigned equipment.

Ability to read and interpret maps and engineering plans.

Ability to perform compliance inspections.

Ability to communicate effectively orally and in writing.

Ability to establish and maintain effective working relationships.

Minimum Qualifications:

Associate degree or 60 college credits in civil engineering, environmental technology, engineering technology, surveying, construction technology, or architecture.

OR

High School diploma or equivalent AND two (2) years of experience performing engineering supporting tasks involved in one (1) or more of the following: planning, surveying, design, inspection, construction, research and statistics, testing, investigation, maintenance or construction of various types of civil engineering projects.

OR

Three (3) seasons of working as an AOT Technical Apprentice III with the State of Vermont.

NOTE: Current, valid driver's license required, and transportation may be required for field assignments.

AOT Technical Apprentice V

Job Code: 15700T

Pay Grade: 18

Occupational Category: Science, Technology, Engineering and Mathematics

Effective Date: 02/01/09

Class Definition:

Technical and administrative work for the Agency of Transportation. Technicians at this level are provided general supervision on intermediate level technical work assignments and close supervision on complex assignments. Work assignments include construction inspection, field surveys, road and bridge design, hydraulic studies, materials testing, traffic and safety, environmental studies, planning, property administration and contract administration. Work at this level differs from the higher-level technician in the level of independence and from lower level technicians in the level of expertise and breadth of knowledge required. Work is reviewed by a higher-level technician, engineer, or administrative supervisor.

Examples of Work:

Operates survey instruments for intermediate and complex level field surveys. Prepares construction and Right-of-Way (ROW) plans for highways and bridges utilizing Computer Assisted Design and Drafting (CADD). Performs tests of aggregates (other than gradation), concrete and bituminous concrete. Conducts traffic studies for intersections. Develops pavement-marking plans. May assist in the following: Preparation of categorical exclusion statements related to highway projects, court plats, utility permits, and the operation a digital bar-code level and GPS equipment. Performs other related work as required.

Environmental Factors:

Duties are generally performed in both an office and field setting for which private means of transportation must be available. Field work may involve exposure to hazardous materials, traffic hazards and construction sites during all weather conditions, and may involve traversing rough terrain and bodies of water. Class incumbents may be required to carry equipment weighing up to 40 pounds, traverse rough wooded and steep terrain, travel in boats or work on structures above ground level. Duties may also require exposure to extreme weather conditions.

Knowledge, Skills and Abilities:

Knowledge in at least one transportation engineering technology field such as highway construction, design, traffic, surveys, bridge safety or materials.

Awareness of the uses of computers in transportation construction and maintenance activities.

Ability to mathematically compute all areas and volumes, select proper techniques and calculate basic probabilities.

Ability to coordinate work efforts with the general public, private contractors, and other federal, state and local agencies.

Ability to conduct and record advanced materials tests.

Ability to carry out the data collections, data confirmations, plotting, and drafting necessary to prepare plans.

Ability to translate technical material into layman's terms.

Ability to maintain diaries and records and to prepare clear, effective reports.

Ability to establish and maintain effective working relationships.

Ability to communicate effectively, both orally and in writing.

Minimum Qualifications:

Associate degree or 90 college credits in civil engineering, environmental engineering, engineering technology, surveying, construction technology, architecture, AND one (1) year experience performing engineering support tasks involved in one or more of the following: planning, surveying, design, inspection, construction research and statistics, testing, investigation, maintenance or construction of various types of civil engineering projects.

OR

High School diploma or equivalent AND three (3) years of experience as described above.

OR

One (1) season working as an AOT Technical Apprentice IV with the State of Vermont.

NOTE: Current, valid driver's license required, and transportation may be required for field assignments.

AOT Technical Apprentice VI

Job Code: 15800T

Pay Grade: 20

Occupational Category: Science, Technology, Engineering and Mathematics

Effective Date: 02/01/09

Class Definition:

Advanced technical and administrative work for the Agency of Transportation. Duties involve the gathering, processing, and management of technical data and records using computerized systems and technology, equipment maintenance, field inspections, surveys, designs, plan review and traffic and safety studies. Employees in this class act with substantial independence and may function in a lead worker role. Work is performed under the direction of a higher-level technician, engineer, or an administrative supervisor.

Examples of Work:

May act as party chief for all types of surveys, including layouts, staking, and checking. Inspects roadway and structure construction. Develops preliminary designs for roadway and structures projects. May perform bridge and roadway design calculations and conduct safety inspections. May perform bituminous and structural concrete testing. May supervise the collection and validation of a variety of traffic, engineering, and economic data. May conduct hydraulic and hydrological analysis. May assist in the development of traffic signal plans. May prepare plans and specifications for underground utility facilities. Performs other related work as required.

Environmental Factors:

Duties are generally performed in both an office and field setting for which private means of transportation must be available. Field work may involve exposure to hazardous materials, traffic hazards and construction sites during all weather conditions, and may involve traversing rough terrain and bodies of water. Class incumbents may be required to carry equipment weighing up to 40 pounds, traverse rough wooded and steep terrain, travel in boats or work on structures above ground level. Duties may also require exposure to extreme weather conditions.

Knowledge, Skills and Abilities:

Working knowledge of transportation engineering technology field including areas such as roadway construction, design, traffic operations, surveys, bridge safety or materials.

Knowledge of materials used in roadways and bridge construction.

Knowledge of basic contract and project management practices and procedures.

Awareness of supervisory principles and practices.

Ability to monitor both agency and construction compliance to plans and contract specifications.

Ability to complete assigned work in an accurate and timely fashion.

Ability to communicate effectively orally and in writing.

Ability to establish and maintain effective working relationships.

Minimum Qualifications:

Associate degree or 120 College credits in civil engineering, environmental engineering, engineering technology, surveying, construction technology, or architecture AND two (2) years of experience performing engineering support tasks involved in one or more of the following: planning, surveying, design, inspection, construction research and statistics, testing, investigation, maintenance, or construction of various types of civil engineering projects.

OR

High School diploma or equivalent AND four (4) years of experience as described above.

OR

Two (2) seasons working as an AOT Technical Apprentice V with the State of Vermont.

NOTE: Current, valid driver's license required, and transportation may be required for field assignments.