

CAREER GUIDE FOR HIGHWAY MAINTENANCE WORKERS

Standard Occupational Code: SOC Code: 47-4051.00

Pay Band: 2 ([Salary Structure](#))

Standard Occupational Description: Maintain highways, municipal and rural roads, airport runways, and rights-of-way. Duties include patching broken or eroded pavement, repairing guard rails, highway markers, and snow fences. May also mow or clear brush from along road or plow snow from roadway.

Highway Maintenance Worker positions in the Commonwealth are assigned to the following Role in the [Transportation Operations Career Group](#):

[Transportation Operator II](#)

While Highway Maintenance Workers within the Commonwealth are all located within the Transportation Operations Career Group, individuals may want to pursue other opportunities within the Commonwealth depending upon individual training, education, knowledge, skills, abilities, and interests.

Other Career Group(s) that may be of interest are:

[Building Trades](#)

[Equipment Service and Repair](#)

[Stores and Warehouse Operations](#)

SKILLS, KNOWLEDGE, ABILITIES AND TASKS

(Technical and Functional Expertise)

Skills

Note: *The technical and functional skills listed below are based on general occupational qualifications for Highway Maintenance Workers commonly recognized by most employers. Typically, you will not be required to have all of the skills listed to be a successful performer. Recruitment and selection standards for an individual state job must be based on the specific knowledge, skills, and abilities for that job as indicated in the job announcement and job description in the Employee Work Profile.*

1. Repairing machines or systems using the needed tools.
2. Determining the kind of tools and equipment needed to do a job.
3. Controlling operations of equipment or systems.
4. Installing equipment, machines, wiring, or programs to meet specifications.
5. Performing routine maintenance on equipment and determining when and what kind of maintenance is needed.
6. Using mathematics to solve problems.
7. Determining causes of operating errors and deciding what to do about it.
8. Talking to others to convey information effectively.
9. Monitoring/Assessing performance of yourself, other individuals, or organizations to make improvements or take corrective action.
10. Adjusting actions in relation to others' actions.
11. Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.

Knowledge

Note: The technical and functional knowledge statements listed below are based on general occupational qualifications for Highway Maintenance Workers commonly recognized by most employers. Typically, you will not be required to have all of the knowledge listed to be a successful performer. Recruitment and selection standards for an individual state job must be based on the specific knowledge, skills, and abilities for that job as indicated in the job announcement and job description in the Employee Work Profile.

The **Knowledge** of:

1. Materials, methods, and the tools involved in the construction or repair of houses, buildings, or other structures such as highways and roads.
2. Relevant equipment, policies, procedures, and strategies to promote effective local, state, or national security operations for the protection of people, data, property, and institutions.
3. Machines and tools, including their designs, uses, repair, and maintenance.

Abilities

Note: The technical and functional abilities listed below are based on general occupational qualifications for Highway Maintenance Workers commonly recognized by most employers. Typically, you will not be required to have all of the abilities listed to be a successful performer. Recruitment and selection standards for an individual state job must be based on the specific knowledge, skills, and abilities for that job as indicated in the job announcement and job description in the Employee Work Profile.

The **Ability** to:

1. Use your abdominal and lower back muscles to support part of the body repeatedly or continuously over time without 'giving out' or fatiguing.
2. Coordinate two or more limbs (for example, two arms, two legs, or one leg and one arm) while sitting, standing, or lying down. It does not involve performing the activities while the whole body is in motion.
3. Know your location in relation to the environment or to know where other objects are in relation to you.
4. Quickly respond (with the hand, finger, or foot) to a signal (sound, light, picture) when it appears.
5. Coordinate the movement of your arms, legs, and torso together when the whole body is in motion.
6. Concentrate on a task over a period of time without being distracted.
7. Time your movements or the movement of a piece of equipment in anticipation of changes in the speed and/or direction of a moving object or scene.
8. Choose quickly between two or more movements in response to two or more different signals (lights, sounds, pictures). It includes the speed with which the correct response is started with the hand, foot, or other body part.
9. Exert maximum muscle force to lift, push, pull, or carry objects.
10. Exert yourself physically over long periods of time without getting winded or out of breath.
11. Tell when something is wrong or is likely to go wrong. It does not involve solving the problem, only recognizing there is a problem.
12. Quickly move your hand, your hand together with your arm, or your two hands to grasp, manipulate, or assemble objects.
13. Exert muscle force repeatedly or continuously over time. This involves muscular endurance and resistance to muscle fatigue.
14. Listen to and understand information and ideas presented through spoken words and sentences.
15. Use short bursts of muscle force to propel oneself (as in jumping or sprinting), or to throw an object.

Tasks

Note: The following is a list of sample tasks typically performed by Highway Maintenance Workers. Employees in this occupation will not necessarily perform all of the tasks listed.

1. Apply oil to road surfaces, using sprayers.
2. Apply poisons along roadsides and in animal burrows to eliminate unwanted roadside vegetation and rodents.
3. Clean and clear debris from culverts, catch basins, drop inlets, ditches, and other drain structures.
4. Drive trucks or tractors with adjustable attachments to sweep debris from paved surfaces, mow grass and weeds, and remove snow and ice.
5. Dump, spread, and tamp asphalt, using pneumatic tampers, to repair joints and patch broken pavement.
6. Erect, install, or repair guardrails, road shoulders, berms, highway markers, warning signals, and highway lighting, using hand tools and power tools.
7. Haul and spread sand, gravel, and clay to fill washouts and repair road shoulders.
8. Inspect markers to verify accurate installation.
9. Measure and mark locations for installation of markers, using tape, string, or chalk.
10. Paint traffic control lines and place pavement traffic messages, by hand or using machines.
11. Perform roadside landscaping work, such as clearing weeds and brush, and planting and trimming trees.
12. Place and remove snow fences used to prevent the accumulation of drifting snow on highways.
13. Remove litter and debris from roadways, including debris from rock and mud slides.
14. Set out signs and cones around work areas to divert traffic.
15. Blend compounds to form adhesive mixtures used for marker installation.
16. Drive trucks to transport crews and equipment to work sites.
17. Flag motorists to warn them of obstacles or repair work ahead.
18. Inspect, clean, and repair drainage systems, bridges, tunnels, and other structures.

INTERESTED?

Like people, occupations have traits or characteristics. These characteristics give important clues about the nature of the work and work environment, and give you an opportunity to match your own personal interests to a specific occupation. When you choose a job in an occupation that matches your own interests you have taken an important step in planning a successful and rewarding career.

The Highway Maintenance Worker occupation is called a “**Realistic Occupation**” because it involves work activities that include practical, hands-on problems and solutions. Workers in these jobs often deal with plants, animals, and real-world materials like wood, tools, and machinery. Many realistic occupations require working outside, and do not involve a lot of paperwork or working closely with others.

LICENSURE, REGISTRATION, OR CERTIFICATION REQUIREMENTS

Generally this is not required for Highway Maintenance Worker positions in state government. Some of the state positions do require the individual to have, or be able to acquire, the Virginia Commercial Driver's license. To improve career advancement opportunities, you should consider the advantages of certification in certain skills or applications and include this step in your self-development plan.

EDUCATIONAL, TRAINING, AND LEARNING OPPORTUNITIES

An occupation like Highway Maintenance Worker usually requires no previous work-related skill, knowledge, or experience. Employees in these occupations need anywhere from a few months to one year of working with experienced employees. These occupations involve following instructions and helping others. These occupations may require a high school diploma or GED certificate. Some may require a formal training course to obtain a license.

1. US Military Service
2. On-the-job Training
3. One of the Commonwealth's technical high schools. (Check with your local school district for technical high school information.)
4. Virginia Community College System
5. Talk to a supervisor or supervisor whom you believe "has it all together".
6. Skilled trades organizations that you may wish to join.

COMMONWEALTH COMPETENCIES

Competencies are a set of identified behaviors, knowledge, skills, and abilities that directly and positively impact the success of employees and the organization. Competencies can be observed and measured. When consistently demonstrated, competencies make employees particularly effective in their work. Competencies help lay out a road map to career success. You can use the Commonwealth Competencies to help improve your individual performance by adopting behaviors that make high performing employees successful in their jobs. In this way, you can use the Commonwealth Competencies for your further professional development.

The Commonwealth Competencies are:

1. Technical and Functional Expertise
2. Achieve Results
3. Serve the Customer
4. Teamwork
5. Understanding the Business
6. Interpersonal and Communication Skills
7. Leadership and Personal Effectiveness

The above competencies may be applied to employees throughout the Commonwealth of Virginia. They can be rank-ordered by agencies and hiring managers to represent the needs of

a specific job. The rank ordering will change depending upon the occupation, an organization's priorities, the actual job requirements, and the supervisor's preferences.

Career success is both about what you do (applying your technical knowledge, skills, and ability) and how you do it (the consistent behaviors you demonstrate and choose to use) while interacting and communicating with others. Hopefully, by studying the Commonwealth competencies, identifying your developmental opportunities, and working to refine your own competence, you can take charge of your career!

For additional information about the **Commonwealth Competencies** go to: http://jobs.state.va.us/cc_planningctr.htm. For the competencies, we first list the competencies and then define each. Finally, we list competency indicators; to describe what successful performance looks like.

COMMONWEALTH CAREER PATH

Career opportunities in the Commonwealth are not limited to moving “up” to the next highest role and pay band, changing positions, or to becoming a supervisor. That’s because most roles describe a broad group of occupationally related positions that perform a range of work that requires increased knowledge and skills. For that reason, Commonwealth roles describe the career paths within the same or higher-level role for the same or different Career Group. The broad salary range and the Commonwealth’s pay practices provide flexibility in recognizing career development and advancement. ([Salary Structure](#))

Many employers, including the Commonwealth, expect trades professionals to gain knowledge, skills, and abilities in more than one area. Multi-skilled workers can add value to the organization and often find that a variety of work assignments can be rewarding.

Sample Career Path

PAY BAND	PRACTITIONER ROLES	MANAGEMENT ROLES
1	Transportation Operator I ↓	
2	Transportation Operator II ↓	
3	Transportation Operator III →	Transportation Operations Mgr I ↓
4		Transportation Operations Mgr II ↓
5		Transportation Operations Manager III

Transportation Operator I

The Transportation Operator I role provides career tracks for maintenance workers and entry-level equipment operators. Duties range from performing manual labor to routine operation and maintenance of equipment and motorized vehicles or utilizing a variety of hand and power tools. The skill required is equivalent to that required in operation of a light truck, dump truck, or a tractor with attachments. Employees may operate a motorized vehicle to perform a variety of duties to include but not limited to transporting passengers, supplies, and materials.

Transportation Operator II

The Transportation Operator II role provides a career track for equipment operators responsible for performing a combination of skilled equipment operation, preventative maintenance, manual labor, and on-site instruction to others. Equipment operation includes large and heavy motor vehicles and mobile equipment, such as backhoes, dump trucks, transit buses, and similar equipment.

Transportation Operator III

The Transportation Operator III role provides a career track for the expert equipment operators having exceptional skill and accuracy in performing tasks such as excavating, landscaping, or paving. Employees perform a combination of progressively responsible skilled equipment operation to include more complex and specialized tasks. Employees may provide leadership and on-site technical guidance to other team members and perform administrative tasks.

Transportation Operations Manager I

The Transportation Operations Manager I role provides a career track for managers of multiple crews performing maintenance or state force construction in an area, sub-area headquarters, or other operations. Employees may also direct the work of specialty crews (landscaping, traffic engineering, bridge repair, state force construction), contract workers, or transit workers. Employees may be responsible for personnel administration (hiring, training, and evaluating employees) or recommend personnel actions to higher level managers. Employees assist other managers by scheduling work and estimating/tracking costs.

Transportation Operations Manager II

The Transportation Operations Manager II role provides a career track for managers of either a transportation area headquarters and/or the 24-hour operational activities of a tunnel or bridge facility. Employees are responsible for one or more of the following: operational, administrative, and/or maintenance/repair of the area/facility or transit system.

Transportation Operations Manager III

The Transportation Operations Manager III role provides a career track for managers that direct the construction and maintenance operations of a transportation residency, including the roadway and bridge maintenance program, the state force construction program, equipment utilization and repair, safety, building construction and maintenance, emergency operations, or transit systems. Employees plan, schedule, procure, budget, and ensure federal and state laws and policies are in compliance within these areas.

ADDITIONAL OCCUPATIONAL INFORMATION CAN BE FOUND AT:

O*NET

<http://online.onetcenter.org/>

Virginia Employment Commission

<http://www.alex.vec.state.va.us/>

Department of Professional & Occupation Regulation

http://www.state.va.us/dpor/conNEW_req.pdf

Career One Stop

<http://www.careeronestop.org/>

Virginia Career Resource Network

<http://www.vacrn.net/>