

# **CAREER GUIDE FOR GRADER, BULLDOZER, AND SCRAPER OPERATORS**

Standard Occupational Code: SOC Code: 47-2073.01

Pay Band(s): 2 and 3 ([Salary Structure](#))

**Standard Occupational Description:** Operate machines or vehicles equipped with blades to remove, distribute, level, or grade earth.

**Grader, Bulldozer, and Scraper Operator positions in the Commonwealth are assigned to the following Roles in the [Transportation Operations Career Group](#):**

[Transportation Operator I](#)  
[Transportation Operator II](#)

While Grader, Bulldozer, and Scraper Operators within the Commonwealth are all located within the Transportation Operations Career Group, individuals may want to pursue other staff or managerial 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](#)

## **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 Grader, Bulldozer, and Scraper Operators 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. Controlling operations of equipment or systems.
2. Determining the kind of tools and equipment needed to do a job.
3. Assessing how well one is doing when learning or doing something.
4. Repairing machines or systems using the needed tools.
5. Performing routine maintenance and determining when and what kind of maintenance is needed.
6. Watching gauges, dials, or other indicators to make sure a machine is working properly.
7. Knowing how to find information and identifying essential information.
8. Weighing the relative costs and benefits of a potential action.
9. Identifying the nature of problems.
10. Adjusting actions in relation to others' actions.
11. Listening to what other people are saying and asking questions as appropriate.

### **Knowledge**

**Note:** *The technical and functional knowledge statements listed below are based on general occupational qualifications for Grader, Bulldozer, and Scraper Operators 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. Machines and tools, including their designs, uses, benefits, repair, and maintenance.
2. Materials, methods, and the tools involved in the construction or repair of houses, buildings, or other structures such as highways and roads.
3. Principles and processes for providing customer and personal services including needs assessment techniques, quality service standards, alternative delivery systems, and customer satisfaction evaluation techniques.

### **Abilities**

**Note:** The technical and functional abilities listed below are based on general occupational qualifications for Grader, Bulldozer, and Scraper Operators 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. Quickly and repeatedly adjust the controls of a machine or a vehicle to exact positions.
2. Quickly move your hand, your hand together with your arm, or your two hands to grasp, manipulate, or assemble objects.
3. Use your abdominal and lower back muscles to support part of the body repeatedly or continuously over time without 'giving out' or fatiguing.
4. Use short bursts of muscle force to propel oneself (as in jumping or sprinting), or to throw an object.
5. Keep your hand and arm steady while moving your arm or while holding your arm and hand in one position.
6. See details at close range (within a few feet of the observer) and at a distance.
7. Quickly respond (with the hand, finger, or foot) to a signal (sound, light, picture) when it appears.
8. 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.
9. Tell when something is wrong or is likely to go wrong. It does not involve solving the problem, only recognizing there is a problem.
10. 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.
11. 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.
12. Judge which of several objects is closer or farther away from you, or to judge the distance between you and an object.
13. Exert muscle force repeatedly or continuously over time. This involves muscular endurance and resistance to muscle fatigue.
14. Exert maximum muscle force to lift, push, pull, or carry objects.

## **Tasks**

**Note:** The following is a list of sample tasks typically performed by Grader, Bulldozer, and Scraper Operators. Employees in this occupation will not necessarily perform all of the tasks listed.

1. Starts engine, moves throttle, switches, and levers, and depresses pedals to operate machines, equipment, and attachments.
2. Drives equipment in successive passes over working area to achieve specified result, such as grade terrain or remove, dump, or spread earth and rock.
3. Aligns machine, cutterhead, or depth gauge marker with reference stakes and guidelines on ground or positions equipment following hand signals of assistant.
4. Fastens bulldozer blade or other attachment to tractor, using hitches.
5. Connects hydraulic hoses, belts, mechanical linkage, or power takeoff shaft to tractor.
6. Signals operator to guide movement of tractor-drawn machine.
7. Greases, oils, and performs minor repairs on tractor, using grease gun, oilcans, and hand tools.

## **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.

Grader, Bulldozer, And Scraper Operators' work is called a "**Realistic**" occupation because it involves work activities that include practical, hands-on problems and solutions. Realistic occupations often deal with plants, animals, and real-world materials like wood, tools, and machinery. Many of the occupations require working outside, and do not involve a lot of paperwork or working closely with others. It is also referred to as a "**Conventional**" occupation since it frequently involves following set procedures and routines. These occupations can include working with data and details more than with ideas. Usually there is a clear line of authority to follow.

## **LICENSURE, REGISTRATION, OR CERTIFICATION REQUIREMENTS**

Generally this is not required for Grader, Bulldozer, and Scraper Operator positions in state government. However, to improve career advancement opportunities, you should consider the advantages of certification and include this step in your self-development plan.

There are 2 recognized apprenticeable specialties associated with this occupation: Elevating-Grader Operator; Motor-Grader Operator. For more information, visit the U.S. Department of Labor's web site [Office of Apprenticeship Training, Employer and Labor Services \(OATELS\)](http://www.doli.state.va.us) or go to <http://www.doli.state.va.us> to learn what services are available from the Virginia Department of Labor and Industry.

## **EDUCATIONAL, TRAINING, AND LEARNING OPPORTUNITIES**

Jobs in this occupation usually require a high school diploma and may require some vocational training or job-related course work. Sources of education and training opportunities may include:

1. US military service
2. On-the-Job Training via summer jobs, etc.
3. Graduation from one of the Commonwealth's technical high schools (check with your local school district for technical high school information)
4. Virginia Community College System – [VCCS Web Sites](#)
5. Talk to a supervisor whom you believe “has it all together”.
6. Specific commercial training for grader, bulldozer, and scraper operators -

*Construction Equipment Operator – An instructional program that prepares individuals to apply technical knowledge and skills to operate and maintain a variety of heavy equipment, such as a crawler tractors, motor graders and scrapers, and shovels, including dragline, hoe, and cranes. Includes instruction in digging, ditching, sloping, stripping, grading, backfilling, clearing and excavating.*

## **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](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 Manager I
4		Transportation Operations Manager 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\\_reg.pdf](http://www.state.va.us/dpor/conNEW_reg.pdf)

Career One Stop

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

Virginia Career Resource Network

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