

# **Heavy Equipment Operators Opportunity Report**

Prepared for the  
Northern Labour Market Information Clearinghouse

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## **A. Introduction**

The Northern Labour Market Information Clearinghouse (“the Clearinghouse”) project was initiated in 1995. The partners in the Clearinghouse, a consortium of the Northern Alberta Development Council and five northern Alberta colleges, require ongoing research relevant to northern Alberta’s economy, population, and labour market to expand their knowledge of training and employment needs in the north.

The Heavy Equipment Operators Opportunity Report focuses on the supply and demand for skilled heavy equipment operators in Alberta generally, and Northern Alberta in particular, as it relates to the growing activity in the oil and gas, oil sands, forestry, agriculture, and transportation industries in Northern Alberta.

The objectives of this report are to:

- Define heavy equipment operators and describe the type of work they do;
- Describe the characteristics, skills, and knowledge required of heavy equipment operators;
- Discuss the industry requirements for heavy equipment operators;
- Identify the current and future demand and supply of heavy equipment operators in Northern Alberta;
- Identify the key implications for Northern Alberta colleges; and,
- Propose recommendations to Northern Alberta colleges for consideration.

## **B. Definition of Heavy Equipment Operators and a Description of What They Do**

According to Alberta Human Resources and Employment’s *Heavy Equipment Occupational Profile*, “heavy equipment operators use a variety of mobile machines and attachments to excavate, grade and landscape earth or move workers, materials and equipment.”<sup>1</sup>

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<sup>1</sup> It is important to clarify that the focus of this report is on “Heavy Equipment Operators” and not “Crane and Hoisting Equipment Operators”. Crane and Hoisting Equipment Operators service and operate the hoist and swing equipment used to move machinery, materials and other large objects. To work in Alberta, Crane and Hoisting Equipment Operators must be registered apprentices or certified journeymen. By contrast, Heavy Equipment Operators often learn on the job or take pre-employment training. Crane and Hoisting Equipment Operators. Alberta Human Resources and Employment. *Crane and Hoisting Equipment Operator Occupational Profile*. [www.alis.gov.ab.ca/occinfo](http://www.alis.gov.ab.ca/occinfo)

Job titles of heavy equipment operators are usually based on the types of equipment they operate. These include:

- **Bulldozer operators** (also known as cat operators or cat skidders) operate crawler-tractors. They clear and level land on construction, mining, and forestry sites. As well they are often called upon to push other equipment or provide traction.
- **Back-hoe operators** dig trenches, load heavy materials, vibrate and break rock or concrete, back-fill excavations and scoop and dump materials.
- **Front-end loader operators** operate mobile machines with buckets on the front for picking up heavy loads of earth, rock, sand, gravel, or snow and dumping it into piles, excavations or trucks.
- **Grader operators** spread and level earth, sand, gravel and rock, and plow snow in winter.
- **Paver operators** operate asphalt paving machines that lay down asphalt for roads, driveways and parking lots.
- **Power shovel operators** manipulate a boom or crane that supports a dipper handle with a large dipper. The dipper is used to scoop up dirt, rock and coal, and drop it into trucks or piles.
- **Scraper operators** scrape, load and haul earth on mining or construction sites. They level work sites, haul soil for roads and right-of-ways and haul coal and ore at mining sites.

Heavy duty equipment operators also use machinery unique to certain industries. These include tree harvesters and skidders in forestry and trench excavators in pipeline construction.

According to Alberta Human Resources and Employment's *Heavy Equipment Operator Occupational Profile*, heavy equipment operators in Alberta are divided into two occupational groups: Heavy Equipment Operators (Except Crane) and Public Works Maintenance Equipment Operators. Over 75% of those employed in the Heavy Equipment Operators (Except Crane) occupational group work in the construction, oil and gas, or transportation and storage industries. Over 75% of those employed in the Public Works Maintenance Equipment Operators occupational group are found in the utilities, transportation and storage, and public administration industries.

### **C. Skills, Characteristics, and Knowledge Requirements for Heavy Equipment Operators**

According to the Alberta Human Resources and Employment's *Heavy Equipment Operator Occupational Profile*, the types of skills and personal characteristics heavy equipment operators need to possess include:

- Excellent physical condition
- Good vision and awareness of depth
- Good eye and hand/foot co-ordination and fast reflexes
- Mechanical ability
- Enjoy operating machinery
- Able to work well in a team
- Possess good communication skills in English
- Approach work methodically
- Able to trouble shoot problems.

Regardless of the industry they may work in, heavy equipment operators must have the knowledge to:

- Operate heavy equipment safely
- Perform preventive maintenance tasks
- Diagnose mechanical problems
- Read grade plans and use grade stakes in measuring the amount of earth to be moved
- Follow directions that are spoken or given by hand signals.

### **D. Industry Requirements for Heavy Equipment Operators**

A review of occupational and educational materials aimed at prospective heavy equipment operators as well as interviews with employers of heavy equipment operators found these operators are generally trained on the job or take related training programs. All interviewed employers of heavy equipment operators indicated a preference for hiring experienced heavy equipment operators as opposed to training new ones.

The hiring preferences of interviewed employers for heavy equipment operators were consistent with the findings of the *Heavy Equipment Operators Opportunity Report* prepared for the Alberta Labour Market Information Clearinghouse in June 1997 when employers indicated that they generally:

- Favored experience over formal training when looking for heavy equipment operators; and,

- Placed greater confidence in worker's attitude and aptitude for heavy equipment operation than program of training.

(Northern Labour Market Information Clearinghouse. (1997). *Heavy Equipment Operators Opportunity Report*. June 1997,

The following formal heavy equipment operator training programs are currently offered in Alberta:

- Keyano College, supported by Finning Canada, offers a part-time pre-employment program called the Heavy Construction Equipment Operator Program. This eight-week program of approximately 10 hours per day trains students to safely operate crawler tractors, motor scrapers, compactors, and skid steer loaders. In addition to the broad foundation of technical skills in equipment fundamentals, maintenance, and operations, students gain a sound knowledge base in the areas of safety, employability skills, and business literacy skills. Upon completion of the program, students receive a Heavy Construction Equipment Operations Certificate. (Keyano College. (2004). *Heavy Equipment Operator Program*. [www.keyano.ca/heavyconst/index.htm](http://www.keyano.ca/heavyconst/index.htm))
- NAIT offers a part-time 118 hour Roadbuilding and Heavy Construction Pre-Employment Program that provides an industry overview, understanding of the equipment being utilized, fundamental civil engineering concepts related to roadbuilding and heavy construction, and job site operations. The only specific piece of heavy equipment mentioned in the course outline is the track-type tractor and this appears to be more an orientation than training on how to operate it (Northern Alberta Institute for Technology. *Course Outline for Roadbuilding and Heavy Construction Pre-Employment Program (RHCPEP)*. Revised by Alberta Roadbuilding and Heavy Construction Association, September 15, 2003).

One interviewed employer reported that his company has developed their own formal heavy equipment operator training program with a training coordinator on staff. Trainees first job shadow with a training aid while receiving formal instruction. Regular tests are conducted and skill reviews are held after 400 hours of heavy equipment operation.

## **E. Supply and Demand for Heavy Equipment Operators**

### **1. Current Supply and Demand**

According to Alberta Human Resources and Employment (AHRE) in 2003, there were approximately 10,250 Albertans employed in the Heavy Equipment Operators (Except Crane) occupational group and more than 1,350 Albertans working in the Public Works Maintenance Equipment Operators occupational group. This estimated total number of 11,600 Alberta heavy equipment operators is up from approximately 10,000-11,000 heavy equipment operators that were identified working in Alberta by the Northern Labour Market Information Clearinghouse (June 1997).

According to Alberta Human Resources and Employment (2003), an indicator of skill shortages is an occupation with an unemployment rate of less than 3%. The heavy equipment operator occupational group (which was combined together with Crane Operators) had an unemployment rate of more than 3% in 2003. It therefore would not be considered a skill shortage occupation but is one where demand closely matches or exceeds available supply.

Alberta Human Resources and Employment's *2003 Alberta Wage and Salary Survey* asked employers if they experienced difficulty hiring heavy equipment operators or had vacancies for heavy equipment operators that had been unfilled for four months or longer. Their responses were as follows:

- 37% of respondent organizations said "Yes";
- 51% of respondent organizations said "No"; and
- 12% of respondent organizations said the question was not applicable.

Of the seven employers interviewed for this report, six indicated that they were currently experiencing difficulty finding experienced heavy equipment operators. Three employers reported that the lack of experienced heavy equipment operators has caused them to shift their attention to hiring those without heavy equipment experience and training them on-the-job. One employer noted that the company is constantly training new heavy equipment operators as those who are newly trained are hired away by other companies.

Several employers indicated they recruit heavy equipment operator trainees who live in rural Alberta. Rural youth are seen by these employers as possessing the mechanical abilities and work ethic to become successful heavy equipment operators.

### **2. Future Supply and Demand**

According to Alberta Human Resources and Employment, the Heavy Equipment Operators (Except Crane) occupational group is forecast to grow in Alberta by .08% to

1.8% annually from 2002 to 2007. These growth rates are considered by Alberta Human Resources and Employment to be below average to average demand. This growth is expected to create 80 to 190 new positions each year in addition to job openings created by employee turnover.

The Public Works Maintenance Equipment Operators occupational group is forecast to grow in Alberta by 1.8% to 2.8% each year from 2002 to 2007. These rates of growth are considered to be average to above average. This growth is expected to result in the creation of 20 to 40 new positions created each year in addition to job openings created by employee turnover.

All seven employers and two of the three association/union representatives agreed that the current demand for experienced heavy equipment operators throughout Alberta will continue for the next five years. The reasons cited by those interviewed for a continuing demand for heavy equipment operators are:

- The aging heavy equipment operator workforce, many of whom are estimated by employers to be between 45 to 55 years of age;
- Younger workers being less willing to live away from home, particularly in a camp setting in a remote location, as lifestyle is more important to them.
- The seasonal nature of the industries in which heavy equipment operators work.
- The number of announced and anticipated major oil and gas, oil sands, and forestry projects in Northern Alberta.

## **F. Key Implications for Northern Alberta Colleges**

1. The findings of this report suggest that experienced heavy equipment operators are currently and will likely continue to be in short supply across Alberta. Many employers are responding by hiring workers with mechanical aptitude and a solid work ethic and training them as heavy equipment operators on the variety of heavy equipment used by their companies.
2. Two Northern Alberta colleges already offer pre-employment programming on heavy equipment. Employers do not appear to view such training as a substitute for experience as a heavy equipment operator.
3. The Alberta Roadbuilding and Heavy Construction Association (ARHCA) developed the Roadbuilding and Heavy Construction Pre-Employment Program curriculum. The ARHCA Communications Director indicated that the Association is willing to share this curriculum with Northern Colleges that might be interested in offering this pre-employment program.
4. Other Northern Alberta colleges may wish to consider creating a college-industry partnership to support regional heavy equipment operator training



similar to that forged between Keyano College and Finning Canada for Keyano's Heavy Construction Equipment Operator Program.

<b>G. Recommendations for Consideration by the Northern Alberta Colleges</b>
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1. Identify potential industry partners in a respective region and explore what interest there might be in a company-college partnership aimed at pre-employment training for heavy equipment operators in specific industries of importance in the region, e.g. forestry, oil and gas, and heavy oil.
2. Contact the Alberta Roadbuilding and Heavy Construction (ARHCA) Association and explore the possibility of utilizing its curriculum to offer a Roadbuilding and Heavy Construction Pre-Employment Program.
3. Provide information to Northern Alberta high schools about the labour market demand and training opportunities for heavy equipment operators.

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Phone: (780) 743-7000.

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Ron Moore, Owner, Moore Brothers Bobcat and Hot Service Ltd. Phone: (780) 539-9950.

Jim Sawchuk, Owner, Wapiti Gravel Supplies. Phone (780) 532-1790.

Mike Williams. Park Paving. Phone: (780) 435-8338.

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