

What's this job all about?

Surveying and mapping technicians help surveyors measure and map land. They are part of a team, called a survey party. The team is made up of a party chief, survey technicians, and laborers. The party chief may be an engineer, a licensed land surveyor, or a surveying technician. Survey technicians set instruments to measure the position and elevation of land. Mapping technicians use a variety of information to create maps. They use photographs, data from surveys, and other information. The work of surveying and mapping technicians is being changed by new technologies.

The Global Positioning System (GPS) uses radio signals relayed from satellites to locate points on the ground. Other advancements include earth resources data satellites, improved aerial photography, and geographic information systems (GIS). GIS are computerized data banks of spatial data. These systems are bringing surveying and mapmaking closer together. They also increase the need for computer training. If you work in this field in Alaska, there a number of high growth industries you might work in, including transportation, mining, oil and gas, and construction. You'll work both inside and outside, and will most likely travel to some remote locations.

Here's what Survey and Mapping Technicians do:

Survey Technicians

- Inspect, set up, operate, and adjust these instruments.
- Record measurements and help prepare survey reports.
- Measure vertical and horizontal angles using an instrument called a "theodolite."
- Measure distances between surveying points with electronic equipment. Use satellites to gather data.
- Set instruments to measure the position and elevation.
- Compile notes, make sketches, and enter collected data into computers.
- Supervise laborers who clear brush, drive stakes, and carry equipment.

Mapping Technicians

- Use drafting equipment and computers to make maps.
- Analyze aerial photographs to find data.
- Join several photos together.
- Research old maps and verify points by visiting sites to solve problems.
- Add boundaries, elevations, and color.
- Examine maps for errors and make corrections.
- Supervise workers who draft maps.

How much money can I make?

Median Wage: \$20.91 per hour.

In Alaska, the median wage for surveying and mapping technicians is \$3,624 per month (\$20.91 per hour). Half of all surveying and mapping technicians earn between \$2,936 and \$4,359 per month (\$16.94 and \$25.15 per hour). Nationally, the median wage for surveying and mapping technicians is \$2,607 per month (\$15.04 per hour). Half of all surveying and mapping technicians earn between \$2,007 and \$3,396 per month (\$11.58 and \$19.59 per hour). The technician's specialty and level of experience and responsibility also affect wages. Those who have supervisory duties usually earn higher wages. Surveying and mapping technicians who work full time usually receive benefits such as sick leave, paid vacation, and health insurance. Some employers also provide a retirement plan.

HELPFUL HIGH SCHOOL COURSES

If you are interested in becoming a surveying or mapping technician you should take courses that prepare you for college. Here is a list of high school courses that will help prepare you.

Some of these courses are also available at the technical or college level.

Agriculture and Renewable Natural Resources

Forestry

Computer and Information Sciences

Basic Computer/General Computer Applications

Computer Graphics

Computing Systems/Computer Technology

Network Technology

Computer Science and Programming

Drafting

Drafting, Technical and Mechanical

CAD Design and Software

Blueprint Reading

English Language and Literature

English and Language Arts (Four years)

Technical Writing/English Grammar

Fine and Performing Arts

Drawing and Painting/Photography

Life and Physical Sciences

Earth Science/Geology

Physical Science

Mathematics

Pre-Algebra/Algebra/Advanced Algebra

Geometry/Advanced Geometry

Trigonometry/Advanced Trigonometry

Physical Education

Physical Education

Fitness and Conditioning Activities

Social Sciences and History

World Geography

Geography

U.S. Government

How long does it take to receive training?

To work as a surveying technician, you must have training in surveying, be in good physical condition, have good math skills, and have an eye for detail. To work as a mapping technician, you must have training in drafting, have good computer skills; and have an eye for color and detail. Most mapping technicians have had some specialized postsecondary training. Because you use Geographic Information Systems (GIS), you need strong computer skills and training in drafting, cartography, computer science, or GIS. Surveying technicians also need postsecondary training. Colleges, technical institutes, and vocational schools offer programs in surveying, surveying technology, and engineering technology. These programs take from one to three years to complete. Four-year colleges offer programs in land surveying or engineering. Because of new technologies such as GPS, the longer postsecondary programs are the best way to prepare. High school graduates with no formal training in mapping or geographic information systems start as digitizers. These workers operate equipment that converts map coordinates into computer readable form. High school graduates with no formal training in surveying usually start as apprentices. As an apprentice, you work as a laborer on survey teams. You haul gear, cut brush, and perform other routine tasks. Because of rapid changes in surveying and mapping technology, you spend time each year learning new hardware and software. Military training and experience as a surveyor or mapping technician is good background and can qualify you for jobs at the technician level.

When I'm ready to work, will there be job openings?

The outlook for job openings for survey and mapping technicians is average to 2014. Average growth is projected. Nationally, the number of jobs for surveying and mapping technicians is expected to grow as fast as average through the year 2014. Opportunities will be best for technicians who have formal training in Global Positioning System (GPS) and Geographic Information Systems (GIS).

Please see the Training Programs section of this booklet to find out more about training in these career fields in Alaska.

