



Discover

PROFESSIONAL SURVEYING

A career without boundaries



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Images courtesy of Trimble, Inc.

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Land Surveying

Land surveying is the detailed study and investigation that incorporates the gathering of information through observations, field measurements, research, review of legal documents and data analysis to support the planning and designing of construction projects; to assist architects and engineers with site design and civil projects; to assist contractors by setting control stakes for site improvements; and to assist attorneys, title companies and developers with the sale or purchase, development or subdivision of residential, commercial or industrial real estate projects.



Land Surveying is:

Science

Surveying is both a science and art: a **science** due to the mathematical and scientific methods employed; and an **art** due to the experience and creative nature involved.

Technology

Surveyors utilize hi-tech equipment, including robotic total stations, 3D laser scanners, GPS and unmanned aerial vehicles, or drones

Engineering

The planning and design of all civil engineering projects such as subdivisions, highways, bridges, etc. are based upon surveying measurements. Moreover, during excavation, a project of any magnitude is constructed along the control lines and points established by surveying.

Mathematics

Surveying applies mathematics, vertical angles, geometry, right triangles and trigonometry for calculations and layout on a daily basis.



What Young Surveyors are Saying:

“Surveying exposed me to the often unseen realm of construction. Now, I have an appreciation for the sheer amount of intellectual and physical labor that goes into building and maintaining the roads we drive on, the buildings we work and live within, and the underground network of sanitary and storm sewers – all things I took for granted in the past. I love working outside during the summer. I love the fact that every day is different – new site, new goals, new challenges, and a new crew chief. You have to think on your feet, and it’s rewarding.”

James Graft (Summer Intern 2019)

“Improving as a surveyor has been a hard but rewarding experience. It was hard at first, but every day I grew in knowledge and skill. My sledge hammer strokes got longer and longer and my gun set ups got quicker and quicker. I started to think like a crew chief and that was super cool. I felt important. Surveying is 10x more fun when you know what you are doing, but learning is half the fun. Jumping into the field and learning fast was exciting, but it was only possible because of the crew chiefs. Every crew chief I worked with taught me a different valuable lesson in surveying. This job has made me have immense respect for surveyors and all that you do. It is satisfying work and fun to watch your projects grow into real buildings.”

Colin Conti (Summer Intern 2019)



What does a Land Surveyor do?

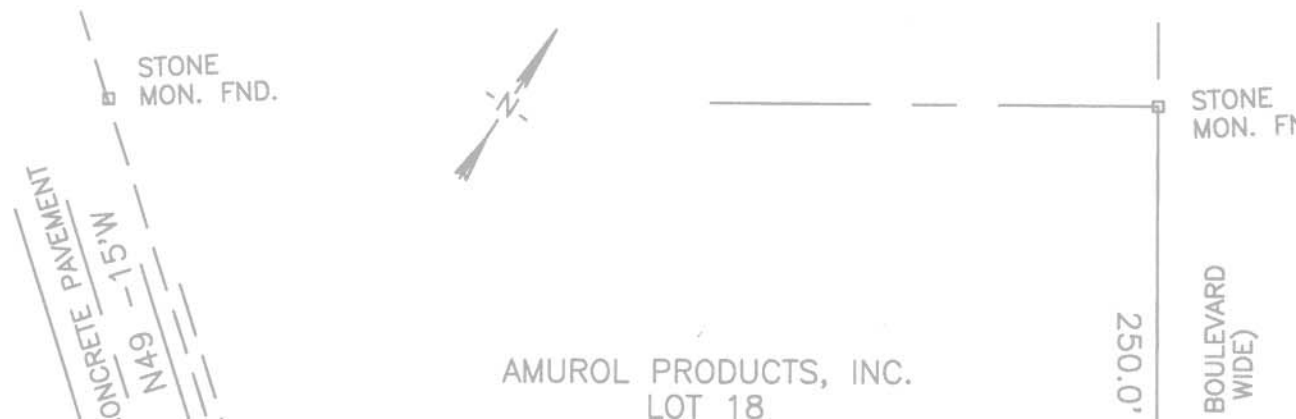
- ❑ Measures parcels of land to determine boundary lines and elevations.
- ❑ Locates existing property corners and sets new property corners.
- ❑ Measures and maps vacant properties for engineering and architectural design.
- ❑ Measures and maps existing roadways and sites for new construction.
- ❑ Provides control stakes for utilities, roads, grading and buildings.
- ❑ Researches and reviews land records, deeds and related documents.
- ❑ Prepares subdivision plats to subdivide land.





Land Surveying offers 3 Career Paths:

- ☐ Field Surveyor Technician / Instrument Operator
- ☐ Office Technician (CAD Tech)
- ☐ Licensed Professional Land Surveyor



Field Surveyor / Instrument Operator

Requirements:

- ☐ High School Diploma / some college
- ☐ Enjoys working with math and science
- ☐ Enjoys nature and is comfortable working outdoors
- ☐ Enjoys using hi-tech accurate measuring equipment

Job Description

- ☐ Work under the direction of Survey Crew Chief
- ☐ Learn to use magnetic locator to find iron pipe property corners
- ☐ Capture 3-D data on existing features of vacant and improved land
- ☐ Set out points for utility, road and building construction
- ☐ Operate robotic total stations, data collectors and GPS equipment



Office Technician / CAD Tech

Requirements:

- ☐ High School Diploma / some college a plus
- ☐ Completed high school / college drafting courses
- ☐ Ability to learn and work with Autocad / Microstation softwares

Job Description:

- ☐ Work directly under the supervision of project managers and surveyors
- ☐ Prepare detailed drawings from field notes and digital files from field technicians
- ☐ Solve problems and respond to unique challenges creating different drawings for differing purposes.



Licensed Professional Land Surveyor (PLS)

Requirements:

- ☐ 4 year Bachelor's Degree
- ☐ 24 hours of land surveying courses from accredited university
- ☐ Pass survey intern exam
- ☐ Pass PLS exam

Job Description:

- ☐ Oversees all land boundary activity in firm
- ☐ Manages field and office staff
- ☐ Responsible for project goals, budgets and deadlines
- ☐ Develops / trains younger staff
- ☐ Builds client relationships
- ☐ Reviews, approves and certifies survey documents



Why are Land Surveyors licensed?

A professional surveying license = competency

Land surveyors in Illinois are licensed by the State of Illinois Department of Professional Regulation as a Design Professional.

This is the same board that oversees engineers, architects and structural engineers.

All design professionals are charged with protecting the health, safety and welfare of the public.

Expected Salary Ranges

- ❑ Field Survey Technician - \$35K - \$75K/Yr.
- ❑ Office/CAD Technician - \$35K - \$75K/Yr.
- ❑ Professional Land Surveyor - \$80K - \$95K/Yr.
- ❑ Business Owner – \$100K +

Salaries are based upon years of experience and levels of competency

Jobs in land surveying include:

Government Entities

- Illinois Department of Transportation
- Cities and municipalities
- County governments
- United States Geological Survey
- Armed Services

Private Businesses

- Land Surveying companies
- Engineering companies
- Environmental companies
- Mining companies
- Construction companies
- Land development companies

Resources

Illinois schools that offer degrees in Land Surveying / Geomatics

- Parkland College – Champaign, Illinois
- Southern Illinois University – Edwardsville, Illinois

Resources to find out more

- Illinois Professional Land Surveyors Association- www.iplsa.org
- National Society of Professional Surveyors - www.nsps.us.com
- National Council of Examiners for Engineering and Surveying (NCEES) 800-250-3196

U.S. Land Surveying Schools & Colleges

California State University – Fresno, California

East Tennessee State University – Johnson City, Tennessee

Eastern Kentucky University – Richmond, Kentucky

Ferris State University – Big Rapids, Michigan

Kennesaw State University – Kennesaw, Georgia

Metropolitan State University of Denver – Denver, Colorado

New Mexico State University – Las Cruces, New Mexico

Nicholls State University – Thibodaux, Louisiana

Ohio State University – Columbus, Ohio

Oregon Institute of Technology – Klamath Falls, Oregon

Purdue University – Hammond, Indiana

Purdue University – West Lafayette, Indiana

U.S. Land Surveying Schools & Colleges cont'd

Saint Cloud State University – Saint Cloud, Minnesota

SUNY College of Environmental Science and Forestry – Syracuse, New York

SUNY College of Technology – Alfred, New York

Texas A&M University – Corpus Christi, Texas

Troy University – Troy, Alabama

University of Akron – Akron, Ohio

University of Florida – Gainesville, Florida

University of Houston – Houston, Texas

University of Maine – Orono, Maine

University of Wyoming – Laramie, Wyoming

Wentworth Institute of Technology – Boston, Massachusetts