

# BOUNDARIES

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## Alberta's Township System

The following information is excerpted from Doug Barnett's *Early Surveys and Settlements in Central Alberta*.



The DLS System first established controlling lines on which to base the township surveys. It was decided to layout the System on an astronomic basis, that is "square with the world", with north-south and east-west lines

following lines of latitude and longitude on the earth's surface. Starting near Winnipeg, Dominion Land Surveyors established six meridians over a period of time. A meridian is an astronomic north-south line on the earth's surface. The Principal Meridian was followed by successive Initial Meridians (the Second, Third, Fourth, Fifth, and Sixth), each about four degrees of longitude apart. The Fourth Initial Meridian later became the Alberta - Saskatchewan boundary, and the Western Provinces were extended northward from the 49th parallel (international boundary) to the 60th parallel, a distance of about 760 miles. As

meridians follow the spherical curve of the earth, they converge as they are produced northward. For example, the distance between the Fourth and Fifth Meridians along the 49th parallel is about 182 miles (293 kilometres); at the 60th parallel, the distance between the same two Initial meridians is reduced to about 139 miles (224 kilometres) due to convergence of the meridians. The Dominion Lands Survey System is therefore an astronomic system with all north-south lines laid off as true meridians, and all east-west lines established as chords to parallels of latitude.

Land between the Initial Meridians was then subdivided into townships. A township is a square tract of land about six miles (9.7 kilometres) on a side, containing thirty-six sections (Figure to left). Townships are numbered northward, starting from township one at the 49th parallel and increasing to township 126 at the 60th parallel (the north boundary of British Columbia, Alberta, Saskatchewan, and Manitoba). For example, Lethbridge is about at township eight; Red Deer at about township thirty-eight; Athabasca about township sixty-six; Fort McMurray about township eighty-nine; and Fort Chipewyan about township one hundred and twelve. A column of townships in the north-south direction is called a range. Townships lie in

## For More Information

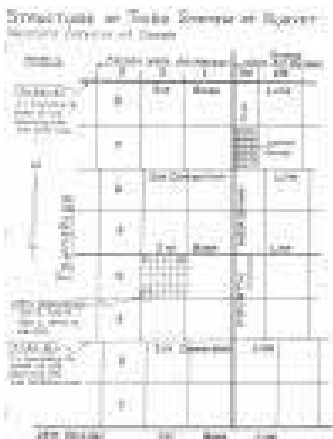
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ranges numbered westward from each Initial Meridian, starting with range one adjoining the west side of each such meridian. There are thirty ranges between the Fourth and Fifth meridians along the 49th parallel, but due to convergence of the meridians, this reduces to only about twenty-three ranges along the north boundary of Alberta.

Townships are laid off their prescribed width along base lines running between the Initial Meridians. A base line is a line approximating a latitude circle from which townships are projected north and south to the correction lines (to be defined later). See figure above to the right. Base lines are four townships apart. The international boundary is the first base line; the second base line lies between townships four and five; the third base line between townships eight and nine; and so on northerly in regular order. For example, the fourteenth base line (between townships fifty-two and fifty-three) runs along part of Jasper Avenue in Edmonton, and the twenty-fourth base line (between townships ninety-two and ninety-three) runs near the Syncrude plant north of Fort McMurray.



allowed to provide for convergence of meridians, as shown in figure above to the right. They are also four townships apart. The first correction line is between townships two and three; the second between townships six and seven; the third between townships ten and eleven, and so on northerly in regular order. For example, the twelfth correction line (between townships forty-six and forty-seven) runs through Camrose, and the twenty-third correction line (between townships ninety and ninety-one) runs just north of Fort MacKay. The north boundary of Alberta is about the thirty-second correction line. The jogs along a correction line increase in length as one proceeds westerly from an Initial Meridian. For example, on the 14th correction line running through Namao north of Edmonton, the jog at the northeast corner of range ten is about 36.23 Chains (2390.8 feet = 728.7 metres), whereas the jog at the northeast corner of range twenty-five on the same correction line is about 96.60 Chains (6375.6 feet = 1943.3 metres). On the east side of each Initial Meridian the width of the last range is narrower than a full range due to the convergence between two adjacent Initial Meridians. These fractional ranges are less than six miles in width, the width varying with its position along the Initial Meridian, as shown in the figure above to the right. Sections in a fractional township are numbered the same as though the township was a full one.

*To Be Continued Next Issue...*

Correction lines are east-west lines, midway between base lines, on which the jogs are

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## How Much Does a Survey Cost?

Question: How much should a survey cost? I am going to call an Alberta Land Surveyor about doing a Real Property Report for me and I want to know they are going to charge me a fair price.

Reply: An Alberta Land Surveyor should assess and receive fair and just compensation from his client, commensurate with the professional and technical complexity, level of responsibility and liability potential of the services performed (Code of Ethics Regulation under the Land Surveyors Act).



It is the role of the Alberta Land Surveyors' Association to ensure that the work performed by Alberta Land Surveyors meets the minimum standard required under the appropriate acts, regulations and guidelines.

The Alberta Land Surveyors' Association does not have a fee schedule or fee guideline. According to a recent report by the federal Competition Bureau, entitled *Self-Regulated Professions: Balancing Competition and Regulation*, "(G)iven the negative effect of collusion on consumer welfare, the Bureau urges regulators to look to less intrusive means than fee guides to provide consumers with the information they need about prices."

The Association recommends that, when purchasing survey services, contact three Alberta Land Surveyors to find out not only how much they will charge but also when they will do it and what other services they can provide to you.

## In the News around the World

[Nigeria: Managing Country's Internal Boundaries](#)

AllAfrica.com, Washington – January 11

[Dhaka, Yangon to discuss boundary, gas search](#)

Gulf Times, Qatar – January 18

[Boundary between India, China is a complicated issue: Singh](#)

Khabrein.info, India – January 7



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## **Alberta Land Surveyors Support New Technology Research**

Carina Butterworth is the recipient of the Alberta Land Surveyors' Association's 2007 Graduate Studies Scholarship.

The focus of Mrs. Butterworth's thesis is to determine the accuracy of using a particular type of remote sensing technology, known as DInSAR, in permafrost regions. The results of this study will determine how DInSAR in combination with a land survey will help planning and surveying of infrastructure in permafrost regions.

Carina has said that using newer technologies, such as vision measurement systems and laser scanning is of great interest to her. After creating the Optical 3D Measurements course at the University of Calgary, she developed a new interest in these technologies and how they can be used in land surveying.

"This type of research is important for the future of the land surveying profession," announced President Bob Wallace. "We must continue to take advantage of newer technologies like remote sensing. In twenty years, the public may come to think of remote sensing like they think of GPS today. Alberta Land Surveyors need to be ready and this research will help."

The Graduate Studies Scholarship, established in 2001, has a value of \$5,000.

Combined with the other scholarships it offers, the Alberta Land Surveyors' Association now provides \$21,000 per year to worthy land survey students from coast to coast in Canada.

## **Free Brochures**

"*The Real Property Report*," "*Understanding Easements and Rights of Way*," "*Alberta's Subdivision Process*," and "*I destroyed survey evidence—a practical guide to survey markers for the homeowner, handyman and contractor*" are free brochures available from the ALSA and can be ordered by visiting our website, [www.alsa.ab.ca](http://www.alsa.ab.ca)

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