KANSAS GEOLOGICAL SURVEY
OPEN-FILE REPORT 89-24

THE PUBLIC LAND SURVEY SYSTEM IN KANSAS: A BRIEF HISTORICAL REVIEW

Prepared by

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October 31, 1989

Following the conclusion of the Revolutionary War, John Adams and Thomas Jefferson led a political movement which argued that an essential part of a democracy was the right to own property. They advocated a system of rectangular survey of public lands before any sale or settlement, with land to be sold at auction in small parcels for low prices. This idea became official policy of the United States with the Land Ordinance of 1785, passed by Congress on May 20, 1785 (White, 1982). Beyond providing a basis for land ownership, the public land survey sought to describe the public lands to a youthful nation with little idea of its own nature, and to generate revenue through land sales to pay debts resulting from the recently completed war for independence. Because of the United States Public Land Survey, over one billion acres of land stretching from Ohio westward to the Pacific and northward to the Arctic have been systematically located, described, and recorded (O'Callaghan, 1985).

Extension of this system to Kansas was accomplished by the Act of July 22, 1854, which established the office of Surveyor General for the territories of Kansas and Nebraska. John Calhoun was appointed as first Surveyor General of the territories, establishing his office at Ft. Leavenworth, Kansas Territory. The 1855 Manual of Surveying Instructions, an expansion of the Oregon Manual of 1851, established the system of base lines, principle meridians, spacing of standard parallels or correction lines, and guide meridians to be used in Kansas. The basic system of rectangular surveys has remained the same since this manual was issued.

Calhoun was instructed to survey the parallel of 40-degrees north latitude from the Missouri River west 108 miles or, 18 townships, where the initial point of the Sixth Principal Meridian was to be established. This principal meridian was surveyed north through the Nebraska Territory and eventually (see below) south through the Kansas Territory, taking astronomical observations of north at 1-mile intervals. The 40th Parallel was surveyed westward to form the base line, or base standard parallel, for the Kansas survey.

Additional standard parallels or correction lines were surveyed every thirty miles south of the base line. From each 6-mile point along the correction lines, a range line running north was developed. These range lines terminated (closing corners) at the next northern standard parallel

(closing parallel). Township lines were surveyed east-west between range lines at each 6-mile point north of a standard parallel.

A township is a basic unit of land within the PLSS. Bounded by pairs of adjacent township and range lines, normal townships are approximately 6 miles on a side. Townships in Kansas are numbered sequentially going south from the baseline on the 40th parallel. Townships are divided by the PLSS into thirty-six sections of approximately one square mile or 640 acres each. A range is a series of contiguous townships situated north and south of each other. Ranges of townships are numbered consecutively east and west from the 6th Principal Meridian in Kansas: thus 'range 3 west' refers to the third range or column of townships west of the 6th Principal Meridian.

Surveying of section lines within a township would generally begin at the south-east corner of the township and proceed north and west. While surveying a section boundary, the surveyors also established quarter corners at a distance of one-half mile from the eastern and southern corners of the section (if they existed). Opposite quarter corners could then be connected by straight lines to subdivide the section into half-sections or quarter-sections. The intersection of these lines defines the legal center of a section for purposes of subdividing the land into quarter sections, but does not necessarily correspond to the geometric center of the section. In the vast majority of cases there is little difference between the two. Further subdivisions of a section are made using lines which connect the midpoints of opposite sides of the current subdivision.

The sections on the west and north sides of a township were supposed to take up any adjustments necessary to fit the survey of the section lines within the previously surveyed township and range lines (see below). Other adjustments in the surveys occasionally resulted in irregular sections elsewhere within a township. In some cases the resulting distortions in the shape of the section (especially where the edge of the section changes direction at the quarter corner) are sufficient to preclude location of the legal center of the section by intersecting lines between quarter corners.

In some circumstances fractional townships with fewer than 36 sections or fractional sections containing appreciably less than 640 acres occur within the survey. These occur along the east, south, and west borders of

Kansas where the survey terminated, as well as around the 1856 boundary of Fort Riley which was excluded from the survey of public lands. Navigable and other significant bodies of water were also excluded from the survey and create fractional sections within Kansas (especially along the major rivers). A unique variation in the survey occurs immediately to the south and west of the excluded Ft. Riley lands in an area called the Republican River Bridge Company Lands. These lands were also excluded from the original survey. Legislation passed by Congress in 1869, provided for these lands to be surveyed using 'special section' numbers (1-13) without regard to existing section numbers in the township to which they were assigned. Thus, in township 11 south, range 5 east, there is a fractional section 1 and a fractional 'special section' 1. Where space existed within fractional sections, quarter sections (or in some cases quarter-quarter sections or half-quarter sections) were established by standard procedures. The remainder of the section was then divided into lots.

Due to the convergence of meridians toward the north, the closing corners for range lines generally will not fall on the standard 6-mile corners of the closing parallel. The five guide meridians west and most other range lines have offsets at each correction line, reflecting this convergence. The guide meridian to the east passes through each correction line without an offset. In 1855 the initial point of the 6th Principal Meridian was incorrectly set at 60 miles west of the Missouri River instead of 108 miles. By the time the principal meridian was reestablished in its proper location, extensive surveying had already been completed off of the previously surveyed meridian. As a result it was taken as a guide meridian without offsets. The major consequence of this error is an extreme elongation of the sections on the west edge of all townships in Range 8 East, reaching widths of more than 13,000 feet at the Kansas-Oklahoma border.

The surveys proceeded rapidly in the open prairie. The 1857 Annual Report of the Commissioner of the General Land Office indicates that about 17,000 miles of survey lines had been run in Kansas. On June 30, 1876, the Office of Surveyor General in Kansas, then located at Lawrence, Kansas, was closed and the survey records turned over to the State. In just 21 years the State of Kansas had been surveyed. In the effort, approximately 200,000 miles of survey lines had been completed. Unfortunately, a large percentage of the corners were already obliterated

or rapidly deteriorating and would require resurveying. Requests for resurveys were arriving at the General Land Office in Washington within three years of the closing of the Lawrence office.

Courts have stated that original surveys of the United States, after acceptance, are presumed to be correct and will not be disturbed except on clear proof that they are fraudulent or grossly erroneous (Committee on Integrated Land Data Mapping, 1982). Once established, even if the original surveys were poorly executed, section corner and quarter corner locations become the legal basis for identifying property boundaries. Restoration of lost or obliterated corners is accomplished in accordance with measurements recorded in the field notes of the original land survey.

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