

# “The U.S. Public Land Survey System for Missouri”

By Dr. Richard Elgin, PLS, PE

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Sponsored by MSPS, the book *The U.S. Public Land Survey System for Missouri* is now available. This book is a complete synthesis of Missouri's unique version of the USPLSS. Its chapters are: **1.** Early History of the U.S. Public Land Survey System, the French and Spanish in Missouri and Missouri's Boundaries. **2.** Original Surveys on the U.S. Public Land Survey System for Missouri. **3.** Resurveys on the U.S. Public Land Survey System. **4.** Missouri Court Decisions Concerning Resurveys on the U.S. Public Land Survey System. **5.** Reestablishment of Lost Corners for Missouri. **6.** Example Protraction and Resurvey Problems. **7.** Some Missouri GLO Plats. The book has 419 pages, 24 figures, 20 example protraction problems, 28 example proportioning problems, 90 example GLO plats, 4 appendices and a glossary. Written by Dr. Dick Elgin who is uniquely qualified to write this book. Dick is a surveying researcher, practitioner, educator and author. Semi-retired, he's spent the last two years writing this much-needed manual about our state's USPLSS.

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# A Summary of “The U.S. Public Land Survey System for Missouri”

by Dr. Richard L. Elgin, PLS, PE

“The U.S. Public Land Survey System for Missouri” is a manual which covers all aspects of Missouri’s unique version of the rectangular system of land surveys. It is written specifically for Missouri, but has application in other states. A complete synthesis of the subject, it is written for the student in a college-level course studying the USPLSS, and for the licensed practitioner who desires more knowledge of the system, and for the licensed professional surveyor in another state who seeks license in Missouri by comity and has little (or no) knowledge of Missouri’s version of the USPLSS.

The manual begins with the early history of the USPLSS in America. This is the period from the Land Ordinance of 1785 and continues with the development of the system into 1815. In the Fall of 1815, surveys of the public lands began in the Missouri Territory with the establishment of the Initial Point to the 5th Principal Meridian in what is today east-central Arkansas. Prior to the Louisiana Purchase in 1803 both the French and Spanish had ruled and had made surveys and grants in what is today Missouri. The system of those and private claims is discussed. The location of Missouri’s boundaries evolved from 1818 until 1850. The “shaping of Missouri” and the surveys of its boundaries are described. **Chapter 2** describes the establishment of the Initial Point and the 5th Principal Meridian (and its errors). The chapter then describes Missouri’s system (and placement) of standard lines and its auxiliary principal meridians; then the procedures and methods for surveying township exteriors; then the subdivision of the townships into sections. Also covered in the chapter is the protraction of fractional sections, their acreages and fraudulent townships. **Chapter 3** describes today’s task of conducting resurveys on the system. Once the monuments of the USPLSS become obliterated or lost, how they are to be restored or reestablished is detailed. This chapter describes the four phases of a resurvey on the system. **Chapter 4** compares and contrasts statute, case and administrative law. Our courts have had before them many cases involving issues related to resurveys on the USPLSS. The courts have issued judgments and established precedents. This chapter presents and summarizes the leading cases involving the USPLSS in Missouri. **Chapter 5** describes the methods and procedures for the reestablishment of lost corners on the USPLSS. This is dependent on several factors which are examined: The “weight” of a standard corner versus a closing corner; previous Missouri statutes regarding the reestablishment of lost corners; the GLO’s 1883 “Restoration Manual”; current best practices and the current Chapter 60, RSMo. The chapter concludes by stating the rules for reestablishment of lost corners, and some possible alternatives. **Chapter 6** presents example calculation problems for computing the position of lost corners, applying coordinate geometry and applicable paragraphs of Chapter 60. This mostly applies single and double proportionate measurement. **Chapter 7** presents color copies of portions of 90 GLO plats from around the state. Much can be learned about Missouri’s system by a close examination of GLO plats which represent rather normal townships with standard protraction schemes, and also townships closed against standard lines, townships closed against rivers, townships with grants and townships which were closed against state boundaries. Each GLO plat presented has a caption which explains the circumstance of the township.



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In this one reference manual, all aspects of Missouri’s USPLSS is presented, from 1785 to its first application in the state in 1815, to the GLO’s original surveys and platting, to previous statutes and court cases, to today’s resurveys on the system, to example problems illustrating modern calculations on the system. It is a tremendous reference for the surveying educator, one seeking to become licensed as a Missouri Professional Land Surveyor and also for the licensed practitioner.

The book’s author is Dr. Richard L. Elgin, PLS, PE. Dick is ideally suited to write this book, being that rare Professional Surveyor with a PhD in surveying (University of Arkansas, 1982), an entire professional career in surveying (raised in the business, then owner and president of a surveying firm in Rolla for 22 years), a surveying educator (on faculty or adjunct faculty at Missouri S&T for 33 years), and previous coauthor (“Sokkia Ephemeris,” “Legal Principles of Boundary Location for Arkansas,” among others). With funding of this work from the Missouri Society of Professional Surveyors, in his “retirement,” over the past two years Dick has written this much needed tome about Missouri’s USPLSS. It has 419 pages, 24 figures, 20 example protraction problems, 28 example proportioning problems, 90 example GLO plats, 4 appendices, and a glossary.

