

ABSTRACT

The land surveying community has discovered the economic benefits of managing their survey data within a single system and view a geographic information system (GIS) as a possible method of doing so. However, the traditional coordinate-based design of a GIS does not contain the means to retain or employ the use of original measurements collected by land surveyors, a legacy that has resulted in skepticism among the surveying community. Thus, if a land surveyor desires to manage surveying data within a GIS environment, that GIS should be a measurement-based GIS (MBGIS). This research describes a MBGIS based upon the rules and relationships of measured points within the metes and bounds surveying environment of the state of Texas. Since Esri's parcel fabric data model contains several characteristics that indicate it might be considered a measurement-based system, it is explored as a possible method to manage and retain the measurement-based elements of metes and bounds surveying within a GIS environment. This study concludes that although the parcel fabric model has limitations when compared to an ideal MBGIS, it does have the capability to manage metes and bounds survey data if proper preparation and management techniques are applied.