2024 Regular Session

HOUSE BILL NO. 642

BY REPRESENTATIVE ORGERON

SURVEYORS: Updates standards for surveying and mapping

AN ACT

To amend and reenact the heading of Chapter 1 of Title 50 of the Revised Statutes of 1950 and R.S. 50:1 through 10 and 173.1, to enact R.S. 29:726(B)(17), and to repeal R.S. 50:11, relative to surveying and mapping standards and coordinate systems; to provide for the Governor's Office of Homeland Security and Emergency Preparedness' operations plan; to provide for the restoration of service to Continually Operating Reference Stations; to provide definitions; to establish the state plane coordinate system and official geodetic datums; to define zones for use with the official coordinate system; to update terminology and references to standards for surveying and mapping; to provide for deprecated state coordinate systems; to provide for the use of coordinate system terminology; to provide for the authority of the Department of Transportation and Development; and to provide for related matters.

Be it enacted by the Legislature of Louisiana:

Section 1. R.S. 29:726(B)(17) is hereby enacted to read as follows:

§726. Governor's Office of Homeland Security and Emergency Preparedness; authority and responsibilities

* * *

B. The office shall prepare and maintain a homeland security and state emergency operations plan and keep it current. The plan shall include the following:

* * *

(17) Coordination with the Louisiana State University Center for GeoInformatics, or any successor entity, designated by the National Geodetic Survey as the Louisiana Spatial Reference Center, to prioritize the restoration of service to Continuously Operating Reference Stations (CORS) within the state.

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Section 2. The heading of Chapter 1 of Title 50 of the Revised Statutes of 1950 and R.S. 50:1 through 10 and 173.1 are hereby amended and reenacted to read as follows:

CHAPTER 1. LOUISIANA COORDINATE ~~SYSTEM~~ SYSTEMS

§1. Definitions ~~Adoption; parishes comprising north and south zones~~

The terms defined in this Section have the following meaning when found in this Chapter:

(1) "Deprecation" means a decision to discontinue the use of a specific unit or method of measurement.

(2) "Geodetic coordinate" means angular coordinates defined relative to a particular geodetic datum, including, but not limited to, latitude, longitude, ellipsoid height, orthometric height, or dynamic height

(3) "Geodetic datum" means the geometric models representing the earth's size and shape that provide abstract coordinate systems with a reference surface or origin and orientation that serves to provide known locations to begin surveys and create maps; also referred to as a terrestrial reference frame or reference frame.

(4) "International Foot" means the length adopted in 1959 to define the unit of measurement equal to 3,048/10,000 meter.

(5) "Meter" means the length traveled by light in a vacuum during a time interval of exactly 1/299,792,458 seconds.

(6) "National Spatial Reference System" means the consistent coordinate system maintained by the National Geodetic Survey that defines latitude, longitude, height, scale, gravity, and orientation throughout the United States, including an accurate national shoreline; a set of models that describes geophysical processes that affect spatial measurements; and networks of permanently marked points and

continuously operating reference stations (CORS) to support three-dimensional positioning activities.

(7) "NATREF2022" means the North American Terrestrial Reference Frame of 2022.

(8) "State plane coordinate system" means the system of conformal map projections created by the National Geodetic Survey to support surveying, engineering, and mapping activities throughout the United States.

(9) "U.S. survey foot" means the length adopted by the United States government in 1893 to define the unit of measurement equal to 1,200/3,937 meter.

(10) "Zone" means a geographic region on the surface of the earth with a uniquely defined projected coordinate reference system, with extents usually based on a specified maximum linear distortion magnitude.

~~A. The systems of plane coordinates which have been established by the National Ocean Service/National Geodetic Service, formerly the United States Coast and Geodetic Survey, or its successors for defining and stating the geographic positions or locations of points on the surface of the earth within the state of Louisiana are hereafter to be known and designated as the Louisiana Coordinate System of 1927 and the Louisiana Coordinate System of 1983.~~

~~B. For the purpose of the use of these systems, the state is divided into a North Zone, South Zone, and an Offshore Zone.~~

~~C. The area now included in the following parishes shall constitute the North Zone: Avoyelles, Bienville, Bossier, Caddo, Caldwell, Catahoula, Claiborne, Concordia, DeSoto, East Carroll, Franklin, Grant, Jackson, LaSalle, Lincoln, Madison, Morehouse, Natchitoches, Ouachita, Rapides, Red River, Richland, Sabine, Tensas, Union, Vernon, Webster, West Carroll, and Winn.~~

~~D. The area now included in the following parishes shall constitute the South Zone: Acadia, Allen, Ascension, Assumption, Beauregard, Calcasieu, Cameron, East Baton Rouge, East Feliciana, Evangeline, Iberia, Iberville, Jefferson, Jefferson Davis, Lafayette, Lafourche, Livingston, Orleans, Plaquemine, Pointe Coupee, St.~~

~~Bernard, St. Charles, St. Helena, St. James, St. John the Baptist, St. Landry, St. Martin, St. Mary, St. Tammany, Tangipahoa, Terrebonne, Vermilion, Washington, West Baton Rouge, and West Feliciana.~~

~~E. The area now included in that area of the Gulf of Mexico defined as being within 200 miles of the state of Louisiana shall constitute the Offshore Zone.~~

§2. State plane coordinate system; zones ~~Designation for use in North, South, and Offshore Zones~~

A. The official geodetic datums for geodetic coordinates referenced within the state shall be as defined by the National Spatial Reference System established by the National Geodetic Survey of the National Oceanic and Atmospheric Administration, or its successors. ~~As established for use in the North Zone, the Louisiana Coordinate System of 1927 or the Louisiana Coordinate System of 1983 shall be named; and in any land description in which it is used, it shall be designated the "Louisiana Coordinate System of 1927 North Zone" or "Louisiana Coordinate System of 1983 North Zone".~~

B. The official state plane coordinate system for defining and stating the positions or locations of points on the surface of the earth within the state is the most recent version of the state plane coordinate system for Louisiana based on the National Spatial Reference System established by the National Geodetic Survey and shall be known as the Louisiana Plane Coordinate System. ~~As established for use in the South Zone, the Louisiana Coordinate System of 1927 or the Louisiana Coordinate System of 1983 shall be named; and in any land description in which it is used, it shall be designated the "Louisiana Coordinate System of 1927 South Zone" or "Louisiana Coordinate System of 1983 South Zone".~~

(1) For the purpose of using the Louisiana Plane Coordinate System, the state is divided into three projection zone layers designated as the North Zone, the South Zone, and the Statewide Zone, the areas of which are as follows:

(a) The area now included in the following parishes shall constitute the North Zone: Avoyelles, Bienville, Bossier, Caddo, Caldwell, Catahoula, Claiborne,

Concordia, DeSoto, East Carroll, Franklin, Grant, Jackson, LaSalle, Lincoln, Madison, Morehouse, Natchitoches, Ouachita, Rapides, Red River, Richland, Sabine, Tensas, Union, Vernon, Webster, West Carroll, and Winn.

(b) The area now included in the following parishes extending to the coastal boundary of Louisiana shall constitute the South Zone: Acadia, Allen, Ascension, Assumption, Beauregard, Calcasieu, Cameron, East Baton Rouge, East Feliciana, Evangeline, Iberia, Iberville, Jefferson, Jefferson Davis, Lafayette, Lafourche, Livingston, Orleans, Plaquemine, Pointe Coupee, St. Bernard, St. Charles, St. Helena, St. James, St. John the Baptist, St. Landry, St. Martin, St. Mary, St. Tammany, Tangipahoa, Terrebonne, Vermilion, Washington, West Baton Rouge, and West Feliciana.

(c) The area now included in the areas of the North Zone and South Zone shall constitute the Statewide Zone.

(2) For purposes of defining more precisely the Louisiana Plane Coordinate System, the following definitions are adopted:

(a) The "Louisiana Plane Coordinate System North Zone" is a Lambert conformal conic projection of the National Spatial Reference System NATREF2022 or its successors, having a central parallel at north latitude 31 degrees 54 minutes 00 seconds, along which parallel the scale shall be 0.999 93 (exact). The origin of the North Zone is at the intersection of the meridian 92 degrees 30 minutes west longitude and the parallel 31 degrees 54 minutes 00 seconds north latitude. This origin is given the coordinates: x (east) = 495,300 meters and y (north) = 190,500 meters.

(b) The "Louisiana Plane Coordinate System South Zone" is a Lambert conformal conic projection of the National Spatial Reference System NATREF2022 or its successors, having a standard parallel at north latitude 30 degrees 00 minutes 00 seconds, along which parallel the scale shall be 0.999 93 (exact). The origin of the South Zone is at the intersection of the meridian 91 degrees 30 minutes 00 seconds west longitude and the parallel 30 degrees 00 minutes 00 seconds north

latitude. This origin is given the coordinates: x (east) = 609,600 meters and y (north) = 190,500 meters.

(c) The "Louisiana Plane Coordinate System Statewide Zone" has statewide coverage. It is a Hotine Oblique Mercator projection of the National Spatial Reference System NATREF2022 or its successors, having a north latitude of 31 degrees 00 minutes 00 seconds and a west longitude of 91 degrees 30 minutes, 00 seconds and a skew azimuth of -68 degrees 00 minutes 00 seconds at that point, and the skew axis scale shall be 0.999 8 (exact). This origin is given the coordinates: x (east) = 914,400 meters and y (north) = 381,000 meters.

C. The provisions of this Section shall not be construed to prohibit the appropriate use of other datums or geodetic reference networks when required and appropriate. ~~As established for use in that area of the Gulf of Mexico defined as being within 200 miles of the state of Louisiana, it shall constitute the Offshore Zone.~~

§3. Linear units defined ~~Plane coordinates~~

A. The plane coordinates used to express the position or location of a point on the earth's surface within an appropriate plane coordinate system zone shall consist of two distances which shall be expressed in meters and decimals of a meter or in feet and decimals of a foot. One of these distances, to be known as the East or X-coordinate, shall give the distance east of the Y-axis; the other distance, to be known as the North or Y-coordinate, shall give the distance north of the X-axis. The Y-axis of any zone shall be parallel with the central meridian of that zone. The X-axis of any zone shall be at right angles to the central meridian of that zone.

B. When the values are expressed in feet, the U.S. survey foot shall be used as the standard foot for the Louisiana Plane Coordinate System.

~~The plane coordinate values for a point on the earth's surface, used to express the geographic position or location of such point in the appropriate zone of this system, shall consist of two distances expressed in U.S. Survey feet and decimals of a foot when using the Louisiana Coordinate System of 1927 and expressed in meters~~

~~and decimals of a meter, or the equivalent distance in feet and decimals of a foot, (conversion factor is 3937 divided by 1200), when using the Louisiana Coordinate System of 1983. One of these distances to be known as the "x-coordinate", shall give the position in an east and west direction; the other, to be known as the "y-coordinate", shall give the position in a north and south direction. These coordinates shall be made to depend upon and conform to plane rectangular coordinate values for the monumented points of the North American Horizontal Geodetic Control Network as published by the National Ocean Service/National Geodetic Survey, or its successors, and whose plane coordinates have been computed on the systems defined in this Chapter. Any such station may be used for establishing a survey connection to either Louisiana Coordinate System.~~

§4. Describing of location

For purposes of describing the location of any point in the state of Louisiana, it shall be considered a complete, legal, and satisfactory description of such location to give the position of a ~~said~~ survey station or land boundary corner on the system of plane coordinates defined in this Chapter.

§5. Purchaser or mortgagee reliance on description ~~not required to rely on description depending solely on system~~

Nothing contained in this Chapter shall require a purchaser or mortgagee to rely on a description~~,~~ which depends exclusively upon a particular state plane coordinate system ~~either Louisiana Coordinate System~~.

§6. Land in different zones

When any tract of land to be defined by a single description extends from one zone into another ~~the other of the above coordinate zones~~, the positions of all points on its boundaries may be referred to either of the two zones, but the zone which is used shall be ~~being~~ specifically named in the description.

§7. Superceded state coordinate systems; definitions retained ~~Louisiana Coordinate System defined~~

A. The Louisiana Coordinate System of 1927 was deprecated beginning December 31, 1995, and the Louisiana Coordinate System of 1983 will be

deprecated upon the National Geodetic Survey's release of the National Spatial Reference System of 2022. The previously adopted definitions for these deprecated systems are retained.

B. Zones. For these deprecated systems, the state was divided into a North Zone, a South Zone, and an Offshore Zone as follows:

(1) The area now included in the following parishes shall constitute the North Zone: Avoyelles, Bienville, Bossier, Caddo, Caldwell, Catahoula, Claiborne, Concordia, DeSoto, East Carroll, Franklin, Grant, Jackson, LaSalle, Lincoln, Madison, Morehouse, Natchitoches, Ouachita, Rapides, Red River, Richland, Sabine, Tensas, Union, Vernon, Webster, West Carroll, and Winn.

(2) The area now included in the following parishes shall constitute the South Zone: Acadia, Allen, Ascension, Assumption, Beauregard, Calcasieu, Cameron, East Baton Rouge, East Feliciana, Evangeline, Iberia, Iberville, Jefferson, Jefferson Davis, Lafayette, Lafourche, Livingston, Orleans, Plaquemine, Pointe Coupee, St. Bernard, St. Charles, St. Helena, St. James, St. John the Baptist, St. Landry, St. Martin, St. Mary, St. Tammany, Tangipahoa, Terrebonne, Vermilion, Washington, West Baton Rouge, and West Feliciana.

(3) The area now included in that area of the Gulf of Mexico defined as being within two hundred miles of the state of Louisiana shall constitute the Offshore Zone.

C. Definition of zones.

(1) For purposes of more precisely defining the Louisiana Coordinate System of 1927, the following definition by the United States Coast and Geodetic Survey, now National Ocean Service/National Geodetic Service, was previously ~~is~~ adopted:

~~(1)~~(a) The "Louisiana Coordinate System of 1927 North Zone" is a Lambert conformal conic projection of the Clarke spheroid of 1866, having standard parallels at north latitudes 31 degrees 10 minutes and 32 degrees 40 minutes, along which parallels the scale shall be exact. The origin of coordinate is at the intersection of the

meridian 92 degrees 30 minutes west of Greenwich and the parallel 30 degrees 40 minutes north latitude. This origin is given the coordinates: x = 2,000,000' and y = 0', as now defined.

~~(2)~~(b) The "Louisiana Coordinate System of 1927 South Zone" is a Lambert conformal conic projection of the Clarke spheroid of 1866, having standard parallels at north latitudes 29 degrees 18 minutes and 30 degrees 42 minutes, along which parallels the scale shall be exact. The origin of coordinates is at the intersection of the meridian 91 degrees 20 minutes west of Greenwich and the parallel 28 degrees 40 minutes north latitude. This origin is given the coordinates: x = 2,000,000' and y= 0', as now defined.

~~B.~~(2) For purposes of more precisely defining the Louisiana Coordinate System of 1983, the following definition by the National Ocean Service/National Geodetic Service was previously ~~is~~ adopted:

~~(1)~~(a) The "Louisiana Coordinate System of 1983 North Zone" is a Lambert conformal conic projection of the North American Datum of 1983, having standard parallels at north latitudes 31 degrees 10 minutes and 32 degrees 40 minutes, along which parallels the scale shall be exact. The origin of coordinates is at the intersection of the meridian 92 degrees 30 minutes west of Greenwich and the parallel 30 degrees 30 minutes north latitude. This origin is given the coordinates: x = 1,000,000 meters and y = 0 meters.

~~(2)~~(b) The "Louisiana Coordinate System of 1983 South Zone" is a Lambert conformal conic projection of the North American Datum of 1983, having standard parallels at north latitudes 29 degrees 18 minutes and 30 degrees 42 minutes along which parallels the scale shall be exact. The origin of coordinates is at the intersection of the meridian 91 degrees 20 minutes west of Greenwich and the parallel 28 degrees 30 minutes north latitude. This origin is given the coordinates: x = 1,000,000 meters and y = 0 meters.

~~(3)~~(c) The "Louisiana Coordinate System of 1983 Offshore Zone" is a Lambert conformal conic projection of the North American Datum 1983, having

standard parallels at north latitudes 26 degrees 10 minutes and 27 degrees 50 minutes, along which parallels the scale shall be exact. The origin of coordinates is at the intersection of the meridian 91 degrees 20 minutes west of Greenwich and the parallel 25 degrees 30 minutes north latitude. This origin is given the coordinates: x = 1,000,000 meters and y = 0 meters.

§8. Accuracy requirements ~~Distance of boundary points from station~~

A. Accuracy requirements for surveys and maps purporting to define the position of a point shall be those expressed in the Standards of Practice for Boundary Surveys promulgated by the Louisiana Professional Engineering and Land Surveying Board or its successor. No survey or map purporting to define the position of a point shall be presented for recordation in any public land records or deed records unless they comply with these accuracy requirements.

B. Accuracy requirements for mapping shall be those expressed in the United States National Map Accuracy Standards or its successor unless the project specifically calls for the use of another standard, in which case, the alternative standard shall be clearly stated on the map or document.

~~No coordinate based on either Louisiana Coordinate System, purporting to define the position of a point, shall be presented to be recorded in any public land records or deed records unless such point is within five kilometers of a monumented horizontal control station established in conformity with the standards of accuracy and specification for first or second-order geodetic surveying as prepared and published by the Federal Geodetic Control Committee (FGCC) of the United States Department of Commerce. Standards and Specifications of the FGCC or its successors in force on date of said survey shall apply. The publishing of the existing control stations, or the acceptance with intent to publish the newly established control stations, by the National Ocean Service/National Geodetic Service will constitute evidence of adherence to the FGCC Specification. Above limitations may be modified by a duly authorized state agency, the Department of Transportation and Development, to meet local conditions.~~

§9. Duly authorized state agency

The state Department of Transportation and Development is designated as the authorized state agency~~, as referred to in R.S. 50:8,~~ to administer the provisions of this Chapter, to collect and distribute information, ~~to authorize such modifications as are referred to in R.S. 50:8,~~ and generally to advise with and assist appropriate state and federal agencies and individuals interested in the development of the provisions of this Chapter.

§10. Use of Louisiana coordinate system names ~~term "Louisiana Coordinate System" in document~~

Use of the terms "Louisiana Coordinate System of 1927", "Louisiana Coordinate System of 1983", and "Louisiana Plane Coordinate System" on any map, report of a survey, or other document shall be limited to coordinates based on the coordinate systems defined in this Chapter.

~~The use of the term "Louisiana Coordinate System of 1927 'North', 'South' Zones" or "Louisiana Coordinate System of 1983 'North', 'South', or 'Offshore' Zones" on any map, report of survey, or other document shall be limited to coordinates based on the Louisiana Coordinate System as defined in this Chapter.~~

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§173.1. Geodetic ~~Vertical~~ control standards

Controls ~~Vertical controls~~ for all surveys shall be determined in the National Spatial Reference System or its successors ~~North American Vertical Datum of 1988 (NAVD88)~~. All measurements shall be referenced to local control stations of the National Spatial Reference System or its successors, specifically the public domain Louisiana State University Continuously Operating Reference Stations network or other reference stations currently approved by the National Oceanographic and Atmospheric Administration National Geodetic Survey ~~approved reference stations~~, such as benchmarks, monuments, or continually operating reference stations.

Section 2. R.S. 50:11 is hereby repealed in its entirety.

DIGEST

The digest printed below was prepared by House Legislative Services. It constitutes no part of the legislative instrument. The keyword, one-liner, abstract, and digest do not constitute part of the law or proof or indicia of legislative intent. [R.S. 1:13(B) and 24:177(E)]

HB 642 Original 2024 Regular Session Orgeron

Abstract: Updates the state coordinate system and standards used for surveying and mapping within the state.

Present law requires the Governor's Office of Homeland Security and Emergency Preparedness (GOHSEP) to prepare and maintain a homeland security and state emergency operations plan. Proposed law retains present law and adds the requirement that GOHSEP coordinate with the La. Spatial Reference Center, as designated by the National Geodetic Survey, to prioritize getting Continuously Operating Reference Stations (CORS) back to service after a disaster or emergency.

Proposed law provides definitions.

Present law provides that the state's systems of plane coordinates are the La. Coordinate System of 1927 and the La. Coordinate System of 1983 and defines the zones for use with those coordinate systems.

Proposed law replaces these systems with the La. Plane Coordinate System as the official state coordinate system and defines the zones to be used with this coordinate system.

Proposed law further provides that proposed law does not preclude the use of other coordinate systems where appropriate.

Proposed law adds references to successor systems and organizations throughout the proposed law as recommended by the National Geodetic Survey to prevent these provisions of proposed law from becoming obsolete in the future.

Proposed law further provides that the official geodetic datums that must be used for coordinates referenced in the state are those defined by the National Spatial Reference System established by the National Geodetic Survey.

Present law provides the method for stating coordinate values for a point on the earth's surface. Proposed law removes references to superceded coordinate systems and the North American Horizontal Geodetic Control Network and updates terminology used for the method of stating coordinate values.

Present law provides for the completeness of location descriptions, purchaser and mortgagee reliance on descriptions using a single particular coordinate system, and reference to points in a description of land that lies in more than one zone. Proposed law makes technical changes to these provisions and otherwise retains present law.

Present law defines state zones for use with the La. Coordinate System of 1927 and the La. Coordinate System of 1983. Proposed law states that these two systems under present law are deprecated and superceded, but their definitions are retained.

Present law requires that recordation of coordinates purporting to define the position of a point be based on accuracy standards of the Federal Geodetic Control Committee of the U.S. Dept. of Commerce. Proposed law retains accuracy standards for documents purporting to define the position of a point, but changes the standard required to the Standards of Practice for Boundary Surveys promulgated by the La. Professional Engineering & Land Surveying

Board or its successor. Proposed law further adds a requirement that mapping conform to the standards of the U.S. National Map Accuracy Standards or its successor, unless a different standard is required and specifically identified on the document.

Present law designates the Dept. of Transportation and Development as the state agency authorized to administer the provisions of present law regarding the state's coordinate systems and to modify limitations placed on the use of coordinates in recorded documents to meet local conditions. Proposed law removes the agency's authority to modify limitations in present law, but otherwise retains the agency's authority to administer the provisions of law regarding coordinate systems.

Present law requires that the use of the proper names of the state's coordinate systems be limited to the use of coordinates as defined by state law. Proposed law updates the proper names to include the most recent additional coordinate system under proposed law, but otherwise retains present law.

Present law provides the standard to be used for vertical controls for all surveys as the North American Vertical Datum of 1988. Proposed law removes this language and provides instead that the standard for all geodetic controls for surveys is the National Spatial Reference System or its successors.

Present law provides for reference stations for all measurements. Proposed law retains present law.

Present law provides that the La. Coordinate System of 1927 shall not be used after Dec. 31, 1995 (50:11). Proposed law retains present law (50:7).

(Amends the heading of Chapter 1 of Title 50 of the Revised Statutes of 1950 and R.S. 50:1 - 10 and 173.1; Adds R.S. 29:726(B)(17); Repeals R.S. 50:11)