

FINANCE AND ADMINISTRATION CABINET
Commonwealth Office of Technology
Division of Geographic Information Systems
(Amended at ARRS Committee)

200 KAR 41:010. The Kentucky State Plane Coordinate System.

RELATES TO: KRS 1.020, 42.630, 42.650, 42.740

STATUTORY AUTHORITY: KRS 1.020(2), 42.650(5)

NECESSITY, FUNCTION, AND CONFORMITY: KRS 42.650(5) authorizes the Division of Geographic Information Systems within the Commonwealth Office of Technology (COT) to promulgate administrative regulations to implement that statute. KRS 1.020 (2) requires the Commonwealth Office of Technology (COT) to establish and publish a series of layered zones covered by geodetically referenced mapping projections adopted and supported by the National Geodetic Survey (NGS) as a component of the National Spatial Reference System (NSRS).

Section 1. Definitions.

- (1) "COT" means Commonwealth Office of Technology.
- (2) "Customary foot" means the foot as a linear unit of measure in a generic sense outside the context of a specific conversion regimen.
- (3) "Geodetic datum" means a geometric model representing the earth's size and shape. The mathematical surface of a geodetic datum is an oblate spheroid, called a reference ellipsoid, generally designed to best fit mean sea level either globally or for a stated region. In the context of a geometric framework in which horizontal coordinates are expressed in angular units as latitude and longitude, a geodetic datum is also referred to as a terrestrial reference frame, or simply, reference frame.
- (4) "Geodetically referenced mapping projection" means a planar surface mathematically associated with a geodetic datum, or terrestrial reference frame, such that unique positions relative to that datum or terrestrial reference frame can be converted to and from commensurately unique positions on that plane.
- (5) "GIAC" means Geographic Information Advisory Council.
- (6) "NGS" means National Geodetic Survey.
- (7) "NOAA" means National Oceanic and Atmospheric Administration.
- (8) "KSPCS" means Kentucky State Plane Coordinate System and is the collection of all series applicable to the Commonwealth of Kentucky.
- (9) "NSRS" means National Spatial Reference System.
- (10) "SPCS" means State Plane Coordinate System.
- (11) "State plane layer" means a collection of one (1) or more zones, all defined on a common geodetic datum or terrestrial reference frame and designed to achieve, in aggregate, a common theme based on similar performance characteristics that may cover the Commonwealth in part or in whole.
- (12) "State plane series" means a collection of one (1) or more layers defined on a common and unique geodetic datum or terrestrial reference frame representing a complete implementation of the national State Plane Coordinate System (SPCS) for the Commonwealth on that datum or terrestrial reference frame.
- (13) "State plane zone", or "zone," is a geographic region covered by a uniquely defined geodetically referenced mapping projection and generally comprised of a collection of mutually adjacent whole counties such that all included counties lie completely within a given zone. In special cases a zone may partially cover a county or parts of mutually adjacent counties to represent a geographic area of specific interest. A zone may cover the Commonwealth either in part or in whole.

Section 2.

- (1) The KSPCS shall be based on a series of layered zones covered by geodetically referenced mapping projections adopted and supported by the NGS as a component of the NSRS.
- (2) The KSPCS shall consist of the following plane series:
 - (a) Series 1: North American Datum of 1927 (NAD 27);
 - (b) Series 2: North American Datum of 1983 (NAD 83);
 - (c) Series 3: North American Terrestrial Reference Frame of 2022 (NATRF2022), except that this series shall not be utilized until the terrestrial reference frames defining SPCS2022 have been officially adopted and are supported by the National Geodetic Survey; and
 - (d) Additional series based on new datums or terrestrial reference frames as they are officially adopted and supported by NGS as part of the NSRS.
- (3) The Commonwealth Office of Technology (COT), as advised by the Geographic Information Advisory Council (GIAC), shall develop and maintain the Kentucky State Plane Coordinate System Standards and Specifications Document, referred to as the KSPCS Standards and Specifications Document.
- (4) The KSPCS Standards and Specifications Document shall describe, in detail, the standards and specifications for each series of layered zones adopted in subsection (2) of this section. Anticipated series based on new datums or terrestrial reference frames under development by the National Geodetic Survey may be addressed within the KSPCS Standards and Specifications Document but shall not be implemented or utilized until officially adopted and supported by NGS as part of the NSRS.
- (5) The KSPCS Standards and Specifications Document shall provide pertinent information and narratives required to adequately describe implementation of the KSPCS, including historical context, underlying concepts, and policy. Additional information not specifically required but deemed necessary to facilitate greater understanding of the KSPCS may also be included within the document.
- (6) The KSPCS Standards and Specifications Document shall reconcile or otherwise clarify nomenclature and terminology adopted or refined by NGS when the adaptations result in ambiguities relating to similar terms and language utilized within KRS 1.010, 1.020, or this administrative regulation.
- (7) For each state plane series adopted in subsection (2) of this section, the KSPCS Standards and Specifications Document shall provide a detailed description containing:
 - (a) The series name;
 - (b) The datum or terrestrial reference frame upon which the series is defined, including the reference ellipsoid and its defining parameters; and
 - (c) The linear units of measure used to define the series and, when applicable, the forward and reverse conversion factors to be used for converting between the meter and customary foot when representing linear measurements.
- (8) For each layer within a KSPCS series, a detailed description shall be provided containing:
 - (a) The name of the layer; and
 - (b) The purpose of the layer.
- (9) For each zone within a KSPCS layer a detailed description shall be provided containing:
 - (a) The zone name.
 - (b) The conformal projection type utilized for that zone.
 - (c) The Central Parallel, expressed as degrees and whole minutes of latitude including the North direction indicator from the equator. When implementing the double standard parallel definition of the Lambert Conformal Conic projection type, the North Standard Parallel and South Standard Parallel, both expressed as degrees and whole

minutes including the North direction indicator from the equator shall be provided in lieu of the Central Parallel.

(d) The Central Meridian, expressed as degrees and whole minutes of longitude including the East or West direction indicator from the prime meridian.

(e) When implementing the double standard parallel definition of the Lambert Conformal Conic projection type, the Base Parallel is provided, expressed as degrees and whole minutes of latitude including the North direction indicator from the equator, representing the basis of the false northing and false easting coordinate values for establishing the location of the projected grid origin. For all other projection types, the Central Parallel shall be used as the basis for the false northing and false easting coordinate values for establishing the location of the projected grid origin.

(f) When defined by the transverse Mercator (TM) or oblique Mercator (OM) projection types, or implementing the single standard parallel definition of the Lambert Conformal Conic projection type, the projection axis scale factor shall be provided and expressed to six (6) full decimal places representing the nearest one (1) part per million increment.

(g) The False Northing value, including linear units of measure, to be applied on the projection grid at the intersection of the Central Meridian with the Base Parallel or Central Parallel as specified in paragraph (e) of this subsection.

(h) The False Easting value, including linear units of measure, to be applied on the projection grid at the intersection of the Central Meridian with the Base Parallel or Central Parallel as specified in paragraph (e) of this subsection.

(i) When the oblique Mercator conformal projection type is utilized, the Skew Azimuth of the projection axis, as measured clockwise from geodetic north and expressed in whole positive degrees. When expressed as a quadrant measure regardless of direction, the absolute value of the Skew Azimuth shall fall between five (5) degrees and eighty-five (85) degrees inclusively. The Skew Azimuth is defined at the intersection of the Central Meridian and Central Parallel.

(j) When the zone represents a portion of the Commonwealth, a list of the whole counties to which the zone shall exclusively apply. When the zone represents statewide coverage then a statement declaring so shall be provided.

(k) A zone may be utilized beyond its defined counties when doing so results in improved performance over the default zone applicable to an area of interest.

(10) The use of the KSPCS shall be mandatory for all Executive Branch Agencies and their contractors to manage geospatial data.

(11) The use of the KSPCS shall be voluntary for all private and non-executive branch uses or applications, but is strongly recommended as the desired method for referencing geographic positions and spatial data pertaining to the Commonwealth of Kentucky. However, an election to utilize KSPCS shall require compliance with this administrative regulation.

Section 3. Incorporation by Reference.

(1) "The Kentucky State Plane Coordinate System Standards and Specifications Document", May 2021, is incorporated by reference.

(2) This material may be inspected, copied, or obtained, subject to applicable copyright law at the Commonwealth Office of Technology, 101 Cold Harbor Drive Frankfort, Kentucky 40601, Monday through Friday, 8 a.m. to 4:30 p.m. or online at <https://geodesy.ky.gov/>.

(49 Ky.R. 943, 1412; eff. 4-4-2023.)

FILED WITH LRC: December 13, 2022

CONTACT PERSON: Wm. Robert Long, Jr., Executive Director, Finance and Administration Cabinet, 200 Mero Street, 5th Floor, Frankfort, Kentucky 40622.