



1 FINANCE AND ADMINISTRATION CABINET

2 Commonwealth Office of Technology

3 Division of Geographic Information Systems

4 (New Administrative Regulation)

5 200 KAR 041:010. The Kentucky State Plane Coordinate System

6 RELATES TO: KRS 1.020, 42.630, 42.650, 42.740

7 STATUTORY AUTHORITY: KRS 42.650(5)

8 NECESSITY, FUNCTION, AND CONFORMITY: KRS 42.650(5) authorizes the Division

9 of Geographic Information Systems within the Commonwealth Office of Technology

10 (COT) to promulgate administrative regulations to implement that statute. KRS 1.020 (2)

11 requires the Commonwealth Office of Technology (COT) to establish and publish a

12 series of layered zones covered by geodetically referenced mapping projections

13 adopted and supported by the National Geodetic Survey (NGS) as a component of the

14 National Spatial Reference System (NSRS).

15 Section 1. Definitions.

16 (1) "COT" means Commonwealth Office of Technology

17 (2) "Customary foot" refers to the foot as a linear unit of measure in a generic sense

18 outside the context of a specific conversion regimen.

- 1 (3) "Geodetic datum," as referenced herein, means a geometric model representing
2 the earth's size and shape. The mathematical surface of a geodetic datum is an
3 oblate spheroid, called a reference ellipsoid, generally designed to best fit mean
4 sea level either globally or for a stated region. In the context of a geometric
5 framework in which horizontal coordinates are expressed in angular units as
6 latitude and longitude, a geodetic datum is also referred to as a *terrestrial*
7 *reference frame*, or simply, *reference frame*.
- 8 (4) "Geodetically referenced mapping projection" means a planar surface
9 mathematically associated with a geodetic datum, or terrestrial reference frame,
10 such that unique positions relative to that datum or terrestrial reference frame can
11 be converted to and from commensurately unique positions on that plane.
- 12 (5) "GIAC" means Geographic Information Advisory Council
- 13 (6) "NGS" means National Geodetic Survey
- 14 (7) "NOAA" means National Oceanic and Atmospheric Administration
- 15 (8) "KSPCS" means Kentucky State Plane Coordinate System
- 16 (9) The "KSPCS" is the collection of all series applicable to the Commonwealth of
17 Kentucky.
- 18 (10) "NSRS" means National Spatial Reference System
- 19 (11) "SPCS" means State Plane Coordinate System
- 20 (12) A "state plane layer" is a collection of one or more zones, all defined on a common
21 geodetic datum or terrestrial reference frame and designed to achieve, in

1 aggregate, a common theme based on similar performance characteristics that
2 may cover the Commonwealth in part or in whole.

3 (13) A "state plane series" is a collection of one or more layers defined on a common
4 and unique geodetic datum or terrestrial reference frame representing a complete
5 implementation of the national State Plane Coordinate System (SPCS) for the
6 Commonwealth on that datum or terrestrial reference frame.

7 (14) A "state plane zone", or "zone," is a geographic region covered by a uniquely
8 defined geodetically referenced mapping projection and generally comprised of a
9 collection of mutually adjacent whole counties such that all included counties lie
10 completely within a given zone. In special cases a zone may partially cover a
11 county or parts of mutually adjacent counties in order to represent a geographic
12 area of specific interest. A zone may cover the Commonwealth either in part or in
13 whole.

14 Section 2.

15 (1) The KSPCS shall be based on a series of layered zones covered by geodetically
16 referenced mapping projections adopted and supported by the NGS as a
17 component of the NSRS.

18 (2) The KSPCS shall consist of the following plane series:

19 (a) Series 1: North American Datum of 1927 (NAD 27);

20 (b) Series 2: North American Datum of 1983 (NAD 83);

21 (c) Series 3: North American Terrestrial Reference Frame of 2022 (NATRF2022),

22 except that this series shall not be utilized until the terrestrial reference frames

1 defining SPCS2022 have been officially adopted and are supported by the
2 National Geodetic Survey; and

3 (d) Additional series based on new datums or terrestrial reference frames as they
4 are officially adopted and supported by NGS as part of the NSRS.

5 (3) The Commonwealth Office of Technology (COT), as advised by the Geographic
6 Information Advisory Council (GIAC), shall develop and maintain the *Kentucky*
7 *State Plane Coordinate System Standards and Specifications Document*,
8 hereinafter referred to as the *KSPCS Standards and Specifications Document*.

9 (4) The *KSPCS Standards and Specifications Document* shall describe, in detail, the
10 standards and specifications for each series of layered zones adopted in
11 subsection (2) of this section. Anticipated series based on new datums or
12 terrestrial reference frames under development by the National Geodetic Survey
13 may be addressed within the *KSPCS Standards and Specifications Document*
14 but shall not be implemented or utilized until officially adopted and supported by
15 NGS as part of the NSRS.

16 (5) The *KSPCS Standards and Specifications Document* shall provide pertinent
17 information and narratives required to adequately describe implementation of the
18 *KSPCS*, including historical context, underlying concepts, and policy. Additional
19 information not specifically required herein but deemed necessary to facilitate
20 greater understanding of the *KSPCS* may also be included within the document.

21 (6) The *KSPCS Standards and Specifications Document* shall reconcile or otherwise
22 clarify nomenclature and terminology adopted and/or refined by NGS when such

1 adaptations result in ambiguities relating to similar terms and language utilized
2 within KRS 1:010, KRS 1:020, and/or this KAR.

3 (7) For each state plane series adopted in subsection (2), the *KSPCS Standards and*
4 *Specifications Document* shall provide a detailed description containing:

5 (a) The series name,

6 (b) The datum or terrestrial reference frame upon which the series is defined,
7 including the reference ellipsoid and its defining parameters, and

8 (c) The linear units of measure used to define the series and, when applicable, the
9 forward and reverse conversion factors to be used for converting between the
10 meter and customary foot when representing linear measurements.

11 (8) For each layer within a KSPCS series, a detailed description shall be provided
12 containing:

13 (a) The name of the layer, and

14 (b) The purpose of the layer.

15 (9) For each zone within a KSPCS layer a detailed description shall be provided
16 containing:

17 (a) The zone name.

18 (b) The conformal projection type utilized for that zone.

19 (c) The Central Parallel, expressed as degrees and whole minutes of latitude
20 including the North direction indicator from the equator. When implementing the
21 double standard parallel definition of the Lambert Conformal Conic projection

1 type, the North Standard Parallel and South Standard Parallel, both expressed
2 as degrees and whole minutes including the North direction indicator from the
3 equator shall be provided in lieu of the Central Parallel.

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

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

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

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

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

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

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

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

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

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

22 Section 3. Incorporation by Reference.

- 1 (1) The following material is incorporated by reference:
- 2 (a) *The Kentucky State Plane Coordinate System Standards and Specifications*
- 3 *Document.*
- 4 (b) *The Kentucky State Plane Coordinate System Standards and Specifications*
- 5 *Document* is also referred to as the *KSPCS Standards and Specifications*
- 6 *Document.*
- 7 (2) This material may be inspected, copied, or obtained, subject to applicable copyright
- 8 law at the Commonwealth Office of Technology, 101 Cold Harbor Drive Frankfort,
- 9 Kentucky, 40601, Monday through Friday, 8 a.m. to 4:30 p.m. or online at
- 10 <https://geodesy.ky.gov/>.

Holly M. Johnson
Holly M. Johnson, Secretary
Finance and Administration Cabinet

9-14-2022
Date

Kent Anness
Director
Div. of Geographic Information Systems

09/08/2022
Date

PUBLIC HEARING AND PUBLIC COMMENT PERIOD: A public hearing on this administrative regulation shall be held on November 30, 2022 at 10:00 a.m. at Kentucky Finance and Administration Cabinet Office of General Counsel, 200 Mero Street, 5th Floor, Frankfort, Kentucky 40622. Individuals interested in being heard at this hearing shall notify this agency in writing five workdays prior to the hearing, of their intent to attend. If no notification of intent to attend the hearing is received by that date, the hearing may be cancelled. This hearing is open to the public. Any person who wishes to be heard will be given an opportunity to comment on the proposed administrative regulation. A transcript of the public hearing will not be made unless a written request for a transcript is made. If you do not wish to be heard at the public hearing, you may submit written comments on the proposed administrative regulation. Written comments shall be accepted until 11:59 p.m. on November 30, 2022. Send written notification of intent to be heard at the public hearing or written comments on the proposed administrative regulation to the contact person.

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

REGULATORY IMPACT ANALYSIS AND TIERING STATEMENT

Administrative Regulation: 200 KAR 041:010
Contact person: Wm. Robert Long, Jr.
Email: robert.long@ky.gov
Phone: 502-782-6093

- (1) Provide a brief summary of:
 - (a) What this administrative regulation does: This administrative regulation establishes the framework through which the Kentucky State Plane Coordinate System (KSPCS) will be defined in accordance with KRS 1:020.
 - (b) The necessity of this administrative regulation: This administrative regulation is necessary to comply with the provisions of KRS 1:020 (2).
 - (c) How this administrative regulation conforms to the content of the authorizing statutes: This administrative regulation outlines how the Commonwealth Office of Technology will establish and publish a series of layered zones covered by geodetically reference mapping projections adopted and supported by the National Geodetic Survey as a component of the National Spatial Reference System.
 - (d) How this administrative regulation currently assists or will assist in the effective administration of the statutes: This administrative regulation establishes the framework through which the Kentucky State Plane Coordinate System (KSPCS) will be defined in accordance with KRS 1:020. Without this framework administration of the statute will not be possible.

- (2) If this is an amendment to an existing administrative regulation, provide a brief summary of:
 - (a) How the amendment will change this existing administrative regulation: This administrative regulation represents a replacement of 10 KAR 5:010, which established the Kentucky Single Zone Plane Coordinate System of 1983 but is no longer in effect. The previous administrative regulation was severely limited in scope and could no longer support existing requirements of KRS 1:020. This new administrative regulation will extend the existing framework to include all zones in all layers for all series of the KSPCS, including previous series not originally covered by the previous version of KRS 1:020, and future series currently planned by the National Geodetic Survey.
 - (b) The necessity of the amendment to this administrative regulation: There is no existing administrative regulation to support the requirements of KRS 1:020.
 - (c) How the amendment conforms to the content of the authorizing statutes: This administrative regulation covers all scenarios applicable to the revised KRS 1:020, past, present, and future.

- (d) How the amendment will assist in the effective administration of the statutes: This administrative regulation establishes the framework through which the Kentucky State Plane Coordinate System (KSPCS) will be defined in accordance with KRS 1:020. Without this framework the efficient administration of the statute will not be possible.
- (3) List the type and number of individuals, businesses, organizations, or state and local governments affected by this administrative regulation: This administrative regulation supports the legal framework through which all individuals, businesses, organizations, or state and local governments engaged in geospatial activities can implement the KSPCS. This regulation essentially provides a service to those parties as opposed to being an encumbrance on their respective activities.
- (4) Provide an analysis of how the entities identified in question (3) will be impacted by either the implementation of this administrative regulation, if new, or by the change, if it is an amendment, including:
- (a) List the actions that each of the regulated entities identified in question (3) will have to take to comply with this administrative regulation or amendment: This administrative regulation sets the scope and minimum requirements of a referenced standards and specifications document, and establishes a framework that allows individuals, businesses, organizations, or state and local governments to utilize the KSPCS under the provisions of KRS 1:020. Utilization of KSPCS will be mandatory for all Executive Branch Agencies but will be voluntary for all private and non-executive branch uses or applications.
- (b) In complying with this administrative regulation or amendment, how much will it cost each of the entities identified in question (3): This administrative regulation does not represent a cost burden to those entities.
- (c) As a result of compliance, what benefits will accrue to the entities identified in question (3): This administrative regulation supports the legal framework through which all individuals, businesses, organizations, or state and local governments engaged in geospatial activities can implement the KSPCS.
- (5) Provide an estimate of how much it will cost to implement this administrative regulation:
- (a) Initially: This administrative regulation is not anticipated to generate any new or additional costs.
- (b) On a continuing basis: This administrative regulation is not anticipated to generate any new or additional costs.
- (6) What is the source of the funding to be used for the implementation and enforcement of this administrative regulation: This administrative regulation requires no enforcement measures. Implementation will be

accomplished through normal general funds allocation for executive branch operations.

- (7) Provide an assessment of whether an increase in fees or funding will be necessary to implement this administrative regulation, if new, or by the change if it is an amendment: This administrative regulation is not anticipated to generate any new or additional fees or funding.
- (8) State whether or not this administrative regulation established any fees or directly or indirectly increased any fees: This administrative regulation is not anticipated to generate any new or additional fees.
- (9) TIERING: Is tiering applied?
No. This administrative regulation treats all impacted entities the same.

FISCAL NOTE ON STATE OR LOCAL GOVERNMENT

Administrative Regulation: 200 KAR 041:010
Contact person: Wm. Robert Long, Jr.
Email: robert.long@ky.gov
Phone: 502-782-6093

(1) What units, parts or divisions of state or local government (including cities, counties, fire departments, or school districts) will be impacted by this administrative regulation? This administrative regulation is not compulsory – it establishes a framework that allows individuals, businesses, organizations, or state and local governments to utilize the KSPCS under the provisions of KRS 1:020.

(2) Identify each state or federal statute or federal regulation that requires or authorizes the action taken by the administrative regulation. KRS 1.020, 42.630, 42.650 and 42.740.

(3) Estimate the effect of this administrative regulation on the expenditures and revenues of a state or local government agency (including cities, counties, fire departments, or school districts) for the first full year the administrative regulation is to be in effect.

(a) How much revenue will this administrative regulation generate for the state or local government (including cities, counties, fire departments, or school districts) for the first year? No revenue will be generated.

(b) How much revenue will this administrative regulation generate for the state or local government (including cities, counties, fire departments, or school districts) for subsequent years? No revenue will be generated.

(c) How much will it cost to administer this program for the first year? There are no estimated additional costs to administer the amendments to this regulation.

(d) How much will it cost to administer this program for subsequent years? There are no estimated additional costs to administer the amendments to this regulation.

Note: If specific dollar estimates cannot be determined, provide a brief narrative to explain the fiscal impact of the administrative regulation.

Revenues (+/-):
Expenditures (+/-):
Other Explanation:

SUMMARY OF MATERIAL INCORPORATED BY REFERENCE

The *Kentucky State Plane Coordinate System Standards and Specifications Document*, is the 101-page reference guide that provides a holistic and reasonably comprehensive discussion of the KSPCS as it pertains to its origins and historical implementations, from a practical surveying perspective, as well as technical aspects such as the use of well-established conformal projection methods and techniques required to achieve low distortion results when desired and optimum performance for large areas such as statewide single zone coverage. Additionally, the document includes a discussion on conformance with NGS policy and standards such as meter to customary foot conversion factors. Finally, this document presents the defining parameters established and adopted for all SPCS zones as they apply to the datums upon which they are based, meaning all datums past and present will be covered, not just the datum currently in effect.