SB-566 Geodetic datums and spatial reference network. (2023-2024)

Date Published: 07/25/2023 09:00 PM

Senate Bill No. 566

CHAPTER 111

An act to amend Sections 8801, 8810, 8815, 8815.1, 8815.2, 8815.3, 8815.4, 8815.5, 8817, 8851, 8852, 8853, 8854, 8856, 8857, 8858, and 8860 of the Public Resources Code, relating to the spatial reference network.

[Approved by Governor July 21, 2023. Filed with Secretary of State July 21, 2023.]

LEGISLATIVE COUNSEL'S DIGEST

SB 566, Jones. Geodetic datums and spatial reference network.

Existing law defines the official geodetic datums and spatial reference network for use within this state for purposes of surveying and mapping, including the North American Datum of 1983 and the North American Vertical Datum of 1988.

This bill would additionally authorize the use of the North American Terrestrial Reference Frame of 2022, the Pacific Terrestrial Reference Frame of 2022, the California Coordinate System of 2022, and the North American-Pacific Geopotential Datum of 2022 for those purposes.

Vote: majority Appropriation: no Fiscal Committee: yes Local Program: no

THE PEOPLE OF THE STATE OF CALIFORNIA DO ENACT AS FOLLOWS:

SECTION 1. Section 8801 of the Public Resources Code is amended to read:

8801. (a) The system of plane coordinates that has been established by the United States Coast and Geodetic Survey for defining and stating the positions or locations of points on the surface of the earth within the State of California is based on the North American Datum of 1927 and is identified as the “California Coordinate System.” After January 1, 1987, this system shall be known as the “California Coordinate System of 1927.”

(b) The system of plane coordinates which has been established by the National Geodetic Survey for defining and stating the positions or locations of points on the surface of the earth within the State of California and which is based on the North American Datum of 1983 shall be known as the “California Coordinate System of 1983.”

(c) As used in this chapter:

(1) “NAD27” means the North American Datum of 1927.

(2) “CCS27” means the California Coordinate System of 1927.

(3) “NAD83” means the North American Datum of 1983.

(4) “CCS83” means the California Coordinate System of 1983.

(5) “USC&GS” means the United States Coast and Geodetic Survey.

(6) “NGS” means the National Geodetic Survey or its successor.

(7) “FGCS” means the Federal Geodetic Control Subcommittee or its successor.

(8) “NATRF2022” means the North American Terrestrial Reference Frame of 2022.

(9) “PATRF2022” means the Pacific Terrestrial Reference Frame of 2022.

(10) “CCS2022” means the California Coordinate System of 2022.

(11) “CSRC” means the California Spatial Reference Center or its successor.

(12) “CSRN” means the California Spatial Reference Network, as defined by Chapter 3 (commencing with Section 8850), “Geodetic Datums and the California Spatial Reference Network.”

(13) “GPS” means Global Positioning System and includes other, similar space-based systems.

(14) “FGDC” means the Federal Geographic Data Committee or its successor.

(15) “NSRS” means the National Spatial Reference System.

(d) The California portion of the system of plane coordinates defined as the State Plane Coordinates System of 2022 (SPCS2022) as established by NGS and maintained by either NGS or CSRC shall be known as the “California Coordinate System of 2022.”

(e) The use of the term “State Plane Coordinates” refers only to CCS27, CCS83, and CCS2022 coordinates.

SEC. 2. Section 8810 of the Public Resources Code is amended to read:

8810. The plane coordinates of a point on the earth’s surface, to be used in expressing the position or location of the point in the appropriate zone of CCS27 or CCS83, shall consist of two distances, expressed in feet and decimals of a foot or meters and decimals of a meter. One of these distances, to be known as the “East x-coordinate,” shall give the distance east of the Y axis; the other, to be known as the “North 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. When the values are expressed in feet, the “U.S. Survey foot,” (one foot equals 1200/3937 meters) shall be used as the standard foot for CCS27 and CCS83. For CCS2022, the official conversion, commonly called the international foot, shall be used (one foot equals 0.3048 meters).

SEC. 3. Section 8815 of the Public Resources Code is amended to read:

8815. The use of the term “California Coordinate System” on any map or document or in any field notes shall be suffixed either with “27” (shown as “CCS27”) for coordinates based on NAD27, with “83” (shown as “CCS83”) for coordinates based on NAD83, and with “2022” (shown as CCS2022) for coordinates based upon NATRF2022 or PATRF2022.

SEC. 4. Section 8815.1 of the Public Resources Code is amended to read:

8815.1. When CCS83 coordinates are shown on any map, corner record, or other document, the map, corner record, or document shall state the datum realization tag in parentheses and epoch date, in a decimal year format to two decimal places, that is the basis of the coordinate values shown. The datum realization tag and epoch date shall be shown on the map, corner record, or other document by an appropriate note on the map, corner record, or document or by adding a suffix in parentheses after CCS83 that states the epoch; for example, “CCS83 (2011) epoch 2010.00,” “CCS83 (NSRS) epoch 2007.00,” and so forth.

SEC. 5. Section 8815.2 of the Public Resources Code is amended to read:

8815.2. The epoch for a survey using CCS83 coordinates shall be the published NGS or CSRC datum realization and epoch date of a published coordinate for a controlling station used for that survey. These surveys performed after December 31, 1999, shall be based on the “NAD83 (1992) epoch 1991.35” datum realization and epoch or a subsequent published NGS or CSRC datum realization and epoch.

SEC. 6. Section 8815.3 of the Public Resources Code is amended to read:

8815.3. When the published epochs of the controlling stations for a survey using CCS83 or CCS2022 coordinates are not the same, appropriate adjustments shall be made to the horizontal positions of controlling stations so that the coordinates of all the controlling stations are consistent. These adjustments in the horizontal positions of controlling stations shall be made in accordance with procedures and values published by the NGS or CSRC.

SEC. 7. Section 8815.4 of the Public Resources Code is amended to read:

8815.4. When a purported order of accuracy of second order or better is shown for CCS83 or CCS2022 coordinate values on any map, corner record, or other document prior to January 1, 2006, that map, corner record, or other document shall use the order of accuracy as defined by the FGCS or FGDC If an FGCS or FGDC order of accuracy is claimed for a survey or a map, it shall be justified by additional written data that shows equipment, procedures, closures, adjustments, and a control diagram.

SEC. 8. Section 8815.5 of the Public Resources Code is amended to read:

8815.5. When CCS83 or CCS2022 coordinates are shown on any map, corner record, or record of survey, a mapping angle, combined grid factor, and the elevation used to determine the combined grid factor shall be shown on the map, corner record, or record of survey for at least one representative point.

SEC. 9. Section 8817 of the Public Resources Code is amended to read:

8817. Prior to January 1, 1995, use of State Plane Coordinates for new projects may be based either on CCS27 or CCS83. On or after January 1, 1995, when State Plane Coordinates are used on new surveys and new mapping projects, the use shall be limited to CCS83. However, this section does not preclude a survey from retracement of a CCS27 survey. After January 1 2025, new surveys and mapping projects may be based upon CCS2022.

SEC. 10. Section 8851 of the Public Resources Code is amended to read:

8851. As used in this chapter:

(a) “NGS” means National Geodetic Survey or its successor.

(b) “CSRC” means California Spatial Reference Center or its successor.

(c) “NAD83” means North American Datum of 1983.

(d) “NATRF2022” means the North American Terrestrial Reference Frame of 2022.

(e) “PATRF2022” means the Pacific Terrestrial Reference Frame of 2022.

(f) “NAVD88” means North American Vertical Datum of 1988.

(g) “NAPGD2022” means the North American-Pacific Geopotential Datum of 2022.

(h) “ITRF” means International Terrestrial Reference Frame as defined by the International Earth Rotation Service.

(i) “GPS” means Global Positioning System and includes other, similar space-based systems.

(j) “FGDC” means Federal Geographic Data Committee or it successor.

(k) “FGCS” means the Federal Geodetic Control Subcommittee or its successor.

(l) “CSRN” means California Spatial Reference Network.

(m) “NSRS” means the National Spatial Reference System.

SEC. 11. Section 8852 of the Public Resources Code is amended to read:

8852. The official geodetic datum to which horizontal positions and ellipsoid heights are referenced within the State of California shall be NAD83, NATRF2022, or PATRF2022.

SEC. 12. Section 8853 of the Public Resources Code is amended to read:

8853. The official geodetic datum to which orthometric heights are referenced within the State of California shall be NAVD88 or NAPGD2022.

SEC. 13. Section 8854 of the Public Resources Code is amended to read:

8854. When horizontal positions, ellipsoid heights, or orthometric heights are shown on a document, the document shall show the geodetic datum, including datum realization tag and epoch date, if appropriate, to which the values are referenced, whether NAD83 (NSRS) epoch 2007.00, NATRF2022, NAVD88, NAPGD2022, ITRF, or another datum.

SEC. 14. Section 8856 of the Public Resources Code is amended to read:

8856. The geodetic control stations within the State of California having horizontal positions conforming to all of the following requirements shall be part of the CSRN. The horizontal positions shall:

(a) Be referenced to NAD83 or NATRF2022.

(b) Have been determined by GPS survey methods.

(c) Be published by NGS or CSRC.

(d) Have a NGS or CSRC published network accuracy of two centimeters or better as defined by FGDC or a NGS or CSRC published accuracy of first order or better as defined by FGCS.

(e) Have a NGS or CSRC published horizontal velocity or a horizontal velocity that can be determined using procedures and values published by NGS or CSRC.

SEC. 15. Section 8857 of the Public Resources Code is amended to read:

8857. The geodetic control stations within the State of California having ellipsoid heights conforming to all of the following requirements shall be part of the CSRN. The ellipsoid heights shall:

(a) Be referenced to NAD83 or NATRF2022.

(b) Have been determined by GPS survey methods.

(c) Be published by NGS or CSRC.

(d) Have a NGS or CSRC published network accuracy of five centimeters or better as defined by FGDC or a NGS or CSRC published accuracy of fourth order, class II, or better as defined by FGCS.

SEC. 16. Section 8858 of the Public Resources Code is amended to read:

8858. The geodetic control stations within the State of California having orthometric heights determined by GPS survey methods and conforming to all of the following requirements shall be part of the CSRN. The orthometric heights shall:

(a) Be based on NAD83 and referenced to NAVD88, or alternatively, NATRF2022 and NAPGD2022.

(b) Be published by NGS or CSRC.

(c) Have a NGS or CSRC published network accuracy of five centimeters or better as defined by FGDC.

SEC. 17. Section 8860 of the Public Resources Code is amended to read:

8860. The use of the NAD83, NATRF2022, PATRF2022, NAVD88, NAPGD2022, and CSRN by any person, firm, or governmental agency is optional.