Accepting the U.S. Survey Foot as a Legacy Unit

Earl F. Burkholder, PS, PE, F.ASCE – Global COGO, Inc.

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The NGS Home Page for SPCS2022 is:

State Plane Coordinate System of 2022 (SPCS2022) Home | Beta | National Geodetic Survey

Starting with the link above, additional links found there lead to more items as noted below.

A National Institute of Standards and Technology (NIST) web site states that the U.S. Survey Foot has been officially deprecated as December 31, 2022, and is to be henceforth known as a legacy unit.

https://www.federalregister.gov/documents/2020/10/05/2020-21902/deprecation-of-the-united-states-us-survey-foot

A National Geodetic Survey (NGS) web site states that the State Plane Coordinate System of 2022 (SPSC2022) will publish coordinates in meters but acknowledges that equivalent International Foot units will be as an acceptable alternative – see item II.E on page 5 in the following link.

SPCS2022-Policy.pdf

The NGS has designed state plane zones (along with their defining parameters) for all states, but it is the responsibility of each state to implement legislation establishing policy and procedures for professional practice within each state. At the bottom of page 2 of the link above, the statement is made that NGS "provides guidance on zone definitions and extents and addresses consistency with state and territory statute."

Although transition to using the "international foot" may appear to be clear cut at the national level, deprecation of the U.S. Survey Foot is a bone of contention for some. Ideally as each state develops defining legislation for using the SPCS2022, the provision for using international feet as an acceptable alternative to using meters should be "standard." Regretfully some feel strongly that surveyors and mappers should be permitted to continue using the "U.S. Survey Foot." Such preferences are not without precedent – consider . . .

1. A summary of the foot/meter relationship is included in Burkholder's book, "The 3-D Global Spatial Data Model." See summary posted at http://www.globalcogo.com/book-meter.pdf.

2. The U.S. Survey Foot was named in 1959 to avoid changing state plane coordinate values on existing survey monuments. It was intended then that the U.S. Survey Foot be permitted for use until the next general readjustment of the national network – in that case, the NAD83.

3. Foresighted professionals in a number of states wrote the "International Foot" into state legislation when adopting NAD83. Others did not, arguing successfully that the federal government lacks the authority to mandate state level policy. See summary of states adopting the International Foot - https://geodesy.noaa.gov/SPCS/images/spcs83-legislation-feet.png

4. A 1988 notice in the Federal Register contains a provision for the U.S. Survey Foot to be allowed for surveying and mapping indefinitely - see http://www.globalcogo.com/indefinitely.pdf. Inquiries were sent to Microsoft Copilot and ChatGPT. They gave similar but different answers.

5. By what authority are federal agencies required to use the NSRS (and subsequently the SPCS2022)? See Microsoft Copilot response: http://www.globalcogo.com/authority.pdf.

6. ChatGPT and Microsoft Copilot were both asked to comment on the pros and cons of continued use of U.S. Survey Foot rather than the International Foot.

    a. ChatGPT response http://www.globalcogo.com/ChatGPT.pdf

    b. Copilot response http://www.globalcogo.com/Copilot.pdf

7. Microsoft Copilot was asked about the policy of NIST for computing area (acres)

    a. Copilot response http://www.globalcogo.com/NISTarea.pdf.

8. The issue of map projections and use of state plane coordinates was the topic of Burkholder's 1980 Master Thesis – boring except when it is not.

    a. Burkholder's Thesis http://www.globalcogo.com/EFB-Thesis-1980.pdf

9. Members of the Professional Surveying Committee (PSC) of the NM Board of Licensure for Professional Engineers and Professional Surveyors (BOLPEPS) have stated their intent to include use of the U.S. Survey Foot (as opposed to the International Foot) in an upcoming revision to the NM Engineering and Surveying Practice Act. Is it possible that additional discussion is warranted? Members of the PSC are to be commended for looking out for the interests of the more "traditional" surveyor serving the public – land surveying. But many more spatial data users will also be affected by the choice of International Foot or U.S. Survey Foot in the revised NM Practice Act. The choice (vote for units) should be a matter of record of the Full Board, not just the Professional Surveying Committee.

10. Other disciplines, agencies, and spatial data users in New Mexico should also have an opportunity to provide input to the International Foot/U.S. Survey Foot discussion. A short (incomplete) list includes:

    - NM Department of Information Technology
    - NM Department of Transportation
    - NM Geospatial Advisory Committee
    - Office of the State Engineer
    - NM Taxation and Revenue
    - NM Department of Agriculture
    - GIS Professionals
    - Photogrammetrists (remote sensing, drones, scanning, LiDAR etc.)