

NGS POLICY 01-1991



# Units of Measure for The State Plane Coordinate System of '83

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National Geodetic Survey

Approved by the Executive Steering Committee

01 January 1991

**This policy has been retired and is no longer in effect**

## **POLICY OF THE NATIONAL GEODETIC SURVEY CONCERNING UNITS OF MEASURE FOR THE STATE PLANE COORDINATE SYSTEM OF 1983**

January 1991

### **BACKGROUND**

The State Plane Coordinate System of 1927 was published in a unit of measure identified as the "U.S. Survey Foot." By 1959, except for surveying and mapping applications, the United States had switched to the unit of measure identified as the "International Foot." A Federal Register Notice published in 1959 (24 FR 5348) stated that the surveying and mapping profession could continue using the U.S. Survey Foot until such time that the national network of horizontal control was readjusted, after which the International Foot should be used. However, in 1989 the Federal Geodetic Control Committee, in order to accommodate the preference of the majority of its member organizations, officially adopted the U.S. Survey Foot for federally funded projects.

In preparation for the adjustment of the North American Datum of 1983, 31 states enacted legislation for the State Plane Coordinate System of 1983 (SPCS 83). All states defined SPCS 83 with metric parameters. Within the legislation, the U.S. Survey Foot was specified in 11 states and the International Foot was specified in 6 states. In all other states the meter is the only referenced unit of measure in the SPCS 83 legislation. The remaining 19 states do not yet have any legislation concerning SPCS 83.

From 1977 until the present, NGS has maintained the meter as the official unit of measure for SPCS 83 and the unit on which plane coordinates would be based within NGS published data (42 FR 15943). In 1986 NGS supplemented this position with publication of a notice that, on request, surveyors could obtain SPCS 83 coordinates from NGS in the foot unit legislated by the state in which the survey station resides.

Last year the U.S. Geological Survey (USGS) sent letters to all states regarding which SPCS 83 units should be shown on their map products. These letters said in part:

"The National Mapping Division (NMD) is implementing procedures that will result in using or referencing the North American Datum of 1983 (HAD 83) for all new and replacement maps. One important aspect of these implementation plans is the determination of how to label the State Plane Coordinate System (SPCS) on these graphic products. The HMD has an immediate need to resolve this issue so that automatic base sheet plotting software can be developed or modified to produce SPCS ticks and labels conforming with the requirements of the states."

## PROBLEM

The surveying and mapping community continues to use the foot despite Federal efforts toward metrification. In addition, the proliferation of computerized land information systems (LIS) is increasing the use of the foot unit. Because SPCS 83 is presently published by NGS only in meters, many surveyors, mappers, engineers, and LIS users are converting these metric values to feet. In most instances they are performing the conversion correctly, using the correct conversion factor and the proper number of significant digits. However, there have been instances where the conversions were done using the wrong conversion factor or the computation was otherwise done incorrectly. Finally, in some states USGS' NMD will be showing SPCS 83 tick marks in feet on its maps. Federal surveying and mapping agencies should be consistent in their products to the extent practical.

To better serve users and lessen the potential for costly mistakes, NGS has adopted the following policy.

## POLICY STATEMENT

If the following criteria are met, NGS will publish future SPCS 83 values in both meters and feet for the specific state:

1. The appropriate state contact, speaking for the majority of the state surveying and mapping community (both public agencies and professional societies), requests in writing that NGS publish both meters and feet.
2. The request to NGS is consistent with the state's recommendation to USGS for use in the state/USGS cooperative mapping program.
3. The state has enacted SPCS 83 legislation that specifically defines the conversion factor (for either the U.S. Survey Foot or International Foot) to be used.

Until all three items listed above are resolved for a particular state, NGS will continue to publish SPCS 83 values only in meters for that state.

## LIMITATIONS

The original (present) NAD 83 coordinate listings (covering 1x2-degree areas) will continue to be printed and distributed showing only meters, as will the existing NAD 83 Horizontal Control Data sheets.

NGS will publish both meters and feet as specified in this POLICY STATEMENT only on its new "unified" geodetic control data sheet. This new sheet provides a single publication format for all geodetic control in NGS' data base, including horizontal, vertical, and gravity values.

Attachments

Status of 1927 and 1983 State Plane Coordinate System (SPCS)

Legislation

Status of NGS Publication of SPCS 83 Values in Feet