## WSRS2022

Wisconsin Spatial Reference System 2022 Task Force.

## Background

In 2022, National Geodetic Survey (NGS) will replace NAD 83 and NAVD 88 with new horizontal and vertical reference systems:

- North American Terrestrial Reference Frame of 2022 (NATRF2022)
- North American-Pacific Geopotential Datum of 2022 (NAPGD2022)

Significant change. Not just an adjustment to NAD83. Same ellipsoid, but shift in earth's center by several meters.

New ref systems will also be dynamic -- epoch- or time-stamp to account for plate tectonics "rotations" around a pole (on the plate) + deviations from this rotational model; plus isostatic rebound, subsidence and other causes of elevation change.

Also will be GNSS (GPS) based, meaning reduced emphasis/maintenance of passive control framework.

Also tied to new GEOID model (equipotential surface representing mean sea level) derived from high-precision gravimetric data.

## Goals and Mission

These changes will have significant effects on surveying, mapping and GIS across Wisconsin.

Wisconsin Spatial Reference System 2022 Task Force (WSRS2022) has been organized under the Wisconsin Society of Land Surveyors (WSLS).

WSRS2022 represents a broad coalition of geospatial and surveying professionals in Wisconsin, including federal, state, regional, county and local governments, as well as agencies, corporations and associations involved in the production and use of geospatial data.

The Chair and co-Chair are me and Richard Kleinmann, chair of the WSLS Geospatial Committee.

The mission of WSRS2022 is to help ensure successful implementation of the new reference systems across Wisconsin.

## Activities

1. A Discovery Team meeting in Madison in August, 2018, to facilitate the creation of the Task Force and to decide how to respond to a Federal Register Notice about the proposed NGS process to update the State Plane Coordinate System. (more on that in a minute)
2. Creation of five Focus Groups to concentrate on specific aspects of the new reference systems.
3. Get together at WSLS in Dells, Jan 2019.
4. 1st real meeting at WLIA in Appleton a few weeks ago.
5. Concentrating now on formation of the focus groups. Gola is to have FG leads who create the groups and get them rolling. Each FG will have a list of goals and deliverables that they will develop, and these will be shared at quarterly meetings of the Task Force.

## Focus Groups

### *Technical Focus Group*

Goals: Develop a proposal — to be submitted to NGS — that details the state's proposed response to the introduction of the new reference systems. Consider all three tiers of Wisconsin's spatial reference system structure: county coordinate systems; state plane zones; and a single statewide system. Also consider the impacts of the new vertical datum.

| | |
|---|---|
| Alan Vonderohe, Chair | vonderoh@engr.wisc.edu |
| Glen Schaefer, vice-Chair | glen.schaefer@charter.net |

### *Legislative Focus Group*

Goals: Define the impacts of the new reference systems on state and local legislation and ordinances. Make specific recommendations for updating legislation and ordinances. Develop a timeline to fit legislative calendars.

| | |
|---|---|
| Eric Damkot, WLIA | Eric.Damkot@co.washington.wi.us |
| Emily Pierce, WSLS, NSPS | emily.pierce@steigerwaldt.com |

### *Education and Outreach Focus Group*

Goals: Help educate the community about the new reference systems and their implications for geospatial data and workflows. Target audience includes software vendors and developers, surveyors, utilities, GIS practitioners, educators, students.

| | |
|---|---|
| Brenda Hemstead, SCO | hemstead@wisc.edu |

| | |
|---|---|
| Corey Hughes, WCSA | chughes@lacrossecounty.org |
| Jerry Mahun, UW | jerry.mahun@gmail.com |

***Software/Hardware Focus Group***

Goals: Develop plans to incorporate the new reference systems into hardware and software in a timely and accurate manner. Work with NGS to incorporate these coordinate systems into publications and transformation software.

| | |
|---|---|
| Jim Lacy, SCO | lacy@wisc.edu |

***Implementation/Adoption Focus Group***

Goals: Identify implementation and adoption implications of the new reference systems, including best practices for transforming current data, effects of state and federal agency plans and requirements, and funding of local/state data conversion.

| | |
|---|---|
| Jeremiah Erickson, LION | jeremiah.erickson@co.monroe.wi.us |
| John Laedlein, state | John.Laedlein@wisconsin.gov |

## Letter to NGS (in response to Federal Register Notice)

Federal Register Notice deadline of August 31, 2018, for public commentary on the policies and procedures to update the State Plane Coordinate System (SPCS).

The Federal Register Notice (83 FR 17149) states:

*NOAA's National Geodetic Survey (NGS) will establish the State Plane Coordinate System of 2022 (SPCS2022) as part of the transition to the 2022 Terrestrial Reference Frames (TRFs). SPCS2022 is the successor to previous versions referenced to the North American Datums of 1983 and 1927….NGS has developed draft policy and procedures that propose defining characteristics and requirements for SPCS2022. … NGS is inviting written comments on the draft SPCS2022 policy.*

Note that while NGS will redesign the 3-zone SPCS for the state, and may also design a new 1-zone statewide system, they have stated they are not going to design low-distortion projection systems (LDPs).

However, the Discovery Team (Set up for Aug 2018 meeting) asserted that the Wisconsin Coordinate Reference Systems (WISCRS) **should be included** as a level in a tiered state plane system, and that NGS should incorporate WISCRS coordinates into their software, databases, and data products.

1. *The coordinate system WISCRS;*

2. *A three-zone State Plane Coordinate System modeled on the current SPCS zones for the state but with significantly different Eastings to avoid confusion;*
3. *A single zone for the entire state, possibly based on WTM (Wisconsin Transverse Mercator, a UTM-like zone centered on the 90 degrees West meridian) but with a significantly different Easting to avoid confusion.*

This request reflects the long history of using low-distortion projection (LDP) systems in Wisconsin, the prevalence of WISCRS within the state's land information communities at the local level, the large investments made in low-distortion WISCRS spatial networks, the extensive use of WISCRS in infrastructure design and construction, and the incorporation of WISCRS into major commercial software tools.

Webinar later this week to present NGS findings from the Federal Register request.

NGS received 41 unique responses from 97 organizations, with 23 states, 10 Native American tribes, and 1 national agency represented.

**The end!**

See sco website for more info

www.sco.wisc.edu/community/wsrs2022/

Get involved! See me, Dick, or one of the names you heard.