**Maine Stakeholders to choose Geodetic Zone Projections**

**For the National Geodetic Survey’s**

**North American Terrestrial Reference Frame 2022**

**Prepared by Harry Nelson, MaineDOT**

**For the**

**Maine Society of Land Surveyors Spring Meeting**

**May 10, 2019**

Exciting changes are happening in the world of geodetic surveying and the National Geodetic Survey (NGS) is seeking input from the State of Maine Stakeholders, the end users or customers of geodetic control namely:

**The Maine Society of Land Surveyors,**

**MEGIS Users,**

**The University of Maine and**

**The Maine Department of Transportation**

I recently attended (via webinar) the National Oceanic and Atmospheric Administration (NOAA) National Geodetic Survey (NGS) 2019 Geospatial which told upcoming replacement of the NAD83 and NAVD88 Datums with the North American Terrestrial Reference Frame of 2022 designed to improve the National Spatial Reference System (NSRS).

NGS’s modernization of the datums presents a good time to modernize Maine’s State Plane Coordinate System (SPSC) and create a Low Distortion Projection (LDP) system that NGS will support.

**Action Needed:**

Maine Stakeholders need to select and have consensus on a 3-Zone Low Distortion Projection, and select a new Single Zone Projection that NGS has offered all of the states. **MaineDOT supports the NGS modified 3 Zone Projection, and the Oblique Mercator Single Zone Projection for Maine.**

**New 3-Zone Low Distortion Projection:**

NGS has developed a modified version of the current ME2000 3-Zone Low Distortion Projection. They ‘tweaked’ it a bit to afford better grid to ground comparisons over a wider area of Maine. Since this is their design, I believe they will accept it.

**New Single Zone Projection:**

As part of the NATRF 2022 modernization, NGS is creating a Single Zone Projection for each state. NGS has presented Maine stakeholders with 3 alternatives, one a 30-degree Oblique Mercator Projection. No worries with the Oblique Mercator Projection, as at the Central Meridian (near Bangor), Grid and True North are the same, and scale factors deviate from the CM similar to any other TM projection.

The attached material is presented to help illuminate the issues involved in modernization of the SPCS.

If consensus is not reached, NGS will continue to publish in their Default Coordinate System Maine East 1801 and Maine West 1802, which have greater distortion than modern systems, and select one of the 3 alternatives for Single Zone.

By the end of 2019, Maine Stakeholders need to have submitted to NGS, designs for any new State Plane Coordinate Systems (SPSC) for NGS approval, which are already done. Any designs (not done by NGS) will have to be completed by December 2020 and submitted for NGS approval.

The attached material comes from Michael Dennis at NGS, via Dan Martin our Regional NGS Advisor, which I have arranged to present the issues as simply as possible.

Please review and discuss these matters among yourselves, and we can re-visit the issues around the Fall Meeting of MSLS.

If anyone has any questions, or would like electronic copies of the material, please email me at: Harold.nelson@maine.gov.

Respectfully Submitted

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Reference material:

<https://www.ngs.noaa.gov/geospatial-summit/index.shtml>
Recordings of Summit presenations should be online at some point in the near future.

Of interest, NGS is building the case to eliminate the U. S. Survey Foot. For that discussion, I refer you to Michael Dennis presentation:

**https://www.ngs.noaa.gov/web/science\_edu/webinar\_series/fate-of-us-survey-foot.shtml**