

## Idaho Geodetic Control Technical Working Group (GC-TWG)

### DRAFT Recommendation of a Statewide Spatial Reference System for Idaho's GIS Community Relative to NATRF 2022

Based upon discussions at monthly meetings beginning in June 2018, the Geodetic Control Technical Working Group (GC-TWG) recommends the spatial reference system described below be adopted as the statewide spatial reference system for the state of Idaho. This system will supersede Idaho Transverse Mercator NAD83 (IDTM83), following release of the North American Terrestrial Reference Frame (NATRF) by the National Geodetic Survey (NGS) in 2022.

#### Idaho Transverse Mercator 2022

PROJCS[NATRF2022 and/or its resulting datum/geoid]

Meridian: PRIMEM["Greenwich",0.0],UNIT["Degree",0.0174532925199433]]  
Projection: PROJECTION["Transverse\_Mercator"]  
1. PARAMETER["False\_Easting", 4000000.0]  
2. PARAMETER["False\_Northing", 0.0]  
3. PARAMETER["Central\_Meridian", 245° 45' 00.0 E" (-114°15'W)]  
3. PARAMETER["Scale\_Factor", 0.99987]  
4. PARAMETER["Latitude\_Of\_Origin", 33.0° N ]  
5. UNIT["Meter", 1.0]]

#### Explanation of Parameters

Transverse Mercator is currently in use in Idaho and functions very well for geospatial applications. No changes are required or recommended.

1, 2: The false easting and false northing parameters have been determined to eliminate the error caused by an incorrect application of this reference system relative to IDTM83, IDTM27 (the predecessor of IDTM83), and the Idaho State Plane Coordinate System (SPCS). In the event one of these reference systems is incorrectly applied during either a *projection* or *definition* process, the resulting geospatial data will be clearly offset visually indicating the error to the GIS specialist.

3. All reference systems recognized by the NGS must have a Central Meridian expressed in positive numeric values of longitude (0° - 360°). Thus, Idaho's more commonly recognized Central Meridian of -114°15'W has been calculated and restated as 245° 45' 00.0 E. This is 360.00° - 114.25°.

3. The scale of 0.99987 minimizes distortion at the topographic surface when combined with a Central Meridian of 245°45' E (114°15'W).

4. All reference systems recognized by the NGS will have a false northing equal to 0.0. To accomplish this in the state of Idaho and still maintain an effective/practical false northing of at least 1,000,000 for all geographic features within the state of Idaho, the latitude of origin must be placed substantially south of the Idaho's southern border with Nevada/Utah. According to the NGS, "performance [distortion] is the same regardless of where the origin is located"

5. A coordinate system measured in meters is standard for nearly all GIS applications and is identical to that currently used in IDTM83.

If adopted as the standard for the State of Idaho, use of IDTM2022 will be encouraged and expected by all state agencies and institutions from that point in time. Existing geospatial data that uses a different reference system (e.g., IDTM83) will not need to be re-projected into IDTM2022 to comply with the standard as the correct *definition* of the reference system will accommodate differences within the GIS software itself (e.g., Esri's ArcGIS).