Memo

Date: September 15, 2014

TO: ASPRS Map Accuracy Working Group
             accuracystandards@asprs.org

FROM: David Garber, PS, PE, Chair
             ASCE Geomatics Division EXCOM   9-15-14

RE: Response to request for comment on
             ASPRS Positional Accuracy Standards for Digital Geospatial Data

This communication constitutes a response from the ASCE Geomatics Division to the
request by ASPRS for review of accuracy standards as proposed by ASPRS. The deadline for
comments was given as 15 September 2014.

On July 30, 2014 Mr. David Stolarz – Chair, ASPRS Standards Committee sent a request for
review of ASPRS Positional Accuracy Standards for Digital Geospatial Data, Draft Revision 5,
Version 1 to:

-   Earl F. Burkholder - Chair, ASCE Geomatics Division Committee on Spatial Data Accuracy
-   Jerome Ives – Chair, ASCE Geomatics Division Liaison Committee

Many civil engineers work with geospatial data and members of the ASCE Geomatics
Division (GMD) routinely discuss and wrestle with issues of spatial data accuracy. The GMD
formally established a Committee on Spatial Data Accuracy in the fall of 2012 with Earl F.
Burkholder as Chair. That committee met several times during 2013 via teleconference and
held a productive face-to-face meeting in September 2013.

The GMD Committee on Spatial Data Accuracy became aware of the ASPRS "standards"
project following that face-to-face meeting. Avoiding duplication of effort or reinventing
the wheel has tempered ASCE GMD discussions of spatial data accuracy. However, with the
current request for comment from ASPRS, the ASCE GMD is happy to provide this statement
of support for the efforts of ASPRS and to provide specific comment.

A separate comment form (developed from the template provided) contains several specific
suggestions for consideration by ASPRS. These suggestions were discussed by and
represent a consensus of the Committee on Spatial Data Accuracy in a teleconference call
on September 9, 2014.

It has also been openly discussed that individual members (and even members of the
public) are at liberty to make comment on the ASPRS proposed accuracy standards. Those
comments, if any, will come from others.

Template for comments and secretariat observations

Date: Document: Project:

Organization¹ (e.g. NGA)	Line number (e.g. 17)	Clause/Subclause (e.g. 3.1)	Paragraph/Figure/Table/ (e.g. Table 1)	Type of comment²	Comments	Proposed change	Observations of the ASPRS adjudicator
ASCE Spatial Data Accuracy Standards	98-170	5		ed	This comment pertains to the Definitions. We suggest that the definitions of the mathematical quantities are incomplete without formulas and exact definitions of the terms. The standard ought to provide the exact information needed to implement the calculated quantities, and that implies it must provide the formulas along with definitions of all the variables in the formulas.	At the end of Section 5., the Standard refers to the "Glossary of Mapping Sciences" for more detailed definitions. Therein are formulas there for many, but not all, the definitions. For example, "confidence level" does not seem to be in the GMS. (The only entry beginning with "confidence" is "confidence interval".) Even though some of the formulas appear in the GMS, it would be helpful to the Standard's readers for the formulas to appear in the Standard's definitions, which saves the reader the trouble of digging them up elsewhere. The authors of the Standard should extract the formulas and their supporting notation definitions and provide them in the ASPRS Standard.	
ASCE Spatial Data Accuracy Standards	60-90	3		ge	The references do not include any international standards, such as the International Organization for Standardization's Technical Committee 211 (ISO/TC 211).	Indicate within the document (or in associated documentation) that at this time the standards do not reference existing international standards, but that this may change in future versions of the standards. This is consistent with the philosophy and verbiage in section 1.2, lines 40-42.	

1   Organization (NGA, FGDC, Service, Federal Department)

2   **Type of comment:**   ge = general   te = technical   ed = editorial

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ASCE Spatial Data Accura cy Standa rds	235-238	7.1	Paragraph 3	te	The document requires testing vertical accuracies using values interpolated from a TIN. However, this approach is ambiguous for raster-type data sets (such as a DEM), since the diagonal TIN edge can be constructed in alternate directions, resulting in a different elevation value. Raster-type elevation/surface models are common final deliverables (which is the type of product evaluated, as stated in section 1.1, line 25). Bilinear interpolation is specified here for rasters because it is a simple, unambiguous, and commonly used method that does not suffer from edge effects. Specifying the interpolation method provides clear instructions on using the standards. For cases where alternate methods are warranted, this is implicitly allowed (per section 1.2).	*Proposed additional text highlighted yellow:* Elevation data sets normally do not include clearly-defined point features. For data sets consisting of irregularly spaced points, vertical accuracies are to be tested using elevations interpolated from a Triangulated Irregular Network (TIN) generated from the elevation data set. For data sets consisting of regularly spaced points (i.e., raster-type) such as a Digital Elevation Model (DEM), bilinear interpolation shall be used. In both cases, data set elevations for testing are to be interpolated at the horizontal coordinates of the vertical check points.	

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