Request for Feedback/Input for Second Edition of: **The 3-D Global Spatial Data Model:** Earl F. Burkholder, PS, PE, F.ASCE Global COGO, Inc. – Las Cruces, NM 88003 Email: <u>eburk@globalcogo.com</u> URL: <u>www.globalcogo.com</u> March 27, 2015

Background

Geometry is my hobby. I trace that interest back to my high school geometry class where we were required to develop theorems based upon axioms and postulates. I was also challenged by the notion that it is impossible to tri-sect an angle using only a protractor and straight edge. Be that as it may.

Not surprisingly, by career began as a draftsman using traditional tools (not computers) to generate graphical representations of surveying/engineering projects. That evolved into a degree in civil engineering and 5 years employment with an international engineering firm having projects worldwide. My nominal role there was reducing field notes and performing surveying/mapping computations for (literally) 100's of miles of high-voltage transmission line construction. State plane (SPC) and UTM coordinates were standard fare. After graduate school, in 1980 I began a 13 year teaching assignment at Oregon's Institute of Technology during which time I took a sabbatical leave in 1990/91 – spending most of the year at the University of Maine learning more about GPS and applications of new technology to modern surveying practice. Two consequences of note are:

At Maine, I attended classes, interacted with faculty and students alike, and took advantage of excellent research resources to understand better the geometry of geodesy and GPS surveying. That formed the basis of one of my early published papers, "Using GPS Results in True 3-D Coordinate System" published in the ASCE Journal of Surveying Engineering, Vol. 119, No. 1. Professor Alfred Leick at Maine was very instrumental in my formulation of the global spatial data model (GSDM) concept which grew out of that ASCE paper.

Secondly, with my background in computing 100's of miles of SPC traverses, with introduction of GPS in the 1980s, and with the opportunity to look at the big picture of surveying computations during my sabbatical, I attempted to gain a better understanding of the grid/ground distance dilemma. To do that, I sent a questionnaire to all 50 state DOT's asking how the grid/ground difference is handled. Even then, in 1991, there was a lot of interest in resolving the grid/ground distance dilemma. Feedback from that questionnaire supported my conviction that the problem deserves serious consideration. Two points:

- 1. That questionnaire and responses are included in the Appendix of the ASCE paper mentioned above. Copies are available from ASCE or most engineering libraries.
- 2. My aspiration is that feedback from this request provides support for the Second Edition in much the same manner as replies to that questionnaire did for the first edition.