



Recommendation WG 2.87.007

OHLOSS ANALYSIS  
USING  
DIGITIZED TERRAIN MAPS

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## RECOMMENDATION

**Subject Area:** OHLOSS

**Title:** OHLOSS Analysis Using Digitized Terrain Maps

### *Synopsis*

Digitized terrain maps are available which can serve, within limits, as the input data for OHLOSS analyses. The use of digitized map data can save considerable manual effort reading maps and collecting terrain data, but it should be recognized that digitized maps generally do not provide the same accuracy as the maps typically used (e.g., 7.5 minute maps) to collect data manually. This recommendation provides general guidelines on the use of digitized terrain map data in OHLOSS analyses.

### *Background*

Many coordinators have digitized terrain data available for use in computing path profiles which are then used as inputs to OHLOSS calculations. The digitized terrain databases which are generally available to the public were apparently digitized from 1:250,000 scale maps by the U.S. Army. The maps were digitized in a grid fashion with data samples taken at three-second intervals on these maps. The 30-second database in use by some coordinators was produced from a 3-second database by picking every tenth point in latitude and longitude.

A three-second interval corresponds to approximately 0.015 inch on a 1:250,000 map. It was undoubtedly difficult to read and interpolate the elevation contours in this fashion. Also, the terrain expressed on the 1:250,000 scale maps often appears to differ from the terrain expressed on the 7.5 minute maps. For these reasons users of digitized terrain routinely find differences of 30 to 50 feet with respect to the 7.5 minute maps and differences to 100 feet are sometimes observed. While these differences are large in absolute terms the digitized terrain does represent the general lay of the land. That is, the hills and valleys are in the correct places. Even though particular elevations may have significant absolute errors, the effects of these errors along the path profile are usually less significant.

If the digitized terrain indicates there is a significant blockage, e.g., a 2000 foot mountain along the path, there likely is path blockage even though the mountain may not be the exact height indicated. Likewise, if the digitized terrain says the path is clear by several hundred feet it is safe to assume a line-of-sight condition

### *Recommendation*

When making OHLOSS calculations using digitized terrain data, the following guidelines are recommended:

1. Unless a path clears all obstacles by more than 100 feet do not assume it is line-of-sight. Manual checking of the 7.5 minute maps at hilltops is recommended if clearance is less than 100 feet.
2. Unless a path is blocked by more than 100 feet of hills, it may still be line-of-sight. Manual checking is recommended to better define the possible blocking points.

3. When in doubt (i.e., the path clearance is borderline), do a manual profile.
4. The source of profile data should be stated on the OHLOSS report (e.g. 30-second digitized database, manual profile from 7.5 minute maps, or digitized data with selected point correction). When relying on digitized terrain data, it is recommended that the profile listings identify elevation points which were manually checked.

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