

# ***KeyNetGPS Users Guide***

***V 3.04***

***January 23, 2010***

VRS Server: 209.255.196.161 port 2101 or rtvrs.keynetgps.com port 2101

Live data & map @ <http://vrs.keynetgps.com/network.html>

Download Data @ <http://vrs.keynetgps.com>

Two new documents, “Best Practice Guidance Notes for Network RTK Surveying in Great Britain” & “An examination of commercial network RTK GPS services in Great Britain” have recently been released. These are available for download at our VRS site and contain lots of good information.

**KeyNetGPS** positions are based on NAD 83. CORS adjustment NAD 83 (CORS) Epoch Date: 2002 which is equal to the current adjustment of NAD83 (NAD 83(2007)). When surveying on local coordinate systems, including prior adjustments of NAD 83, the user must determine the appropriate adjustment to these coordinate systems.

**KeyNetGPS** is not directly connected to NAVD 88. The user must determine the appropriate adjustment to local vertical datums, including NAVD 88.

**Accuracy** is dependent upon equipment and procedures. **KeyNetGPS recommends testing the accuracy of KeyNetGPS Services throughout your work area.** Testing could compare static GPS positions (OPUS) to KeyNetGPS RTK (VRS) positions. Testing should also include connections to local coordinate systems and datums.

**KeyNetGPS** offers GNSS VRS and Single Closest Base network corrections in CMR & RTCM format throughout the network. Please consult the live network map at <http://vrs.keynetgps.com> for network coverage.

## Procedures:

- I. In The Box: You must be aware of the Network Boundaries.
- II. Best results will be achieved when you work in the Network.
- III. Planning: Be aware of satellite geometry it will effect accuracy.
- IV. Observing Control: A minimum of **one hundred eighty (180) epochs** is recommended with a starting rms <30. For best accuracy and to provide closure two measurements should be taken. The measurements need to be made with different satellite geometry. A three hour difference will yield best results. The difference between the two measurements is double the probable error. If it exceeds project requirements, re-observe after a three hour change in satellite geometry. Repeat this method until accuracy meets project requirements. If repeat measurements are made one after the other you must re-initialize the receiver between measurements. New studies (the “Best Practice Guide” mentioned above) indicate that a 45 minute separation is all that is necessary for best accuracy.
- V. Observing Topo: One five (5) second measurement with an rms <30. If initialization is lost due to high rms, all measurements within that initialization should be checked.
- VI. Site Calibration: A site calibration adjusts the measurements to local control. Errors in the control will change the observed values. In most cases the values will be less accurate and precise after a site calibration, but will provide the best fit to local control.