



## Weber County/NGS Specifications for collecting and publishing coordinates on a Real-Time VRS Network

In January of 2015, the Weber County Surveyor's Office adopted standards as a minimum requirement for collecting and publishing coordinates on a Real-Time VRS Network. Since January of 2015 all new coordinate positions published by the Weber County Surveyor's Office meet these specifications using the TURN GPS Network as a correction source, unless otherwise noted.

### Class RT1 Required Precisions:

1. Horizontal Precision at 2 Sigma (95% Confidence):
  - a. Ideal is equal to or less than 0.033' (0.01m)
  - b. Not to Exceed 0.067' (0.02m)
2. Vertical Precision at 2 Sigma (95% Confidence):
  - a. Ideal is equal to or less than 0.067' (0.02m)
  - b. Not to Exceed 0.131' (0.04m)
3. PDOP  $\leq$  2.0
4. RMS  $\leq$  0.033' (0.01m)

### Best Methods Requirements

For the comprehensive guideline of the best methods for Real-Time Network users (2013), refer to the "Seven C's" of NOAA's NGS at: [https://www.ngs.noaa.gov/PUBS\\_LIB/NGSGuidelinesForRealTimeGNSSNetworks.pdf](https://www.ngs.noaa.gov/PUBS_LIB/NGSGuidelinesForRealTimeGNSSNetworks.pdf)  
An abbreviated version of the 2013 best methods are listed below:

- Step 1 - Check equipment for precision and ensure data collector parameters are properly set.
- Step 2 - Set Rover firmly and oriented North, level with a shaded bubble, and stabilized with bipod or tripod legs.
- Step 3 - Perform observations with a constellation of at least seven (7) GPS satellites.
- Step 4 - Work only when uniform weather conditions between the closest Real-Time Network station and the rover exist.
- Step 5 - Ensure that no multipath or electrical interference conditions exist while performing observations.
- Step 6 - Check a known coordinate point before, and at the end of performing observations.
- Step 7 - Set an elevation cut-off or mask of 15°.
- Step 8 - Observe at a 1-second interval for three (3) minutes (180 Epochs).
- Step 9 - Make two (2) separate redundant observations, staggered by a minimum of four (4) hours of separation.
- Step 10 - Each redundant observation must differ by no more than the required precision from the average of the coordinates of each observation.