

Comparison of Computed Coordinates - Wisconsin GPS Network  
Earl F. Burkholder, PS, PE, F.ASCE - May 2014  
Reference - <http://www.globalcogo.com/StdDevLocalNetwork.pdf>

|       |      | Published by WisDOT - Meters |                |               | Adjustment using Trimble Baselines |                |               |                      |        |        |
|-------|------|------------------------------|----------------|---------------|------------------------------------|----------------|---------------|----------------------|--------|--------|
| Point |      | X                            | Y              | Z             | Holding FOLA/KEHA at 0.002 m       |                |               | Difference from Pub. |        |        |
| 101   | SHAN | 182,409.489                  | -4,611,414.939 | 4,387,983.542 | 182,409.484                        | -4,611,414.937 | 4,387,983.545 | -0.005               | 0.002  | 0.003  |
| 102   | FOLA | 124,517.654                  | -4,609,735.802 | 4,391,808.808 | 124,517.647                        | -4,609,735.811 | 4,391,808.831 | -0.007               | -0.009 | 0.023  |
| 103   | WEBE | 149,899.217                  | -4,637,713.170 | 4,361,716.037 | 149,899.214                        | -4,637,713.166 | 4,361,716.037 | -0.003               | 0.004  | 0.000  |
| 104   | WAWN | 102,706.423                  | -4,657,769.229 | 4,341,771.610 | 102,706.418                        | -4,657,769.220 | 4,341,771.601 | -0.005               | 0.009  | -0.009 |
| 105   | RASN | 153,059.635                  | -4,666,858.810 | 4,330,615.802 | 153,059.632                        | -4,666,858.808 | 4,330,615.801 | -0.003               | 0.002  | -0.001 |
| 106   | PARO | 114,970.946                  | -4,680,260.752 | 4,317,398.789 | 114,970.941                        | -4,680,260.749 | 4,317,398.785 | -0.005               | 0.003  | -0.004 |
| 107   | FRSI | 164,796.257                  | -4,679,186.507 | 4,316,889.723 | 164,796.254                        | -4,679,186.504 | 4,316,889.723 | -0.003               | 0.003  | 0.000  |
| 108   | WATH | 115,561.960                  | -4,706,440.298 | 4,289,090.746 | 115,561.956                        | -4,706,440.296 | 4,289,090.745 | -0.004               | 0.002  | -0.001 |
| 109   | KEHA | 170,846.098                  | -4,702,276.065 | 4,291,680.313 | 170,846.096                        | -4,702,276.065 | 4,291,680.313 | -0.002               | 0.000  | 0.000  |
|       |      | Published by WisDOT - Meters |                |               | Thales Baselines - 0.002 m         |                |               | Difference from Pub. |        |        |
| 101   | SHAN | 182,409.489                  | -4,611,414.939 | 4,387,983.542 | 182,409.477                        | -4,611,414.938 | 4,387,983.538 | -0.012               | 0.001  | -0.004 |
| 102   | FOLA | 124,517.654                  | -4,609,735.802 | 4,391,808.808 | 124,517.645                        | -4,609,735.812 | 4,391,808.831 | -0.009               | -0.010 | 0.023  |
| 103   | WEBE | 149,899.217                  | -4,637,713.170 | 4,361,716.037 | 149,899.211                        | -4,637,713.176 | 4,361,716.035 | -0.006               | -0.006 | -0.002 |
| 104   | WAWN | 102,706.423                  | -4,657,769.229 | 4,341,771.610 | 102,706.422                        | -4,657,769.240 | 4,341,771.625 | -0.001               | -0.011 | 0.015  |
| 105   | RASN | 153,059.635                  | -4,666,858.810 | 4,330,615.802 | 153,059.633                        | -4,666,858.806 | 4,330,615.804 | -0.002               | 0.004  | 0.002  |
| 106   | PARO | 114,970.946                  | -4,680,260.752 | 4,317,398.789 | 114,970.953                        | -4,680,260.788 | 4,317,398.809 | 0.007                | -0.036 | 0.020  |
| 107   | FRSI | 164,796.257                  | -4,679,186.507 | 4,316,889.723 | 164,796.254                        | -4,679,186.508 | 4,316,889.727 | -0.003               | -0.001 | 0.004  |
| 108   | WATH | 115,561.960                  | -4,706,440.298 | 4,289,090.746 | 115,561.956                        | -4,706,440.296 | 4,289,090.751 | -0.004               | 0.002  | 0.005  |
| 109   | KEHA | 170,846.098                  | -4,702,276.065 | 4,291,680.313 | 170,846.098                        | -4,702,276.065 | 4,291,680.313 | 0.000                | 0.000  | 0.000  |
|       |      | Published by WisDOT - Meters |                |               | Topcon Baselines - 0.002 m         |                |               | Difference from Pub. |        |        |
| 101   | SHAN | 182,409.489                  | -4,611,414.939 | 4,387,983.542 | 182,409.491                        | -4,611,414.940 | 4,387,983.556 | 0.002                | -0.001 | 0.014  |
| 102   | FOLA | 124,517.654                  | -4,609,735.802 | 4,391,808.808 | 124,517.645                        | -4,609,735.811 | 4,391,808.831 | -0.009               | -0.009 | 0.023  |
| 103   | WEBE | 149,899.217                  | -4,637,713.170 | 4,361,716.037 | 149,899.216                        | -4,637,713.174 | 4,361,716.046 | -0.001               | -0.004 | 0.009  |
| 104   | WAWN | 102,706.423                  | -4,657,769.229 | 4,341,771.610 | 102,706.410                        | -4,657,769.239 | 4,341,771.620 | -0.013               | -0.010 | 0.010  |
| 105   | RASN | 153,059.635                  | -4,666,858.810 | 4,330,615.802 | 153,059.630                        | -4,666,858.810 | 4,330,615.809 | -0.005               | 0.000  | 0.007  |
| 106   | PARO | 114,970.946                  | -4,680,260.752 | 4,317,398.789 | 114,970.936                        | -4,680,260.766 | 4,317,398.796 | -0.010               | -0.014 | 0.007  |
| 107   | FRSI | 164,796.257                  | -4,679,186.507 | 4,316,889.723 | 164,796.255                        | -4,679,186.508 | 4,316,889.721 | -0.002               | -0.001 | -0.002 |
| 108   | WATH | 115,561.960                  | -4,706,440.298 | 4,289,090.746 | 115,561.946                        | -4,706,440.301 | 4,289,090.732 | -0.014               | -0.003 | -0.014 |
| 109   | KEHA | 170,846.098                  | -4,702,276.065 | 4,291,680.313 | 170,846.098                        | -4,702,276.065 | 4,291,680.313 | 0.000                | 0.000  | 0.000  |

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| Adjustment using Trimble Baselines<br>Holding FOLA/KEHA at 1.00 m |             |                |               |                      |        |        | Adjustment using Trimble Baselines<br>Holding FOLA/KEHA at 5.00 m |                |               |        |        |        |  | Difference from Pub. |  |  |
|-------------------------------------------------------------------|-------------|----------------|---------------|----------------------|--------|--------|-------------------------------------------------------------------|----------------|---------------|--------|--------|--------|--|----------------------|--|--|
|                                                                   |             |                |               | Differences          |        |        |                                                                   |                |               |        |        |        |  |                      |  |  |
| 101                                                               | 182,409.484 | -4,611,414.938 | 4,387,983.545 | -0.005               | 0.001  | 0.003  | 182,409.486                                                       | -4,611,414.924 | 4,387,983.560 | -0.003 | 0.015  | 0.018  |  |                      |  |  |
| 102                                                               | 124,517.648 | -4,609,735.813 | 4,391,808.832 | -0.006               | -0.011 | 0.024  | 124,517.649                                                       | -4,609,735.798 | 4,391,808.846 | -0.005 | 0.004  | 0.038  |  |                      |  |  |
| 103                                                               | 149,899.214 | -4,637,713.167 | 4,361,716.036 | -0.003               | 0.003  | -0.001 | 149,899.215                                                       | -4,637,713.153 | 4,361,716.051 | -0.002 | 0.017  | 0.014  |  |                      |  |  |
| 104                                                               | 102,706.419 | -4,657,769.225 | 4,341,771.603 | -0.004               | 0.004  | -0.007 | 102,706.420                                                       | -4,657,769.207 | 4,341,771.616 | -0.003 | 0.022  | 0.006  |  |                      |  |  |
| 105                                                               | 153,059.631 | -4,666,858.806 | 4,330,615.799 | -0.004               | 0.004  | -0.003 | 153,059.634                                                       | -4,666,858.795 | 4,330,615.816 | -0.001 | 0.015  | 0.014  |  |                      |  |  |
| 106                                                               | 114,970.941 | -4,680,260.750 | 4,317,398.785 | -0.005               | 0.002  | -0.004 | 114,970.942                                                       | -4,680,260.736 | 4,317,398.800 | -0.004 | 0.016  | 0.011  |  |                      |  |  |
| 107                                                               | 164,796.253 | -4,679,186.504 | 4,316,889.723 | -0.004               | 0.003  | 0.000  | 164,796.255                                                       | -4,679,186.491 | 4,316,889.738 | -0.002 | 0.016  | 0.015  |  |                      |  |  |
| 108                                                               | 115,561.956 | -4,706,440.296 | 4,289,090.745 | -0.004               | 0.002  | -0.001 | 115,561.957                                                       | -4,706,440.282 | 4,289,090.760 | -0.003 | 0.016  | 0.014  |  |                      |  |  |
| 109                                                               | 170,846.094 | -4,702,276.065 | 4,291,680.312 | -0.004               | 0.000  | -0.001 | 170,846.095                                                       | -4,702,276.051 | 4,291,680.327 | -0.003 | 0.014  | 0.014  |  |                      |  |  |
| Thales Baselines - 1.00 m                                         |             |                |               |                      |        |        | Thales Baselines - 5.00 m                                         |                |               |        |        |        |  | Difference from Pub. |  |  |
|                                                                   |             |                |               | Difference from Pub. |        |        |                                                                   |                |               |        |        |        |  |                      |  |  |
| 101                                                               | 182,409.480 | -4,611,414.940 | 4,387,983.536 | -0.009               | -0.001 | -0.006 | 182,409.48                                                        | -4,611,414.94  | 4,387,983.54  | -0.009 | -0.001 | -0.006 |  |                      |  |  |
| 102                                                               | 124,517.651 | -4,609,735.818 | 4,391,808.825 | -0.003               | -0.016 | 0.017  | 124,517.65                                                        | -4,609,735.82  | 4,391,808.82  | -0.003 | -0.016 | 0.017  |  |                      |  |  |
| 103                                                               | 149,899.214 | -4,637,713.178 | 4,361,716.033 | -0.003               | -0.008 | -0.004 | 149,899.21                                                        | -4,637,713.18  | 4,361,716.03  | -0.003 | -0.008 | -0.004 |  |                      |  |  |
| 104                                                               | 102,706.424 | -4,657,769.241 | 4,341,771.624 | 0.001                | -0.012 | 0.014  | 102,706.42                                                        | -4,657,769.24  | 4,341,771.62  | 0.001  | -0.012 | 0.014  |  |                      |  |  |
| 105                                                               | 153,059.632 | -4,666,858.805 | 4,330,615.806 | -0.003               | 0.005  | 0.004  | 153,059.63                                                        | -4,666,858.80  | 4,330,615.81  | -0.003 | 0.005  | 0.004  |  |                      |  |  |
| 106                                                               | 114,970.951 | -4,680,260.786 | 4,317,398.811 | 0.005                | -0.034 | 0.021  | 114,970.95                                                        | -4,680,260.79  | 4,317,398.81  | 0.005  | -0.034 | 0.021  |  |                      |  |  |
| 107                                                               | 164,796.253 | -4,679,186.506 | 4,316,889.729 | -0.004               | 0.001  | 0.006  | 164,796.25                                                        | -4,679,186.51  | 4,316,889.73  | -0.004 | 0.001  | 0.006  |  |                      |  |  |
| 108                                                               | 115,561.954 | -4,706,440.293 | 4,289,090.754 | -0.006               | 0.005  | 0.008  | 115,561.95                                                        | -4,706,440.29  | 4,289,090.75  | -0.006 | 0.005  | 0.008  |  |                      |  |  |
| 109                                                               | 170,846.092 | -4,702,276.058 | 4,291,680.319 | -0.006               | 0.007  | 0.006  | 170,846.09                                                        | -4,702,276.06  | 4,291,680.32  | -0.006 | 0.007  | 0.006  |  |                      |  |  |
| Topcon Baselines - 1.00 m                                         |             |                |               |                      |        |        | Topcon Baselines - 5.00 m                                         |                |               |        |        |        |  | Difference from Pub. |  |  |
|                                                                   |             |                |               | Difference from Pub. |        |        |                                                                   |                |               |        |        |        |  |                      |  |  |
| 101                                                               | 182,409.492 | -4,611,414.942 | 4,387,983.564 | 0.003                | -0.003 | 0.022  | 182,409.492                                                       | -4,611,414.942 | 4,387,983.564 | 0.003  | -0.003 | 0.022  |  |                      |  |  |
| 102                                                               | 124,517.649 | -4,609,735.819 | 4,391,808.854 | -0.005               | -0.017 | 0.046  | 124,517.649                                                       | -4,609,735.819 | 4,391,808.854 | -0.005 | -0.017 | 0.046  |  |                      |  |  |
| 103                                                               | 149,899.216 | -4,637,713.176 | 4,361,716.052 | -0.001               | -0.006 | 0.015  | 149,899.216                                                       | -4,637,713.176 | 4,361,716.052 | -0.001 | -0.006 | 0.015  |  |                      |  |  |
| 104                                                               | 102,706.410 | -4,657,769.239 | 4,341,771.620 | -0.013               | -0.010 | 0.010  | 102,706.410                                                       | -4,657,769.239 | 4,341,771.621 | -0.013 | -0.010 | 0.011  |  |                      |  |  |
| 105                                                               | 153,059.629 | -4,666,858.807 | 4,330,615.804 | -0.006               | 0.003  | 0.002  | 153,059.629                                                       | -4,666,858.807 | 4,330,615.805 | -0.006 | 0.003  | 0.003  |  |                      |  |  |
| 106                                                               | 114,970.935 | -4,680,260.763 | 4,317,398.791 | -0.011               | -0.011 | 0.002  | 114,970.935                                                       | -4,680,260.764 | 4,317,398.791 | -0.011 | -0.012 | 0.002  |  |                      |  |  |
| 107                                                               | 164,796.253 | -4,679,186.504 | 4,316,889.712 | -0.004               | 0.003  | -0.011 | 164,796.253                                                       | -4,679,186.504 | 4,316,889.713 | -0.004 | 0.003  | -0.010 |  |                      |  |  |
| 108                                                               | 115,561.944 | -4,706,440.297 | 4,289,090.721 | -0.016               | 0.001  | -0.025 | 115,561.944                                                       | -4,706,440.297 | 4,289,090.722 | -0.016 | 0.001  | -0.024 |  |                      |  |  |
| 109                                                               | 170,846.094 | -4,702,276.058 | 4,291,680.290 | -0.004               | 0.007  | -0.023 | 170,846.094                                                       | -4,702,276.058 | 4,291,680.290 | -0.004 | 0.007  | -0.023 |  |                      |  |  |