

The Texas Cooperative RTK Network

1. Scope

It is Western Data Systems intention to coordinate the establishment of an RTK Network within the State of Texas and owned by the participating Survey Companies. The network will have its origins within the major metropolitan areas of Texas. It is anticipated that the network will expand outward until all areas are seamlessly combined into one RTK Network covering all areas of Texas that have cell coverage. Using Trimble Reference Stations, Trimble GPSNet and Trimble RTKNet software, a surveyor with a Rover working within the network will be able to obtain RTK accuracies as good or better than what they are presently experiencing using their own Base. This is possible as the software creates a Virtual Reference Station solution very close to where they would be working, resulting in very short baseline solutions. This is **not** a Single Base Station Solution.

2. Benefits

The establishment of this network will have many benefits to the participating members, but there are three that we would like to highlight:

- A. Reduced Operating Costs. When working within the RTK Network, the need for the establishment of a local GPS Base Receiver and Base Radio will be eliminated. This allows for single person field crews that can begin work within minutes of arriving on site. When you do a job with less people, less equipment, no setup times, no equipment guards, no teardown time and eliminate radio problems, your operating costs will be greatly reduced.
- B. Reduced Capital Equipment Costs. Present GPS Base Receivers could be converted to Rovers. Adding new equipment to outfit new crews will mean purchasing a Rover, not a complete Total Station.
- C. Ease of Operations. One-man crews can now travel anywhere within the RTK Network. The RTK Network will be all Internet driven. Rovers will call into the network via cell phones. All calls will be routed via socket connection into a single server. This server will be able to handle all incoming Rover calls without the need for dedicated telephone lines. If you have cell coverage and are located inside the network, you will have access.

3. Structure

There will be two groups of RTK Network members. The first are the companies who will establish GPS Reference Stations at their facilities, thereby automatically gaining membership. The second group will be members who do not install their own Reference Stations, but will pay a membership fee for each Rover they activate.

Western Data Systems will operate the system (on an at cost basis). It will establish the main server, maintain the system, upgrade the system and software as needed, insure the system stays operational and provide all the technical assistance needed by the RTK Network members to become and stay operational.

4. Cost sharing for RTK Network Implementation and Operations.

The driving concept of this RTK Network is that the members will own it; therefore all costs will also be the responsibility of the members. We have established a fee and cost structure that spreads the costs of the implementation and continuing operations over all members equally. As you will see below, this structure will also substantially reduce costs versus your present RTK expenses.

5. Membership Fees.

It is anticipated that Membership Fees will cover a majority of the operational costs of the RTK Network. This is especially true after the initial start up costs are behind us. A membership fee is defined as fee paid to activate one Rover. Under this definition, a single company could have one or more Memberships. The easiest way to understand this is to consider each Rover you have activated as being a Member. A Membership fee will be created at the time a company asks to have a rover activated and Western Data Systems assigns it a dedicated User Name and Password that the network software will then recognize. Without this User Name and Password, a rover will not be able to access the network.

A Membership fee will be a one-time payment of \$2,000 and then annual renewals of \$500 after the first year.

For those companies who have spent money to install a Reference Station at their facility, they will be eligible to activate up to five Rovers (for each Reference Station they have installed) for Memberships without paying the initial \$2,000 or the \$500 annual renewal fee for the first three years. But these Memberships will be included for operating cost sharing.

6. Initial Costs for Companies who put up their own Reference Station.

Costs will vary depending on a number of factors.

For companies that already own suitable Trimble GPS equipment and want to use it, the cost would be limited to the amount spent on permanent antenna installation and equipment installation.

For companies who presently own no equipment or want to install the latest technology, they will have to buy the Trimble NetR5 Reference Station with Zephyr Antenna.

7. Budgets.

There are a number of costs involved in the start up phase of the network as well as costs for continuing to operate the network over time. Using the membership fees to offset a major portion of the expenses and spreading the rest over a large group, we will be able to keep each members cost down to an almost insignificant amount on a yearly basis.

As in any start up, initial costs are higher than costs to continue to operate the RTK Network. We have prepared two Pro-Forma Budgets, one that covers the first six months and one that covers annual costs after the initial six-month start up phase. These estimated projections are on separate sheets you may request. .

Since the RTK Network will incur initial costs for software and hardware before the system becomes active and upon activation have the fewest number of members, Western Data Systems will advance the network these costs and not bill the members until six months after activation. By the end of this six-month period, the number of members will have expanded greatly and we will have received payment for these Memberships. This delay in billing for cost sharing for six months will allow these costs to be spread over a much larger Membership Group. After the initial six-month billing, Western Data Systems will invoice (if needed) on a quarterly basis.

Doing an analysis of the Pro-Forma Cost shows the following results. If you use the most conservative scenarios for both the 1st six months and the following full year, including Membership Fees, Renewal Fees and Cost Sharing, the costs per membership for the first 18 months is \$12.50 per working day or \$1.56 per hour (8 hours).

8. Western Data Systems' participation.

Western Data Systems will be responsible for the coordination of the implementation of the RTK Network. This includes everything from organizing informational meetings to let everyone know about the network, to working with and giving technical support to the individual companies that will become members.

Western Data Systems will establish Reference Stations at its facilities that are suitable at no cost to the network.

Western Data Systems will set up a central server. As Reference Stations become active, Western Data Systems will interface them into the network. At the point where there are enough Reference Stations in a geographical area, Western Data Systems will activate Trimble RTKNet to begin testing the network. Upon completion of the testing phase, that geographical area will be available to members to begin using.

Western Data Systems will be responsible for controlling access to the network. As members are ready to activate Rovers, Western Data Systems will issue individual User Names and Passwords for each rover. Without this, access to the network will be denied.

Once the system is operational, Western Data Systems will be responsible for operating the RTK Network under contract with the members. This contract will be valid for five years, automatically renewable unless a majority of members vote not to renew.

Western Data Systems will not profit (or lose money) from the operations of the RTK Network for its members. All direct costs will be passed on to the members on an AT COST basis. All fixed costs for hardware and software (GPSNet and RTKNet), will be passed on to the members. All operating costs such as personnel costs, Internet access costs, yearly software upgrade costs, maintenance costs and upgrades will be passed on to the members AT COST.

Western Data Systems is responsible for all management functions, including keeping the system up and on line, establishing equipment standards, issuing User Names and Passwords, managing these for renewals and billing.

Western Data Systems is responsible for reporting to all members each quarter the following information:

- A. Name of all present member companies.
- B. Number of Memberships issued for both Reference Station owners and Non-Reference Station owners.
- C. Amount and source of all money paid into the network account from membership fees and renewals.
- D. Detailed report on expenses incurred by Western Data Systems over the last quarter.
- E. Estimate of any major changes that might affect costs over the next reporting period.

9. Benefits realized by Western Data Systems.

Western Data Systems is willing to perform its stated management tasks for no profit because it will benefit in two other ways. Western Data Systems primary business is selling and renting Trimble GPS and other Survey Products. As the manager of this network and working closely with each member, we feel we will be in a favorable position to assist the members with their future equipment needs for both sales and rentals.

The only concession we ask of the members is to allow Western Data Systems rental equipment access to the network without fees. This will not only benefit Western Data Systems, but all the Members. This will give Members the ability to supplement their needs with our rental pool equipment when necessary.

10. Conclusion.

The future of Surveying starts today. A majority of survey work done in the State of Texas will drastically change as this RTK Network reaches full geographic maturity.

The technology is available today and Western Data System has presented a model that is economically viable. The only thing left to do is for you, the survey community, to embrace it. When you consider lower costs, increased RTK accuracy and ease of operations, the decision to become a Member is easy.