

BY HARRY O. WARD, PE

## Subscription GPS Networks for Machine Control

**T**he hottest news in the GPS marketplace right now for contractors is surprisingly not a technology—rather, it seems to be a business model. Allow me to explain.

Recently, I was speaking with Steve Plamondon, machine control sales manager at Bunce Positioning in Massachusetts, about the state of automated machine control. He mentioned that one of the largest forces having an impact on machine control usage today is the growth and accessibility of subscription-based GPS networks. The idea is that contractors can get right to work and put their equipment investment to use pushing dirt without establishing their own base station control on the project. They simply receive post-corrected coordinates directly from the network they subscribe to.

Virginia Beach, Hampton and Richmond, Virginia, has built a GPS subscription network that covers most of Virginia and parts of Maryland. I spoke with Brian Daniel, director for Loyola, to learn more about the network.

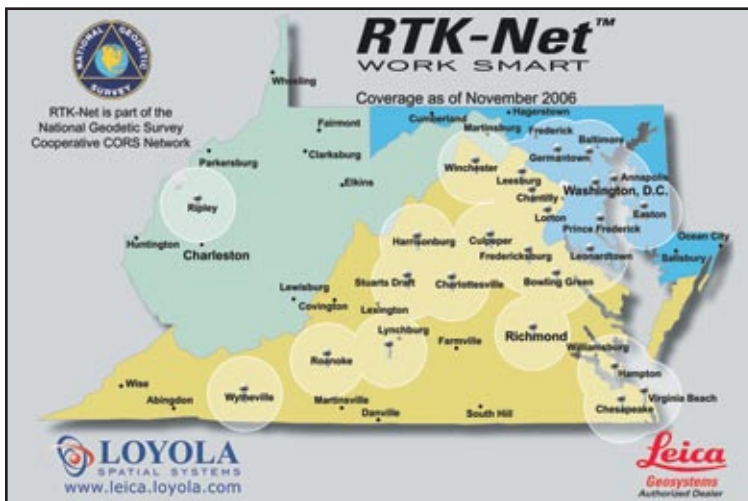
“We believe we have the largest private network owned by a single entity,” Daniel said. “We have 25 reference stations in Virginia and Maryland, with new stations going up in West Virginia. Forty-nine companies have subscribed to the network, with [more than] a hundred Leica rovers connected. We are trying to add one or two new stations per month throughout our sales territory.”

The business model behind this is that it is built specifically for Leica Geosystems/Loyola customers. The network was built to help support and grow Leica’s sales business and to provide a service to its customers. Loyola’s system is trademarked as “RTK-Net” and uses Leica’s SpiderNET software.

The map to the left shows the status of Loyola’s network as of November 2006. RTK-Net provides single baseline corrections and modeled network corrections based on the master-auxiliary concept, which has been accepted as the basis of the RTCM V3.1 network messages. This is the first industry standard for network RTK as accepted by the Radio Technical Commission for Maritime Services (RTCM, [www.rtcmm.org](http://www.rtcmm.org)).

Comparing Loyola’s private model to a cooperative arrangement where different entities own the stations with one party responsible for management, Daniel said, “I see difficulties with that model because as technologies change it could be that some of the participating parties may or may not upgrade to the new technologies. This will very quickly create an incompatible mix of technologies incapable of delivering the best product to the end user. By owning the entire network, we can rapidly respond to technology upgrades, and we are the sole point of responsibility for the network.”

Daniel indicated that the biggest advantage of this network for GPS machine control customers is that contractors don’t need to purchase a base station for each construction site. This allows them to freely move machines from site to site. Further, customers can move their rovers around just as easily. “The system is on and is monitored 24/7,” Daniel said, noting that the GPS stations used by the network are either



This map of Maryland, Virginia and West Virginia shows the coverage offered by Loyola Spatial Systems’ RTK-Net subscription network.

To learn more about this concept, I spoke with some of the larger providers of this service. I found that the most interesting aspect of subscription networks may not be so much the technology behind the effort as the way business is evolving around them.

### Private Networks

Loyola Spatial Systems ([www.leica.loyola.com](http://www.leica.loyola.com)), a Leica Geosystems ([www.leica-geosystems.com](http://www.leica-geosystems.com)) reseller with offices in