



# TECHNOLOGY TEES OFF



GOLFING MAY SEEM RELAXING, BUT PLANNING A GOLF TOURNAMENT TAKES UP TO A YEAR OF PREPARATION. NOW GNSS TECHNOLOGY IS STREAMLINING GOLF-COURSE SET-UP AND PLANNING. **KRISTINE CARBER-WHITE** REPORTS

Every year, thousands of spectators gather at famous courses to watch the best golfers in the world compete. What many spectators don't realise is the planning and logistics that go into setting up a championship golf tournament. A year in advance of the event, golf staff visit the site to start mapping buildings, laying temporary roads and staking broadcast towers before the crowds arrive.

The operations manager is in charge of fan and operational logistics and is required to travel from site to site months before the tournament. "We used to take a map to the field and draw the rope lines along the holes, tents, trailers and other structures used during the tournament," one operations manager for a US course says. "There are 150 to 200 tents varying in size from 10 by 10 feet (3m x 3m) to 200 by 300 feet (60m x 180m, and we had to place all of them. We would use multiple 300-foot (180m) tapes. We would pull and flag the front line of the tent and then

to locate the rear corners, we would square the tent using the Pythagorean Theorem."

This took a minimum of two people working together to perform the task. "We knew if we could get the right equipment we could lay out the course and it would be exponentially faster," he adds.

He researched mapping products and gained recommendations from a civil engineering firm. But he also had a more personal referral: "My father is a surveyor and uses Trimble base stations and rovers, so I was familiar with their reputation for quality. We chose the Geo 7X handheld GNSS system because it is fast, accurate and easy to use."

The Trimble Geo 7X operates with Trimble's TerraSync software, which provides simple workflows to capture GIS data. The software ensures that clients have the information needed as well as the ability to organise, analyse and maintain this information for better decision-making.

## Accurate data

"We need accurate field data for tournament layout," the operations manager explains. "We can access information we couldn't access before using our old methods. With the GNSS system, we get the data when and how we want it, with the precision and quality we need."

The software works seamlessly with the company's ArcGIS software infrastructure using the Trimble Positions Desktop add-in for ArcMap, making it possible to share data in real time to provide updates, move files or deliver projects. Schema from the company's ArcGIS geodatabase flow directly into TerraSync while field-collected data goes right back into the geodatabase without any import/export steps.

"We just plug in and go," he says. "We can map grandstands, scoreboards, and even get course elevations. Now one person can map out a tent in a matter of minutes, which we've found has been one of the biggest benefits." One of his toughest tasks is identifying where to

place office trailers, banks of toilets, fence lines and other key features. The operations manager uses the Geo 7X to stake points, which are then relayed to a database. In addition, he walks the course with the TV networks that broadcast the event, to determine where to place TV towers.

The golf course's terrain usually doesn't affect the layout, the operations manager notes. Some courses are hilly, but the handheld ensures the layout will work. Trees and structures can be an issue, but the laser rangefinder helps to work around any obstructions.

Once there is a layout, a virtual map is created using the measurements. The map is shared through ArcGIS files, and is uploaded to the golf course website where vendors can log in for updates. "We have 20 to 40 vendors working on the tournament, including plumbers, electricians and landscapers," the operations manager said. "The map is a reference for them to ensure everything is positioned properly and up-to-date."

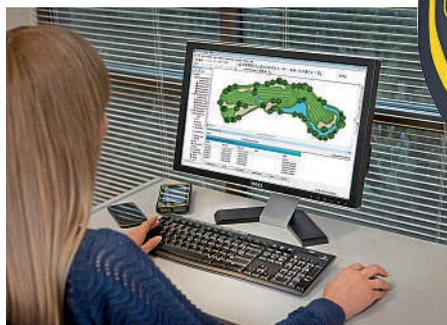
### Multiple benefits

"We have benefitted tremendously from using the GNSS handheld," the operations manager adds. "Since we've started, we've discovered so many other cool things we can do."

The tournament partners with a digital company on the mobile application and the new technology plays a role there, too. "We can record positions of points of interest and



Mapping the golf course is a key part of tournament design and often means taking a map to the field and drawing the rope lines along the holes, tents and other structures. New technology allows GNSS systems to capture this data as well as organise and analyse it



Trimble TerraSync software works with Esri's ArcGIS software infrastructure using the Trimble Positions Desktop add-in for ArcMap, making it possible to share data in real time to provide updates, move files or deliver projects

easily input them, so spectators can launch an interactive map and use GPS to navigate to a particular site."



Golf courses need accurate field data for tournament layout. The Trimble Geo 7X handheld GNSS system operates with Trimble's TerraSync software to provide simple workflows that capture GIS data

Today, when one tournament ends, the operations manager is already mapping another. "We're ahead of schedule in establishing facilities and obtaining signoffs," he says. "Usually we start laying out the course in the fall and then pick it up again in the winter. Before using the GNSS, we did not have the ability to make changes in the field quickly to see how the facilities fit. Now we can go to the field, select a point and continue from that same point later because TerraSync has saved it. We're doing now what we used to do in six months.

It has streamlined my mapping time."

**Kristine Carber-White is a writer based in Silicon Valley**

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