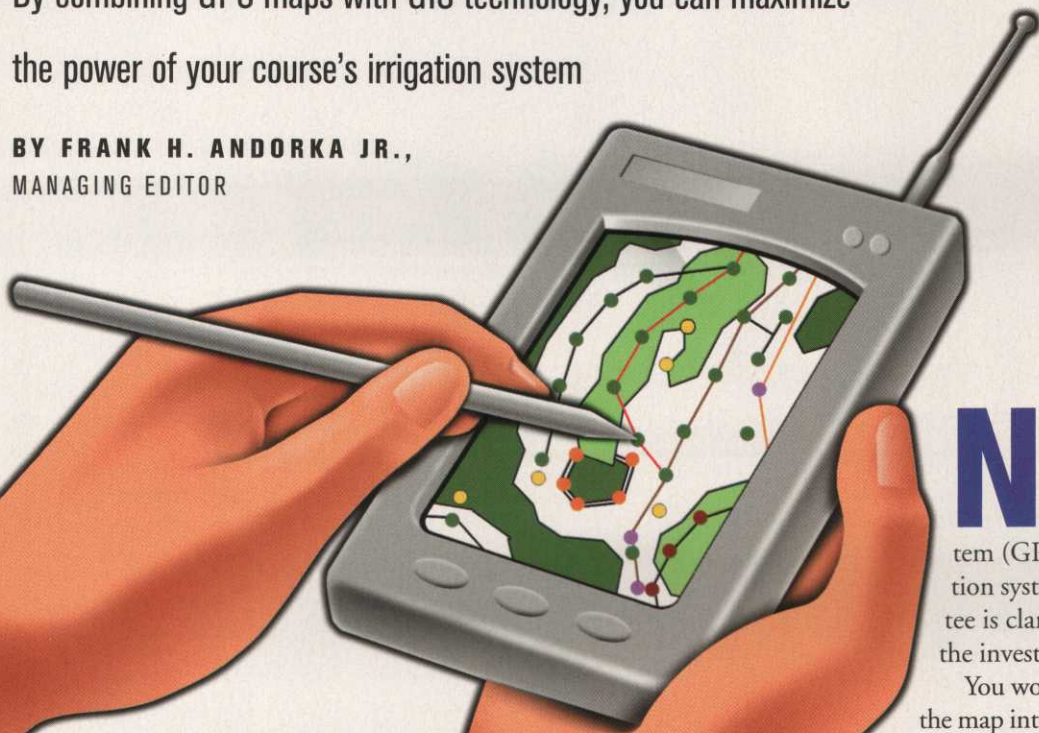


Possibilities in the Palm of Your Hand

By combining GPS maps with GIS technology, you can maximize the power of your course's irrigation system

BY FRANK H. ANDORKA JR.,
MANAGING EDITOR



Now that your course has spent thousands of dollars creating a global positioning system (GPS) map of your irrigation system, the green committee is clamoring for a return on the investment.

You wonder how you can turn the map into something other than an enormous file that eats up memory on your computer. Unfortunately, you may not realize you're missing a central component that will open up nearly endless possibilities for the map's use. That impressive component, experts say, is the geographic information system (GIS).

A GIS is a computer system capable of assembling, storing, manipulating and displaying geographically referenced information gathered from the GPS. It turns your static

VADIM VAHRAMEEV

GPS map into a tool that potentially allows you to control your irrigation system from your personal digital assistant (PDA). When it's fully operational, a GPS/GIS map allows you to turn individual sprinkler heads on and off by clicking on it with your computer's mouse or your PDA's stylus.

"Most of the courses that have GPS maps don't know the power of the tool as an irrigation-system enhancer," says Paul Granger, president of Aqua Agronomic Solutions, a Clinton, N.J.-based irrigation consultant company. Granger started creating GPS/GIS solutions for golf courses in 1996.

"To allow superintendents to have a product that's useful and relevant to what they do, they need to combine their GPS map with GIS databases," he says. "Then the opportunities to use the information are endless."

Create an accurate base map

Before you can maximize the power of the GIS, however, it's important to have your course mapped by a GPS professional, says Brian Vinchesi, president of Pepperell, Mass.-based Irrigation Consulting. He says the hand-held GPS locators you can purchase at your local electronics store aren't sophisticated enough for the job.

"When you're creating a base map, you want to have someone with the appropriate experience to do this for you," Vinchesi says. "This isn't something an amateur can do as accurately as you need."

Vinchesi says many irrigation consultants can do the job in-house, and there are other companies who specialize in creating these maps (see page 30).

The amount of detail can vary, so superintendents should decide what they want to include before they choose a company to do the job. Jim Nicol, superintendent at Hazeltine GC in Chaska, Minn., says he hired Stratapoint, an Eagan, Minn.-based GPS company, to handle the GPS mapping in conjunction with the PGA Championship, which the course hosts in August. Nicol originally decided to map his course to help him deal with tournament crowd control, but he quickly realized how invaluable a map of his irrigation system could be.

"The maps we had were inadequate," Nicol

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Picking a Contractor

Before you even consider using GPS/GIS on your course, you have to pick the right irrigation contractor. *Golf-dom* asked superintendents for advice about choosing an irrigation contractor. Here's what they had to say:

"Select irrigation contractors with proven track records in your region. Check out past installation references thoroughly. Try to visit a site where they're presently working and see first-hand their performance. Do it unannounced (with the approval of the superintendent, of course) so you can actually see them in action."

• **OSCAR MILES**

CERTIFIED SUPERINTENDENT
THE MERIT CLUB, LIBERTYVILLE, ILL.

"Make sure you visit a recently completed job that was done by the same crew you expect to do your work. Ask how many of the crew members speak English. We had several situations where the foreman was the only one that spoke English. When he went home one weekend, none of the remaining crew spoke English, so it was difficult to communicate."

• **STEVE NUMBERS**, SUPERINTENDENT,
WESTFIELD COMPANIES CC
WESTFIELD CENTER, OHIO

"Hire a contractor with experience in the work you expect to be performed. A contractor who has only done new construction would not work well in a renovation. After all, it's not how much pipe you have put in the ground, it's what the ground looks like two months later."

• **JAY BUCK**, CERTIFIED SUPERINTENDENT,
MEADOWLANDS CC, BLUE BELL, PA.

"Be sure the contractor walks through with you and flags the sprinkler locations. With luck, he or she isn't locked into any one particular brand. Make sure he or she signs off on the work before payment is made."

• **JOHN C. CUMMINGS**

CERTIFIED SUPERINTENDENT
BERRY HILLS CC, CHARLESTON, W. VA.

"Pick a contractor that knows that irrigation installation is a game of angles and not bends. I've seen more pipes break because a joint was forced to fit instead of being tailor-made to fit. A good contractor always wipes excess glue off even if the pipe is 18 inches below the ground. That's a person that takes pride in his work."

• **PAT BLUM**, SUPERINTENDENT
COLONIAL ACRES GC, GLENMONT, N.Y.

"I checked with all the superintendents that I trusted and asked their opinions about who the best contractors were. Then I contacted those recommended contractors and asked them to send me a list of courses they had done. After narrowing the list to the top three contractors, I personally visited one of their facilities. I finally chose a contractor and all the preparation I did paid off. My irrigation system is 2 years old, and I haven't had any problems with it. My contractor keeps in touch periodically to check for any problems I might have."

• **KEVIN GOOLSBY**, SUPERINTENDENT,
SPORTSMAN AT PERDIDO GOLF RESORT,
PENSACOLA, FLA.

"This would go into the category of an irrigation contractor that you would not want to use. I recently served as a consultant in the planning, design and construction of a new golf course. I was in a meeting with a potential irrigation contractor, and we discussed the blueprints and lengthy specification documents that an irrigation consultant and I had spent the previous three months perfecting. After explaining the details of the plan I felt would make my irrigation system different from the average design, the potential irrigation contractor replied, 'Son we have built a lot more golf courses than you, and you have to understand that once the dirt starts moving, these plans go out the window.' While it's true that field adjustments are a fact of life, the comment that the plans are not needed is totally untrue."

• **DARREN J. DAVIS**, DIRECTOR OF GOLF
COURSE OPERATIONS, OLDE FLORIDA GC,
NAPLES, FLA.

Possibilities in the Palm of Your Hand



HUNTER GOLF

A fully integrated GPS/GIS map allows superintendents to control their irrigation systems from anywhere they have a computer with central-control programs, like the Genesis III system from Hunter Golf.

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says. "When we tried to install a new irrigation system in 1998, we were hitting mainlines and branches of the old system left and right because we didn't have an accurate record of where they were. We decided we needed to hire a professional so we could have something we could depend on."

Jason Bass, president of Stratapoint, says the GPS information is only as good as the attributes superintendents specify. The map can be as general or as detailed as they want, he added.

GIS integrates information

Bob Scott, president of Irrigation Consultant Services in Conyers, Ga., says the creation of GIS databases allows superintendents to integrate their GPS data into their irrigation system's central-control program.

Bass recommends a superintendent include specific information about irrigation heads, such as brand name, type of head, repair schedule, water-pressure requirements and other information. The more detail a superintendent provides, the more effective the map will be.

Bass says the same companies that handle GPS can often create your GIS databases as well.

Kevin West, superintendent of Olympia Fields (Ill.) CC, installed his GPS/GIS system in preparation for the 1997 U.S. Open. Since he's a computer buff, he created his own GIS databases and integrated them himself. Now he doesn't go anywhere on the course without carrying the map with him.

"I downloaded the interactive map to my PDA and carry it around with me on the course," West says. "That way, when I see a hotspot beginning or a spot that's being overwatered, the information I need to adjust the system is at my fingertips. It's so much more flexible than a traditional system."

Most irrigation manufacturers now provide software that will allow superintendents to integrate maps into their control systems, though the level of sophistication varies, Scott says. He also suggests superintendents not depend on their local irrigation sales representatives to create the databases because they may

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“I downloaded the interactive map to my PDA and carry it around with me on the course.”

KEVIN WEST
SUPERINTENDENT
OLYMPIA FIELDS (ILL.) CC

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not be able to create maps with the level of detail that superintendents need.

Worth the cost

Vinchesi says the combined mapping and integration costs between \$7,000 to \$50,000, and Scott says the price should range between 7 percent and 12 percent of the overall cost of the irrigation system. Granger says the average cost is around \$15,000.

“People believe it’s much more expensive than it is,” Granger says. “It varies by system and intricacy, but you can build a pretty powerful map for a fairly small investment.”

Scott says most maps pay for themselves in two to three years. If you don’t map your course now, however, you’re going to regret it in the long run, says Matt Shaffer, superintendent at Merion GC in Ardmore, Pa.

Shaffer originally mapped his previous course, The Country Club in Pepper Pike, Ohio, so he could find its 258 gate valves. Prior to mapping them, Shaffer often had to guess at their location. The interactive map allowed him greater control over the system than he could have imagined.

“It’s an incredibly powerful tool that allows you to manage your water more effectively and save your course money,” Shaffer says. “If you’re spending \$900,000 on an irrigation system, why wouldn’t you spend the extra 2 percent to 3 percent to make it as effective as possible?”

Shaffer says he doesn’t believe members fully understand the potential savings in labor, energy and water expenses over the life of a system. When superintendents propose creating such maps, many members think of them as luxuries. Shaffer insists they’re necessities instead. “Superintendents have to be ready to overcome the objections of members because members will often nickel-and-dime them to death,” Shaffer says.

Granger says it will be a slow process, but he thinks GPS/GIS mapping will eventually become an industry standard on most courses.

“The power of GPS/GIS maps is beyond the dreams that most people have for them,” Granger says. “We have to educate superintendents about how the maps will help them before they’ll be generally accepted in the industry.” ■



ILLUSTRATION COURTESY OF IRRIGATION CONSULTING

Each sprinkler head becomes a point on the map, easily activated on a PDA with the touch of a stylus.

For more information on GPS/GIS solutions, see these companies:

- **CompassCom**
303-680-3221
www.compasscom.com
- **GeoCadd Surveys**
510-796-8555
www.geocaddsurveys.com
- **Golf Course Map Co.**
303-810-3472
www.golfcoursemap.com
- **Horizon GPS**
402-758-4653, ext. 115
www.horizongps.com
- **Ragan Technical Solutions**
561-776-9713
www.ragantechnical.com/index.html
- **Stratapoint**
651-905-8940
www.pointforestry.com
- **Waypoint Technology Group**
518-438-6293
www.waypointtech.com
- **World Golf Mapping**
561-379-8484
www.worldgolf.com