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GIS SOLUTIONS

"The Sky's the Limit"

Wanzek and ESRI Collaborate on Site-Specific GIS and Scheduling Integrations

BY MARC GOLDMAN

An ArcGIS-based dashboard features a live map view and integration with P6 data.

Headquartered in Fargo, N.D., Wanzek is a large heavy/civil construction firm that operates nationally, with concentrations in clean energy, solar, wind, energy storage and services. Acquired by MasTec in 2008, Wanzek now is a platform company within the MasTec Clean Energy and Infrastructure Group, but "retains its name, culture and operating structure."

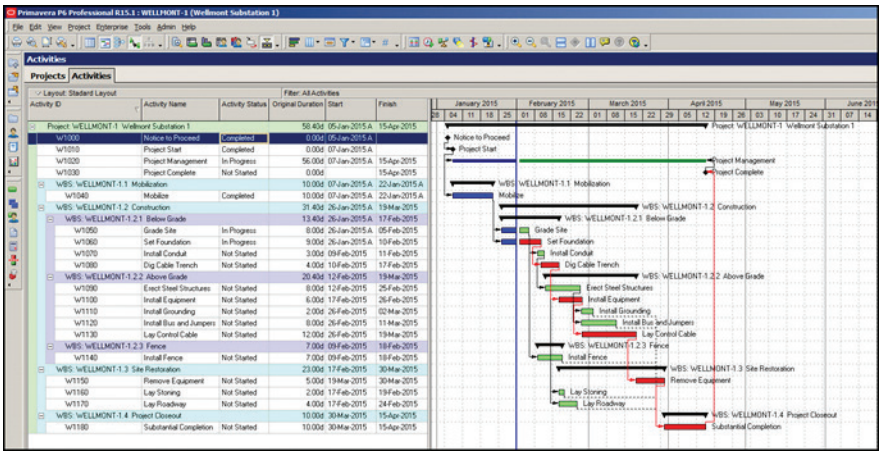
Wanzek has a 50-year track record of growth and success, with a strong culture and its own, time-tested way of doing things. That includes, of course, enterprise-wide management solutions such as the Primavera P6 scheduling and project management tool. "We've used it a long time," explains Program Manager Ryan Foos. "And it's standardized across most of our projects."

But a strong and time-tested operational structure must be flexible and capable of continuous improvement if it's to remain successful through time. An opportunity to demonstrate flexibility in construction became apparent to Wanzek early in its work on Florida's Charlie Creek Solar Power Plant, an installation of 235,000 single-axis tracking solar panels. On large projects, Wanzek typically includes a visual update on progress for project managers, owners and subcontractors. At Charlie Creek, this took the form of a simple site diagram, implemented in Visio, updated weekly to show project status.

"Basically, field engineers create a diagram using color codes and different symbols to indicate the progress of each panel, based on field input to P6," explains Foos. The diagram was not connected nor accessible beyond a small group who updated and reviewed the status. "And we realized that, in Visio, this was a tedious activity with pointless reentry and possibility for errors."

There's gotta be a better way...

To automate the site map-updating process, Wanzek planned to use Esri ArcGIS to automate the map creation and tie that into P6, so when the site team updates its P6 schedule, it automatically updates the ArcGIS map. Special symbols, colors and color codes are built into the map to show construction progress. "It's a much more-efficient process for the site teams," adds Foos.



An image shows the Oracle Primavera P6 work breakdown structure shown in a Critical Path Method view.

GIS tools like those from Esri are typically considered to be for urban planning, or for environmental reports, or used in census studies. But more and more often construction companies are benefiting from the core concept of ArcGIS—location information is knowledge! Wanzek is leveraging this ability of GIS and enriching their existing solution for planning and status. They are integrating various data with GIS to deliver and communicate projects better.

For Wanzek, the implementation of location information within P6 (and not as a separate solution or module) was considered key; it was a way to innovate and capture efficiency in a familiar and trusted workflow that was already part of Wanzek's culture of success. They were potentially going to introduce a significant improvement, but they needed to implement it with minimal impact to anyone's operations.

Clearly this was potentially tricky; making two powerful independent digital solutions work together seamlessly in a way that could be adopted, without hiccups or a lot of special training, on every construction project where a visual, continuously updated record of progress is useful is no easy task. Fortunately, Wanzek is accustomed to working with specialist subcontractors to accomplish difficult tasks, and they knew the knowledge needed in this case was available from Esri.

Enter Esri's Professional Services

Wanzek entered an agreement with Esri's Professional Services team to provide consulting services to assist with integrating their Oracle Primavera P6 EPPM data with their ArcGIS spatial data. Through early exploration, Esri's specialists determined they'd provide an ArcGIS geoprocessing tool used to extract scheduling data from Primavera P6 EPPM. The tool joins the extracted P6 data to a selected ArcGIS Feature Layer. The consulting work also included the configuration of an ArcGIS Dashboard with the P6 data that can be used for stakeholder communication.

Given the frustration with the old way of manual diagramming, the expectations for automated mapping were high and the potential gains for Wanzek were anticipated to be huge. The firm had some familiarity with ArcGIS: "Our clients were using it, and our competitors on some jobs, and some of our executive team had worked with ArcGIS, so we knew it was right for us," says Corporate Project Manager Sarah Schleicher.

And they were well aware that ArcGIS was a decided upgrade from their current solution. If this upgrade could be folded into the enterprise-wide project management and scheduling they were already using at high levels, the gains could be immense.

"We knew it takes from 30 minutes to an hour to populate the Visio diagram once a week, for one person," explains Foos. "So if we have 20 projects, you can figure 20 hours a week that we could basically give back to the sites. With the upgrade, as long as field engineers are updating P6 schedules, then that automatically integrates into the mapping system, and it takes all of that effort away."

And the "30 minutes to an hour" wasn't just tedious window dressing, it was an important aspect of scheduling and quality control. "Right now, in our P6 schedule, we have a list of activities entered into the Visio diagram, whether a foundation is being dug, for example, whether a foundation is being poured, whether there's rebar installed, all of these activities are basically updated today, manually," says Foos. "So field engineers have to look through the schedule, they say, 'okay, for foundation one, this is the current status.' And they'd have to go into the Visio diagram, manually change the icon from foundation dug to foundation rebar. So, they had to individually and manually change each one of those symbols to indicate movement and progress in construction." And errors introduced during manual editing could affect project quality as well as scheduling.

What was it like, working directly with Esri? "At the very beginning of the project, I'd say their team didn't have a clear picture of what we were trying to do," says Foos. "But that's what initial meetings are for. As we met, remotely for the most part, they drew more and more information out of us and quickly formed a very clear perception of just what we wanted to do. It was a pleasure to work with our Esri contacts as they worked out the actual programming of the application and the way it appeared in P6, and as we made requests for particular features."

So, a pleasurable collaboration, and a successful one. "Basically, we now have the solid integration between our P6 scheduling system and the ArcGIS automatic mapping we want," says Foos. "And we've proven that it works."

With the integration of location and schedule demonstrated, Wanzek now looks forward to a broad rollout of the new visual capacities of P6, making it something like a site-specific GIS. "And not just for our staff," says Foos. "We'll be publishing on a dashboard for owners and subcontractors too, and they'll be able to run their own reports and views. And we're already building templates for the different types of projects we do. Basically, I think the sky's the limit for adoption on Wanzek projects." II

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