



Case study
Electric utility

GeoForce

GeoForce outshines the competition with Fulcrum



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Brian Stroud
Vice President and GIS Developer

Challenges



Clients have varying data collection processes, data formats, and platform demands



Emergency response teams need to get to work quickly, without waiting for client GIS data to load or worse, relying on paper maps



Clients require regular updates on work progress from the field



Quality control on the work of field teams is difficult to do at a distance



Working with electricity and in remote locations, it's important for crews to be up-to-date on safety protocols

Key Outcomes



Through integration of Fulcrum data with SQL, GeoForce can give clients their data in any form needed



With a single address or coordinates, GeoForce crews can get started tracking down the location of problems, getting ahead of other crews to return data much more quickly



Giving clients access to GeoForce's inspection processes through the Fulcrum app lets them see what's going on in real-time



By monitoring work done throughout the day through the app, managers are able to detect – and correct – errors before they become habit



After safety training, workers can access training documents as reference materials in Fulcrum, and acknowledge receipt of their training to ensure compliance with safety regulations

GeoForce Utility Technologies (GeoForce) was founded in 1990 as a utilities contractor, providing GIS and building field data collection software for its clients. About 15 years ago, GeoForce pivoted its focus to providing the field work itself.

Brian Stroud, Vice President and GIS Developer, was with GeoForce when it began experiencing end-of-life issues with the Panasonic Toughbooks being used in the field. Exploration of new hardware led to more options available for software, and GeoForce made the switch to iPads and Fulcrum in 2016.

Since then, GeoForce has used Fulcrum to perform field operations including pole inspections and treatment, pole reinforcement, field asset and GPS inventories, transmission inspections and patrols, and emergency storm response for its almost 100 utilities and utility co-op clients.

Serving a large area with a small(ish) team

GeoForce's operational territory is a sprawling expanse of much of the Eastern United States. "If you were to look where our trucks are, it's Florida, Virginia, North Carolina, West Virginia, Kentucky, Indiana, and even into Oklahoma and Texas," says Stroud. Covering such a wide area with a relatively small team requires that every worker is given the tools needed to optimize productivity. "Using Fulcrum has been a big help in being able to grow our territory and take on more work without significantly increasing our headcount," Stroud says. "We've been able to quickly complete contracts, and then move onto the next."

“ Since we already have Fulcrum in our guys’ hands, we look for other places where we can use it. So now we use it for training, pole inspections, line patrol, just about any type of field operation. We incorporate it to as many places as we can into the field to see what information we can collect from our crews. ”



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Collecting data in any form

While GeoForce doesn't use Fulcrum for reporting, it does use it for collecting data that is then loaded into SQL, allowing for the final form the data takes to be wholly determined by the client.

When GeoForce needed to create a more streamlined process for creating the mechanism to pull the data from Fulcrum into SQL, it turned to Fulcrum's Professional Services team for help. "Fulcrum developed an app for us that loads all of yesterday's work into our SQL server here for us to maintain, and we then create a report out of the pulled data," says Stroud. "This app has been incredibly beneficial, freeing up hours each day so employees can do other things."

The versatility of the data end product also creates an opportunity for GeoForce to stand out among its competitors. "One of our strengths, and what we're able to do better than most competitors, is to give our clients the data in whatever format they request," says Stroud. "The final form that data takes varies wildly from client to client, but we're confident that we can meet their needs."

Creating a client show-and-tell

A feature that was an early selling point for Fulcrum is how its operation is intuitive. "It's so easy to drag and drop," says Stroud. "We've got it in the field,

and we give our clients access to our inspection programs as a read-only, and this way introduces them to Fulcrum. They can see what is going on, in real-time. It's a big selling point; some of them even have started working with Fulcrum on their own once they see how easy it is to use."

Employing one platform for many uses

Stroud has also been impressed with the many ways Fulcrum can be used in its operations. "Since we already have Fulcrum in our guys' hands, we look for other places where we can use it. So now we use it for training, pole inspections, line patrol, just about any type of field operation that doesn't involve a bucket truck. We incorporate it to as many places as we can into the field to see what information we can collect from our crews."

(Not) reinventing the wheel

GeoForce's clients have strict protocols for what information they need, what data to collect, and how they want the final product set up. Once GeoForce creates the inspection process to fulfill those requirements, that process can be reused.

In addition, the data initially collected is also available for a point of reference for any new, related work done in the same area, eliminating the need to start from scratch, even when project phases are months or even years apart. Stroud says, “When we set up a job specifically for a client, we might go a long time without doing the work, but then be called upon to ramp up again. We’ll go back to the data in Fulcrum and use that information and start from that point. Also, with Fulcrum I always have the data on hand, so if a client reaches out, in about a minute I can share the data again.”

Establishing automatic actions

For several of its applications, GeoForce utilizes Fulcrum’s intuitive workflow automation function. As Stroud explains, “We have triggers set up in some apps that will create a report. For example, if we come across a leaking transformer, the field team will record all the information and take photos of the hazard. When this record is saved, a report is generated that includes photos, the location, the data collected, and the reporter’s name and contact information. This report is then automatically sent to team leaders, to me, and to the client. This way, information is shared quickly and automatically, and it lets us get going on urgent problems quickly.”

Tackling emergency response

An important part of GeoForce’s business involves aiding utilities in their emergency storm response by patrolling lines to determine where issues are and identifying hazards that can endanger the public and workers.

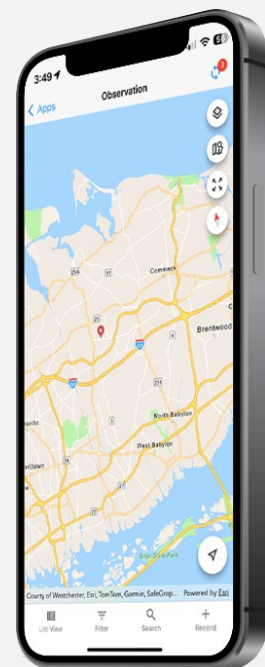
When the power goes out, it’s a chaotic event – as Stroud describes it, “It’s all hands on deck. It’s like a war zone. We go in there and try to collect as much information as quickly as possible.” In that effort, GeoForce’s use of Fulcrum gives it a significant advantage.

“Without Fulcrum, we’ve got two ways to go. We either get access to the client’s database, and then we have to load all the information like the wires and poles, which is slow and labor-intensive. Or, you go there and they just start printing everything out, and you get a paper map or a map book. Then the team has to take that to the area, drive around to find the stuff on the map, and take a marker and make notes as you go. Then you have to drive it back and go over it with somebody. That is very slow, too.” With Fulcrum, GeoForce can bypass all that.

“Fulcrum basically lets our managers be in several places at once because they’re working with teams all over the place. They’re sending back stuff electronically, and monitoring everything that’s being done without actually being over the person’s shoulder watching.”



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“If you can get me the address or coordinates to just one substation, I can start from there and send workers down that wire,” says Stroud. “They just follow the wire until they hit the problem. So, if it’s the tenth pole that is down, they can stop there. The GPS coordinates are collected, my workers are directed to take photos and get all the information needed. When they save the record, the utility gets reports immediately on the location with the photos, size of the transformer, size of the pole, whatever it might be, in near-real time. Using Fulcrum, we’re able to get ahead of the other crews and return data to them much faster.”

Eliminating bottlenecks

With Fulcrum, GeoForce has found that getting field teams up to speed and out collecting data requires virtually no training on the use of Fulcrum. This is not the case when the client requires the use of its own

in-house data collection platform. “For many of these in-house applications, we have to sit through training to use their system, sometimes for a day or more. We end up having to charge the client for the time spent in the training,” says Stroud.

This is markedly different when GeoForce uses Fulcrum. “When we show up with Fulcrum for a job, we can start right now. If I get a couple of email addresses, within minutes they’ll start to get data in their inboxes. It is just a lot quicker to get going and get the data you need.” One other issue encountered when using client’s software can be that the system is not able to provide logins for every team on site. “We’ve been on sites after a big storm where there were literally thousands of damage assessment teams brought in, but they didn’t have enough logins. This created a huge bottleneck where teams were doing what they could on paper while they waited for access. With Fulcrum we were



able to avoid waiting for a login. We simply began work using Fulcrum, and provided data that could be integrated into the client's system."

Making safety easy

In addition to using Fulcrum in the field, GeoForce also utilizes the platform for its safety processes. "Every month we have a different training topic. We created an app in Fulcrum where we put the training documents so the field team can access them as a reference file. We then have each worker sign off on the material, acknowledging their receipt and that they understand. We also use Fulcrum for daily job briefings which is really helpful. It makes our safety manager happy too."

Supervising at a distance

Fulcrum allows new workers to ease into their jobs after completing training – alone but still under the watchful eye of a manager. Stroud explains, "After weeks of training, we'll turn the workers loose to work on their own. Throughout the day, a manager will monitor the data they're returning, and perform real-time quality control." Any mistakes in the work process are able to be uncovered early for quick correction, while the team member is still in the area. "It really helps us to gain confidence in the new worker if they're doing everything right, or fix things if they're having problems."

Fulcrum also allows each supervisor to manage teams in different locations, monitoring work performed, and offering further guidance or instruction as needed. "It basically lets our managers be in several places at once because they're working with teams all over the place. They're sending back stuff electronically, and monitoring everything that's being done without actually being over the person's shoulder watching."

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Looking forward to Esri improvements

As a power user of Esri, GeoForce is excited about the possibilities that Fulcrum’s integration with Esri provides. “When we’re doing pole inspections, we use vector data to mark the wires, and we color code the wires so crews can follow the wires to the corresponding circuit. We had to use a third party application to get these wires loaded as rasters into the Fulcrum application,” says Stroud. “And this is very cumbersome and wastes a lot of time. One tile export can take three to five days to create, and we have to triage what needs to be loaded first because it takes such a long time.”

Tim Ferguson, Manager of Client Solutions at GeoForce, agrees that upgrades allowing the direct transfer of data files as rasters will be a game changer. “The Esri integration is going to be a big help, so we’re not wasting literal days putting in layers.”

In addition, the Esri integration gives GeoForce much more control over the look of the map features such as points and wires, and is able to add annotations and labels. “We love that we’re able to make maps look how we want with a process that’s faster and much more dynamic.”

Another new GIS feature that GeoForce is anticipating is the ability to create polygons natively in Fulcrum. “There are times when we’re doing tracking for another company, for example, that is doing tree trimming along a route. We end up drawing a box around areas that needed to be done, using a workaround on the older system,” says Stroud. “There’s a definite value in not having to go out of Fulcrum to do this type of annotation.”

Conclusion

With Fulcrum, GeoForce has a partner that allows it to outshine its competitors by collecting data that’s more accurate – and more timely. Fulcrum’s flexibility lets GeoForce integrate with whatever platforms necessary, while customizing every facet of the data collection and reporting process to create a bespoke product for each client. And finally, new geospatial capabilities made possible by the Fulcrum-Esri integration means that GeoForce is able to incorporate GIS data in less time but with more features. As Stroud says, “As a contractor, when someone calls and says, ‘Can you do this?’, the answer is always yes. Then we have to figure out how to make it work. With Fulcrum, we’re confident that we can do whatever needs to be done to get the job completed.”

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