

Practical Management of Field Surveys

Prepared by Trent J. Keenan, PLS & Kristina Poulter

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Managing field surveys is challenging. And the bigger the organization, the more chaotic it can get. With multiple crews, dozens of jobs, and varying equipment needs, it can be a lot to keep track of.

Landon Blake is the President and Senior Land Surveyor at [Redefined Horizons](#). He lives and works in the California Central Valley and is a certified federal surveyor and UAV pilot.

He also has experience organizing field survey crews. In fact, at a previous position, he created a role that was solely meant to streamline the field survey process: the role of a Field Coordinator.



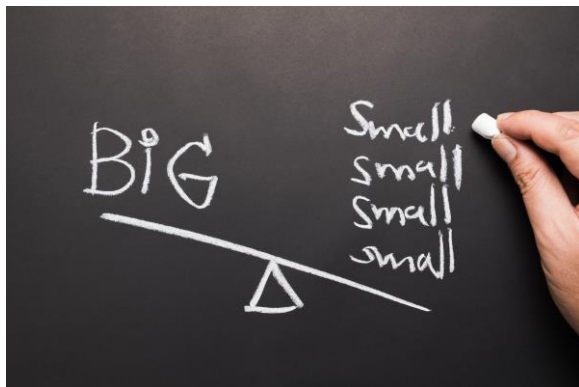
While not every organization requires a Field Coordinator, Landon explained on a recent Mentoring Monday's virtual meeting why it is critical to consider at large organizations.

"It's really hard to run a good surveying business," Landon said. "When I say business, I mean organizations. It could be a public sector organization. It's just really hard to run an effective well-oiled machine as a land surveyor."

When issues arise in the field survey process, it can usually be traced back to a communication breakdown between the field crew and the office team.

After watching the same problems arise again and again, Landon became dedicated to trying to fix those recurring issues.

How organization size impacts field surveys



It might be easy to assume that a field survey is just a field survey, no matter the company. But the truth is, field surveys are exponentially harder to organize at larger organizations.

I tell people it's 50x as hard to run a 20-person firm as it is a ten-person firm," Landon said. "You double the number of people that the management headache doesn't double – it triples or quadruples."

Landon founded his own small surveying firm in 2020, but before that, he worked at much larger operations.

At Redefined Horizons, things are relatively simple. Landon is able to get his boots on the ground on every single job. This means that he no

longer needs to prepare field packages. As the senior land surveyor and owner, he is personally integrated with all of the fieldwork.

"It becomes really important when that licensed land surveyor gets one or two or three layers removed from the actual fieldwork," Landon said. "As a licensed surveyor and responsible charge, you better have a system in place to manage your fieldwork. And you should probably really have some written guidelines that your crews follow."

Why written guidelines are important

By written guidelines, Landon does not mean a general checklist. He suggests a specific written handoff on every single field survey assignment.

Why is this important? First off, it will help to improve the quality of your work and streamline your day-to-day workflow.

Secondly, it will give you written proof if you are ever called to the board or by an attorney to prove that your responsibility on a project was fulfilled.



Landon recalls a conference presentation he attended some years ago. The presenter was both a land surveyor and an attorney.

"He said the worst part at his job was having to defend land surveyors in a lawsuit that were poorly dressed and poorly documented," Landon said. "You don't want to be that guy."

Avoiding that scenario means documentation on every survey. It means being able to go back and show the written handoff, crew instructions, and checklist.

"If you can't be the LS on the ground, I think you better have some systems in place," Landon said. "As organizations grow in size, the need for this kind of structure gets more and more important."

Inspiration for the Field Coordinator role

When Landon first started working at Rodale Engineering, his first 90 days were spent in observation mode. And what he saw was not pretty.

The company was doing \$3-5 million a year with surveying work. And there were zero organizational systems in place.

When his boss made him survey manager, the very first thing Landon did was determine that a central person, or Field Coordinator, would be in charge of managing surveys. In the beginning, that person was Landon himself.

"I don't think I invented the role. I don't want to take credit for that," Landon said. "But it's something that I had never seen before."

How it worked was simple in theory: If project managers needed a survey crew, they had to go through Landon to schedule it. Whether they were civil engineers or surveyors, they were responsible for telling Landon what they needed and when.

How to select a Field Coordinator

The ideal candidate for the Field Coordinator role is somebody who the field crews can respect. Somebody who has paid their dues and understands how things work out on the job site.

They also need to be comfortable behind a computer, even if that means they are typing with two index fingers.

"In a lot of organizations, you get somebody that has got a bachelor's degree and you kind of put them in charge of the field crews and they haven't earned their stripes," said Landon. "I've seen that fail more than one time."

Field Coordinator is a full-time job

When Landon started his new program, the results were clear. Things were smoothing out and working great.

But Landon quickly burnt out working 75+ hours per week, as both survey manager and makeshift Field Coordinator. Eventually, he brought in someone new dedicated to running the coordinator duties.

"I was just dying. Because I was trying to run projects, do business development, and run these crews," Landon said. "That's the bottom line. If you don't have a full-time person dedicated to running those crews, your organization is probably a disaster."

The amount of management that goes into properly running eight people, or four crews, is significant.

Your Field Coordinator does not have to be a land surveyor. But they should be given the benefit of a full-time position in order to do the job right.

Field Coordinators have to be consistent

The secret to success when you have a Field Coordinator is to require everyone to follow the same rules – no exceptions.

Yes, there will be some major growing pains as team members adapt. There can very well be pushback. But if you don't enforce the process, the process will break down.

"For the first 60 days, guys would call my Field Coordinator and say, Hey, I need a crew in two days to do X and they wouldn't have the requests," Landon said. "I had to teach my LS you don't get on the schedule without the written request, period."

The first couple of times, this resulted in crews being late with client work because they hadn't gotten things scheduled. Eventually, everyone was trained to follow the new protocols.

Some were fast learners, and some were more stubborn. "There's always one or two guys and they're just like, you know, they bring you a burrito wrapper with some permanent marker on it, you know?" Landon said. "They were just, it was a constant problem, and we had to keep kicking that stuff back."

Even after Landon replaced himself with Brent, a new dedicated coordinator, he made sure to follow his own rules. If he wanted a field survey, he didn't get to just call his favorite group. He scheduled through the coordinator like everybody else.

Part #1 of the Field Coordinator role: tracking future requests

Fifty percent of the Field Coordinator's job is what has been alluded to above – scheduling requests for future field survey work.

At Landon's old firm, this consisted of a one-page form. On the form was all the information that the field crew was going to need: the starting point, the number ranges, the existing control, a sketch of the mapping limits, and contact per site access.

"There's all this stuff that the crew needs to do their job," Landon said. "And so the LS, when he would go to get his work on the schedule, you would have to go to Brent."

With multiple civil engineers and licensed surveyors going to the coordinator to request field work, it's important to have a good system in place to take those requests.

Landon also noted that if you hire a non-licensed surveyor for the coordinator role, you really need to have their back during the growing pain stage of the process.

"Everybody in that organization has to know that you as a survey manager have his back," said Landon. "Those licensed surveyors got to know that when your field coordinator says, 'Hey, I don't have a survey request. You're not getting on a schedule,' that they're not going to get around that requirement."

Part #2 of the Field Coordinator role: quality control



In addition to scheduling future work, the Field Coordinator is also responsible for coordinating questions between the LS and the crew and conducting a thorough QA/QC upon completion.

Questions would often arise in between survey scheduling and survey completion. For instance, crew members would need to clarify things like which street had dips, if there was survey grade stakeout for the boundary, etc.

The coordinator can ensure that the LS requesting the survey is aware of the crew's questions, and get them answered.

Managing QA/QC

Once a crew returns from the field, the second half of the coordinator job really comes into play. Landon's coordinator used a big checklist of things the crew was supposed to bring back to the office, such as field notes, data, and collector files.

The coordinator would check the data into Trimble business center and see if crews had used coding and run their linework.

"You can't believe how freaking hard it was for me to get crews to rely on, you know, did they use lime or did they cover the mapping," Landon said. "So he did a thorough QA/QC." This process could easily take 1-2 hours depending on the project.

If something was amiss, the coordinator would notify the licensed surveyor. They would get the crew scheduled to go back to the job site and make any corrections.

Landon found this part of the Field Coordinator role to be critical. Because if a coordinator wasn't doing this process, it often wouldn't get done at all.

"My average LS project manager in that organization was too busy to take the time to do that QA/QC. They were supposed to be doing it, but the reality is they weren't doing it because when they got busy. The very first thing that got pushed was that QA/QC."

This point drives home Landon's earlier point that a Field Coordinator role is a full-time job.

Other duties you can assign a Field Coordinator

In addition to scheduling surveys and conducting QA/QC, you can leverage your Field Coordinator to help with other important tasks.

In Landon's case, his coordinator was also:

- Tracking all equipment maintenance
- Tracking firmware on all the data collectors and toll stations

- Figuring out when batteries needed to be replaced
- Managing maintenance on all survey vehicles
- Taking care of the registration and insurance on the survey boat

Delegating these additional tasks did more than help justify the existence and salary of the coordinator role.

First, they also cleared Landon's own plate so he could focus on high-value tasks as the survey department manager.

Secondly, the company soon saw a huge improvement in the quality of their work product.

"We eliminated a bunch of the problems that we were having between field and office," Landon said. "It was great because he made sure that the project surveyors were given a good handoff. And he made sure that the field crews were coming back with a good product."

A good system lets you hold people accountable

Finally, having a secure system in place means that you can begin to hold employees accountable.

"I frequently tell people when I talk about this project, sure, you give your field crew a napkin sketch for handoff, you deserve the pile of horse manure they bring back. That's the deal, right? It's a two-way street," said Landon.

You'd be surprised how much money is lost due to employee mistakes. And when those mistakes are allowed to pile up without consequence, it means the dollars continue to disappear.



Landon recalled instances of sending a crew 1.5 hours away to the Bay Area, only to have them return without getting the manholes done.

Sending that crew back again is pricey. In fact, field crew time is the most expensive time in a survey organization, if you break it down by hourly rate. To make things even more challenging, sometimes crews were already booked for subsequent days, making a quick return to the site impossible.

With a written field package, you can trace the mistakes back to their sources and dole out reprimands and consequences.

"They used to call me the checklist Nazi. I'm not saying you gotta bury people in paperwork. That's not what I'm telling you to do," Landon said. "If you can't hold people accountable, you can't fix the problems, right. That's the bottom line."

Preparing a field package

Landon also described the value of preparing a field package prior to each job.

At a minimum, Landon would complete a road safety review for any job taking place on the roadway. This consisted of a one-page form listing the speed limit, presence of a median, shoulder condition, typical traffic, a photo of the control point, and any special instructions.

Most of the time, surveyors don't think about logistics like that. They just have an address for the survey site and they drive over.

"I always had a little exhibit for every survey, an 11x17" exhibit with an aerial background with some standard notes," Landon said.

He also is a fan of sending the crew out with some kind of TBC file or data collector file, ready to go. These days, his team usually uploads the KML files right into the job file. Modern technology like cell phones and tablets makes this easier than ever.

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