
Scott County GPS Corner Survey Questions and Answers

March 28, 2007

Q: Our company doesn't typically give our financial details out. Is this okay?

A: Please know that any financial information will be treated confidentially. This is only shared among the selection committee members. Financial information is used for the purpose of evaluating the health of the company, which we feel to be a prudent step since this is a multi-year project. If a typical income statement is not available (private companies operate differently than publicly traded companies), we can accept an income summary statement or the most recent year's profit-loss statement. In general I would encourage you to provide some financial data even if you are not comfortable supplying a full blown report. It is of course your prerogative not to share any financial information (we will still accept responses from firms who omit this). However, we typically apply a small penalty in our ranking process as a result.

Q: In the Project Overview, the Consultant is asked to provide State Plane Coordinates, and "elevation". This is again requested in the Project Specifications item 5. Item 5.b. requests that the elevation be referenced to NAVD88 and "should meet or exceed 3rd-order accuracy"; Table 1 from the Draft FGCS Guidelines (August 1, 1989) is shown for informational purposes. Please note this Table only relates to horizontal control not vertical. As you are well aware GPS yields very accurate "ellipsoid" heights which are not "orthometric heights" and therefore not referenced to NAVD88. The National Geodetic Survey (NGS) publishes a Draft Guideline for Establishing GPS Derived Orthometric Heights Version 1.4 (for 2cm and 5 cm standards) dated October 2005. My question is this – Do you really need good orthometric heights? It is an expensive campaign to follow these guidelines. We have been involved in our own heights by GPS research for many years. Please note a Paper we presented at ACSM in 1996 is referenced in the "References" section of the Draft Guidelines I just mentioned. Furthermore great experience is required even using today's more accurate geoid models to meet the 2 cm or 5 cm standard. Either of these do not meet the requested "3rd-order accuracy, by definition. If the orthometric heights are going to be used as a QA/QC or Ground Truthing technique for a County wide contour mapping project, then this approach is logical, albeit costly. If this is the case, the only way to insure that all respondents are quoting similar services, is to require the work to be done in accordance with the Draft Guidelines.

A: We have come to the same conclusion that 3rd order vertical is unnecessary given the nature of the project. I hadn't realize the added effort and costs associated with establishing 3rd order vertical control. Besides that, our typical corner monuments/pins aren't designed as vertical control monuments. It would therefore make very little sense to collect highly accurate vertical unless we wanted to re-monument everything. However having said that, we did feel that it was marginally useful to have some sort of vertical on each corner, so we've reworded the vertical requirements to reflect a more reasonable approach. The revised section 5.b. now reads:

"Vertical measurements will be referenced to the existing North American Vertical Datum of 1988 (NAVD88) GPS monuments in the Scott County Network. Vertical elevations shall be transferred

from the existing network monuments utilizing GPS techniques and the Geoid 2003 model to produce NAVD88 orthometric elevations for each project corner. (§ Revised 3/22/2007).”

Your point about requiring work to be done in accordance with the draft guidelines is well taken, however we did stop short of requiring that. Without understanding the various effort levels involved in either 2cm, 5cm or some other vertical accuracy standard we plan to rely on the responding firm to suggest and explain their preferred approach. If you would like to incorporate a couple of options into your response for vertical accuracy in order to address the uncertainty that would be fine.

Q: Paragraph two (2) of the Project Overview indicates the number of corners will be between 200 to 500. That is enough of a spread to make a difference on the unit cost due to economy of scale. In other words, if Consultant A assumes 200 corners and Consultant B assumes 500 corners, it is likely Consultant A will have a higher unit cost. Is it logical to have all respondents assume the same number of corners to compute their respective unit costs?

A: We do not know how many corners we will capture. We plan to use corner costs identified in the project RFP responses to help determine how many points we can afford to capture. If it will help, we anticipate a project budget of somewhere between \$100,000 and \$150,000 but that is just an estimate. If you would like, you may breakdown your price per corner according to the number of points collected. For example, at 200 points cost per corner is X, at 400 points, cost per corner is Y, etc.

Q: Item 3. of the Project Specifications requests that ties for PLSS Corners be made with iron pins and witness posts where more durable physical objects cannot be used. Again for uniformity, what size iron pins and what type, size and material witness posts should be assumed?

A: We don't have any particular expertise with survey marker sizes and materials and will defer to the survey company to suggest appropriate materials and markers to be used in the project, with the requirement that they meet existing industry standard practices. Since there may be variations in the costs associated with different types of markers, we suggest that you describe advantages or special considerations of the markers that you identify in your response. For example, if your chosen marker is the cheapest available, we would expect that you might mention the cost savings and the trade offs in terms of durability or quality. If you choose higher quality pins and witness posts, we would like to know the costs and benefits associated with them. In short, we would ask that you make a recommendation based on your knowledge with these types of projects. During interviews and contract negotiations, some project details such as marker costs and types will be further examined and perhaps changed as a result of discussion.

Q: The horizontal reference in the Project Specifications item 5.b. is requested to be “1996 HARN NAD83”. Is there any thought of moving to the new adjustment NAD83 (NSRS 2007)? There may be some slight savings in using CORS for both QA/QC and post processing with precise ephemerides.

A: I'm not very familiar with the new NAD83 (NSRS2007) adjustment. I've heard that there are advantages to this system related to having both a network and local accuracy measure and that it will include both HARN and CORS positions. Are there any consequences of using this adjustment given the fact that our current control network was adjusted to NAD83 (HARN96)? If you recommend using the NAD83 (NSRS2007) adjustment for our project, it would be helpful to explain the benefits and implications of doing so.

Q: The project schedule suggests that “geographic increments” will be used to deliver the survey. Further that the schedule will “mirror the mapping project” lasting from April 2007 to October 2008. While it is possible to stretch the work out that long, and it is possible to design the

observation network to deliver the product on a geographic basis, that is not the most efficient and therefore not the least costly approach. The final deliverable is most easily accomplished with a final overall countywide minimally constrained and fully constrained adjustment. Also, if NAVD88 Heights are required, that should be done on a countywide basis and I would recommend that it not be done in geographic increments.

A: There are a few reasons for having the survey schedule follow the mapping schedule. First, since the project is not to collect ALL corners, we must have enough time and opportunity to review subdivisions, plats of survey and other source material prior to survey to determine which points to collect in any given area. Schneider will begin scanning and linking source documents to sections or other geographic areas very soon, but it is unlikely that we will have the time to adequately review source documents far enough in advance to allow for a continuous survey collection effort.

We are also unlikely to be able to mobilize and sustain the staff levels that would be necessary to pre-mark the corners to support a single, continual survey project. The only realistic way to meet a more demanding survey schedule would be to cut back dramatically on the level of pre-marking that would be done and...skipping pre-marking in favor of a shorter schedule might actually be more costly.

We also believe that there is some advantage to having concurrent schedules because the surveyor, parcel conversion technician and county staff will all be working on the same area within a few weeks of one another. If problems or questions arise, it will likely be much easier to remember and respond to issues given the fact that everyone is working on the same area at more or less the same time. If there are months between individual work tasks, that collaboration may be more difficult.

Having said that, there may be opportunities to accelerate the pace of survey to everyone's advantage and we are open to those possibilities. Also the point about having a final countywide deliverable could be something that we do at the end regardless of whether we have used incremental coordinates or not. The parcel fabric could be adjusted at the end to conform to a countywide adjustment.

FOLOW UP NOTE: Some survey firms responding to this RFP have discussed the idea of having a final overall correction applied to the section corner positions (in addition to the incremental adjustments by mapping area). The suggestion is that a final countywide adjustment would increase accuracy (though existing control would be held fixed). Others have stated that there is no reason to perform a final adjustment because we are already tying our corner positions to the existing countywide control network. There seems to be some room for interpretation on that point (whether a final adjustment is necessary) so I will leave it up to you to address that issue in your response if you so choose.

From a mapping perspective, we will still need incremental deliveries of section corner positions to support parcel conversion. So regardless of whether there is a final adjustment or not, there's no obvious way from my perspective to get around the requirement of also having incremental adjustments.

Q: We have an approach that could save the County money. Should we offer that approach as an alternate and give you two quotes, or one per our recommended approach.

A: It would be best if we were given a single quote based on your preferred approach. Having two separate quotes would be helpful in some ways, but when comparing responses from several firms, it may become quite complicated if we start recommending multiple quotes. What if a firm decides to submit five or six quotes based on different assumptions? That's probably very unlikely, but as one of the people who will evaluate the RFP responses, the possibility scares me!

That said, there are some areas of our RFP that are vague and/or open to interpretation. For example, do we have 200 points or 500 points? What material do we use for our ties, corner markers and witness posts? My recommendation to deal with the alternative quote/cost issue is to:

- Describe important project assumptions in the Technical Approach section, and...
- Include any relevant pricing alternatives in the RFP Addendum (see page 30 of the RFP).

For example, let's assume you plan to use high quality survey materials for ties and other markers. You would explain your decision to use these high quality markers in your Technical Approach section. If you wanted to identify that lower quality markers would reduce costs by \$4.00 per corner, you could document that in the RFP Addendum.

Q: Will the County avoid those Section Corners that require excavations of a few inches or more or pavement?

A: Generally speaking, we will avoid collecting those corners that are particularly difficult to recover for any number of reasons, one of which would be depth. So along those lines, we may perhaps omit those that are buried more than a foot or so. However we won't ultimately know how deep is too deep and that sort of thing until we are out in the field actually pre-marking the corners.

Exact protocol still needs to be finalized but our current plan is for field staff to locate and expose either the actual corner monument (or raised marker) so that the survey firm can easily occupy the position. For relatively shallow corners, we will expect the survey firm to replace excavated material immediately after they have finished occupation. There will be some corners that will not be pre-marked (Bettendorf) and in those cases it is the survey firm's responsibility to locate, expose, occupy and replace the excavated material.

Q: Who would be responsible for repairs to the larger / deeper excavations?

A: While most deeply buried corner monuments will be omitted, there could be the occasional exception. In those cases the county will either compensate the survey firm accordingly for repairing the hole or will take the responsibility for patching it. In cases where excavated corners warrant warning signs or barricades the county and/or survey firm will mark them accordingly.

Q: How will payment(s) to Consultant be structured?

A: This will be addressed during contract negotiations but typically for a professional services contract of this size, the county is invoiced at intervals according to the amount of work completed. Billing may be monthly or quarterly or at some other agreed upon interval.

Q: RFP states Consultant is responsible for preparing new Corner Certificates, as needed. Will the County waive the \$7 recording fee, or will the Consultant be responsible for payment and submit for reimbursement?

A: Yes the county will waive the Recorder's fee for filing corner certificates related to this project.

Q: Will there be adjustments on each individual mapping area, or only the entire County when completed? *

A: The current project schedule requires that we have corner coordinates available for mapping and delivered on an incremental basis. Therefore, the corner coordinates must be adjusted on an area-by-area basis as well. Some firms have suggested that a final adjustment of all PLSS corners would increase accuracy.

*** Please refer to earlier “Follow up Note” on page three of this document.**

Q: Are digital photos to be provided to the County on disc, or printed album with an index?

A: We would like to have all images delivered on disk in an image format like JPG or TIFF. We will create a naming convention for digital photos so that they can easily be linked back to the corresponding section corner. We would also like to have the images included in a final survey accuracy report (something along the lines of how the Scott County GPS Survey Control Network Monument Site Pictures document was organized would be fine).

Q: Can you tell us what your budget is for this?

A: Yes, though it is a ball park figure at this point. We anticipate spending between \$100,000 to \$150,000 on this project (subject to change). The project is fully funded. We did not include this in the RFP because we weren't sure how many corners we would collect and preferred to “back into” the number of corners once a per corner price was established.

Q: Do we need to submit corner certificates for all corners that we collect?

A: That is our expectation. However, some surveyors have suggested that corner certificates that have been field verified and found to be accurate and complete may not require re-certification. I don't have a problem with not recertifying every corner as long as the process followed is an accepted practice according to any applicable professional standards (such as the excerpt from Chapter 12 of the Iowa Code that was included with the RFP). At any rate, I believe that this may be more of an issue for the survey professional to address.

Without getting too far off track with this response, there was also some discussion about what it means to file a corner certificate. Essentially when a corner certificate is created, the surveyor is making a statement and gives evidence to support his/her conclusion that the corner monument described on the document is in fact the actual corner. An issue raised was whether surveyors on this project would accept the existing monument records and corner certificates as adequate evidence for the true corner position or whether additional research would be required to make that determination.

Again I think the answer to this question is more within the authority of the responding survey firms to address and we will defer to your expertise on the matter. In my unprofessional opinion, I think that existing corner ties and certificates would suffice if they were found to be reliably intact. We would then just document that the surveyor was using the previous corner monument records or corner certificates as the source for determining what the corner was. That said, it is possible that some corners collected may wind up having bad ties or other quality issues and therefore require research or other survey methods to verify corner locations. These corners would be classified as either obliterated or lost. It may also be possible that some undocumented corners would be included in this, but I believe that they would fall under the category of “lost” corners if no monument records or corner certificates were available. Going back to the idea of skipping “difficult” points...many of these sorts of corners may be omitted.

Q: Do we deliver data in an ESRI GDB format. If so, do you have an existing data schema or other design requirement?

A: Yes we would like the data in GDB format however if you are unable to deliver the corner data in this format, we can work around that issue. With respect to whether we have an existing schema...the answer is no. We do have several corners in GIS format now, but the data schema is temporary and will be modified to support this project. If you have suggested data models or ideas about how to design the GDB, please feel free to communicate that in your response.

Q: Do we want reports at each stage or only at the end.

A: We would like standard accuracy information from each adjustment with each deliverable, but do not expect a formal report at each stage. So for each deliverable there might be an excel file or some other database that typically gets generated with your adjustment process...that is what we want for the incremental deliveries. A formal report is only expected at the end of the project.

Q: How do you see the survey workload being distributed?

A: This is yet to be determined, but we expect that there will be survey work increments of perhaps a week at a time, or at least several contiguous days. I don't expect there to be a hop-scotch work schedule where survey crews might work a half day, then be off two days, then come back and work two days...etc. For the sake of argument, let's assume that each area will take four weeks to complete from pre-marking, to surveying, to mapping and then finally to county review. Of that four week period, there may be just one solid week of surveying.

Q: For the rapid static survey, do you prefer that we use one base or two?

A: We will leave this up to the survey firm to recommend their preferred approach.

Q: Who is on the review committee?

A: The review committee will be composed of our GIS Technical Committee and Dan Corbin of Dan Corbin, Inc. based in Cedar Falls, Iowa. We may include a couple of others on our review committee before we're through, but right now these are the people we've identified. Below is a table showing the composition of the Technical Committee.

SCOTT COUNTY GIS TECHNICAL COMMITTEE			
First	Last	Title	Department/Office
Pam	Bennett	Office Supervisor	Sheriff
Sue	Brewer	Operations Manager	Recorder
Jon	Burgstrum	Engineer	Secondary Roads
Cathy	Creighton	Deputy Assessor	Assessor, Davenport
Dale	Denklau	Assessor	Assessor
Jack	Hoskins	Env Health Specialist	Health
John	Grimm	IS Coordinator	Bettendorf IT
Kathy	Hinrichs	Tax Deputy	Auditor
Matt	Hirst	Director	Information Technology
Kevin	James	GIS Analyst	Davenport IT
Mitch	Tollerud	Webmaster	Information Technology
Ray	Weiser	GIS Coordinator	Information Technology

Q: We have some questions about some of the items in your standard terms and conditions. Who do we contact?

A: Please contact our Risk Manger, Rhonda Oostenryk at (563) 326-8293.