



## FEATURE

# Do Surveyors Need an Alternative to CAD?



## Traverse PC and its customers talk about the No CAD Zone

Tom Gibson

**M**ost surveyors know that CAD has revolutionized drafting and plays a huge role in arenas such as civil and mechanical engineering drawings. But they also realize that while it has adapted well to surveying, it's not the end-all answer for everyone.

In response to the concerns some surveyors have with CAD, Traverse PC (TPC) in Florence, Oregon has developed its TPC Desktop surveying software, which it advertises as the No Cad Zone. In addition to developing surveying software such as this, the firm still runs its own surveying business, doing hundreds of surveys a year. President John Balcom says like many of you, they've tried CAD for surveying and have seen problems inherent in CAD for surveyors. "Move an entity and its coordinates change, change scale and the text size changes, multiple lines over the top of each other, trimmed lines have a different length than untrimmed lines and wondering which point you actually picked off the drawing when you snapped to something. The list goes on."

According to Balcom, third-party CAD add-ons and surveying software based on CAD engines still have to deal with these inherent CAD problems. They use words like 'Auto update' and 'avoidance,' leaving you to wonder what doesn't get updated and what else you need to avoid. John Lewis, a TPC Desktop user from Meadows of Dan, Virginia puts it succinctly when he says, "Surveyors aren't

compatible with AutoCAD." Balcom explains, "The result of using CAD for surveying is that all too often it takes more time, training, and money to do a drawing than it should. And with the cost and pressure to stay current with CAD software, many surveyors are looking for alternatives."

Traverse PC's solution is the No CAD Zone. Because TPC Desktop isn't built on somebody's CAD engine, it's not encumbered with the inherent problems of CAD, Balcom says. "In the No CAD Zone, you can 'drag-n-drop' the survey anywhere on the page without changing the coordinates, or change scale and the text size stays the same. Because it's designed specifically for surveying, each point and line can only be drawn once, and trimming a line for symbols doesn't change the line length. Smart Drawing Objects like legends, title blocks, tables, and scale bars automatically update themselves as you edit a drawing."

"We have designed TPC Desktop to reduce drafting to a byproduct of the work you do - surveying," Balcom goes on to say. "Once you have the pieces of a survey put together, you'll find that most of the drawing is already done for you. The same traverses you used to develop the survey turn into a drawing you can quickly and easily wrap up as you get on to the next project."

Of course, Balcom claims, the No CAD Zone can still communicate with the CAD world when needed. It reads and writes DWG and DGN files with support for xrefs, attributes, layers/levels, blocks/cells, hatching, entities/elements, and more. "Write a DWG or DGN file from a TPC Desktop drawing, and you can hardly tell it wasn't done in AutoCAD or MicroStation. And for your non-CAD clients, TPC includes dozens of popular graphics formats like PDF, TIFF, JPG, and PNG."

In an interview, several TPC Desktop users described their experiences with CAD and the No CAD Zone.

**Dave Terry**  
**Pacific Gas & Electric**  
**Anderson, CA**

Dave has worked at PG&E for 29 years and is currently senior inspector directing and coordinating construction and planning surveys statewide (PG&E's service territory) for PG&E Power Generation. He also coordinates and directs diving operations across PG&E's service territory in lakes and waterways, on and off shore.

**Q:** How long have you used Traverse PC?

**A:** Two years

**Q:** What CAD software have you used in the past for surveying?

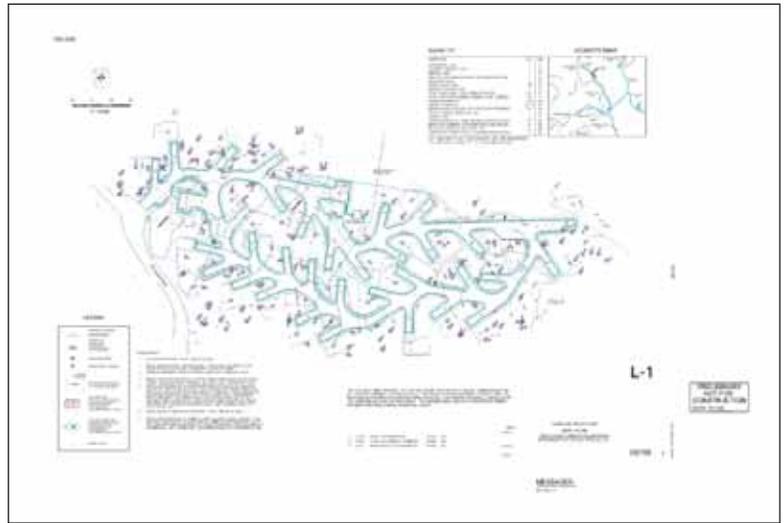
**A:** Bentley Microstation, Microsurvey CAD

**Q:** What do you think of using CAD software for surveying?

**A:** The uploading and processing of data in CAD is more labor intensive, as is the learning curve to become proficient with the software. Downloading useful, efficient data for field work is likewise more labor intensive.

**Q:** What do you think of using TPC's No CAD Zone for surveying?

**A:** First, the program uses processes similar to and supportive of Microsoft products, greatly enhancing efficiency and reducing the



*Dave imported this drawing from MicroStation so he can work with it in TPC*

learning curve when beginning. Additionally this affords the ability to process various forms and formats of data in familiar Excel and Word formats. The program is extremely flexible in its ability to read and write to DGN, DWG, DXF, JPG, and PDF etc.

The thought process for work layout and processing is as flexible and infinite as your imagination. It is not necessary to adopt a process that someone else has determined.

**Q:** How does TPC's total cost of ownership compare with CAD?

**A:** The overall pricing of maintenance and support is extremely agreeable

**Steven S. Brosemer, LS**  
**GeoTech, Inc.**  
**Emporia, KS**

A licensed land surveyor since 1980, Steven is the son of his mentor, the late James H. Brosemer. He has owned GeoTech for the last 22 years.

**Q:** How long have you used Traverse PC?

**A:** Since 1990?

**Q:** What CAD software have you used in the past for surveying?

**A:** Eagle Point (R12) for Windows and AutoCAD LT 2007

**Q:** What do think of using CAD software for surveying?

**A:** It lacks a true coordinate geometry program without expensive add-ons and non-surveyor-intuitive programs. TPC's straightforward interface makes computations a breeze.

**Q:** What do you think of using TPC's No CAD Zone for surveying?

**A:** I like the absolute seamless integration between AutoCAD and Traverse PC. Also the ability to produce contours from raw data and to easily and rapidly convert AutoCAD draw-



*Steve did this ALTA survey in TPC Desktop then exported it to AutoCAD LT 2007*

ings to points in Traverse PC. Creating and exporting coordinates insures that staking projects have never been easier. And when I produce coordinates in Traverse PC and import them into AutoCAD, I know they are "rock solid!"; you don't have to worry if you snapped to the right place.

**Q:** How does TPC's total cost of ownership compare with CAD?

**A:** For long-time users, the upgrades are comparable or less. TPC upgrades truly add new features.

**William N. Whye, PLS**  
**Triad Surveys, Inc.**  
**Lower Burrell, PA**

William has been surveying since 1959, starting at 17 as a chainman for West Penn Power Co. (now Allegheny Power). He has surveyed in Ohio, Michigan, Texas, and Pennsylvania. He became a licensed surveyor (by examination, not “grand-fathered”) in Pennsylvania in February, 1994 and started Triad Surveys that year. Triad Surveys has been involved in large construction projects such as PNC Park, Heinz Field, and the David L. Lawrence Convention Center in the Pittsburgh area as well as ALTA surveys and simple lot surveys.

**Q:** How long have you used Traverse PC?

**A:** About 4 years

**Q:** What CAD software have you used in the past for surveying?

**A:** Eagle Point. Also P.C. Survey.

**Q:** What do you think of using CAD software for surveying?

**A:** Too complicated.



ALTA map by William Whye

**Q:** What do you think of using TPC’s No CAD Zone for surveying?

**A:** Easy to learn and use. Because it is designed by a surveyor for surveyors to use. It’s user friendly and intuitive. I think CAD was designed for engineering purposes and was adopted for surveying computations because of the relationship between coordinate geometry (x, y, z, where all calculations are based on some form of a triangle, even curve computations) and plane geometry (triangles, quadrilaterals, polygons, circles, etc.)

**Jeff Donahue PLS**  
**Washington State Department of Transportation**

Jeff has been in the civil engineering technician field for over 25 years. He received his PLS license in 2004. He has slung ink with the best of them and has watched CAD grow from infancy to what it is today.

**Q:** How long have you used Traverse PC?

**A:** Two years.

**Q:** What CAD software have you used in the past for surveying?

**A:** Mainly Microstation, some Inroads, and AutoCAD

**Q:** What do you think of using CAD software for surveying?

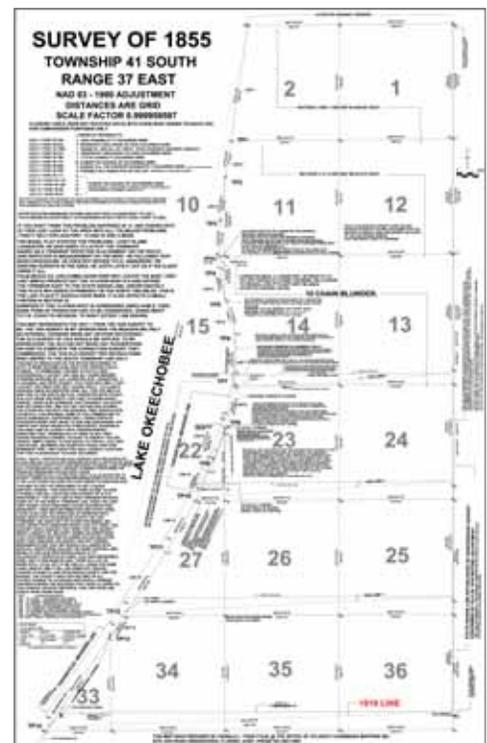
**A:** It is difficult to convert drafting programs with one another and feel sure that everything has converted the way they were drawn. Technology seems to change CAD programs overnight. I always seemed to be trying to figure out what the new update can do for me.

**Q:** What do you think of using TPC’s No CAD Zone for surveying?

**A:** All drafting programs have their own philosophy. The end product is the same, but getting there is a whole lot different with TPC. I like the use of traverses, surveys, and COGO in different traverses and then putting all the different traverses in one drawing. Downloading data seems easier. The adjustment program is the easiest of all programs I have used. The contour command is very easy to use and puts out some nice interpretations of what was shot in the field. I seem to be more intuitive toward what step I need to take in order to get to the finished project. TPC still retains the essence of surveying from the field to the drawing board. A new update with TPC is still good old common sense surveying.

**Q:** How does TPC’s total cost of ownership compare with CAD?

**A:** This is my first program I felt comfortable with buying on my own. ♡



This 1855 survey and its 19-chain busts has been 'one of those projects' for Donald Todd

**TOM GIBSON** is editor of the magazine.