December Workshops 2009

Our Carlson workshops the past couple of years have drawn great crowds, but we're changing it up a bit for 2009.

Join us on December 8th in Raleigh or December 9th in Statesville for joint presentations on Carlson Software, ESRI and IntelliCAD.

The cost is only $99 and lunch is included. NC licensed land surveyors and engineers will receive 7.5 hours of PDH credit.

Our special guests this year will be:

- Bruce Carlson, founder & President, and Scott Griffin, National Civil Sales Director, of Carlson Software
- Donny Sosa, Surveying Industry Specialist, of ESRI
- Felicia Provencal of ProCADD Hawaii and Carlson Connection

Join us for a variety of sessions and topics including:

- BIM, GIS and Carlson Software in the land surveying, civil engineering & construction arenas
- Making money with GIS using Carlson Software, ESRI and IntelliCAD
- What's new with Carlson 2010
- Surface Modeling with Carlson Software

Register Online for the Dec 8, 2009 Raleigh event here.

You can download the Raleigh NC announcement here.

Register Online for the Dec 9, 2009 Statesville event here.

You can download the Statesville NC announcement here.

Register by PHONE by calling us at 919.417.8351.

Register by MAIL by downloading and completing this form and mailing a check for $99 to PO Box 294, Clayton, NC 27528. Registrations by MAIL must be received 5 days in advance of the event.

Register by FAX by downloading and completing this form, faxing it to 919.573.0351 and mailing a check for $99 to PO Box 294, Clayton, NC 27528. Registrations by FAX must be received 5 days in advance of the event.

Our postcard advertising the event can be downloaded HERE.

BIM is not GIS

As someone quite entrenched in both disciplines (Civil and Architectural), I'll add my 2 cents worth on the BIM vs. GIS subject.

In my opinion, BIM and GIS are both "methodologies" rather than "products". The acronyms each have their own meaning and refer to designing, building, and managing information in a full life-cycle.

Each discipline has its own standards; from CAD standards to design standards (think of AIA vs. AASHTO), but both BIM and GIS rely on correct As-Built data to provide accurate information about their models.

BIM
The National BIM standard states the definition of BIM as:

"BIM is best thought of as a digital representation of physical and functional characteristics of a facility…and a shared knowledge resource for information about a facility forming a reliable basis for decisions during its life-cycle; defined as existing from earliest conception to demolition."

Autodesk has taken the BIM acronym that has provided a great deal of success with their Architectural Modelling packages and applied it to their Civil products as well. Their logic appears to be that its a "3D" product, therefore it is a "BIM" product. I believe that it is irresponsible to change terminology to simply advance product sales.

On the Autodesk Web Site, Autodesk lists a number of products as being "BIM" products:

- Revit
- Navisworks
- Design Review
- AutoCAD LT
- + several more

With the acronym meaning *Building Information Modelling* (with *building* being a *verb* **OR** a *noun*), its interesting to see products such as **AutoCAD LT** and **Design Review** being shown on the list.

Revit
Revit is a Design Tool that allows the storage of certain pieces of information as well as the ability to add custom fields (heating capacity, cooling capacity, etc.) to the actual objects.

Navisworks
Navisworks integrates information from multiple data sources to provide a cohesive collection of information (graphics and data)

to analyze things such as clash detection (HVAC duct work clashing with structural components, etc.).

AutoCAD LT
AutoCAD LT is Autodesk's low-end design package. Apparently, any DWG file creation tool is now a BIM product as well.

Design Review
Design Review is a light-weight DWF viewer and markup tool. While it has been used as a backbone of products such as FMDesktop, its neither a Design tool, nor a Modelling tool.

FMDesktop
Absent from the list is FMDesktop. FMDesktop was one of Autodesk's tools for managing the Building Information and Autodesk just dropped the product (***Note*:** There are dozens of Facilities Managent Products available that provide similar capabilities such as FM:Systems, Archibus, Tririga, Manhattan, Cadapult, Famis, and more).

In the 2006 – 2007 time frame (when Autodesk acquired FMDesktop), Autodesk themselves showed customers Power Point slides regarding BIM. These slides showed where the "Design", "Build", and then "Operate and Manage" processes were performed. FMDesktop was Autodesk's solution to tell the story of the building lifecycle and where the *information* was to be *managed*. These were broken down into 2 sections: The "Data Collection" piece and the FMDesktop piece.

Data Collection incorporated the Design (several disciplines such as Architects, MEP Systems Engineers, and Structural Engineers) as well as the majority of the Build process. The FMDesktop piece overlapped the Build process and then took over for the "Operate and Manage" process.

In my opinion, building that model of information **AND** managing

that information is the true test of a “BIM” solution. There is no 1 product that is a “BIM” product. Its a series of technologies that are incorporated to provide the “information”.

Ultimately, a database component is required to work with the graphical representation of data (which certainly could be referred to as the “Building Model”).

GIS

GIS is BIM’s counterpart whereby Geographic (position on the planet) information is being stored and managed.

Most end users might think of GIS solutions as Google Maps or Google Earth where they can enter an address and out pops a graphic representation of that location or directions on how to get there. The graphic is just the tip of the iceberg. Without the data, the graphic would simply be a pretty picture.

Just as with BIM data, GIS data utilizes design tools to build the graphics and As-Built data and then tools to expand upon the As-Built information.

While there are a number of individual products on the market to assist in the creation, manipulation and distribution of GIS data, a complete GIS system involves more than 1 product or techonology.

A couple of the common Design Products are: Autodesk Civil 3D and Carlson Civil Suite

AutoCAD Civil 3D

Civil 3D is an object-oriented design tool for Civil Engineering applications. Because the tool is object oriented, the end product is not easily distributable. The data can be transferred to other links in the GIS solution chain by using technologies such as LandXML, but the graphical interaction is lost in this

process (i.e. the objects are lost).

Carlson Civil Suite
Carlson’s Civil products work with DWG files in an AutoCAD or IntelliCAD DWG format. Because the data is stored as compatible DWG information with external data files, the data is easily transferred to other products in the GIS solution chain.

Managing the data developed in the design process is the next component of the GIS life-cycle. A number of products provide those solutions: ESRI ArcGIS, Vueworks, and Custom Mapguide Solutions.

ESRI ArcGIS
ESRI’s shp (shape) and adn (coverage) files are quite possibly the most prevalent GIS specific data files available and are often integrated in GIS solutions. ArcGIS allows GIS solutions to be deployed similar to FM solutions in the BIM world.

Vueworks
Vueworks is an organization that builds GIS and Work Management solutions using the ESRI base applications.

MapGuide
MapGuide is Autodesk’s development environment to build GIS applications. It is often used in concert with ESRI, Microstation and Autodesk data files.

GIS Standard
While there is not yet a concensus on a singular GIS standard, there are independent Spatial Data Standards employed by each digester of GIS data. You can view some of those here:

- Denver Colorodo Spatial Data Standard
- Oregon Spatial Data Standard
- Federal Geographic Data Committee

Both GIS and BIM perform very specific functions in accordance with their own disciplines. While the terminology is often mis-used, they refer to unique information systems; BIM in the structural facility world and GIS in the geographic world.

Originally posted on **Carlson Connection** by Jon Luby

BIM for Civil… Not

Several months have passed since I made my original post BIM This, BIM That… What is BIM?. In that time, I have asked a lot more questions, read a lot more on the internet and had a lot of discussions with Ladd and Felicia and also read the post by one of our commenters. I think I've developed a more concrete idea about BIM and how it applies, or doesn't, to the civil/survey world and where the various software packages stand in regard to their "BIM-ability".

Now, after all this additional information has percolated in my brain, I'm drawing two main conclusions:

1. It's a fact that the term BIM as it's always been used applies to actual **BUILDINGS** – the noun form of the word. But, more specifically, it starts with construction drawings/design data but then incorporates the as-built data and, over time, continues to grow and collect data through the entire lifespan of the building.

Nothing in all this discussion of "BIM for Civil" gets beyond construction drawings and design data of a civil project. Autodesk is trying to stretch the definition of BIM to cover Civil 3D even though they never move beyond the design process with it either.

Remember, we do not talk about “BM” or Building Modeling. And, we don’t work with “GS” or Geographic Systems. The “I” is THE critical factor. And the “I”, or Information, piece of BIM is so valuable because it chronicles and helps manage the building through its lifespan.

To be able to legitimately call what we’re doing with our Civil programs “BIM”, we would need to have a mechanism to attach some sort of database or information to the objects in our drawings.

I know, I know… that’s why Civil 3D is so great – you can attach data to the objects. But, remember, we’re talking about attaching ***AS-BUILT*** data to these objects. Even though we could attach data using Carlson GIS or AutoCAD Map or ESRI, it’s simply not part of our current project scope to go back into our construction drawings and update them with as-built data so that:

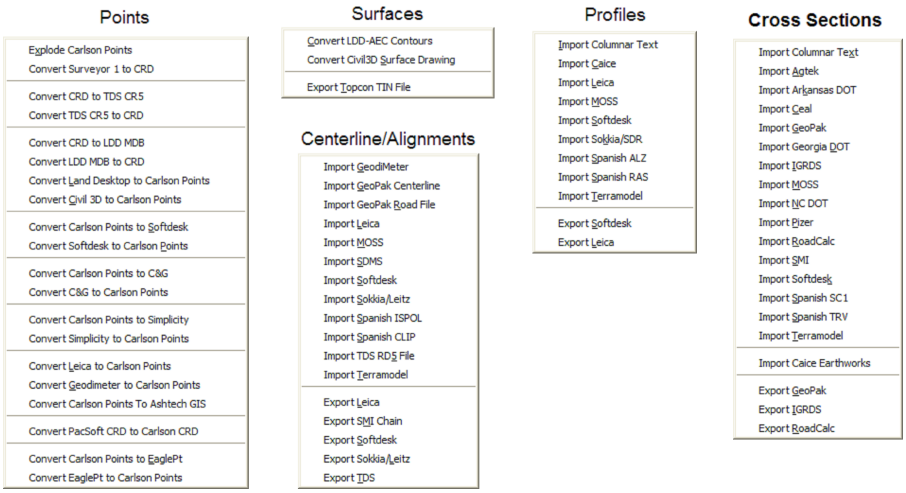
- maintenance schedules are attached to roadway template surfaces based on asphalt type,
- model numbers are associated to pump stations or
- inspection reports and flow rates are attached to fire hydrant blocks.

My conclusion here is that neither of these products – Carlson nor Civil 3D – meet the true definition of a BIM for civil. Until we start addressing the Information piece for the lifetime of a project, starting with the as-built data, using the term BIM is wrong.

In my opinion, if anyone has the lead on this in the civil arena, it’s ESRI.

2. Just because we don’t yet attach as-built data to our objects doesn’t mean that the data we do attach to our objects isn’t valuable. But, leading to my 2nd conclusion, why is it valuable?

It’s only valuable if it can be shared. And this is where I believe Carlson has the undisputed edge. The image below shows the number of formats and other programs that Carlson is able to import data from and export data to.



Originally posted on **Carlson Connection** by Jennifer Dibona

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Dewberry – Aligning Technology with Business Strategy

Some of you may have heard David Palumbo, PE, Technology Manager for Dewberry, at the Carlson User’s Conference back in April. For those that missed his presentation, his story has been published in CE News this month. Read about the process Dewberry used to evaluate new technology, its impact on their business methodology, and how they planned the roll-out and implementation. Regardless of the size of your company or the software you use, there are some good tips and pointers in this article.

http://www.cenews.com/article.asp?id=3928

Originally posted on **Carlson Connection** by Felicia Provencal

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Carlson Webinars – BIM, GIS and CAD Standards

Carlson Software recently asked Felicia and me to present webinars on topics we have particular interest in or specialize in.

Felicia's webinar on BIM, GIS and Carlson Software can be viewed here: BIM, GIS and Carlson Software Webinar

My webinar on CAD Standards can be viewed here: CAD Standards for Carlson Software with AutoCAD or IntelliCAD

Originally posted on **Carlson Connection** by Jennifer Dibona

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BIM, GIS and Carlson Software Webinar

Felicia Provencal's webinar for Carlson Software on the topic, "BIM, GIS and Carlson Software" can be viewed or downloaded here.

Dewberry Implements Carlson Civil Suite in 40 Offices Nationwide

There has been a lot of interest and discussion about Dewberry's decision to use Carlson's Civil Suite as their civil/survey/hydrology design package. Dave Palumbo, PE, Technology Manager for Infrastructure Services, has written an article for CE News discussing the 18-month process his team went through to come to their decision.

The article in CE News can be downloaded HERE.

That CAD Girl Presenting at the NCSS Institute, Nov '09

That CAD Girl will be presenting at the NCSS Institute in November 11-13, 2009

You'll have to wait a few months to see the full lineup, but I can confirm that I will be presenting a 3-day class at the Training Institute sponsored by the NC Society of Surveyors.

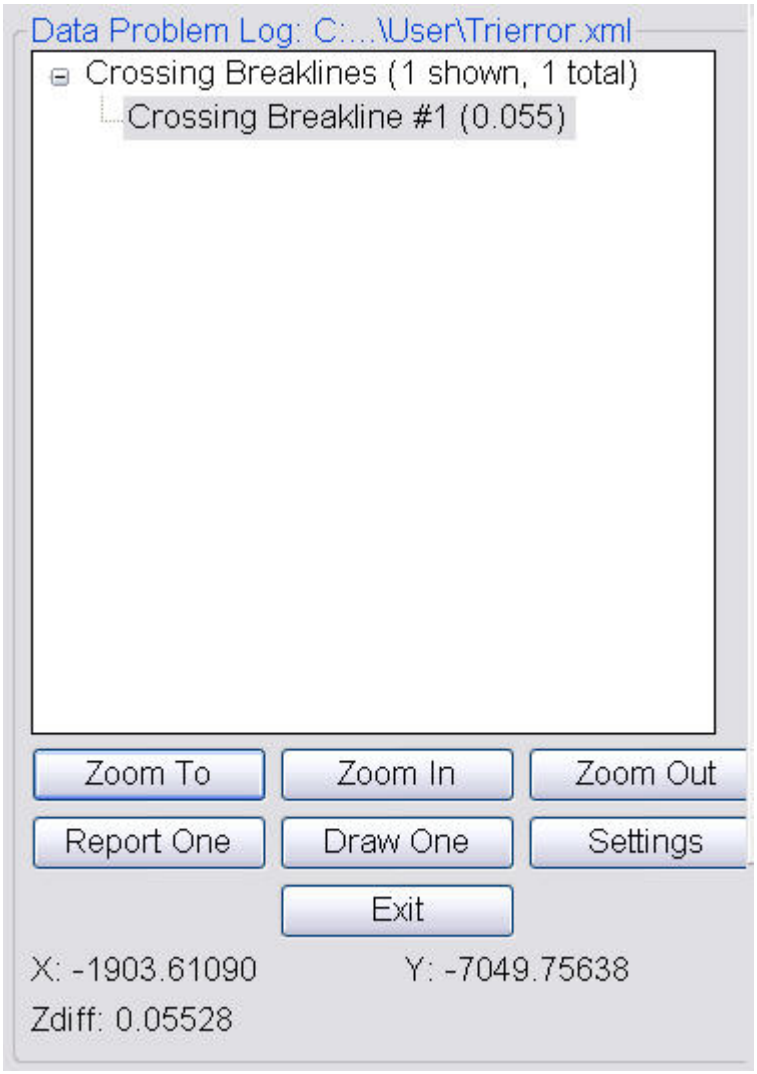
- Day One – AutoCAD/IntelliCAD basics with a focus on CAD Standards management
- Day Two – Carlson Software Features
- Day Three – Surface Modeling with Carlson Software

What’s In Your Surface?

With the adoption of machine control for construction, the ability of various GIS systems to accept 3D data, and now with the expansion of the term BIM to cover elements outside of a building proper, surface modeling has become a critical aspect of any project. Since so many elements down the line rely on the surface model, it is critical that the model be as accurate as possible and free of errors. This article will be the first in a series that will take a look at various tools and options within the Carlson product line to ensure the accuracy of your surface models, sometimes known as triangulated irregular networks (TIN) or digital terrain models (DTM).

In this first article, we will take a look at quality assurance/quality control (QA/QC) and how it applies to surface modeling. This is an essential step of the model building process, and one that is often overlooked by software manufacturers. For most people, the QA/QC process generally involves examining the contours and looking for issues, or spot-checking points on the surface. All current surface modeling software allows for the generation of contours and spot-checking, but these rely on the user to manually review the entire surface after it has been built.

Carlson Software is one of the few products that include an error checker as part of the surface building process. Most other programs either return a generic error message, or simply fail to complete. If you use the Triangulate & Contour routine, an error log is displayed showing any major issues after the surface data is processed.



The issues listed include the following:

- Crossing breaklines
- T-Intersections between breaklines
- Vertical faces

If there are no issues with a surface model, the error log is not displayed. You can use the various options to change the sensitivity of the error checker, and to highlight any issues found. Simply select a single error on the log, then click Zoom In. You can then either correct the errors using any of the surface editing tools, edit the original data (such as the breaklines) and rebuild, or choose to ignore the errors if they are minor.

Although no errors may be found as part of the surface creation, there may still be errors in the surface model resulting from bad data. Once the surface has been built and any build errors have been corrected, you should do a manual review of the spot elevations and contours. The easiest way to check and verify spot elevations in Carlson is by using the Surface Inspector, which is available from the Surface pull-down menu of various modules. After you select the Surface Inspector command, you can change options as to which surface(s) you want to examine, as well as labeling settings. Once this has been done, move your cursor over the surface previously specified and a floating dialog box will show you information about that surface. Click anywhere on the surface to label a specific point.



Press Enter to exist the Surface Inspector.

By taking just a little time to verify that your surface model is accurate and free of errors, you can save time, money, and effort in the later stages of your projects. The Surface Error Log is an invaluable tool for locating any errors and flagging them for editing at a later time. The next article in this series will look at checking a surface model using contours.

Originally posted on **Carlson Connection** by Felicia Provencal

Carlson 2010 Sneak Peek

The highly anticipated Carlson 2010 release offers clients hundreds of new or improved features from that found in Carlson 2009 and continues Carlson Software’s track-record of delivering responsive solutions to client-requested technology needs.