

Carlson, Civil 3D and Shootouts

Update 9/12/2009: Much appreciation to James Wedding at www.civil3d.com for extending the Carlson VS Civil 3D discussion to his website. A lot of commentary and good discussion has taken place on both sites. I've just posted my response to the comments. Also, as noted at the end of my reply, I am working on setting up a very thorough Shootout between Carlson and Civil 3D. Invitations have been sent, so keep looking for updates.

www.civil3d.com Carlson VS Civil 3D Post

Latest Autodesk Discussion Group Post

Update 9/1/2009: Folks at www.civil3d.com have started a post comparing Carlson to Civil 3D. **Link is here.** James has a minor detail wrong about my background. As a sole-proprietor, I was never an Autodesk reseller, but I did work for a couple of them before going out on my own. I've posted that as a comment and thanked James for starting the thread but, as of a couple hours later, it is still telling me that "Your comment is awaiting moderation".

Update: Not that the edits, so far, have changed the original Posts too much, but wanted to make everyone aware that the Moderator is revising some of the posts. Mostly, it makes me look like I don't know grammar and don't proofread very well.

An interesting discussion has been started on the Autodesk Discussion Group here:

<http://discussion.autodesk.com/forums/message.jspa?messageID=6243535#6243535>

Harry Ward discusses the shootout between Carlson, Civil 3d and Bentley and several others discuss their experiences and compare their use of the products.

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

The Kansas City Carlson User Group

I'm reflecting on my impressions of the inaugural meeting of the Kansas City Carlson User Group meeting held at the corporate office of Griner & Schmitz on August 20, 2009. About a dozen individuals showed up to form new business relationships with one another and draw on the strengths from their common bond.

The meeting started out with the gracious hospitality of Griner & Schmitz who hosted the event at their corporate headquarters in Kansas City. Complimentary food and beverages were aplenty and the guests quickly found themselves forming or renewing friendships with others in attendance.

After a bit of socializing, the guests were treated to a sneak peek of Carlson SurvCE 2.5 from Carlson Software South Central Regional Sales Director Aaron Newman. Aaron demonstrated many of the new and powerful features of SurvCE and showed the attendees how to leverage the power of the Carlson Field-to-Finish routines. Throughout the presentation, one of the key benefits of a User Group is that questions posed by one individual benefits the others and attendees are generally willing to share their observations and experiences with others. After Aaron's presentation, I was given the opportunity to demonstrate some of

the new features that will be released with Carlson 2010 with particular focus on surveying and the communication of information between the field and the office.

It was amazing at how quickly the two-hour meeting flew by but it is my opinion the Kansas City Carlson User Group is off to a great start. If you're in the Kansas City area in mid-October for the expected follow-up meeting, consider dropping in for some informational aspects of the products and services offered by Carlson Software. Otherwise, express your interest in forming a Carlson User Group in your region!

Originally posted on **Carlson Connection** by Ladd Nelson

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 P0 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 P0 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 technology.

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, Vuetworks, 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 consensus 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 Colorado 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.

Points	Surfaces	Profiles	Cross Sections
Explode Carlson Points Convert Survey 1 to CRD Convert CRD to TDS CRS Convert TDS CRS to CRD Convert CRD to LDD MDB Convert LDD MDB to CRD Convert Land Desktop to Carlson Points Convert Civil 3D to Carlson Points Convert Carlson Points to Softdesk Convert Softdesk to Carlson Points Convert Carlson Points to C&G Convert C&G to Carlson Points Convert Carlson Points to Simplicity Convert Simplicity to Carlson Points Convert Leica to Carlson Points Convert Geodimeter to Carlson Points Convert Carlson Points To Ashtech GIS Convert PacSoft CRD to Carlson CRD Convert Carlson Points to EaglePt Convert EaglePt to Carlson Points	Convert LDD-AEC Contours Convert Civil3D Surface Drawing Export Topcon TIN File Centerline/Alignments Import Geodimeter Import GeoPak Centerline Import GeoPak Road File Import Leica Import MOSS Import SDMS Import Softdesk Import Sokkia/Leitz Import Spanish ISPOL Import Spanish CLIP Import TDS RDS File Import Terramodel Export Leica Export SMI Chain Export Softdesk Export Sokkia/Leitz Export TDS	Import Columnar Text Import Calce Import Leica Import MOSS Import Softdesk Import Sokkia/SDR Import Spanish ALZ Import Spanish RAS Import Terramodel Export Softdesk Export Leica	Import Columnar Text Import Agtek Import Arkansas DOT Import Ceal Import GeoPak Import Georgia DOT Import JGRDS Import MOSS Import JIC DOT Import Pizer Import RoadCalc Import SMI Import Softdesk Import Spanish SC1 Import Spanish TRV Import Terramodel Import Calce Earthworks Export GeoPak Export JGRDS Export RoadCalc

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