Brent Jones of ESRI discusses ‘Why GIS Needs Surveyors’

Combining all the GIS and land development technologies that exist today is what Brent Jones suggested surveyors do in his keynote address to the attendees at the 2nd annual Carlson User Conference. Jones, PE, PLS, is the Survey, Cadastre, and Engineering Industry Manager for ESRI, which designs and develops the world’s leading geographic information system (GIS) technology.

To help surveyors accomplish this, Jones announced an upcoming grant program to be offered by ESRI for every Carlson IntelliCAD user. “ESRI is very supportive of Carlson’s development on IntelliCAD and we want to support your users,” said Jones of this specialized grant program being developed exclusively for Carlson IntelliCAD users. “We want to help surveyors leverage their existing resources to help in the GIS market.” With this offer Carlson IntelliCAD users will be able to access GIS technology and jump-start a GIS practice. Read More

Originally posted on **Carlson Connection** by Karen Cummings

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BIM vs. “CIM” – Is it a Noun or Verb?

I wanted to share my opinion related to the BIM this, BIM that… What is BIM? article to essentially equate (or draw parallels between):

“Acronym”	“Location”	“Data”	“Mechanism”	“Discipline”
BIM	Building	Information	Modeling	Architectural
GIS	Geographic	Information	System	Civil

If one turns the acronyms around,

- **BIM** is another way of saying Owners/Architects who utilize Model Information for Buildings, and,
- **GIS** is another way of saying Officials/Civil Engineers who use a System of Information for Geographical projects/studies.

If the message(s) from the Autodesk marketing department

> *http://usa.autodesk.com/company/building-information-modeling*
> *and*
> *http://www.cenews.com/article.asp?id=3137*

is/are to believed, Autodesk is expecting the market to swallow the hype that the Civil 3D (*C3D*) product can function within the confines of a building or as a BIM solution.

I don’t buy this (and in my opinion, neither should the public). By the looks of the responses to a discussion on the C3D newsgroup this past September, 2008:

> *http://discussion.autodesk.com/forums/message.jspa?messageID=6033685*

it looks as if C3D users aren’t necessarily swallowing the attempted message either. As the thread eloquently points out, it largely depends if you take the context of “building” to be a noun or a verb:

1. ***Noun*** *http://www.merriam-webster.com/dictionary/building*

– “1 a usually roofed and walled structure built for permanent use (as for a dwelling)”

2. ***Verb*** *http://www.merriam-webster.com/dictionary/build[1] – “1 to form by ordering and uniting materials by gradual means into a composite whole”*

Side note observation… Since GIS is/has been a well established market for other products on the market and is also one that Autodesk does not control, could it be that Autodesk is trying to capitalize on the relative newness of BIM by generalizing the Noun form of BIM into that of a Verb so they can use it to further confuse the market?

Whatever the context, I also feel C3D falls short for BIM in one key aspect; all of the C3D seems to get locked up into the ARX/proxy objects within a given drawing. To my knowledge, C3D doesn’t allow the “Information” aspect of the design to be externalized outside of the drawing. As Civil Engineers and Land Planners look down the road for the next 10 or 15 years (or more), I tend to question how they’ll be able to manage/maintain/extract the data locked away in C3D drawings that are being produced today. As I heard one DOT employee say, their projects typically span years in the design/life cycle. If I were in their shoes, I wouldn’t be looking forward to having to carry around all the LDT/C3D object enablers that will likely come out with each annual release of each C3D product for the next decade or two.

My ¢2.

Ladd Nelson
Sales Director – Midwest Region
Carlson Software

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

Carlson Software Expands Carlson College™

Carlson Software recently expanded their expert level training program, Carlson College™, and started the Carlson College Training Program. This new program will allow individuals and companies to get training direct from Carlson Software or through the members of the Carlson College Training Program. New members of the Training Program include Harken-Reidar Inc. of Front Royal, Va.; Carlson Desktop Solutions (CDS), based in Austin, Texas; That CAD Girl, located near Raleigh, N.C.; and, for C&G products only, Larry Phipps of the Land Surveyor's Workshop in Jefferson, N.C. Membership in the Carlson College Training Program is available to any person or organization that makes a commitment to providing quality training on Carlson Software products.

For more information on the Carlson College Training Program or training, please contact Carlson Software at 800-989-5028, email training@carlsonsw.com or visit www.carlsonsw.com/training. Members of the Carlson College Training Program are independent entities from Carlson Software.

Read the entire Press release here.

Originally posted on **Carlson Connection** by Karen Cummings

Dewberry Case Study, ‘Choosing and Implementing Carlson,’ at the Carlson ‘Break New Ground’ Users Conference, April 5-7

MAYSVILLE, Ky., U.S.A. (March 24, 2009) – At the Carlson “Break New Ground” User Conference in Lexington, Ky., April 5 through 7, David Palumbo of Dewberry will be presenting a case study on how the 2000-person professional services firm with more than 40 locations in 18 states recently chose the Carlson Civil Suite for its site-civil engineering needs.

“In April 2007, Dewberry’s site-civil market segment group embarked on a strategic initiative to unify and modernize site-civil work flow across two dozen offices that service this segment,” said Palumbo, PE, Technology Manager for Infrastructure Services at Dewberry. “Carlson Civil Suite was selected over two competing solutions as best aligning with Dewberry’s desired work flow and site-civil technical specifications.”

The Carlson Civil Suite includes Carlson Civil, Carlson Survey, Carlson Hydrology, and Carlson GIS. Together, these four products are a comprehensive set of design/drafting tools that automate all facets of the civil engineering project.

Palumbo, whose duties include facilitating technology solution acquisition and implementation for all of Dewberry’s infrastructure services, including site-civil, transportation, and telecommunications, will explain the intensive process Dewberry performed to choose Carlson. Then he will show how Dewberry, an Engineering News-Record “Top 50” design firm, set

about to most effectively implement Carlson throughout their extensive company.

“We will have approximately 250 to 300 users of the product when we’re done,” he said, noting that the project started by first defining a comprehensive work flow and site-civil task specification independent of software and automation tools. It was these specifications that became the basis of evaluating vendor solutions.

Palumbo will be joining Robert H. (Rob) Campbell, president and CEO of Juniper Systems, Inc., and Brent Jones, PE, PLS, of ESRI, as a speaker at Carlson’s 2nd annual conference designed specifically for surveyors, civil engineers, mining engineers, construction engineers, partner manufacturers, and dealers. Palumbo will be speaking during the Monday evening banquet.

“Working with Dewberry has been a rewarding experience,” said Bruce Carlson, president and founder of Carlson Software. “With so many offices, Dewberry had special demands for data sharing and project tracking and also wide-ranging needs for data interoperability across platforms such as AutoCAD, Microstation and ESRI, including compatibility with field data collection and instrumentation,” he added. “Our product offerings are focusing on these capabilities. We enjoyed being a part of their competitive product review – that’s our preferred business environment!”

The goal of Carlson’s user conference is to help users “break new ground” and learn how to optimize the power of Carlson’s versatile software. Learning tracks at this two-and-a-half-day event will cover the same land development aspects as Carlson Software products: data collection, land surveying, civil engineering, mining and construction and machine control.

Carlson is keeping the cost of the two-day event at $695 right

up to registration to help more people harness the power of Carlson Software and get project ready. Sign up now at www.carlsonsw.com/conference. Group discounts are available.
About Carlson Software. Carlson Software, an independent company founded in 1983, develops software solutions to bring the land development professional from concept to completion. The 25-year-old company is well known for its comprehensive civil, surveying, machine control and positioning, plus mining software solutions. Its free technical support and dedication to customer service is unique in the industry. Carlson Software is headquartered in Maysville, Ky., with branch offices in Boston, Atlanta, and Queensland, Australia.
About Dewberry
Dewberry is a 2,000-person professional services firm, specializing in engineering and architectural design; program management; planning; GIS; surveying; and environmental services. Established in 1956, the firm has more than 40 locations nationwide, with headquarters in Fairfax, Virginia, near Washington, DC. For more information, visit www.dewberry.com.

Originally posted on **Carlson Connection** by Jim Reinbold

BIM this, BIM that… What is BIM?

Q: What is BIM? And, exactly how does it relate to the civil engineering industry?

A: BIM, by definition, has nothing to do with civil engineering.

BIM stands for “Building Information Modeling”. The term “BIM” originated in the Architectural world and, generally, defines the process of inputting information to and extracting information from a 3D model of a building/facility.

Definition of BIM from the National BIM Standard:

> *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.”*

From the National Institute of Building Sciences:

> *Building Information Modeling (BIM) refers to the use of the concepts and practices of open and interoperable information exchanges, emerging technologies, new business structures and influencing the re-engineering of processes in ways that dramatically reduce multiple forms of waste in the building industry. The National BIM Standard, a key element of the overall industry transformation being supported and coordinated by the buildingSMART alliance™, establishes standard definitions for building information exchanges to support critical business decisions. Implemented in software, the consensus-based standard will form a basis for more accurate and efficient commerce within the capital facilities industry. The National BIM Standard is also intended to help participants in facilities-related processes achieve more reliable outcomes from commercial agreements.*

From Geomatics International:

> *A Building Information Model (BIM) is a digital representation of physical and functional characteristics of a building.*

> *Construction and management of buildings involves many stakeholders, so that proper sharing of information over the entire lifecycle of a building is very important. The Open Geospatial Consortium (OGC) is developing BIM standards that promote efficient web-based information sharing in the Architectural, Engineering, Construction and building Ownership and Operation (AECOO) markets.*

Because Wikipedia is open-source and able to be edited by anyone and everyone, the entry for BIM changes regularly. The entire entry looked like this as of February 26, 2009. Here is an excerpt:

> *Building Information Modeling (BIM) is the process of generating and managing building data during its life cycle[1]. Typically it uses three-dimensional, real-time, dynamic building modeling software to increase productivity in building design and construction.[2] The process produces the Building Information Model (also abbreviated BIM), which encompasses building geometry, spatial relationships, geographic information, and quantities and properties of building components.*

A lot of confusion is now occurring because Autodesk and their civil resellers are trying to make the connection between BIM and Civil or, more specifically, Civil 3D. See examples here:

> *BIM for Civil Engineers by Sanjay Asnani, Autodesk*
> *If link doesn't work, find this document HERE.*
>
> *What Does BIM Mean for Civil Engineers? by Adam Strafaci, Autodesk*
>
> *Civil 3D and BIM… How do they relate? by Melanie Santer, US CAD*

However, if you simply Google **“bim building information modeling”** and look at the first two pages of returns, the only entries that attempt to connect BIM and civil engineering belong to Autodesk or one of their civil resellers. All other hits refer to BIM in an architectural/building sense. If there is a specific software program mentioned, it is Autodesk’s Revit product. A caveat to this is the civil/structural engineering specialty field of bridge construction which can also be modeled using Revit. Bridge construction is a bit of a hybrid in that it is similar to building design and can also legitimately be related to BIM.

Among Autodesk’s architectural team and resellers, most, if not all, references to BIM are solely in an architectural/building capacity. See examples here (pages were cached on 2/26/09):

Brave New BIM

The World According to BIM – Part 1

Summit AEC – Autodesk BIM & CAD Software

As you can see from the above links, it is technically incorrect to connect BIM and Civil. However, many in the civil world are witnessing the Autodesk definition of BIM take hold. So, in the event you are ever asked or required to “BIM” a civil project, you are essentially being asked to design and deliver a dynamic, 3d model of the entire project.

It is important to realize that creating a dynamic 3d model for a Civil project (or “BIM”ing a civil project) is not limited to using a particular software program.

Find a civil engineering design software that allows you to design to specific criteria, is able to show a great visual representation of all the components of your project in 3D view

and is able to dynamically reflect changes and you can “BIM” along with the rest of the world.

Designing a project using a dynamic model allows you to design according to specific criteria such as AASHTO (American Association of State Highway and Transportation Officials) standards or by specifying minimum/maximum values for storm or sanitary sewer design. It also is invaluable to detect, before construction, potential conflicts between a proposed network of roads and associated utility networks. As an example, a dynamic 3d model would trigger a warning if, when lowering a roadway, the rule for minimum cover over a pipe on an adjacent roadway has been violated. Also, creating this model allows you to view the model, make changes to vertical alignments and see dynamically updated cut/fill quantities all at once.

To reduce the confusion, it might be time to coin a new term such as “Site Information Modeling” to describe the process in the Civil industry. But, there is still quite a disparity between the “Information Modeling” done for a Building compared to that done for a Civil project. In true BIM, the “I” (Information) component is as important as the “M” (Modeling) component because determining usability and functionality of the Building through its lifecycle is one of the goals of BIM. At this time, the process on the Civil side is still much more about the “Model” and not nearly so much about the “Information” going into and coming out of the model. When we are able to incorporate results of traffic flow analyses for a roadway or inspection reports showing sludge build-up and flow capacities in sewer/storm pipies and manholes, we will be truly using the “Information” as it was intended in an “Information Model”.

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

Top Myths About Carlson Software

I’m asked many of these questions on a fairly regular basis and thought it was time to look into some of them and provide the fullest answer I could. Where possible, I’ve researched and found the answer myself. In a few cases I had to rely on Carlson representatives to supply the answers.

Myth #1 Autodesk stopped working with Carlson in February 2008.

False. In February 2008 Carlson simply stopped being a reseller of Autodesk products.

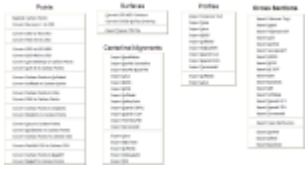
In other words, if you want to run Carlson on top of AutoCAD, Map, Land Desktop or Civil 3D, you’ll have to buy it from an Autodesk reseller instead of from Carlson. Carlson remains part of Autodesk’s Developer Network (ADN) and is listed on Autodesk’s partner page. The ADN designation provides tools to developers to help build their products on top of Autodesk products. As a point of comparison, Eagle Point Software is also a development partner of Autodesk.

Myth #2 Carlson is owned by Autodesk or, (“bonus”-myth) Carlson will be sold to another, larger software company.

False. Carlson Software was started in 1983 by Bruce Carlson and remains a private, family-owned business. No one can

absolutely guarantee the future, but I have heard Bruce Carlson speak many times about the value he places on competition in the marketplace and his belief that the consolidation of many other software companies has come at the expense of the end-user of the software.

Selling out? I don't see it. But partnering? Yes. Carlson places a great deal of value on working with any company who wants to work with them. Click on the image below to see the many different programs Carlson imports data from and exports data to.



Myth #3 Because Carlson Software uses basic AutoCAD entities instead of "intelligent objects", it does not have 3D or dynamic abilities.

False. Carlson Software uses basic AutoCAD entities so that all drawings produced by their programs can be easily shared with any other DWG- or DXF-compatible program, regardless of version. Carlson has figured out a way to have the dynamic reactions work on basic entities such as lines, polylines and text. One example would be having profiles and storm drain structures automatically adjust their elevation as a centerline alignment is edited and changed along a surface. And, all of this happens without having to fight the dreaded "proxy objects"!

Myth #4 Because Carlson now works on top of Intellicad, it no longer works on top of AutoCAD-based products.

False. Carlson Software has always worked on top of AutoCAD-based products and, if you listen to Bruce Carlson discuss the

issue, hopes to always continue doing so.

In April 2008, Carlson began giving their customers an IntelliCAD-based “stand-alone” copy of their software with every purchase of Carlson Civil, Survey, Hydrology, GIS, TakeOff and other programs. (IntelliCAD is widely described as an “AutoCAD-clone”. You can read more HERE.). This, again, gives more power and options to Carlson users because it allows the user to choose whether to run Carlson on top of practically any version of AutoCAD, AutoCAD Map, Land Desktop, Civil 3D or on top of IntelliCAD.

Also, with their Sight Survey program (launched in 2008), Carlson created their first program to run on top of MicroStation.

At last year’s 25th Anniversary users’ conference, Bruce Carlson stated that Carlson hopes to have their software working on 4 different platforms within the next few years: IntelliCAD, AutoCAD, Microstation and ESRI.

Myth #5 Carlson doesn’t have CIVIL “BIM”-ability.

First, the premise of the statement is incorrect. BIM (Building Information Modeling), by definition, has no relationship to the civil engineering industry. It is architectural in scope and refers to actual buildings and facilities.

However, for several reasons there has been a push to re-define the term BIM to apply to Civil Engineering (in general) and Civil 3D (in particular). When discussing BIM in the context of Civil Engineering, it simply means that a software program has the ability to:

- design to specific criteria

- show a great visual representation of all the components of your project in 3D view and
- dynamically reflect changes to your project.

Can Carlson Software do all that? Absolutely.

Carlson can, and has been able to, produce true 3D models of civil/survey/utility project sites for years. These models can be viewed in 3D and quantities are dynamically updated whenever the model changes.

Because Carlson has strongly served the U.S. mining industry for over 20 years, they long ago developed features for grading, material quantity calculations and surface viewing and visualization to meet the demands of this industry. In fact, the civil industry pales in comparison to the mining industry in regard to these demands.

Myth #6 Carlson has only been developing civil software since 2007.

False. To make sure I got this right, I asked the folks at Carlson for help and received the following in response:

> *Bruce Carlson began developing his software for the mining industry in 1983. By 1984, the program was able to extract profiles and cross-sections, calculate volumes and design road profiles. 3D Surface viewing abilities have been available in Carlson Software since the early 1990's.*
>
> *Carlson developed the stand-alone Carlson Survey program in 1996 and in 1999 Autodesk contracted to market and sell a version of it called "Autodesk Field Survey". Autodesk did away with Field Survey after a few years and Carlson migrated most users over to Carlson Survey where it has grown to become a favorite of surveyors.*

> *Various civil features were organized as modules in a package called SurvCADD that was released in 1989. The civil engineering routines were renamed as Carlson Civil in 2006.*
>
> *The first Hydrology module for Carlson was released in 1993. It was re-packaged as Carlson Hydrology in 2006.*

Carlson Hydrology was the first and, I believe, is still the only H & H software to function entirely within the DWG-environment. If I learn differently after this document is made public, I will post a correction in this space.

Myth #7 Carlson may have found a spot in some surveying firms, but larger firms aren't using it.

False. Again, I requested generic customer data from Carlson and was told that,

> *Among our 30,000+ users, there are many DOT agencies and also ENR Top 50 firms using Carlson Software. Carlson Software is very experienced in working with large firms, due to their mining background. All 20 of the top 20 U.S. coal companies use Carlson Software at some level, most being standardized on the software for mine planning and design.*

As far as my personal experience, I've only been working with Carlson Software for a couple of years and companies I work with tend to have fewer than 25 users. I can personally say that I have seen or know of a few large firms who have moved to or are in the process of moving to Carlson.

These do not include the many customers of mine who have recently let their software contracts lapse, purchased one or

more seats of Carlson and have told me they plan to purchase and implement Carlson when the economy rebounds.

Myth #8 Carlson Software does not support the full project lifecycle – Concept to Completion.

False. I think Carlson probably has the project lifecycle covered better than any other software firm in existence.

Carlson Software has data collection, survey processing, civil design, hydrology, GIS, construction material takeoff and machine control software in their stable.

Myth #9 Carlson Software doesn't have the support system in place to adequately support its users.

False. Carlson provides free technical support directly out of their Maysville, KY and Boston, MA offices. Again, I have heard Bruce Carlson say that keeping tech support free and in-house ensures that their software will remain easy-to-use and that the company will always be responsive to the wishes of their customers.

If a bug or other problem with the software is encountered and logged into Carlson's tech support department, the corrected files will be emailed to you as soon as the programmers develop the fix. Periodically a collection of the updated files will be released to all users as a maintenance patch. These updates are available to all users whether or not they are under a maintenance contract with Carlson.

I received this testimonial from a customer on March 13, 2009.

"Recently I found that the Time of Concentration input boxes were inadequate under the hydrology portion of Carlson Civil Suite so I emailed a description of the problem to them. I was very impressed to get a phone call the same day. They discussed the problem with me and had a revised program update to me in under a week. I've been emailing Autodesk for over a year on problems with Civil 3D and never heard a peep. Needless to say I'm very happy with the customer service I have received from Carlson thus far."

David Farina, CCAD Engineering
– Greenville, SC

Other examples of Carlson's responsiveness:

Example 1: The ability of the Carlson Civil & Hydrology "Design Bench Pond" command to have multiple interior benches was added to the software after an attendee at a workshop I held in Raleigh, NC in December 2007 requested it.

Example 2: In the LotNet command, the prompts asking users to specify minimum and maximum building offset distances for lot layout generated too many tech support calls. In the next release, the prompts were re-worded to make the intent more clear.

Example 3: The LotNet command now allows you to designate "sub-areas" (such as wetlands, stream buffers, poor soils, etc.) to be excluded from your area to be subdivided during the lot layout routine. This request came from a prospect during a demonstration in Raleigh.

Example 4: I understand that Carlson's tech support team was bombarded by requests to change the default cul-de-sac location from the "Start" of the road to the "End" of the road in the

RoadNet command. This was changed in the 2009 release.

Example 5: The ability to draw multiple building pads inside lots during the lot layout routine in LotNet was requested by a firm out of Savannah, GA.

Myth #10 Carlson Software can't share data with Land Desktop or Civil 3D.

False. Carlson has many tools in their software to import civil/survey data from and export data to Land Desktop and Civil 3D. It can be said that Carlson Software works with Civil 3D data as well as Land Desktop or any other civil/survey software and also works with Land Desktop data as well as Civil 3D or any other software.

Carlson has LandXML import and export functionality, can directly convert Land Desktop points and contours into Carlson points and contours and also imports a Civil 3D surface as elevated contours.

Regardless of the civil/survey software being used, LandXML is the best mechanism to import/export a surface model because it maintains the TIN lines of the surface.

Myth #11 To be continued.

If anyone thinks of other question(s) they'd like to supply, please email me HERE. I'm open to suggestions and don't mind expanding beyond 10 Myths.

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