

# **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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# **Dewberry's Dave Palumbo presents 'Choosing and Implementing Carlson'**

Starting his presentation at the Carlson User Conference by saying "Carlson works for us," Dave Palumbo, PE, Technology

Manager for Infrastructure Services at Dewberry, noted that Dewberry, an ENR top 50 design firm was an early adopter of technology as a differentiator. The evaluation and implementation of three competing solutions took Dewberry more than two years. "Patience was of the essence," Palumbo said.

Read the entire post

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 be 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\[1\]](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

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## **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](mailto:training@carlsonsw.com) or visit [www.carlsonsw.com/training](http://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

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## **Carlson Software Expands Carlson College**

That CAD Girl named as certified trainer for the expanded **Carlson College**

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## **Carlson Connection Launches**

Carlson Connection launched on April 1st and is the new online community for anyone using or evaluating Carlson Software. This

uniquely collaborative community brings together users, consultants and resellers along with many Carlson staff including sales, technical support and programming.

Check out [www.carlsonconnection.com](http://www.carlsonconnection.com) for the latest news, updates and discussion.

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## How Does Carlson Support Their Users? Ask David Farina

I'm going to post a LONG email stream between one of my clients, David Farina, Bruce Carlson and Dave Carlson. You can see the new feature that David requested and Bruce and Dave's responses. David received a "development" version of the new features approximately a week after submitting this request.

I asked him for a statement describing his experience with Carlson:

*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.*

Here is the original question from David Farina on March 4,

2009:

Jennifer,

*I was going through a mock project to learn the hydrology part of Carlson and noticed a critical deficiency in Time of Concentration input. The review agencies around here want to see the TR-55 method. First, the TR 55 minimum sheet flow needs to be 100' instead of 300'. They recently changed it per the TR-55 Web site. Second, I don't think I've ever had a project where you didn't have to split one of these flow types into 2 or more mannings roughness areas.*

*For example: a flow path that starts on dense grass for 50' then passes over asphalt for 75' and back to grass for 200' would need to be calculated as follows:*

*Sheet flow 50' Grass -> Sheet flow 50' Asphalt -> Shallow Concentrated flow 25' Paved -> Shallow Concentrated flow 200' UnPaved.*

*But as you can see the Carlson input only allows for one entry per flow type.*

**Time of Concentration (TR-55)**

Select Flow Line From Screen

Sheet Flow | Shallow Concentrated Flow | Channel Flow

Manning's n: 0.240

Two-yr 24-hr Rainfall: 3.59 in

Flow Length: 100.00 ft

Land Slope: 2.00 %

Time of Concentration: 0.225 hr  
13.473 min

Total Time of Concentration: 0.252 hrs, 15.1 mins

**Time of Concentration (TR-55)**

Select Flow Line From Screen

Sheet Flow | Shallow Concentrated Flow | Channel Flow

Surface Description  
☐ Paved ☒ Unpaved

Flow Length: 225.00 ft

Land Slope: 2.00 %

Time of Concentration: 0.027 hr  
1.643 min

Total Time of Concentration: 0.252 hrs, 15.1 mins

*Below is the Intellisolve version: Notice the A, B C*



**TR-55 Tc Worksheet**

	A	B	C
Manning's n-value .....	0.24	0.011	0.011
Flow length (ft, 300 max.) =	50	50	
Two-yr 24-hr rain (in) .....	3.59	3.59	
Land slope (%) .....	2	2	
Sheet flow time .....	7.74	0.66	0.00

**Shallow Concentrated Flow**

	A	B	C
Flow length (ft) .....	25	200	
Watercourse slope (%) .....	2	2	
Surface description .....	Paved	Unpave	Paved
Shallow conc. flow time .....	0.14	1.46	0.00

**Channel Flow**

	A	B	C
X-sectional area (sqft) =			
Wetted perimeter (ft) =			
Channel slope (%) .....			
Manning's n-value .....	0.015	0.015	0.015
Flow length (ft) .....			
Channel flow time .....	0.00	0.00	0.00

Sheet flow time = 8.40 min  
Shallow conc. flow time = 1.61 min  
Channel flow time = 0.00 min  
Time of conc., Tc = 10.0 min

Compute Print... Help Exit

*There is a 5.1 minute difference in TC results which results in a 2 CFS difference in the 100yr example below:*

**Runoff Hydrograph - SCS Method**

Method: SCS Triangular

**SubBasin**

Area Units: ☐ Sq Ft ☐ Sq Miles ☒ Acres

Drainage Area: 1.8498968

Runoff Curve Number: 83.00

Time of Concentration: 0.17 hr

Base Flow: 0.00 cfs

Antecedent Moisture Condition: ☐ 1 ☐ 2 ☒ 3

**Rainfall**

Storm Type: II - 24hr

Return Period: 100 Year

Rainfall Depth: 9.43 in

Time Increment: 0.03 hr

Peak Attenuation Factor: 484

**Calculation**

Peak Discharge	18.46	cfs
Time to Peak	12.07	hr
Volume	1.29	acre-ft

**Runoff Hydrograph - SCS Method**

Method: **SCS Triangular**

SubBasin

Area Units: ☐ Sq Ft ☐ Sq Miles ☒ Acres

Drainage Area:  **Select**

Runoff Curve Number:

Time of Concentration:  hr

Base Flow:  cfs

Antecedent Moisture Condition: ☐ 1 ☐ 2 ☒ 3

Rainfall

Storm Type: **II - 24hr**

Return Period: **100 Year**

Rainfall Depth:  in

Time Increment:  hr

Peak Attenuation Factor:

Calculation

Peak Discharge	16.39	cfs
Time to Peak	12.10	hr
Volume	1.31	acre-ft

**Calculate** **Unit Hydrograph** **Runoff Hydrograph** **Report** **Close** **Help**

*If the above example is that different then I am also concerned about how the Time to inlet is calculated in the example below:*

**Settings** **Design** **Analyze** **Analyze by Hydra**

Structure Actions: **Add** **Edit** **Remove**

**Structure** **Drainage** **Pipe** **Hydraulic Calc**

Current Structure: **M1**

Input Type: **Drainage Data**

Area Units: ☐ Sq Ft ☐ Sq Mile ☒ Acre **Draw**

Drainage Area:  **Pick** **Calc**

Time to Inlet:  min

Curve Number:  **Select**

Pond/Swamp Adjust:

Known Flow:  cfs ☐ Thru Inlet

In Hydrograph:  **Select**

**Time of Concentration (SCS)**

Input values

Select CN from Table

Curve Number: 83

Length of Flow (ft): 412.10

Average Land Slope (%): 3.59

Select Flow Line from Screen

Output values

Time of Concentration: 0.125 hrs, 7.5 mins

Calculate Report Exit Help

*Was the SCS method used to get the 7.1 min value?*

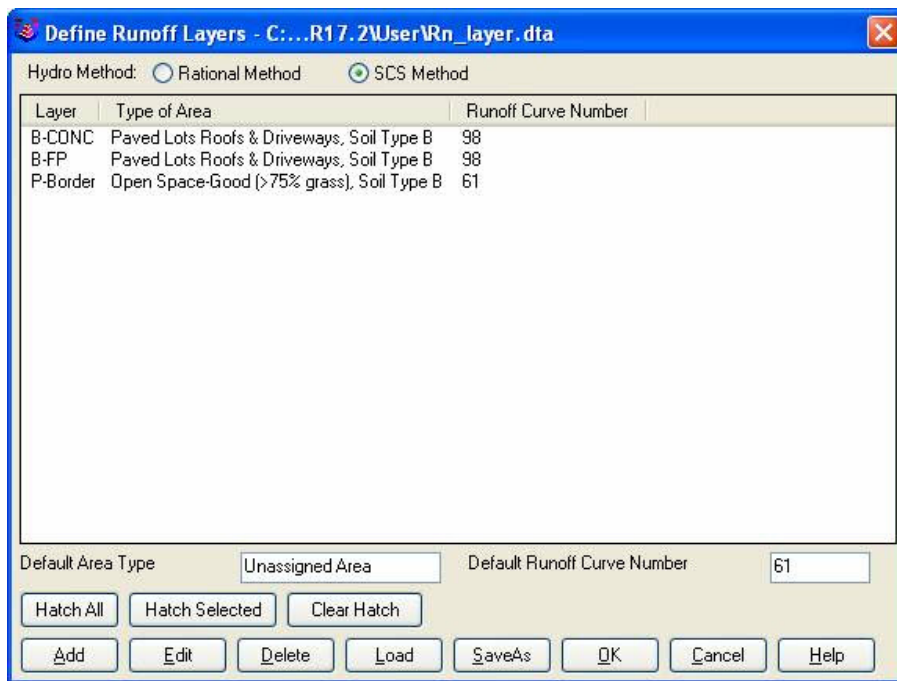
*Notice the 7.5 value in the TC dialog to the right.*

*This was the value if I SELECT FLOW LINE FROM SCREEN and pick the path that the dialog on the left generates.*

*Can I generate a report of how the time to inlet was calculated?*

*Maybe there can be a button next to the Time to inlet to select TR-55*

*Maybe Mannings coefficients can also be put into the WATERSHED->DEFINE RUNOFF LAYERS to be used for this calc as the flow path passes through each polyline area the same way Carlson already calculates the composite CN.*



*Will any of this matter if we get HydroCAD and link it to Carlson?*

*Just food for thought.*

*Thank You,*

*David Farina*

*Senior Designer*

I forwarded David's question onto Bruce Carlson, President of Carlson Software, and Dave Carlson, Director of Programming, and received this response from Bruce:

*Folks: Excellent input—this will find its way into the next release for sure. We've spent a lot of time studying Haested and matching numbers there on pipe flows in culverts, for example, covering all conditions—but do need to put to bed Time of Concentration for approved defaults and sub-catchment*

conditions as they vary within a watershed area. This Intellisolve example is really helpful. Also, I took in input at Jennifer's Statesville, NC presentation Dec. 2007 that mentioned the new 100' default and also mentioned:

Using  $Q=CIA$ , there are new "rules" being published that using larger pipes or it may be larger drainage areas, there is an added multiplier in the form  $Q=CIA*Q1$  where  $Q1$  is a table of values. I didn't get the full details, but we need to research this.

And in storm sewer design, if we are compositing the calc of time to inlet using a "short-form" SCS-style method, based on percentage area of various land uses and associated runoff coefficients, we need to have a Report button that documents the results for full vetting and reporting out by users, and we need to incorporate an additional auto-calculated, long-form TR55 time of concentration there as well that uses sheet flow, channel flow and shallow concentrated flow. One key in all this is to be able to auto-distinguish these flow types from the DTM and land uses and have the forms filled out with default values, which the user can change.

Question I'm curious about. Say you built a gentle 6'wide, 1% slope swale with 6:1 side slopes, hardly noticeable, mowable, between lots in a subdivision. Would the flow in that be treated as shallow concentrated flow or channel flow? When would one condition end and another begin, by definition, so we can get real precise on auto-calculating these using layers/land use types and DTM values?

Good stuff, and it will get done.

Bruce Carlson, PE

Pres., Carlson Software

David added the following:

*I think when to use channel flow should be determined by the width of the bottom of the channel and hence how deep the channel gets on an 2yr storm 24 storm.*

*You could have a channel with 1:1 side slopes but if the bottom was 50' wide and the flow path started in the channel then*

*the first 100' would still be sheet flow in my book. Unless of course a huge amount of water was entering the channel from another basin.*

*I think the concentrated and channel flow times (being in the fraction of a minute range) are so small and have such a small impact on overall time*

*compared to sheet flow (fraction of an hour) that you could pick an arbitrary number like 5' wide bottom and smaller is channel flow and not upset the model.*

*Sheet flow probably makes up 80 to 90 % of overall TC if it is over grass.*

*Anyone disagree?*

*Thank You*

Dave Carlson sent this on March 11, 2009

*Hi David,*

*Here's an update to the Tc by TR-55 routine that allows*

*unlimited number of breakouts. This update is for Carlson 2009 on Acad 2007-09. To install, unzip and copy the arx to the Carlson2009LSP folder. Let me know if you need a different version or have more suggestions.*

*For the Storm Sewer Network routine, I put it on the to-do list to add a Select button next to the Tc to show the components that make up the Tc like the Select button does for CN. Also we will look at adding Manning's n to the Define Runoff Layers for use with Tc calcs.*

*Thanks for the input.*

*Dave*

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

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## **Coming in Carlson 2010**

I'm not privy to the "official" list of coming updates, but I can share a few things that I know will be in the next release. Most of these come from "wishlist" items I have submitted on behalf of my clients.

The folks at Carlson are welcome to add their 2-cents in the Comments of this post or on Direct From Carlson.

**Option for placing building footprint a distance off the building setback line.**

Currently, the LotNet command places the building footprint exactly on the midpoint of the building setback line. We heard

the request several times to have the option of placing the footprint some distance behind the setback line. It will be in the 2010 release.

## **C & G Survey**

Instead of having two separate survey programs, Carlson will be incorporating C & G as a separate set of menus in Carlson Survey in 2010.

## **Basic IntelliCAD Menu**

If you're running Carlson on top of an AutoCAD-based program, you have an icon or menu option to switch over to an AutoCAD menu that has basic Draw commands such as line, pline and text and basic Modify commands such as copy, explode and pedit. Although it's not easy to get to right now, IntelliCAD has a similar set of menus and toolbars. Carlson 2010 stand-alone with IntelliCAD will have a menu item and toolbar icon allowing you to easily switch over to the IntelliCAD menus and then back again to the Carlson menus.

## **Lookup table of curb slopes for super-elevation transitioning**

This new feature will handle curb transitions like those shown in this NC DOT detail drawing.

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

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# **Poll Question 3/30/2009**

[polldaddy poll=1493826]

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



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# AutoCAD 2010 Release, Autodesk 2006 Software Retirement

Autodesk has announced that their 2010 products will be released on March 24, 2009. I found this post by Randy McSwain to be a good overview of the new features in AutoCAD 2010.

As of March 13, 2009, Autodesk no longer supports or offers upgrades from their 2006 products.

Because of the retirement of Land Desktop, I see that Autodesk is offering to crossgrade existing Land Desktop customers to Map or Civil 3D with special pricing. Subscription will probably be mandatory, but I'm not certain.

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