



WF21421

AutoCAD Civil 3D: Tips, Tricks, and Unnatural Acts

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Learning Objectives

- Learn how to automate several tasks
- Learn how to make more use of underutilized features
- Learn how to capitalize on several standard functions in new ways
- Discover several useful undocumented commands

Description

This session is dedicated entirely to productivity techniques that will help improve your day-to-day operations when working with AutoCAD Civil 3D software. These tips include automating regular tasks, capitalizing on standard functions in new ways, exploring underutilized features, and even exploiting a handful of undocumented commands. We will present the information using a real-world problem solving context rather than simply going feature by feature so you can fully appreciate the “why” in addition to the “how.” Come join us during this 90-minute session as we show you numerous ways to help you get the most from your AutoCAD Civil 3D software investment. This session features AutoCAD Civil 3D and AutoCAD Map 3D.

About the speakers

Jerry.Bartels@autodesk.com

For more than 25 years, Jerry has worked in all areas of civil engineering, surveying, and mapping, providing clients with services in CAD management, implementation, and network administration. He also has more than 10 years of experience teaching Autodesk products, as well as developing curriculum. At Autodesk, Jerry specializes in civil engineering, surveying, and mapping solutions, and currently provides presales, training, and support services throughout the country. He has received several awards from Autodesk for his presentations.

Jeff.Bartels@autodesk.com

For 20 years Jeff has worked in the civil infrastructure industry. As a member of Autodesk's Transportation team, he provides support, training & implementation services for DOT's & large municipalities. Since 2008, he has published 25+ titles on AutoCAD and Civil 3D.

Jerry and Jeff are also authors on a Civil 3D Blog where they post weekly Tips, Tricks and Workflows. <http://www.civilimmersion.typepad.com>

The “Hand-out” for this session consists of numerous bite size recordings as well as a complete recording of the entire AU session.

Jeff and I believe that recorded content is the best way to disseminate information in that nothing is lost in the translation. In other words, you see specifically which commands are used, where they are located in the interface and the workflow required to get the desired results.

All recordings are (and will be) available on our Blog site:

<http://www.civilimmersion.typepad.com>

As for the AU session, the entire recording will be posted within 48 hours of the completion of the course. If possible, we will email attendees with a direct link to access the recording once it is posted.

Understanding this, in the event you are looking for more specifics on the kinds of things we will be covering during our 90 min. session, I am including that below. Keep in mind that each scenario will be presented in a problem / solution approach. Essentially, we will use Civil 3D to solve a problem and present numerous Tips, Tricks and best practices along the way. In doing so, you will get a better understanding of the value of the tools in context rather than a rapid fire feature by feature delivery.

Finally, Jeff and I are firm believers in leveraging the software live during our presentations. In other words we don't run videos unless absolutely necessary and keep our usage of PowerPoint to a minimum.



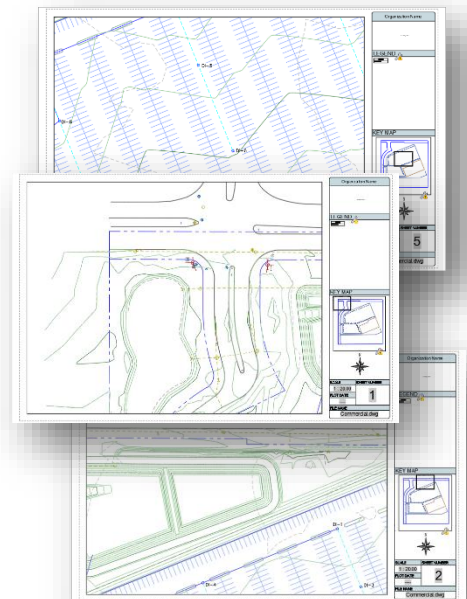
Scenario 1: VIDEO: <https://youtu.be/PIlOtAv9yao>

- **Problem**

Civil 3D has tools to automatically create Plan and Profile as well as Cross Section sheets. Unfortunately, most projects also require a grid approach to creating plan sheets and a purpose built tool to break out these sheets is not obvious in Civil 3D.

- **Solution**

To facilitate the automatic creation of these kinds of sheets, we will leverage a tool called MapBooks. We will begin by building a template file and then using that template to generate the sheets we require. Additionally, the template will incorporate a “Key Map” so we can quickly see our individual sheets in the context of the entire project.





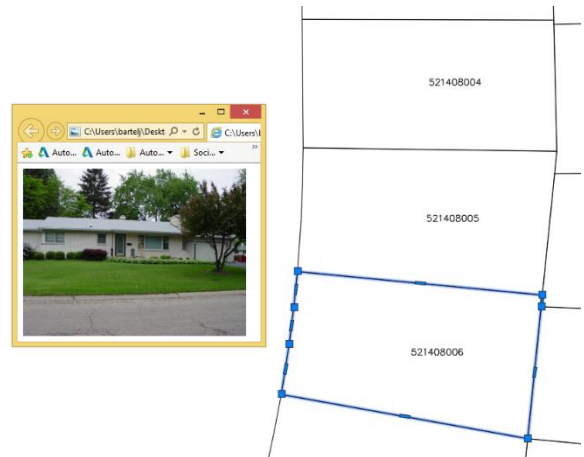
Scenario 2: VIDEO: https://youtu.be/GqGL_NC1q68

- **Problem**

There are times when we have geometry contained within Civil 3D and also have information about that geometry available elsewhere. It would be really helpful if we could automatically tie these two worlds together. A good example of this would be trees collected in the field that have a Description containing the tree number. Along with this, we may have an Excel spreadsheet prepared by an Arborist that contains the tree number as well as tons of additional data. Another example may require matching Parcel information in a Microsoft database to hundreds of Polylines representing our parcels in Civil 3D.

- **Solution**

We will look at several ways to automatically link these two worlds of data. In our example, we will show connections between an external database and polylines representing parcels as it is the harder of the two. Along the way we will demonstrate several advantages to creating these links including automatically displaying data like Photos, Legal Descriptions and other assets pertaining to the parcels.



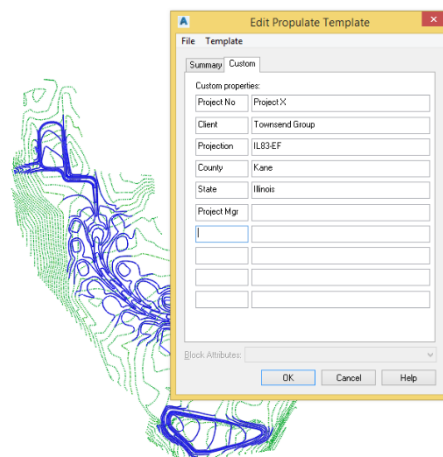
Scenario 3: VIDEO: <https://youtu.be/-wA0W64fH6Y>

- **Problem**

When closing a Civil 3D Drawing, we effectively shut down our access to some of the important data contained inside. For example, how nice would it be to be able to quickly determine the Coordinate system assigned to a particular file without having to open it first? Even better, what if we could search on that information? How about including other helpful material like Project Manager, Contractor, Project Number, Location... in a way that could be accessed quickly WITHOUT having to open the file.

- **Solution**

We will explore the use of Drawing Properties such that custom fields can be quickly created and disseminated to other DWGs. From there we are easily able to learn a lot about our DWGs and models without being forced to open them first.





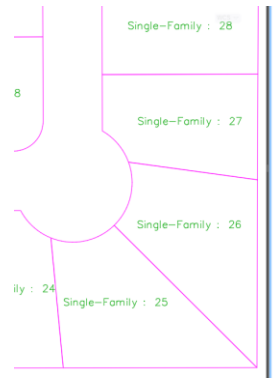
Scenario 4: VIDEO: <https://youtu.be/uPa4x6cargc>

• Problem

Have you ever had to create a Site Data Table to document the land usage on your project? Sure, we have the ability to create a Parcel Report but it doesn't always contain all of the information we need. (Such as gross site density, number of lots, %Open Space...)

• Solution

In this example, we will look at how to organize our project's land usage using Parcel objects. From there we will leverage a little Excel magic to create a linked Table within our project that contains exactly what we need. (And can be easily updated if our geometry changes)

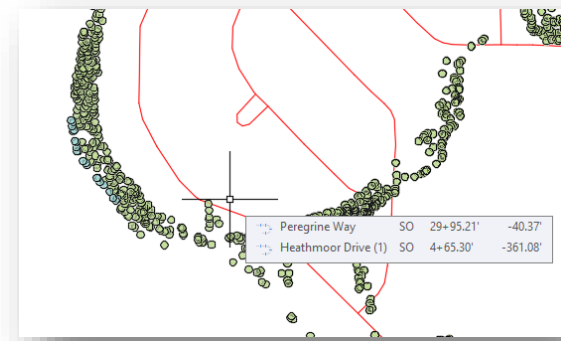


SITE DATA TABLE			
TOTAL PROJECT SITE AREA	=	60.1025	ACRES
# OF LOTS	=	62	
MAXIMUM LOT SIZE	=	66041.35	SQ.FT.
MINIMUM LOT SIZE	=	9172.48	SQ.FT.
AVERAGE LOT SIZE	=	13069.58	SQ.FT.
DENSITY	=	0.97	LOTS/ACRE
TOTAL OPEN SPACE	=	12.04	ACRES
OPEN SPACE (Excluding Detention Area)	=	7.78	ACRES
DETENTION AREA	=	4.26	ACRES
% OPEN SPACE	=	20.02	%

Scenario 5: VIDEO: <https://youtu.be/k53gQA1Fziw>

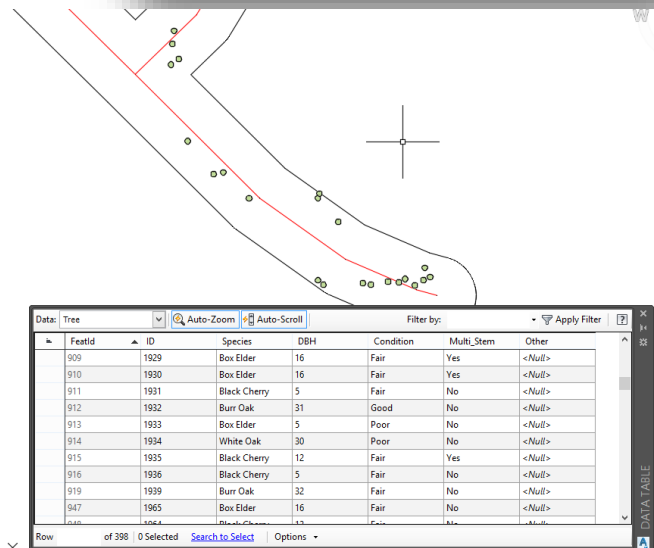
• Problem

We are working on a new road project that runs through an area of existing trees. Now is the time to determine the road placement to ensure we preserve desirable trees. We need a quick way to create a report of which trees will be impacted as a result of our road improvements so we can ensure the best alignment location.



• Solution

We will explore how to quickly leverage queries to determine trees within 50' of our road(s) centerlines. We can then export the results and decide if adjustments to the road location are necessary. In doing so, we are leveraging one more data point to determine the best location for our road improvements.





Scenario 6: VIDEO: <https://youtu.be/FuH4vm7iCak>

- **Problem**

Working with very large surfaces can be very demanding on our system resources. Especially when it comes to displaying large amounts of contour information. Yes, we have tools to control Surface Level of Detail that helps with this but the drag a very large surface creates on our computer can still be problematic.

- **Solution**

We will look at a couple of different strategies to help address this problem including offloading some of the surface display responsibilities to FDO. In doing so, we can achieve a better performing Civil 3D surface object while even enhancing how it is displayed.



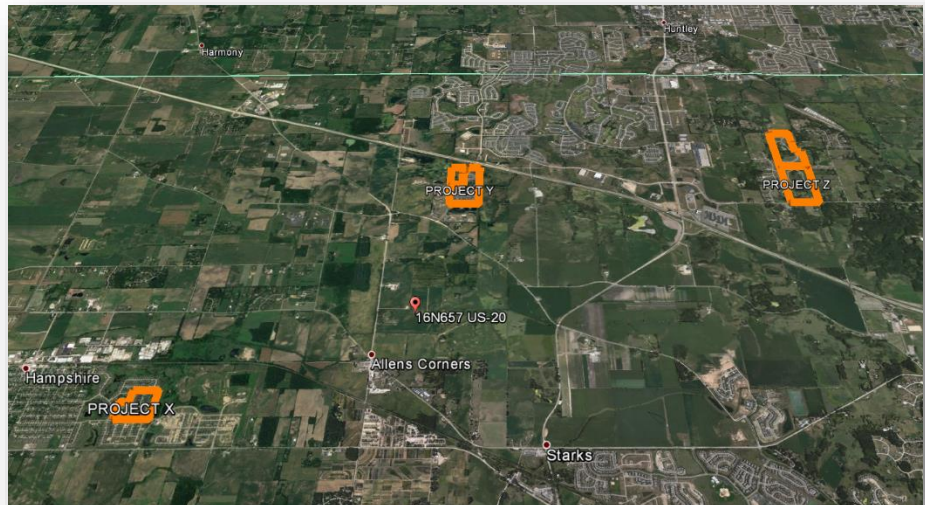
Scenario 7: VIDEO: <https://youtu.be/y4WWVppCHs4>

- **Problem**

When starting a new project, it can be very handy to know what other Projects you have done in the vicinity. For example, determining things like Survey Control, traffic counts, contact information, lessons learned... Our firm would record this information on paper tax maps with colored highlighters. (Helpful but arguably not the best solution)

- **Solution**

We will explore a strategy where we can leverage .KML files from Civil 3D in Google Earth to create a significantly better approach to solving this problem.





Scenario 8: VIDEO: <https://www.youtube.com/watch?v=7m2zHHDejZA>

- **Problem**

Grading pedestrian ramps or curb cuts have always been a challenging task in Civil 3D. So much so that it is routinely avoided unless absolutely necessary. Over the years, many strategies have been developed with the goal of making grading these areas an easier one.

- **Solution**

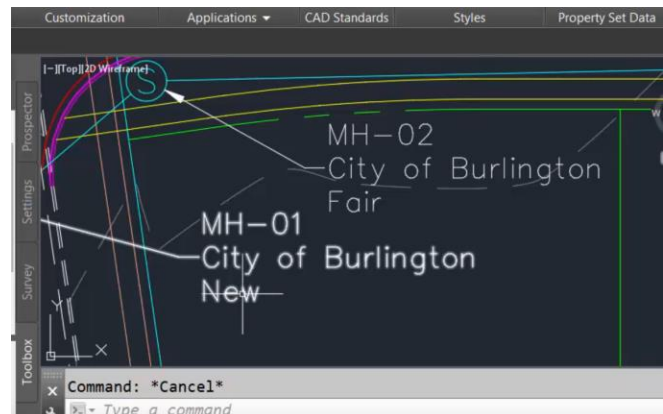
During our session we will walk through a grading workflow that leverages feature lines that will help make short work of modeling the pedestrian ramps on your next project.



Scenario 9: VIDEOS: <https://www.youtube.com/watch?v=rqC8s1gCkaE>
https://www.youtube.com/watch?v=DjUXuw_s8Z4

- **Problem**

Our Civil 3D objects contain a fair amount of property information. Depending on the object, this could include values like RIM, SIZE, ELEVATION... Many times it would be helpful to attach additional values for things like OWNER, INSTALLATION DATE, CONDITION... This is now possible by using a feature known as Property Sets. Unfortunately, there has not been an easy way to incorporate this new information into our annotation.



- **Solution**

During our session we will explore both how Property Set data is created as well as how it can easily be included into any of your Civil 3D annotation labels.



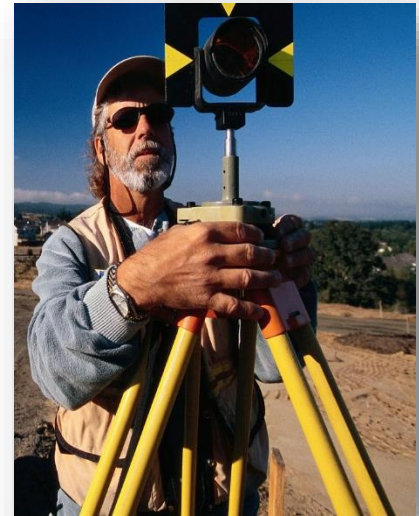
Scenario 10: (Bonus)

- **Problem**

When doing data collection and performing Survey operations in Civil 3D there have been numerous requests for new functionality. This includes supporting additional attributes, the ability to create Civil 3D objects from SHP files, the ability to better organize the data and more.

- **Solution**

Exciting new tools are currently in development that will address these requests and more. We are hopeful that we will be able to introduce and explore these new tools during our session but it will come down to the wire as to their availability before our session.



Scenario 11: Even more Bonus – Low cost VR VIDEO:

https://www.youtube.com/watch?v=M4pCiv_IdBg

