Civil 3D User Group Workshop

Presented by:

ACEC
Wisconsin

October 22-23
WISCONSIN DELLS
GLACIER CANYON LODGE
at the Wilderness Resort

Version 9/27/18

REGISTER: Early Deadline Sept. 21 | Regular Deadline Oct. 15

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CIVIL 3D USER GROUP WORKSHOP
OCTOBER 22-23

The American Council of Engineering Companies of Wisconsin is excited to once again host the Civil 3D User Group Workshop. This event provides attendees the chance to learn from experts in Civil 3D and extended networking opportunities. This workshop is open to engineers, technicians, resellers, government officials and anyone else who uses Civil 3D. This workshop will also feature specific WisDOT instruction and guidelines.

PROFESSIONAL DEVELOPMENT HOUR CREDITS

Credits awarded at the Civil 3D User Group Workshop are eligible for Wisconsin continuing education credit. Professional development hour (PDH) credits will be awarded for sessions attended. Workshop attendance on October 22-23 is eligible for an estimated 5 PDH credits. ACEC WI is listed as an approved provider of continuing education programs for professional engineers by the Wisconsin Department of Safety and Professional Services.

WORKSHOP LOCATION

Glacier Canyon Lodge (at the Wilderness Resort)
45 Hillman Road, Wisconsin Dells, WI 53965
800-867-9453 | www.glaciercanyonlodge.com

WORKSHOP APP & WEBSITE

The workshop utilizes a mobile app and website instead of the traditional booklet. The app contains all session information, maps, personalized scheduling information, presentation materials and evaluation surveys. These materials will also be available after the workshop through the app or website.

If you do not have a smart phone, you can download the documents ahead of time from your computer.

DOWNLOADING THE APP

The workshop app is available for both Android and Iphone users. It is highly recommended that you download the app before the workshop. The app and download instructions will be available in early October. The website will also be available ahead of the event.

Guest Room Reservations

Guest rooms are available at the Glacier Canyon Lodge the evening of October 22 for $100. This rate is available to the entire room block. Rooms are also available at the prevailing rate. Room rates are subject to tax and nightly resort fee ($19.95,) unless tax-exempt information is provided. **Make your reservation by September 21 to receive the group rate.**

To receive the group rate, call 800-867-9453 and tell the agent you are booking under ACEC WI Civil 3D Users Group Workshop Reservation at the Glacier Canyon Lodge, Leader #665823.

A credit card is required to hold and guarantee the reservation. The card will not be charged at the time of reservation. An alternate card may be provided at check-in.

Hotel check-in time is 4:00 p.m. and checkout is 11:00 a.m.

Tax Exempt Reservations – The Glacier Canyon Lodge sends reservation confirmation notices via email. Follow the link within the confirmation email for instructions on claiming the tax exemption for government room rates. Since reservations are made on an individual basis, tax exempt documentation is required for each guest. Completing this process in advance will expedite the on-site check-in process.

Glacier Canyon Lodge Guest Room Cancellation Policy
- Prior to Sept. 21 = no charge
- After Sept. 21, but more than 72 hours prior to scheduled arrival = $20 cancellation fee
- Within 72 hours of scheduled arrival = entire room rate will be charged

WORKSHOP AGENDA & REGISTRATION

Sessions are described in detail on the following pages. Session and session descriptions are subject to change. Workshop attendees are asked to pre-register for the workshop and breakout sessions.

Monday, October 22

1:30 p.m.	Registration Begins
2:00 p.m.	Autodesk Roundtables
4:00 p.m.	Break
4:15 p.m.	WisDOT Classes and Open Discussion
6:00 p.m.	Networking Reception
7:30 p.m.	Evening Concludes

Tuesday, October 23

8:00 a.m.	Registration & Breakfast
9:00 a.m.	Opening Session
	Welcome
	ACEC WI Update
	WisDOT Update
	Autodesk Keynote
10:15 a.m.	Breakout Sessions A
11:15 a.m.	Break
11:30 a.m.	Breakout Sessions B
12:30 p.m.	Lunch & Sponsor Expo
1:30 p.m.	Breakout Sessions C
2:30 p.m.	Break
2:45 p.m.	Breakout Sessions D
3:45 p.m.	Break
4:00 p.m.	Breakout Sessions E
5:00 p.m.	Raffles and Giveaways
5:15 p.m.	Event Concludes

Registration

To register, please use the enclosed registration form or register online at https://www.acecwi.org/events/2018-civil-3d-user-group-workshop by October 15. Register by September 21 to take advantage of the early registration rate. The workshop registration fee includes: workshop app and website access, networking reception, breakfast buffet, break refreshments and lunch.

ACEC WI Member Rates
Early Registration (by September 21) - $125
Regular Registration (by October 15) - $175

Non-Member Rates
Early Registration (by September 21) - $225
Regular Registration (by October 15) - $275

Government & Student Rate
The registration rate is $90. This rate applies to municipalities, counties and other forms of government. It also applies to students. Use the enclosed form or register online by October 15. WisDOT registrants will receive registration instructions.

Workshop Registration Cancellation Policy

Registration is fully refundable if cancellation is received by October 15. Cancellations will not be accepted after October 15; however, registration is transferable to another individual.

GENERAL SESSIONS

MONDAY, OCTOBER 22
AUTODESK ROUNDTABLE DISCUSSIONS

Join Autodesk power users in open roundtable discussions. This is a chance for attendees to review what Autodesk is currently doing and provide suggestions and feedback for future implementation. There will be separate groups focusing on different topics with the opportunity to switch between groups. This setup will also facilitate small group discussion and learning. This is your chance to network with key decision makers and influencers of the Autodesk team as they will be leading the conversations and discussion groups.

WISDOT CLASSES

Hear from Brad Hollister, Lance Parve and other Methods Development Unit experts on WisDOT information and methods. Topics will include BIM transportation applications and 3D design evolution at WisDOT. This will be followed by a full Q&A session; attendees are encouraged to participate and develop a dialogue with MDU.

NETWORKING RECEPTION

After the WisDOT Q&A, attendees are invited to attend a networking reception. Participants will be able to discuss Civil 3D in an informal setting with other attendees, MDU, Autodesk, speakers and vendors.

TUESDAY, OCTOBER 23
WELCOME

Matt Graun, workshop co-chair, will briefly welcome participants and provide background on this inaugural workshop. He will touch on the need for the workshop, recognize the individuals that played key roles in planning the workshop and provide an overview of the day's events.

WISDOT UPDATE

WisDOT will provide an update on current initatives within Methods Development Unit and an overview of what to expect coming up. WisDOT experts will also be around during the day to answer questions and lead sessions.

AUTODESK KEYNOTE

Always an audience favorite, Autodesk will help set the tone for the day by exploring the exciting trends in technology and what their developers have been working on. Autodesk will lead an entire track of sessions for education, networking and encouuragement on how to overocme those unique difficulties.

THANK YOU

Thank you to the Civil 3D Workshop Planning Committee for planning and coordinating this year's event!

Workshop Co-chairs:
Matt Graun, Becher-Hoppe Associates
Mike Higgins, Becher-Hoppe Associates

Committee Members:
Michael Kowal, Becher-Hoppe Associates
(Steering Committee Liaison)
Rachel Burnham, SRF Consulting Group
Andrew Czech, AECOM
Mark Degner, Ayres Associates
Mark Etten, Cooper Engineering

Eric Gates, EnvisionCAD
Brad Groh, JT Engineering
Andrew Heidtke, ACEC WI
Paul Kirkendall, MasterGraphics
Jay Konigsbauer, Autodesk
Dana Ladzinski, Michael Baker International
Ben Oitzinger, Gremmer & Associates
Drew Olsen, Autodesk
Steve Popke, WisDOT
Andrew Robb, Seiler Design Solutions
Brian Veit, KL Engineering

A1 New Baseline Functionalities in Civil 3D 2018
Speaker: Russ Nicloy; MACER Technologies
Target Audience: Project Managers, Transportation Designers
Suggested Prerequisites: Civil 3D, Corridor Design Experience

In Civil 3D 2018 you can now use feature lines as a baseline for corridor design, replacing alignment/profile baselines in certain circumstances. You can also use feature lines extracted from a corridor as an extra baseline to further develop that corridor. With these tools available, when should you use them, or when is the more conventional method preferable? This session will also cover the use of Connecting Alignments for dynamic curb-returns in intersections.
Some functions covered in this session may not be approved for use on WisDOT projects.

Learning Objectives:
- Understand where using feature line baselines or connecting alignments is a good idea.
- Learn how to use feature lines as corridor baselines.
- Learn how to use a corridor feature line as an extra baseline for that corridor.
- Learn how to use the connecting alignments, especially in intersection development.

A2 Feature Lines: Best Practices and Suggested Workflows
Speaker: Kyle Groves, EIT; CAD Technology Center
Target Audience: Users doing Site Grading with Feature Lines
Suggested Prerequisites: Basic AutoCAD Knowledge

Properly drawn Feature Lines make our design process faster and give us great looking Surfaces. Poorly drawn Feature Lines leave designers with choppy Surface contours, flat spots, and an urge to draw contours manually. In this class, we will review the fundamentals of Feature Lines and their interactions with Surfaces. Attendees will be directed in workflows using the right Feature Line editing tool in the right situation. Students will then be shown how to best use the "Relative to Surface" feature (new in version 2018) and examples of best practices for Feature Lines to optimize their designs. Finally, we will cover a workflow for creating dynamic, variable-depth datum surfaces for parking lot grading.

Learning Objectives:
- Understand how Feature Lines contribute to Surface TIN Line and TIN Point definition.
- Understand which Feature Line Editing Tools work under different circumstances.
- Learn to utilize the "Relative to Surface" elevation assignment for Feature Lines.
- Learn to utilize the Feature Line "Style Hierarchy" to control the resolution of crossing Feature Lines.

A3 Pipe Networks, It's All Downhill From Here
Speaker: Doug Benoit, PE; US CAD
Target Audience: CAD Technicians, Engineers, Municipalities
Suggested Pre-requisites: Knowledge of Civil 3D

In this session, we will discuss the creation of a Pipe Network in Civil 3D from Setup to Plotting. We will also take a look at the QTO Manager. We will start by taking a more in-depth look at the Pipe and Structure styles and Rules and how they are applied to the Parts Lists. We will lay out a Pipe Network in plan view and then display it in Profile View where we will discuss the Flared End Section structure dilemma. Using the Plan Production tools and the Sheet Set Manager, we will create sheets. Finally, we will look at the QTO Manager and Takeoff tools for pipe lengths and structure counts.

Learning Objectives:
- Discover how to set up pipe networks using rules.
- Review the editing process of pipe networks.
- Learn how to add pipe networks to the profile view for plotting.
- Understand how to use the QTO Manager and whether or not to use it for different projects.

A4 Infraworks for Conceptual and Preliminary Roadway Design

Speaker: Rachel Burnham, PE; SRF Consulting Group
Target Audience: Interest in Infraworks (introductory)
Suggested Prerequisites: Beginner Civil 3D Knowledge

This class is for engineers and technicians that are interested in learning more about using Infraworks for preliminary roadway design.

The class will review:
- Model creation using publicly available and project-specific information.
- Creating roadway design models (component roads).
- Editing roadways (alignments, profiles, daylight grading, superelevation, etc.).
- Creating design alternatives, exporting information to Civil 3D.
- Software limitations for design.

Learning Objectives:
- Learn how to create a model using publicly available and project-specific data.
- Discover how to create a component road and understand how to edit alignments, profiles, and slope grading.
- Review exporting design information from Infraworks to Civil 3D.

A5 Collaboration for Bridge Design

Speaker: Paul Kirkendall, Mastergraphics.aec
Target Audience: CAD Managers
Suggested Prerequisites: Civil 3D

Bridge design and conceptualization is vital to or crumbling infrastructure. Many bridges are designed in 2D and then sketched in 3D to visualize to the public. In this class we will go through:
- What it takes to design and visualize bridges in 3D.
- How to bring the bridge structures to revit for further detailed structural design.
- How to bring the site design into C3D for further granular design.
- How to bring everything back together for clash detection and construction simulation.

Learning Objectives:
- Conceptualize and design bridges in Infraworks.
- Learn to push designed bridges from infraworks to revit and site design to C3D.
- Understand how to geolocate bridge in revit and push to navisworks for clash detection.
- Review how to marry site design with structures to visualize the project.

A6 Autodesk Civil Infrastructure Solutions: Product Strategies and Roadmaps

Speakers: Sarah Cunningham & Dave Simeone; Autodesk
Target Audience: CAD/BIM Managers, Civil Engineers
Suggested Prerequisites: None

We will present Autodesk's vision for the future of civil infrastructure design and share how that vision, along with customer input, helps shape product roadmaps for Civil 3D and InfraWorks. This presentation will include a look at some global AEC industry trends, a breakdown of product strategies for Civil 3D and InfraWorks and some insights into things currently under developmentof Mobile LiDAR data for corridor rehab projects.

Learning Objectives:
- Understand the role each product has in a civil engineer's design process.
- Learn how the products are evolving and maturing.
- Discover the Autodesk vision of what the design and collaboration workflows of the future might look like.

B1 The Many Uses of WisDOT's Slope/Width Control Editor
Speaker: Keith Sowinski, PE; WisDOT
Target Audience: Civil 3D corridor modeling users
Suggested Prerequisites: Basic corridor modeling fundamentals

When you have a task without a tool specifically designed for it, you have to figure out a way to re-purpose the tools available to you. That's the idea behind WisDOT's Slope/Width Control Editor. WisDOT provides many free tools to enhance Civil 3D, but the Slope/Width Control Editor is one of the most powerful and versatile. In this class, we'll discover that a Civil 3D profile can represent much more than elevation. It can also represent slopes, distances, and integers. If you combine that understanding with WisDOT custom subassemblies and the Slope/Width Control Editor, you'll be be able to simplify assemblies, reduce assemblies, create smooth corridor transitions, and control subassembly behavior. This class will include several example use cases that will leave you feeling excited to tackle your next corridor modeling task.

Learning Objectives:
- Recognize that profiles can represent more than just elevation.
- Become familiar with the WisDOT Slope/Width Control Editor interface.
- Understand how to use the WisDOT Slope/Width Control Editor in concert with WisDOT custom subassemblies to complete common corridor modeling tasks.

B2 Tips and Tricks in AutoCAD and Civil 3D
Speakers: Mark Degner, PE; Ayres Associates; Eric Gates, EnvisionCAD; Matt Graun, Becher-Hoppe; Brian Veit, PE; KL Engineering
Target Audience: Designers, Beginner Users, CAD Managers
Suggested Prerequisites: None

Efficiencies are being sought in every sector of the engineering environment. More and more managers are requesting CAD users to be more productive in both AutoCAD and Civil 3D. This class will walk you through tips and tricks to increase your productivity. By providing both lesser known and also common commands, audience members will find useful ways to implement many of the tips and tricks into your everyday workflow.

Learning Objectives:
- Learn how to complete AutoCAD tasks faster.
- Explore new commands to expedite processes.
- Increase C3D Productivity.

B3 Goodbye Part Builder, Maybe...
Speaker: Josh Clawson, Mastergraphics.aec
Target Audience: CAD Mangers & Technicians, Drafters
Suggested Prerequisites: Moderate Civil 3D Experience

This past year Autodesk came out with a new authoring tool for Pipe Networks to replace Part Builder - Infrastructure Part Editor. In this session we will be covering the work flow to modifying existing content, authoring new content, and migrating that content into a Civil 3D Pipe network parts list. Even though Part Editor is a good alternative to Part builder, there are some things you cannot do. We will cover the limitations of Part Editor and go over why you should not abandon Part Builder just yet.

Learning Objectives:
- Explore the functionality of Infrastructure Part Editor.
- Learn how to modify existing content in Infrastructure Part Editor.
- Learn how to author new, custom content in Infrastructure Part Editor.
- Understand why you should not abandon Part Builder.

B4 The Power of Infraworks as a Design Tool
Speaker: Edmundo Herrera, Autodesk
Target Audience: Engineers, CAD Managers, Technicians
Suggested Prerequisites: None

This class will focus on demonstrating how InfraWorks can be used in models as a true engineering design tool. These functions include: Importing ESRI shape files leveraging attributes to construct true 3D Models for planning   and geospatial analysis, Sight Distance Analysis, Right of Way Layout, Corridor Optimization, Computation of Watersheds, Culvert Design, Flooding Simulation, Traffic Simulation, Mobility Simulation, Bridge Layout.

Learning Objectives:
- Learn to create intelligent geo-referenced models
- Discover how Infraworks can be used for multiple phases of projects
- Validate functionality of infrastruture projects before being built based on current and projected demands.

B5 Mobile LiDAR Data & Corridor Rehab: Preparation & Data Usage Considerations
Speakers: Andrew Robb & Mark Schnesk; Seiler Instrument
Target Audience: Civil 3D End-Users, Project Managers, Surveyors
Suggested Prerequisites: Experience with LiDAR datasets

LiDAR scanning technologies have presented a paradox from the very beginning: the contrast between incredibly fast data collection & slow post-processing and data preparation for actual use. This session will examine data from an ongoing corridor rehab project with the City of Detroit, in terms of what preparations were required to make the data usable within C3D. Attendees will come away with actionable intelligence regarding hardware requirements, insight into Survey considerations, and what products & workflows within the Autodesk toolbox are essential for the successful usage of Mobile LiDAR data for corridor rehab projects.

Learning Objectives:
- Understand the requirements and associated costs of preparing for Mobile LiDAR data usage in a production environment.
- Review and compare vendor (ex. Trimble) post-processing tools.
- Discover the optimal products and workflows for using LiDAR data.

B6 Road Rehab Optimization I (Infraworks and Point Clouds)
Speaker: Ramesh Sridharan, Autodesk
Target Audience: Civil Engineers, Road Designers
Suggested Prerequisites: None

This class will focus on demonstrating how InfraWorks can be used to extract existing conditions for reality capture datasets that are key for Road Rehab Optimization workflows. Point Clouds are a very important component in current infrastructure projects and it is vital to know how to handle them for successful project execution. This class will provide all the necessary

information to import, process, and extract information from point cloud data in Autodesk AEC products.

Learning Objectives:
- Review how to do feature extraction from point cloud.
- Interact with breakline extraction in Infraworks using point clouds.
- Learn how to use point cloud information between Infraworks and C3D.

Breakout Session C Descriptions

C1 Building Beam Guard EATs for WisDOT 3D and 2D Deliverables
Speaker: Eric Arneson, PE; WisDOT
Target Audience: Highway Designers working with WisDOT
Suggested Prerequisites: Fundamental understanding of subassemblies, assemblies, corridors, regions and targeting

This course will cover the best methods for designing beamguard for current WisDOT plan and model standards. Focus areas will include beamguard energy-absorbing terminals (EATs) and workflow that is responsive to design changes. The first part of the course will cover design for 3D and 2D deliverables and the second part will highlight changes for cross-section only deliverables.

Learning Objectives:
- Be able to use and modify the provided WisDOT subassemblies for beamguard.
- Review workflow best practices to get from horizontal layout to surfaces and cross-sections for a beamguard EAT.
- Learn when you can provide only cross-sections for EATs and best practices for modifying workflows to deliver cross-sections only.

C2 Basics and Beyond for QTO in Civil 3D
Speaker: Paul Kirkendall, Mastergraphics.aec
Target Audience: Civil 3D Users
Suggested Prerequisites: AutoCAD & Civil 3D

Sick of doing hand calculations for road, site and/or heavy civil design? This class will go through the calculation of earthwork & material volumes for corridors. Calculating and reporting quantities and using pay items. With a combination of custom and OOTB Pay items and styles, we can create Civil 3D assigned, tables and reports with said information. Once pay items and materials are properly assigned tables and reports can be dynamically linked and or plotted out as needed for your projects.

Learning Objectives:
- Learn to use Corridor Earthwork Volume tools to compare existing and proposed surfaces at specified alignment stations with cumulative cut fill volumes and incremental volumes.
- Discover how to generate material quantities for corridor shapes.
- Understand how to use Pay Item Quantities to extract and report the cost of a project based on the quantity of pay items that are assigned to AutoCAD or AutoCAD Civil 3D objects in the model.

C3 Civil 3D and SSA for Smarties: A Seamless Workflow
Speaker: Kyle Groves, EIT; CAD Technology Center
Target Audience: Civil 3D Users who do Hydrologic Design
Suggested Prerequisites: Basic knowledge of Civil 3D, pipe networks

You're smart. You want to be efficient and you want to reduce rework in your projects. Stormwater design is iterative by nature and can involve a lot of manual entry between programs; this is a time-consuming and error-prone workflow. Autodesk Storm and Sanitary Analysis (SSA) is included with the download of Civil 3D and these programs can import and export design data in a "round trip" workflow. This means that our Pipe Network design can leave Civil 3D, be manipulated in SSA, and come back to Civil 3D with those changes. Connecting these two programs saves users time and headaches. In this class users will be shown the setup required in both programs for this workflow, and then the workflow will be presented. Additionally, users will be instructed on how to organizing data for project phasing.

Learning Objectives:
- Understand how pairing Civil 3D and SSA can save time and reduce mistakes in stormwater design.
- Learn the workflow to cycle information between SSA and Civil 3D to iterate your design.
- Review how to set up projects for an efficient workflow in both Civil 3D and SSA.

C4 Creating an Award-Winning Display in Infraworks Using Civil 3D Design Data
Speaker: Ryan Malueg, WisDOT
Target Audience: CAD Managers, WisDOT and Municipal Users
Suggested Prerequisites: None

This class will show you how easy it is to turn your "flat" 2D plans into 3D reality for project stakeholders. In this class, attendees will see how to take a Civil 3d design project and build a 3D model in Infraworks using design surfaces, alignments, and shape files. Users will also learn how to take building images from Google Earth, import them into Photoshop to clean them up, and then use them as building faces in your model. Also, you will be shown how to export 3D objects from 3D Warehouse and import them into Infraworks as city furniture. We will then wrap-up the session creating display images and a fly through video.

Learning Objectives:
- Learn how to create a 3D model in Infraworks using design data from Civil 3D.
- Discover how to dress up your model with images from Google Earth and objects from 3D Warehouse.
- Create award-winning display images and fly through videos.

C5 Your Firm's Standards Sing in Harmony with WisDOT Standards
Speaker: Eric Gates, EnvisionCAD
Target Audience: Engineers, CAD Managers, Technicians
Suggested Prerequisites: None

Lift the hood on how the WisDOT settings are setup and managed, and reveal how many of these same tools and techniques can be used by consultants to leverage their own standards and settings deployments. Some of the tools we will be reviewing and uncovering are; simple plug-in packages to get your standards to load even when WisDOT settings are loading, simple lisp and scripts that allow for easy administration and distribution of new tools and modifying settings, sharable palettes that do not require changing the users personal settings or reloading a profile.

Learning Objectives:
- Become familiar with the WisDOT standards configuration launches.
- Learn how to make your own ribbon menu load with any startup configuration.
- Learn the general tool and menu loading function available with creating a simple plug-in package.

C6 Road Rehab Optimization II
Speaker: John Sayre, Autodesk
Target Audience: WisDOT Designers, Private Sector Consultants
Suggested Prerequisites: None

Using the Autodesk AEC Collection, this class will demonstrate the streamlined Roadway Rehab workflow. The demonstration will start in ReCap using ground LiDAR and point cloud data. Moving to InfraWorks, the point cloud data can be automatically extracted and used as surfaces and existing linear features. The data will then be brought into Civil 3D where the existing data will be used to generate the Rehab Corridor. The rehab corridor will allow the user to see the whole picture during the design process. This workflow will enhance the design process and optimize the quantities for better rehab results.

Learning Objectives:
- Learn how to utilize tools and the streamlined roadway rehab workflow.

- Understand the combination of Infraworks, Civil 3D and ReCap.
- Review how the road rehab workflow can enhance the full design process.

Breakout Session D Descriptions

D1 A Guided Tour through Superelevation Design in Civil 3D
Speaker: Steve Popke, WisDOT
Target Audience: Engineers and Designers
Suggested Prerequisites: Basic understanding of superelevation

A critical component of roadway design is correctly applying superelevation criteria to comply with FDM standards. Do you ever wonder how all the superelevation options in a subassembly work? What are the best practices for developing corridors with superelevation? This class will go through the process of how to use superelevation for various roadway design scenarios and the reporting tools available in Civil 3D.

Learning Objectives:
- Review what WisDOT customization tools are available for superelevation design.
- Gain a better understanding of the subassemby options for applying superelevation.
- Learn best practices for building corridors with superelevation.

D2 Beginners Guide to Corridor Modeling
Speaker: Joshua Melby, PE; KL Engineering
Target Audience: Municipal and WisDOT Users
Suggested Prerequisites: Civil 3D

Corridors are used to model roadways, trails, ditches, and many other terrain features. They are fairly easy to create, but can become very complex as the project moves forward if not set up correctly. Constructing and monitoring a Civil 3D corridor can be a tedious process. This class will focus on efficiently and effectively setting up a corridor, selecting the best subassemblies, and managing multiple corridors.

Learning Objectives:
- Understand a Civil 3D corridor.
- Discover how to choose the correct subassembly parts.
- Review where and when a corridor needs to be broken.

D3 Storm Sewer Design and Analysis with Civil 3D and SSA
Speaker: Mitchell Lavin, PE; WisDOT
Target Audience: C3D Users Designing Storm Sewer Systems
Suggested Prerequisites: Basic Civil 3D objects, basic urban drainage

In this class we will work through a storm sewer system design using Autodesk's AutoCAD Civil 3D and analysis using Autodesk's Storm and Sanitary Analysis (SSA). We will start out with designing a small storm sewer pipe network, utilizing rules to set structure elevation information and various tools to adjust inverts, part sizes, and naming. Once the structure preliminary design is set up, drainage catchments and flow paths will be created, allowing the calculation of the time of concentration. After the preliminary design is complete in Civil 3D, we will export the storm sewer network to SSA. In SSA, we will set up the project settings and catchment, structure, and pipe properties for analysis. After the analysis, we will discover best practices for reviewing and adjusting the storm sewer design and creating output for final records retention.

Learning Objectives:
- Review pipe network creation and rules.
- Understand the tools available in Civil 3D for drainage areas.
- Become familiar with setting up SSA for proper analysis based on WisDOT requirements.

D4 New Developments With ESRI/Autodesk Interoperability
Speakers: Andrew Robb & Mark Schnesk; Seiler Instrument
Target Audience: Engineers, Designers, Planners
Suggested Prerequisites: Basic familiarity with GIS and Map + Civil 3D

Historically speaking, CAD-GIS data interoperability has been fraught with peril, in the forms of platform incompatibilities, misunderstanding, and "division of labor" data siloing. These hurdles are now being lowered by the advent of data driven modeling apps, cloud-based data workflows, and last but not least- cooperation between ESRI & Autodesk.This course will explore GIS data aggregation methods in the Autodesk portolio, including the resuscitation & usage of "Feature Data Objects" in Map/Civil 3D 2018, the "ArcGIS Connector for Infraworks", as well as what's coming downstream vis-a-vis BIM-data hand-offs.

Learning Objectives:
- Understand the difference between "Feature Data" & "CAD Object Data" and how to leverage them for the best (expected) outcomes.
- Review the parameters surrounding Geodatabase & ArcGIS data connectivity and editing possibilities using Map 3D (within C3D).
- Take a close look at Planning-Phase GIS data aggregation using Infraworks, and the advantages of using this workflow in conjunction with Civil 3D.

D5 Civil 3D CAD Manager Discussion Panel
Speaker: Brian Levendowski, PE; CAD Technology Center
Target Audience: CAD Managers, Advanced Users
Suggested Prerequisites: None

Come join us for a CAD manager discussion panel with some of the industry's most experienced CAD Managers. Learn from the best as we will cover a full range of issues that CAD managers deal with on a daily basis. There will be a series of questions submitted to the panel prior to class, and we will also take some questions from the audience.

Learning Objectives:
- Learn from some of the industry's most experienced CAD Managers.
- Discover new strategies and techniques for working in Civil 3D.
- Interact with industry peers on attendee-driven topics.

E1 Corridor Modeling - Beyond the Roadway
Speaker: Michael Schneider, PE; AECOM
Target Audience: Roadway Designers
Suggested Prerequisites: Basic knowledge of Civil 3D corridors

Roadside protection and ditch grading can be complex from a design standpoint, and even more complicated to model within a corridor. This session will discuss creating modified roadside protection assemblies within a Civil 3D corridor, as well as the methods of grading between ramps corridors and within medians. Demonstrations include:
Guardrail Subassembly Design Using Generic Links
Concrete Barrier Subassembly Design Using Marked Points
Utilization of the MedianDitchorBerm Subassembly for Median Ditches/Berms
Step by Step Process of Grading Within Ramp Gores
Transition from Ramp Gore Ditch to Infield Surface
Displaying Ditch Profiles Designed Within Corridors

Learning Objectives:
- Understand how to model guardrails, EATs and concrete barriers.
- Review stepts to create ramp gore ditches.
- Discover how to project ditch designs to profiles.

E2 WisDOT Tools for Enhanced Plan Production
Speaker: Eric Arneson, PE; WisDOT
Target Audience: Plan Production Staff, Civil 3D Users
Suggested Prerequisites: Understanding of Layers, Blocks, Tool Palettes, Layouts, Fields and Viewports

Along with all the resource files to meet their standards requirements, WisDOT also provides many interface customizations and custom tools to enhance plan production. This class will go through all the customizations, where to find them, how to use them, and show how they can help with everything from simple to advanced plan production tasks.

Learning Objectives:
- Learn the WisDOT AutoCAD components and how to add them to any DWG.
- Review the WisDOT Sheets tool palettes and what's in them.
- Learn WisDOT custom tools to enhance sheet content creation.

E3 Survey Database Use for Projects
Speaker: Russ Nicloy, MACER Technologies
Target Audience: Surveyors, Project Designers
Suggested Pre-requisites: WisDOT project experience, Civil 3D

This session will take a broad look at the use of the Survey Database (SDB), and also look at how Wisconsin DOT has structured the SDB for their project use. Included will be how survey data coordinators can setup the structure of the SDB, as well as how designers can access that data for different needs in multiple project files.

Learning Objectives:
- Learn the basic survey database structure.
- Review how to use WisDOT's survey database setup in your projects.
- Discover how to consume data for your projects out of the survey database.

E4 You've got drone data! Now what?!
Speaker: Josh Clawson, Mastergraphics.aec; Brian Veit, PE; KL Engineering
Target Audience: CAD Managers, Drafters, Designers, Surveyors
Suggested Prerequisites: Infraworks and Civil 3D experience

Drones or UAVs, have become fairly common place in the construction industry. There are multiple companies producing UAVs as well as applications to fly them and software to process the results. In this session we will be exploring some of the different data outputs that you may receive from drone pilots. We will go through different options for bringing these various types of data into our design environment. And finally, we will compare the results of these different methods. We will be looking at different output data from; Pix4D, Autodesk Recap Photo, Drone Deploy and 3DR Site Scan, and how to get these different data outputs into Civil 3D.

Learning Objectives:
- Explore different data outputs from various drone processing applications.
- Discern various ways to utilize this data inside of Civil 3D and Infraworks.
- Compare different methods for processing data inside of Civil 3D.

E5 Acquiring Aerial and Mobile LiDAR for Transportation Design
Speaker: Richard Kleinmann, PLS & Matthew Vinopal, CP, CMS-LiDAR, GISP; Ayres Associates
Target Audience: Municipal and WisDOT Users
Suggested Prerequisites: None

Learn how to successfully acquire and use Aerial and Mobile LiDAR services and data for your transportation design projects. We will give tips and pointers on how to choose the acquisition method to fit your project needs and how to communicate those needs to your mapping consultant to make sure you get the level of detail and accuracy you need to support your project design.

Learning Objectives:
- Learn about survey data and acquisition methods for your project needs.
- Understand what types and level of detail you need to achieve the accuracy you need.
- Review when and where you might need to augment aerial or mobile data with conventional ground survey.

2018 CIVIL 3D WORKSHOP - REGISTRATION FORM

REGISTRANT DETAILS

Name _____   PE, SE, etc. _____

Firm Name _____

Address _____   City/State/Zip _____

Email _____   Phone _____

BREAKOUT SESSION REGISTRATION

Please select your breakout session preference by selecting one session in each section below:

Breakout Sessions A - 10:15 a.m.

| A1 | A2 | A3 | A4 | A5 | A6 |

Breakout Sessions B - 11:30 a.m.

| B1 | B2 | B3 | B4 | B5 | B6 |

Breakout Sessions C – 1:30 p.m.

| C1 | C2 | C3 | C4 | C5 | C6 |

Breakout Sessions D - 2:45 p.m.

| D1 | D2 | D3 | D4 | D5 |

Breakout Sessions E - 4:00 p.m.

| E1 | E2 | E3 | E4 | E5 |

DIETARY RESTRICTIONS

Please disclose any special dietary restrictions:_____

REGISTRATION TYPE & PAYMENT

Please select a registration type and payment option. Electronic registration is available at www.acecwi.org. Please contact ACEC WI at 608-257-9223 with questions.

ACEC WI Member	**Non-member Consultant**	**Government/WisDOT/Student**
$125 (by 9/21/18)	$225 (by 9/21/18)	$90 (by 10/15/18)
$175 (by 10/15/18)	$275 (by 10/15/18)	

Please return this form and payment to ACEC WI by October 15:
316 W. Washington Ave, Ste 950, Madison WI 53703 | 608-257-9223 | 608-257-0009 (fax) | acecwi@acecwi.org

Check enclosed   Check mailed separately   Credit Card*

Cardholder Name _____

Card Number _____

Billing Address _____

City/State/Zip _____

Expiration Date _____   Security Code _____

* ACEC WI is PCI compliant in protecting credit card information. Do not send credit card information by email; it is not secure.

Cancellation Policy: Registration is fully refundable if cancellation is received at ACEC WI by October 15. Cancellations will not be accepted after 10/15/18; however, registration is transferable to another individual.