# 22 Sessions: 2022 Virtual Workshop

## A Virtual Workshop series featuring Carlson Software training in CAD fundamentals, survey workflows, field data collection, hydrology and point cloud processing

The 2022 Virtual Workshops start with CAD fundamentals in IntelliCAD and AutoCAD and an introduction to Carlson, then move into survey, civil and hydrology workflows. Scott Griffin and Carlson staff present a software showcase and round tables on field software, desktop tools and Precision 3D hydrology. Doug Aaberg leads Field-to-Finish, Mark Long covers civil design and later sessions include user case studies on wet ponds, pervious pavers, fire flow, live field design and tips from Travis Maxwell, Finch & Associates and Bill Dennis.

**Key Topics:**

- Carlson and IntelliCAD setup, command shortcuts, object snaps and precise drafting
- Carlson CAD standards for layers, blocks, dimension styles, templates and custom linetypes
- Carlson survey points, deed entry and correlation, annotation and legal descriptions
- Carlson Field-to-Finish, TIN surfaces, contours and GIS imagery
- Carlson layouts, viewports, legends, title blocks, sheet

sets and PDF plotting
- Carlson 2023 drawing cleanup, CADnet PDF and BIM tools, retaining walls and subdivision layouts
- Carlson SurvPC field least squares, BIM stakeout, map overlays and Cloud data exchange
- Carlson BRx7 GNSS, hybrid robotic surveying and drone hardware demonstrations
- Carlson Hydrology and Precision 3D Hydro pond routing, storm networks and parametric inlets
- Carlson Point Cloud LAS imports, ortho imagery, bare earth extraction and automated feature extraction

**Sessions In This Series:**

- 1-1: Introduction to CAD, presented by Jennifer DiBona
- 1-2: Introduction to CAD, presented by Jennifer DiBona
- 1-3: Introduction to CAD, presented by Jennifer DiBona
- 2-1: Introduction to Carlson, presented by Jennifer DiBona
- 2-2: Introduction to Carlson, presented by Jennifer DiBona
- 2-3: Introduction to Carlson, presented by Jennifer DiBona
- 3-1: Carlson Software Showcase: Overview of Carlson, presented by Scott Griffin
- 3-2: Carlson Software Showcase: Field Software Round Table, panelists: Sarah Winter, John Gerber, Dough Aaberg & Butch Herter
- 3-3: No Recording
- 3-4: Carlson Software Showcase: Desktop Software Round Table, panelists: Leonid Entov, Lon Watson, Mark Long, Scott Griffin & Doug Aaberg
- 3-5: Carlson Software Showcase: Hydrology & P3D Round Table, panelists: Bruce Carlson, Shan Lu & Mark Long
- 3-6: Carlson Software Showcase: Hydrology & P3D Round Table, panelists: Bruce Carlson, Shan Lu & Mark Long
- 3-7: No Recording
- 4-1: Field to Finish from Start to Finish, presented by

Doug Aaberg

- 4-2: Field to Finish from Start to Finish, presented by Doug Aaberg
- 4-3: Field to Finish from Start to Finish, presented by Doug Aaberg
- 5-1: Civil Design in Carlson Software, presented by Mark Long
- 5-2: Civil Design in Carlson Software, presented by Mark Long
- 5-3: Civil Design in Carlson Software, presented by Mark Long
- 6-1: User Case Study: Wet Pond Design for Multi-Family Development, presented by Travis Maxwell
- 6-2: User Case Study: Pervious Paver Parking Lot Design, presented by Finch & Associates
- 6-3: User Case Study: Fire Flow Analysis Case Study, presented by Travis Maxwell
- 6-4: User Case Study: Live Field Design, presented by Bill Dennis of Civil Design Team LLC
- 6-5: Tips & Tricks in Carlson Software, presented by Travis Maxwell

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*These sessions were presented by Jennifer DiBona and Carlson staff*Jennifer DiBona opens with CAD fundamentals, the IntelliCAD

interface and drafting precision.Jennifer DiBona covers layers, properties, blocks, dimension styles and drawing templates.Jennifer DiBona explains linetypes, linetype scales and paper space layouts and viewports.









Jennifer DiBona introduces Carlson 2023 setup, configuration, project folders and annotation standards.Jennifer DiBona covers annotation settings, templates, CRD points and deed tools.Jennifer DiBona ties together Field-to-Finish, surfaces, GIS imagery, legends and






plotting.Scott Griffin showcases Carlson 2023, including drawing cleanup, Field-to-Finish, CADnet and B tools.Carlson staff discuss SurvPC 7 updates, field least squares, BIM stakeout and map overlays.







Carlson staff answer desktop software questions on the 2023 release, CUI customization and civil tools.Bruce Carlson, Shan Lu and Mark Long discuss hydrology workflows and Precision Hydro.Bruce Carlson continues the hydrology and Precision 3D discussion with storm



sewer and inlet design.Doug Aaberg starts Field-to-Finish from code tables and special codes through automated linework.




Doug Aaberg continues Field-to-Finish with special codes, templates, finishes Field-to-Finish with symbol rotation, pipes, trees and automated labeling.Mark Long begins civil design with LotNet subdivision layout and RoadNet setup.Mark Long continues RoadNet with templates, intersections, super elevation and cul-de-




symbols and layer setup.Doug Aaberg








sacs.Mark Long designs sanitary and storm networks and merges surfaces in Carlson Civil and Hydrology.Travis Maxwell presents a wet pond design case study for a multi-family site in HydroNet.



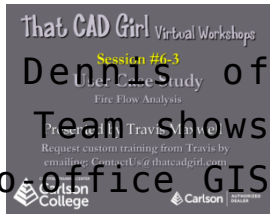






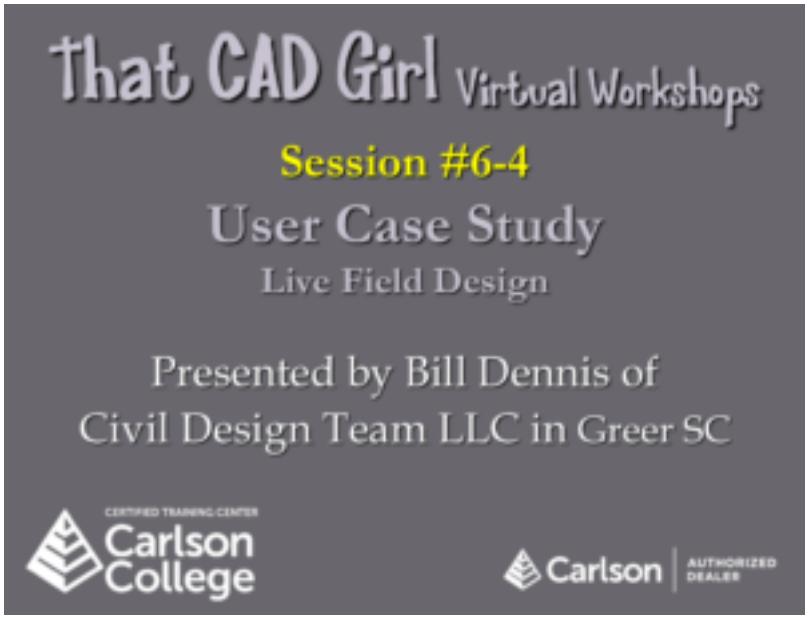

Finch & Associates present a pervious paver parking lot stormwater case study in HydroNet.Travis Maxwell presents a fire flow analysis case study with Carlson pressure pipe tools.Bill Dennis of Civil Design Team shows live field-to-office GIS and CAD design



techniques.Travis Maxwell shares project-data tips using tables, custom fields, sheet sets and LiDAR.




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# 8 Sessions: 2023 Virtual Workshop

## A Virtual Workshop series featuring Carlson Software training for survey data processing, point clouds, civil design and construction takeoff.

The recorded 2023 Virtual Workshops explore Carlson Software workflows and Carlson 2024 updates for surveyors, civil engineers and construction professionals. Scott Griffin presents an overview of Carlson and what’s new in Carlson 2024 while Doug Aaberg covers Survey, GIS and point clouds. Mark Long demonstrates RoadNet and Civil and Hydrology design while

Jennifer DiBona presents CADnet, SiteNet and Takeoff.

**Key Topics:**

- Carlson 2024 updates, drawing cleanup, imagery integration and BIM data handling
- Carlson Survey and GIS workflows for Field-to-Finish, feature attributes and shapefile imports
- Carlson Photo Capture and Point Cloud workflows for drone imagery, LiDAR, feature extraction and surface creation
- Carlson survey data processing, coordinate systems, raw data editing and GPS base point corrections
- Carlson Lot Network, RoadNet and Parking Network tools for site design, templates and plan/profile sheets
- Carlson Hydrology workflows for watersheds, runoff calculations, storm pipe sizing and utility crossing checks
- Carlson CADnet workflows for PDF imports, image merging, scaling and digitizing
- Carlson SiteNet workflows for 2D-to-3D conversion, material quantities, topsoil adjustments and machine control exports

**Sessions In This Series:**

- 1-1  to 2-4 were live.
- 3-1: Overview of Carlson and What’s New in Carlson 2024, presented by Scott Griffin
- 3-2: Overview of Carlson and What’s New in Carlson 2024, presented by Scott Griffin
- 3-3: Overview of Carlson Survey, GIS and Point Cloud, presented by Doug Aaberg
- 3-4: Overview of Carlson Survey, GIS and Point Cloud, presented by Doug Aaberg
- 4-1: Overview of Carlson Civil & Hydrology, presented by Mark Long

- 4-2: Overview of Carlson Civil & Hydrology, presented by Mark Long
- 4-3: Overview of Carlson, CADnet, SiteNet & Takeoff, presented by Jennifer DiBona
- 4-4: Overview of Carlson, CADnet, SiteNet & Takeoff (First 8.5 minutes have no sound), presented by Jennifer DiBona

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*These sessions were presented by Jennifer DiBona, Scott Griffin, Doug Aaberg or Mark Long.**The first two days were live.***Scott Griffin begins an overview of Carlson and what's new in Carlson 2024.Scott Griffin continues what's new in Carlson 2024, including LotNet, RoadNet and sheet production.

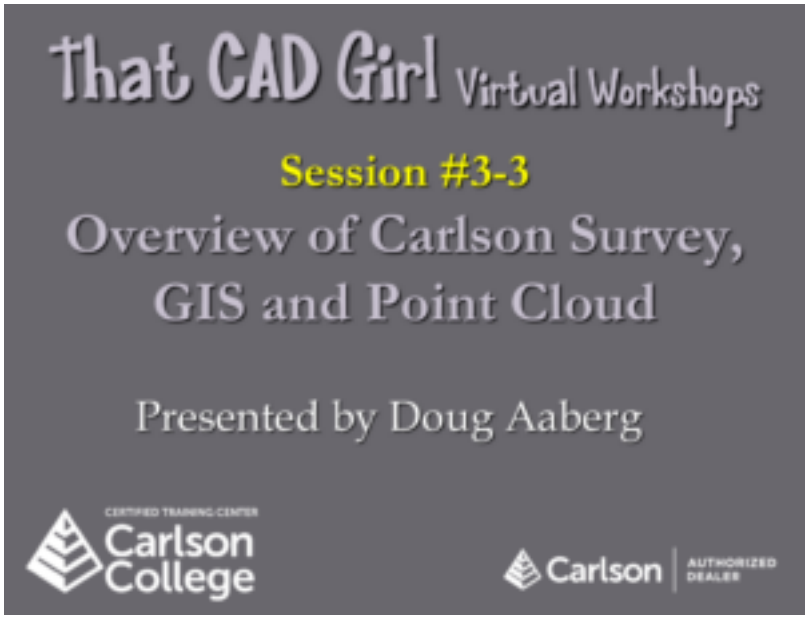


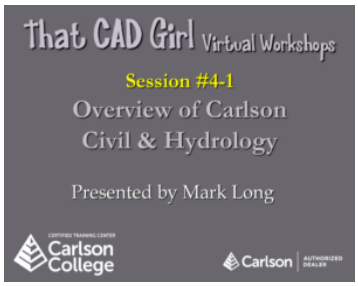




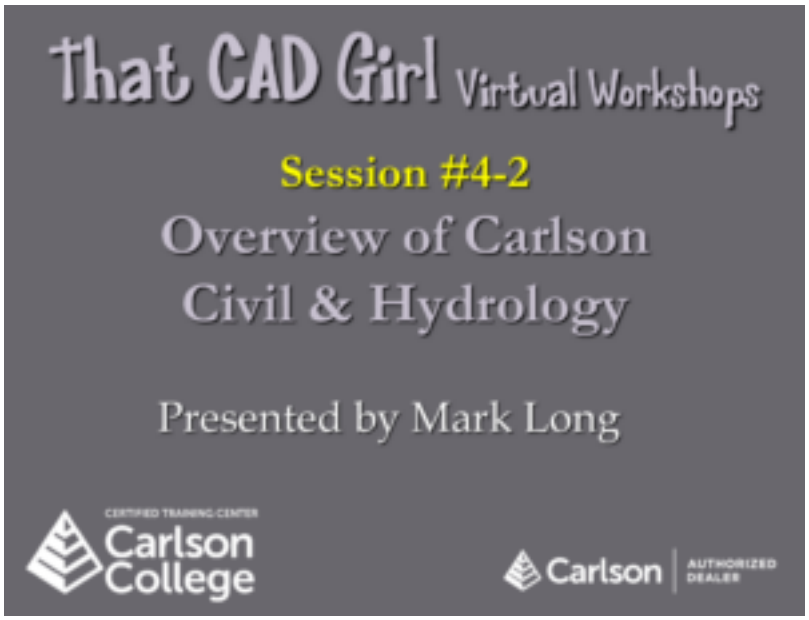
Doug Aaberg begins an overview of Carlson Survey, GIS and point

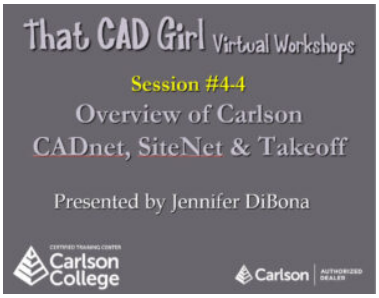
cloud tools.Jennifer DiBona and Doug Aaberg continue the Survey, GIS and point cloud overview.Mark Long demonstrates RoadNet setup, templates, intersections and civil design.




Mark Long covers hydrology, storm drainage and pipe networks in Carlson Civil and Hydrology.Jennifer DiBona overviews Carlson CADnet, SiteNet and Takeoff module workflows.Jennifer DiBona continues CADnet, SiteNet and Takeoff. The first 8.5 minutes have no sound.



# 16 Sessions: 2024 Virtual Workshop

## A Virtual Workshop series featuring Carlson Software training for surveying, surface modeling, construction takeoff and civil design.

The 2024 Virtual Workshops bring together practical Carlson demonstrations for surveyors, civil engineers and construction professionals. Jennifer DiBona, Doug Aaberg, Mark Long and Bruce Carlson overview Carlson Software, Survey and GIS, point clouds and Photo Capture, Civil and Hydrology, Precision 3D and the Takeoff Suite. Later sessions go deeper on advanced Field-to-Finish, SurvNet least squares with Donnie Stallings, surface modeling and advanced civil and hydrology design.

**Key Topics:**

- Carlson setup, project organization, Civil 3D and LandXML imports, deed entry and lot layout
- Carlson GIS data imports, imagery, feature attributes and field collection
- Carlson Point Cloud and Photo Capture workflows for drone imagery, LiDAR filtering and feature extraction
- Carlson Field-to-Finish code tables, automated linework, symbols and annotations
- Carlson Survey SNET least squares adjustment, residuals, blunder detection and accuracy checks

- Carlson surface modeling, breaklines, 3D polylines, pad grading and cut/fill analysis
- Carlson Takeoff, CADnet and Geotech workflows for PDF data, subgrades, topsoil and material quantities
- Carlson Civil, Hydrology and Precision 3D Hydro workflows for RoadNet, culverts, drainage and utility networks

**Sessions In This Series:**

- 1-1: Overview of Carlson Software, presented by Jennifer DiBona
- 1-2: Overview of Carlson Survey and GIS, presenter by Doug Aaberg
- 1-3: Overview of Carlson Point Cloud and Carlson Photo Capture, presented by Doug Aaberg
- 1-4: Overview of Carlson Civil and Hydrology, presented by Mark Long
- 2-1: Overview of Carlson Precision 3D Topo and Hydrology, presented by Bruce Carlson
- 2-2: Continuation of Overview of Carlson Precision 3D Topo and Hydrology, presented by Bruce Carlson
- 2-3: Overview of Carlson Takeoff Suite modules, presented by Jennifer DiBona
- 2-4: Continuation of Overview of Carlson Takeoff Suite modules, presented by Jennifer DiBona
- 3-1: Advanced Carlson Survey and Field to Finish, presented by Doug Aaberg
- 3-2: Continuation of Advanced Carlson Survey and Field to Finish, presented by Doug Aaberg
- 3-3: Adjusting YOUR Datasets with SurvNet, presented by Donnie Stallings
- 3-4: Continuation of Adjusting YOUR Datasets with SurvNet, presented by Donnie Stallings
- 4-1: Surface Modeling in Carlson Software, presented by Jennifer DiBona

- 4-2: Continuation of Surface Modeling, presented by Jennifer DiBona
- 4-3: Advanced Design with Carlson Civil and Hydrology, presented by Mark Long
- 4-4: Continuation of Advanced Design with Carlson Civil and Hydrology, presented by Mark Long

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These sessions were presented by Jennifer DiBona, Doug Aaberg, Mark Long, Bruce Carlson, or Donnie StallingsJennifer DiBona presents an overview of Carlson Software products and how they fit together.Doug Aaberg overviews Carlson Survey and GIS tools and workflows.




Doug Aaberg overviews Carlson Point Cloud and



Carlson Photo Capture.Mark Long overviews Carlson Civil and Hydrology design tools and workflows.Bruce Carlson overviews Carlson Precision 3D Topo and Hydrology tools.Bruce Carlson continues the Precision 3D Topo and Hydrology overview.Jennifer DiBona overviews the Takeoff Suite, including CADnet, Construction, Trench and GeoTech. Jennifer DiBona continues the overview of Carlson













Takeoff Suite modules.Doug Aaberg begins advanced Carlson Survey and Field-to-Finish coding techniques.Doug Aaberg continues advanced Carlson Survey and Field-to-Finish coding techniques.







Donnie Stallings shows how to adjust survey datasets with SurvNet.Donnie Stallings continues the session on adjusting survey datasets with SurvNet.Jennifer DiBona covers practical surface modeling techniques in Carlson Software.Jennifer DiBona continues practical surface modeling techniques in Carlson









Software.Mark Long presents advanced design with Carlson Civil and Hydrology.




Mark Long continues advanced design with Carlson Civil and Hydrology.







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# 6 Sessions: In Depth Carlson Hydrology

## A Virtual Classroom providing in-depth Carlson Hydrology training from beginning to end, with practical hydrology design workflows

This six-session In Depth Carlson Hydrology class with Travis Maxwell goes from setup through advanced detention design in

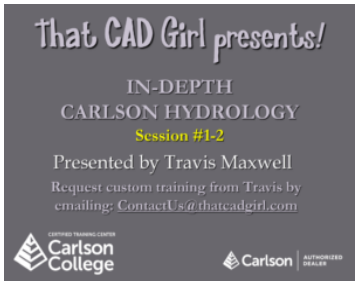
Carlson Civil and Hydrology. Day 1 covers libraries and rainfall data, Rational and SCS methods, Civil 3D data and terrain, storm network layout and hydraulic grade line and spread analysis. Day 2 adds utility crossings, HydroNet detention and hydrographs, pond grading and stage-storage, underground chambers and HydroCAD exchange.

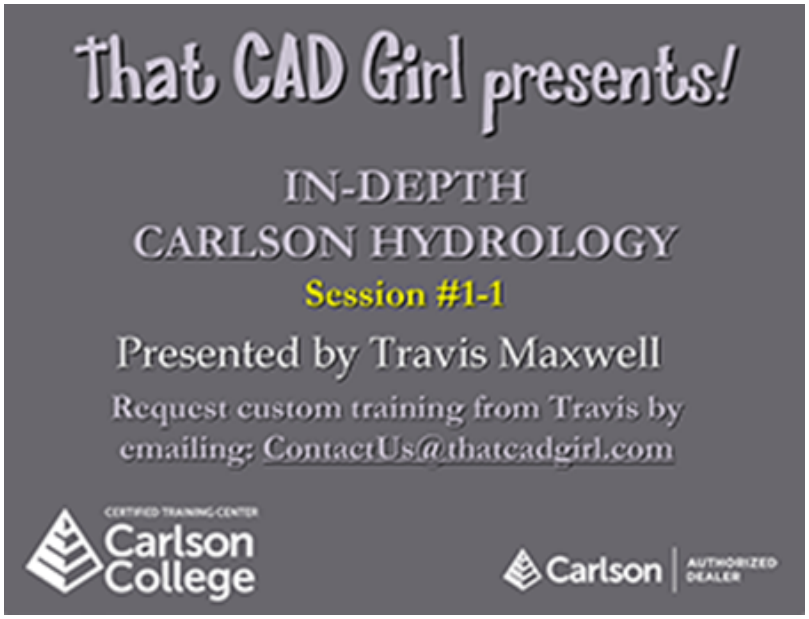
**Key Topics:**

- Carlson Hydrology module overview and setup
- Sewer and storm network configuration
- Use of SCS and Rational methods for runoff and detention
- Inlet libraries, rainfall data, and HydroNet integration
- Best practices for file management and dynamic modeling

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*These sessions were presented by Travis Maxwell.*Travis Maxwell introduces Carlson Hydrology setup, libraries, sewer networks and Rational and SCS methods.Travis Maxwell converts Civil 3D data, builds terrain and starts stormwater network design.

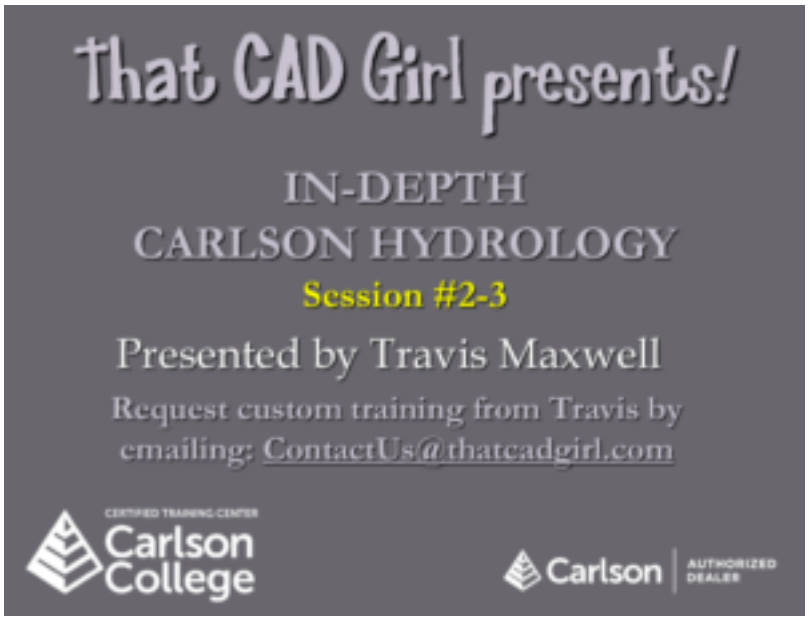



Travis Maxwell models storm sewers, delineates watersheds and analyzes hydraulic grade lines and

spread.Travis Maxwell covers collection systems, utility crossings and HydroNet detention setup.Travis Maxwell designs detention ponds, stage-storage and outlet controls HydroNet.Travis Maxwell finishes with chambers, HydroCAD exchange and wet pond detailing.




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# Importing Publicly Available Lidar for Surface Creation

# A Virtual Webinar Using Carlson Software – Learn Publicly Available LiDAR for Surface Creation

This Carlson Software webinar demonstrates how publicly available LiDAR can be downloaded, filtered, thinned and prepared for surface creation. Travis Maxwell shows how LAS and LAZ point-cloud files, LAS tools batch processing, Carlson grid files, contours and Google Earth checks can support preliminary terrain modeling workflows.

**Key Topics:**

- Public LiDAR sources and download workflow
- LAS and LAZ file handling
- Class 2 ground-point filtering
- Grid-file surface creation in Carlson
- Contour review and Google Earth verification

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*This session was presented by Travis Maxwell on 06/14/2023.*

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# Importing Publicly Available Lidar for Surface Creation

# A Virtual Webinar Using Carlson Software – Learn to Import Publicly Available LiDAR for Surface Creation

This webinar, led by Travis Maxwell and hosted by That CAD Girl, demonstrates how to import and process publicly available LiDAR data to create accurate surface models in Carlson Software. Attendees learned step-by-step methods for downloading, filtering and converting LiDAR datasets using LAS tools and Carlson's surface modeling features.

**Key Topics:**

- Downloading LiDAR data from the USGS National Map and state repositories
- Using LAS Tools to preprocess and filter LiDAR point clouds
- Creating surfaces and contours in Carlson Software
- Managing precision and file size for optimal performance
- Legal and practical considerations for using public LiDAR data

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*This session was presented by Travis Maxwell on 04/12/2023.*

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# Making Models from a Mess

# A Virtual Webinar Using Carlson Software – Learn to Make Models from Messy Drawings

This webinar demonstrates Carlson Software's toolkit for transforming messy 2D CAD data into clean, 3D-ready models for surface creation, staking and machine control. It walks users through practical cleanup workflows, layer management, elevation-setting commands and essential drawing preparation steps.

**Key Topics:**

- Cleaning and preparing CAD drawings for 3D modeling
- Using Carlson commands to elevate 2D polylines to 3D
- Managing layers, spot elevations and contours efficiently
- Combining and repairing data from multiple files for site modeling

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*This session was presented by Jennifer DiBona on 04/18/2019.*

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# Surfaces and Breaklines – the Basics

# A Virtual Webinar Using Carlson Software – Learn Surfaces and Breaklines Basics

This webinar, hosted by That CAD Girl, provides a comprehensive introduction to creating and editing surfaces and breaklines in Carlson Survey and Carlson Civil 2017. It covers surface fundamentals, step-by-step workflows for triangulation, contouring, breakline creation, field-to-finish processes, merging datasets and proper data delivery for surveyors and engineers.

**Key Topics:**

- Carlson Triangulate and Contour setup
- Shrinkwrap entities, non-surface points and breaklines
- Surface editing and visualization tools (3D Viewer, Flyover, Inspector)
- Merging survey and GIS (TIN/NED) data
- Building and exporting surfaces (TIN, LandXML)
- Risks of building surfaces from contours only

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*This session was presented by Jennifer DiBona on 06/15/2016.*

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# Survey Project From Start to

# Finish

## A Virtual Webinar Using Carlson Survey – Learn to Run a Survey Project from Start to Finish

This educational webinar walks through the entire surveying process in Carlson Software –from bringing field data into a drawing, to creating surfaces, labeling boundaries, correlating deeds and assembling a finished plotted sheet. Participants learned configuration settings, data-import techniques, field-to-finish workflows and how to integrate geospatial imagery and map data.

**Key Topics:**

- Carlson Survey setup and field data import
- Field to Finish automation and point grouping
- Boundary entry, deed correlation and legal description tools
- Surface creation, contouring and 3D viewing
- Labeling, annotation, title block and legend creation
- Integration of Esri imagery, Google Earth and published control points

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*This session was presented by Jennifer DiBona on 04/19/2016.*

# Surfaces and Breaklines – the Basics

## A Virtual Webinar Using Carlson Software – Learn Surface and Breakline Basics

This webinar by That CAD Girl explains the fundamentals of creating accurate surface models and breaklines using Carlson Survey and Civil software. It covers triangulation principles, common data pitfalls and best practices for using points, contours and field codes to produce reliable TIN surfaces.

**Key Topics:**

- Building surfaces and TIN files in Carlson Survey/Civil
- Using points, breaklines and contours effectively
- Understanding triangulation and common modeling errors
- Field to Finish automation for 2D/3D linework
- Merging surfaces and creating 3D PDFs

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*This session was presented by Jennifer DiBona on 02/09/2017.*