

# [DRAFT] Improvements for Carlson Office 2018

## Highlights

- **Fix Text Overlaps** – New command to find overlapping text and either auto-adjust by rules or review and fix each overlap.
- **TIN History** – New ability to track source data and edits for TIN for review and reprocessing.
- **Process Road Design** – Added method for divided highways to use separate centerlines for stationing and for road design.
- **Road Network** – Added method for placing curb ramps and added support for creating an island inside cul-de-sacs.
- **Place Google Earth Image** – Replaced image server engine. Support for higher resolution images. More image options.
- **Coordinate Cloud** – New command to store points to on-line database to share publicly or for personal lookup.
- **Optimized Pit Design** – Upgraded to new engine.
- **Point Clouds Create Solid** – New function to create a 3D solid from a cloud.
- **Lot Network** – Many upgrades including placing driveways and building footprints.
- **Draw Section File** – Added support for drawing an unlimited number of section files.
- **Point GIS Editor** – Added import and export for ESRI Geodatabase.

## General

- **AutoCAD 2018** – Added support for this new version.
- **IntelliCAD 8.3** – New commands like selection filters, gradient coloring and etransmit. Performance improvements such as selection, snapping, multi-threaded open and regen. Stability improvements overall. More DGN command support.
- **Network License Report** – New function under About Carlson to check on usage status of network license.
- **Geolocate DWG Files** – New command to display placemarks for dwg files in Google Earth.
- **Startup DWT** – Added method to control initial startup drawing template (dwt) to load.
- **Annotative Text** – Added option to set annotative scale to match drawing setup horizontal scale. Added setting for how to name annotation scales.
- **Layer Library** – Added setting for non-surface to filter out layers in Triangulate and Contour. Added method to create AutoCAD layer filter from selected layers. Added support for true color.
- **Fix Text Overlaps** – New command to find overlapping text and either auto-adjust by rules or review and fix each overlap.
- **Text Mask** – Added support for curve/arc text.
- **Sequential Numbers** – Added method for fixed symbol size and size text to fit.
- **Hatch Wizard** – Added setting for transparency.
- **Draw Table** – Added method to import Microsoft Excel from selected sheet with ability to link table to xls file. Added many more controls for the table style and option to auto split long tables.
- **Add/Replace Layer Prefix** – New commands to add or replace a prefix to selected layers in the drawing.
- **3D Entity To 2D** – Added support for hatch, leader, solid and 3D face entities.
- **Offset To Layer** – Added option to draw easement polyline around source polyline.
- **Median Offset** – Added new method that uses offset intersection method.
- **Edit Table Values** – Added functions to sort rows by selected field, to add columns and to delete columns.
- **Move Text With Leader** – Added options for curved leaders and to draw a box around the text.
- **Move Attributes With Leader** – New command to move block attribute and draw a leader to the block insertion.
- **Shrink Wrap Entities** – Added method to create interior hole boundary polyline.
- **Block Data Report** – New command to report the number of different types of blocks in the dwg along with their attributes.
- **Text File To Report Formatter** – New command to load a comma delimited text file into the Report Formatter.
- **Report Formatter** – Added option for double space between rows. Added left/center/right justification controls per field. Added prefix/suffix per field. Added method for user-defined field as a percentage of total for the field.

## Survey Commands

- **COGO Distance Input** – Added method to input distances by point numbers using # as the delimiter.
- **Edit Process Raw File** – Added support for processing offset records (OF) for in/out, left/right and depth. Added display option to only show the traverse point records. Added search and replace function by point number.
- **Geoid Utilities** – New command to report geoid values, apply geoid values or switch the geoid for points.
- **Coordinate Cloud** – New command to store points to on-line database to share publicly or for personal lookup.
- **Draw Points** – Added option to mask point labels.
- **Compare Points** – Added option on dwg startup to compare the coordinate file with the point entities to report differences.
- **Merge Points** – Added option to make a point group from the new points.
- **Export Points** – Added method to select multiple coordinates files and output to a single coordinate file.
- **Point Group Manager** – Added function to thaw a select point group.
- **Move Point Attribute With Leader** – Added method to recall moved position when redrawing points.

- **Field To Finish** – For points with GIS attributes, added method to draw different symbols based on the attributes. New RAMP special code for placing curb ramps. Added method for circle by two points for diameter like SurvCE method. For Wall3D special code, added method for width relative to left or right instead of center. For multi-point symbols, added option to label a single averaged elevation and option to draw rectangle that encloses the symbol points. For points tagged as No Elevation on 3D polylines, added option whether to skip the point or interpolate the elevation. Added new YZ special code for Yes Elevation to turn on the real-z axis for that point. Added new LABEL3 special code for skipping the point labels. Added option whether to auto insert a space in the point description label when appending a description. For tree features, added option to label tree tag id when without creating a tree table. Added option to offset labels by tree symbol size. For pipe features, added option to use the code layer for the pipe entities, and added method to use points from top of pipe, enter material and pipe size for the program to calculate the bottom of pipe. For offset polylines, added option to label elevations and symbols on the offset points. For using road template to create parallel polylines, added option to use template grade ids in layer names. Added support for true color. Added check to Carlson Community for any symbols not found in the code table.
- **Change Polyline Linetype** – Added new half circle style linetype.
- **Deed File By Interior Text** – New command to create multiple deeds using linework boundary around selected text.
- **Link Linework With Points** – New command to create reactors on existing linework to update when coordinates change.
- **Annotation** – Added option whether to flip labels for twist screen and for separate mtext for the angle and distance labels.
- **Bearing/Distance With Leader** – Added style to center the distance label with the bearing label.
- **Point To Point Table** – Added methods to screen pick points and to pick from a list.
- **Label Lat/Long** – Added option for MLeader.
- **Draw North Arrow** – Added option to draw true, grid and magnetic arrows.
- **Line Table** – Added option to create table of only distances.
- **Order Table** – New command to order line/curve tag numbers by direction of left/right, top/bottom or alignment polyline.
- **Draw Legend** – Added option to draw table lines.
- **Offset Dimensions** – Added support for different precision by length.
- **Stack Label Arc** – Added method for multiple labels on the same row. Added option to label PI coordinates and station.
- **Right of Way Crossing Table** – Added options for including header and horizontal table lines.

## Civil Commands

- **Triangulate and Contour** – Added option to auto densify breaklines. Added option for label layers to use main contour layer as prefix.
- **Display Last TIN Error Log** – New command to show the last data error log from Triangulate and Contour.
- **TIN History** – New ability to track source data and edits for TIN for review and reprocessing.
- **Triangulation File Utilities** – Added new merge TINs method that retriangulates from original point data. Added functions to offset, divide and multiply by another TIN.
- **Import NASA World Elevation Dataset** – New command to create a surface grid from this dataset at 1 arc-second interval.
- **Draw Contour Marker Label Line** – New command to control placement of contour labels.
- **Design Pad Template** – Added method for creating retaining wall at the grade limits.
- **Design Template** – Added a new curb style with batter and rise. Added subgrade method to fit surface to subgrade.
- **Template Grade Table** – Added function to return to defaults.
- **Template Point Centerline** – Added support to apply to the TIE point.
- **Process Road Design** – Added method for divided highways to use separate centerlines for stationing and for road design. Added use of material density for reporting subgrade tons by material.
- **Road Network** – Added support for creating an island inside cul-de-sacs. For output of existing ground profiles, added option to create left/right offset profiles. Added option to skip creating intersection curb return for crossings like an overpass or RR. Added method for intersections for second template point profile.
- **Tag Curb Ramp** – New command to locate positions along alignment for creating curb ramps for Process Road Design and Road Network.
- **Station Polyline/Centerline** – Added options for labeling PIs at deflections. Added settings for PI station label prefix and suffix, controls to rotate perpendicular or horizontal, separate properties for layer and style, and setting for size of PI lines.
- **Label Station/Offset** – Added option to label cut/fill.
- **Calculate Offsets** – Added option to label cut/fill.
- **Offset Point Entry** – Added method for multiple offsets per station.
- **Draw Curb Ramp** – Added method to pick left/right ends, option to set ramp slope and option to taper back. Added method to select driveway polylines for ramp area. Added method to updating crossing road linework besides the curb such as sidewalks.
- **Super Elevation** – Added support for station equations. For transition part in tangent, added option to have tangent as distance as well as percent.
- **Slope At Points** – Added style settings, option to draw box with solid background and option to label horizontal.

- **Elevate Intersection Curb Return** – New command to assign elevations for a curb based on main and side road elevations.
- **Cut/Fill Labels** – Added method for gradient colors.
- **Cut/Fill Slope Lines** – Added zigzag style.
- **Cut/Fill Slope Color Map** – New command to color a surface based on slope amount separately for cut/fill areas.
- **Draw Spot Elevations** – Added option to prompt for second elevation.
- **Profile From 3D Polylines** - Added method to process multiple polylines and put breaks between like for curb profiles.
- **International Roughness Index** – Upgraded to report IRI by station interval.
- **Draw Profile** – Added method to label horizontal axis elevations on both top and bottom of profile grid. For sewer labels above rim, added placement controls for vertical line. Added method to draw grid as lines on major interval with dots for minor interval. Added option for vertical elevation bar.
- **Input Edit Section Alignment** – Added method to station by another reference CL.
- **Draw Section File** – Added support for drawing an unlimited number of section files. Added separate controls for major/minor grid intervals. For volume labels, added settings for label names and whether to draw elevations. Added settings to configure the printer/plotter when creating layouts. Added option to output to sheet sets. Added method to draw grid as lines on major interval with dots for minor interval. Added option for vertical elevation bar.
- **Calculate Section Volumes** – Added method to report incremental volumes by elevation zones.
- **Tunnel Section Comparison Report** – New command to report over or under excavation between as-built and design.
- **Footprint Creator** – Added method to place multiple footprints within building pads. Placement controls for center or lot edge. Added option to rotate footprint. Added method to draw multiple footprint options. Added method to draw driveways.
- **Parking** – Added method for parking space depth by offset from curb.
- **Lot Network** – Added method to draw buildable areas on a layer and use for report of buildable width and depth. Added option to align building pads with lot edge. Added method to draw driveways. Added method to hatch setback and driveway areas. Added option to automatically output to a Lot file.
- **ID Linework** – New command to identify the type of LotNET linework such as ROW or lot edge.
- **Untag Linework** – New command to remove a tag from an entity to remove it from the LotNET model.
- **Connect Driveways** – New command to connect driveway linework to ROW or a selected polyline.
- **Assign Building Type** – New command to set building types for lots in LotNET.
- **Tag No Building Area** – New command to define area to avoid for LotNET building placement.
- **Set Lot Edge To Nearest Second** – New command that adjusts lot lines to set them to the nearest second.
- **Point Check** – New command to snap lot points together within given distance.
- **Output To Lot File** – Added options to create lots for ROW and boundary linework.
- **Lot File Manager** – Added method to select lots by screen pick or within an inclusion perimeter.

## Hydrology Commands

- **Design Detention Pond** – Added option for one watershed condition with user-specified peak flow. Added units settings for input and report.
- **Culvert Design** – Added HY8 method.
- **Subtract Hydrograph** – New command to subtract hydrographs.
- **Sewer Network** – Added support for negative step-up. Added funnel option for headwall inlet structure.
- **Sewer Network Plan View** – Added method to label drainage areas. For pipe labels, added label layers and option to label only when structure has id.
- **Sewer Network Data Table Report** – Added support for reporting multiple invert-in's.
- **Create Lateral Structure** – Added default pipe connection height.

## GIS Commands

- **Place Google Earth Image** – Replaced image server engine. Support for higher resolution images using auto-tiling. More image options including Road and Terrain.
- **Web Feature Service (WFS)** – Added method for storing point data to the coordinate file and storing GIS data to the CRDB.
- **ESRI ArcGIS Services** – New version of this routine with smoother workflow.
- **Point GIS Editor** – Added import and export for ESRI Geodatabase. For Google Earth output, added controls for symbol and label style. Added method to extract attributes from point descriptions delimited by space or comma.

## Geology Commands

- **StrataCale** – Added setting for whether to adjust non-key strata for key pinchout or conformance. Added drillhole description keyword FAULTED that skips pinchout and conformance for that drillhole.
- **Kriging** – Improvements to 3D kriging.
- **Fence Diagram** – Added option to dimension strata thickness.
- **Strata Isopach Maps** – Added option for true color.

- **Auto Run Strata Grids** – Added option to filter data samples by elevation range. Added support for modeling by 3D Kriging.
- **Make Block Model** – Added method to model attributes in Model By Strata Name mode and then use in Surface Mine Reserves reporting.
- **Create Drillhole from eLog** – Added settings for minimum attribute values. Added more attributes to model.
- **Edit Fault Line** – Added option to set priority number to faults to control processing order.
- **Make Unfaulted Strata Grid** – New command that creates a strata elevation grid with the faults removed.
- **Remove Faults From Grid** – New command to adjust a grid to remove faults.
- **Tag Heave Zones** – New command to tag heave zone polylines to skip min/max thickness calcs in Surface Mine Reserves.
- **Make Value Block Model** - Overhauled to allow for import of multiple models at once. Equation writing using new equation definition tool.
- **Optimized Pit Design** – Upgraded to new engine. Routine now allows for the definition of multiple pit angles. Several strata layers can be optimized as a single pit. Run times have been improved.

## Surface/Underground Mining Commands

- **Design Bench Pit** – Added option to output 3D solid for volume of each bench. For processing multiple pits with down slopes, added adjoining edge cleanup to avoid egg carton effect. Added option for bench slope to follow a seam. Added option to taper bench at tie with surface. Added function to pick perimeter to report elevation range during parameter input. Added option to set target surface by entering elevation.
- **Design Spoil Pile** – Added support for TIN surfaces. Added option to taper bench at tie with surface. Added setting for minimum bench height.
- **Edit Pit** – Added function to convert key material of selected grade from grade parameters to non-key.
- **Surface Mine Reserves** – Added option whether to interpolate block model for breakout quantities. Added method to make strata grids a half step higher than the block model for when the top/bottom values are at centroids instead of edges.
- **Surface Production Timing** – Added support for TIN surface for the bottom surface. Added method to use grid file for density.
- **Surface Equipment Timing** – Added method to assign key material destinations based on grade parameters. For 3D Pick, added graphic chart with horizontal pit sequence and vertical attributes. Added function to remove block.
- **View 3D Surface History** – Added function to save image, setting for playback speed and option to show axis icon.
- **Design Tunnel Template** – Added method for alignment offset such as for a circle template with the profile in the center.
- **Make Solid By Design** – Added option to make ends vertical or perpendicular to the profile slope. Added method to pick 3D polyline to define the horizontal and vertical alignments.
- **Make Solid From Polyline** – New command to create a solid from a series of 3D polyline hoops.
- **Color Solid** – New command to assign a color for the solid model.
- **ID Solid** – New command to pick any solid face and report the source solid model file.
- **Blast Pattern Layout** – Added support for TINs.
- **Range Diagram** – Added method to flatten spoil created by reach.
- **Dozer Push** – Added controls for separate cut angles for left and right sides.
- **Process Dragline Sequence** – Added support for using a TIN surface.
- **Gantt Charts** – Improved Gantt chart output options in Underground, Surface and Spoil timing routines.
- **Haul Fleet Manager** – Improved fleet default performance parameters.
- **Underground Timing** – Added retreat thickness.

## Construction/Trench Commands

- **Edit Assign Polyline Elevations** – Overhauled user interface for smoother workflow. Added report function and controls for grip sizes.
- **Elevate Pads By Grade Rules** – Added option for dz to inner pad after elevating main pad such as a garage slab within a building pad. Added option to set vertical offset and option to maintain 3D polyline by using a dz instead of fixed elevation such as for an exposed basement.
- **2D To 3D Polyline By Points** – Added option whether to filter by description and put options into a dialog.
- **LWPolyline To 3D Polyline** – New command to convert lwpolylines to 3D polylines.
- **Material Quantities** – Added block attributes to the report.

## CADnet Commands

- **Export Surface Architecture IFC** – Added method to output TIN to separate models for each color.

## Point Cloud Commands

- **New Engine** – Added new Tesseract database and graphic engine.
- **Registration** – Improved cloud registration including option whether to scale.
- **Bare Earth** – Added a new method that works by a grid analysis.
- **Cross Sections** – Added option to use Section Alignment File (mxs) to define section locations.
- **Create Solid** – New function to create a 3D solid from a cloud.

## Data Conversions

- **Civil 3D** – Added import for Field-to-Finish code definitions. Added support for converting feature lines, lot lines, pipes and structures into standard AutoCAD entities.
- **Geoids** – Added support for Brazil 2015, New Zealand 2016, Denmark DVR90, Ireland and Great Britain-OSGM15.
- **Projections** – Added support for Albers Equal Area projections. Added OSTN15 projection for Great Britain.
- **Novapoint** – Added function to import Novapoint centerlines and profiles.
- **Trimble** – Added functions to import and export Trimble DC files with Carlson localization.