Intersections and Roundabouts Design in Civil 3D

Doug Medley

CADDESK Consulting Resources,LLC

Topics will we cover today:

Autodesk Civil 3D:

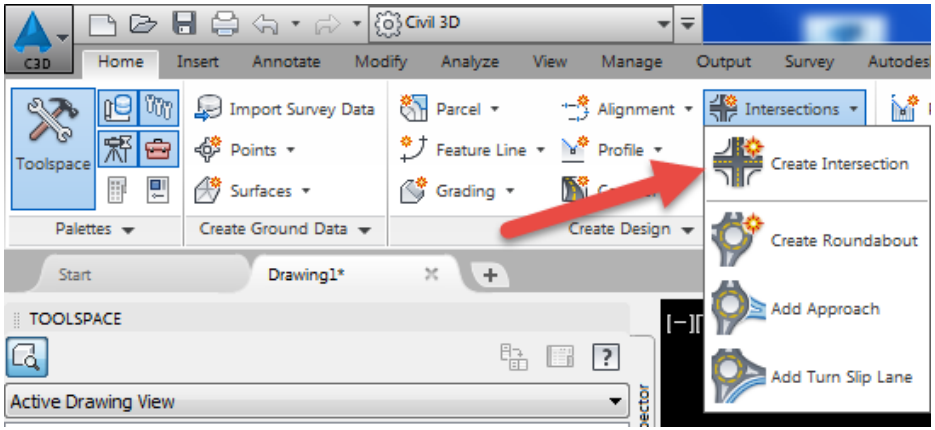
Create Intersection:
Wizard
Manually

Create Roundabout:
Wizard
Manually

Create Model Files for Deliverables
CORRRD

Create Intersection Overview

Creating Intersections:



You can create an intersection using the Create Intersection wizard. Before creating an intersection object, you must have two alignments that intersect. If you want to create a three-dimensional intersection model, you must also have profiles associated with the intersecting alignments.

Once you have the desired prerequisites, then you can create the intersection object using the Create Intersection wizard.

Create Intersection Overview

Creating a Simple 2D Intersection:

When the intersection object is created, a variety of tasks can be performed automatically, including the following: creating offset alignments for the roads included in the intersection creating curb return alignments (curb returns) in the intersection area creating profiles for the offset alignments and curb return alignments that were created when the intersection was created

Note: An exception to this is that if you set pre-defined static alignments as offsets, it is expected that you will specify profiles too. No dynamic offset profiles will be created. Creating new corridor regions for the existing corridors in the intersection area, or creating new corridor objects in the intersection area locking the profile elevations of the secondary road to the main (primary) road profile

Create Intersection Overview

Creating a 3D Intersection with Corridor Objects, Alignments, and Profiles:

To create a 3D intersection that includes a corridor, you will need to first create the road geometry (road centerline alignments and profiles) and existing ground surface in your drawing. Once these components exist in the drawing, you can proceed with using the Create Intersection wizard.

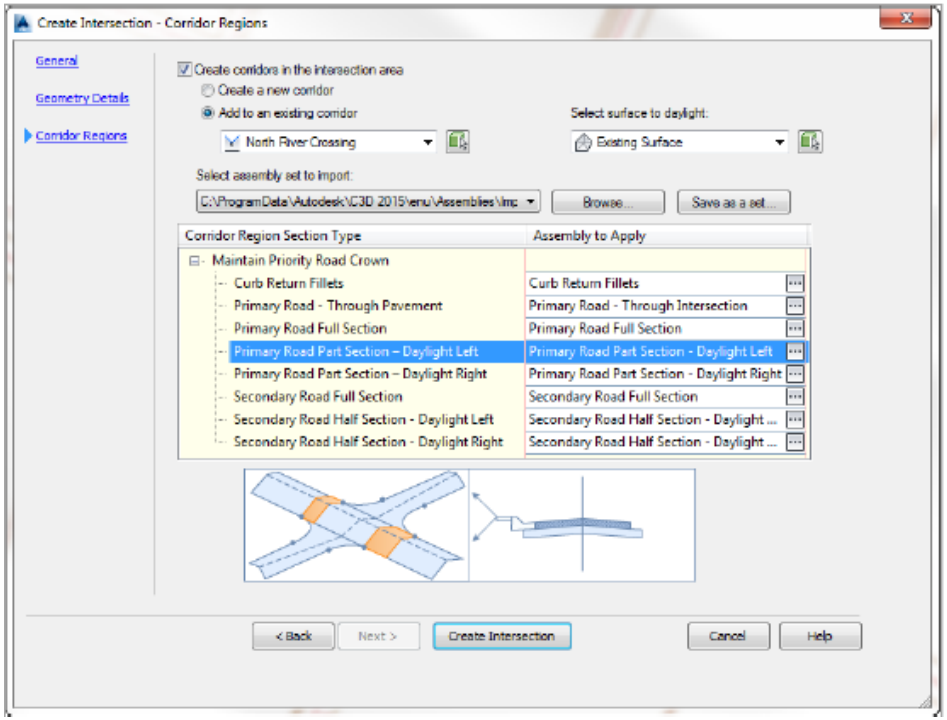
The wizard prompts you to select the location in the drawing where the two road centerline alignments intersect. You can start with the following data combinations: two intersecting centerline alignments, two intersecting centerline alignments with one or more road edge offset alignments and or their profiles. You can have profiles defined already, or not.

However, if profiles are not available, then features that are associated with 3D modeling will not be available on the wizard. For example, if you begin creating an intersection object with no profiles, then the following wizard options will not be available for selection: creating offset alignment and curb return profiles, as well as the ability to create a new corridor, or to add to an existing corridor in the intersection area.

Assembly sets:

How can assembly sets save you time in creating intersections?:

When you are ready to create an intersection, you do not need to have all the special assemblies created ahead of time. On the Corridor Regions page of the Create Intersection Wizard, you will see a list of the assemblies Civil 3D plans to use. If the assemblies are not already part of the drawing, they will get pulled in automatically when you click Create Intersection.

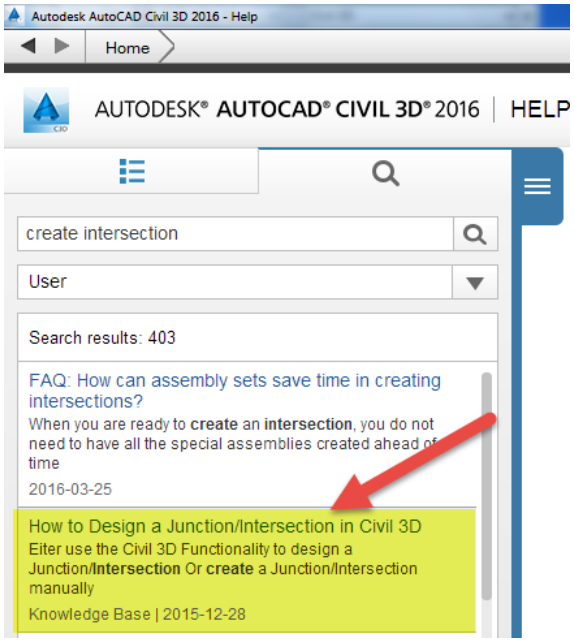


The default intersection assemblies are general and may not work for your design situation. You will want to create and save an assembly set of your own.

In a file that contains all of your desired assemblies, work through the Create Intersection Wizard to get to the Corridor Regions page. Click the ellipsis to select the appropriate assembly to use for each corridor region section type.

Once the list is complete, click the Save As A Set button. Civil 3D creates an XML file that stores the list of the assemblies. It also creates a copy of each assembly as a separate DWG file. Save the set in a network shared location so your colleagues can use the set as well. The next time an intersection is created, you can use the assembly set by clicking Browse and selecting the XML file. Civil 3D will pull in your assemblies, saving lots of time!

Publisher Information This is a short excerpt from Mastering AutoCAD® Civil 3D® 2016, an Autodesk Official Press book by Cyndy Davenport and Ishka Voiculescu. To learn more, visit the book page: http://www.wiley.com/buy/9781119059745.



How to Design a Junction/Intersection in Civil 3D:

Issue: You want to model the start or end of a corridor to match to a crossing road in any angle in Civil 3D but there is not option in the corridor properties to control the angle.

Causes: A junction/intersection is needed to control the way of how two corridors intersect.

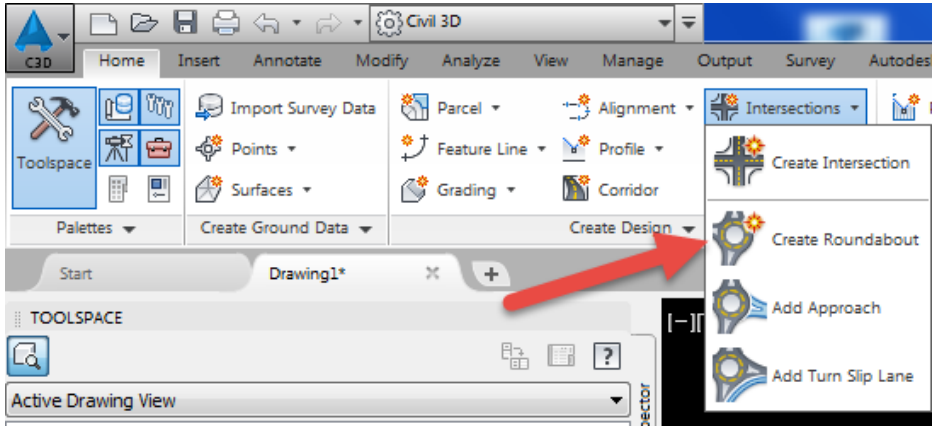
Solution: Either use the Civil 3D Functionality to design a Junction/Intersection Or create a Junction/Intersection manually.

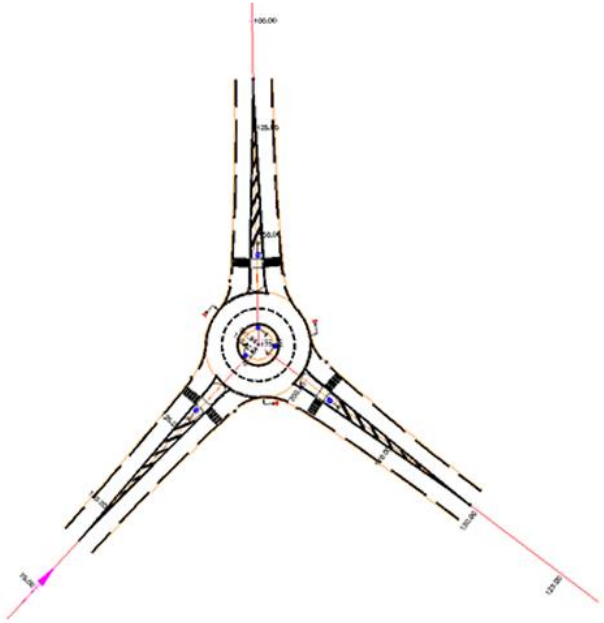
Attachment: How_to_Design_a_Junction_in_Civil_3D.pdf

Products: AutoCAD Civil 3D Versions:2017;2013;2014;2015;2016

Create Roundabout Overview:

The roundabout features include several commands that let you create and edit 2D roundabouts.





You can quickly create a 2D roundabout that comprises the following components:

Roundabout Central Area - Includes a central island and a circulatory roadway. The central area geometry is defined by circular alignments. Appropriate road markings are automatically added as polylines.

Create Roundabout Overview:

Approach Roads - Alignments define the centerline and outer boundaries of approach roads entering the roundabout.

Optional polylines that represent construction triangles, splitter islands, and other road markings, can be included.

Slip Lanes - You can add slip lanes, or bypass lanes, to an existing roundabout. The geometry boundaries of the slip lane are drawn with alignments.

Polylines indicate road markings.

Markings and Signs - These can be added to various parts of a roundabout by specifying linetypes, blocks, and other parameters.

The default signs that are used are specified using existing AutoCAD blocks. However, to suit your project's needs, you can create and specify your own signs using AutoCAD blocks.

A roundabout created using the Create Roundabout command is a 2D representation of a roundabout, and has no vertical data associated with it. Alignments and polylines define the shape.

There is no roundabout object and no roundabout node in Prospector.

Lets get started…

Topics we covered today:

Autodesk Civil 3D:

Create Intersection:
Wizard
Manually

Create Roundabout:
Wizard
Manually

Create Model Files for Deliverables
CORRRD

Thanks! for attending today's session:

Intersections and Roundabouts Design in Civil 3D

For more information:

Doug Medley

CADDESK Consulting Resources, LLC

850-261-2585

dmm@caddesk.com

2016 Design Training Expo