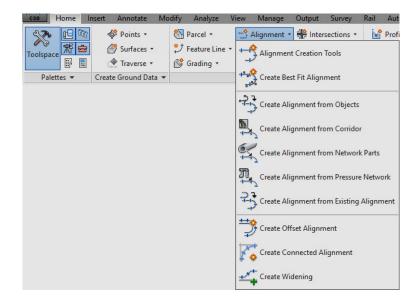
<u>Corridors – 2018-2019</u>

To create a corridor you must have an alignment (baseline), a profile (existing or proposed), and an assembly.

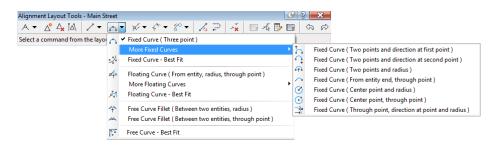
Alignments

You have 2 choices in defining an alignment from scratch: (1) Home tab > Create Design > Alignment > Alignment Creation Tools, or (2) Home Tab > Create Design > Alignment > Create Alignment From Objects.

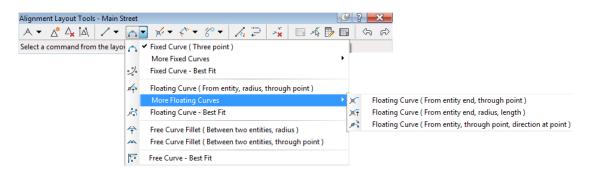


Alignment Creation Tools gives you the constrained based design options. Constrained based design will maintain tangency based on 3 choices:

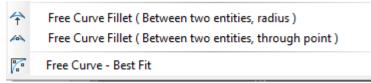
1. Fixed curve - These commands are similar to an AutoCAD arc, but have a third point along the arc.



2. Floating Curve – Maintain tangency at the start, while one end is not connected to another object. For example, curves off the end of a line.



3. Free Curve - These entity types are very similar to the AutoCAD "fillet" command, but give you added control.



Fixed, free, and floating lines are also available (shown below). Many methods for producing spirals are available, but just not show in this document.

				0	00
Alignment Layout Tools	Main Street		19	3	<u>× </u>
A ▼^* x a\	Z• ^• X•	×6 🗗		5	Ŕ
Select a command from	✓ Fixed Line (Two points)				
	🖋 Fixed Line (From curve end, length)				
	% Fixed Line - Best Fit				
	Section Floating Line (From curve, through point)				
	🖈 Floating Line (From curve end, length)				
	🖌 🛛 Floating Line - Best Fit				
	🂫 Free Line (Between two curves)				

Listing and Labeling off an Alignment

• "Analyze" ribbon tab > Inquiry Tool – Once in the inquiry tool, there are 4 pre-defined listing commands to obtain information from an alignment.

Alignment
'=> Alignment Station and Offset at Point
Alignment Station, Offset, and Profile Elevation at Point
Alignment Station, Offset, and Surface Elevation at Point
Alignment Two Stations and Offsets at Point

• **"Annotate" ribbon tab > Add Labels > Alignment > Add Alignment Labels** – This command may add labels to offset stations as well as alignment segments.

Add Labels 🥑 🎖	×
Feature:	
Alignment	•
Label type:	
Station Offset - Fixed Point	8
Station Offset - Fixed Point	
Station Offset Single Segment Multiple Segment	
Tangent Intersection Multiple Tangent Intersection	
📑 Stanuard	LQ
Reference text object prompt method:	
Dialog	-
Add Close Help	

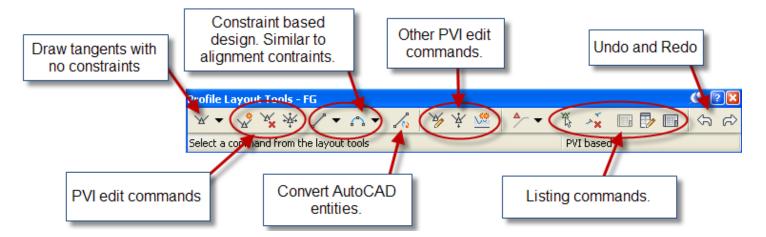
Existing/Proposed Profiles and Profile Views

- Screate Profile from Surface Select surfaces: Alignment: -"🗘 Main 00 Station range Highlight the surface you Alignment: wish to sample, edit the End: Start: station range if desired, and 1+00.00' 38+15.61 then click the ADD button. To sample: Sample offsets: 1+00.00' -12 38+15.61 -0 Add>> Profile list: Station Eleva Description Type Data Sou... Offset Update ... Layer Name Style Start End м... OG - Sur... 0.000' Dynamic C-ROAD-... Existing ... 1+00.00' 38+15.61' 179. w OG Change parameters if desired. Remove Draw in profile view OK Cancel Help
- 1. "Home" ribbon tab > Profile > Create Surface Profile

2. "Home" ribbon tab > Profile View > Create Profile View

🔯 Create Profile View - General	
▶ <u>General</u>	Select alignment:
Station Range	*1> Main Street
<u>oradon range</u>	Profile view name:
Profile View Height	<[Parent Alignment(CP)]><[Next Counter(CP)]>
Profile Display Options	Description:
Pipe Network Display	
<u>Data Bands</u>	Profile view style:
Profile Hatch Options	Profile view layer:
	C-ROAD-PROF-VIEW
	Show offset profiles by vertically stacking profile views
Navigate each step to determine the desired	
settings.	
	< Back Next > Create Profile View Cancel Help

3. "Home" ribbon tab > Profile > Profile Creation Tools



4. Profile View Properties, "Bands" tab, Set "Profile 2" to the design profile. (If you use a band style with FG and EG elevations.)

formation S	tations Elev	ations	files Bands	Hatch								
Band type:					Select ban	d style:						
Profile Data				•	œna Cut D	ata			•	N -	Add>	>
List of band	s											
Location:												
Bottom of	profile view	•										
р	Show La	Major Int	. Minor Int	Geometr	Label Sta	Label En	Alignment	Profile 1	Profile2	Weeding	Stagger	
000"		100.00'	25.00'					EG - Surface (1)	Main Street-EG	_	Stagger	
									Main Street-FG			
									EG - Surface (1			
												<
												8
												6
											Þ	
Match n	najor/minor in	crements to	vertical grid ir	itervals			Import bar	nd set	Sav	ve as band set		
												_

Listing and Labeling Profiles and Profile Views

• **"Analyze" ribbon tab > Inquiry Tool** – There are several listing commands for profiles and profile views.

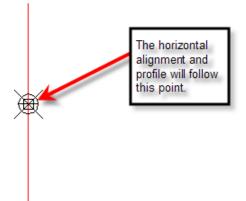


• "Annotate" ribbon tab > All Labels > Profile View > Add Profile View Labels

http://www.cadmasters.com/c3d_cheatsheets.html

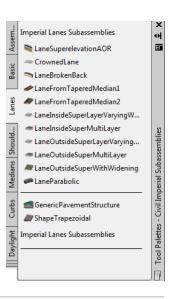
Create/Edit Assemblies

1. **"Home" ribbon tab > Assembly > Create Assembly** – Choose the appropriate styles and place the baseline somewhere in the drawing.



2. Home tab > Palettes > Tool Palettes – This displays the tool palettes that contain pre-defined sub-assemblies to be placed on the assembly.

- a. Find the desired subassembly, left click the tool, fill out the properties, and then choose the attachment point on the assembly. You can also attach the subassembly and edit the parameters later as well.
- b. Rename the subassembly to an appropriate name. This will be important later in the definition of the corridor.

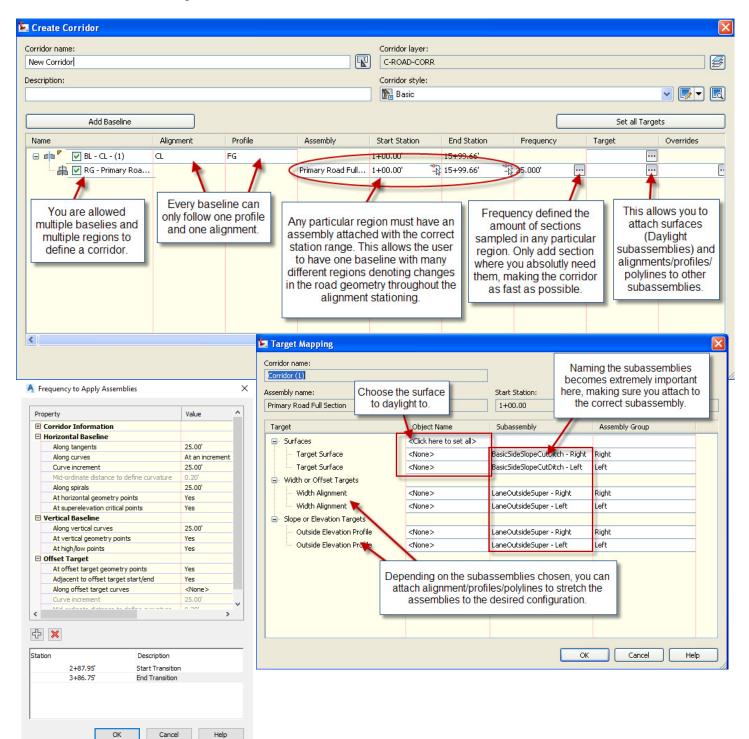


•	No selection	
E	Information	
	General	
	Data	
L	ADVANCED	
	Parameters	
L	Lane Slope	-2.00%
L	Lane Width	12.000
L	Version	R2019
	Superelevation Axis of Rotation	Supported
	Side	Right
	Width	12.00'
	Default Slope	-2.00%
	Pave1 Depth	0.08'
L	Pave2 Depth	0.08'
	Base Depth	0.33'
L	Sub-base Depth	1.00'
L	Use Superelevation	None
L	Slope Direction	Away from Crown
	Potential Pivot	Yes
	Inside Point Code	Crown
	Outside Point Code	Edge of Pavement(ETW)

Create/Edit Corridors

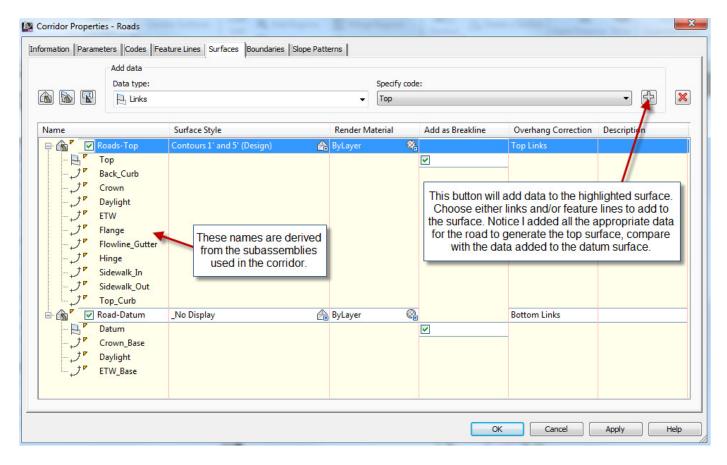
3. "Home" ribbon tab > Create Design > Corridor

a. Choose the horizontal alignment (baseline), then the profile, the assembly, and the target surface in the dialog box (not shown here).



4. Create Corridor Surfaces (Within Corridor Properties)

Surfaces can be used to create the finished surface as well as calculate volumes. Typically, the top surface will become the finished ground surface while the datum surface will become the volume calculation surface. See the manual for further detail.



5. Add a Boundary to the Corridor Surface

formation	Parameters Codes	Feature Lines Surfaces Boundaries Slope Patte
Name		Description
6 *	TOP - ROAD	Corridor extents as outer boundary Add Interactively Add From Polygon
		Copy value to clipboard Copy to clipboard
		Refresh

Sections

Sections are used for 2 things: (1) Plotting sections at desired stations, and (2) Calculating the volumes from a corridor. To accomplish the later, you must have added a corridor surface to represent the datum surface before sampling the sections.

SL Collection -				Sample line style:			
	- <[Next Counter(CP)]>		R	The Road Sample	Line	-	2 🗖
Description:				Sample line label st	yle:		
					#-#	- 🚺	/-) [
			-	Sample line layer:			
lignment:				C-ROAD-SAMP			F
Main Street Select data sou	urces to sample:			ose the desire line group. Ma	ke sure the da	atum sufac	eis
elect data sou	urces to sample: Data Source	Sample			ke sure the da	atum sufac	e is Is later
elect data sou Type			che	line group. Ma	ke sure the da	atum sufac calculation	e is Is later
elect data sou Type	Data Source	Sample	che	line group. Ma ecked to perfor	ke sure the da m earthwork c-ROAD-SCTN	atum sufac calculation	e is Is later
	Data Source EG		che	line group. Ma ecked to perfor expe Existing Ground	ke sure the da m earthwork c-ROAD-SCTN	atum sufac calculation opune no Dynamic	e is Is later

1. "Home" ribbon tab > Sample Lines

Next to appear is the "Sample Line Tools" dialog box. See below for further explanation.

Sample Line Tools			🧶 🤋 🖉
[Sample Line Station Value]>	🖧 🔁 SL Collection 🔽 🛃	×-	• 🔺 🖪 🖓 🖓
Current method: By stations	Alignment name: CL	×	By range of stations
		х.	At a Station
		<u>n</u>	From corridor stations
		⊳	Pick points on screen
		S.	Select existing polylines

Calculate Volumes

There are two (2) types of volumes you can extract from a corridor: (1) cut and fill; (2) quantity of material.

Cut and Fill

After creating the datum surface in corridor properties, you can simply use the volumes dashboard to see the volumes. This is further explained in the Grading cheat sheet.

"Analyze" ribbon tab > Volumes Dashboard

Calculating volumes based on station ranges. (Cut and Fill)

1. "Analyze" ribbon tab > Compute Materials

Quantity takeoff criteria:	Volum	e calculation method:
Earthworks	▼ ▼ Aver	age End Area 🔻
Curve correction tolerance	1.0000 (d)	Map objects with same name
Name in Criteria	Object Name	Material Name
🖃 🌧 Surfaces		
🔗 Existing Ground	EG	Earthworks
🔂 Datum	Roads Road-Datum	Earthworks

2. "Analyze" ribbon tab > Volume Report

🔯 Report Quantities 🛛 🛛 🗙
Select alignment:
🙄 Main Street 🔹
Select sample line group:
[-b] SL Collection - 1
Select material list:
Material List - (1)
Select a style sheet:
es Report Style Sheets\xsl\earthwork.xsl
Display XML report
OK Cancel Help

Calculating volumes based on station ranges. (Quantity of Material)

1. "Analyze" ribbon tab > Compute Materials

Add new material	Define mate				Select corr	idor shape:		
Add a subcriteria	Corrido	or Shape		-		(1) Sidewalk		- +
	e this for each al you wish to		Cut Factor	Fill Factor	Corridor - Corridor -	(1) SubBase		
Earthworks		Earthworks	1.000	1.000	Corridor -	(1) Sidewalk		··
- 🔗 OG	Base							
💮 🗁 Corridor - (1) Top	Compare							
AC		Structures		1.000			Pave	This list is obtained from the assemblies
	Include	_						attached to the
	Include	Structures	-	1.000			Base	corridor.
Corridor - (1) Base	Include		-					
Corridor - (1) SubBase	Include							
E 🙀 Curb		Structures	1	1.000			Curb	
🔄 🔄 Corridor - (1) Curb	Include							
🖹 🐺 Sidewalk		Structures		1.000			Sidewalk	
🔚 Corridor - (1) Sidewalk	Include	_	structure	ure this is s is to get vo	lumes			
me calculation method:			from the	corridor sh	napes.			Import another criteria
erage End Area				•				Import another criteria

2. "Analyze" ribbon tab > Volume Report

🔯 Report Quantities 📃 🔀	-
Select alignment:	
* Main Street	
Select sample line group:	
🔁 Main 👻 🕠	
Select material list:	
All Materials 👻	
Select a style sheet:	
eport Style Sheets\xsl\Select Material.xsl	
☑ Display XML report	
OK Cancel Help	

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