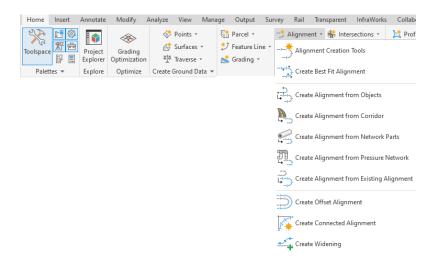
<u>Corridors – 2022-2023</u>

To create a corridor, you must have an alignment (baseline), a profile (existing or proposed), and an assembly. You can also use a feature line for the alignment and profile pairing.

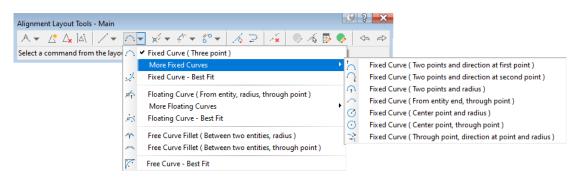
Alignments

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.

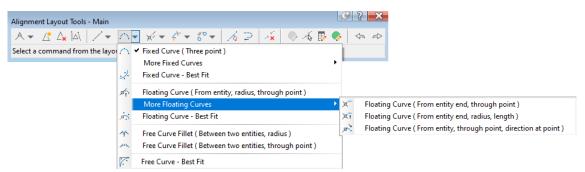


Alignment Creation Tools gives you the constrained based design options. Constrained based design will maintain tangency based on 3 choices:

1. Fixed curve - These commands are like 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.
 - Free Curve Fillet (Between two entities, radius)

 Free Curve Fillet (Between two entities, through point)

 Free Curve Best Fit

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

Alignment Layout Tools - Ma A ▼ 🛆 🎝 🖓		- <u></u>	9	ری ج	× A
Select a command from / % % %	Fixed Line (From curve end, length)				
7~	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.

2	🖻 Alig	nment
	* =>	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	- 😼
Station Offset - Fixed Point	
Station Offset Single Segment Multiple Segment	
Tangent Intersection Multiple Tangent Intersection	
Reference text object prompt me	ethod:
Dialog	•
Add Close	Help

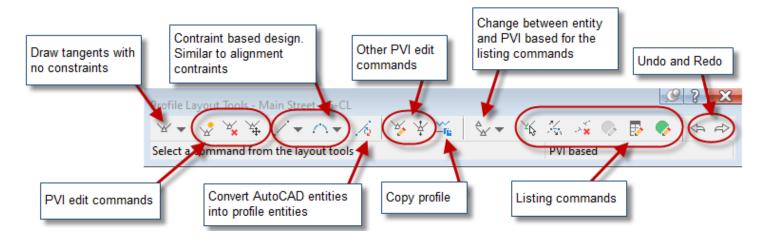
Existing/Proposed Profiles and Profile Views

- 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' -<u>|</u> 38+15.61 -|} 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. \sim 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	"🗁 Main Street 🗸
	Profile view name:
Profile View Height	<[Parent Alignment(CP)]><[Next Counter(CP)]>
Profile Display Options	Description:
Pipe Network Display	
	Profile view style:
<u>Data Bands</u>	Full Grid
Profile Hatch Options	Profile view layer:
	C-ROAD-PROF-VIEW
Navigate each step to	Show offset profiles by vertically stacking profile views
determine the desired	
settings.	
	< Back Rext > 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.)

e.	Profile View	Properties -	Main Stree	t1							Į	_	×
In	formation St	tations Elev	ations Prof	files Bands	Hatch								
	Band type:					Select ban							
	Profile Data				•	œ _⊞ Cut D	ata			•	- 🏹 - 🖪	Add>	>
	List of bands	3											
	Location:												
	Bottom of	profile view	•										
	p	Show La	Major Int	. Minor Int	Geometr	Label Sta	Label En	Alignment	Profile1	Profile2	Weeding	Stagger	
	000"	V	100.00'	25.00'				Main Street	EG - Surface (1)	Main Street-F	G 🗸 100.0000	Stagger	
										Main Street-F EG - Surface			
										EG - Surrace	(1)		$\widehat{\mathbf{t}}$
													1 1 1
													×
	•							111				•	
	I Markahara				terre la								
	Match m	ajor/minor in	crements to	vertical grid ir	itervais			Import ba	nd set	S	ave as band set		
									ОК	Cancel	Apply	П	elp
										Cancel			

Listing and Labeling Profiles and Profile Views

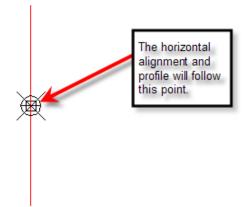
• **"Analyze" ribbon tab > Inquiry Tool** – There are several listing commands for profiles and profile views.



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

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	*
**	Information	
	General	
	Data	
	ADVANCED	
	Parameters	
	Lane Slope	-2.00%
	Lane Width	12.000
	Version	R2019
	Superelevation Axis of Rotation	Supported
	Side	Right
	Width	12.00'
	Default Slope	-2.00%
	Pave1 Depth	0.08'
	Pave2 Depth	0.08'
	Base Depth	0.33'
	Sub-base Depth	1.00'
	Use Superelevation	None
	Slope Direction	Away from Crown
	Potential Pivot	Yes
H	Inside Point Code	Crown
PROPERTIES	Outside Point Code	Edge of Pavement(ETW)
₽		

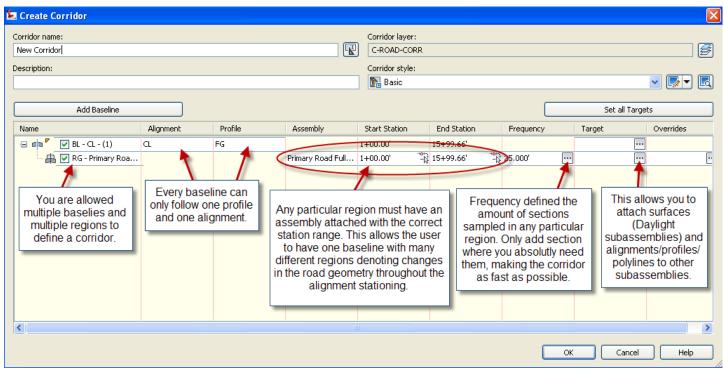
Э je **

Create/Edit Corridors

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

 \times

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



A Frequency to Apply Assemblies

Along offset target curves

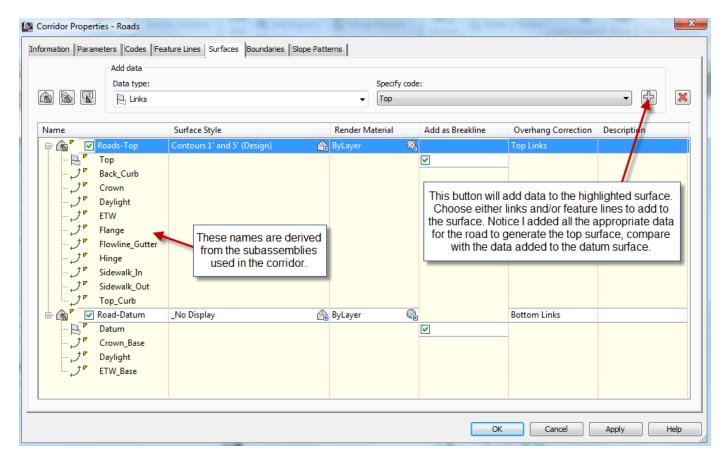
	1	Tar	get Mapping									
Property	Value	- 1 -	orridor Name: Sort and filter column:	c	Start Station:	Baseline En				lorizontal Stretch		Vertical Stretching
Corridor Information			ROADS	1+00.0	0	27+02.98	5			ionzontal Stretch	ing	Venical Stretching
Horizontal Baseline			Offset and Elevation Surface									
Along tangents	25.00'		Subassembly 🔻	Bas ▼	Region 🔻	Start Station	End Station	As 🔻	S 🔻	Asse 🔻	Offset	Elevation
Along curves	At an increment		- AC&AB	Main Street	After Court Street	20+12.22	27+02.98	20' Lane	Right	Right	<set all=""></set>	<set all=""></set>
Curve increment	25.00'		 Outside Elevation Target Width Target 	Main Street Main Street	After Court Street After Court Street	20+12.22 20+12.22	27+02.98	20' Lane 20' Lane	Right Right	Right Right	<none></none>	<none></none>
Mid-ordinate distance to define curvature	0.20'		AC&AB	Main Street	After Court Street		27+02.98	20' Lane	Left	Left	<set all=""></set>	<set all=""></set>
Along spirals	25.00'		- Outside Elevation Target	Main Street	After Court Street	20+12.22	27+02.98	20' Lane	Left	Left		<none></none>
At horizontal geometry points	Yes		Width Target	Main Street	After Court Street	20+12.22	27+02.98	20' Lane	Left	Left	J BusTurnOut-Ep	
At superelevation critical points	Yes	•	⊨ SW	Main Street		20+12.22	27+02.98	20' Lane	Right	Right	<set all=""></set>	<set all=""></set>
	res		 Offset Target of Inside Boulevard Width 	Main Street	After Court Street		27+02.98	20' Lane	Right	Right	<none></none>	_
Vertical Baseline			 Offset Target of Sidewalk Width 	Main Street			27+02.98	20' Lane	Right	Right	<none></none>	_
Along vertical curves	25.00'		 Offset Target of Outside Boulevard Width 	Main Street			27+02.98	20' Lane	Right	Right	<none></none>	
At vertical geometry points	Yes		Target Profile of Slope	Main Street Main Street	After Court Street After Court Street		27+02.98 27+02.98	20' Lane 20' Lane	Right Left	Right Left	<set all=""></set>	<none> <set all=""></set></none>
At high/low points	Yes		Offset Target of Inside Boulevard Width	Main Street			27+02.98	20 Lane	Left	Left	<none></none>	K SEL AID
Offset Target			··· Offset Target of Sidewalk Width	Main Street			27+02.98	20' Lane	Left	Left	<none></none>	
At offset target geometry points	Yes											
Adjacent to offset target start/end	Yes											

Curve increment 25.00'

<None>

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

odes Feature Lines Surfaces Boundaries Slope Patte
Description
Corridor extents as outer boundary Add Interactively Add From Polygon
Copy value to clipboard Copy to clipboard

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.

Name: Sample line style: SL Collection - <[Next Counter(CP)]> Image: Sample line label style: Description: Sample line label style: Image: Sample line label style: Image: Sample line label style: Image: Sample line label style: Image: Sample line label style: Image: Sample line label style: Image: Sample line label style: Image: Sample line label style: Image: Sample line layer: Image: Sample line layer: Image: Sample line layer: Image: Sample: Image: Sample line layer:	
Description: Sample line label style: Image: Section Marks ## Image: Section Marks ## Alignment: C+ROAD-SAMP Main Street Choose the desired data to include to the sline group. Make sure the datum suface checked to perform earthwork calculations Type Data Source Sample	
Alignment: C-ROAD-SAMP Main Street Choose the desired data to include to the s line group. Make sure the datum suface checked to perform earthwork calculations Type Data Source	- 🖪
Alignment: C.ROAD-SAMP Main Street Choose the desired data to include to the sline group. Make sure the datum suface checked to perform earthwork calculations Type Data Source	
Alignment: C-ROAD-SAMP Main Street Select data sources to sample: Type Data Source Sample C-ROAD-SAMP Choose the desired data to include to the s line group. Make sure the datum suface checked to perform earthwork calculations Output Product Product C-ROAD-SAMP Choose the desired data to include to the s line group. Make sure the datum suface checked to perform earthwork calculations C-ROAD-SAMP Choose the desired data to include to the s line group. Make sure the datum suface checked to perform earthwork calculations C-ROAD-SAMP Choose the desired data to include to the s line group. Make sure the datum suface checked to perform earthwork calculations C-ROAD-SAMP Choose the desired data to include to the s line group. Make sure the datum suface checked to perform earthwork calculations C-ROAD-SAMP Choose the desired data to include to the s line group. Make sure the datum suface checked to perform earthwork calculations C-ROAD-SAMP Choose the desired data to include to the s line group. Make sure the datum suface checked to perform earthwork calculations C-ROAD-SAMP Choose the desired data to include to the s line group. Make sure the datum suface checked to perform earthwork calculations C-ROAD-SAMP Choose the desired data to include to the s line group. Make sure the datum suface checked to perform earthwork calculations C-ROAD-SAMP C-RO	- 🖪
Alignment: Alignment: Main Street Choose the desired data to include to the s line group. Make sure the datum suface checked to perform earthwork calculations Select data sources to sample: Choose the desired data to include to the s line group. Make sure the datum suface checked to perform earthwork calculations	
Main Street Choose the desired data to include to the s line group. Make sure the datum suface checked to perform earthwork calculations Type Data Source Sample	F
	is
EG Existing Ground C-ROAD-SCTN Dynamic Roads Image: Control of the state of t	
Roads All Codes with Hat C-ROAD-SCTN Dynamic	
Roads Roads-Top Thished Ground C-ROAD-SCTN Dynamic	
🔊 Roads Road-Datum 🗹 Finished Ground C-ROAD-SCTN Dynamic	

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	K By range of stations
		📈 🖌 At a Station
		From corridor stations
		Pick points on screen
		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

uantity takeoff criteria:	Volume ca	lculation method:	
Earthworks	▼ Average	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:	
[⁻ጏ] 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

dit Material List - SL Colle Add new material	tion - 1	Define mate	rial								
		Data type:				Select corridor shape:					
Add a subcriteria	📇 Corrido	or Shape		-		(1) Sidewalk					
							(1) Pave1				
		this for each I you wish to add		Cut Factor	Cut Factor Fill Factor		(1) Pave2 (1) Base				
				Curractor	1	Corridor -	(1) SubBase				
Earthworks	_		Earthworks	1.000	1.000	Corridor -	(1) Curb (1) Sidewalk	X			
- A OG		Base	Editriworks	1.000	1.000						
	Ten		-								
Corridor - (1) Top		Compare	Structures	_	1.000			Pave	This list is	obtained	
		Include	Structures	_	1.000			Pave	from the a	ssemblies	
Corridor - (1) Pave1		Include	_						attache	ed to the	
) Pavez	Include	C 1 1	_	1.000				corr	idor.	
AB			Structures	_	1.000			Base			
Corridor - (1) Base		Include	_								
🔄 📑 Corridor - (1) SubBase		Include	C 1 1	_	4.000						
E R Curb			Structures	_	1.000			Curb			
Corridor - (1) Curb	Include		_							
Sidewalk			Structures	_	1.000			Sidewalk			
🔤 📑 Corridor - (1) Sidewalk		Include		Make sure this is se		set to					
					s to get vo						
					corridor sh						
plume calculation method:					·			Import another criteria			
erage End Area					•						
							ОК	Cancel	Apply	Help	

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.xs	
☑ Display XML report	
OK Cancel Help	

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