# <u>Corridors – 2020-2021</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 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.



### 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.

<u> </u>	🔁 Alig	nment
	<b>*</b> >	Alignment Station and Offset at Point
	* <b>-</b> >	Alignment Station, Offset, and Profile Elevation at Point
		Alignment Station, Offset, and Surface Elevation at Point
	<del></del>	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 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	
	1
▶ <u>General</u>	Select alignment:
Station Range	TD Main Street
<u>stadon nange</u>	Profile view name:
Profile View Height	<[Parent Alignment(CP)]><[Next Counter(CP)]>
Profile Display Options	Description:
Pipe Network Display	
	Profile view style:
Data bands	Full Grid
Profile Hatch Options	Profile view layer:
	C-ROAD-PROF-VIEW
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.)

	latch	
Band type:	Select band style:	
Profile Data	▼ Cut Data	▼ 💽 ▼ 🔩 Add>>
List of bands		
Location:		
Bottom of profile view 👻		
p Show La Major Int Minor Int	eometr Label Sta Label En Alignment Profil	le1 Profile2 Weeding Stagger
000" 100.00' 25.00'	Main Street EG - S	Surface (1) Main Street-FG V 100.0000 Stagger
		Main Street-FG
		EG - Surface (1)
		K
•	III	•
Match major/minor increments to vertical grid in	rvals Import band set.	Save 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

# **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	*				
*	In	formation					
	G	eneral					
	Data						
	ADVANCED						
	Pa	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				
E		Potential Pivot	Yes				
He la		Inside Point Code	Crown				
PROF		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

	Corridor Pro	operties - ROADS	All read of the	-	
In	formation P	arameters Codes	Feature Lines Surfa	aces Boundaries	Slope Patterns
	Name			Description	
	····· 🟦 🗖	TOP - ROAD <sup>*</sup>	Corridor extents a Add Interactively Add From Polygo Copy value to cli Copy to clipboar	as outer boundar  on pboard d	у
			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.

SI Collection				Sample line style:			
SE CONECUON -	<[Next Counter(CP)]>		R	Road Sample	Line	-	/ 🛛
Description:				Sample line label st	yle:		
					; #-#	- 🚺	/-) [
			-	Sample line layer:			
liconati				C-ROAD-SAMP			F
Main Street elect data sou	urces to sample:		Cho	oose the desire line group. Ma	ed data to incl ke sure the da m earthwork	ude to the atum sufac	sampl e is
Main Street elect data sou Type	urces to sample: Data Source	Sample	Cho che	oose the desire line group. Ma ecked to perfor	ed data to incl ke sure the da m earthwork	ude to the atum sufac calculation	sampl e is s later
Main Street Gelect data sou Type	urces to sample: Data Source EG	Sample	Cho che	oose the desire line group. Ma ecked to perfor prove Existing Ground	ed data to incl ke sure the da m earthwork	ude to the atum sufac calculation Dynamic	sampl e is s later
Main Street Gelect data sou Type	urces to sample: Data Source EG Roads	Sample	Cho che	oose the desire line group. Ma ecked to perfor existing Ground All Codes with Hat	ed data to incl ke sure the da m earthwork c-ROAD-SCTN c-ROAD-SCTN	ude to the atum sufac calculation operation Dynamic Dynamic Dynamic	sampl e is s later
Main Street elect data sou Type	urces to sample: Data Source EG Roads Roads Roads-Top	Sample	Cho che	Dose the desire line group. Ma ecked to perfor prove Existing Ground All Codes with Hat Finished Ground	ed data to incl ke sure the da m earthwork c-ROAD-SCTN c-ROAD-SCTN c-ROAD-SCTN	ude to the atum sufac calculation Dynamic Dynamic Dynamic	sampl se 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	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

Quantity takeoff criteria:	Volume	e calculation method:
Earthworks	▼ Avera	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:
The Main Street
Select sample line group:
[크] 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 mat	erial :			Select con	ridor shape:			
Add a subcriteria		Corric	lor Shape		-	Corridor ·	(1) Sidewalk			- 8 (
aterial Name - 🕅 Road Materials	Use materia	this for each I you wish to	add ntity Type	Cut Factor	Fill Factor	Corridor - Corridor - Corridor - Corridor -	(1) Pave1 (1) Pave2 (1) Base (1) SubBase	_		
Earthworks			Earthworks	1.000	1.000	Corridor	(1) Sidewalk			
- 🔗 OG		Base								
🔗 Corridor - (1	.) Top	Compare							T1	
AC			Structures	1	1.000			Pave	This list i	s obtained
	) Pavel	Include							attach	assemblies
🔤 🔤 Corridor - (1	.) Pave2	Include							cor	ridor
AB			Structures		1.000			Base		nuor.
- 📑 Corridor - (1	.) Base	Include								
🔤 📑 Corridor - (1	.) SubBase	Include								
🖃 🙀 Curb			Structures		1.000			Curb		•
🔤 📑 Corridor - (1	) Curb	Include								
🖃 🐺 Sidewalk			Structures		1.000			Sidewalk		-
🔤 📑 Corridor - (1	) Sidewalk	Include		Makos	uro this is a	ot to				
				structure	s to get vo	lumes				
				from the	corridor sh	apes.				
me calculation method:					1				Import another cr	iteria
erage End Area					-					

### 2. "Analyze" ribbon tab > Volume Report

🔯 Report Quantities	X
Select alignment:	
*⊒> Main Street	R
Select sample line group:	
[ːːb] Main   ▼	E.
Select material list:	
All Materials	-
Select a style sheet:	
eport Style Sheets\xsl\Select Material.xsl	Z
☑ Display XML report	
OK Cancel Help	

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