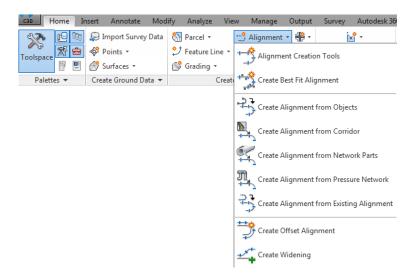
Corridors

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

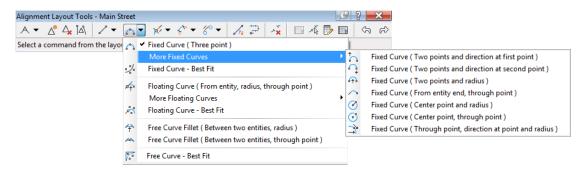
Alignments

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.

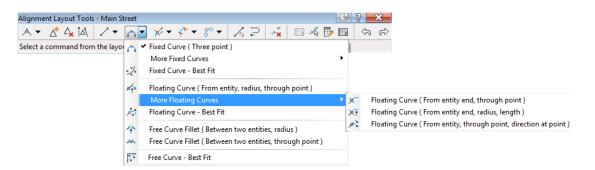


Alignment Creation Tools gives you the constrained based design options. Constrained based design will maintain tangency based on 3 choices:

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

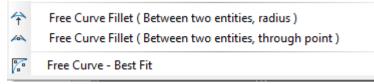


2. Floating Curve – Maintain tangency at the start, while one end is not connected to another object. For example, curves off the end of a line.



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

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.

Alignment Layout Tools - Main Street			9	?	×
A • △ 4 14 Z • A • × · · · · · ·	÷ -×	×6 🖪	Þ 📑	\$	Ŕ
Select a command from Fixed Line (Two points) Fixed Line (From curve end, length) Fixed Line - Best Fit					
p<)				
🏊 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 Station and Offset at Point	
Alignment Station, Offset, and Profile Elevation at Po	۱t
Alignment Station, Offset, and Surface Elevation at P	int
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 🔗 🤗 💻	<u>} </u>
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	

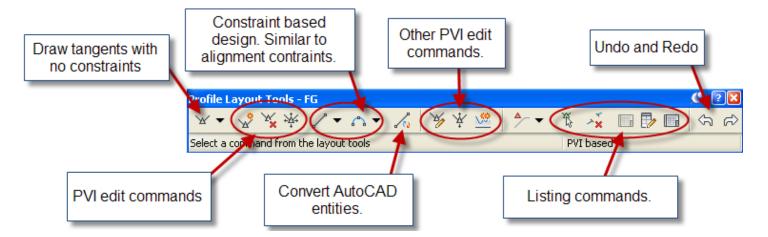
Existing/Proposed Profiles and Profile Views

- 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: -0 1+00.00' 210 38+15.61 Add>> Profile list: Station Elevi Data Sou... Offset Update ... Layer Name Description Type 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 Prof	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.



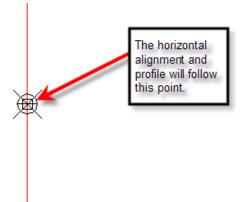
• "Annotate" ribbon tab > All Labels > Profile View > Add Profile View Labels

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

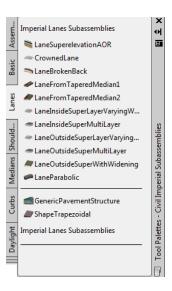
Create/Edit Assemblies

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

1



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



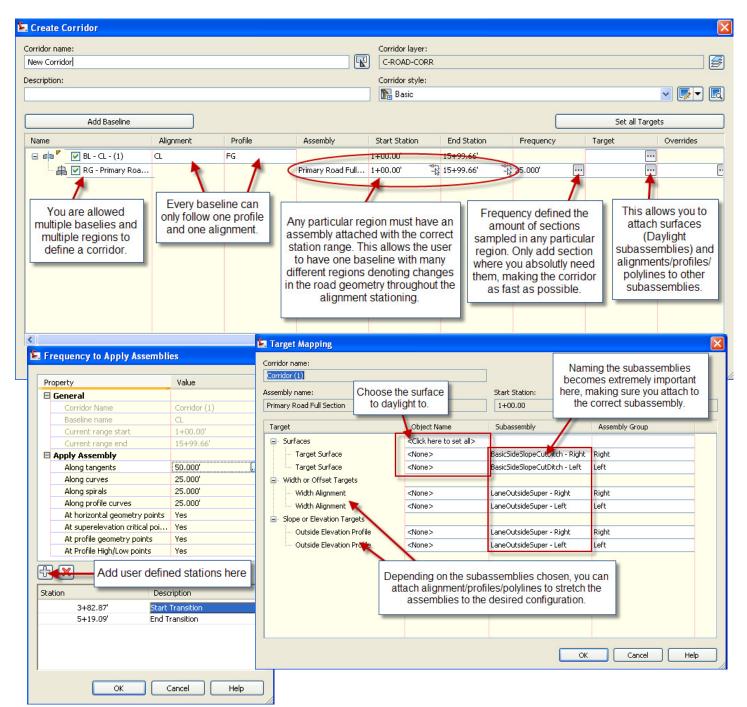
- a. Find the desired subassembly, left click the tool, fill out the properties, and then choose the attachment point on the assembly.
- b. Rename the subassembly to an appropriate name. This will be important later in the definition of the corridor.

Pa	rameters	*	52
	Lane Slope	-2.00%	Dbject Class
	Lane Width	12.000	ect
	Version	R2013	[do]
	Superelevation Axis of Rot	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	
	Inside Point Code	Crown	
	Outside Point Code	Edge of Pavement(ETW)	
	Р	ick the attachment point he	re.

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.

Corridor Properti		ture Lines Surfaces Boundaries Slope Patt	terns		and the second		×
à 🔊 🛛	Data type:		Specify cod	e:		•	×
Name		Surface Style	Render Material	Add as Breakline	Overhang Correction	Description	
	Roads-Top Top Back_Curb	Contours 1' and 5' (Design) 🔗 😭	ByLayer 🌚		Top Links		
- 1 - 1 - 1	Crown Daylight ETW Flange Flowline_Gutter Hinge Sidewalk_In Sidewalk_Out Top_Curb	These names are derived from the subassemblies used in the corridor.		Choose either the surface. Not for the road to g with the dat	add data to the high links and/or feature ice I added all the a generate the top su a added to the datu	lines to add to ppropriate data face, compare	
ייין אין אין גער אין אין	Road-Datum Datum Crown_Base Daylight ETW_Base	_No Display	ခွဲ ByLayer ြို		Bottom Links		
				ОК	Cancel	Apply He	

5. Add a Boundary to the Corridor Surface

formation	Parameters Codes	Feature Lines Surfaces Boundaries Slope Patt
Name		Description
···· 🔊 🖡	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.

lame:				Sample line style:			
SL Collection	- <[Next Counter(CP)]>				Line	-	/ 🗸
escription:				Sample line label st	tyle:		
					s #-#	-	/ - 🛛
			-	Sample line layer:			
				C-ROAD-SAMP			F
Alignment: Main Street Gelect data so	urces to sample:			oose the desire line group. Ma	ke sure the da	atum sufac	ce is
Main Street elect data so	urces to sample: Data Source	Sample			ke sure the da	atum sufac	ce is ns later
Main Street elect data sou Type		Sample	che	line group. Ma	ke sure the da	atum sufac calculatior	ce is ns later
Main Street elect data sou Type	Data Source		che	line group. Ma ecked to perfor	ke sure the da rm earthwork	atum sufac calculation	ce is ns later
Main Street	Data Source EG		che	line group. Ma ecked to perfor over Existing Ground	ke sure the da rm earthwork	atum sufac calculation opune me Dynamic	ce is ns 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 2015 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:
[] 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 Data type:	rial			Select corri	dor shape:			
Add a subcriteria	٦N	Corrido	or Shape		-		Corridor - (1) Sidewalk			
laterial Name - 힀금 Road Materials		his for each You wish to a		Cut Factor	Fill Factor	Corridor - Corridor - Corridor - Corridor - Corridor -	(1) Pave2 (1) Base (1) SubBase	_		
Earthworks			Earthworks	1.000	1.000	Corridor -	(1) Sidewalk	-		
- 🔗 OG	E	Base								
🖳 🏠 Corridor - (1) To	p (Compare								
AC			Structures		1.000			Pave	This list is obtained from the assemblies	
- 🔒 Corridor - (1) Pa		include			20				attached to the	
🔤 📑 Corridor - (1) Pa	ve2 I	include							corridor.	
AB			Structures		1.000			Base		
- 🔒 Corridor - (1) Ba	S-97.2	include								
🔤 📑 Corridor - (1) Su	bBase I	include								
Curb			Structures		1.000			Curb		
🔄 📙 Corridor - (1) Cu	ırb I	include								
🖃 😽 Sidewalk			Structures		1.000			Sidewalk		
🦾 🛃 Corridor - (1) Sid	lewalk I	include		structure	ure this is s s to get vo	lumes				
lume calculation method: verage End Area					from the corridor shapes.			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	

© 2014 CAD Masters, Inc. All rights reserved.

