

Corridor Optimization Techniques with FDOTSS4 OpenRoads Technology



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Description

- In this session we will discuss methods optimizing corridor processing when creating a model using FDOTSS4 OpenRoads Technology tools

Background: Bentley Communities - OpenRoads

Question:

What is the order in which template data is processed at each template drop?

Answer:

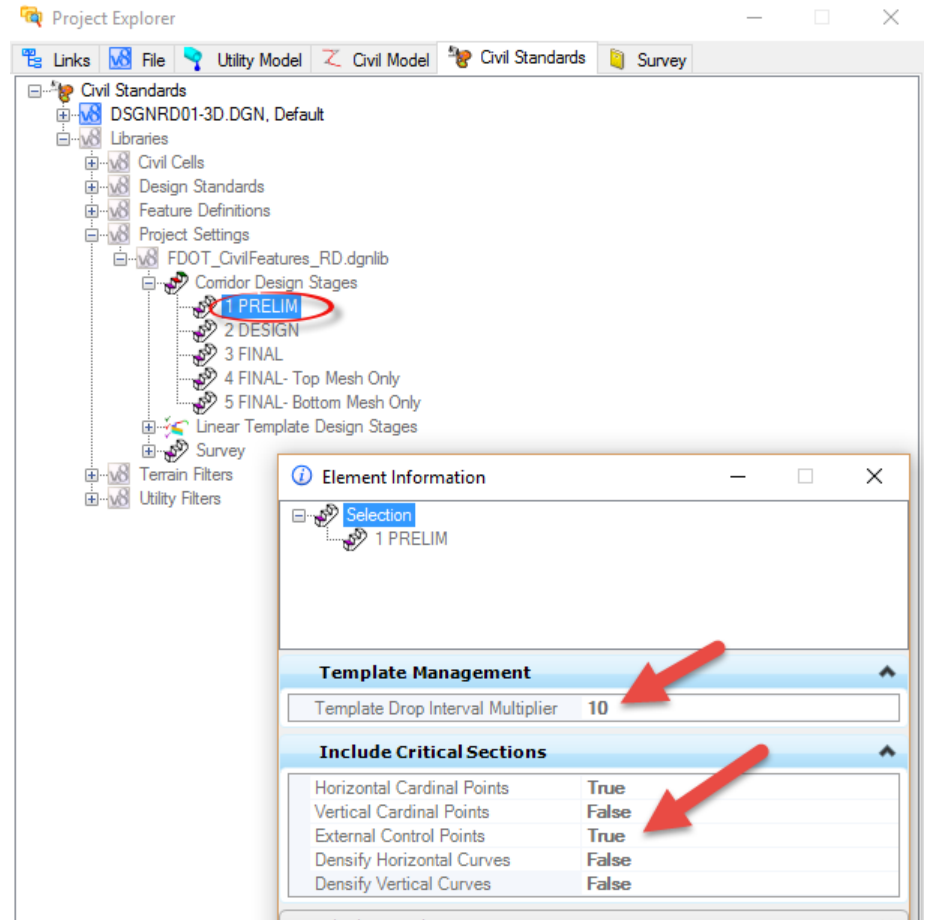
This is generally the order in which OpenRoads solves the location of points and components at each template drop...

1. **Template** is dropped, and points are placed according to the point constraints stored in the template.
2. **Parametric constraints** are applied as defined in the template, and in the corridor.
3. **Horizontal Feature constraints** are applied to move points if the feature is found in the specified range.
4. **Point controls** are applied to the assigned points, overriding the corresponding constraint, and all points that are constrained back to the point controlled point will be recalculated.
5. **Component display rules** are solved based on the current position of all points.
6. **End conditions** are solved by extending designated segments along the specified slope to seek their targets.



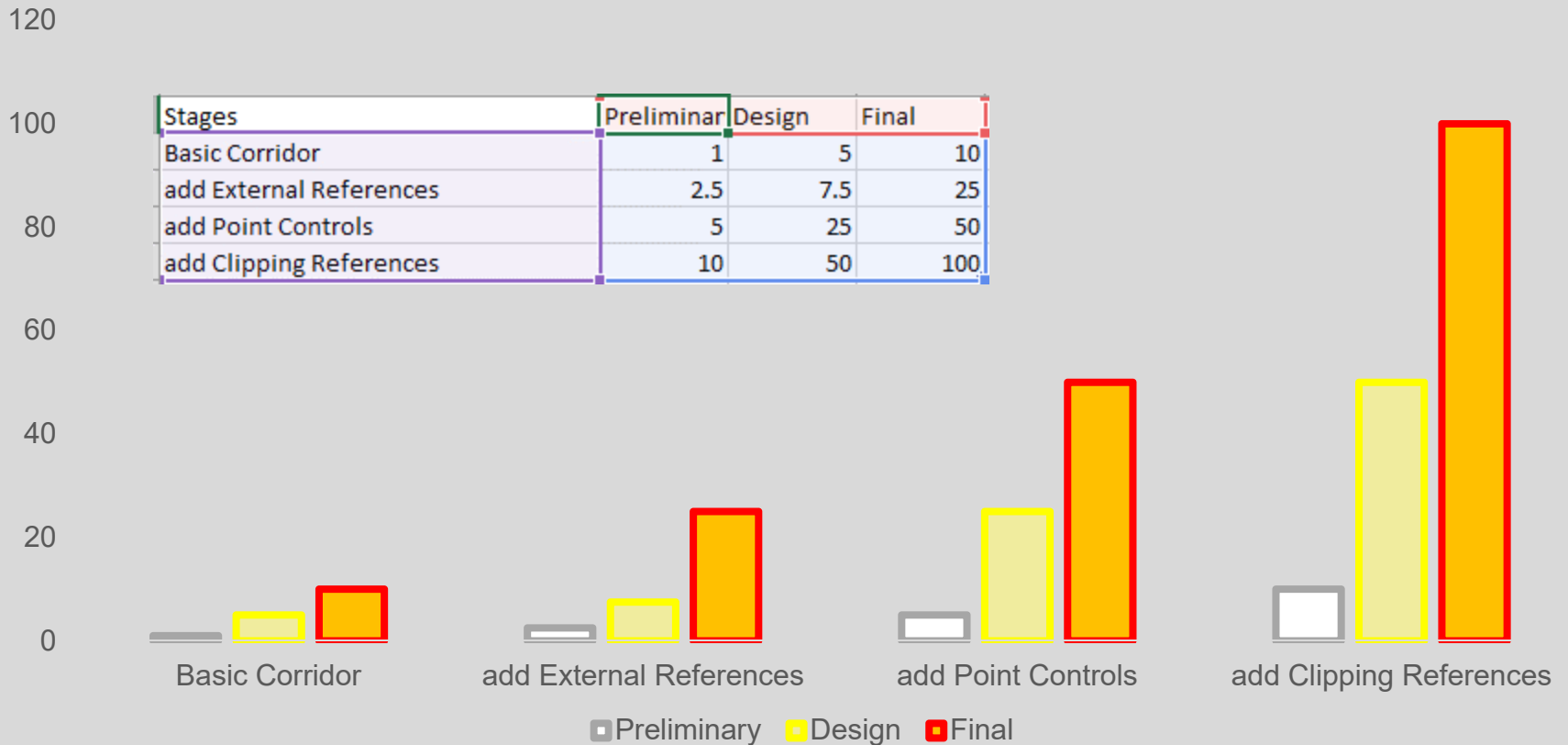
Background: What Affects Corridor Processing?

- Complexity of Template(s)
- Interval Spacing
- Design Stage
 - Preliminary – interval x10
 - Design – interval x5
 - Final – interval x1
- Active Terrain Size
- Corridor Objects
 - Key Stations
 - Point Controls
 - Parametric Constraints
 - EXTERNAL REFERENCES
 - CLIPPING REFERENCE



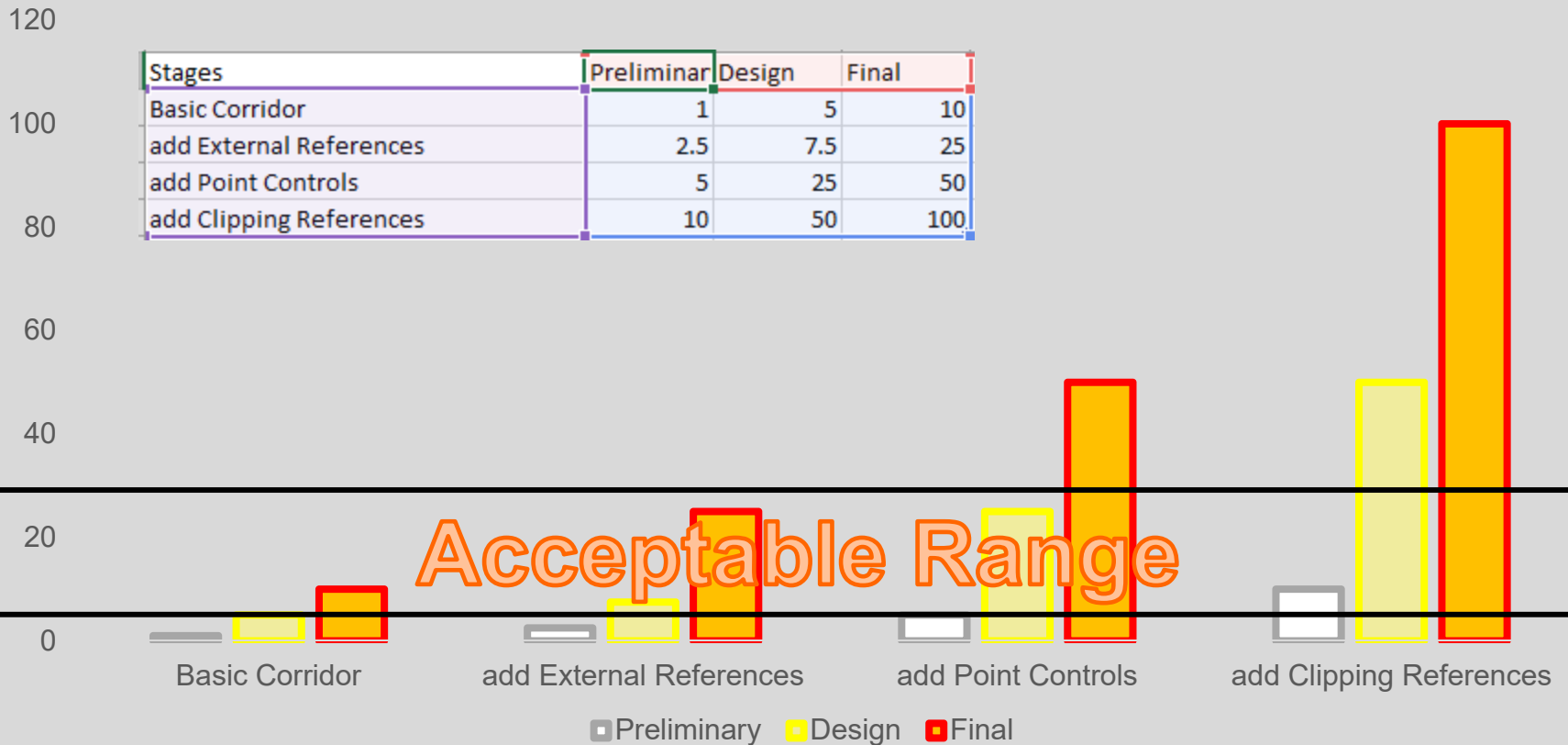
Examples:

Processing Time (Seconds)



Examples:

Processing Time (Seconds)



Background: When does Corridor Processing Start?

- Every time a Corridor Object is added or edited

The screenshot displays the 'Corridor Objects - CL_HANCOCK1' application window. On the left, a 'Template Drop' menu is highlighted with a red box, listing various object types: Secondary Alignment, Key Station, Parametric Constraint, Point Control, Curve Widening, End Condition Exception, External Reference, and Clipping Reference. The main area features a table with the following data:

Template Name	Interval	Descri...	Start Station	End Station
Hancock Rd.\Hancock Rd. Divided	5.000000		1072+34.10 R1	1117+77.15 R1

On the right, a detailed view of the selected object is shown, with the following fields:

Template Drop	
Interval	5.000000
Template Name	Hancock Rd.\Hancock Rd. Divided
Horizontal Name	CL_HANCOCK
Description	
Station Range	
Start Station	1072+34.10 R1
End Station	1117+77.15 R1

Background: How to control Corridor Processing?

- Use the Unlock feature to stop **auto** Corridor Processing

The screenshot displays the 'Corridor Objects - CL_HANCOCK1' software interface. The main window is divided into several panes:

- Template Drop:** A table listing corridor templates. The selected row is 'Hancock Rd.\Hancock Rd' with an interval of 5.000000, start station 1072+34.10 R1, and end station 1117+77.15 R1. The 'Unlock - Activate Rule' button is highlighted in red.
- Project Explorer:** A tree view showing the project structure. The 'CL_HANCOCK1' corridor is selected, and a context menu is open with 'Unlock - Activate Rule' highlighted.
- Properties Panel:** A panel on the right showing the 'Template Drop' and 'Station Range' properties for the selected corridor.

Template Name	Interval	Descr...	Start Station	End Station
Hancock Rd.\Hancock Rd	5.000000		1072+34.10 R1	1117+77.15 R1

Template Drop	
Interval	5.000000
Template Name	Hancock Rd.\Hancock Rd. Divided
Horizontal Name	CL_HANCOCK
Description	

Station Range	
Start Station	1072+34.10 R1
End Station	1117+77.15 R1



Background: How to control Corridor Processing?

- Use the Unlock feature to stop **auto** Corridor Processing
- Once re-locked, use Process Corridor

The screenshot displays the 'Corridor Objects - CL_HANCOCK1' software interface. The main window shows a table of corridor objects with the following data:

Template Name	Interval	Descr...	Start Station	End Station
Hancock Rd.\Hancock Rd	Unlock - Activate Rule		1072+34.10 R1	1117+77.15 R1

The 'Template Drop' panel on the right shows the following settings:

- Interval: 5.000000
- Template Name: Hancock Rd.\Hancock Rd. Divided
- Horizontal Name: CL_HANCOCK
- Description: (empty)

The 'Station Range' panel on the right shows the following settings:

- Start Station: 1072+34.10 R1
- End Station: 1117+77.15 R1

The 'Project Explorer' shows a tree view of the project structure, with 'CL_HANCOCK1' selected under 'Corridors'. A context menu is open over 'CL_HANCOCK1', with the 'Process Corridor' option highlighted by a red arrow. The 'Lock - Deactivate Rule' option is also visible in the menu.

Background: Can I stop Corridor Processing?

- No, not within the GEOPAK program
- Yes, using FDOTSS4 ClearCrash !



ClearCrash

Corridor Processing Optimization Techniques

Corridor Objects Dialog:

- Widen the Interval Spacing
- Deactivate the terrain when not testing EC's
- Narrow the Template Drop Station Range on single Template runs temporarily while validating design model
- Grossly maximize Interval Spacing on multiple Template runs
- Don't add unnecessary Corridor References
- Don't add Corridor Clipping Object until the end
- Turn off the Superelevation fill in the workspace preference
- Break up terrain, clip the terrain to project limits
- Collapse/close the cross section view and or 3D view – meh!

Project Explorer Dialog:

- Set include External References to false on the Design Stages; Preliminary and Design



Corridor Processing Optimization Techniques

General

- Turn off the Superelevation fill in the workspace preference
- Break up terrain, clip the terrain to project limits
- Collapse/close the cross section view and or 3D view – meh!

Project Explorer Dialog:

- Set include External References to false on the Design Stages; Preliminary and Design

Superelevation Workspace Preference1

Preferences [FDOTSS4]

Name for preferences

Dialog Opacity	<input type="text" value="70"/>
Dialog Color	<input type="color" value="#FFFFFF"/> [255,255,255]
Text Color	<input type="color" value="#000000"/> [0,0,0]

Manipulator Settings


Manipulator Size	<input type="text" value="13"/>
Normal Color	<input type="color" value="#90EE90"/> [192,255,192]
Read-Only Color	<input type="color" value="#A9A9A9"/> [211,211,211]
Selected In Property I	<input type="color" value="#FFFFFF"/> [255,255,255]
Selected Color	<input type="color" value="#FFA500"/> [255,165,0]
Manipulator Font	<input type="text" value="Arial"/>
Manipulator Font Sca	<input type="text" value="1"/>
Manipulator Transpar	<input type="text" value="30"/>
Use Shaded Manipul:	<input checked="" type="checkbox"/> True

Survey Locator

Superelevation Settings

Fill	<input type="button" value="Color Shaded Fill"/> <input type="button" value="v"/>
Maximum Error Ell	<input type="button" value="Color Shaded Fill"/>
Medium Error Ellip	<input type="button" value="Boundaries Only"/>
	<input type="button" value="None"/>

Focus Item Description



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