

# 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:

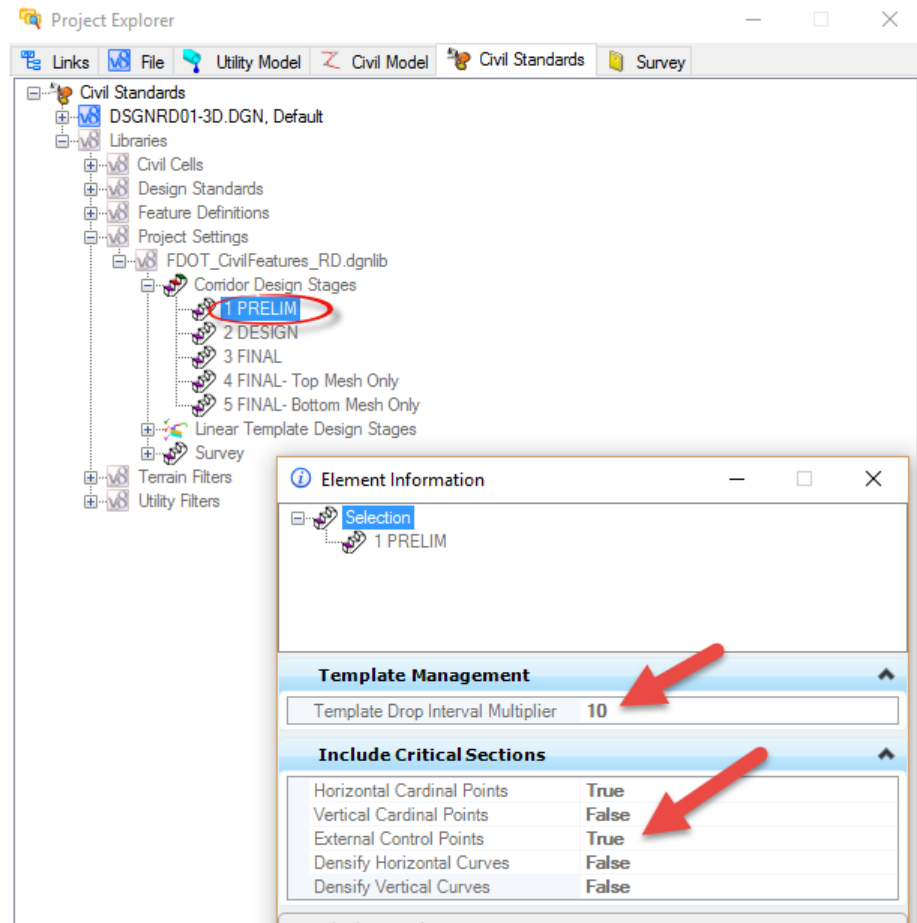
This is generally the order in which OpenRoads solves the location of points and components at each template drop...

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)

120

100

80

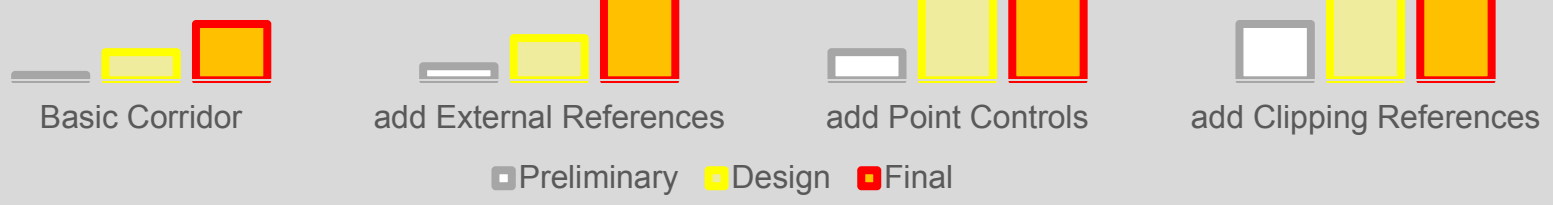
60

40

20

0

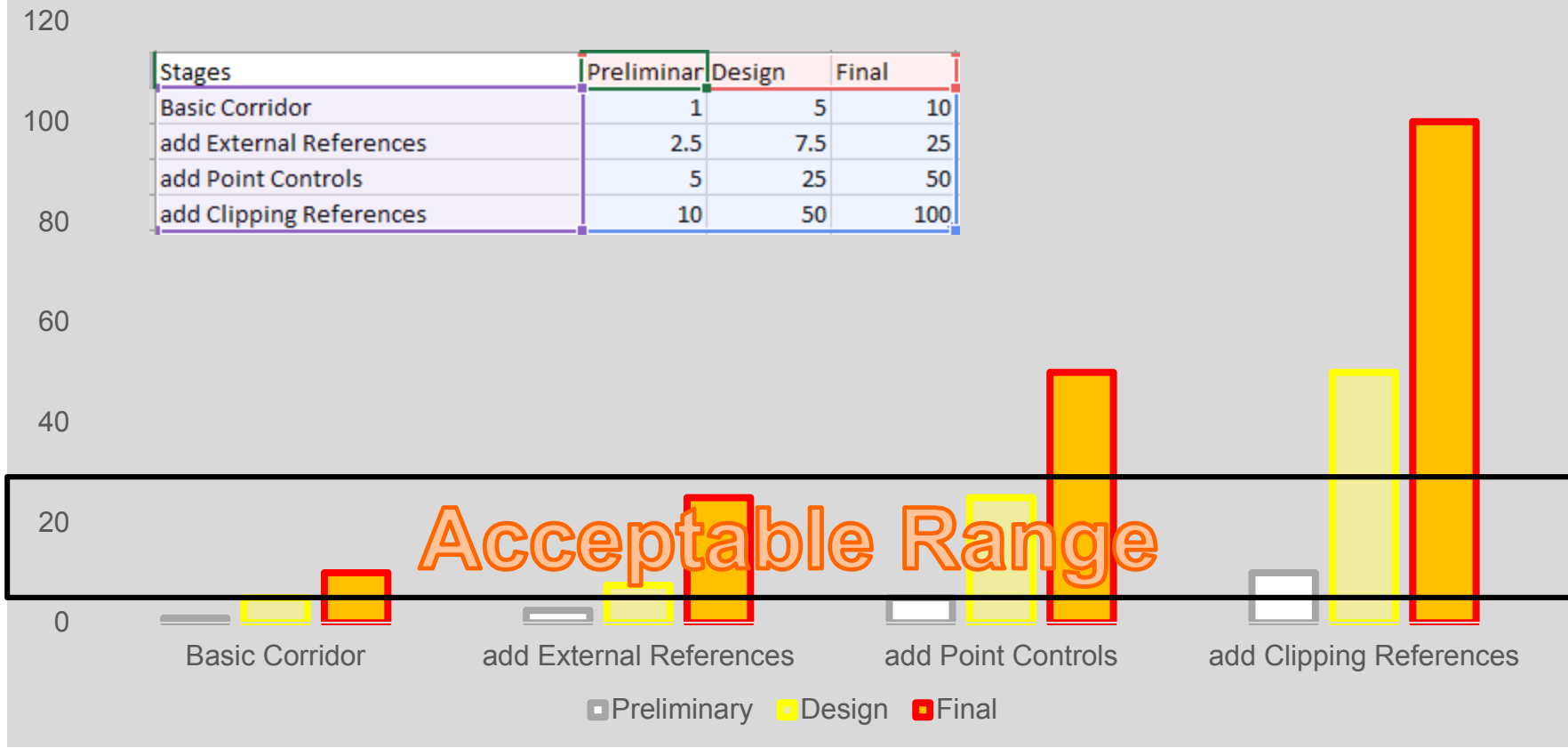
| Stages                  | Preliminary | Design | Final |
|-------------------------|-------------|--------|-------|
| Basic Corridor          | 1           | 5      | 10    |
| add External References | 2.5         | 7.5    | 25    |
| add Point Controls      | 5           | 25     | 50    |
| add Clipping References | 10          | 50     | 100   |



# Examples:

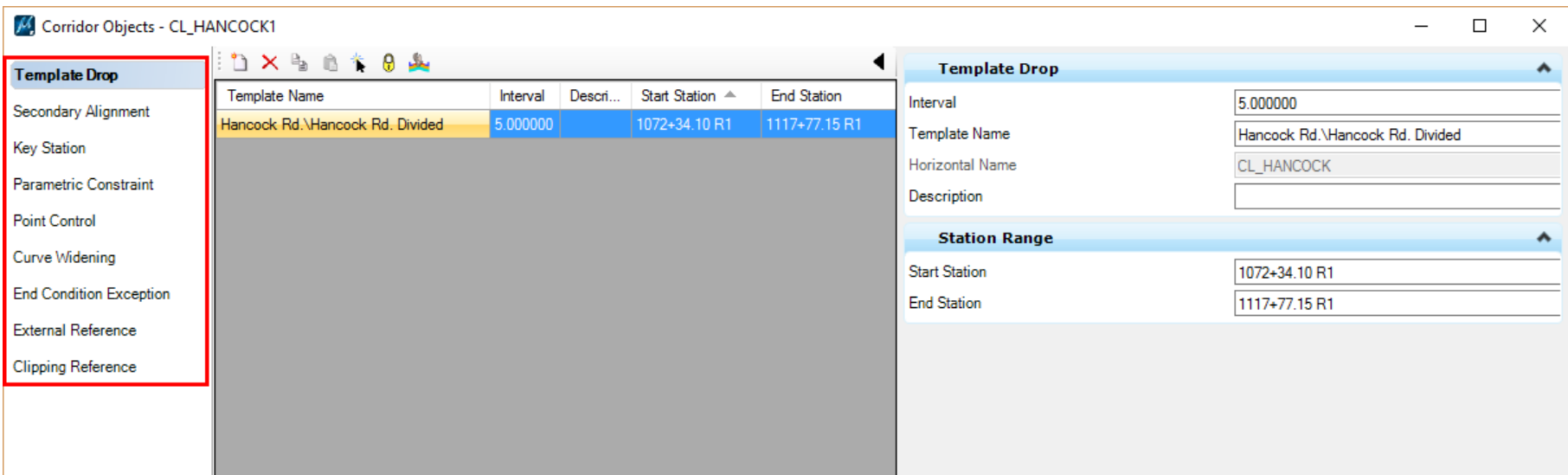
Processing Time (Seconds)

| Stages                  | Preliminary | Design | Final |
|-------------------------|-------------|--------|-------|
| Basic Corridor          | 1           | 5      | 10    |
| add External References | 2.5         | 7.5    | 25    |
| add Point Controls      | 5           | 25     | 50    |
| add Clipping References | 10          | 50     | 100   |



# Background: When does Corridor Processing Start?

- Every time a Corridor Object is added or edited



The screenshot displays the 'Corridor Objects - CL\_HANCOCK1' window. On the left is a 'Template Drop' menu with a red border, listing various object types. The main area contains 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 'Template Drop' panel shows the properties for the selected object:

**Template Drop**

Interval: 5.000000  
Template Name: Hancock Rd.\Hancock Rd. Divided  
Horizontal Name: CL\_HANCOCK  
Description: [Empty field]

**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' window in AutoCAD Civil 3D. The 'Template Drop' table is shown 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 'Station Range' panel shows the following values:

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

The 'Project Explorer' shows a tree view with 'CL\_HANCOCK1' selected, and a context menu is open over it, with 'Unlock - Activate Rule' highlighted. The 'Template Drop' and 'Station Range' panels are also visible.





# 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' window. On the left, a 'Template Drop' list includes items like 'Secondary Alignment', 'Key Station', and 'Clipping Reference'. The main table shows 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 'Project Explorer' shows a tree structure under 'Civil Data' with 'CL\_HANCOCK1' selected. A context menu is open over 'CL\_HANCOCK1', with 'Process Corridor' highlighted by a red arrow. Other menu items include 'Corridor Creation Tools', 'Corridor Overlay', 'Corridor References', 'Corridor Reports', 'Corridor Views', 'Lock - Deactivate Rule', 'Zoom to', and 'Delete'.



## ***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 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

## Project Explorer Dialog:

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

Break up terrain



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