Corridor Optimization Techniques with FDOTSS4 OpenRoads Technology

Vern Danforth, P.E.
FDOT Production Support – CADD Office
Description

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

<table>
<thead>
<tr>
<th>Stages</th>
<th>Preliminary</th>
<th>Design</th>
<th>Final</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic Corridor</td>
<td>1</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>add External References</td>
<td>2.5</td>
<td>7.5</td>
<td>25</td>
</tr>
<tr>
<td>add Point Controls</td>
<td>5</td>
<td>25</td>
<td>50</td>
</tr>
<tr>
<td>add Clipping References</td>
<td>10</td>
<td>50</td>
<td>100</td>
</tr>
</tbody>
</table>

Processing Time (Seconds)
Examples:

<table>
<thead>
<tr>
<th>Stages</th>
<th>Preliminary</th>
<th>Design</th>
<th>Final</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic Corridor</td>
<td>1</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>add External References</td>
<td>2.5</td>
<td>7.5</td>
<td>25</td>
</tr>
<tr>
<td>add Point Controls</td>
<td>5</td>
<td>25</td>
<td>50</td>
</tr>
<tr>
<td>add Clipping References</td>
<td>10</td>
<td>50</td>
<td>100</td>
</tr>
</tbody>
</table>

Processing Time (Seconds)

Acceptable Range

FDOT Florida Department of Transportation
Background: When does Corridor Processing Start?

- Every time a Corridor Object is added or edited
**Background:** How to control Corridor Processing?

- Use the Unlock feature to stop *auto* Corridor Processing
**Background:** How to control Corridor Processing?

- Use the Unlock feature to stop *auto* Corridor Processing
- Once re-locked, use Process Corridor
Background: Can I stop Corridor Processing?

- No, not within the GEOPAK program
- Yes, using FDOTSS4 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 Preference
Contact Information

Vern Danforth, P.E.
Production Support – CADD Office
Phone no: (850) 414-4897
Toll Free no: (866) 374-3368 extension 4897

email  vern.danforth@dot.state.fl.us
web:  http://www.dot.state.fl.us/ecso