



#### **An Overview of Templates and End Conditions**

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#### Welcome to the bentleyuser.dk



Exton, PA







#### Welcome to the bentleyuser.dk

- Joe Waxmonsky
  - Old TSG GUY
  - BSW Product Management/Engineer
- 4<sup>th</sup> Year
- Why do I do what I do?





## My Commute







#### **Templates & End Conditions**

This presentation will provide a detailed overview of templates and end conditions. It will focus on the inner workings of templates and their capabilities, as well as the application of end conditions with templates. Users that like to get some advanced hand-on this subject should also take part in workshop X5.



## Agenda:

- CAD Standards and Preference
- Template Libraries
- Construction of Component
- Construction of Templates
- Storage & Management of Templates

DEMO

• Roadway Designer & Templates



#### **CAD Standards and Preference**

- Templates & Roadway Designer
  - Component Styles
  - Point Styles
  - Corridor>Surface Symbology
  - Plan Graphics
  - Create Surface
    - Default Preference
    - Traverse Features
    - Exterior Boundary
- Plan & Profile & Cross Sections







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#### **Template Libraries**

- How many do I need and where do I start?
- Agency or Consultants
- Consultant Concerns
- Clients
  - CAD Standards
  - CAD Platforms/Deliverables
- Engineering Logic Supersedes





# **Template Library Location**

- Centralize a Master Copy of your standard Template Library(s) file.
  - Store on Server with read and copy only access
  - Provides a starting point for users
  - Allows users to copy to their working directory
- ITL Becomes Project Specific



# **Template Library**

- The \*.ITL File = Template Library
  - XML Based
- ITL Format is the Bentley Standard
  - MXROAD
  - GEOPAK
  - InRoads
- Starting Point....toolbox



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#### **Template Library = Future Investment**







## **Template Library**

• Flexible Folder Structure to match your workflow

Modeler Site Modeler

coress Modeler

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☆ Create <u>T</u>emplate...
★ Roadway Designed

Corridor Modeling <u>File T</u>ools

Job: 314

- Organized
  - Department
  - Road Classifications
  - Design Speed
  - "Raw" Component
  - "Raw" End Condition
  - Corridor i.e. US 66
  - Any Combination that make sense!

🔲 Create Template	
File Edit Add Tools	
Template Library:	
D:\Mdot_v8\MDOT.itl	
Point Name List	
Components	
4" Concrete Sidewalks	
Concrete Barrier	
Concrete C & G	
Concrete Valley Gutter	
Cut Slopes	
📄 Fill Slopes	
Pavement	
Shoulders	
📄 Urban Freeway Gutter	
End Conditions	
Cross Overs	
Entrances	
Gores	
Guardrail	
Medians	
Milling	
Vertical Optimization	
Variable slopes with toe ditch	
Roadway Types	
Sex fourJane divided	

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#### Styles and the \*.XIN File

- A collection of standards used to assign symbologies to DGN graphics
  - Cross Section/Profile
  - 3-D Breaklines
  - Roadway Designer and Create Template Tools
  - Inherit Styles Appearance
    - Points
    - Components
    - Surfaces
  - Interacts with Styles
    - Used in Constraints
    - Target in End Conditions
    - Use as Point Control



# **Successful Point Naming**

- "Solid" Template Library
- Point Name List

Carata Tamanlata

- Set Styles to be "pre-assigned" to the point name
- Enforces the correct naming with that style

File Edit Add Tools  Template Library:  C:\orogra~1\bentlev\inroad^  Point Name List EndConditions Misc Components Pavements Templates	Point Name: Style:	Name List EOP Pavement Outside Edge 💌	Add Close
→ 16'Ramolt	Points:	Style	Change Help
	EOP	Pavement Outside Edge	
			Delete



### **Template Point Names**

 Point name prefixes / suffixes should only used creating templates and **not** in the Point Name List.











## **Successful Point Naming**

- Template Transition
- Point Control
- Superelevation
- Surface Creation
- Cross Section Annotation
- Machine Control
- Components



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#### **Danish/Swedish Characters & Point Names**

		84 <u> </u>	411	4		•3 <sub>//</sub>
-0:03	Point Prop	oerties	~			X
-0:04	Name:	e Name Ovemide:	aáéo aast	)	• +	Apply
-0:05	Feature Definit	lion: n Flag:	EOP None		•	< Previous
-0:06			M	lember of:		Next > Help
-0:07			L	AKG Pavement		3
-0.08						y
-0.09	Constraints	Constraint	1	_	Constrair	nt 2
-10	Parent 1:	Slope CL	• •	+ Ci	orizontal L	▼ ▼ +



#### **Constraints on Template Points**

- Adding and Deleting Constraints
  - Right-click on points to add and delete constraints
  - Edit Point
  - Horizontal and vertical constraints are important
    - Pavement layers
    - Superelevation
    - Transitioning
  - Helps to Relocate Points

#### Don't Really Care to but have to.....





### **Component Naming**

- Component naming is recommended to be consistent with the material type.
  - Used for displaying components
  - Component Display Rules...CDR's
  - Displaying Templates
  - Material Quantities
  - Components in MSTN





# **Construction of Components**

- Building Blocks of Templates
  - Pavement
  - Curbs & Sidewalks
  - Tie Down & End Conditions
- Allows Drag & Drop
- Mirror/Reflect and Affixes
  - Components
  - Points
  - Including Overides
  - CDR's
- Allows for One Component



Naming Options			OK
Component Seed	Name:		<u>u</u>
From Style			Cancel
O Specify:	fun		Preference
Point Seed Name:		Y	Help
Apply Affixes			
	Prefix	Suffix	1
Left:		L	
Right:		R	
		/	
Step Options			





## **Construction of Components**

• Add New Component Tools

Add New Component	+	Simple
Template Documentation Link		Constrained
Check Point Connectivity		Unconstrained
Delete Components		Null Point
Change Template Origin		End Condition
Delete Constraints from All Points		Overlay/Stripping
Set Dynamic Origin	Ctrl-D	

• Import Template from Graphics

Import Template from Graphics						
Default Style:	abutment		•	Apply		
Туре:	Template and End Conditions			Close		
Vertical Exaggeration of Grap	1.00		Help			
Minimum Chord Length of Cu	1.00					





# **Construction of Templates**

- Built with Components
- Typically Started
  - Copy/Paste and Modify Similar Templates
  - Drag & Drop Components/Templates
  - Custom
  - Any Combination of the Above
- Template Organizer





# **Template Documentation Link**

- Link to Reference & Help
  - Design Manual
  - Typicals & Details

Terrelate Liberary		Connect Templete
Template Lbrary: D:\InRoads Templates E Point Name List Project Templates Ramps × Ramp C × Ramp D	\i95Conc.itl	Current l'emplate Name: 195_Conc Description:
195_Concrete_	Set Active	
	Cut	Ctrl-X
	Сору	Ctrl-C
	Paste	Ctrl-V
	Delete	Del
	Rename	F2
	Template Documentation	Link
	Display	





# **Stealing**

- Display Template
  - Create Template
  - Roadway Designer
- Create 2D Graphic

Display Template Charles I Vertical Exaggeration: 1.0000 Apply Use Alternate Slope if Slope Exceeds: 0.00% Close Display Controls Preferences.. Precision Format Width: Help Slope: 0.12 -50% Alternate Slope: 0.12 = 50% Define End Conditions Name





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## **Templates in Roadway Designer**

- Live in the IRD
- Template Drops
  - Synching
- Editing Templates
- Copying IRD Templates
- Transition Template
- End Condition Exception





#### **Demo Agenda:**

- Templates
  - Driveways/Curbs/Sidewalk
  - CDR's, Overlay, & End Condition





### Conclusion

- "Solid" Template Library
  - Organize Logically
  - Contains the "Building Block" Components
  - Naming Convention
    - Points with Point List
    - Component naming
  - Matches CAD Standards
  - Standard Templates
- Templates in ITL vs. IRD Files
- Awareness of Roadway Designer Tools
- Unlimited Possibilities







Sustaining Infrastructure

**Questions?** 

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