



# Road and Site Are Now One!

Presented by: Robert Nice – Bentley Systems

# Learning Objectives

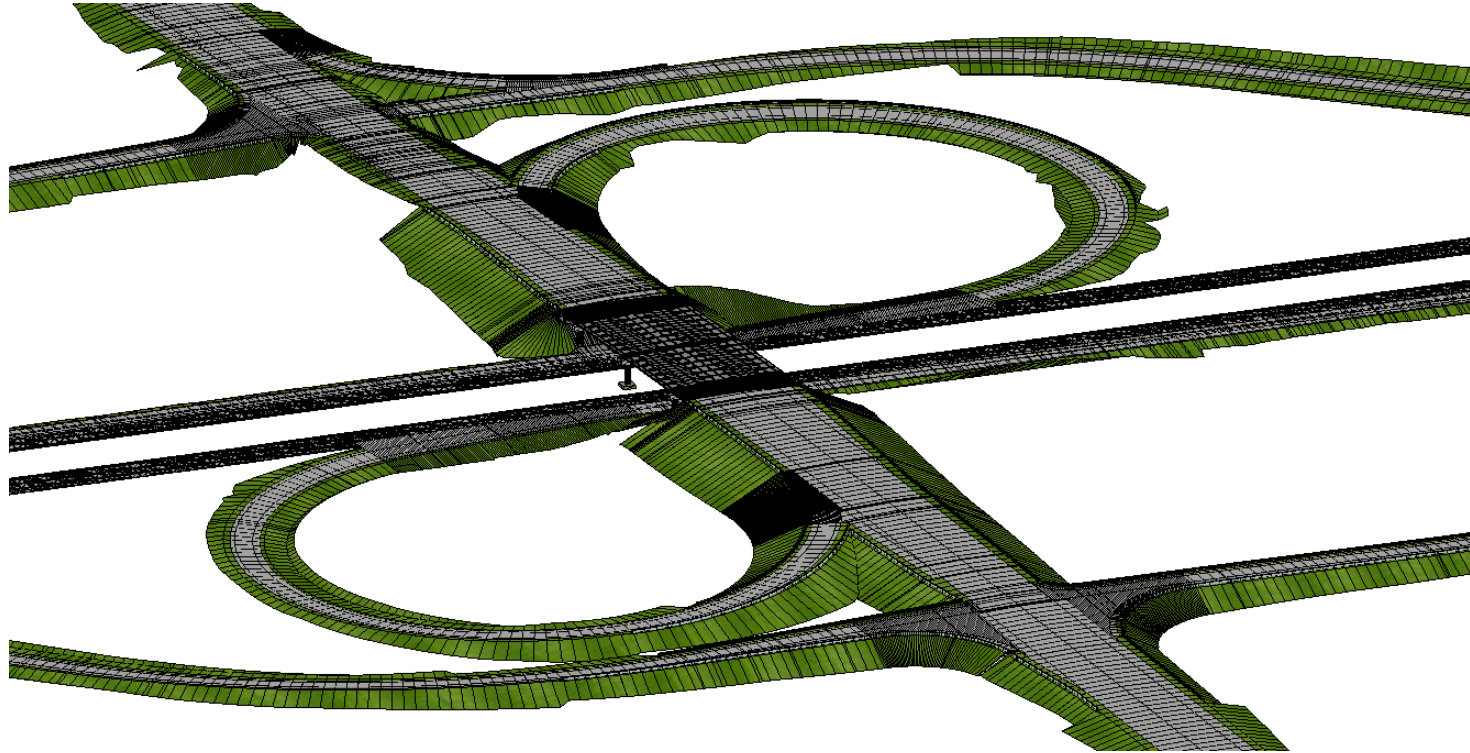
After this session you will be able:

- Create terrain models and apply surface templates.
- Apply linear templates around the edge of a terrain.
- Use point controls to connect to adjacent corridors.
- Learn the power of civil cells to automate development of complex design areas such as intersections.

# The Challenges of COMPLETE Modeling...

- The process of pushing a template along an alignment to create a 3D model is not a new concept.
- On the contrary, when was the last time you thought about modeling a driveway or the nose of a median?
- Connecting corridors with non-corridors?
- What about interaction between different alignments...
  - Gores
  - Loop Infields
  - Bridge Abutments
  - Etc.

# Modeling Everything Could Be Challenging...



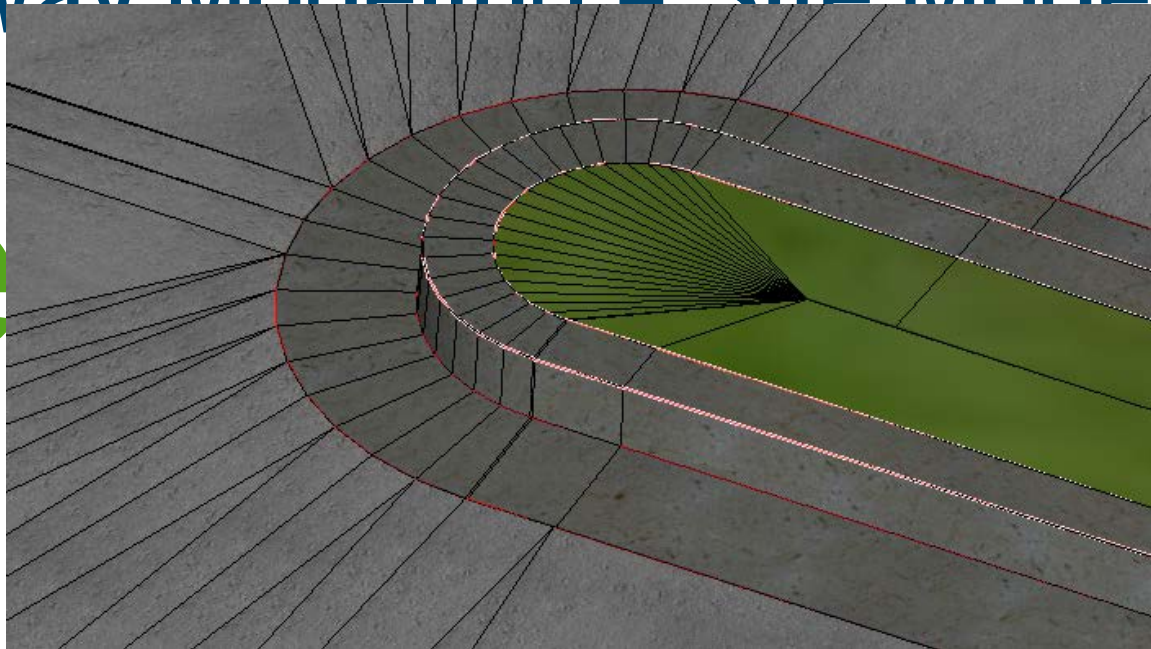
# But Remember...There's Power in Change!



# \*\* V8i SELECTseries 3 \*\*

Roadway Modeling + Site Modeling =

The **ion**



# Seamless Modeling

- With the release of V8*i* SELECTseries 3, Site and Corridor Modeling are a unified technology
- DGN based model removes all limitations of data integrity
- Applying templates is the same for baselines as it is for parking lots
- Seamless integration between adjacent corridors

# Designing a Park and Ride Facility

- Step 1 – Establishing the geometry of the perimeter
  - Horizontal Geometry
  - Vertical Geometry
  - All civil geometry is DGN based and graphically redefinable



# Step 1 – Designing the Geometry

# DEMO

# Step 1 – Designing the Geometry

# Designing a Park and Ride Facility

- Step 2 – Creating a Terrain Model
  - Create the terrain model of the concrete boundary
  - Adjust stroking tolerances of the terrain model
    - Terrain models are now built into the DGN file format as a MicroStation element with controllable parameters
    - All terrain model properties and settings are controlled through element information

# Step 2 – Creating a Terrain Model

# DEMO

# Step 2 – Creating a Terrain Model

# Designing a Park and Ride Facility

- Step 3 – Applying a surface model template
  - Apply a pavement template to the terrain model
    - Adding a template component to a terrain model allows a designer to provide material depth to any terrain model surface

# Step 3 – Applying the Surface Model Template

# DEMO

# Step 3 – Surface Model Template



# Designing a Park and Ride Facility

- Step 4 – Applying a linear template
  - Apply a linear template to the pavement boundary
    - Templates can be applied along any civil geometry element.
    - Does not require a corridor
    - No need to make special components – uses traditional components from template library

# Step 4 – Applying a Linear Template

# DEMO

# Step 4 – Applying a Template

# Designing a Park and Ride Facility

- Step 5 – Applying point controls
  - Apply point controls to the fill slope of the Park and Ride facility to tie into the mainline ditch bottom
    - Point controls provide the necessary tools to connect points from one corridor to another
      - Adjacent corridors
      - Linear template objects

# Step 5 – Applying Point Controls

# DEMO

# Step 5 – Applying Point Controls

# Designing a Park and Ride Facility

- Step 6 – Applying clipping references
  - Apply a clipping reference to the mainline corridor, using the Park and Ride to clip the mainline where overlap occurs
    - Complete clipping control now available with ability to add multiple clipping references to a corridor
    - Ability to add any MicroStation shape as a clipping reference

# Step 6 – Applying Clipping References

# DEMO



# Step 6 – Applying Clipping References

# Designing a Park and Ride Facility

- Step 7 – Applying parametric constraints
  - Apply a parametric constraint to the curb to modify the curb's width
    - Parametric constraints allow the user to create and customize the design to the specific standards
    - Widths, slopes, heights, variable adjustments, etc.

# Step 7 – Applying Parametric Constraints

# DEMO

# Step 7 – Applying Parametric Constraints

# Designing a Park and Ride Facility

- Step 8 – Placing a Civil Cell
  - Place a Civil Cell to connect the mainline corridor to the park and ride facility.
    - Civil cells allow for the automation of complex geometry (2D and 3D)
    - Help to ensure design standard compliance
    - The possibilities are endless
      - Traffic Islands
      - Driveways
      - Intersections
      - Roundabouts
      - Etc.

# Step 8 – Placing a Civil Cell

# DEMO

# Step 8 – Placing a Civil Cell

# Designing a Park and Ride Facility

- Step 9 – Fine Tuning the Model
  - Adding Target Aliasing to the radius returns
  - Using Parametric Constraints to taper the curb height and fill slopes
  - Customizing template drops
  - Radius value change



# Step 9 – Fine Tuning the Model

# DEMO

# Step 9 – Target Aliasing

# Step 9 – Parametric Constraints

# Step 9 – Template Drop Edits

# Step 9 – Modifying a Radius

# Learning Paths: Ready-Made Training Plans

Choose from:

- Bentley recommendations
- Configure your own
  - Organizational
  - Personal

Select:

- Product(s) and version(s)
- Language
- Training type

Enroll team members in:

- One learning path
- Multiple learning paths

Personalize Learning Path

Use this form to personalize a Learning Path. You can enable/disable specific course offerings by expanding the "Find Training" tab, and even add new course blocks into your Learning Path. Click the Help icon for more detailed instructions and a Step-By-Step guide.

Name\* Peter's custom lp

Description\*

Learning Path Type  Personal Learning Path  Set as Company Learning Path

Courses

MicroStation Essentials

MicroStation Essentials is designed for the new MicroStation user and builds a solid foundation in the concepts, tools and features found in the MicroStation drawing environment. Starting with setting... [More](#)

Find Training (14)

| Live                     | Title  | Language |
|--------------------------|--|----------|
| <input type="checkbox"/> | MicroStation Essentials                      | English  |
| <input type="checkbox"/> | MicroStation Essentials Basics               | English  |
| <input type="checkbox"/> | MicroStation Essentials Express              | English  |
| <input type="checkbox"/> | MicroStation Essentials                      | English  |
| <input type="checkbox"/> | MicroStation for AutoCAD Users               | English  |
| <input type="checkbox"/> | MicroStation for AutoCAD Users Express       | English  |
| <input type="checkbox"/> | MicroStation for Mining and Metal Extraction | English  |
| <input type="checkbox"/> | MicroStation for AutoCAD Users Express       | English  |

On-Demand

| Title                    | Language                                     | Generation | Release Label | LU's |
|--------------------------|--|------------|---------------|------|
| <input type="checkbox"/> | MicroStation Essentials Lecture Series       | English    | V8i           |      |
| <input type="checkbox"/> | MicroStation Quick Start Guide               | English    | V8i           |      |
| <input type="checkbox"/> | MicroStation Essentials                      | English    | V8i           |      |
| <input type="checkbox"/> | MicroStation for AutoCAD Users               | English    | V8i           |      |
| <input type="checkbox"/> | MicroStation for Mining and Metal Extraction | English    | V8i           |      |
| <input type="checkbox"/> | MicroStation Essentials                      | English    | V8i           |      |

Personalize Learning Path

Use this form to personalize a Learning Path. You can enable/disable specific course offerings by expanding the "Find Training" tab, and even add new course blocks into your Learning Path. Click the Help icon for more detailed instructions and a Step-By-Step guide.

Name\* MicroStation Technician in a Roadway Setting

Description\* 2 year onboarding program. 72 LU's. Multi-product MS, PW, InterPlot, InRoads. Live and on-demand self-study.

Learning Path Type  Personal Learning Path  Set as Company Learning Path

Manage Master Course List

ProjectWise User Essentials

This course is for individuals who need to manage documents throughout a project cycle and work in the ProjectWise managed environment. It presents techniques for working in the integrated environment... [More](#)

LU's: 0

Find Training (10)

| Live                     | Title                             | Language | Generation | Release Label  | LU's |
|--------------------------|-----------------------------------|----------|------------|----------------|------|
| <input type="checkbox"/> | ProjectWise User Essentials       | English  | V8i        | SELECTseries 2 | 8    |
| <input type="checkbox"/> | ProjectWise User Essentials       | English  | V8i        | SELECTseries 3 | 8    |
| <input type="checkbox"/> | ProjectWise Client Start Up Guide | English  | V8i        | Base Release   | 4    |
| <input type="checkbox"/> | ProjectWise User Essentials       | English  | V8i        | Base Release   | 8    |

Displaying items 1 - 4 of 4

| On-Demand                | Title                             | Language | Generation | Release Label  | LU's | Type                         |
|--------------------------|-----------------------------------|----------|------------|----------------|------|------------------------------|
| <input type="checkbox"/> | Design Management Studio          | English  | V8i        | Base Release   | 1    | OnDemand eLearning: Lecture  |
| <input type="checkbox"/> | ProjectWise User Essentials       | English  | V8i        | SELECTseries 2 | 8    | OnDemand eLearning: Hands-on |
| <input type="checkbox"/> | ProjectWise User Essentials       | English  | V8i        | SELECTseries 3 | 8    | OnDemand eLearning: Hands-on |
| <input type="checkbox"/> | ProjectWise Client Start Up Guide | English  | V8i        | Base Release   | 4    | OnDemand eLearning: Hands-on |
| <input type="checkbox"/> | ProjectWise User Essentials       | English  | V8i        | Base Release   | 8    | OnDemand eLearning: Hands-on |
| <input type="checkbox"/> | ProjectWise User Essentials       | English  | V8i        | Base Release   | 5    | OnDemand eLearning: Hands-on |

Displaying items 1 - 6 of 6

ADD MORE

MicroStation Essentials

MicroStation Essentials is designed for the new MicroStation user and builds a solid foundation in the concepts, tools and features found in the MicroStation drawing environment. Starting with setting... [More](#)

LU's: 0

# This session's Learning Path:

A link to this session's Learning Path will be emailed to you.

# Assessment

1. True or False: A surface template is a special type of template in the template library? - ***False***
2. True or False: Parametric Constraints allow the designer to override constraint values initially set by the template such as slope and distance values? - ***True***
3. Fill in the blank: \_\_\_\_\_ allow the user to automate the design and placement of complex and/or redundant 2D and 3D geometry? - ***Answer: Civil Cells***



# Questions?