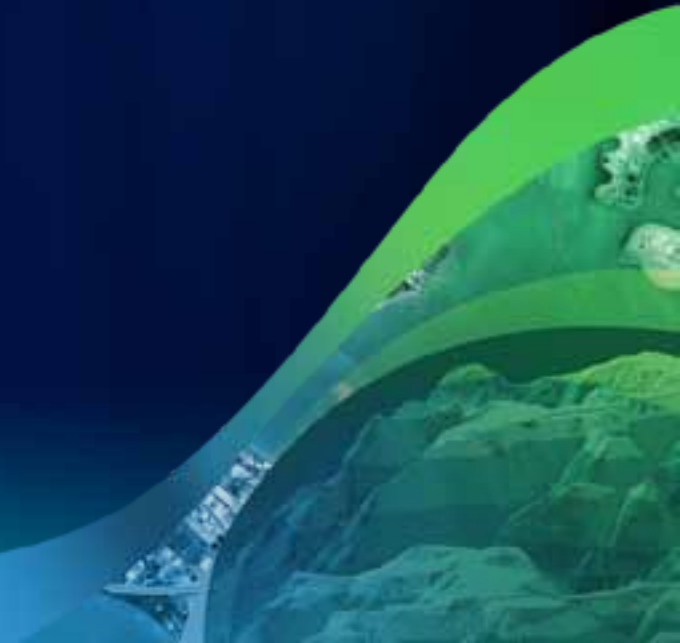




Esri International User Conference | San Diego, CA
Technical Workshops | July 11 – 15, 2011

Working with Cartographic Representations

Jamie Conley and David Watkins



Overview

- What are representations?
- Working with representation rules
- Geometric effects and marker placement styles
- Overrides

What are representations?

- A way to symbolize features to solve common cartographic challenges
- A storage model that stores symbols with data
- Part of a feature class, managed through a layer

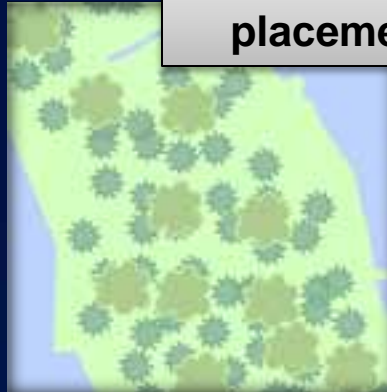


What are representations?

Create custom
symbols



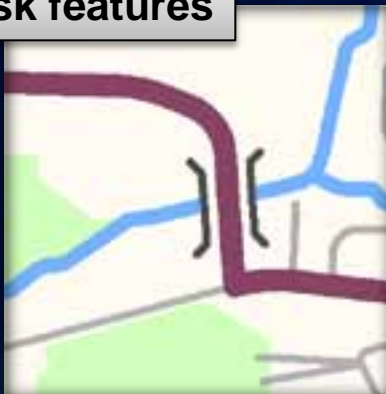
Control marker
placement



Add drawing
behavior



Mask features



Move symbology
independently of geometry

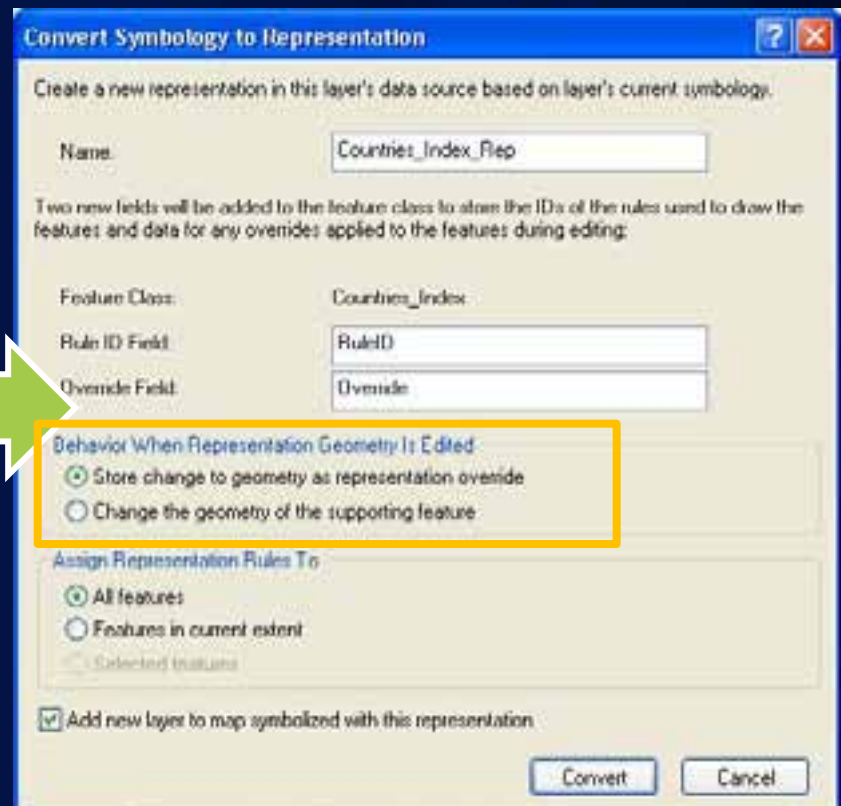
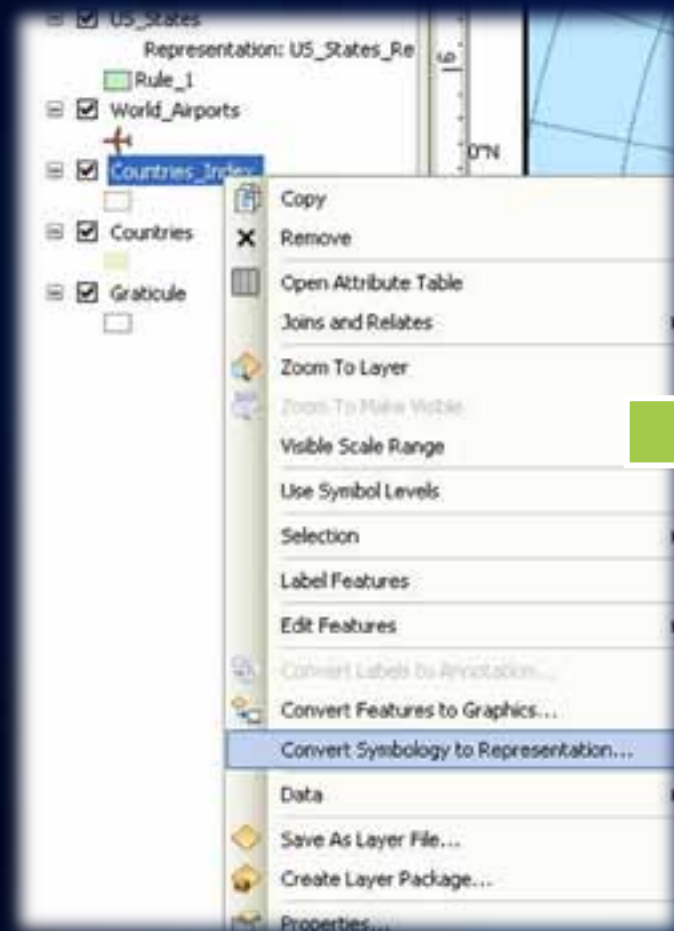


What licensing is required for representations?

- **Representations recognized by all ArcGIS products**
- **ArcView license:**
 - View representations and properties
- **ArcEditor license:**
 - Create and edit representations
 - Some geoprocessing for representations
- **ArcInfo license:**
 - View, create, edit representations
 - All geoprocessing tools



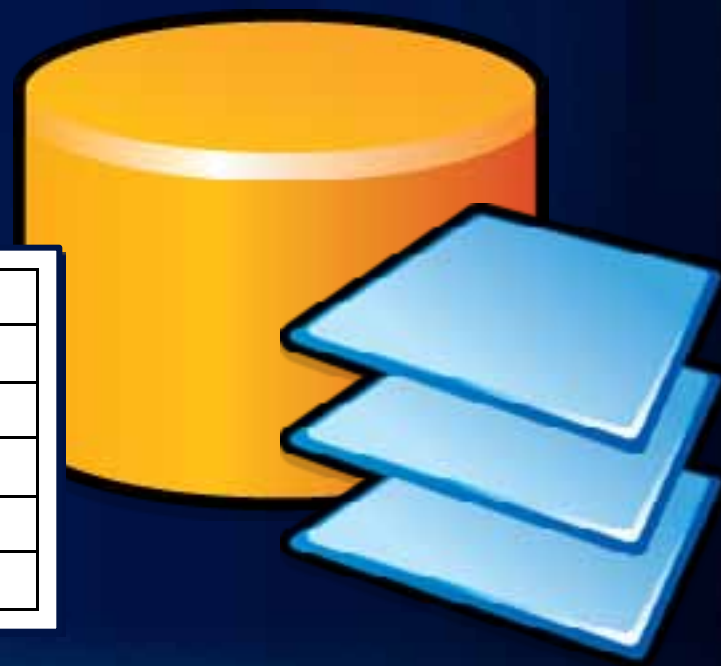
How do I convert symbology to representations?



How are representations stored?

- Attributes in the geodatabase
- Properties of a feature class
- Managed through a layer

ID	Type	RuleID	Override
1	Street	StreetSym	<null>
2	Major Road	StreetSym	<null>
3	Minor Road	StreetSym	<null>
4	Minor Road	StreetSym	<null>
5	Street	StreetSym	<null>



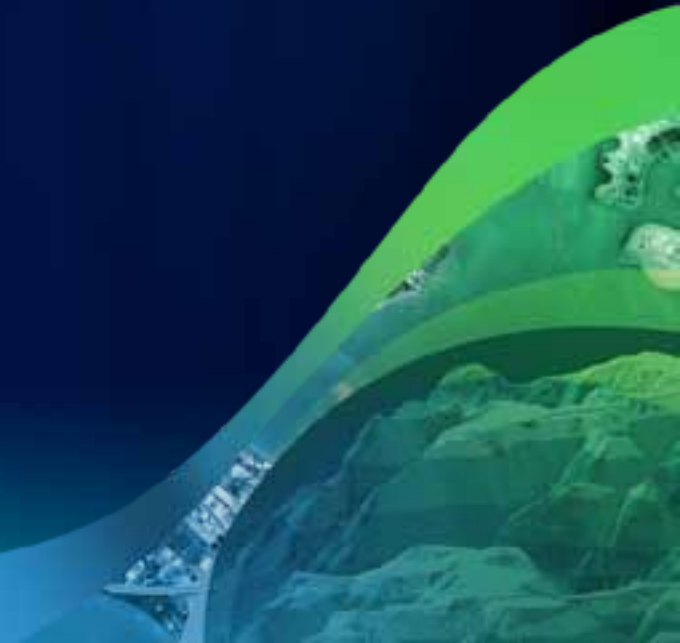
Multiple Representations

- Feature classes can store more than one representation
 - Symbolize city differently for tourists and city employees
 - Give different users different views



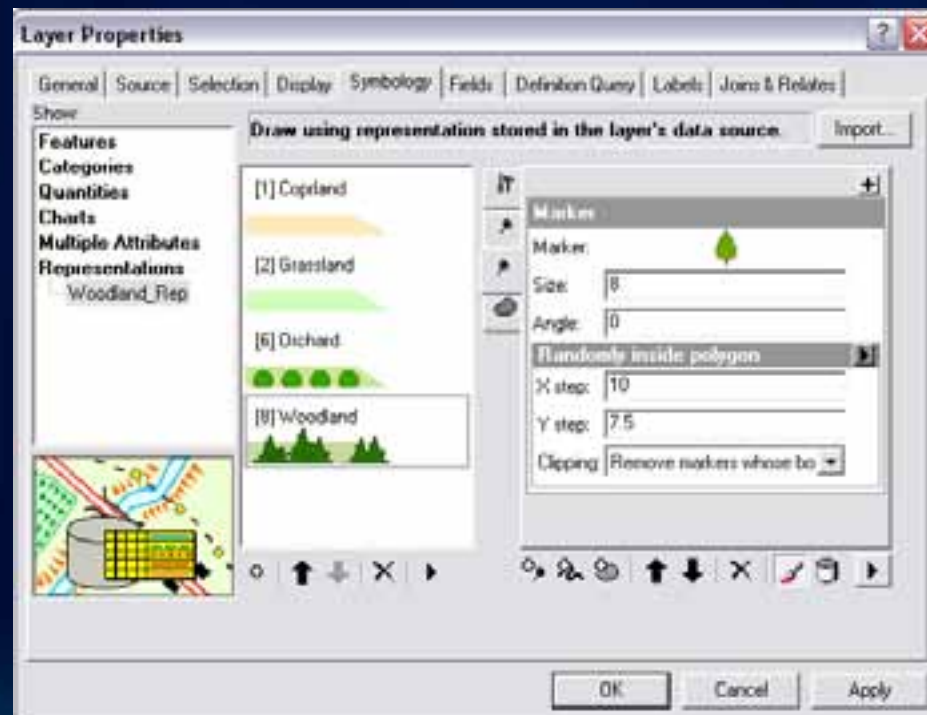
The same data represented two ways—both versions are stored in the data

Representation Rules



What are representations rules?

- Symbol layers
- Geometric effects, marker placement styles



Building Representation Rules

- Rule describes a unique symbol
- Consist of symbol layers

- Marker



- Line



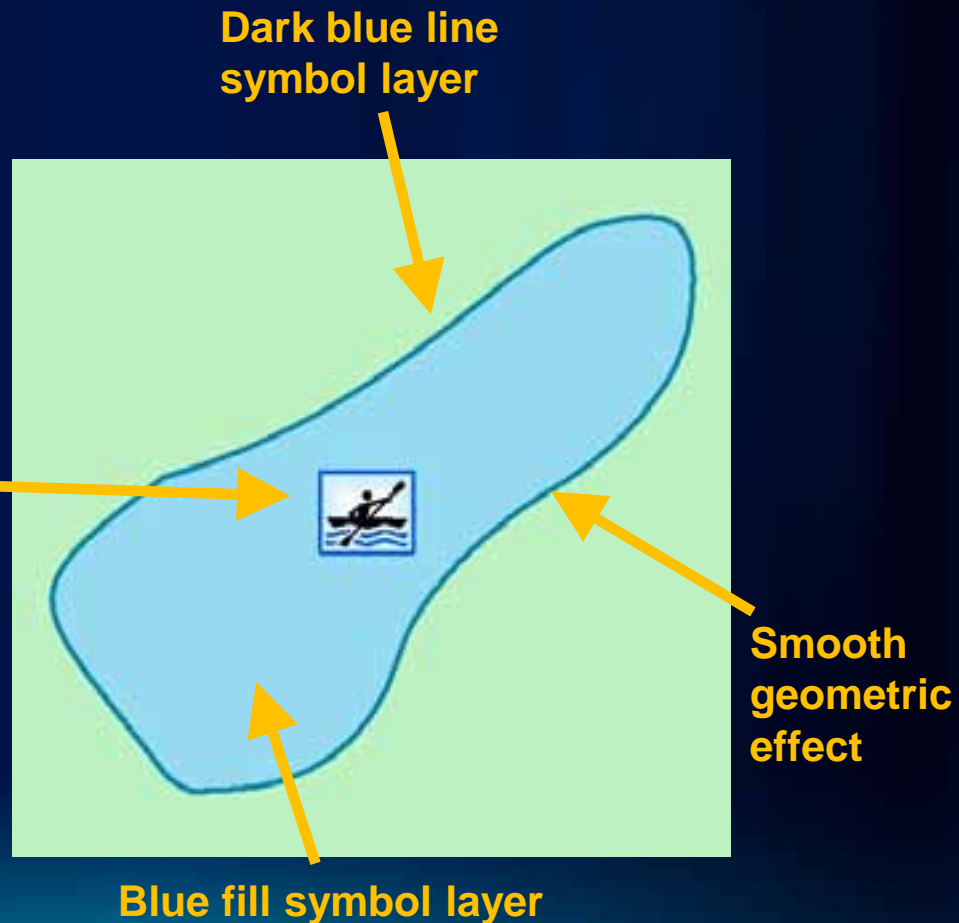
- Fill



- Geometric effects

**Kayak marker
symbol layer**

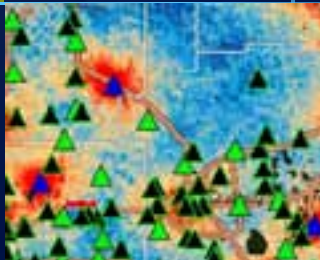
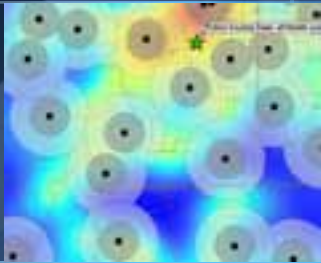
- Place marker in
center



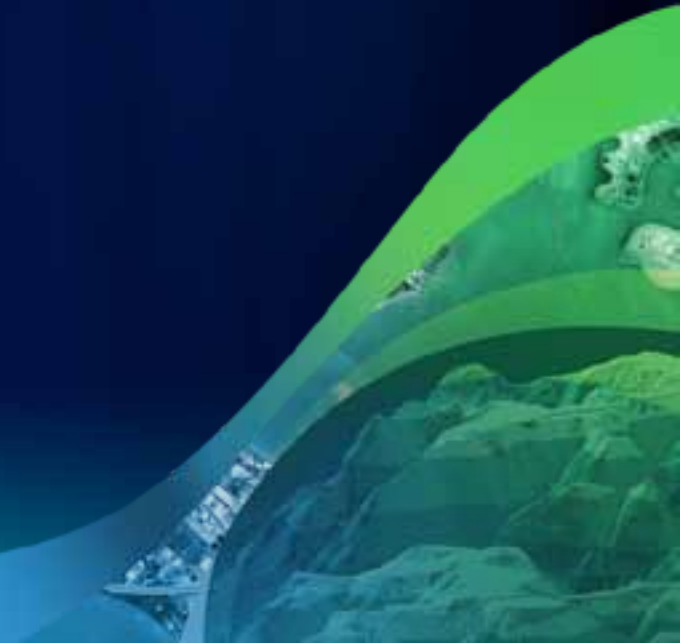
Fulton County Dept. of Health and Wellness/District 3, Unit 2, GSA

DeKalb County Board of Health

Demonstration



Geometric Effects and Marker Placement Styles



Geometric Effects

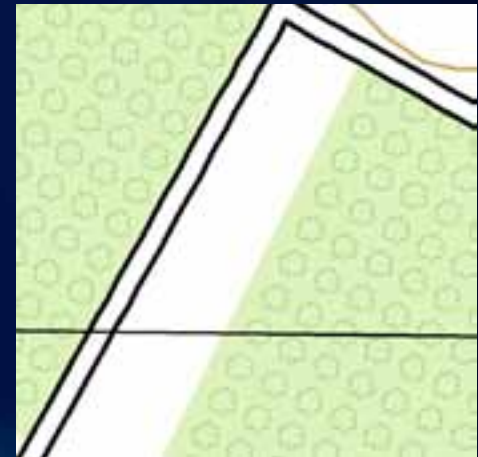
- Dynamically modify symbology
 - Affect all symbol layers, or just one
 - Can convert geometry type
- Applied sequentially



Dashes – End with half dash
Add control points for corners



Offset for drop shadows



Rotate to polygon angle

Marker Placement Styles

- **Position representation markers**
 - Along lines and polygon outlines
 - Within polygons
 - In relation to points



Along lines



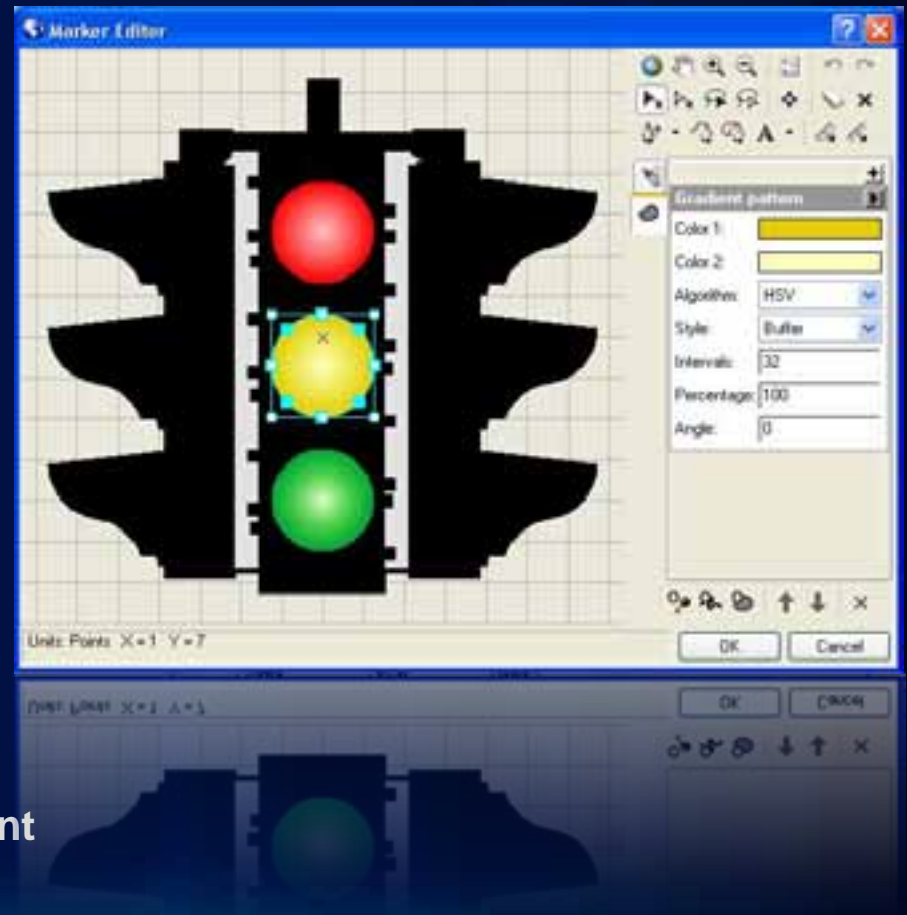
Randomly inside polygon
Whole markers cross boundary



On point with offset
for drop shadows

Building Representation Markers

- **Marker Editor**
 - Add and edit font glyphs*
 - Draw polygons and lines
 - Add and remove vertices
 - Align, order, group, rotate
 - Resize, erase, warp, explode parts, etc.

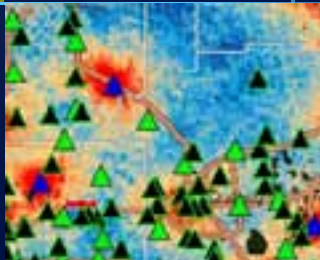
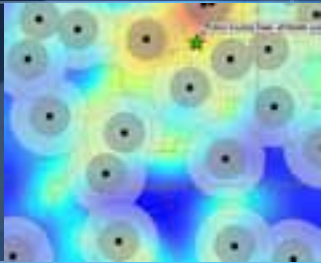


*Glyph: any character element in a font

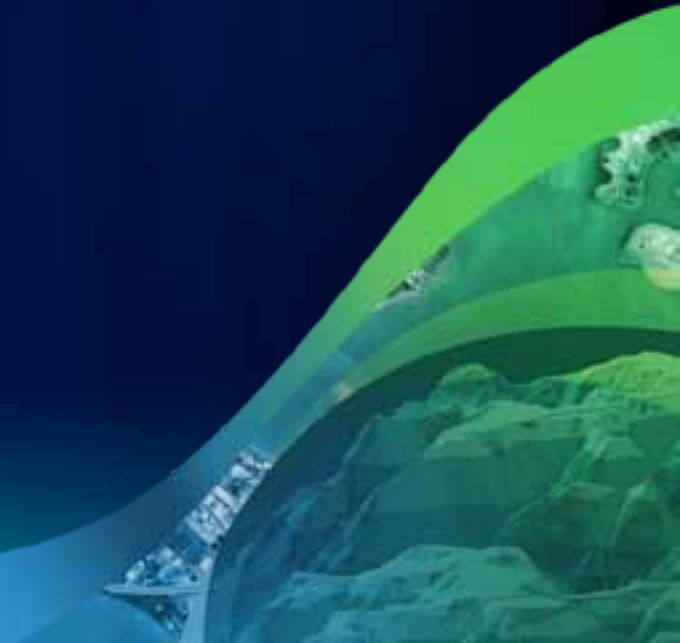
Fulton County Dept. of Health and Wellness/District 3, Unit 2, GSA

DeKalb County Board of Health

Demonstration

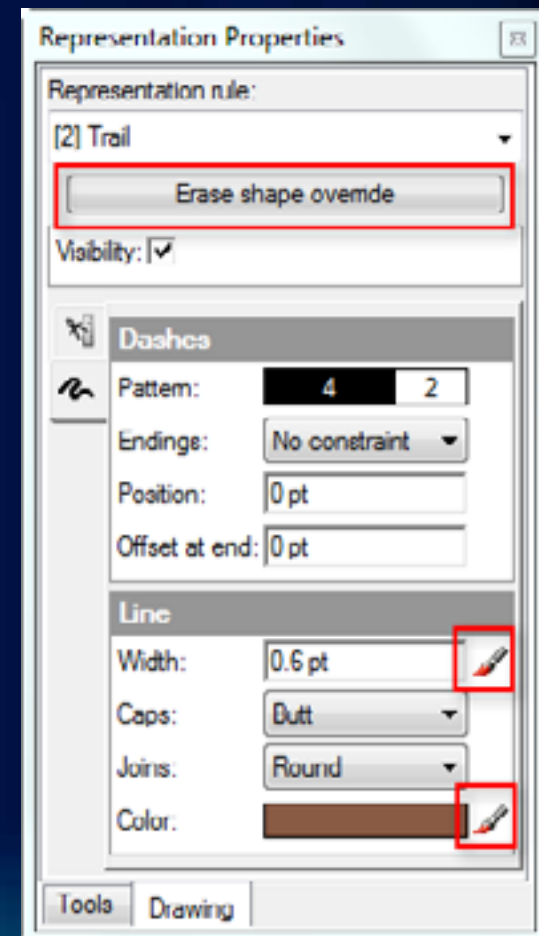


Overrides



Representation Overrides

- **Exceptions to the rule**
 - Customize individual features
 - Made while editing
- **Property overrides**
 - Change any property of the rule
- **Geometry overrides**
 - Store alternate geometry



Property override



Create an exception to the rule

Geometry override



Reshape without changing
feature geometry

Before:
Symbols
overlap



After:
Representation
moved

Creating Overrides

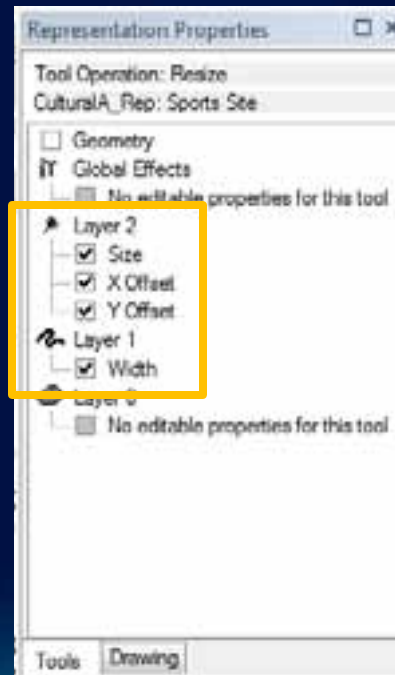
- Interactively with the representation toolbar
- Explicitly change rule property
- Use field in the attribute table to define override
- Cartographic Refinement geoprocessing toolset

Representation Toolbar

- Interactively create overrides



- Graphic editing tools
 - Geometry overrides
- Modify rule properties
 - Property overrides



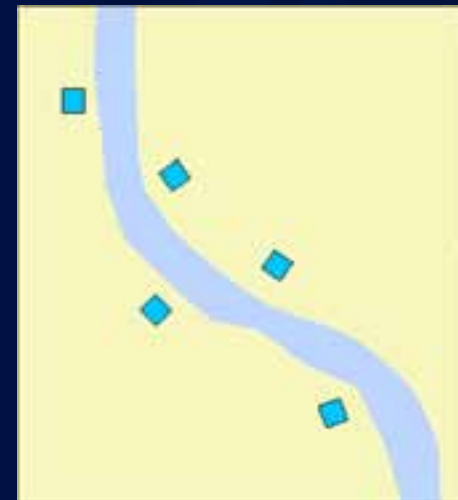
Tool Properties




Drawing Properties

Field Mapping Override

- Link symbol layer properties to feature attributes
 - Size, width, angle, visibility, etc.
- Draw symbols based on current data
- Any rule property can use attribute values
 - Must use valid field data type
- Reduce duplication of rules




Marker

Marker: 

Size:

Angle:

☒ On point 

X Offset:

Y Offset:

Angle

35

55

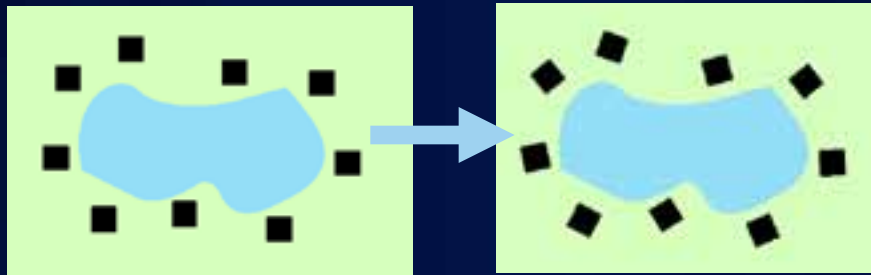
22

45

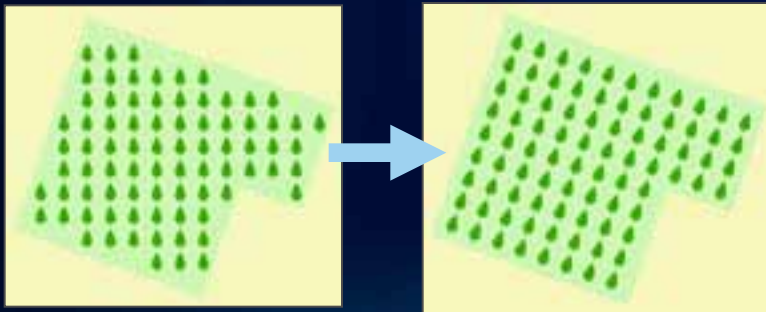
0

Cartographic Refinement Geoprocessing Tools

Align Marker To Stroke Or Fill tool



Calculate Polygon Main Angle tool



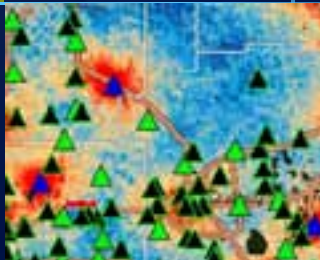
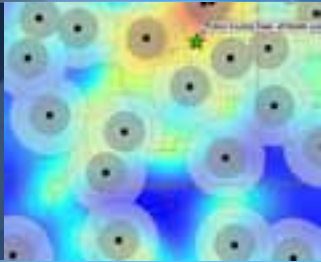
Create Overpass/Underpass tools



Fulton County Dept. of Health and Wellness/District 3, Unit 2, GSA

DeKalb County Board of Health

Demonstration



Free Representations

- **Unique representation for a feature**
 - Complete control over feature display
 - Copy of the entire rule in the Override field
 - Structure of the rule can change
- **Can undo by reassigning a rule**
- **Use sparingly**
 - Try more complex rules and overrides first

Representation rule



Free representation

Visual Specifications Tool

Production Mapping extension

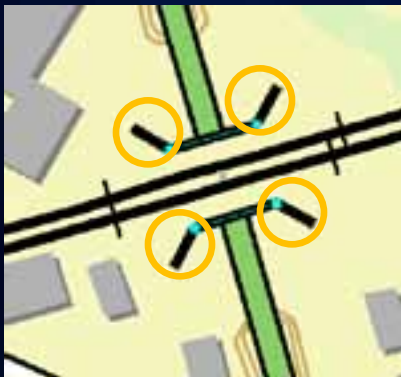
- Manage representations across many layers
- Link feature attribution to representation rule
- Single production workflow for symbology and text
- Apply symbology using relational queries



Representations Road Ahead - 10.1

- Searchable representation markers and rules
- Marker placement clockwise rotation
- New geometric effects

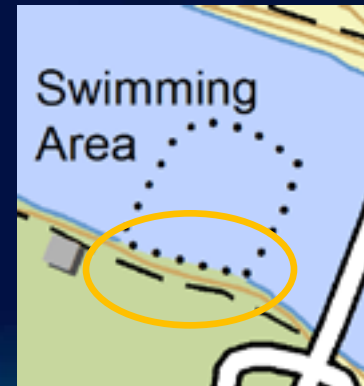
Extension



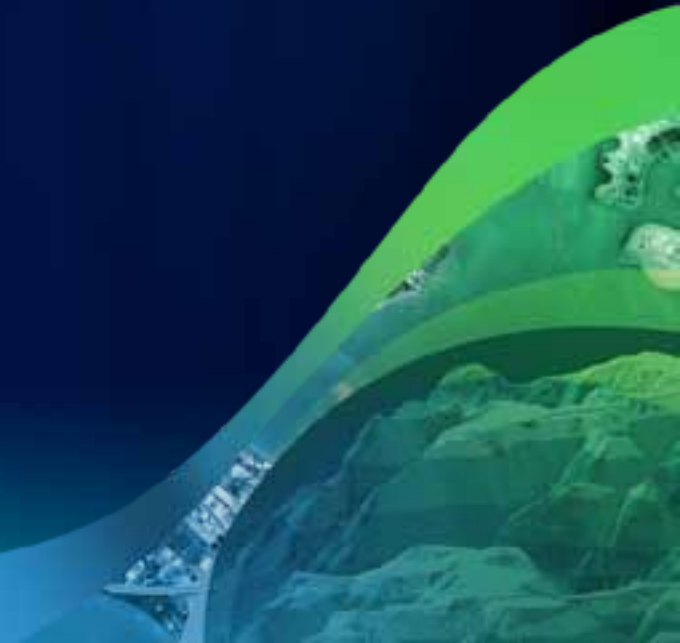
Offset Tangent



Suppress



Questions?



Thank you

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