Generalization for Multi-scale Mapping

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Generalization and Conflict Resolution

- **Generalization** is the simplification and clarification of features to clarify their display at smaller scales.
- **Conflict Resolution** is the management of the extent and placement of symbolized features on maps.
- Both improve the quality of multi-scale map display.
Contextual Generalization with Geoprocessing

- Simplify data to display at smaller scales
  - Assess multiple layers contextually
  - Maintain representative pattern, density, and character
  - Resolve conflicts between symbolized features at scale
Cartographic production workflow

- Master Database
  - Scale-specific Data
  - Symbolization
    - Cartographic Generalization
      - Manual Editing
        - Resolve Road Conflicts
        - Propagate Displacement
        - Resolve Building Conflicts
      - Annotation
  - Data Generalization
    - Map Layout
      - Output
        - Print
        - Export
        - Share
    - New at 10
      - Thin Road Network
      - Merge Divided Roads
Cartographic processes

Data Generalization (Generalization toolset)
- Reduce feature count
  - Aggregate Polygons
  - Thin Road Network
  - Merge Divided Roads
- Reduce feature complexity
  - Simplify Buildings
  - Simplify Line
  - Simplify Polygon
  - Smooth Line
  - Smooth Polygon

Conflict Resolution (Graphic Conflicts toolset)
- Symbolize data for output scale
- Resolve Road Conflicts
- Propagate Displacement
- Resolve Building Conflicts
- Detect Graphic Conflicts
- Manual editing

Reduce feature complexity
Reduce feature count
Symbolize data for output scale
Manual editing
Resolve Road Conflicts
Propagate Displacement
Resolve Building Conflicts
Detect Graphic Conflicts
Resolving Graphic Conflicts

*Thin Road Network tool*

- Removes less significant roads from display
- Retains representative pattern and connectivity
- Visibility controlled by attribute, easy to modify
Resolving Graphic Conflicts

*Merge Divided Roads tool*

- Create a single highway feature from multiple lanes
- Create a single road from a boulevard
- Merge only equal-class roads together
Resolving Graphic Conflicts

Resolve Road Conflicts tool

- Adjust roads to show visual separation
  - multi-lane highways, boulevards, dead-ends, roundabouts
- Less significant roads moved to accommodate more significant roads
Resolving Graphic Conflicts

**Propagate Displacement tool**

- Conflict resolution may introduce spatial discrepancy
  - Adjust adjacent features to reestablish relationships
- Use displacement output from other tools
  - *Merge Divided Roads tool*
  - *Resolve Road Conflicts tool*
Resolving Graphic Conflicts

**Resolve Building Conflicts tool**

- Separate buildings from each other and from barriers
  - Retain relative density and pattern
  - Adjust visibility, size, and spacing, orientation
Generalization Road Ahead – 10.1

- Process large data sets
- Collapse road details
- Delineate built-up areas
Questions?
Thank you