Creating and Editing Feature Geometry

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Exercise Overview

- **Editing tools**
- **Shortcuts**
- **Digitizing centerlines**
- **Digitizing curves**
- **Splitting lines / cutting polygons**
- **Planarizing lines**
- **Fixing overshoots and undershoots**
- **Reducing the number of vertices**
- **Constructing features**

Creating features

The editing environment

- **Snapping environment**
  - **Change order by dragging layers up or down**
  - **Custom tool to visualize the snapping tolerance**
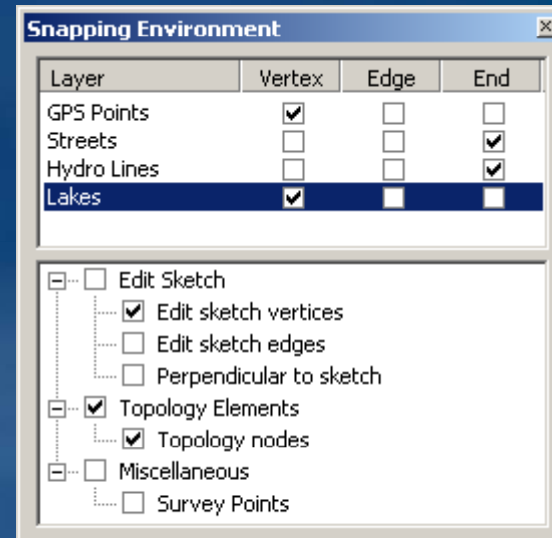
- **Editing Options**
  - **Snapping tolerance**
  - **Sticky move tolerance**
  - **Snap tips**
  - **Customizable Task menu**
 - **Option to display Attributes dialog**
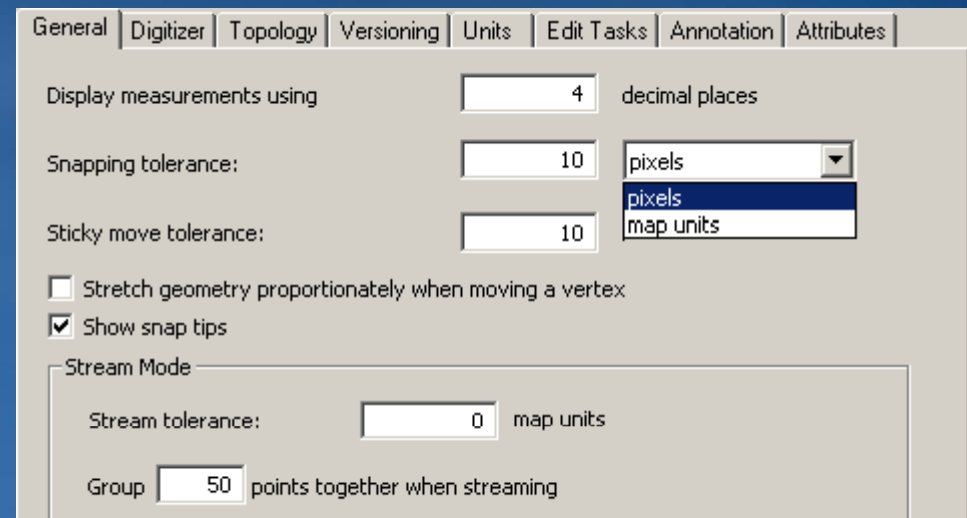
Shortcuts

- **E Toggle between Sketch tool and Edit Tool**
- **T Display snapping tolerance**
- **Spacebar Suspend snapping**
- **Toggle between Sketch tool and navigation tools**
  - **Z zoom in**
  - **X zoom out**
  - **C pan**
- **Zoom with the mouse wheel**
- **Ctrl+Z Undo**
- **Ctrl+Y Redo**
- **More at *ArcGIS Desktop Help***
  - **Help topic: Shortcut keys for editing in ArcMap**

Digitizing Centerlines
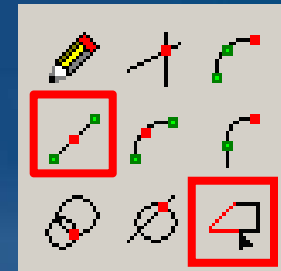
Source: City of Manhattan, KS,
graphic enhanced for display purposes

- **Midpoint tool**
- **Trace Tool**
- **Parallel command**

Digitizing Curves

- **Tangent to the previous segment**
- **Non-tangent**

- **Tangent tool for tangent curves**
  - **Requires one segment**
  - **Radius constrained**
- **Arc Tool and End Point ArcTool for non-tangent curves**
  - **Radius not constrained**
  - **Press R to type in the radius**
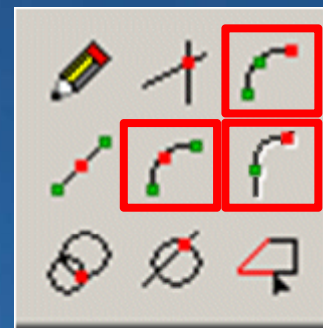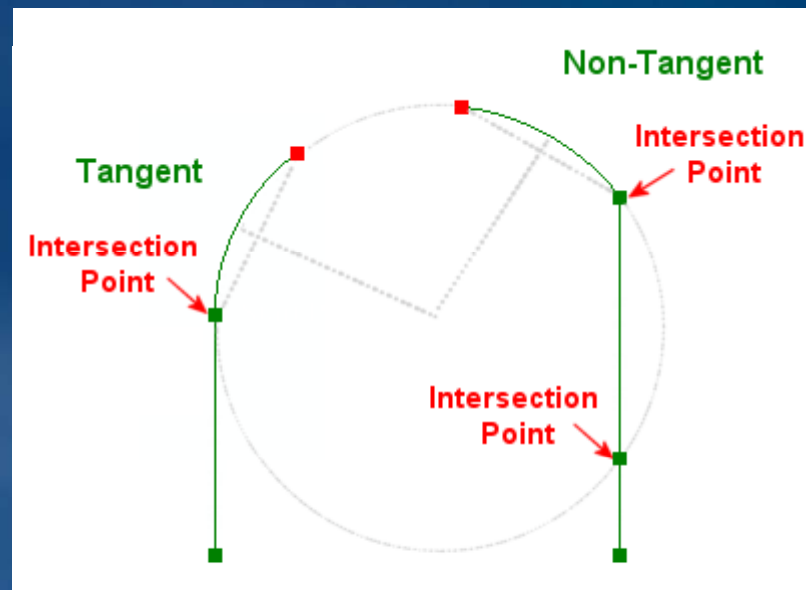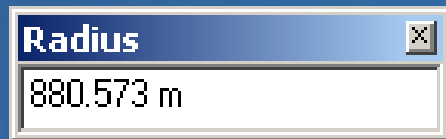
Splitting Lines or cutting Polygons

- **Split line features**
  - **Interactively by clicking with the Split tool**
  - **Distance or percentage from the beginning/end of the line**
  - **Requires selected features**

- **Cut Polygons**
  - **Editing task**
  - **Use Sketch tool**
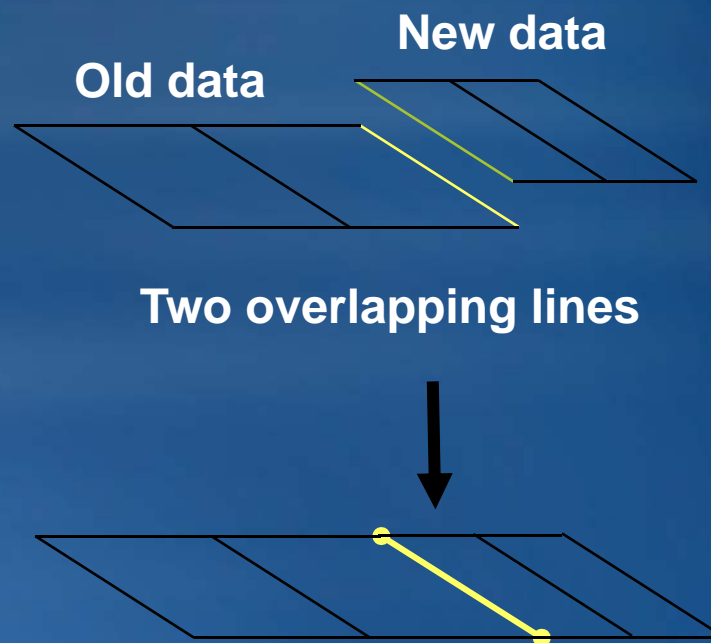 - **Requires selected features**
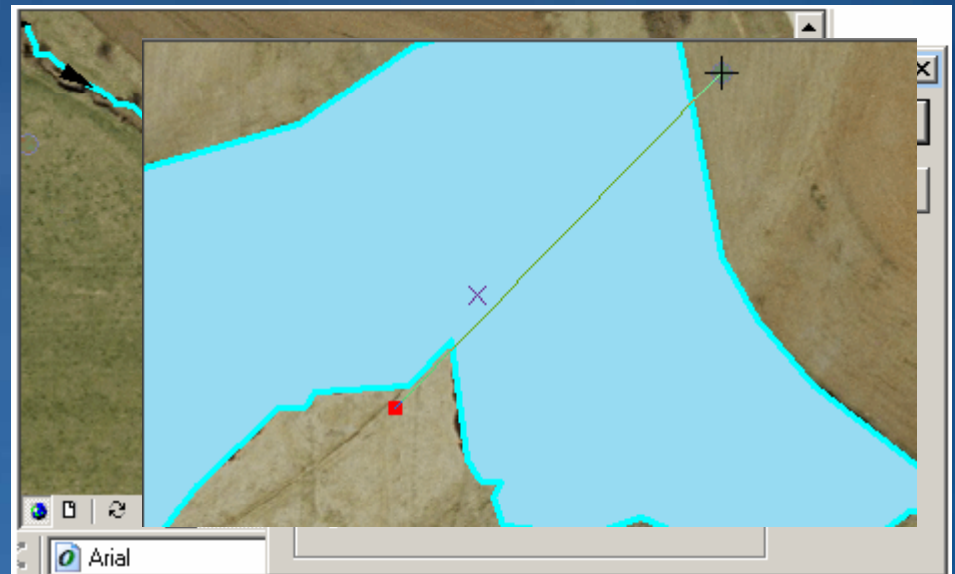
Planarizing Lines

- **Planarize Lines tool on the Topology toolbar**
- **Splits lines where they cross**
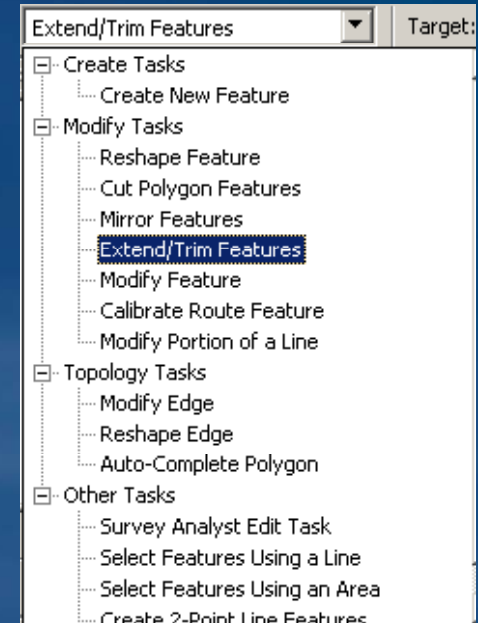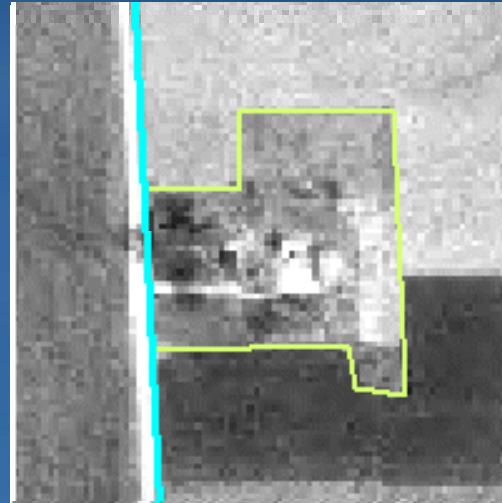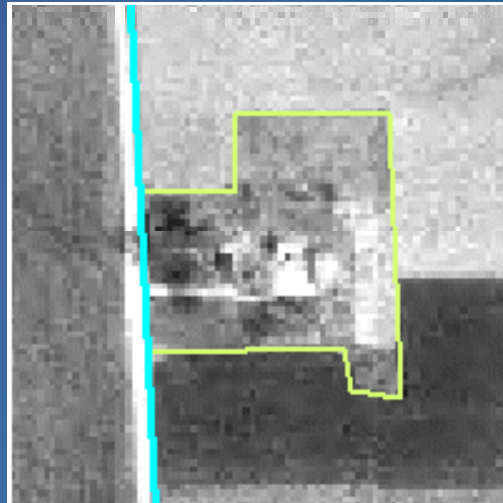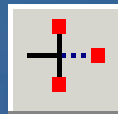- **Removes overlapping lines**
- **Uses cluster tolerance**

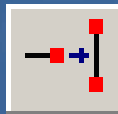**Creates intersections**

New data

Old data
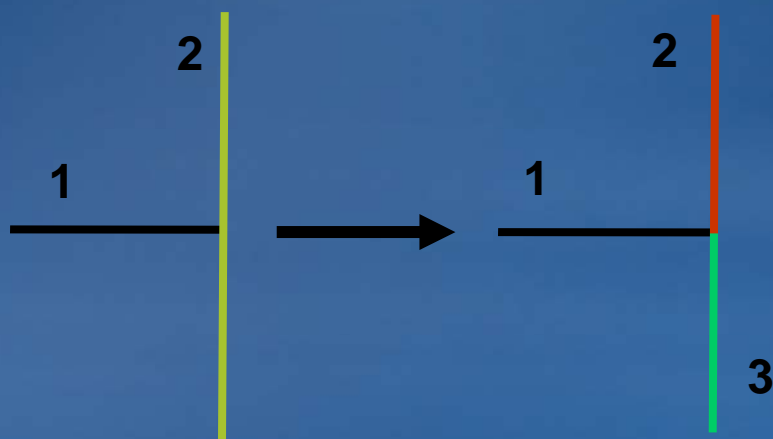
Two overlapping lines

One line after Planarize Lines
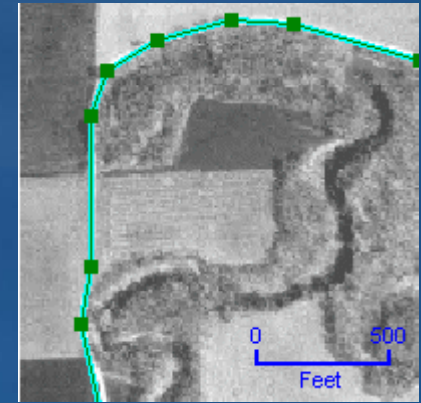
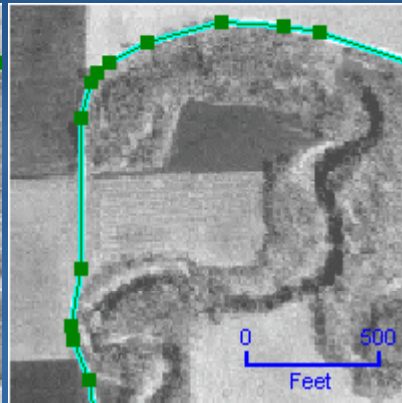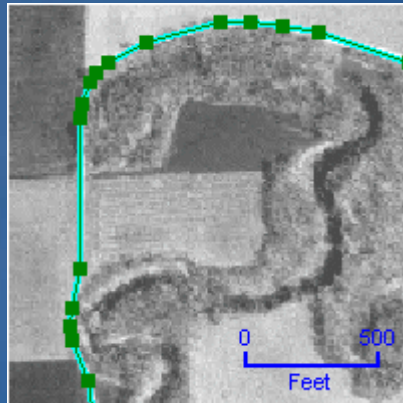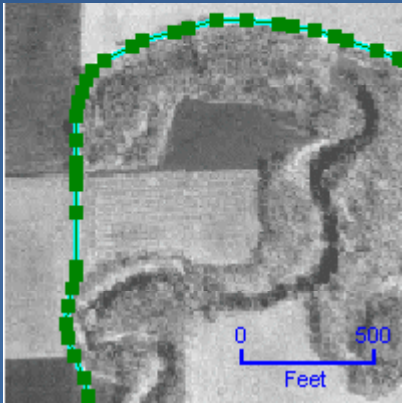# Fixing overshoots or undershoots

- **Extend /Trim lines**
  - **Editing task**
  - **Tools on the Advanced Editing toolbar**

Reducing the number of vertices

- **Generalize**
  - **Reduces the number of vertices in a feature, simplifying its shape**
  - **Based on maximum allowable offset**
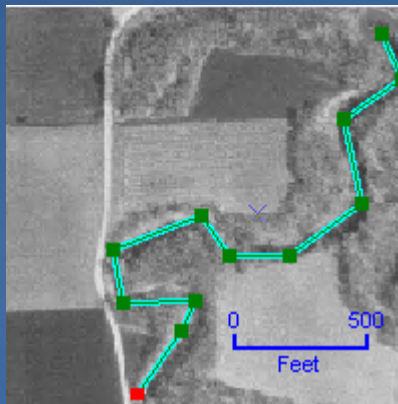

Road vertices

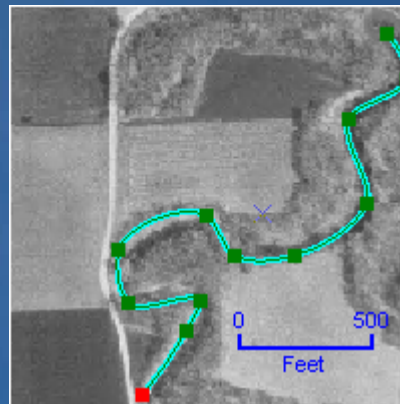**MAO= 5'**

MAO= 10'

MAO= 20'

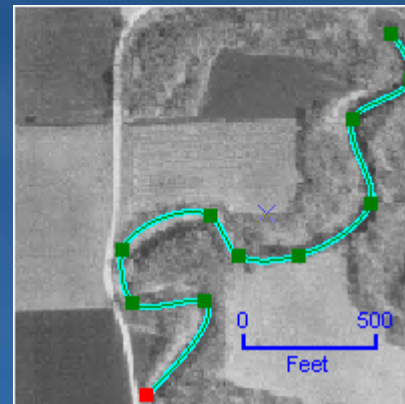# Improving a line's aesthetic appearance

- **Smooth**
  - **First generalizes**
  - **Then creates Bézier curves through resulting subset of vertices**
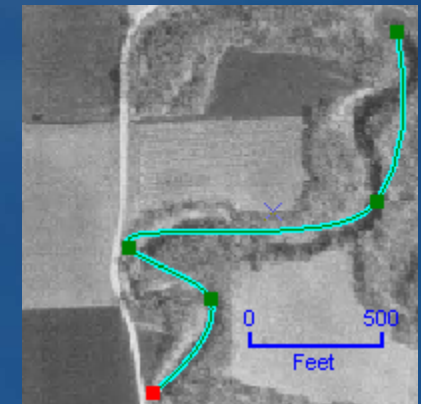 - **Based on maximum allowable offset**
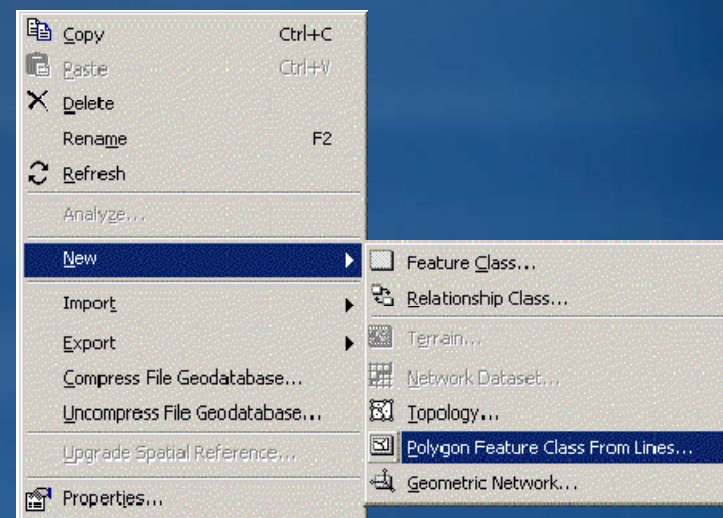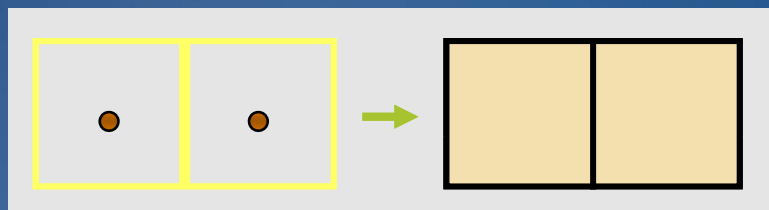

Stream vertices

MAO= 10'

MAO= 100'

MAO= 200'

Constructing features

- **Construct features tool on the Topology toolbar**
    - **Takes any line and/or polygon geometry**
    - **Creates geometry of the target layer**
    - **No attributes**

- **Create polygons from lines**
    - **ArcCatalog: Feature dataset context menu item**
    - **Or ArcToolbox tool**
    - **Option to create attributes from label points**

Exercise Overview

- -Split line features
- -Create centerlines
- -Use ArcMap curve tools
- -Digitize true circles
- -Trim and Extend lines
- -Generalize and smooth features
- -Convert polygons to lines