

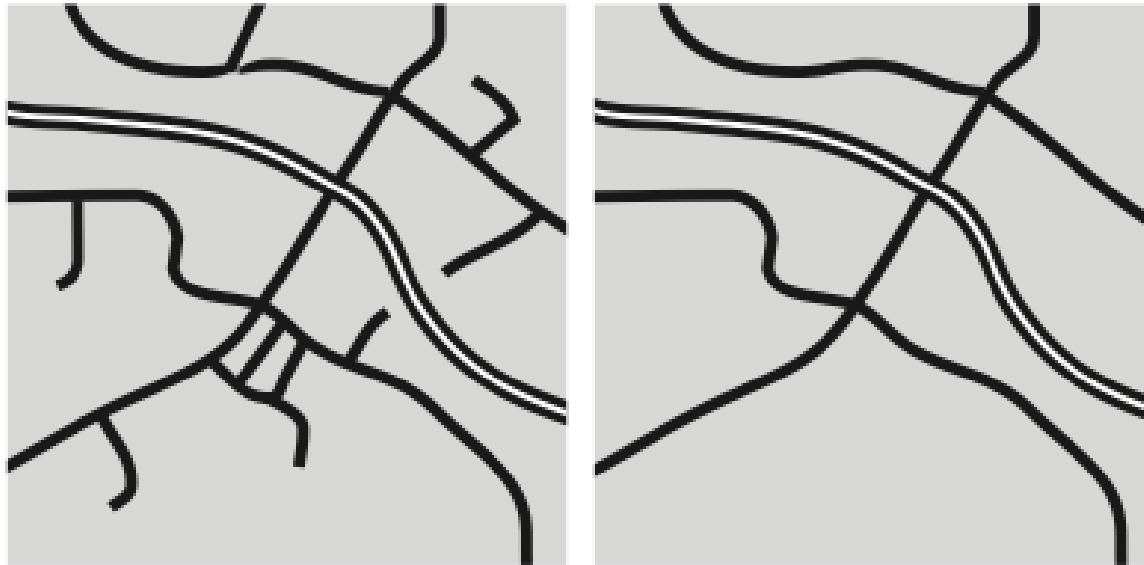
- 
- The earth is infinitely complex – maps are models that require some level of generalization

Methods of Generalization

- Selection
- Dimension
- Simplification
- Smoothing
- Displacement
- Enhancement

Selection

Reduce clutter by only including necessary elements on your map



Selection

- Is the feature necessary to make your point?
- Will removing the feature make the map harder to understand?
- If less important features are removed, do more important features stand out more clearly?
- Does removal of less important features lead to a less cluttered map?

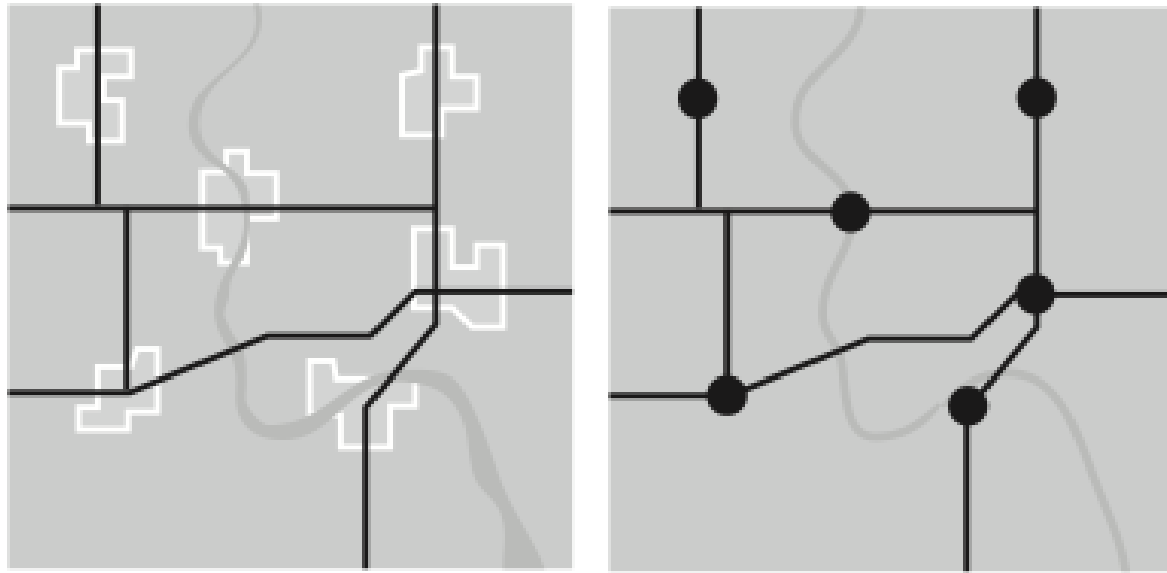
Selection Tools



- Select by Attributes
- Definition Query
- Select by Location
- Show layer at (specified) scale

Dimension Change

Often necessary when changing scale and useful for removing unnecessary detail from a map



Dimension Change

- Would changing dimensions of a feature remove unnecessary detail?
- Does changing the dimensions of a feature in any way affect how it is understood by the map reader?
- Does changing the dimensions of map features help make the map less cluttered?

Dimension Change tools

ArcToolbox>Data Management>Features

- **Feature to line.** Converts features to lines
- **Feature to point.** Converts features to points (centroids)
- **Feature to polygon.** Converts features to polygons

ArcToolbox>Cartography>Generalization

- **Aggregate Points.** Create polygon features around clusters of points

Simplification

Simplified features can enhance visibility and reduce clutter

- Coarse-scale maps tend to simplify features more
- Simplification makes a feature less complex, yet still recognizable



Simplification

- How simplified can a feature be and still be recognized?
- Does the removal of detail remove any vital information?
- Does the simplification of a feature make it more noticeable?
- Does the simplification of a feature make the map less cluttered looking?

Simplification Tools

ArcToolbox > Cartography > Generalization

- **Simplify Line.** Removes extraneous bends while preserving essential shape
- **Simplify polygon.** Removes extraneous bends while preserving essential shape
- **Aggregate Polygons.** Combines polygons within a specified distance to each other into a new polygon
- **Merge divided roads.** Generates single line road features in place of matched pairs of divided road lanes

Simplification Tools

ArcToolbox>Data Management>Generalization

- **Dissolve.** Aggregates features based on a specified attribute
- **Eliminate.** Eliminates polygons by merging them with neighboring polygons that have the greatest area or longest shared border

Smoothing

- How much can you smooth a feature without losing its character?
- Does smoothing a feature make it more difficult to recognize?
- Does smoothing a feature make it easier to recognize?
- Does the smoothing of a feature make the map less cluttered looking?

Smoothing Tools

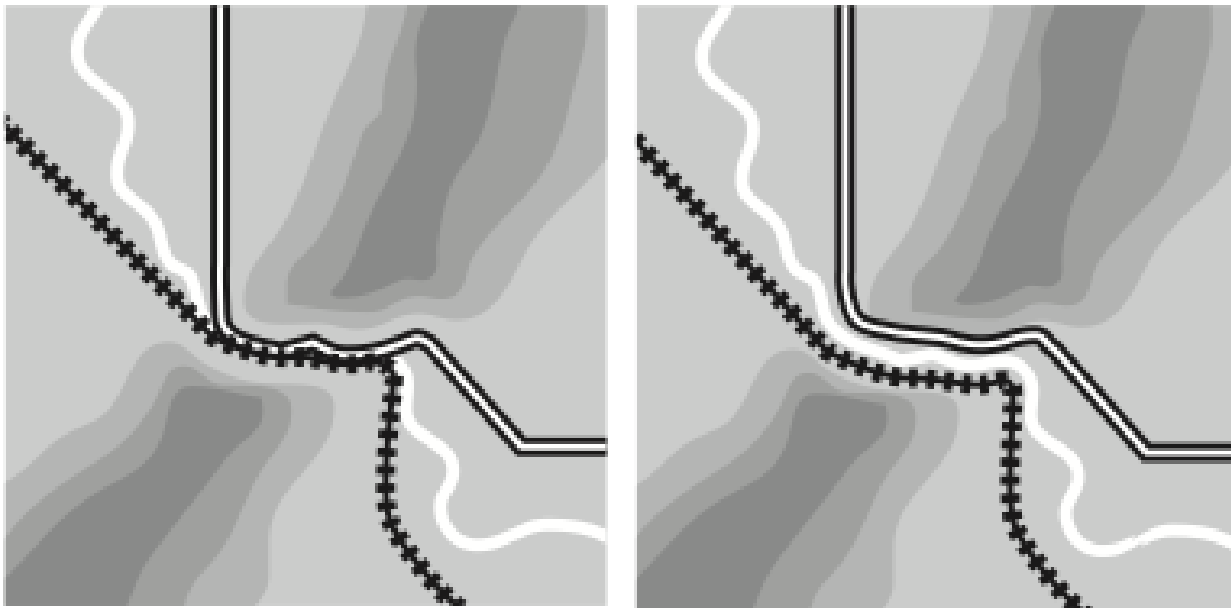
ArcToolbox > Cartography > Generalization

- **Smooth line.** Smooths sharp angles in lines to improve aesthetic or cartographic quality
- **Smooth polygon.** Smooths sharp angles in polygons to improve aesthetic or cartographic quality

Displacement

Moves a features so that it does not visually interfere with another feature

- Sacrifices location accuracy for visual clarity



Displacement

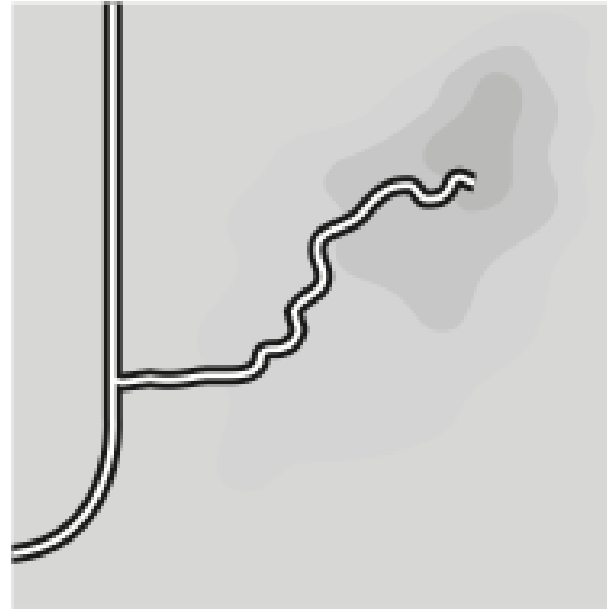
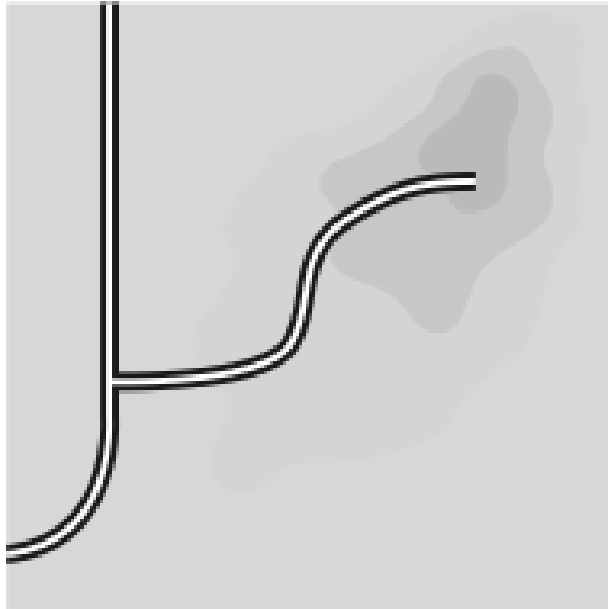
- Are important map features interfering with one another?
- Will the slight movement of a map feature make it and neighboring features easier to distinguish?
- Will the slight movement of a map feature lead to confusion because the feature has been moved?

Displacement Tools

- Symbology (offset symbol)
- Editor – **Copy Parallel**. Makes a copy of selected lines at a distance you specify.

Enhancement

Adding detail to a feature to aid in understanding the map, based on cartographer knowledge



Enhancement

- Do you know enough about a feature to enhance it?
- Will enhancement help the map reader to better understand the feature and the map?
- Does enhancing a feature make it easier to recognize?
- Could enhancing a feature possibly lead to misunderstanding by the map reader?

Enhancement Tools

- Editor – **Edit Features.** Use the edit tool to select and edit features, including adding vertices