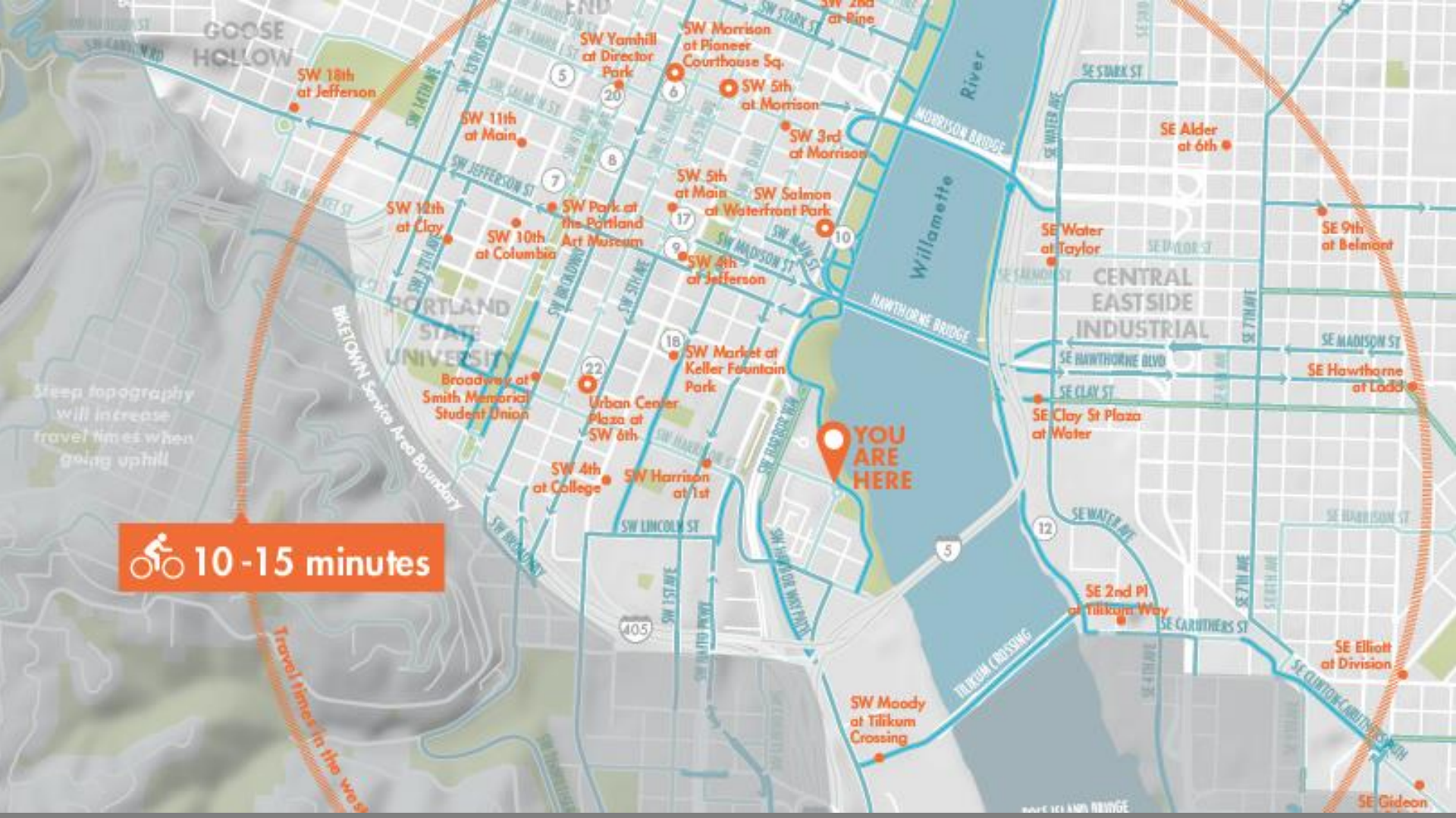


WORDS ON A MAP | LABELS

Cartographic Design & Principles| Winter 2018

Label Placement

Points, lines & polygons

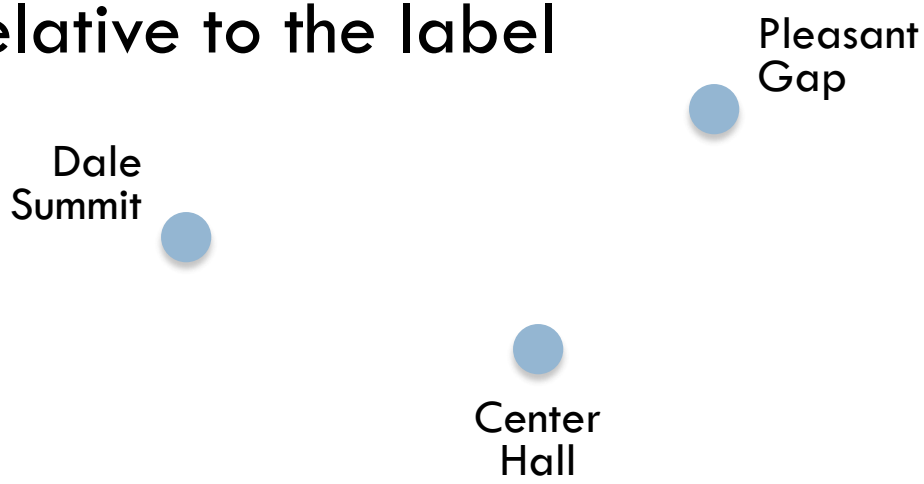
Placing labels is harder than you think! It is one of the most time-intensive aspects of cartography

PENNSYLVANIA
PHILADELPHIA
Pittsburgh
Erie
Allentown
Scranton
Reading
Harrisburg
Lancaster
York
Hershey
State College
Penn State Univ
Univ of Pittsburgh & Carnegie Mellon Univ
Johns Hopkins Univ
Three Mile Island Power Plant
Independence Hall
Gettysburg NMP
Flight 93 N Mem
Little League World Series
Allegheny NRA
Ricketts Glen SP
Delaware Water Gap NRA
Woodstock Festival
Chautauqua
ALLEGHENY RES
CATTARAUGUS RES
Mt Davis 3213
Backbone Mtn 3360
Elk Hill 2693
High Pt 1803
Cornell Univ
Fallingwater
Antietam NB
Harpers Ferry NHP
Fort McHenry
US Naval Academy
DOVER AFB
MARYLAND
BALTIMORE
Binghamton
Elmira
Ithaca
Corning
Wilkes-Barre
Bethlehem
Easton
Lancaster
Camden
Wilmington
Levittown
Trenton
Princeton
Youngstown
Erie
Pittsburgh
Harrisburg
Scranton
Allentown
Reading
Lancaster
York
Hershey
Gettysburg
Chambersburg
Hagerstown
Frederick
Cumberland
Altoona
Johnstown
Williamsport
Lock Haven
Bloomsburg
Sunbury
Pottsville
Hazleton
Shenandoah
Carbondale
Dunmore
Kingston
Pittston
Nanticoke
Berwick
Mansfield
Wellsboro
Coudersport
Bradford
Warren
Jamestown
Olean
Wellsville
Hornell
Horseheads
Bath
Dansville
Norwich
Oneonta
Monticello
Middletown
Sayre
Corry
Meadville
Titusville
Oil City
Franklin
Clarion
Ridgway
St Marys
Greenville
Sharon
Hermitage
New Castle
Butler
Beaver Falls
Aliquippa
Ford City
Indiana
Punxsutawney
DuBois
Lewistown
Huntingdon
Mechanicsburg
Carlisle
Gettysburg
Hanover
Westminster
Aberdeen
Bridgeton
Millville
Vineland
Wilmington
Newark
Hammonton
Camden
Levittown
Princeton
Trenton
Easton
Bethlehem
Allentown
Elizabeth
Jersey
Newar
Paterso
E Stroudsburg
Delaware Water Gap NRA
High Pt 1803
Monticello
Middletown
Woodstock Festival
Elk Hill 2693
Slide 4180
Catskill Mtn
Binghamton
Elmira
Ithaca
Cornell Univ
Norwich
Oneonta
Dansville
Bath
Hornell
Horseheads
Corning
Wellsville
Olean
Jamestown
Warren
Bradford
Corry
Ashtabula
Meadville
Titusville
Oil City
Franklin
Clarion
Ridgway
St Marys
Greenville
Sharon
Hermitage
New Castle
Youngstown
Butler
Beaver Falls
Aliquippa
Pittsburgh
Ford City
Indiana
Punxsutawney
DuBois
Lock Haven
Williamsport
Loyalsock
Wellsboro
Coudersport
Mansfield
Sayre
Bloomsburg
Sunbury
Pottsville
Hazleton
Shenandoah
Carbondale
Dunmore
Kingston
Pittston
Nanticoke
Wilkes-Barre
Berwick
Scranton
Ricketts Glen SP
Lewistown
Huntingdon
Altoona
Johnstown
Mechanicsburg
Carlisle
Harrisburg
Lebanon
Reading
Pottstown
Levittown
Trenton
Prince

Arlington
SNOHOMISH
Marysville
Granite Falls
Lake Stevens
Everett
Mukilteo
Snohomish
Sultan
Gold Bar
Index
Baring
Grotto
Skykomish
Lynnwood
Edmonds
Shoreline
Bothell
Kirkland
Redmond
Bainbridge Island
Seattle
Bellevue
Sammamish
Carnation
Bremerton
Port Orchard
Issaquah
Renton
Snoqualmie
North Bend
Snoqualmie Falls
Fall City
Spring Glen
Pleasant Hill
Port Ludlow
Hansville
Port Hadlock
Chimacum
Greenbank
Freeland
Langley
Priest Point
Clinton
Midvale Corner
Mabana
Warm Beach
Camano Island
Camano Island State Park
Wenberg State Park
Lake Goodwin
Tulalip Resort Casino
Quil CedaCreek Nightclub & Casino
North Marysville
West Lake Stevens
Cavalero Corner
Larimers Corner
South Snohomish
Roosevelt
Evergreen Speedway
Wallace Falls State Park
Mount Baker-Snoqualmie Nat'l Forest
Boulder River Wilderness
Three Fingers 6854 ft
Mount Pilchuck 5324 ft
Mount Stickney 5367 ft
Gunn Peak 6240 ft
Mount Index 5979 ft
Twin Peaks 5836 ft
Vesper Peak 6214 ft
Barlow Pass 2361 ft
Silverton
Robe
Sunset Falls
Big Creek Falls
Snoqualmie Falls
Preston
Upper
Fort Casey State Park
Rothschild House
Fort Flagler State Park
South Whidbey State Park
Port Ludlow
Saratoga Passage
PUGET SOUND
Boeing Factory
see map 178
Bremerton Nat'l
Snoqualmie Mountain

Labels as Symbols

- Alignment gives clues to where the point can be found relative to the label



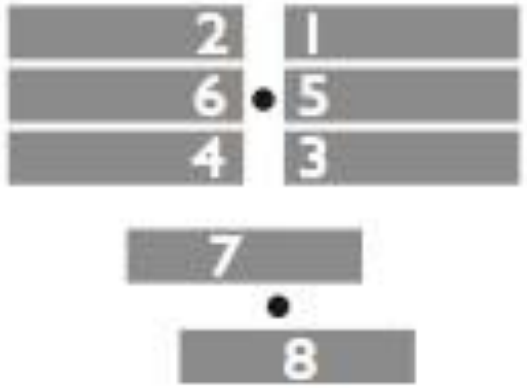
- Text alignment based on the label position requires map editing
  - Right-align all labels positioned to the left of their point
  - Left-align all labels positioned to the right of their point

Labels as Indicators of features

- Use various label styles to categorize the features themselves
- Example:
  - you have 1,200 labels on a map. If only 20 of those are rivers, you can direct the map readers attention to those labels by using a distinct font, style or color

Point data – best practices

- Next to the point
  - Better to shift up or down from the point (rather than aligning it with the point)
- Horizontally aligned
- Default character spacing
- Consistent spacing between label & symbol

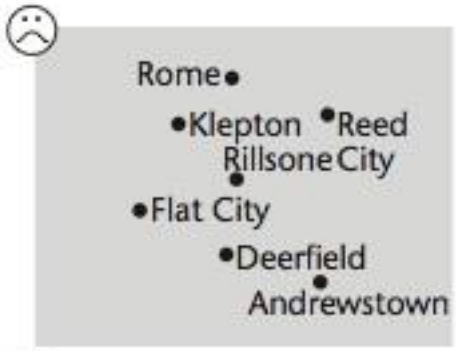


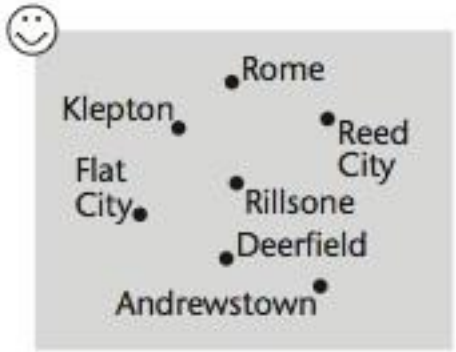
Point data – best practices

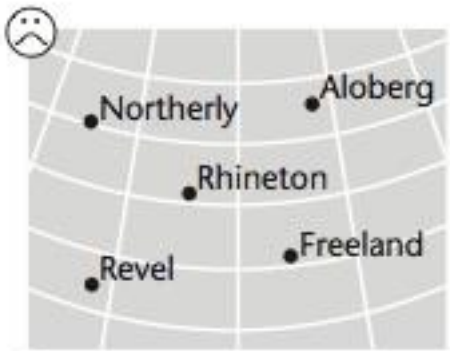
- Best placement is based on the assumption there is no other information around the point
- Becomes a process of trade-offs between guidelines & realities
- Unambiguous association is more important than preferred positioning

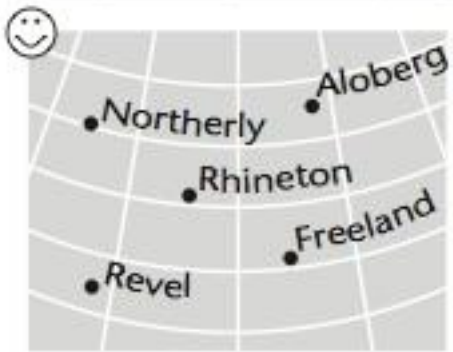
Point data – best practices

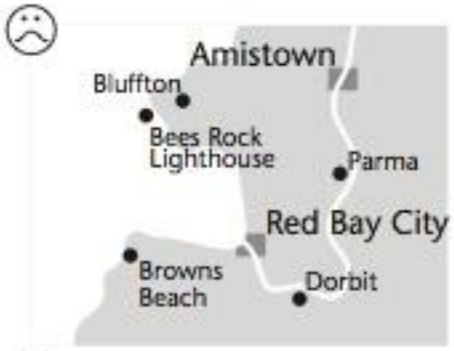
- Label land features on land
- Label water features in water
- Label towns on the side of the river on which they are located
- Align type to grid, if grid is included


Rome
Klepton
Reed City
Rillsone
Flat City
Deerfield
Andrewstown


Rome
Klepton
Reed City
Flat City
Rillsone
Deerfield
Andrewstown


Northerly
Aloberg
Rhineton
Freeland
Revel


Northerly
Aloberg
Rhineton
Freeland
Revel


Amistown
Bluffton
Bees Rock Lighthouse
Parma
Red Bay City
Browns Beach
Dorbit

Amistown
Bluffton
Bees Rock Lighthouse
Parma
Red Bay City
Browns Beach
Dorbit

Point data – best practices

- Break a line to make a label more readable
  - Ideally, it breaks a vertical line to minimize the loss of information

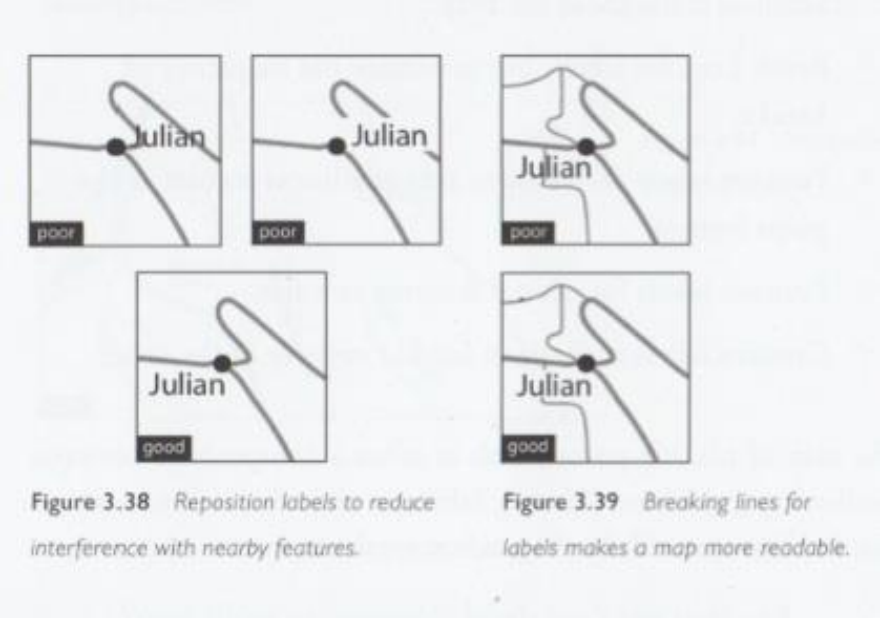


Figure 3.38 *Reposition labels to reduce interference with nearby features.*

Figure 3.39 *Breaking lines for labels makes a map more readable.*

Line data – best practices

- Curve or slant type, following the symbol (spline)
- Keep type above symbol if possible
- Keep type as horizontal as possible for ease of reading
- Labels should follow the linear feature
- No noticeable character spacing
- Moderate word spacing can be useful

Dare River
Red River

Tern Run
Gull River

Dare River
Red River

Tern Run
Gull River
Gull River

Gull Tern Run
River

Rapid River

Tern Run
Gull River
Gull River

Rapid River

Line data – best practices

- Never place type upside-down
- When using vertical labels, place the first letter at the bottom
- Repeat rather than stretch

Dare River
Red River

Tern Run
Gull River

Dare River
Red River

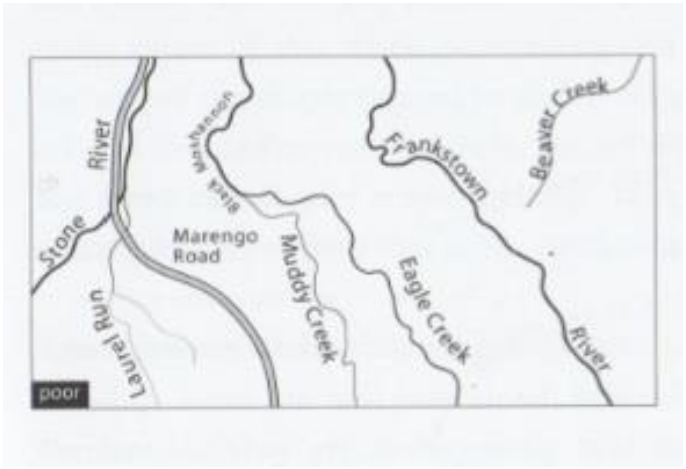
Tern Run
Gull River
Gull River

Gull Tern Run
River

Rapid River

Tern Run
Gull River
Gull River

Rapid River



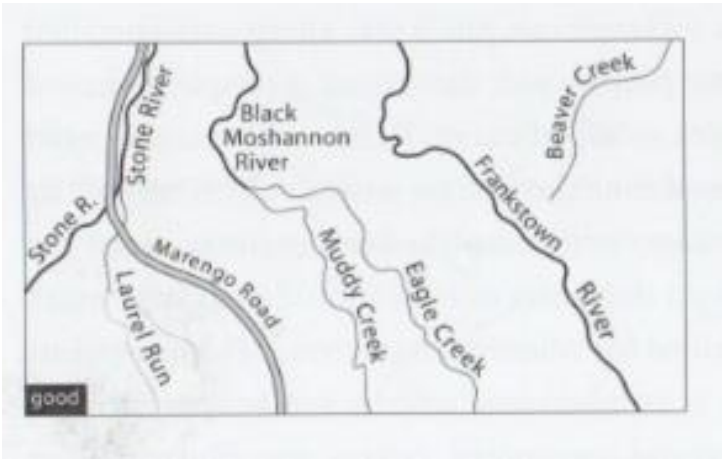


Figure 3.50 *Line labels placed automatically by ArcMap.* Source: Digital Chart of the World, ESRI.

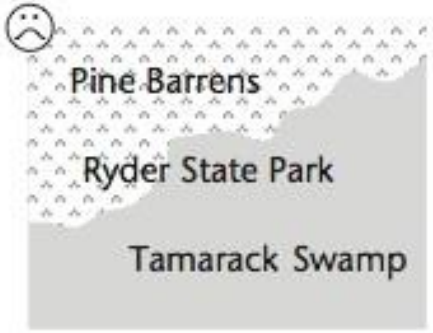
Figure 3.51 *Manually repositioned line labels with improved positions.* Source: Digital Chart of the World, ESRI.

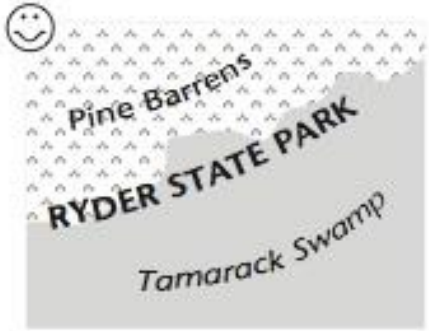
Area data – best practices

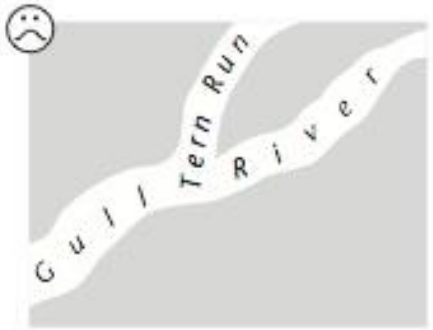
- Curve and use character spacing to fit the area
- Make sure the area and label are clearly connected
- Entire label should follow a gentle & smooth curve
- Keep area labels as horizontal as possible
- Avoid vertical & upside-down labels
- Keep labels away from area edges
- Avoid hyphenating or breaking up area labels

North Favenland
Western Favenland
Survania

North Favenland
Western Favenland
Survania


Pine Barrens
Ryder State Park
Tamarack Swamp


Pine Barrens
RYDER STATE PARK
Tamarack Swamp


Gull Tern Run River

Tern Run
Gull River
Gull River

Area data – best practices

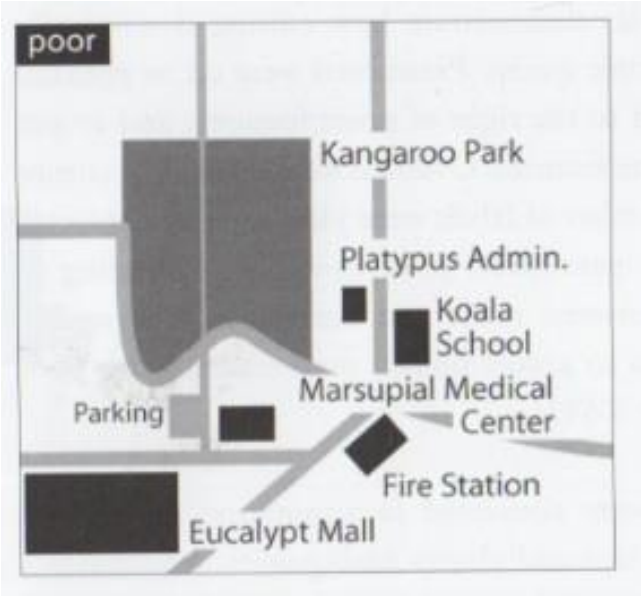
- Distinguish overlapping areas by varying type size, weight, form
- Label linear area like line symbols

Automatic placement

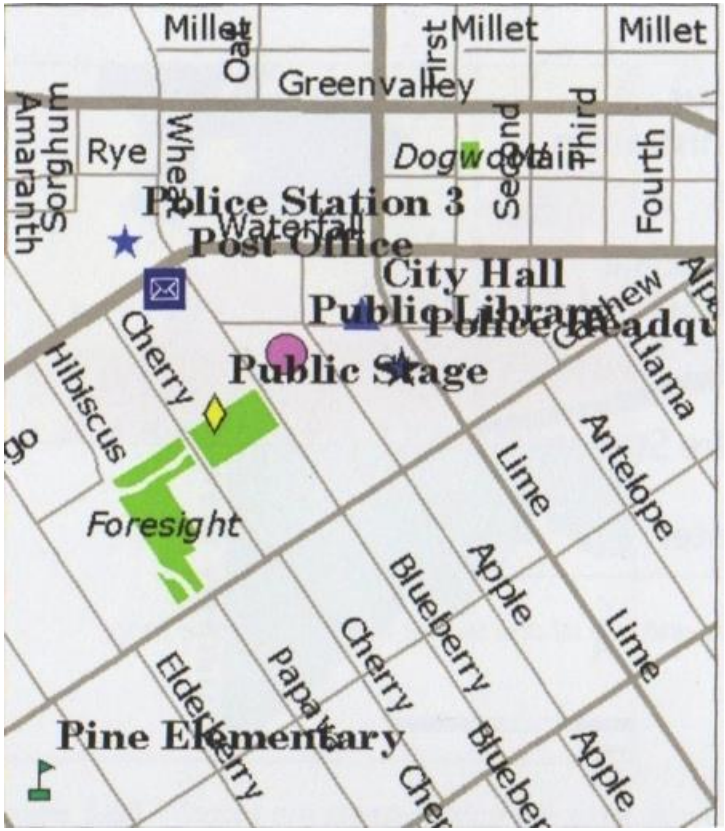
Manual placement w/ character spacing

Avoid horizontal placement – it suggests a ‘sentence’

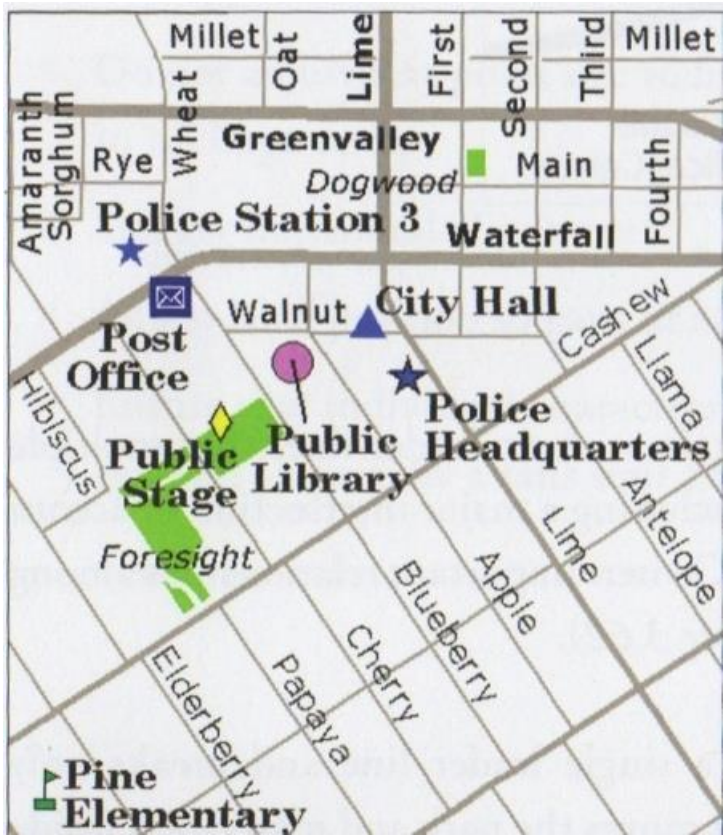
Dense labels



Dense labels



Automatic placement



Manual placement

Type Placement

Around the map

Placing text around the map

- Titles, text boxes, disclaimers, etc. A few general rules:
  - Ensure all text is aligned with surrounding elements including other text, maps, and lines
  - Do not use justified text in poster layouts (spacing out text to a given area) – too difficult to read quickly
  - Use Left-justified text
  - Double-space body text on larger layout to prevent 'squinting'

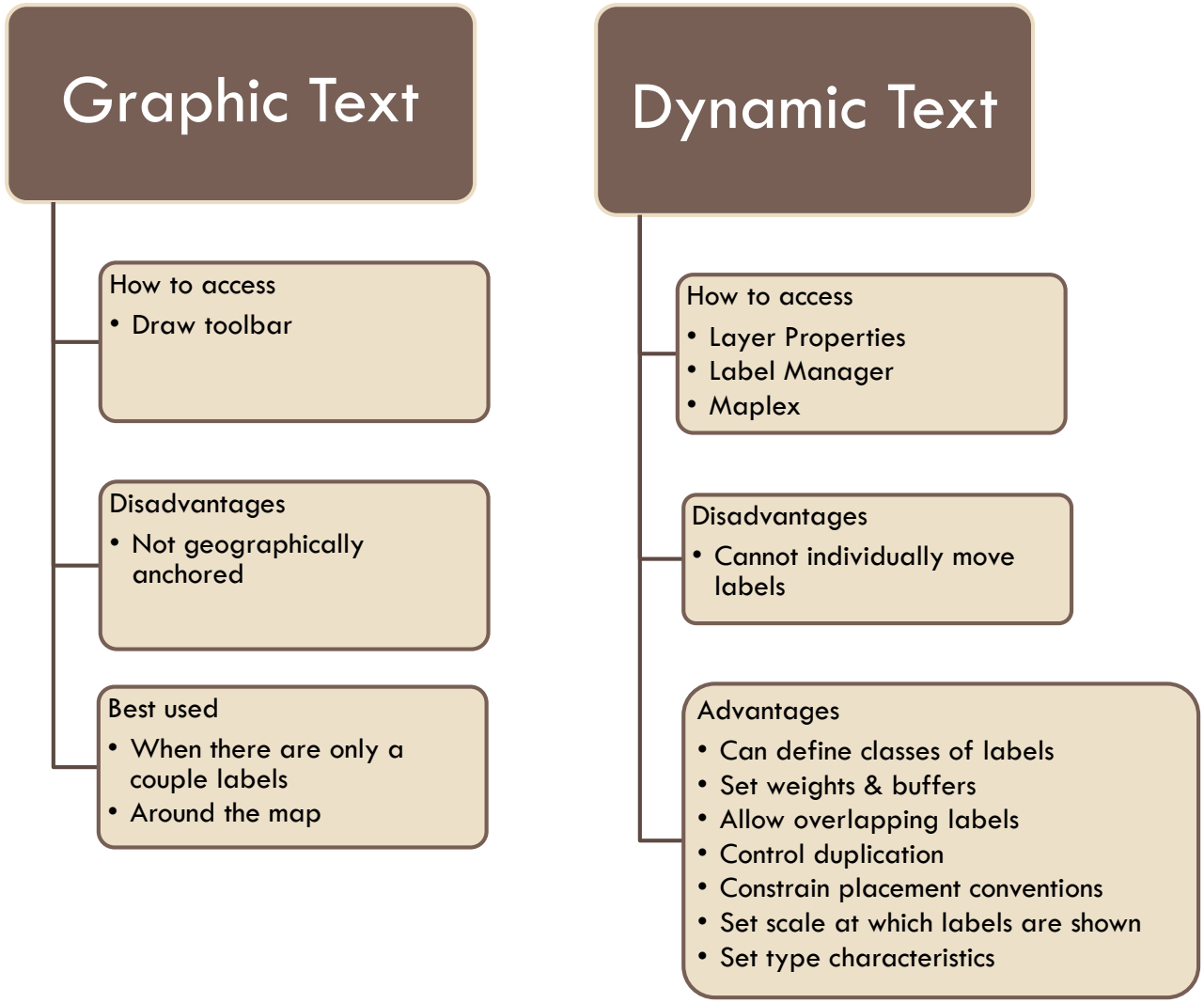
Placing text around the map

- Group text elements together
  - Use Law of Three – odd numbers of items in a group than even numbers of items in a group
  - Do not separate all over the page, but also do not group it all into one single text area
  - Example: Create three paragraphs of text separated by a headline or extra white space and place the 3 paragraphs together on the same side of the page

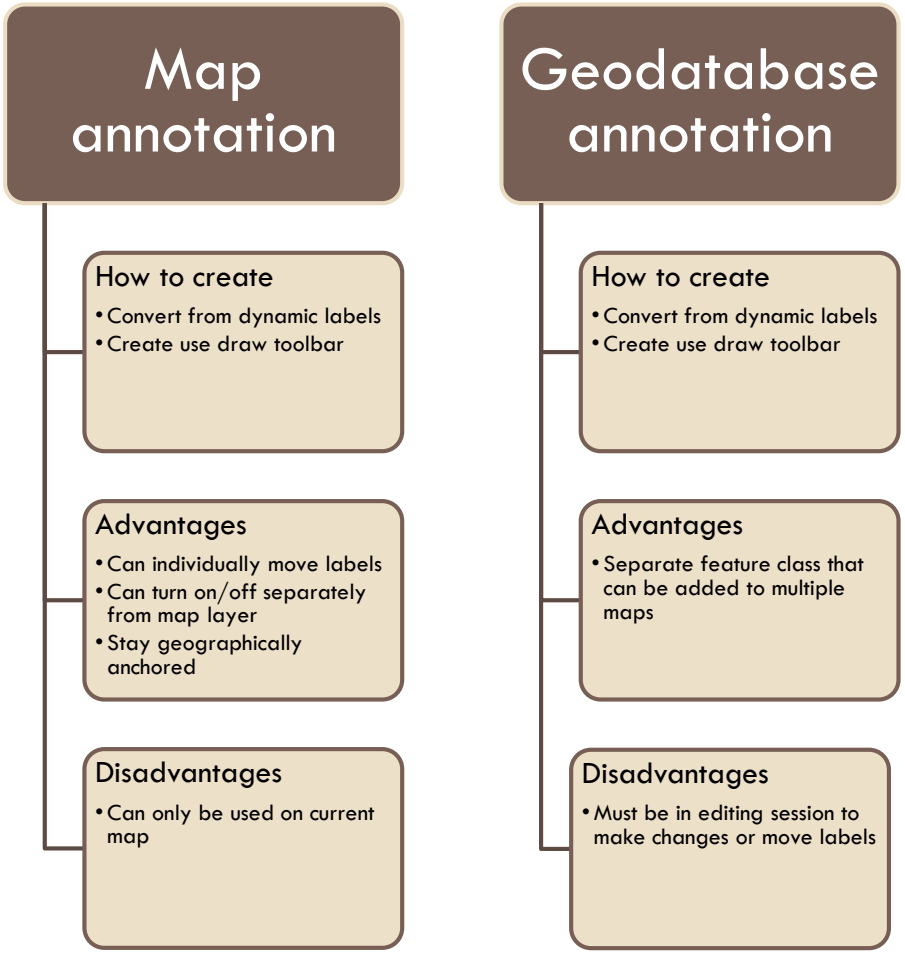
Labels in ArcGIS

Graphic, dynamic, annotation

Label tools


Graphic Text
How to access
• Draw toolbar
Disadvantages
• Not geographically anchored
Best used
• When there are only a couple labels
• Around the map
Dynamic Text
How to access
• Layer Properties
• Label Manager
• Maplex
Disadvantages
• Cannot individually move labels
Advantages
• Can define classes of labels
• Set weights & buffers
• Allow overlapping labels
• Control duplication
• Constrain placement conventions
• Set scale at which labels are shown
• Set type characteristics

Label Tools


Map annotation
How to create
• Convert from dynamic labels
• Create use draw toolbar
Advantages
• Can individually move labels
• Can turn on/off separately from map layer
• Stay geographically anchored
Disadvantages
• Can only be used on current map
Geodatabase annotation
How to create
• Convert from dynamic labels
• Create use draw toolbar
Advantages
• Separate feature class that can be added to multiple maps
Disadvantages
• Must be in editing session to make changes or move labels