Advanced Editing Tools

In this Chapter you will learn

- How to use some of the tools on the regular and advanced editing toolbars that are not as commonly used, but may be helpful to you.

1. Advanced Editing Tools

Many editors are familiar with the most common editing tools such as the edit vertices, straight line, cut polygon and trace tools (consult topic 7.1 if you would like to learn more about those tools). In this chapter we will explore more tools available to you on the Editor and Advanced Editing toolbars. All the tools we will explore are labeled in the figure below:
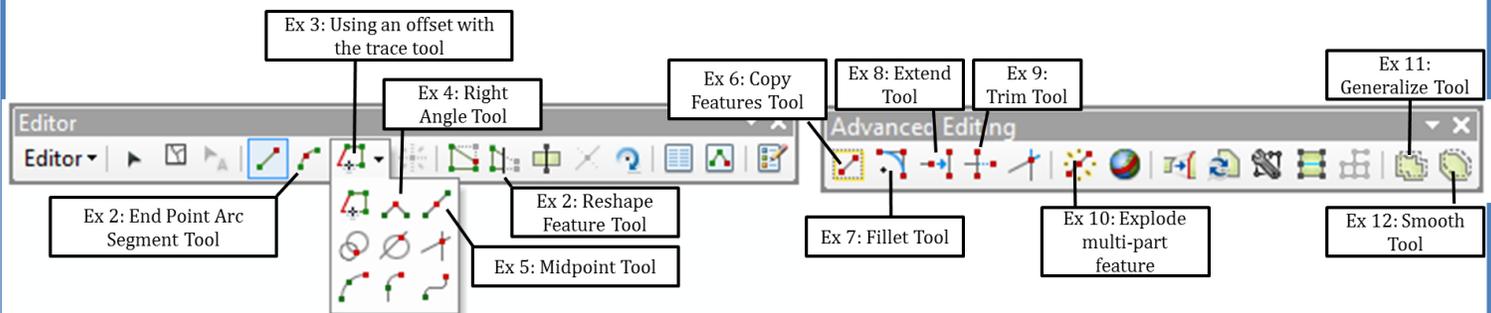
### Exercise 1: Adding the Editing Toolbars to your map

1. Start ArcMap and open Exercise1.mxd in the Topic7_2 folder.

2. See if your Editor Toolbar is already on your screen. If not, click on Customize along the top and choose Toolbars > Editor.

3. To access a number of specialized editing toolbars click on the Editor drop down button as shown on the right. Click on More Editing Tools > Advanced Editing to add the Advanced Editing toolbar.

4. Note in the figure on the right that you can also access Snapping and your Editing Windows by clicking on the Editor drop down button.
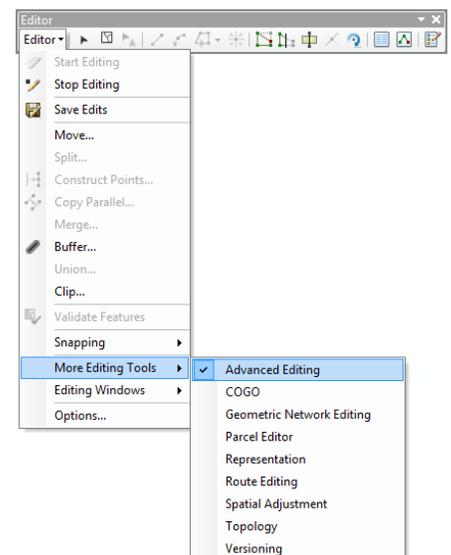
5. Click on the Editor drop down button again and click on Options. In the Editing Option dialog box go to the Units tab and set your options so they match the figure on the right.

6. Right-click on parcels and choose Edit Features > Start Editing.

7. Set your Snapping to only snap to vertices as shown on the right.
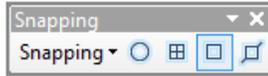
8. A couple of extra tips:

    a. The "Undo" buttons and "Go Back to Previous" extent, shown in the figure below and to the right, are extremely useful for any editor.

    b. While editing you can easily access the zoom and pan tools by clicking on the following letters while editing:

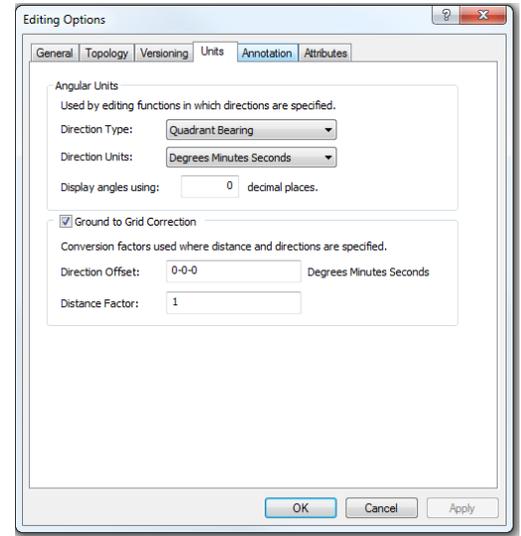   Zoom in: Z

        Zoom out: X

        Pan: C

        Ctrl + Z: Undo

        Ctrl + Y: Redo

    c. Click on the escape button if you ever start to accidentally move any shapes you don't want to move

**Exercise 2: Editing Curves: End point Arc Segment Tool**

The arc segment tool will draw arcs that have a beginning and end point rather than being a collection of straight line segments that only look like a curve. This tool draws a true curve that is based on a circle (rather than an ellipse).

1. Go to the bookmark for Exercise 2. In this exercise we will add a new parcel to the east of parcel 150 that includes a curve.
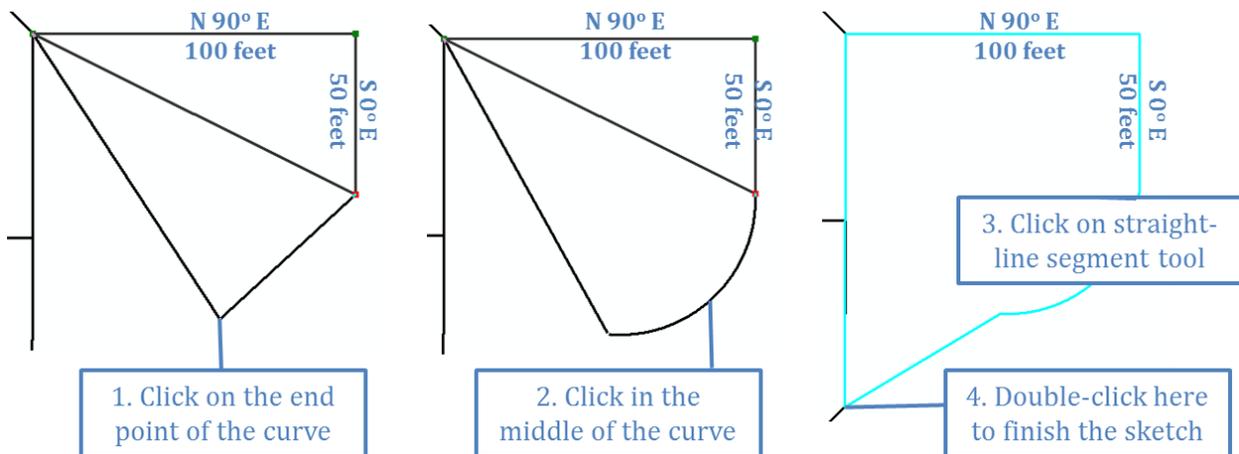
2. Click on "Parcels" in the Create Features dialog box, and then click on the polygon tool. If you do not see the Create Features dialog box you can open it by clicking on "Editor" on the Editor toolbar and choosing Editing Windows > Create Features.

3. Snap to the vertex indicated by the blue arrow in the figure on the right.
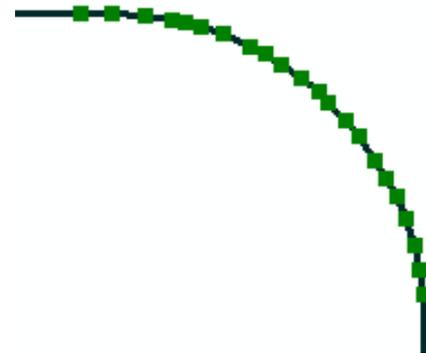
4. Right-click and choose "Direction/Length". Set direction to N 90 E and length to 100 feet.
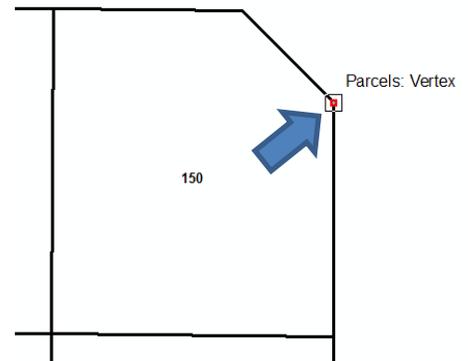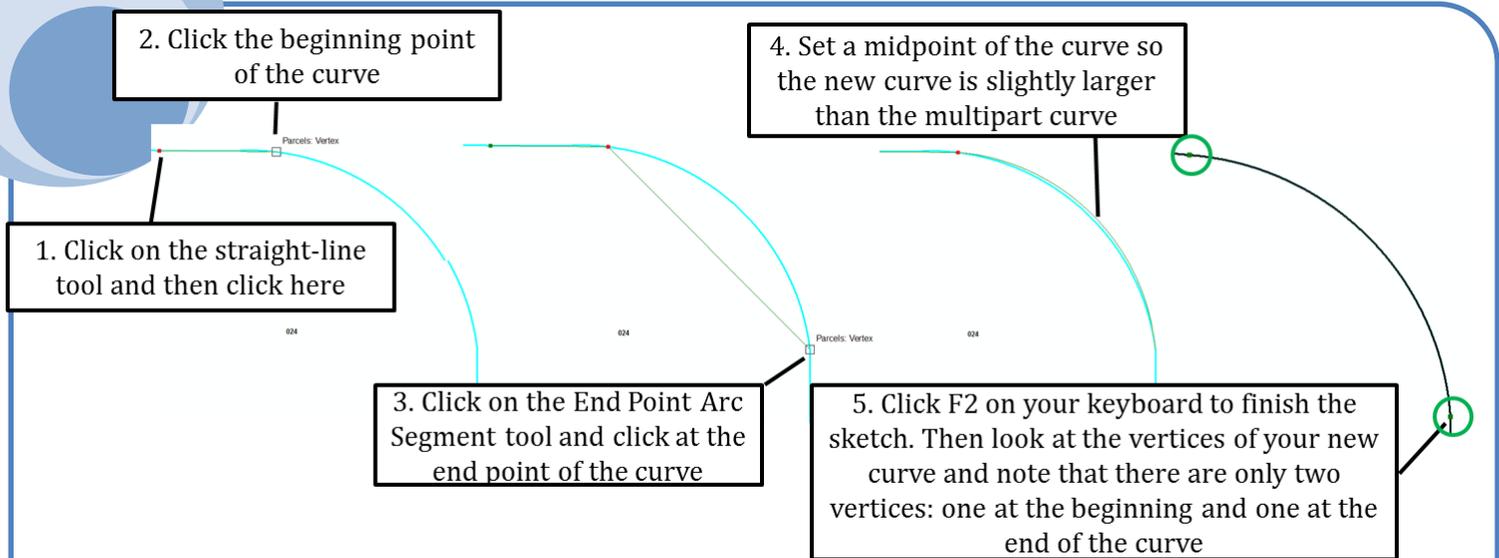
5. Hit Ctrl + G on your keyboard and then also add a line with direction S 0 E for 50 feet.

6. Next, click on the End Point Arc Segment Tool ( ). You will need to click twice to create the curve as illustrated in steps 1 and 2 in the figure below. Finish the sketch as shown in steps 3 and 4.

N 90° E
100 feet
S 0° E
50 feet

1. Click on the end point of the curve

N 90° E
100 feet
S 0° E
50 feet

2. Click in the middle of the curve

N 90° E
100 feet
S 0° E
50 feet

3. Click on straight-line segment tool

4. Double-click here to finish the sketch

7. Some counties have parcels where curves are drawn as a large number of small straight line segments, rather than a true arc with only a beginning and end point. Zoom to Exercise 2 – Bookmark 2.

8. Click on parcel 024 with your edit tool, and then click on the Edit vertices ( ) button. Note all the vertices in the curve marking the NE boundary of this parcel (those vertices are also shown on the right). You can use the Arc tool to replace those "multi-part" curves with true curves.

9. Go to the exercise 2 – Bookmark 2 bookmark to zoom in tightly to this curve. Make sure you can still see all the vertices (if not, click on the "Edit vertices" button again).

10. Click on the "Reshape Feature" button ( ) and then follow the instructions on the top of the next page to replace the "multi-part curve" by a true arc.

2. Click the beginning point of the curve

4. Set a midpoint of the curve so the new curve is slightly larger than the multipart curve

Parcels: Vertex

1. Click on the straight-line tool and then click here

024   024   Parcels: Vertex   024

3. Click on the End Point Arc Segment tool and click at the end point of the curve

5. Click F2 on your keyboard to finish the sketch. Then look at the vertices of your new curve and note that there are only two vertices: one at the beginning and one at the end of the curve

11. For practice, also replace the curve in the SW corner of parcel 28 (which is just south of the parcel you just edited) with a true curve.

12. Leave your map open for the next exercise

Exercise 3: Using an offset with the trace tool

1. Open Exercise1.mxd in the Topic7_2 folder if this map is not already open

2. Go to the bookmark for Exercise 3

3. In this exercise will we trace the eastern boundary of parcels 150 and 165 with a 10 feet offset as shown on the right.

4. Make sure the "Lines" shapefile the Topic7_2 folder is in your map and start an edit session to edit those lines.

5. In the Create Features window click on "Line" construction tool

6. Click on the Trace Tool ( )

7. Click on the letter "o" on your keyboard (for "Offset") and type in 10.

8. Click on the point indicated by the blue arrow on the right. Then drag your mouse to the right following the parcel boundary until your line looks like the one in the figure to the right of step 3 above.

9. Note that this offset was to the left of the line you are tracing. With the Trace Tool still active type the letter "o" again and specify an offset of -10 feet. Note that the line now appears on the right hand side of the line you are tracing.

10. Stop editing and then leave your map open for the next exercise
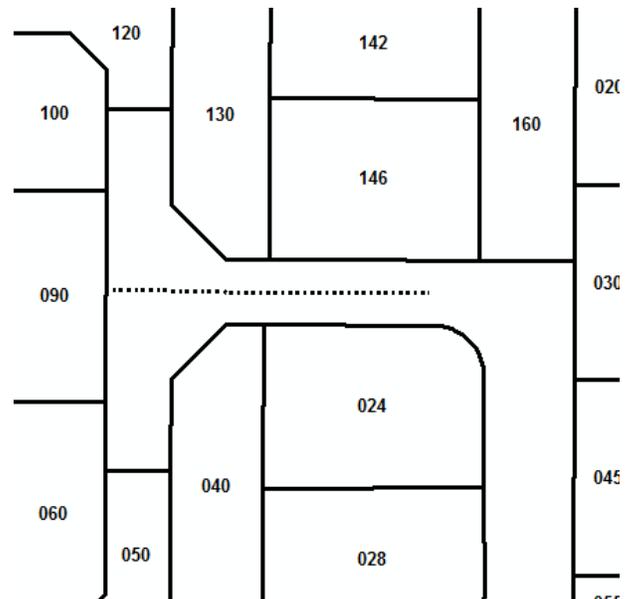
150

165

Parcels: Endpoint

150

4
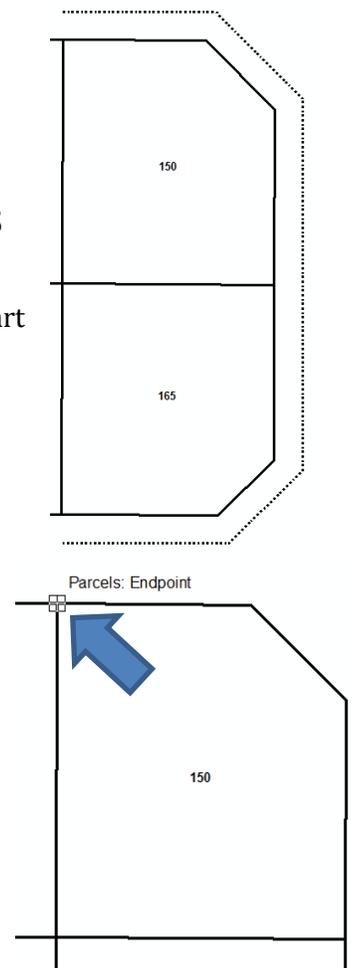
Exercise 4: Right Angle Tool

1. Open Exercise1.mxd in the Topic7_2 folder if this map is not already open

2. Go to the bookmark for Exercise 4. In this exercise we will add new parcel to the north of parcel 065 as shown on the right.

3. Click on the "Polygon" construction tool in the Create Features window.

4. Click on the Straight Segment Tool ( ) and then click on the north-west corner of parcel 065.

5. Type Ctrl+G on your keyboard and enter a Direction of N 0 W and a Length of 100 feet

6. Click on the Right Angle Tool ( ) . Type Ctrl+G and note that your Direction is already set to N 90 E. Type in a length of 100 feet

7. Double click on the NE corner of Parcel 065 to finish your sketch

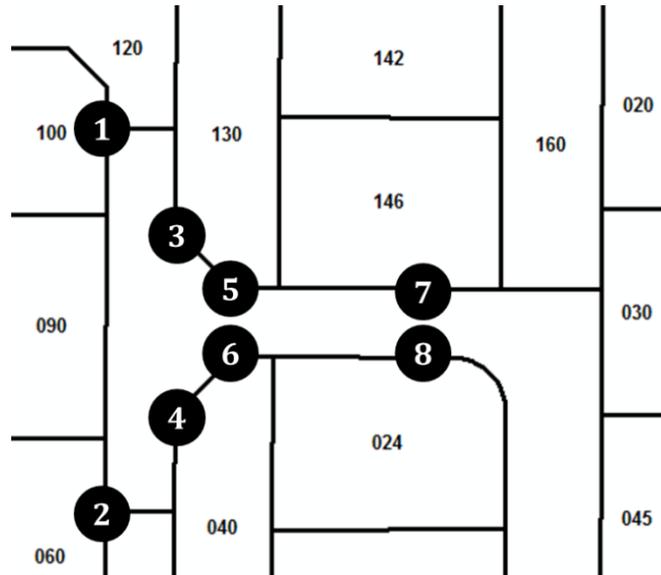8. Save your edits. Leave your map open for the next exercise.
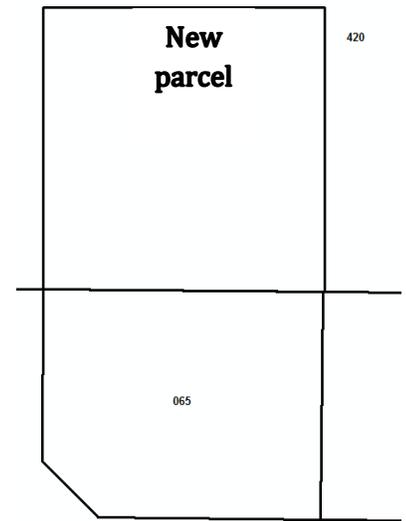
Exercise 5: Midpoint Tool

1. Open Exercise1.mxd in the Topic7_2 folder if this map is not already open

2. Make sure the Lines shapefile is added to your map. If not, then add this shapefile from the Topic7_2 folder.

3. Go to the bookmark for Exercise5. In this exercise we will draw a road exactly in the middle between parcels 130 and 040, as well as in between 146 and 024 as indicated by the dotted line in the figure on the right.

4. Start an edit session for the Lines shapefile.

5. In the Create Features dialog box click on the template for the Lines shapefile and then click on the Line Construction Tool.

6. Click on the Midpoint Tool ( ) then click on various corners in the order shown in the figure below. Note that the tool puts a vertex in the middle of every line you draw.
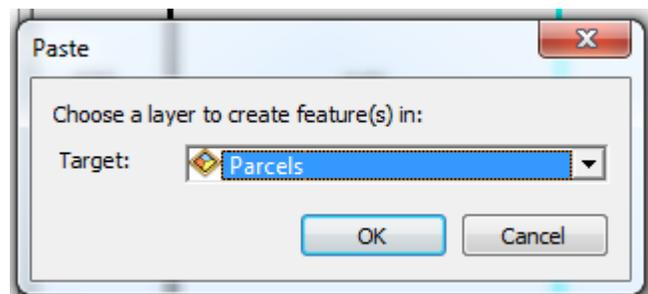

7. Save your edits, stop your edit session and leave your map open for the next exercise.

Exercise 6: Copy Features Tool

1. Open Exercise1.mxd in the Topic7_2 folder if this map is not already open.

2. Go to the bookmark for Exercise 6.

3. Start an edit session to edit the Parcels layer.

4. In this exercise we will use two different ways to copy parcel 150 and paste it to the Parcels layer. First we will Edit > Copy and Edit> Paste method and then we will use the "Copy Features" tool.

5. Select parcel 150 with your edit tool. Click on "Edit" in the top-left corner of your screen and choose "Copy". Then click again on "Edit" again and choose "Paste".

6. In the Paste dialog box set the target to "Parcels" as shown on the right.

7. Note the there are two "parcel 150" stacked on top of each other. We know there are two parcels because you see the label for "150" twice. DON'T SAVE YOUR EDITS, instead click the undo button.


8. Now we will copy parcel 150 again. Select parcel 150 with your Edit tool and then click on the "Copy Features" tool ( ) on the Advanced Editing Toolbar.

9. With the tool activated click on a white space to the right of parcel 150.

10. Again, set the target to Parcels and click OK.

11. Note that the Copy Features tool allows you to specify where the center of the copy of parcel 150 should be located.

12. Save your edits, stop your edit session and leave your map open for the next exercise.

Exercise 7: Fillet Tool

1. Open Exercise1.mxd in the Topic7_2 folder if this map is not already open

2. Go to the bookmark for Exercise 7.

3. The Fillet tool helps you draw tangent curves. We will edit a couple of lines as shown in the "before" and "after" picture below.

This curve has a radius of 50 feet

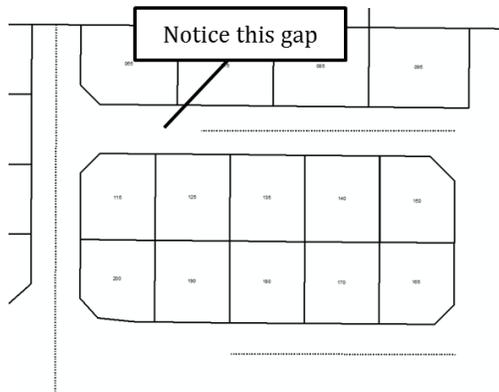Before   After
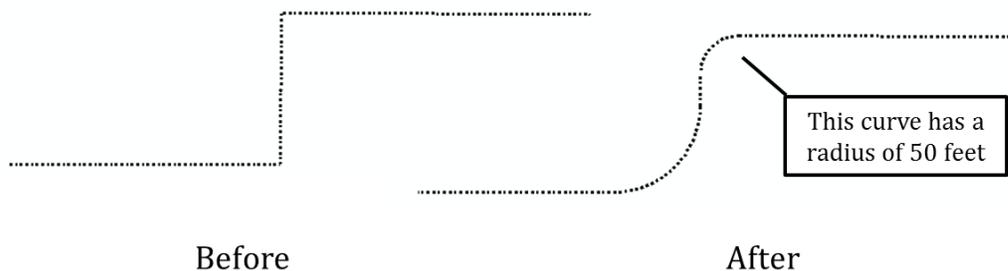
4. Start an edit session to edit the Lines shapefile. Click on The Fillet Tool ( )

5. Click on the line indicated by number 1 on the right. Notice that the symbology of this line changes when your do this. Then click on the line indicated by number 2.

6. Note that when you move your mouse (without clicking) you can make the curve larger of smaller. Choose how large you want to make your curve and then click to finish it.

7. The second curve has a radius of 50 feet. With the Fillet Tool still active click the letter "o" on your keyboard.

8. Complete the "Fillet Options" dialog box as shown on the right. Set the radius to 50 feet.

9. Click on line 3 and then on line 4 as shown in the figure on the right. Note that you have now drawn a tangent curve with a radius of 50 feet.

10. Save your edits, stop your edit session and leave your map open for the next exercise.

Fillet Options

☑ Trim existing segments
☑ Fixed radius

Radius: 50

OK   Cancel
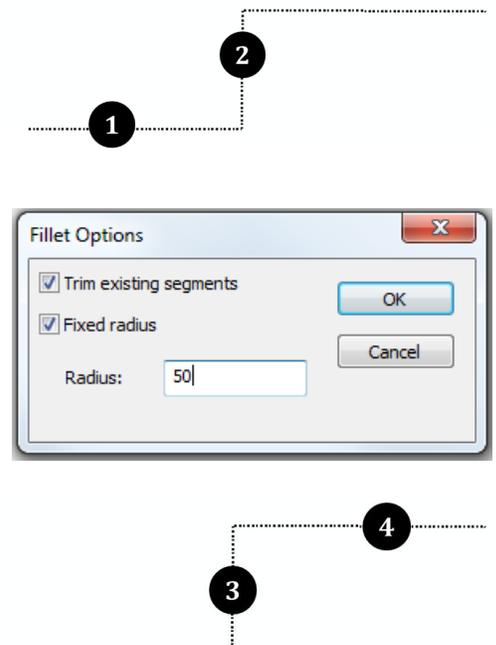
Exercise 8: Extend Tool

1. Open Exercise1.mxd in the Topic7_2 folder if this map is not already open.

2. Go to the bookmark for Exercise 8.

3. Start an edit session to edit the Lines.

4. In this exercise we extend the lines representing two east-west running streets to intersect with the street that is running north-south as illustrated in the "before" and "after" picture below.
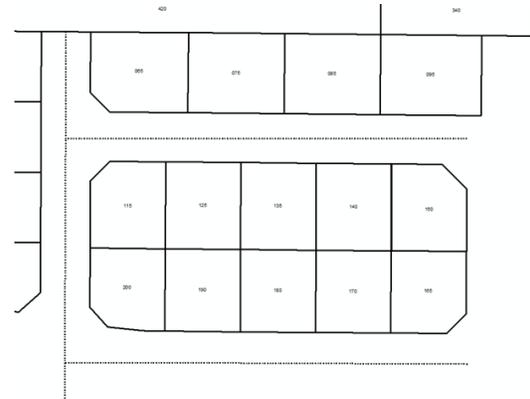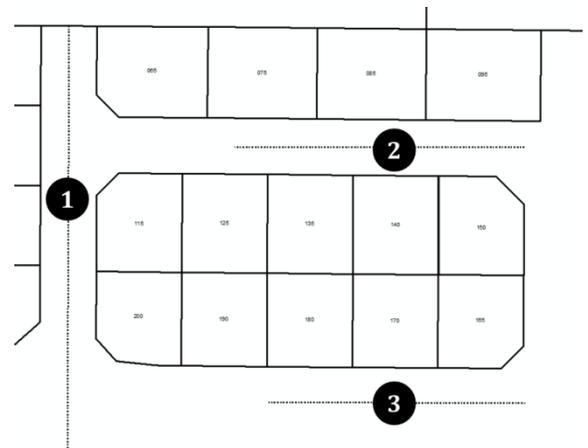

Before   After

5. Click on the Edit Tool ( ) on your Editor Toolbar and select the line indicated by number 1 in the figure on the right.

6. Click on the Extend Tool ( ). With this tool click on line 2 and then on line 3.

7. Save your edits, stop your edit session and leave your map open for the next exercise.

Exercise 9: Trim Tool

1. Open Exercise1.mxd in the Topic7_2 folder if this map is not already open

2. Go to the bookmark for Exercise 9

3. Start an edit session to edit the Lines shapefile.

4. In this exercise we will trim the "overshoots" shown in the figure on the right.

5. Click on the Edit Tool (▶) and then select line 1 in the figure below.

Note the "overshoots"

Before   After
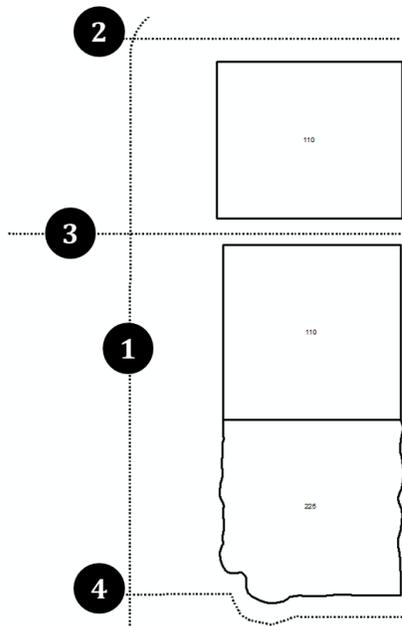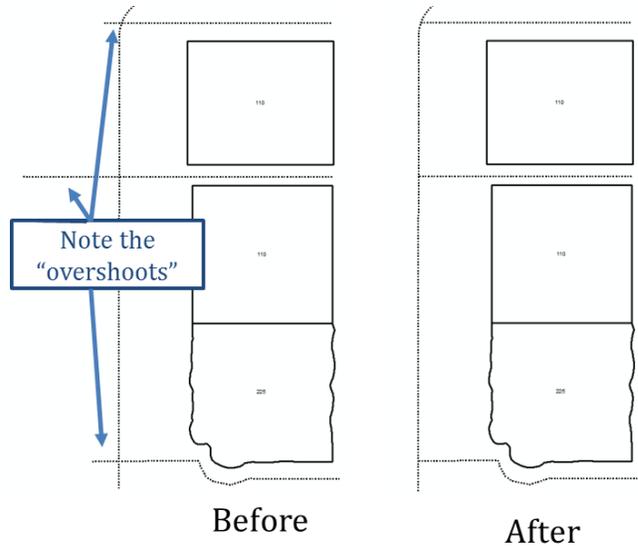
6. Click on the Trim Tool ( ) on the Advanced Editing toolbar and click on line 2, 3 and 4 in the image above. Make sure to click on the left hand side of line 1 to make sure you are trimming the line to the left of the intersection.

7. Save your edits, stop your edit session and leave your map open for the next exercise.

Exercise 10: Explode multipart feature

8. Open Exercise1.mxd in the Topic7_2 folder if this map is not already open

9. Zoom to the bookmark for Exercise 11

10. Note that there appear to be three parcels that have parcel ID 110.

11. Start an edit session to edit the Parcels shapefile.

12. Click on the edit tool ( ) and select parcel 110. Note that all three parcels appear to be selected. This means that there is only one parcel with parcel ID 110 that consists out of three parts. This is referred to as a multi-part polygon. In this exercise we will "explode" this multi-part parcel into three separate parcels.

13. With parcel 110 selected click on the Explode MultiPart Feature Tool ( ) on the Advanced Editing toolbar.

14. Use your select tool to select all three new polygons in turn to verify that you now have three separate polygons.

15. WARNING: always select the multi-part feature you want to "explode". If you do not, you risk exploding ALL multi-part features in your editable layer.

16. Save your edits, stop your edit session and leave your map open for the next exercise.

Exercise 11: Generalize Tool

1. Open Exercise1.mxd in the Topic7_2 folder if this map is not already open

2. Go to the bookmark for Exercise 11. In this exercise, as well as the next exercise, we will reshape parcel 225.

3. Start an edit session for the parcels layer. Select parcel 225 with your "Edit Tool" and then click on the "Edit vertices" tool to expose its vertices. As you can see on your map, or in the figure on the right, this parcel contains a considerable amount of vertices. In this exercise we will generalize this parcel and in the next exercise we will smooth this parcel.

4. Click on the "Generalize Tool" ( ). The Maximum allowable offset is the furthest distance a vertex is allowed to move during the generalization process. Type 5. Click OK and note that your parcel now only has 5 vertices. DON"T SAVE YOUR EDITS!

5. Click on the undo button ( ) button. Then click on the Generalize tool again and set the maximum allowable offset to 1. Note your results. Again, DON'T SAVE YOUR EDITS.

6. Click the undo button again and continue with the next exercise
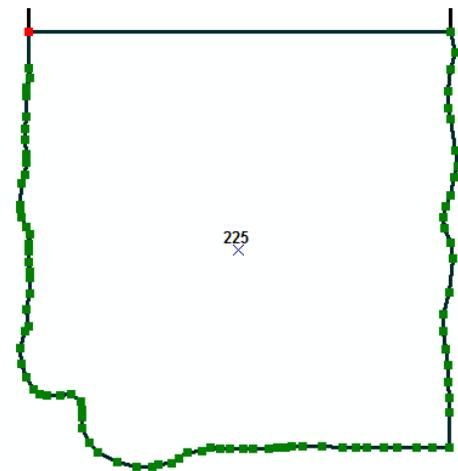
Exercise 12: Smooth Tool

1. Complete Exercise 11 first.

2. With the vertices of parcel 225 exposed, click on the "Smooth tool" ( ). Set the maximum allowable offset to 1. Note how the result differs from step 4 in the previous exercise when you used the Generalize tool with the same maximum allowable offset.

3. Stop editing. Save your edits if you like.