

# Challenge 7: Creating New Features

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**What you'll Learn:** How to create new features that extend connectivity for Lab 2

**Data:** LFUCG Streets (for network analyst version), existing trails, your C5 layers, and your zone polygon. Data in FayetteCountyKY.gdb.zip

**What You'll Produce and Deliver:** You'll make a line feature class of trail connections to our road network and existing trails in your zone. You'll also correct any problems in your zone existing trail layer via aerial photography.

**Background:** While road GIS data is readily available, data for pedestrian sidewalks and paths are less developed. The layer we have from the city has problems, many of which can be corrected with geoprocessing techniques (see Lecture 3). But missing data needs to be manually created.

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## Step 1: Inspect Data

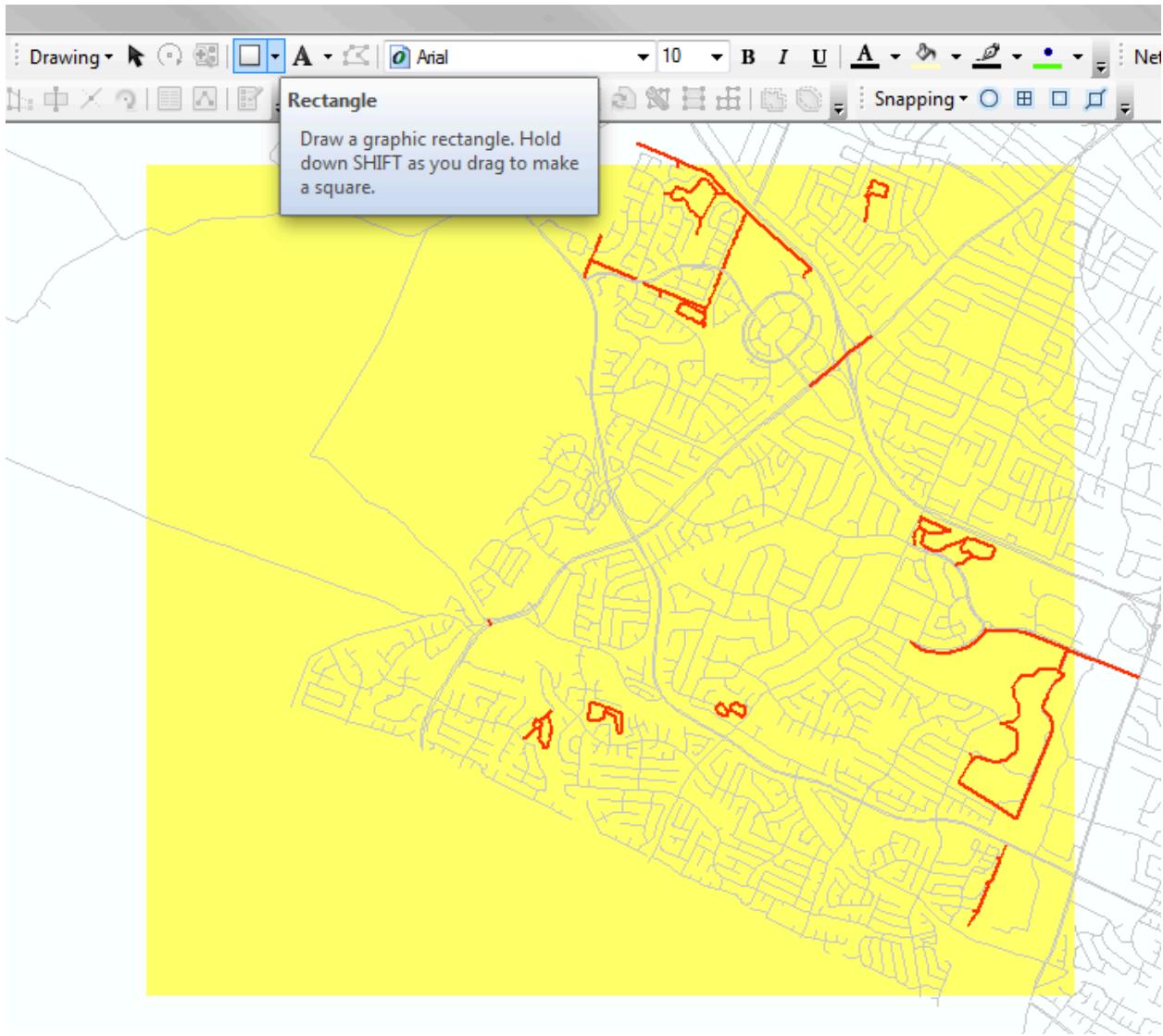
We need to connect the existing pedestrian trails to the road centerline for network analyst.



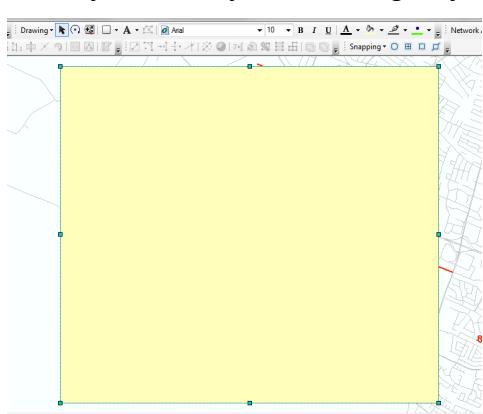
The image on the left shows roads, existing pedestrian paths, and zone 5. The image on the right shows one of the pedestrian networks that needs to be connected to the road network (which has attributes for sidewalks). The assumption is that if a pedestrian path is connected to a road network with a sidewalk, you can walk between networks safely. **Don't drive to the park, walk!** So we need to visually inspect where the connections are made. We could visit with a GPS, or we can use aerial photography to look for sidewalks.

## Step 2: Export Aerial Photography to Your Zone

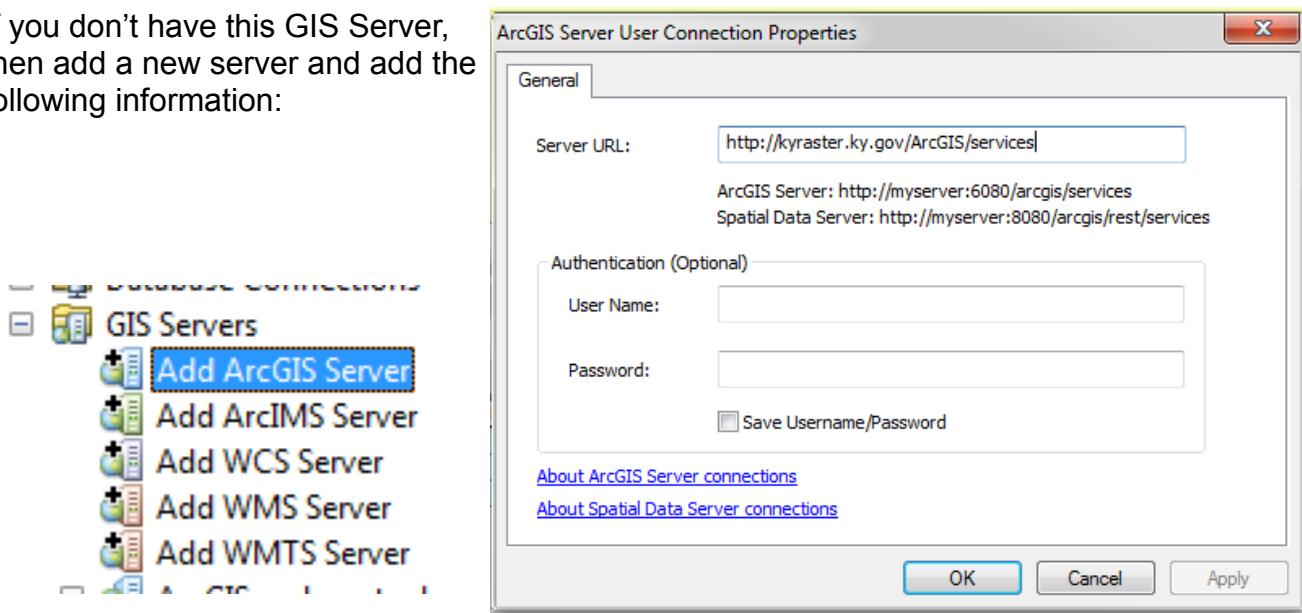
Draw a **Rectangle** around your zone using the **Drawing Toolbar**.



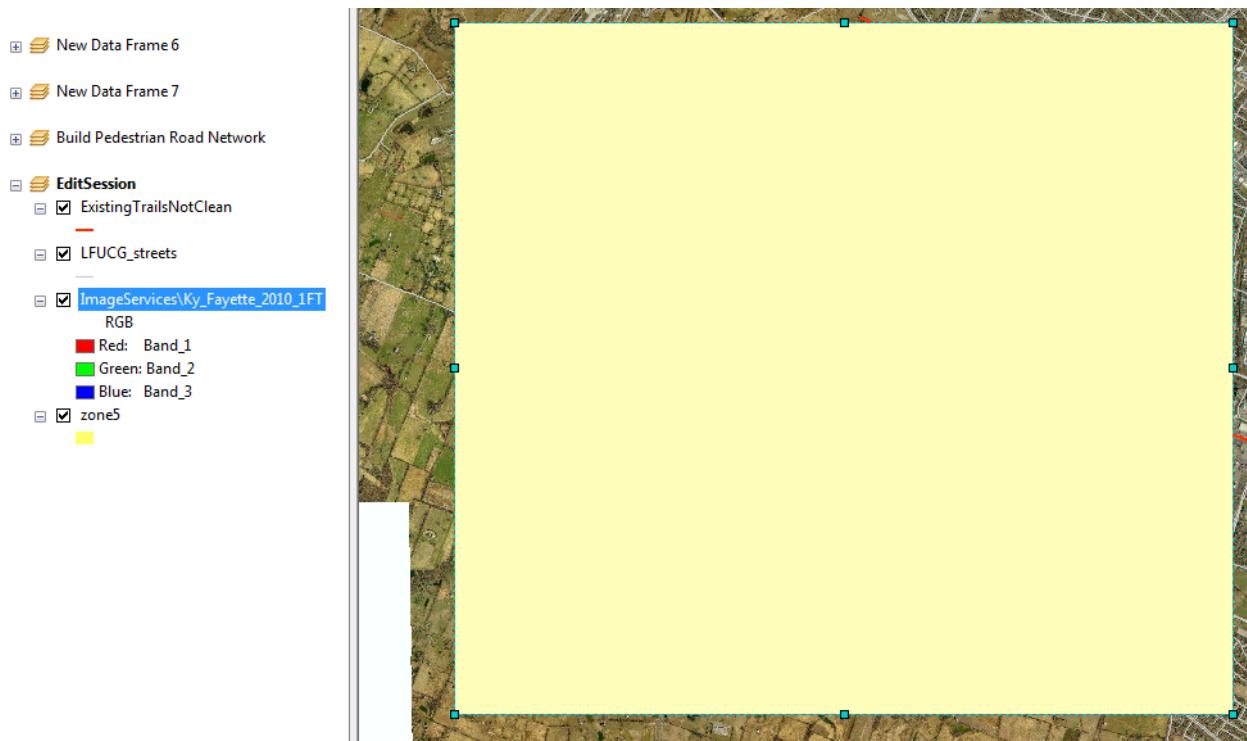
After you draw your rectangle, you should see the below image. Now, add from the aerial photography from ArcMap's Catalog ->**GIS Servers** -> **ArcGIS Server** <http://kyraster.ky.gov> -> **ImageServices** -> **Ky\_Fayette\_County\_2010\_1FT**.



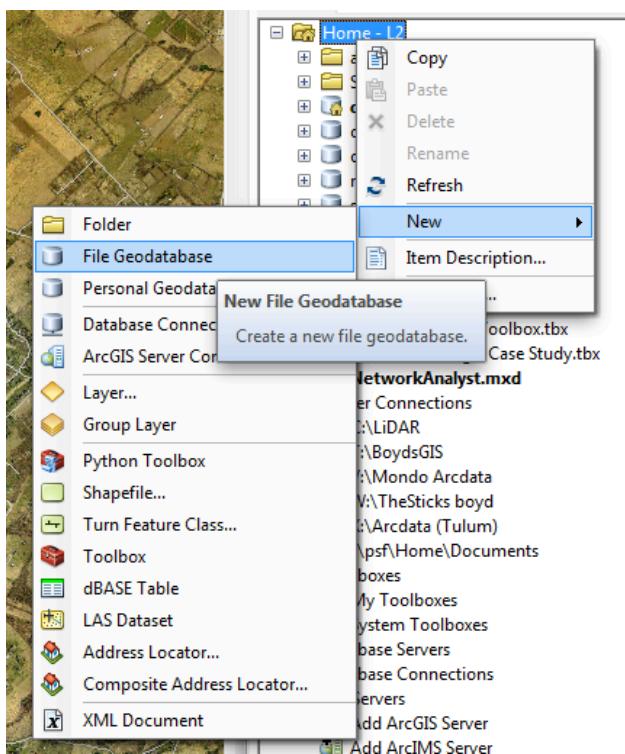
If you don't have this GIS Server, then add a new server and add the following information:



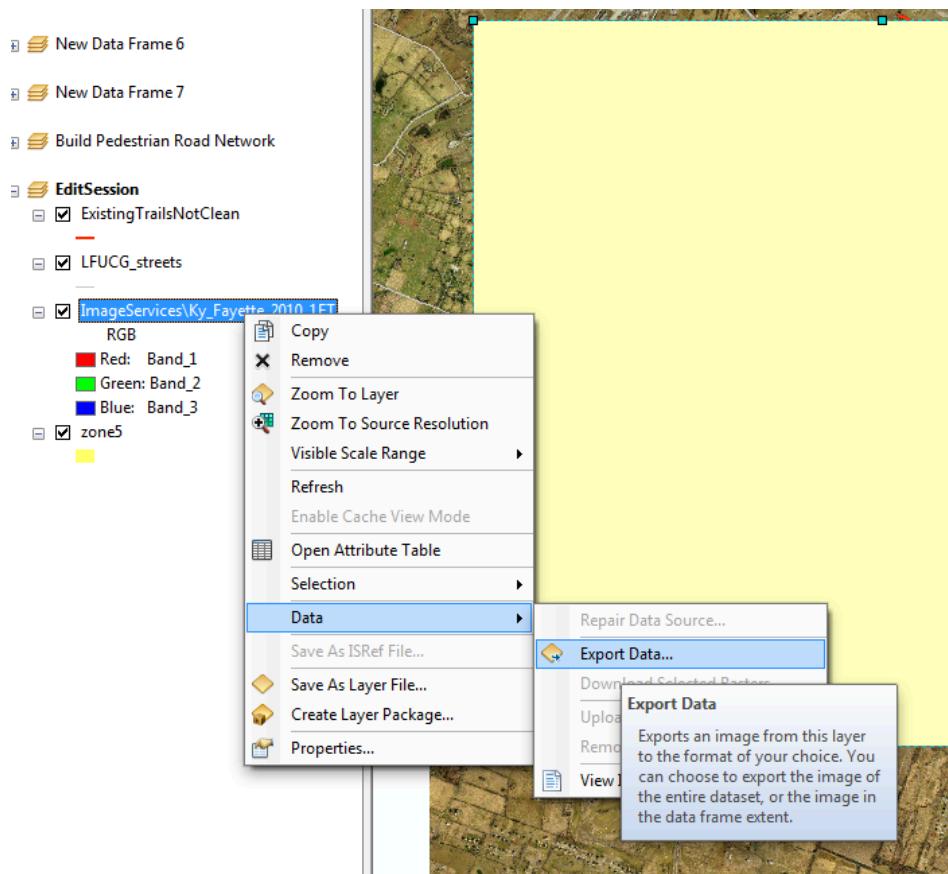
After you add the server and 2010 aerial photography, you should see

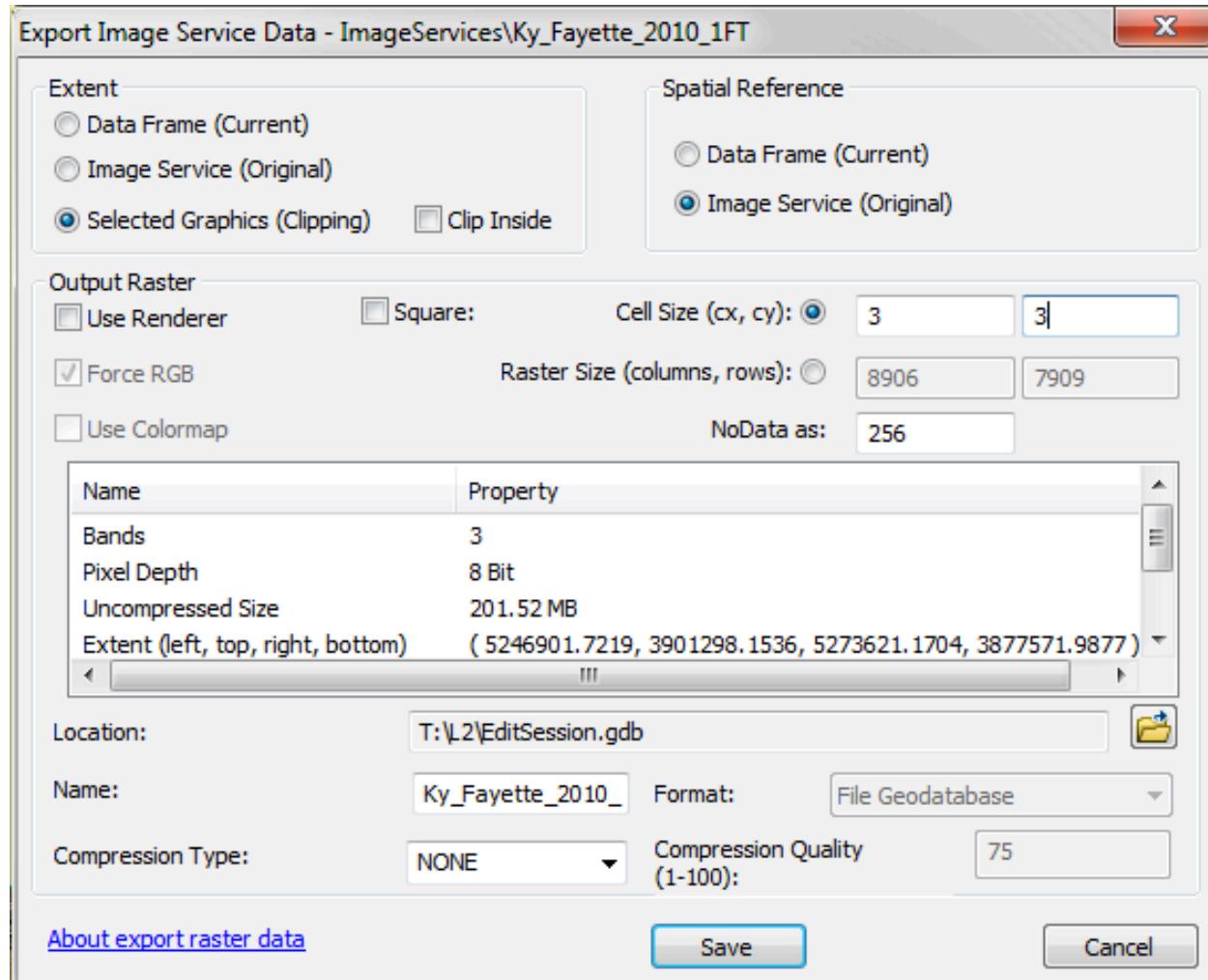


By right+clicking, begin exporting the image by creating a local geodatabase called, "EditSession"



Then export the image with a lower resolution...





Pay attention to this menu! The **Extent** is automatically set the rectangle you drew, good! The **Spatial Reference** is already single-zone KY State Plane. Note when you increase the **Cell Size** the **Uncompressed Size** reduces. Cell size refers to the resolution of the data, or pixel size. Smaller pixels, more detail and resolution, but sizes increase dramatically. Don't go above 3-foot pixel cell size, because we'll not be able to see sidewalks. Don't go below 1-foot pixel, or you'll wait for ever to download.

When you set these parameters and **Location** set, hit **Save**! Add the new layer to your data frame and turn off the GIS Server, which dramatically speed up redraw times.

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Now zoom in and see how out pedestrian path connects to road network. Tip:  
Symbolize your layers to stand out against the aerial photography.

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Looks like we need to add new paths AND realign a few paths.

### Step 3: Set Up Edit Session

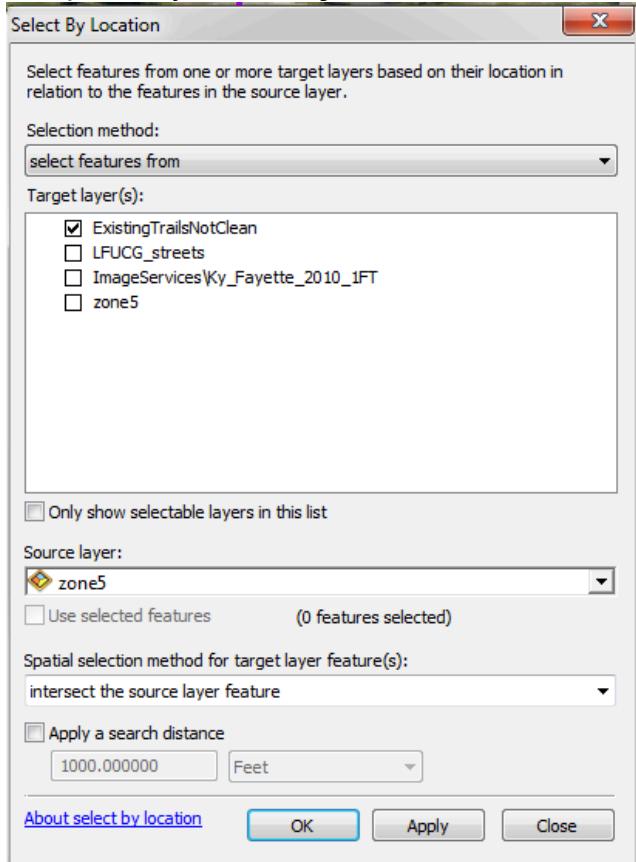
In most cases, you can directly edit an existing layer. Since we're all contributing different parts of the city, we want to minimize overlap.

Option 1: you can **Select By Location** existing trails in your zone and then **Export** these select features to a new feature class called, "MyZonePaths" with attributes preserved.

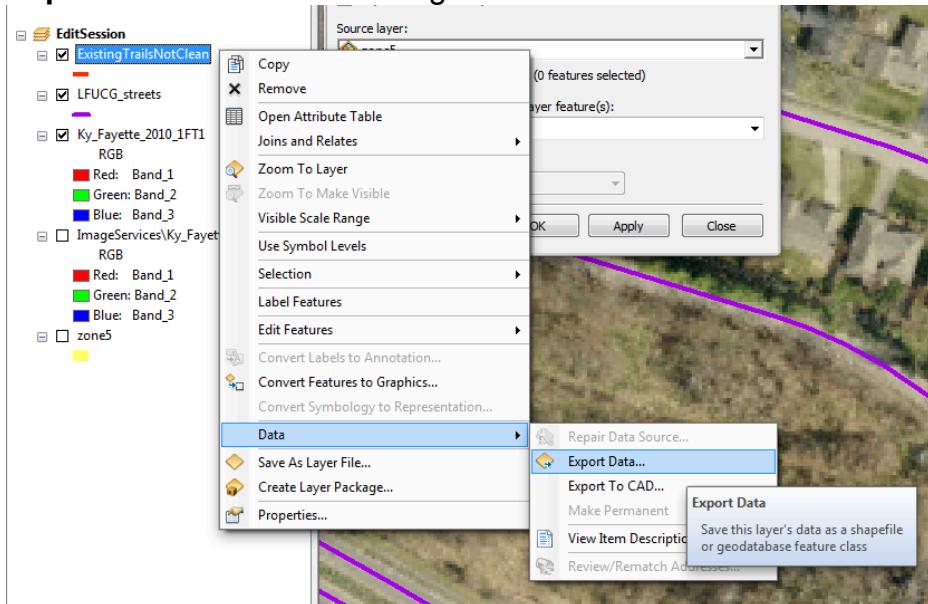
Option 2: you create a new feature class called, "MyZonePaths" and copy features from one layer into the new layer. This will not contain any attributes, but we can add them easily later.

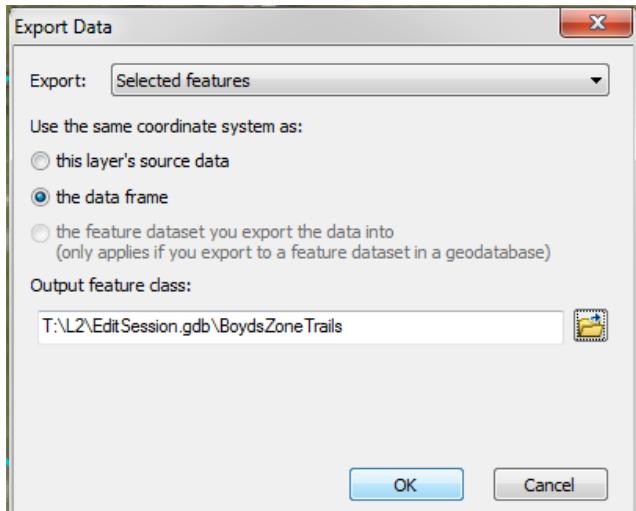
We did Option 2 in class, but we'll do Option 1 in this example and show Option 2 last.

## Get paths by Select by Location.



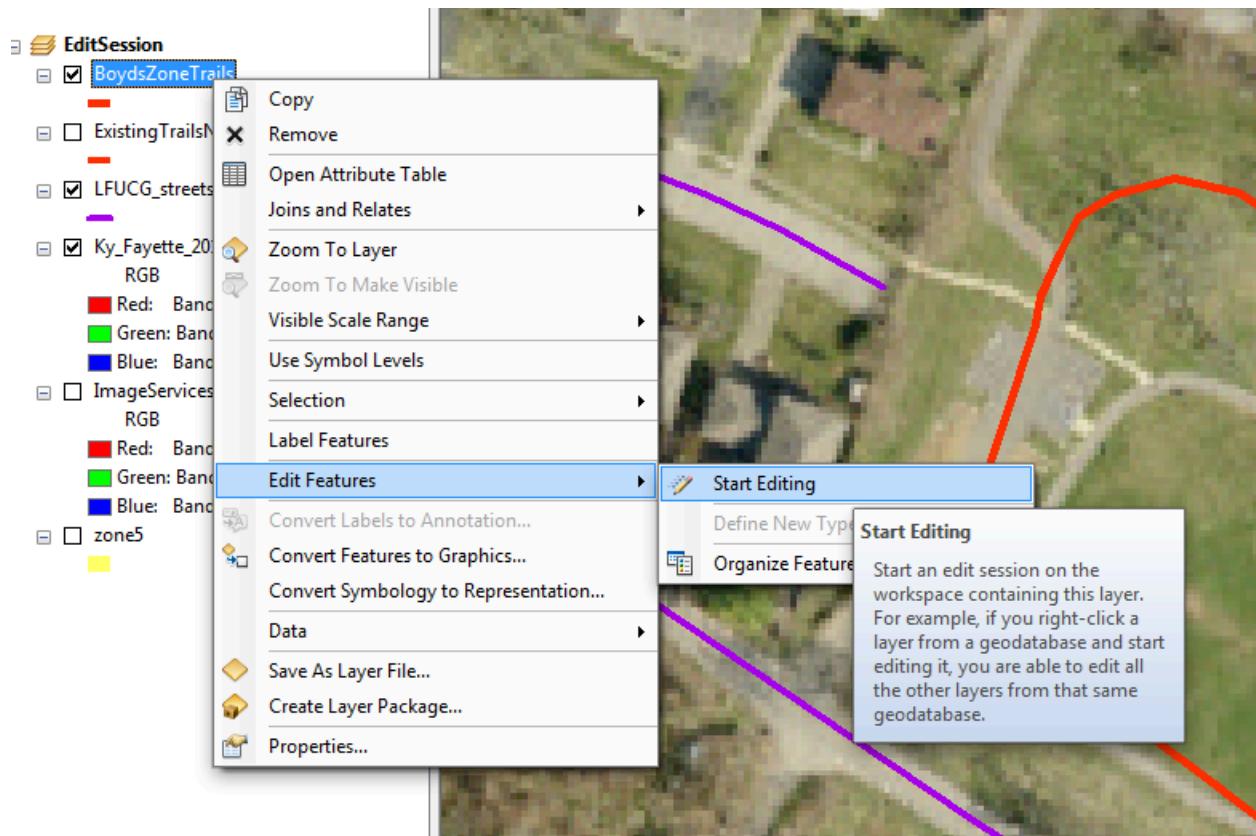
## Export Data to “EditSession” geodatabase.



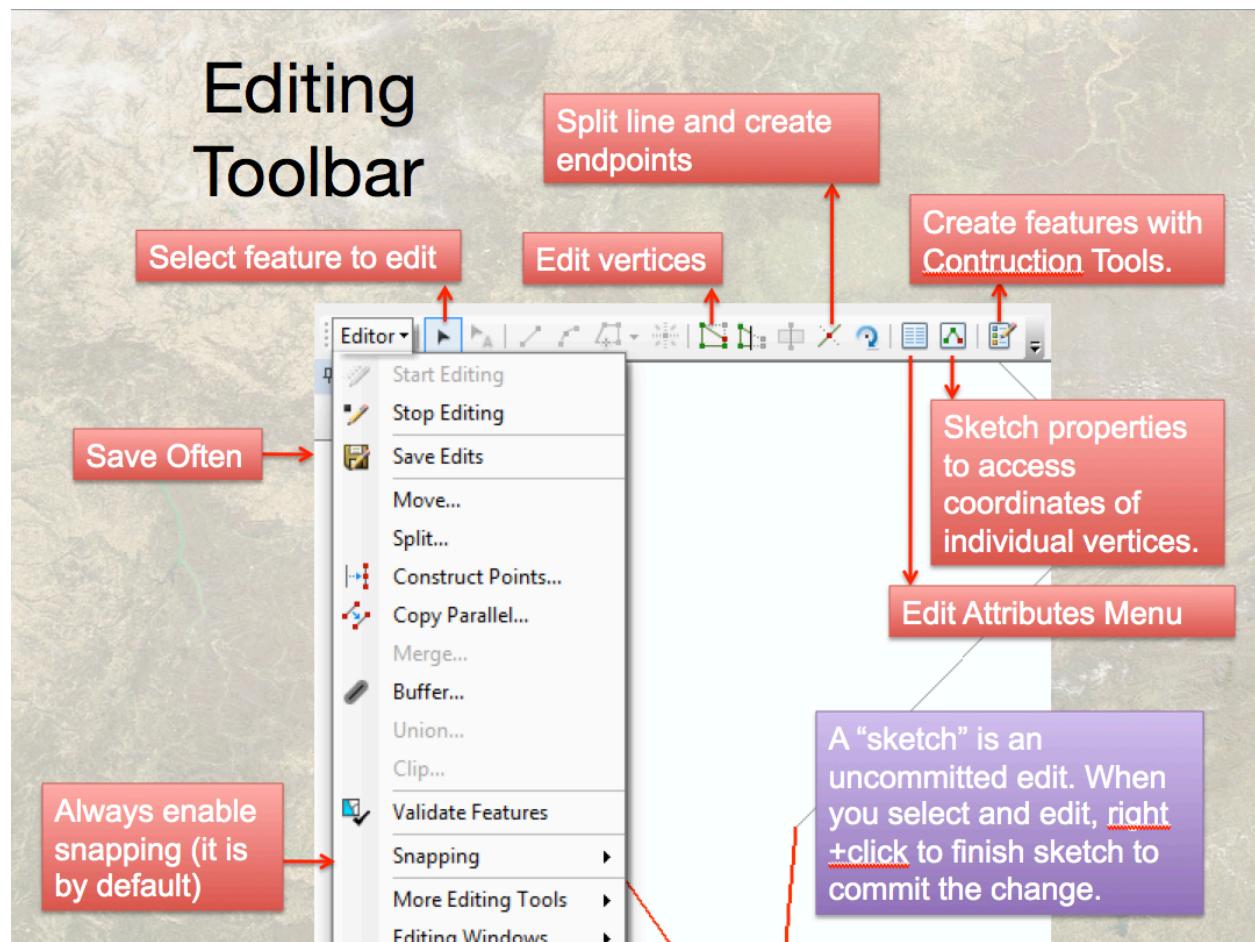
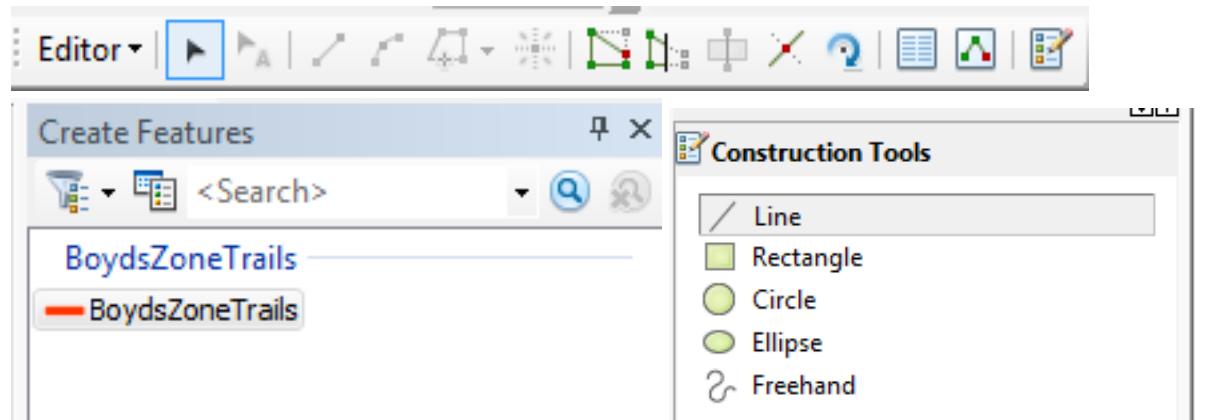


## Step 4: Start Editing

With *LFUCG\_streets* layer in your TOC, right+click your newly created layer and **Start Editing**.

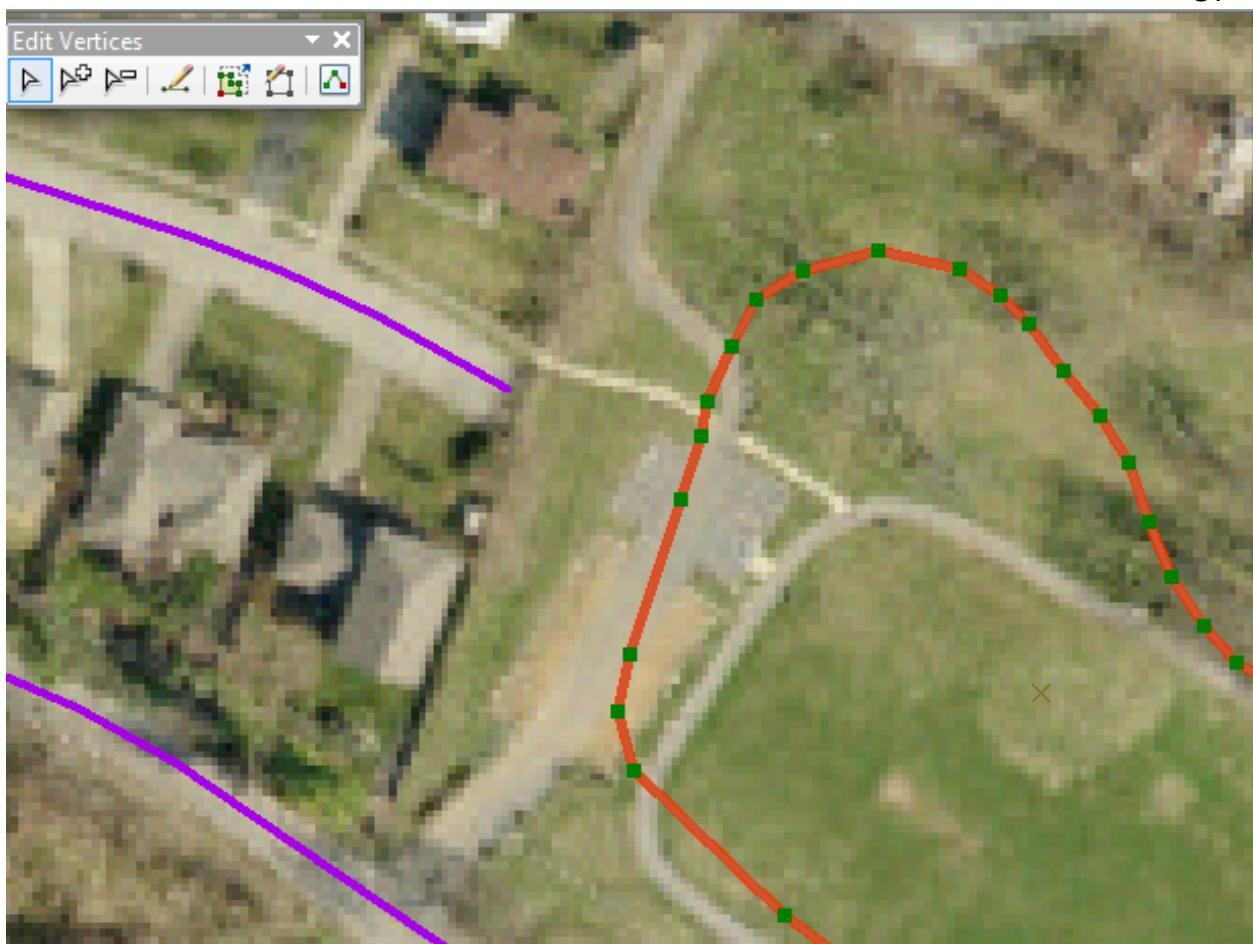


Make sure your toolbar **Editor Toolbar** is active and you have new menus for **Create Features** and **Construction Tools**.

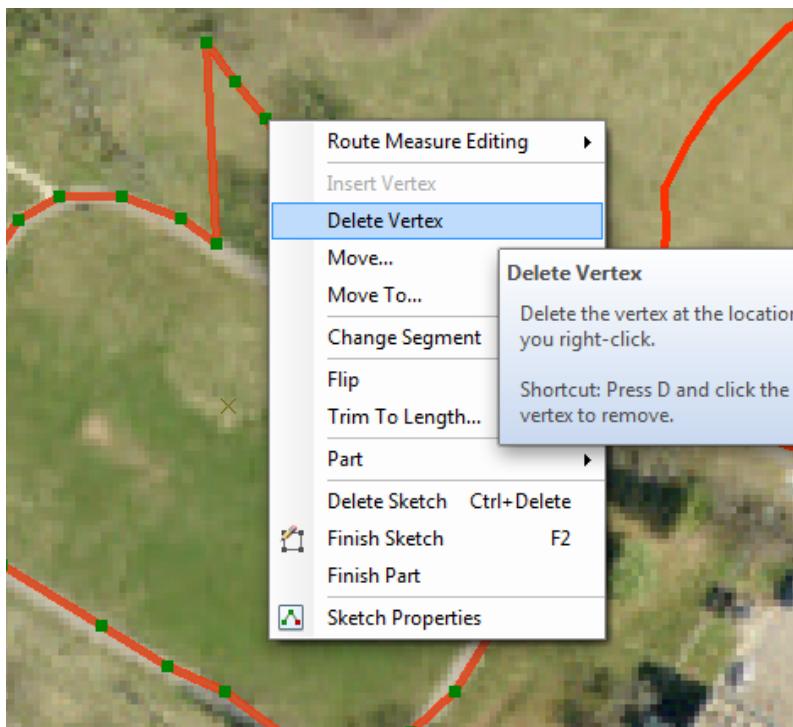


First, move vertices of existing trails to their proper location. With **Edit Select Tool** double+click a line segment to get vertex editor.

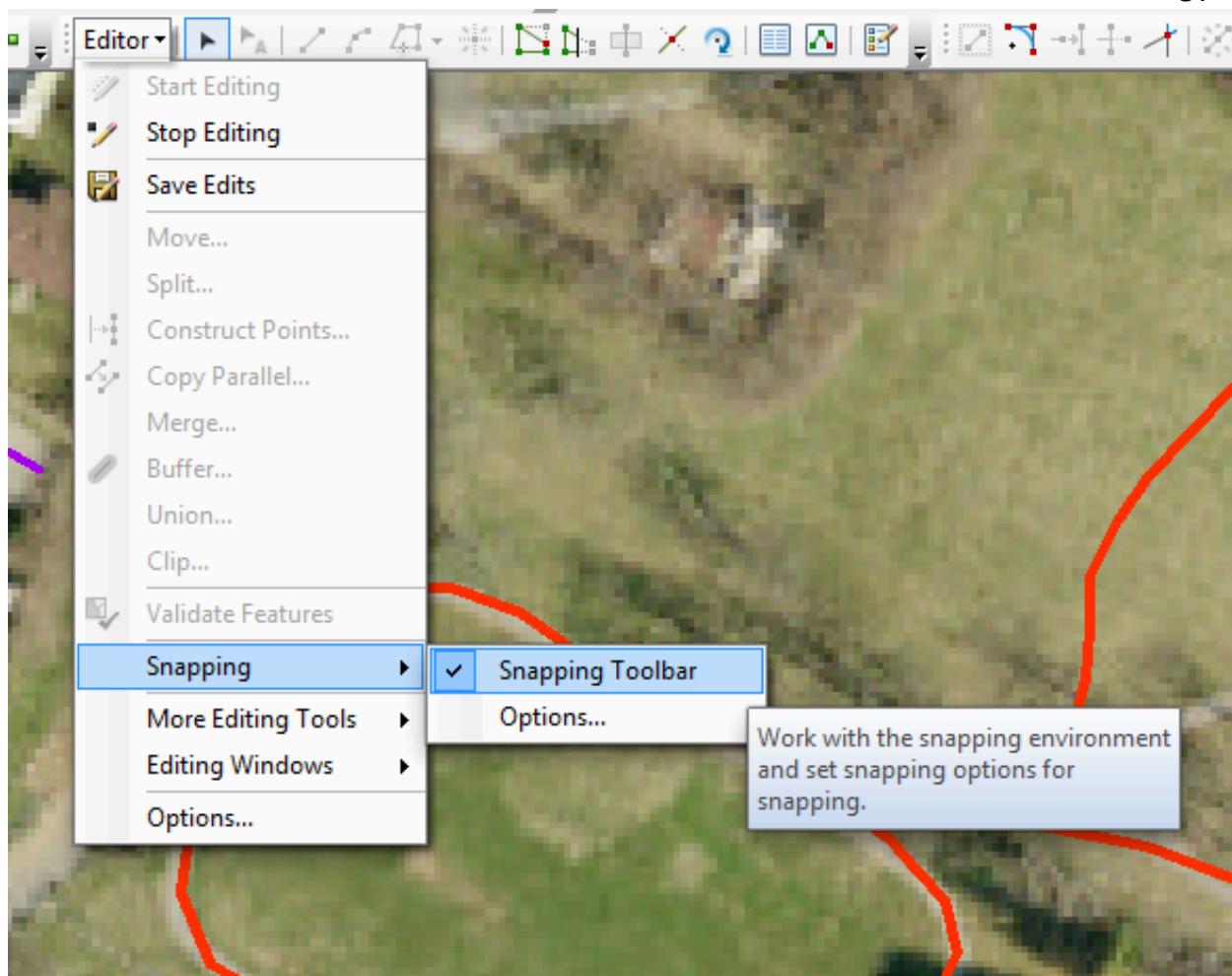
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Keep moving them to their location! **Right+click** to Delete Vertex.



If you experience difficult editing because it's hard to move vertex, you can temporarily disable **Use Snapping**.



This will make it quick to edit between intersections. **When you want to connect paths, you MUST ENABLE SNAPPING to ensure the endpoints connect. That's whole point of this exercise.**

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For example, if snapping was disabled, it would be nearly impossible to make these paths connect.



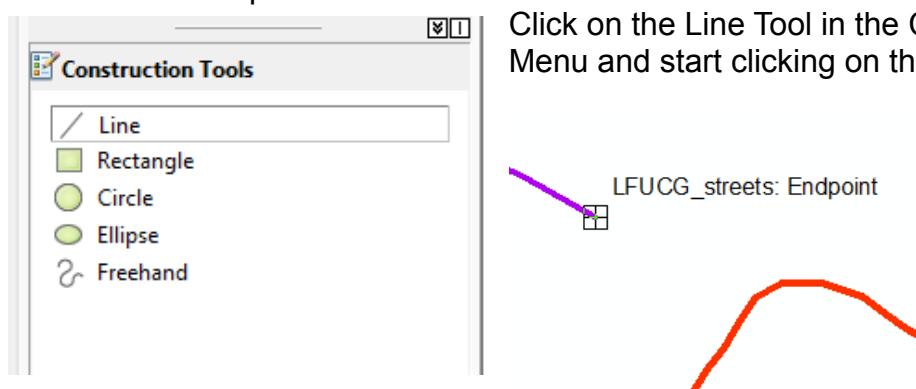
With snapping enabled, we move the endpoint from path near the edge of another path and it automatically connects the two paths.

## Step 5: Add Paths to Connect with Road Network

What's missing? How can you get from the pedestrian paths to road sidewalks?



Add new paths that snap to the centerline of the LFUCG\_streets, extending past where the sidewalk and path ends.

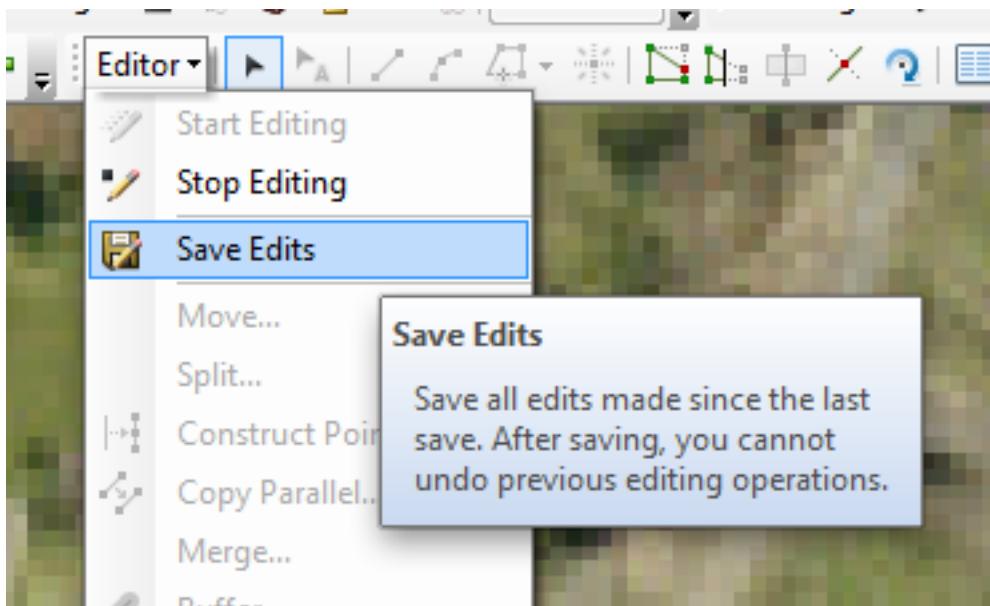


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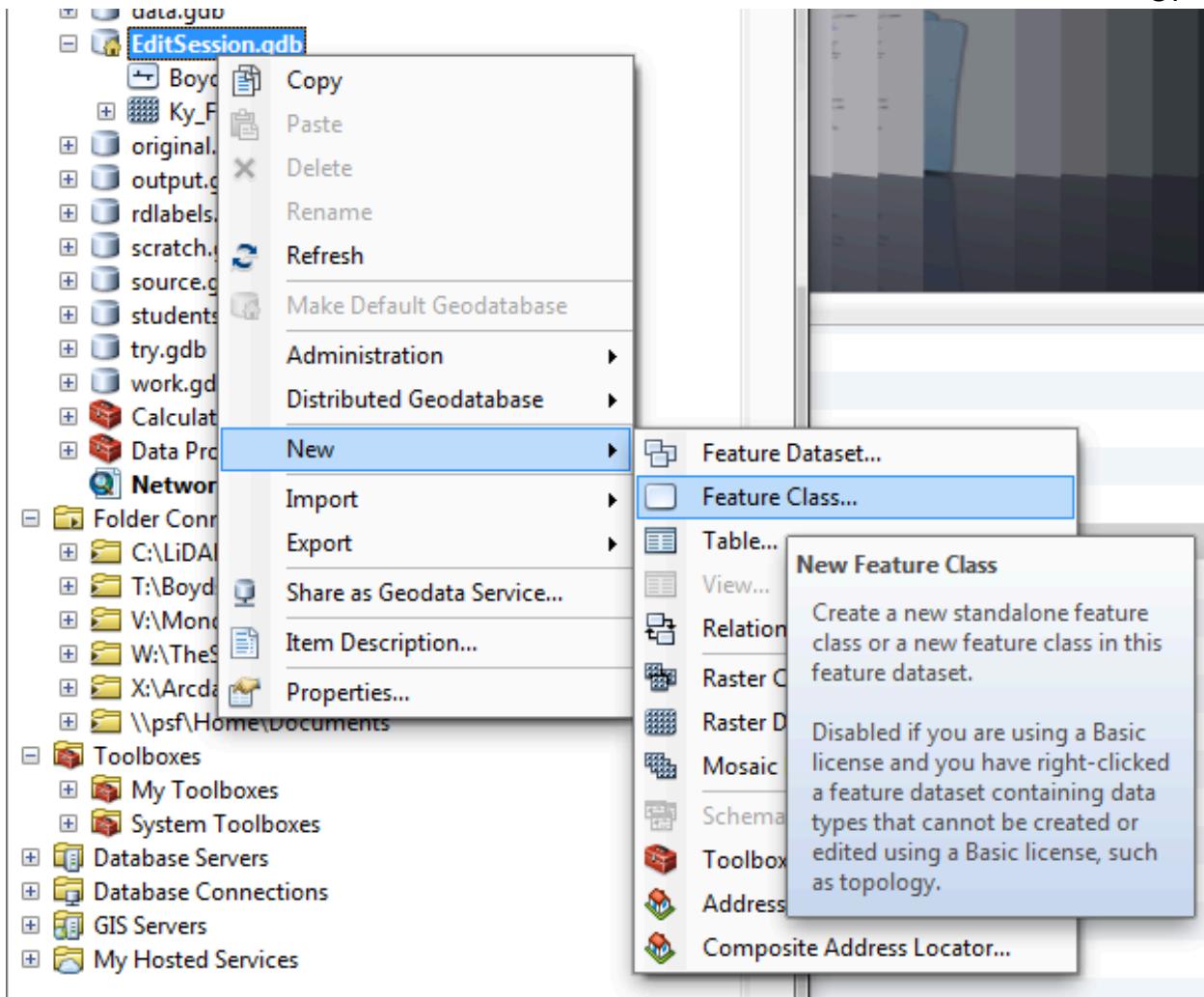


Connected and are ready to build in multi-modal network in NA.

**SAVE EDITS!**

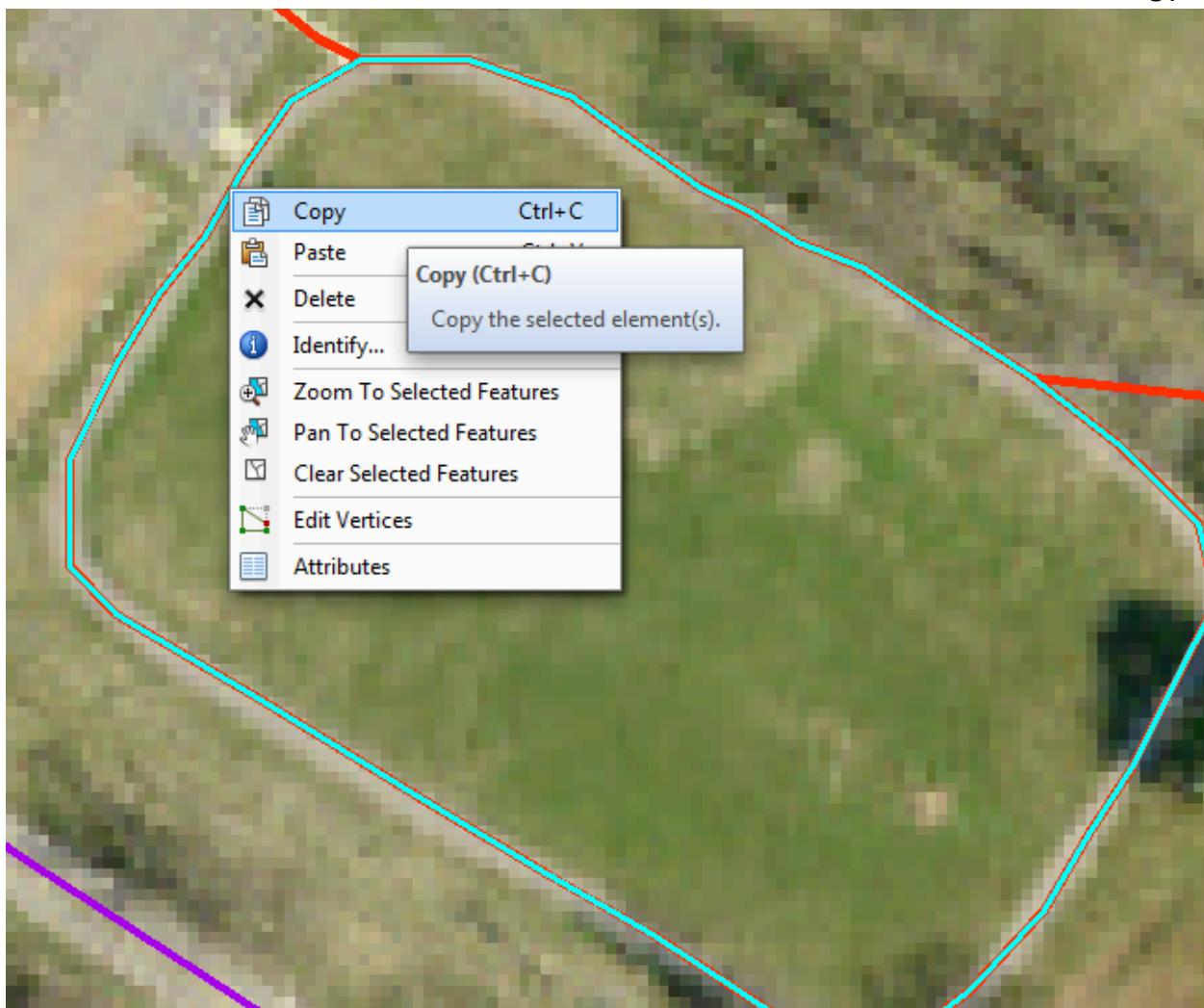
**Option 2: Editing.**

Create a new line feature class in “EditSession” GDB and call it “MyZoneSimpleTrails”

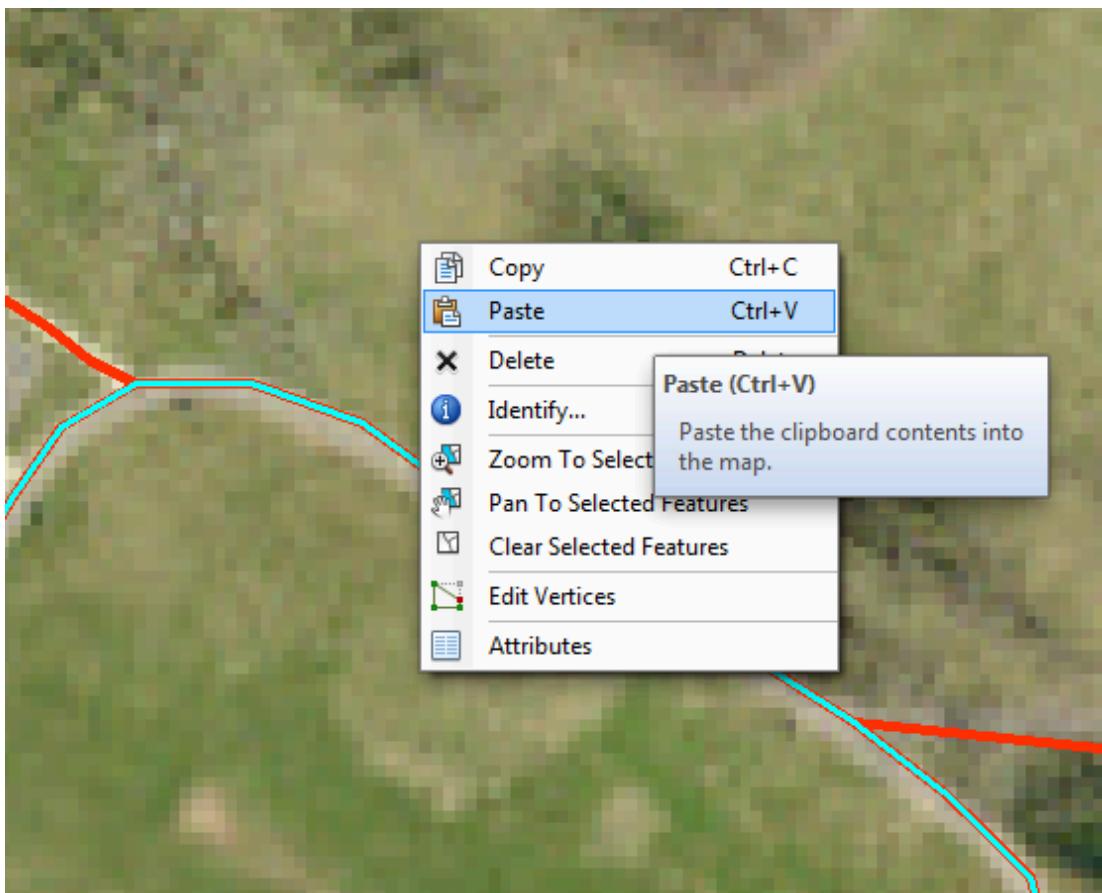


The advantage of this option is add new trails quickly. Copy and paste what's good, and create new paths for areas too “messed up” to correct.

Copy from good features



Paste into the new feature class.



A screenshot of the ArcGIS Catalog pane. On the left, there is a tree view of datasets:

- EditSession
  - BoydsZoneSimpleTrails
  - BoydsZoneTrails
  - ExistingTrailsNotClean
  - LFUCG\_streets
- Ky\_Fayette\_2010\_1FT1
  - RGB
    - Red: Band\_1
    - Green: Band\_2
    - Blue: Band\_3
- ImageServices\Ky\_Fayette\_2010\_1FT1
  - RGB
    - Red: Band\_1
    - Green: Band\_2
    - Blue: Band\_3
- zone5
  - Yellow

The main pane displays a map view with a blue line feature and a purple line feature overlaid on a satellite image of a grassy field.

## **Step 6: Fix All Paths in Your Zone**

Make connections to the road network, correct any problems with existing paths, and find undigitized paths in your Zone and add them. If a path goes beyond your zone, add it.