ArcPro Training May 2023

Part 1: Adding and Displaying Data in ArcPro

Getting Data and Opening ArcPro

ArcPro documents will use an .aprx suffix. On the main screen, choose "Start without a template" in the middle of the screen. Go to **Insert** ribbon and select **New Map**. Now click on the *Map* ribbon, click on the **Add Data** button in the toolbar and on the left side of the prompt window highlight *My Groups*. Click on the *Groups* subtab (next to *Content*) and double-click on the shared group folder MVRPC:ArcProGIS-Basics. You will add in the *WegerzynGardens* polygon feature layer, the *MOTParcels* polygon layer package, and the *rkprogramming* table.

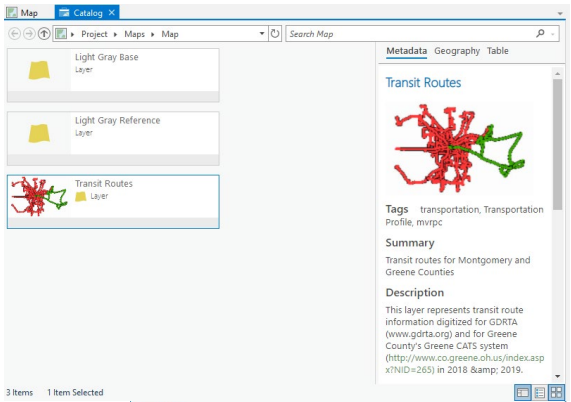
Navigating in ArcPro

Can you see the layers that were added? Maybe not. This is because the map has opened at a scale larger than the layers can show. The first thing we'll need to do is zoom in to the area where the layers are located. Find where roughly Dayton, OH would be on the map, place your cursor there, and zoom in by using the scroll wheel on your mouse. One direction zooms in, while the scrolling the other direction zooms out. Aim for North Dayton. Note: the map may lag a few seconds while it resets the scale (this is normal).

The layer names of what you added are shown on the left-hand side in the Table of Contents (TOC). You can turn the layers on and off by clicking the checkboxes next to their names in the TOC. Turn off (**uncheck**) *MOTParcels*. The layer is no longer visible in the map but it is still there.

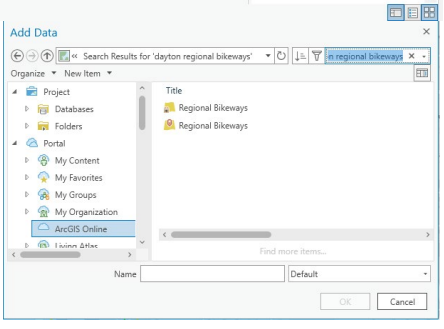
Move around the map by clicking and dragging a point on the map to pan around. This will change the view in the map without changing the zoom extent.

To get closer to a layer without manually scrolling, use the Zoom to Layer feature. **Right-click** on *Wegerzyn-Gardens* in the TOC and select **Zoom to Layer**. This moves the map's extent to view the full extent of the selected layer.



Finding and Adding Other Data on AGOL

Sometimes data isn't just in our own located folders or even in our own organization. Some layers outside our organization may be useful to add into a map. Return to the *Map* ribbon and click the **Add Data** button. On the lefthand side of the window, highlight the **ArcGIS Online** option under Portal. In the top right of the window, find the search bar and type in "gdrta". Several options pop up. Find the Transit Routes option, but click the option *TransitRoutes* marked as a **layer package** (it's icon looks like a yellow lego with the black asterisk). **Click** *OK*.



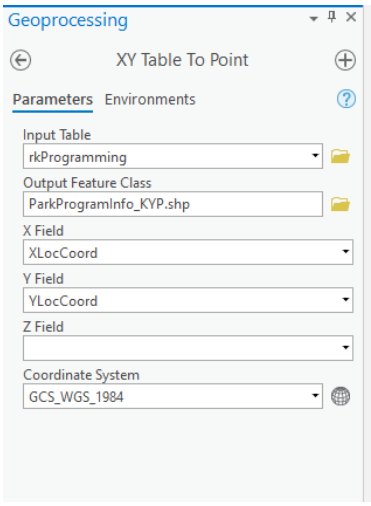
In the Table of Contents, find *Transit Routes* and right-click>View Metadata. ArcCatalog opens up and shows information about the layers, including source and any other information the author included. Here the summary

tells us about the layer and also see the use limitations. Once you've finished scrolling through the metadata, click the **x** next to *ArcCatalog* at the top to return to your map.

Go back to Add Data, then highlight the **ArcGIS Online** option again. In the search bar type in "dayton regional bikeways". Click the option *Regional Bikeways* layer package (yellow lego with the black asterisk). Highlight this option, then **click** *OK*.

Bus Routes and Bikeways have now been added to the map.

Creating a Point Layer



We've added in layers from both our own group and outside the organization but what about location data from tables? Here we'll create a point layer showing the different program locations within Wegerzyn Gardens.

In the Table of Contents (TOC), right-click on the *rkprogramming* table to open it and view the fields. Notice that there are fields for bothX and Y coordinates. Close the attribute table by clicking the 'x'. We will be using these fields to tell ArcPro where to create the points. Go back to the **Add Data** button at the top and click on the little down arrow next to it and select **X Y Point Data**. A new prompt opens on the right side of the screen. For the top dropdown, *Input Table*, select **rkProgramming**. For Output Feature Class, click on the folder icon and set the path location to save back in My Content. Name the output feature class ParkProgramInfo_[yourinitials]. For *X Field*, make sure the **XLocCoord** is selected and for *Y Field*, that the **YLocCoord** is selected. You may leave the *Z Field* blank. Click **Run** at the bottom of the screen. A new point feature class has been added to the map.

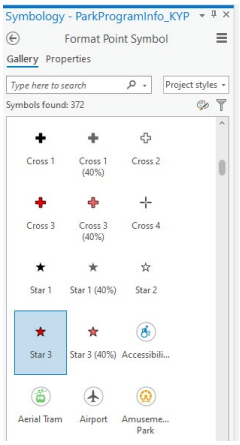
Click on one of the points created of your choice. The point will be selected, highlighting it in blue, with an accompanying pop-up showing the information associated with that point. You can see which program this is referring to as well as the team lead. **Click** the **x** to close the pop up.
Save your map.

Displaying Data Exercises
Working with Basemaps

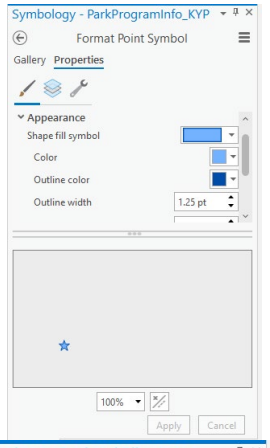
On the Map ribbon, click the down carrot underneath Basemaps. **Select** *Imagery* (one of the first at the top). The map beneath the layers changes to a satellite imagery basemap. Return to the basemap and **select** *Imagery Hybrid*-- now street lines and labels are drawn on top of the satellite imagery. Change it up and return to Basemap>*Light Gray Canvas*. The basemap style changes again.

Look in the TOC. You will see two layers have been updated in regards to the basemap: *Light Gray Reference* is listed at the top, and *Light Gray Base* is listed at the bottom. **Click off** *Light Gray Reference*. The place names and street labels have been removed but the base layer (outlining shapes of areas and streets) still remains. Now continue to go through the basemap gallery and select the map that feels right to you. You are welcome to turn the reference layer (if applicable) on or off depending on your preference. Experiment!

Symbolize Point Features



The x,y points created feature the default settings but these can be changed to different symbol shapes or colors. Right click on *ParkProgramInfo_initials* and select **Symbology**. Underneath the Single Symbol designation, click the symbol shape to open the gallery of presets and custom options. Make sure the *Gallery* subtab is underlined. Scroll through the options and first select the *Triangle 1* option. Notice that it is automatically applied on the map; all points become black triangles. Scroll and select *Star 3* instead. Leave the Star 3 option for now but scroll for a minute to see all the other options provided--there are many!

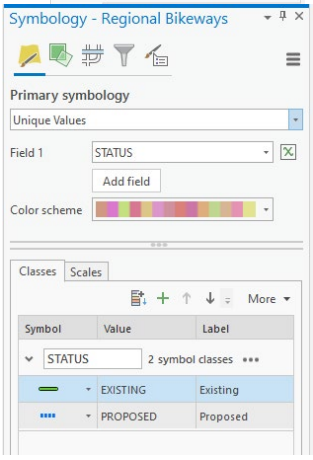


Next, change the color of the star by **clicking** on the subtab *Properties* (listed next to Gallery). Click on the box next to Color and select one of your choice. Click **Apply** at the bottom right to change it on the map.

Next look at the outline color and change it to a color similar to the one you selected but slightly darker or lighter. Set the outline pt thickness to 1.25 by manually typing it in the box provided.

Save your work!

Symbolize Regional Bikeways



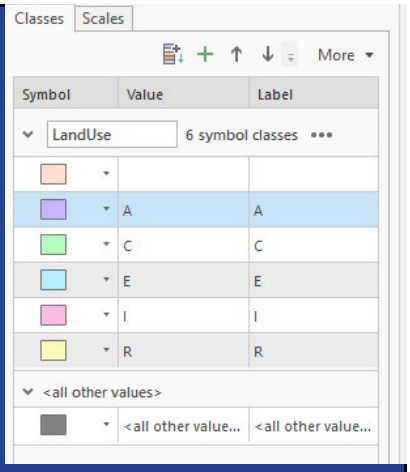
Now to differentiate the bikeway lines so they have a different treatment than the bus routes. Change up the RegionalBikeways layer by right-clicking on its name in the TOC and selecting **Symbology**. Midway down the pane, underneath a tab called *Classes*, is the symbology broken out by status. Click the **Green** line corresponding to *Existing*. Make sure the subtab **Gallery** at the top of the pane is the active window (instead of Properties). Scroll to find the *Ferry* preset style and click on it. The map automatically updates. Next, click on the **Properties** subtab. Click on the box next to **Color** and select *Color Properties*. Here instead of selecting a preset color, we'll use a custom RGB value. In the *Red* value box, manually highlight the existing value and type **0**. In the *Green* box, delete the existing value and type in **81**. In the *Blue* box, delete existing and type **131**. Keep transparency at 0% and click **OK**. Change the line width box to **1.5** pt. Click **Apply**.

Symbolize Parcel Layers

In the TOC, **check** the box next to *MOTParcels* to turn the layer back on. Right-click on *MOTParcels*>Symbology. Underneath the **Primary Symbology** header, click the down arrow by single symbol and select *Unique Values*. In the **Field1** dropdown, find and click *LandUse*. The map automatically updates with the default color palette. Play around with the different options. Because the data we're mapping is different categories of land use, it is best to select a palette that has different colors for each parcel type, rather than different shades of a single color. Save your work.

Because *LandUse* has different cartographic standards for colors lets manually change each one to reflect the proper standard. Still in the Symbology Pane, look toward the middle underneath the the subtab Class-

es. Each category has a box listed. **A** here means agriculture, so it should be changed to a light green color. **Click** once on the color rectangle symbol next to *A*. The Galleries/Property pane appears. Go to the *Properties* subtab and in the color box, find a lighter green that you like. Click **Apply** to reflect the changes.



Return to the primary symbology page by **clicking** on the *arrow in the circle icon* at the top left of the Symbology Pane. **Click** once on the color rectangle symbol next to *C*. The Galleries/Property pane appears. Go to the *Properties* subtab and in the color box, find a brighter red that you like. Click **Apply** to reflect the changes.

Repeat this process for the last 3 letters, selecting a blue color for Education (**E**), an orange color for Industrial (**I**) and a yellow color for residential (**R**). Save your work.

For clarity's sake, rename the Map. In TOC, right-click on **Map**>*Properties*. In the new prompt, select **General** on the left side. In the *Name* box, delete out Map and type **Park**. Click **OK**.

Part 2: Configuring and Mapping Data in ArcPro

Configuring: Selecting Out Residential Areas

The park program plans to advertise by sending out postcard mailers to homes in the near vicinity but needs to generate a list of possible locations without wasting money by sending it to businesses. A **Definition Query** will set a filter to restrict what shows up by parcel category.

In the TOC>right-click on *MOTParcels* layer> Properties and on the left-hand side of the prompt, find and select the *Definition Query* tab. Click **New Definition Query** in the middle of the box. Select *LandUse* in the Where dropdown first box. In the middle box, keep/select "**is equal to**" and in the third dropdown box, select **R.** Click **Apply**. Click **OK**. You now see that only the parcels marked residential remain showing in your one data frame.

Configuring: Remove Proposed Bikeways

Using Definition Query again, we'll remove the Proposed Class designation of bikeways since these are not technically created and would confuse the reader. In the TOC> right-click on *RegionalBikeways* layer> Properties and on the left-hand side of the prompt, find and select the *Definition Query* tab. Click **New Definition Query** in the middle of the box. Select *STATUS* in the Where dropdown first box. In the middle box, keep/select "**is equal to**" and in the third dropdown box, select **Existing.** Click **Apply**. Click **OK**. Proposed bike lanes have been removed from the map.

Configuring: Creating a Buffer

While residential parcels are the only ones remaining, there are still far too many to send out a mailer. The next part will create a buffer (or circle around) of a quarter mile from the park to include only homes in the closest vicinity to the park. At the top of the ArcPro screen locate the *Command Search* box and type in **Buffer**. A list of possible tools is shown. **Click** the one with a hammer icon labeled *Buffer (Analysis Tools)*. A new prompt window on the right opens up. In the Input dropdown, select *WegerzynGardens*. For output

location, click the folder icon and decide where to save it (the default is a geodatabase within your .aprx project. For today, save it to the desktop.) and name it *BufferQuartermile*. Make the distance **0.25** and select *Miles* in the Unit dropdown. Keep the other remaining defaults. Click **Run**. A quarter-mile buffer around the gardens is generated.

Configuring: Locating Parcels Within the Buffer

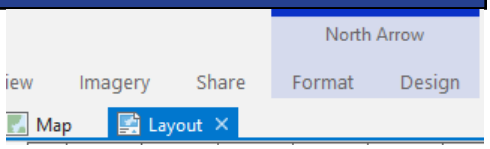
Click on the **Map** ribbon>**Select by Location**. In the **Input** dropdown, in the top dropdown selection box, choose *MOTParcels*. In the **Relationship** dropdown, select *Within*. In the **Selecting Feature**s dropdown, choose *BufferQuarterMile*. Click **Apply** and let it run. Click **OK**. Residential parcels that fall within the buffer have been highlighted. **Uncheck** (turn off) the *BufferQuarterMile* in the TOC.

Making a Table

To generate the list for the mailer, the next step is to export it out. Still with the *MOTParcels* highlighted, go to the TOC> right-click on *MOTParcels* layer> Data>Export Table. For **Output Location,** click the folder icon and point it to where you'd like to save the table (in this case, save it to the desktop of the machine) Click **OK**. For *Output Name*, type in **ParkMailerAddresses**. Click **OK**. In the TOC, turn back off the *MOTParcels* layer

A .dbf table is created that is added back into the map project. Note: if you wanted to save it as an excel document, open a blank Excel spreadsheet and click open. Make sure the "All Files" option is selected and click on the ParkMailerAddresses dbf version. When it opens, go to File>Save as and save out as a .xlsx.

Working in Layout View- Mapping Elements



Go to the *Insert* ribbon (third tab across at the top). Select New Layout, and then find the **ANSI-Landscape** section and select *Letter*. Still in *Insert* ribbon select *Map Frame*>and the second option (NOT the default view).
The Layout view appears--this is showing map elements organized on the page designed for map printing. Click and drag a large rectangle on the piece of paper (you can always adjust the size later). Now to add surrounding elements:

North Arrow

Go back to **Insert** ribbon. Look in the *Map Surrounds* group, click **North Arrow** and insert a north arrow of your choosing and click and drag it on the page. **Right-click** on the arrow and click *Properties*-- in the right hand panel, select the 3rd icon, **Placement**. Set the height to be *0.5*in. Click and drag the north arrow to the top right corner of the mapped area.

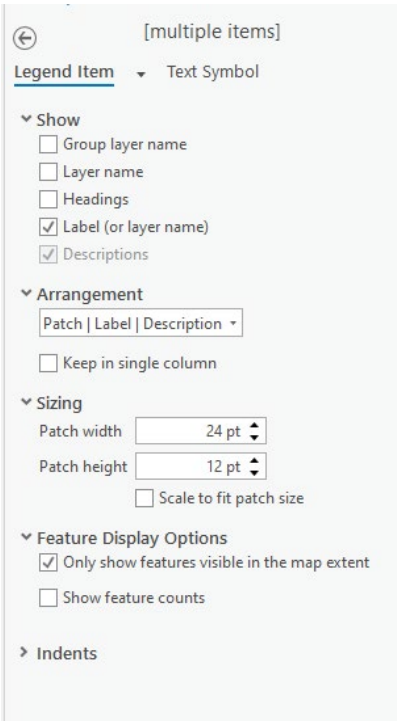
Scale Bar

Click the Insert ribbon at the top of ArcPro. Look in the *Map Surrounds* group, click Scale Bar. Select one of your choosing from the Imperial selections. A cross arrow appears. Click and drag anywhere in the white page to create a scale bar (you can change size later, so don't worry too much about getting it perfectly right the first time).

On the right hand side the format box is open-- if it is not double click on the scale bar to open. Click the second icon at the top where hover text reads *properties*. Use this box to manually adjust the divisions and subdivisions of the bar (stick with something less than 4) When finished, click the scale bar and drag it to just below the bottom left corner of the mapped body.

Legend

Now to add a Legend. Go back to the Insert ribbon at the top and Find the Legend dropdown. Select the Legend 1 style. (If a legend dropdown is not available, select the legend symbol and click and drag somewhere in layout view for one to appear). Somewhere in the Layout View, with the new crosshair, click and drag to create the legend. If an orange ellipsis shows up, you did not draw the box large enough. To make it larger, click and drag the corners until the ellipsis disappears. Once the Legend is created, go to the right-hand side to see the properties. In the middle of the *Options Pane*, find the **Title** section in the middle of the Options (default) pane, find the box marked "Show" and **uncheck** it.

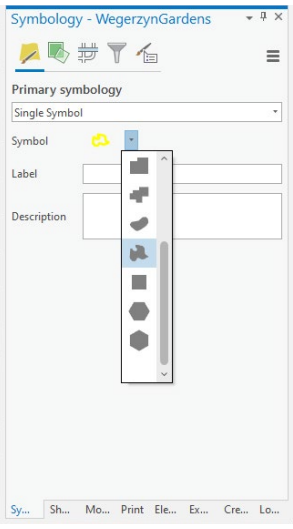


Next we will remove the bikeways item in the legend without removing it from the map. Still in Layout View, look on TOC. Under ***Drawing order***, find the *Layout* map and turn the left triangle to reveal the layers listed. Under the **Legend** subtab, find *RegionalBikeways* and **uncheck** the box next to it. Leave it checked in the lower level ***Map Frame*** section.

The legend still shows the transit lines as having a couple different categories that are true for the layer, but not for the extent we are using for the map, so we will remove the GreeneCATS from the legend. Still in the *Options* pane on the right side, find the *Legend Items* carrot and make sure it is turned down. Click on **Show Properties** button. Towards the bottom of the pane, find the *Feature Display Options* section (turn down the carrot if it is not already) **Check** the box for "*Only show features visible in the map extent*". The GreeneCATS item in the legend disappears.

Still in the Legend Items pane, in the Show subsection above, **uncheck** the *Layer Name* and *Heading* boxes to remove more unnecessary text in the Legend.

Lastly, we need to clean up the names of the items. Instead of *ParkProgramInfo_initals*, change the name to Program Areas. Back in the Table of Contents on the left, click once on *ParkProgramInfo_initials* text and then type **Program Areas**. Save your work.



Change the symbology shape for Wegerzyn Gardens beyond just the straight line box. Click back on your map tab and in the TOC, **right-click** *WegerzynGardens*>Symbology. Midway down, beneath the **Classes** tab, click on the carrot of the polygon symbol and select a shape of your choice, whether it's ellipse, boundary, or natural body.

Adding an Inset Map

Adding an inset map can require two map frames—the map frame containing the overall area and the map frame with the extent you want to show. Go back to the **Insert** tab and select *New Map* this time. Go to the **Map** ribbon and select the *Add Data* button and add in the *DaytonBoundaries* layer from the online Group folder. **Right-click** on *DaytonBoundaries* in the TOC and select **Zoom to Layer**.

Return to the *Layout* tab. Still in **Insert** ribbon select *Map Frame*>and find the options under the **Map 1** heading. Select **your custom** (**not the default**) extent. Draw another map body in the lower right corner on top of your existing map frame. **Rename** this map frame *NorthDayton* (right-click on *Map Frame 1* in TOC>Properties and type in North Dayton.) In the **Format Map Pane** on the right, click on the *Placement*

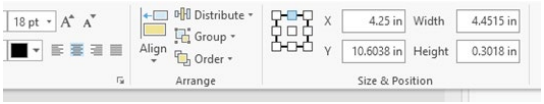
Icon (the fourth one) to resize it to be **2** inches wide by **2** inches tall. Repoint the data back to the layer's extent by going to the TOC and right-clicking *DaytonBoundaries*>**Zoom to Layer.**

Altering Basemap Credits Text
Still in the *Insert* ribbon, click on *Dynamic Text* logo's carrot dropdown and scroll to the *Layout* section and select **Service Layer Credits**. This brings up a crosshair with a small capital A for you to click and drag for approximate size-- make a small box contained in the bottom of the *Inset* map. The credits from both maps have disappeared and are shown together in this box, even if two different basemaps are used. Format this text by going to the right-hand pane *Format Text*. Click the subtab *Text Symbol*, click the carrot next to **Appearance** to show the options, and select the smallest font size- **6pt**. Click **Apply**. Go back to the credits, click once and resize by clicking and dragging so it is now a long small string that will run along the bottom right corner of the map. Click and move your **Inset** map to reposition it just above the credits text.

Inserting Static Text

Once again go to Insert ribbon then find the *Graphics and Text* subsection. Find a little capital A where the hover text reads "*Straight Text*," and click once. This brings up a crosshair with a small capital A for you to click and drag for approximate size. Point it somewhere in the **Layout View** where you will want the Title located and **click and drag**. The word 'Text' appears, larger the larger you click and dragged. The Format Text pane on the right appears. (If it doesn't double-click the word text to get it to appear). In the middle of the pane, highlight the word "text" in the white box and change the *Text* to "**Wegerzyn Park Program Locations**" (make sure to delete the word 'Text').Click outside the pane to enact the change.

Highlight the text you just typed and click the **Text Symbol** subtab at the top of the pane. Here is where to alter font and size. Keep the Font *Tahoma*, but change size to **18**pt. Next, to center the text, go to the top F**ormat** ribbon surrounded in blue on ArcPro and find the *Arrange* subgroup. Click on **Align**. Make sure to click on the *Positions*' (the set of 9 small white squares)top middle box to turn it blue, as shown in the accompanying photo. Go back to the Format tab and click on **Align** and turn on the bottom selection *Align to Page*. Click on Align> Align Center. (Note: this section can be a bit tricky. Make sure the title text is not highlighted when you go to the Align section, otherwise the *Align to Page* will be grayed out.)



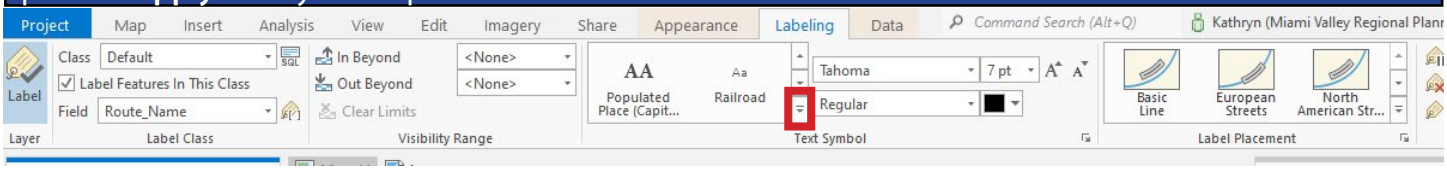
Now to identify the Inset map. Add a new straight text box somewhere to your layout view. Double-click the word "Text" and type in Dayton Area. Click and drag the cursor over the text to highlight it. Click the Text Symbol sub tab at the top of the pane, then turn the carrot down by **Appearance** and select *11 pt* font. Make it *italic*. Click **Apply**. Drag it to the top left corner of the Inset map frame.

Setting up an Extent Indicator

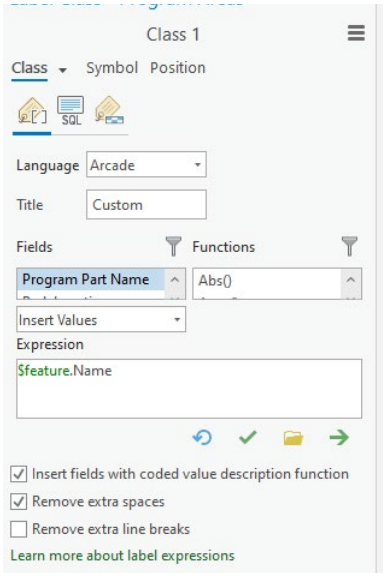
Extent indicators are a way to show the extent of one map frame within another map frame. They are often used for layouts containing locator or overview maps. A locator map shows a larger area, or extent, than the main map to provide spatial context. An extent indicator can be added to the locator map to show the area represented in the main map. This next section outlines how to create one.

On the **Insert** tab of the ribbon, in the *Map Frames* group, click the **Extent Indicator** button. A drop-down menu appears listing the remaining map frames on the page. Choose the **Park** Map frame as the map to show the extent (as there are only two maps, it is the default choice). An extent indicator draws on the map frame.

Select the extent indicator in the TOC, right-click and choose **Properties** to open the Element pane. There you can change the symbol fill color to no color, the symbol **outline** color to **red** and the outline width to **4**pt. Click **Apply**. Save your map!



Labeling Select Features

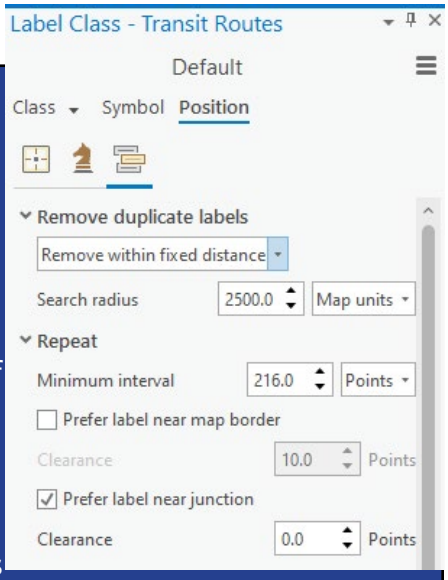


Map elements look good but we have a couple more items to finalize to polish it off.

Label the transit routes and the program area locations. At the top of the ArcPro window, click back on the **Map** tab (instead of Layout). Right-click on *TransitRoutes*>**Label**. The bus route number appears. Now to create a layer symbol for the routes. Look at the top of ArcPro and find the **Labeling** ribbon tab (between Appearance and Data, see above picture). Find the Text Symbol subgroup, and click the T*ext Symbol Style* down carrot with line over the top to see the full menu of options. Scroll to the **Shield** subsection, then select *Shield 14*. Route numbers are now on the bus lines themselves and much easier to read with the contrast behind them.

In the TOC, right-click on *Program Areas*>**Label**. A label turns on but it is not the field we want. Back in the TOC, right-click again on *Program Areas*>**Labeling Properties**. In the Class subtab, in the white box in the middle, **highlight and delete** the text inside. Above the box, in the **Fields** box, scroll carefully to find *Name* and **double click** to insert it into the white box. Click **Apply**. Labels have been updated to show the name of each section.

Label Placement



ArcPro has a lot of customization options to really fine tune label placement. We'll explore this through the Transit Route labels. In the TOC, right-click again on *TransitRoutes*>**Labeling Properties**. Click on the *Position* subtab. The first icon (with hover text *Position* should be opened. If not, make this the active pane). Under the second dropdown in the Placement section, select **Centered Horizontal**. Time permitting, check out a couple of the other styles to see what's available and how it gets changed between Centered Curved vs. Centered Horizontal vs. Offset Horizontal.

Still in the *Position* subtab, click the third icon over with the hover text **Conflict Resolution**. Turn the carrot down next to **Remove duplicate labels** and open the dropdown. It contains three options--review them. We don't want to remove all of them but we don't want to keep it the way it is. Pick the middle option *Remove from a fixed distance*.
The search radius lets you customize how far apart Pro should look to remove extraneous labels. In this instance. Manually **type** in *2500* and select the units dropdown to *Map Units*. **Uncheck** the box next to *Prefer label near map border* and instead **check** the box next to *Prefer label near junction*. Label repeats have been reduced.

Exporting Map

Once you have completed the map to your liking, it's time to export it. Go to the ***Share*** tab at the top and find the *Output* subgrouping. Click on **Export Layout**. Layout pane on the right hand side opens up. In the top *File Type* dropdown are listed different options. Make sure **PDF** is selected, then click the folder icon near *Name* to point where the program should save the pdf. (Point it to your desktop, thumb drive, or some other place that is accessible to you).

You can use this same method to export it as a .jpg, or a .png--just make sure to find that format and select that type before moving on to the Name to save it out.

Click **Export** at the bottom.

Sharing Data Online

At the top of ArcPro, click the Share ribbon>web map. Name the map WegerzynTraining and include a sentence in the mandatory Summary block about this being a test for training purposes. In tags, type "training", and decide which folder to save it to; remember this will be in your AGOL page, so if you have a training folder or just a basic content page, that might make the most sense. If doing this for a real map, you would check the level of boxes for your organization or for Everyone, but for today leave both blank. Click *Analyze* and then click *Share*.

If you have questions regarding this training later, please reach out to Tom Harner at: tharner@mvrpc.org or Kathryn Youra Polk at: kyoura.polk@mvrpc.org