

ARC GIS ONLINE BASICS

DATA AND MANIPULATION IN ARCGIS ONLINE

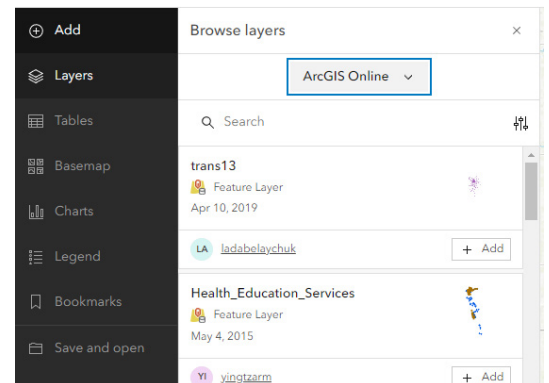
Your task: update the city's website to show what construction projects will be taking place over the next few years. These could be major projects like ODOT funded highway construction, or relatively minor projects, like local street resurfacing.

You will first create a web map and add and edit your data. By the end of the session you will have an online mapping application that shows project locations with pop ups detailing project information. Additionally, there will also be a layer of analysis that shows roughly how many residents could be impacted by the projects.

EXERCISE 1: FINDING DATA ON AGOL

Home Gallery **Map** Scene Groups Content Organization

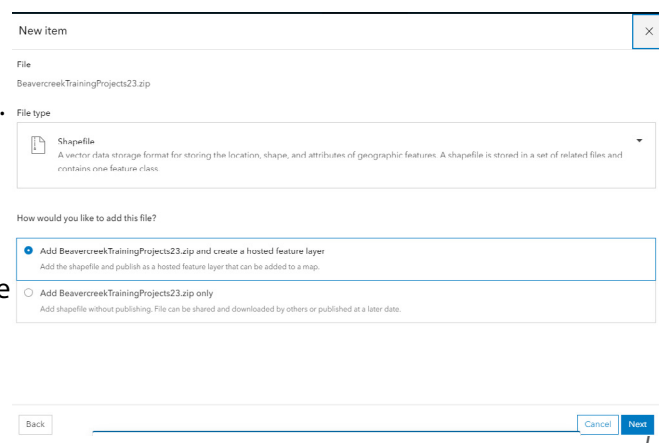
1. If you aren't already logged into your AGOL account, please do so here: www.arcgis.com
2. At the top of the screen, click on the word **'Map'**. *This starts a new map session.*
3. AGOL currently has two mapping interfaces. For today's purposes we will all be using Map Viewer, NOT Classic. Look to the top right of the map. If necessary, click on **'Open in Map Viewer'**. (If it says Open in Map Viewer Classic, then you are already in the correct version and should not click).
4. Zoom into Greene County. On the left side of the screen, click **Add** in the layers menu.
5. In pick list at the top (above the search box) default is set to 'My Content'. Choose **'ArcGIS Online'** from this pick list.
6. In the 'Search' box, type **"ODOT"** and **"Greene"**. Hit enter. You should see several layers: find the layer called **"District_work"**. Click on it. Then click the button **"Add to map"**. Click the **x** at the top to close that prompt.
7. Click the **x** at the top of the **Browse Layers** menu to return.
8. On the right-hand side, look to see if the **Properties** menu is open. Slide the toggle button **ON** for **"Show in map legend"**. Scroll through the legend to see the different types of ODOT projects represented.
9. **Save** your map. On the left-hand side of the screen, click the **"Save and open"** (near a blue dot), then **"Save as"**. This will save your current web map so that you can open it later.
10. Name the map **"Training"** and for 'Tags' put **'mvrpcTraining'**. Save it into your main folder, and click the **"Save"** button. You have now saved your map.



You have now searched for and found an appropriate layer of additional ODOT projects that can exist in your map. This layer was created by the Greene County Regional Planning Commission, and shared to 'Everyone' – that is why we can see it.

EXERCISE 2: ADDING YOUR OWN SHAPEFILE TO THE WEB MAP

1. Click on the top 3 horizontal lines in the top left of the screen and click on **'Content'**. This navigates to your page again.
2. Navigate to the **MVRPC Training: AGOL Basics** group (access by clicking on **My Groups** at the top of your screen) and click on the **BeavercreekTrainingProjects23**

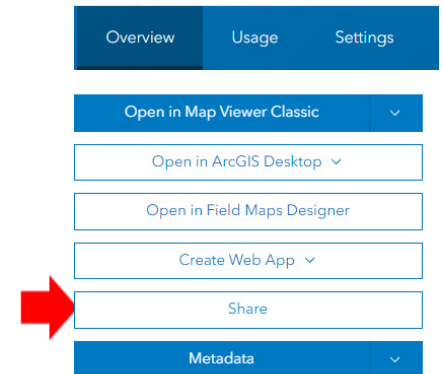


file. Click **Download**. Open the downloads folder and save the zipped file to your hard drive. Leave it there for now; **don't** unzip. We need to add this to our AGOL page before we can add it to the map.

- Return to your Content page (Click **Content** at top of the screen). Click on **New Item** near top left and then click **Your Device**. Navigate to where you saved the zipfile, click once on the zipped folder and click **open**. On the next prompt, pick **shapefile** as the item type and in the prompt below, make sure the radio button next to creating it as a hosted feature layer is selected. Click **Next**.
- A new prompt about how to save it appears. In the title section, rename it *BeavercreekTrainingProjects_yourinitials*, use the default folder option, type in 'MVRPC AGOL Training' as the **tag**. Click **Save**. It will navigate you to the saved file's main page.
- We need to re-open your working map. Click on **Content** at the top of the screen, then click on your *Training* map. Click **Open in Map Viewer**. This opens your map.
- In the default Layers menu on the left side of the screen that is open, click on **Add**. Keeping the search field to **My Content**, you can see your most recent adds below. Find *BeavercreekTrainingProjects_yourinitials* here, and click on the little **+Add** icon in the bottom right of that box to add it to the map.
- Click the x at the top left of the Layers menu to get back to our navigation window.
- Click the "Save and Open" and **"Save"** button on the left side of the web map.

EXERCISE 3: MANAGING YOUR CONTENT

- Click on the top 3 horizontal lines in the top left of the screen and click on **'Content'**
- Make sure you are in the location where you saved the map and the layer.
- Click on your web map called **'Training'**; this opens up the *Overview* tab of your web map.
- Among other things, this is where you can enter a description about your web map. Click **'Edit'** to the right of where it says *'Description'*. You can be as detailed as you like. For now just type "Map depicting hypothetical roadway projects for training lab exercise." Click **Save**.
- On the right-hand side of the screen you'll see a number of selections of narrow rectangular buttons – click the bottommost one, **'Share'**.
- This opens a new box where you can share the web map with Everyone or groups you may belong to. Select **'Everyone'** and click the **'Save'** button. (In a public account, items are either public or private; there's no 'in-between'. Organizational accounts have the ability to restrict access to only other organizational members.)
- A new prompt opens to **Review Sharing**. Click **Update Sharing**. It will ask to update the project layer. Do so.



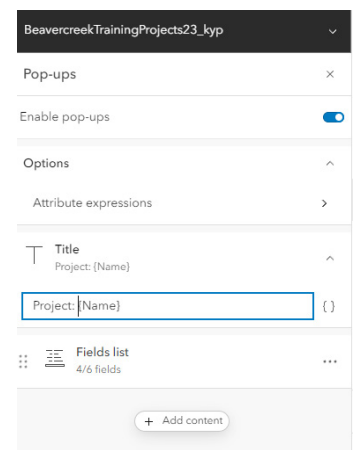
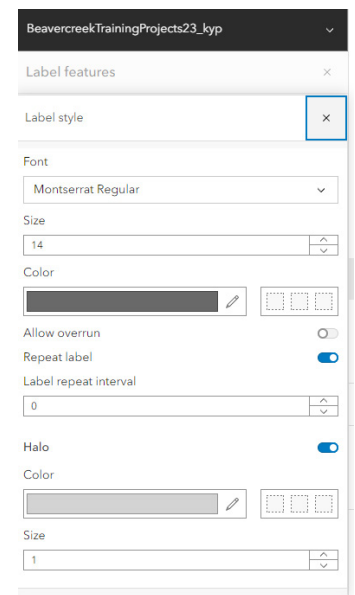
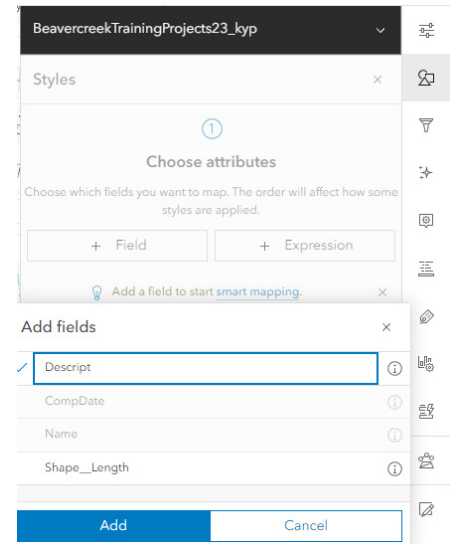
You have now managed the sharing settings and added a description to your web map.

EXERCISE 4: CHANGING THE APPEARANCE OF YOUR LAYERS

- Still in the *Overview* tab, look again at the right hand side and in the narrow rectangular buttons – click the top one, **'Open in Map Viewer'**.
- You are back in your web map, with the *'District_work'* layer and your *'Beavercreek Training Projects'* layer already added. (If for some reason it is not there, take this moment to add them back in.) Look at the layers: if *Beavercreek Training Projects* is greyed out, zoom in on the map until it is no longer greyed out.
- Properties menu should be open on the right, if not, click once on the *'Beavercreek Training Projects'* layer. Click on the **'Styles'** icon.
- You're now looking at the *'Change Style'* pane. Here you can select what attributes to draw, and how to draw

them. Click the '+ Field' button and select 'Describe' in the menu. 'Describe' is a column in the attribute table that describes the project. Click [Add](#).

5. Below that you'll see '2 Pick a Style'; select 'Types (unique symbols)'. Click the 'Style Options' button.
6. Clicking this button opens up a display that shows all of the values that are under the 'Describe' field. Find the middle of the box where it says **Describe**. Hover your mouse over the colored line next to **Add Sidewalks**. Hover will read **Change symbol**--click it. In this new pop up panel you can change the color of the line, its transparency, and its width & pattern. Take several minutes to go through each line category featured and customize your display.
7. When you are happy with how all of your categories look, make sure to click "Done" at the bottom of the 'Change Style' pane. Then click the "Done" button again at the bottom of the Style pane.
8. Look back over at the left-hand sidebar and click on 'Legend'-- this switches the display in the Table of Contents to a colorful legend for both layers. Confirm that the layer reflects your changes, and then select 'Layers' icon near the top of the left sidebar to go back to the previous view.
9. On the right hand sidebar look for the *Labels* icon (middle of the way down) and select it. Make sure the **Enable labels** toggle is on. Click '+ Add Label Class'.
10. This opens up a new panel where you can control which attribute you want to show up as a label, as well as the text type and its placement. Make sure to choose "Name" for the label field. Take a few minutes to vary the text size and placement by clicking 'Edit label style'. Choose *Montserrat Regular*, size 14. Click the little **x** to go back. Click the other little right hand top **x** near label features to turn off the menu.
11. Temporarily turn off the 'District_work' layer by hovering your mouse over the name on the left-hand side Layers menu and clicking on the eye icon (hover text will read 'visibility'). Zoom into the area of the US35/I675 interchange. You should see 5 road projects, all labeled.
12. Now that projects are labeled with their names, you'll want to configure information that is displayed in pop ups when a user clicks on the feature. Activate layer 'Beaver Creek Training Projects_your initials' by clicking on the name in the Layers panel on the left. A blue vertical line will have appeared in the Layers panel next to the name to show it's been activated. Hover on the icons in the right-hand side bar to find and select "Pop ups". This opens up the 'Pop up' panel.
13. In this panel you can edit the title of the pop up and customize what the user sees. Click on 'Title.' In the box that appears underneath, replace "Beaver Creek Training Projects_your initials" with "Project:" in the box, and leave the {Name} portion.
14. A little lower, you'll see smaller text that says "Fields List" -- click on that (the name, not the ellipses). This opens up a new panel where you can select which attributes the user will see in the pop up and can format them as well. Click the 'x' for the "Id" field -- we don't need to display this. Click the 'x' for the "Name" field -- we don't need to display it again since it's the header of our pop up. Click the x at the top of this menu to close it.
15. Hover on the right sidebar icons and find and click on "Fields." Click where it says "Describe" -- let's spell the whole word out. Type in 'Description'. This column will now display its full name.



When done, click the “Done” button at the bottom. Next, click on CompDate and spell out ‘Completion Date’ and click the “Done” button at the bottom . Click the x at the top of the **Fields** menu to close it.

16. Pop up is mostly done but the categories aren’t easy to understand. We will change the field name to be a bit clearer. Click on the **Fields** icon on the right-hand sidebar. (the one just underneath **Pop up**) Your field names show up. Click on CompDate and in the **Formatting** box change *Display Name* to **Completion Date**. Click the “Done” button. **Save** your map.
17. Click on one of the projects and observe the pop up - does it look as you expected?

EXERCISE 5: EDITING YOUR LAYER

1. Let’s add some projects to our layer. On the right hand sidebar, look for the **Edit** icon. If the icon is greyed out, proceed to the next step. If you can activate it, proceed to [Step 3](#).
2. If it’s grey, it’s because editing on the layer needs to be enabled. To do this, make sure your map is saved and find the three horizontal lines at the top left and go back to **Content**. Click on your *BeavercreekTrainingProjects* layer to get to it’s *Overview* tab. Click on the “*settings*” option top right. Scroll down to the **Feature Layer Hosted** menu and check the box next to *Enable Editing*. Click **Save**. Navigate back to your map by returning to the **Content** page and clicking on your map. [Open in Map Viewer](#).
3. We will add in a new road widening project for the length of **Grange Hall** Road from **Dayton-Xenia** Road all the way to **Kemp** Road – to do so more easily, zoom in on the map to this location (Look in the Northeast portion of the US-35 and I-675 interchange to find the Grange Hall and Dayton Xenia intersection).
4. Once you have found roughly this boundary, look in the *Editing* menu and click ‘**New Feature**’.
5. Click once the intersection of Grange Hall & Dayton-Xenia to begin your new project line. and click a couple more times to follow the length of Grange Hall until Kemp. Double click to complete the line.
6. A new pop up appears – this is a window to the attribute table of the line feature that you just created. Here you can switch its Description, add in a CompDate (Completion Date) and give it a Name. The ID field will also have the option to fill in but you can ignore that for this exercise.
 - Write “**Widening**” in the ‘*Descript*’ field and
 - Write “**Nov 2023**” in the *CompDate* field and
 - Write “**Grange Hall Widening**” in the ‘*Name*’ field
7. Click the “**Create**” button. (make sure Widening is spelled correctly and is capitalized) Check to be sure the project now matches what your Legend has for Widening.
 - Note: If the project does not appear on the screen, it is because either the type was not spelled correctly or something about it was different. In this case, go to the *style options* again, unique symbols and scroll to see the options shown under **Descript**. You will see an *Other* category--go ahead and check the box next to it and then click the rightward pointing arrow (or double arrows) that are on the right side of the *Other* value that had previously not been shown to add it to the legend.)
8. Now add two more projects of different existing types, and feel free to name them whatever you want (within reason).
9. When you’re all done click on the Edit icon to remove the edit menu.
10. **Save** your web map. Edits are automatically saved so you do not need to do this for the layer separately.

Id	<input type="text"/>
Descript	<input type="text" value="Widening"/>
CompDate	<input type="text" value="Nov 2023"/>
Name	<input type="text" value="Grange Hall Widening"/>

MAPPING- ADDING POPULATION DATA

Besides the roadway projects in the map, it would also be helpful to include population totals so users can see how many people near each roadway project will be affected. Are the projects where a lot of people live or not many?

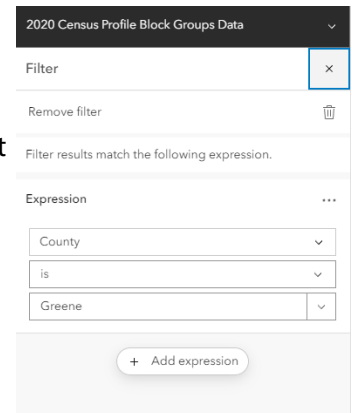
EXERCISE 6: ADDING 2020 CENSUS POPULATION DATA TO THE MAP

1. In your webmap, go to the **Add > Browse Layers**. Make sure the **In:** box dropdown menu has *"ArcGIS Online"* selected.
2. Type in *"2020 MVRPC AGOL Training"* in **'Search'** and hit **'Enter'** key on your keyboard (or **Go** button on mobile keyboard).
3. In the results dropdown list, find *"2020 Census Profile Block Group Data"* (hosted by *"Miami Valley Regional Planning Commission"*) and click the title of the layer. In the new-opened details box window pane, scroll to the bottom and click **"Add to Map."**
4. Click the small **x** of the feature layer menu. On left-hand side, click the **Layer** menu. Click and hold *2020 Census Profile Block Group Data* and drag the layer to the bottom of the list so it does not cover the road projects.

EXERCISE 7: APPLYING FILTER TO DATA

If you zoom out a bit, you will see that the dataset has 6+ counties worth of data. The next step will be to filter the data to only show Greene County.

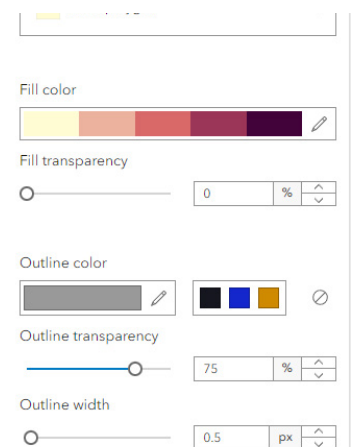
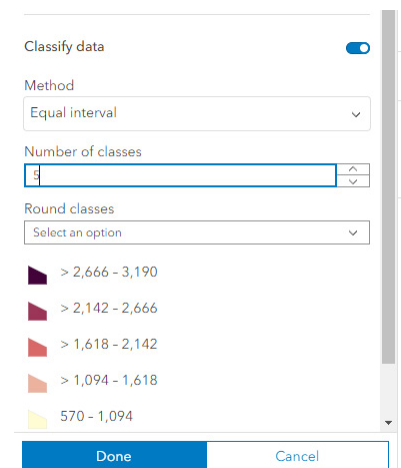
1. Click the **Filter** icon on the right hand sidebar (make sure your *2020 Census Profile Block Group Data* is showing at the top of the menu). Click **"+ Add expression"**.
2. In the top dropdown menu, find **"County"** (either scroll most of the way down the list or type *"County"* in the search field box).
3. Check middle menu to be sure **'Is'** is highlighted.
4. in the third dropdown menu, select **'Greene'**. Click **Save**.



Map should now only portray block groups within Greene County.

EXERCISE 8: CHANGE STYLE OF 2020 CENSUS POPULATION DATA

1. Click on the **"Styles"** icon on right hand sidebar for *2020 Census Profile Block Group Data*. Click on the **'+ Field'** box, then scroll the dropdown menu to find **2020 Total Population**. Click it once to make a checkmark next to it. Click **Add**.
2. In the **2 Pick a Style** menu, there are different types of ways to represent the polygons. For this exercise, choose the middle box, **Counts and Amounts (Color.)** Click once in the middle to select it, then click **Style Options** to bring up the options menu.
3. In the middle of the pane, click on the pencil icon next to the **Symbol Style** to bring up the menu. Click the pencil icon by **Fill Color** to bring up the **Ramp** menu to select color and pick your desired color scheme. Click **Done**. Take a few minutes to decide how you want to configure. Play around! Just remember, you will want to pick a scheme that emphasizes the higher number of people, the darker the color. Click the small **x** on the **Symbol Style** menu when you're happy with the color.
4. Back in **Style Options** menu, toggle on the **'Classify Data'** box. In the dropdown menu that pops up, select either **Quantile** or **Equal Interval** to start. Determine your preferred number of classes (ideally between 3 and 7), and to what extent, if any, to round classes (meaning to round the numbers-- i.e. 877 to 880) in the **Select an Option** dropdown menu. Again, try a couple classifications or break



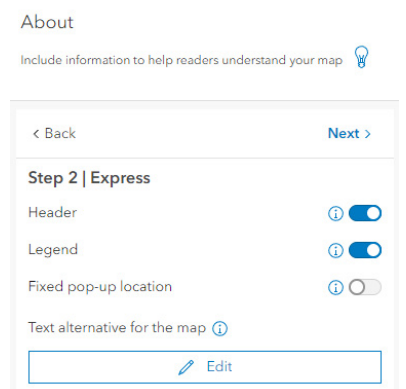
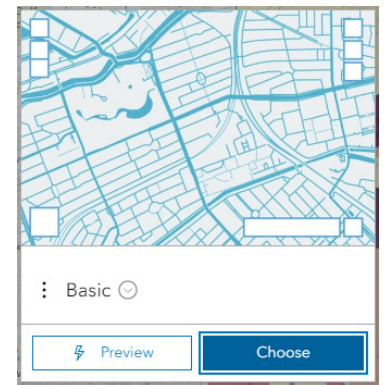
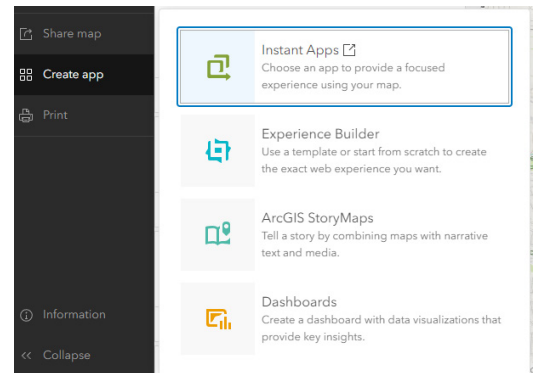
points to see what you think looks good.

5. Click **DONE**. Click **DONE** again.
6. Lastly, the polygons are completely opaque and we need to make them somewhat transparent. Open the **Properties** menu on the right hand sidebar. Scroll down until you see the **transparency** slider. Slide the bar on the scale so that some of the basemap can be shown peeking through, but you can still see color differences. Try between 25%-60% -- each map it depends based on color you chose and what you're trying to show underneath. Click the little **x** to close the Properties menu. **Save** your map. Now that the map is finished, let's create a mapping application.

BUILDING A MAPPING APPLICATION

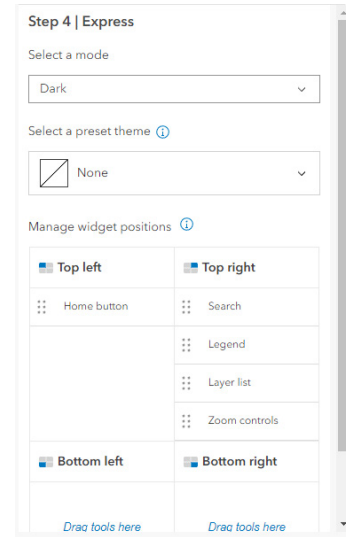
EXERCISE 9: BUILDING A MAPPING APPLICATION WITH A CREATED WEB MAP

1. Fix zoom extent so that it shows all of Beavercreek, OH but not much more (sub-county level). **Save** your map. (It is good to do this since the last saved zoom extent on the web map is how it will open next time or in an application.)
2. In left-hand sidebar, select **Create App** (depending on viewing screen size, you may need to click on a set of ellipses and find Create App in the pop up menu.) It will pop up a new menu.
3. Select '**Instant Apps**' which will take you to a gallery of possibilities. All serve different functions depending on what you need the application to do. Find **Basic**. Click **Choose**.
4. This brings up another prompt. Pick a title that is informative and relates to your web map, but perhaps varies slightly from the web map title, such as *Roadway Projects App*. You will be required to use at least one tag--if not autopopulated use '**mvrpcTraining**'. If typing multiple tags, separate each tag with a comma (,). in the future you will want to use tags that will be easy for you to draw up when needed.
5. Click **Create App**. New screen loads. (If ESRI is giving you navigational box tips about what the features are you may read through them or click out--just keep hitting next until you see the "Step 1. Map, Step 2. About, etc down the left side) Now it is ready to configure.
6. An app set up page wizard appears. Read the info and click **Next**. Choose whether to use Express mode. This is a walkthrough of important elements to include with every app, but does not give full advantage of all the possibilities. For today we will stick in *Express* mode but in future projects you may wish to go beyond.
7. The first configuration here should be to tie the already completed web map from the previous exercises to this new application. Click **1. Map** prompt box, and make sure your created web map is the one selected. If so, click **Next**.
8. In Step 2 make sure legend toggle and the header toggle are both **on**. Click **Next**.
9. In Step 3 slide the toggle for Layer list **on**. Go through the information about each of the remaining and decide whether to include these. Click **Next**.
10. Step 4 deals with Layout. Choose your theme (light or dark) and then pick your preset theme color. The next option below shows where you can



place your other tools. In the “Manage Widget Positions” section, click on the 6 grey dots by “zoom controls” and drag it underneath where it says “top right box”, and below *legend*. Click and drag the “layer list” to the top right, between the legend box and the search icon (the magnifying glass). You will see the moves in your map app on the right. Click **Publish** and **Confirm**.

11. You will get a share link and notification that the app is not shared with the public. Click on **Change Share Settings** to bring up the *Overview* tab and click on “Everyone” to make it public. Click **Save**.
12. Click **Exit**. It will ask if you’re sure. Click **Exit** again. The screen will redirect to the *Overview of Roadway Projects app*
13. Fill out the metadata.
 - Click the pencil edit icon near the **Description and fill out the** text box to cite the source of your data and write 1-2 sentences describing what the map shows. If there are additional weblinks you’d like to point readers to, this is a good place to include those. For today type (and then click **Save** when you do)-



‘The purpose of this map is to teach ArcOnline Basic applications using both existing and training level data.
Source: Ohio Department of Transportation and MVRPC training materials’

14. Click the **View** button to see how the application will look to users.
15. Check to make sure the link is publicly accessible by copying the link and opening it in a different browser (e.g. if you built the application in Chrome’s web browser, open up an Edge web browser window and paste the link in there. If the application opens without asking for a sign in, the link has been successfully shared)
16. You may also choose to share it to the MVRPC Training: AGOL Basics group. From the app’s *Overview* page, click **Share** and then select **Edit Group Sharing**. Scroll list of groups to find and click once on MVRPC Training: AGOL Basics. This checks the box next to it. Click **OK**. Click **Save**. It has now been shared to the group.