

FAMU 4H Tech Changemakers Training

Make an Online Visitor's Map of Your Campus Using ArcGIS Online

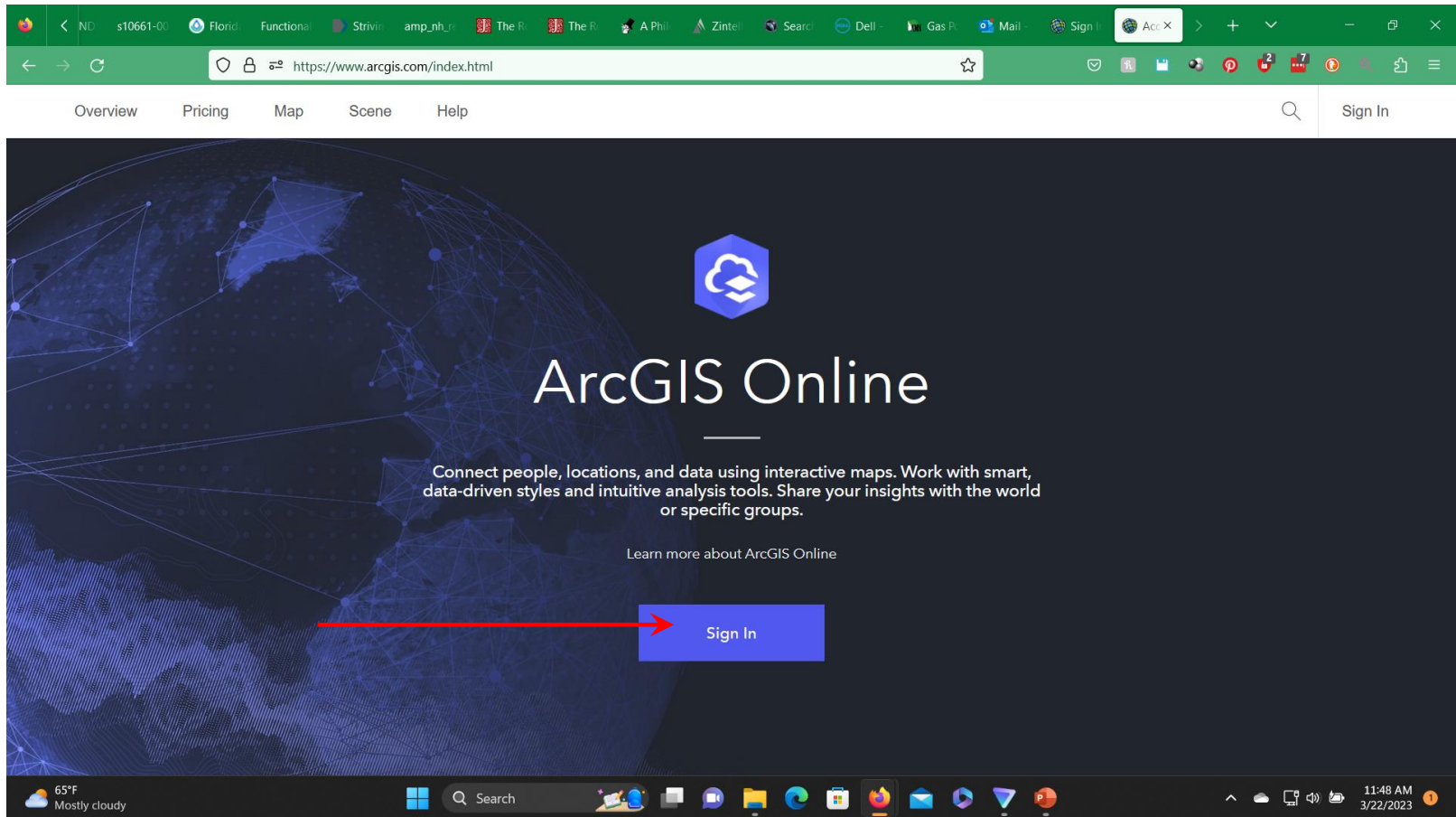
Presented by: Katherine Milla and Sabrina Hayes
3/22/2023

In this training you will learn how to Geographic Information Systems (GIS) create an online visitor's map, using the FAMU campus.


Here is an example: [FAMU campus visitor's map](#)


First, we need to create an account for you on our online GIS portal.



Start by going to www.arcgis.com and click on Sign In





Click on Create and account.

Sign in 

ArcGIS login 


 Username 





 Password 

Keep me signed in

[Sign In](#)

[Forgot username?](#) or [Forgot password?](#)

Your ArcGIS organization's URL 

No account? [Create an account](#)

Click on Create a public account.

Start a free trial

Create a trial account to experience all the capabilities of ArcGIS Online for 21 days. Make maps, analyze data, and share your maps with anyone, anywhere. Bring all your work with you if you decide to purchase.

Create a trial account →



Get started with a developer account

Leverage a full suite of developer tools and resources to create robust, location-based apps. Create an account to get started for free. Pay as you go for additional services.

[Create an ArcGIS Developer Account →](#)



Create a public account

This free, limited-functionality account gives you permanent access to create and share basic maps.

[Create an ArcGIS Public Account →](#)



Purchase ArcGIS Online

Make ArcGIS Online part of your toolset by purchasing ArcGIS Online. Subscriptions can include a variety of user types which makes it easy to match you and your team members with the necessary tools for your work.

[Buy ArcGIS Online →](#)

You will need to provide an email address for your public account. Once you have created the account, I will send you an email to the email address of your public account inviting you to join our FAMU organizational account. This will give you access to a lot more features than the public account provides.

Once you have been added to the FAMU organizational account, log in using the email and password you used for your public account.

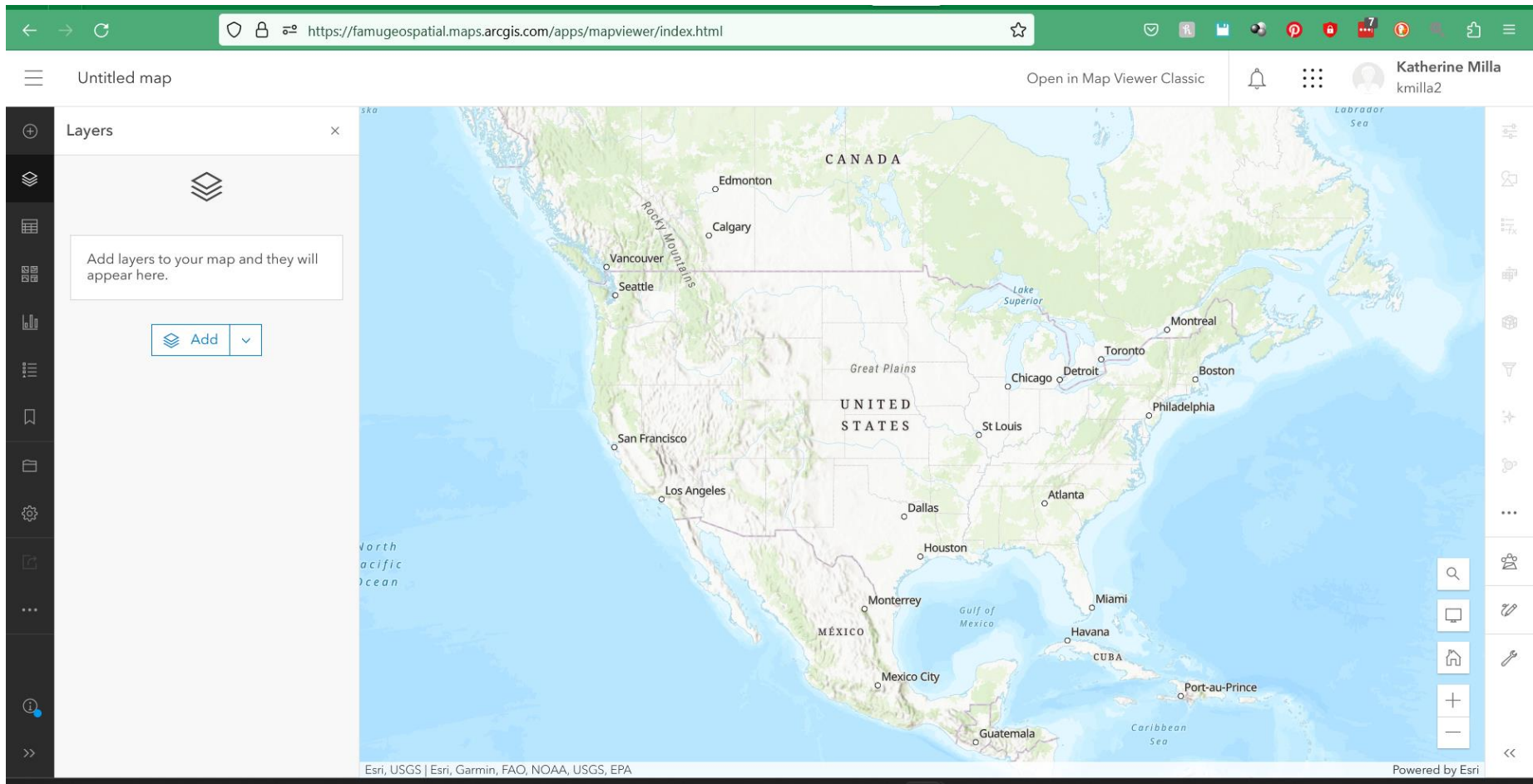
Let's take a look around. Clicking on Home takes you to the overview of the main web page.



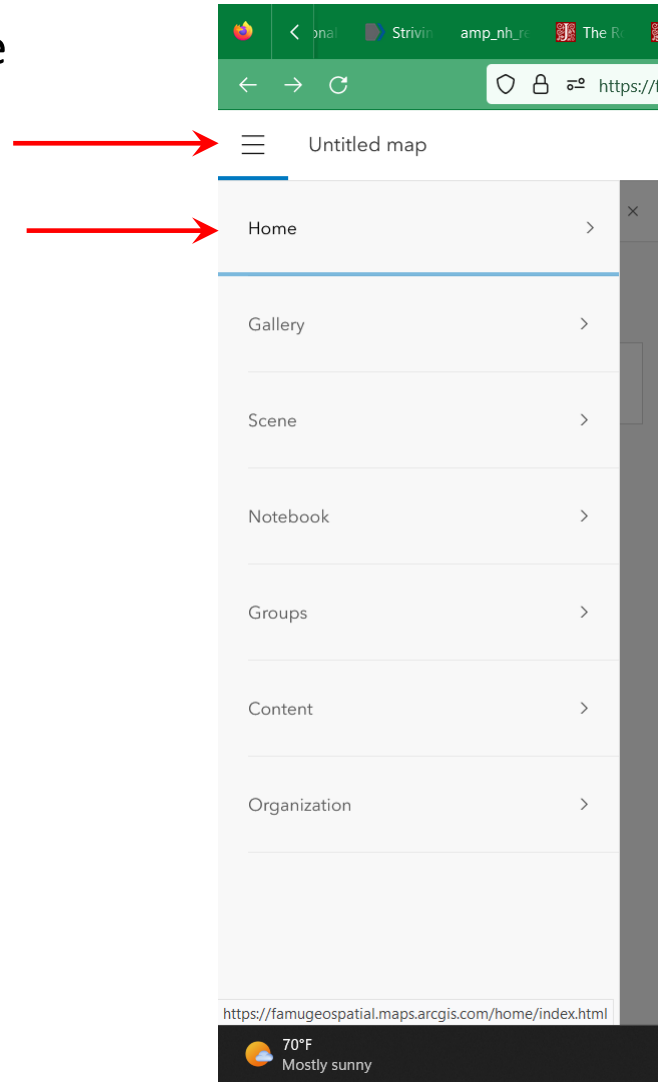
The Gallery displays the content that members in the organization have created. Most of what you see are maps created by students in previous trainings.

The screenshot shows a web browser window with the URL <https://famugeospatial.maps.arcgis.com/home/gallery.html?sortField=relevance&sortOrder=desc>. The navigation menu includes Home, Gallery, Map, Scene, Notebook, Groups, Content, and Organization. The user is identified as Katherine Milla (kmilla2). The main heading is "Gallery for FAMU Geospatial Lab". A search bar is present. On the left, a sidebar lists "Item type" (Maps, Layers, Scenes, Apps, Developer credentials, Tools, Files, Notebooks, Insights) and "Categories" (Biota, Boundaries, Climatology, meteorology, and atmosphere). The main content area shows "1-36 of 36" items, sorted by "Relevance". The first item is a purple road network map titled "county_roads". The next three items are yellow county boundary maps: "cntbnd_sep15", "County Boundaries JCS", and another "County Boundaries JCS". Each item has an "Open in Map Viewer" button and a menu icon.

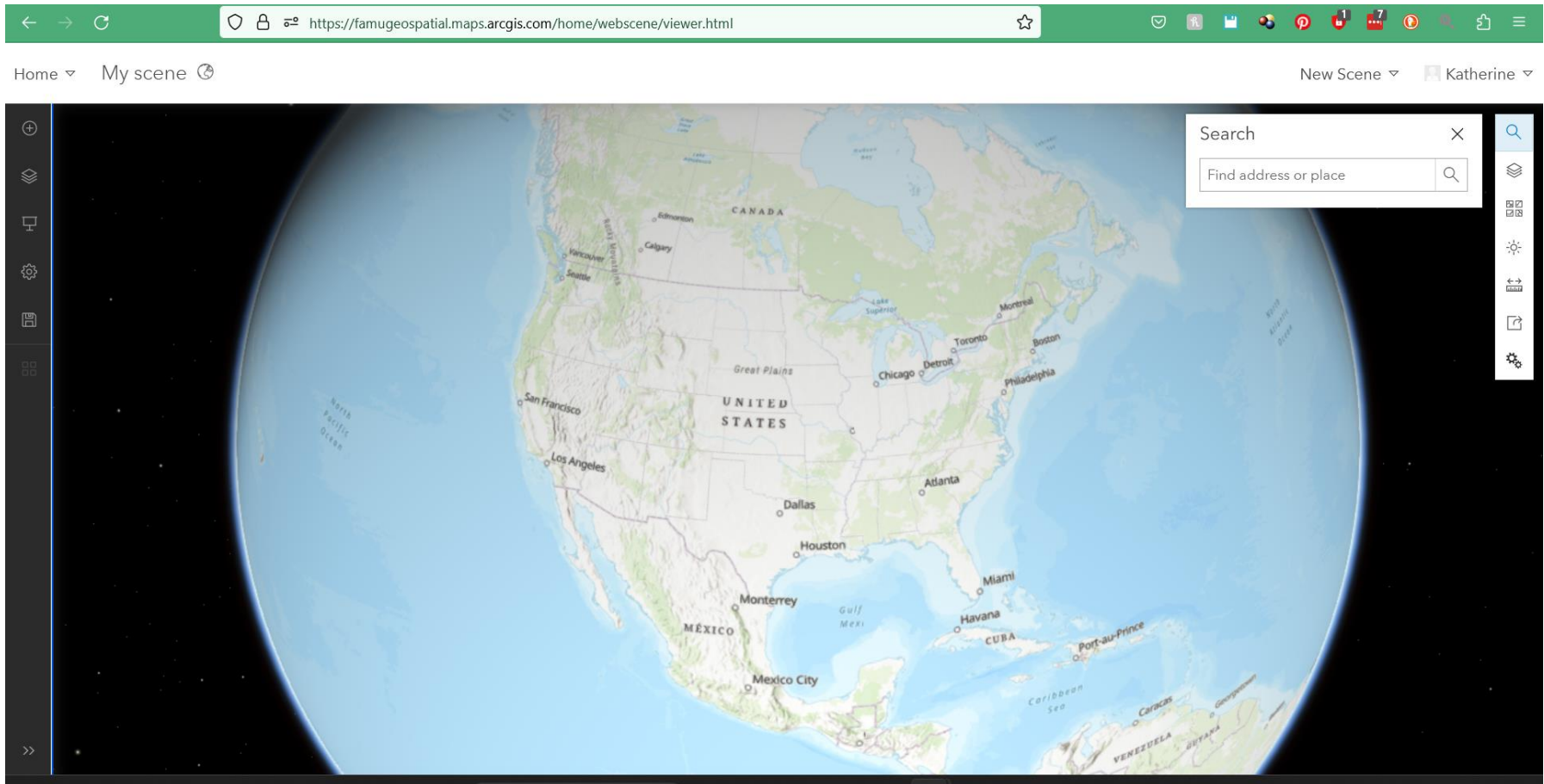
The Map tab opens a new map template. Here is where you can create your own maps. We will be using this mapping application to create the map for this exercise.



Click on the “hamburger” icon in the upper left corner of the map and click Home to get back to the main web page.

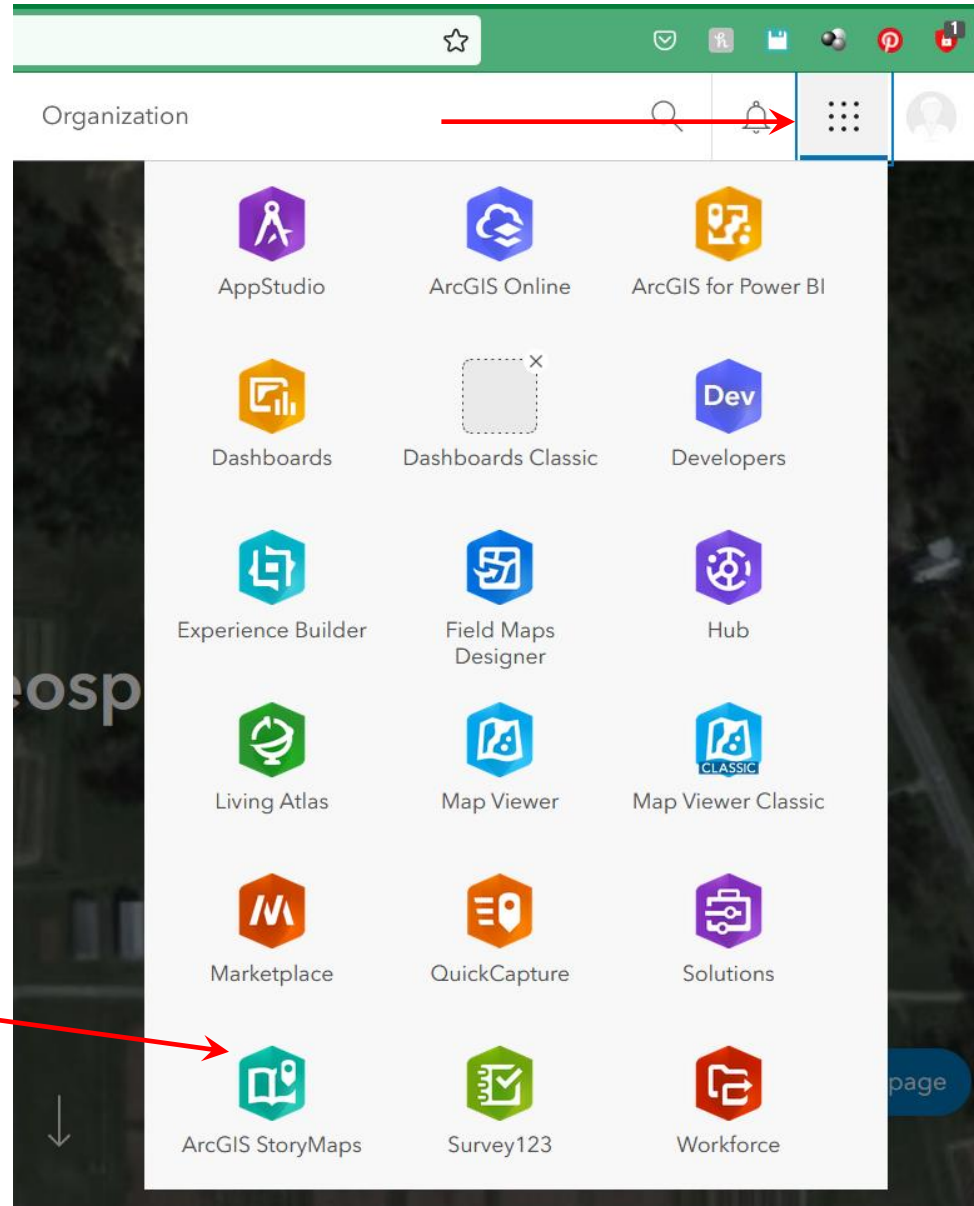


The Scene tab opens a basemap layer for creating 3-dimensional maps that can be navigated similar to Google Earth. We won't use the Scene Viewer for this training. Click the Home tab to return to the main web site.

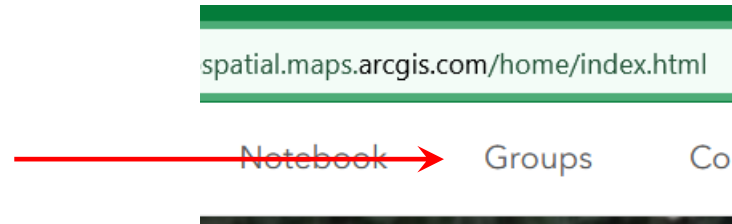


From the Home page click on the dots icon. A menu opens showing you a variety of options. These options link to different tools and apps you can use in ArcGIS Online. Click on the StoryMaps icon for an example of an ArcGIS Online app.

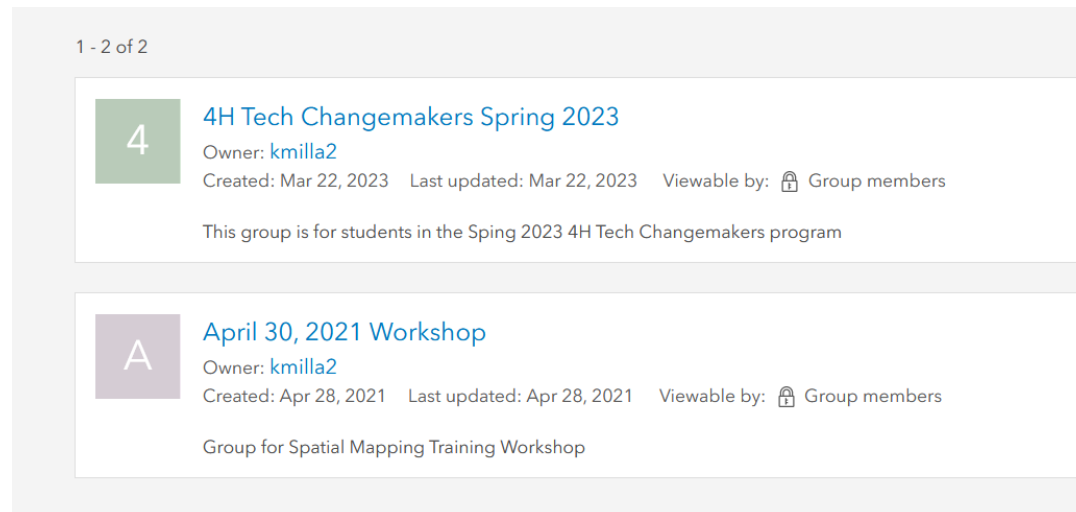
<https://doc.arcgis.com/en/arcgis-storymaps/gallery/>



We won't examine the Notebooks tab in this training.
Click on the Groups tab.



Groups are subsets of organizational members that are created for group members to share content among themselves. We have created a Group for this training. The Group will remain active for a while after the training is complete.



Click on the 4H Tech Changemakers Group to see the Group contents



The screenshot displays a software interface with a navigation bar at the top. The navigation bar includes tabs for 'Scene', 'Notebook', 'Groups', 'Content', and 'Organization'. Below the navigation bar is a sub-menu with options: 'My Groups', 'Featured Groups', and 'My Organization's'. A search bar labeled 'Search My Groups' is positioned below the sub-menu. The main content area shows a list of groups, with the first group being '4H Tech Changemakers Spring 2023'. The group entry includes a green square icon with the number '4', the group name, the owner 'kmilla2', creation and update dates (Mar 22, 2023), and a description: 'This group is for students in the Spring 2023 4H Tech Changemakers program'. A red arrow points to the group name, and another red arrow points to the group icon.


Scene Notebook **Groups** Content Organization

My Groups Featured Groups My Organization's

Search My Groups Title

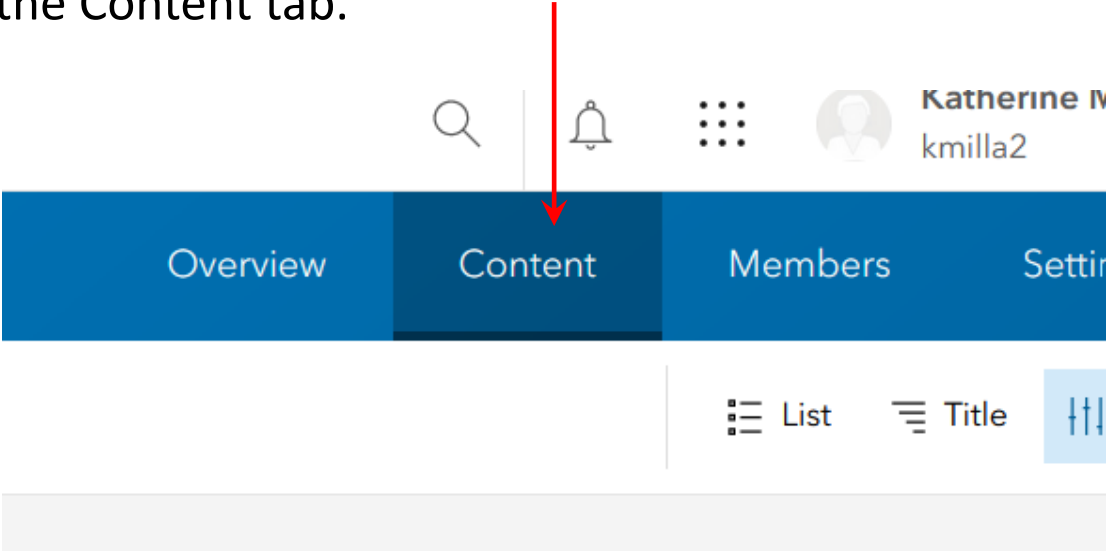
1 - 2 of 2

 **4H Tech Changemakers Spring 2023**  De

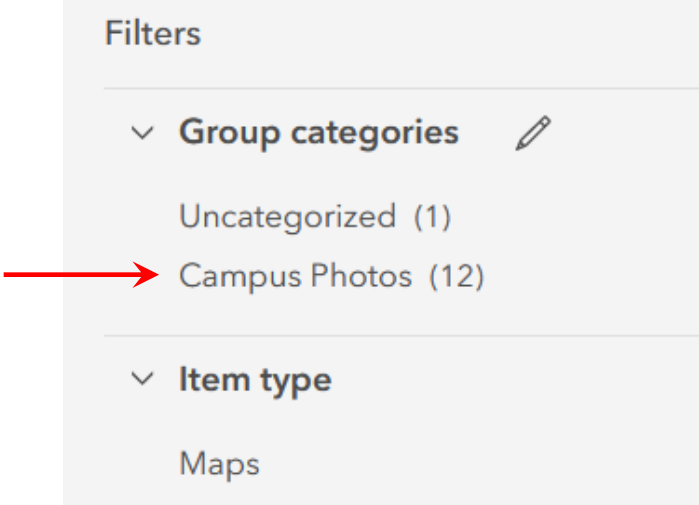
Owner: [kmilla2](#)
Created: Mar 22, 2023 Last updated: Mar 22, 2023 Viewable by:  Group m

This group is for students in the Spring 2023 4H Tech Changemakers program

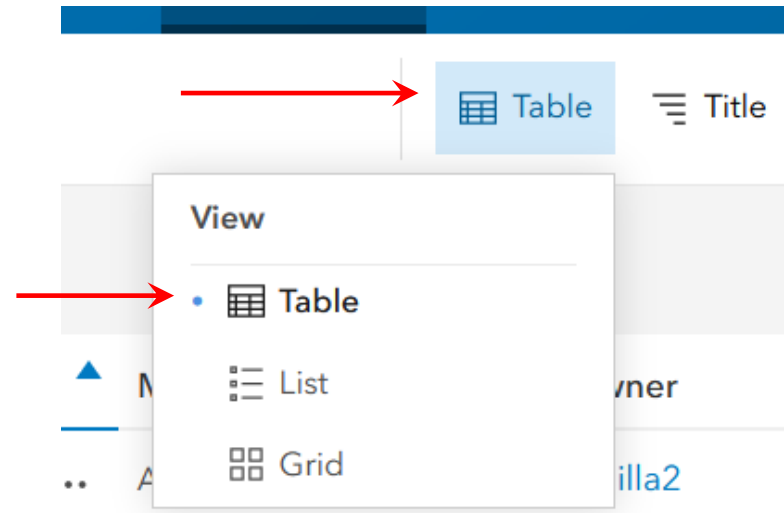
Click on the Content tab.



Under Filters → Group Categories, click on Campus Photos

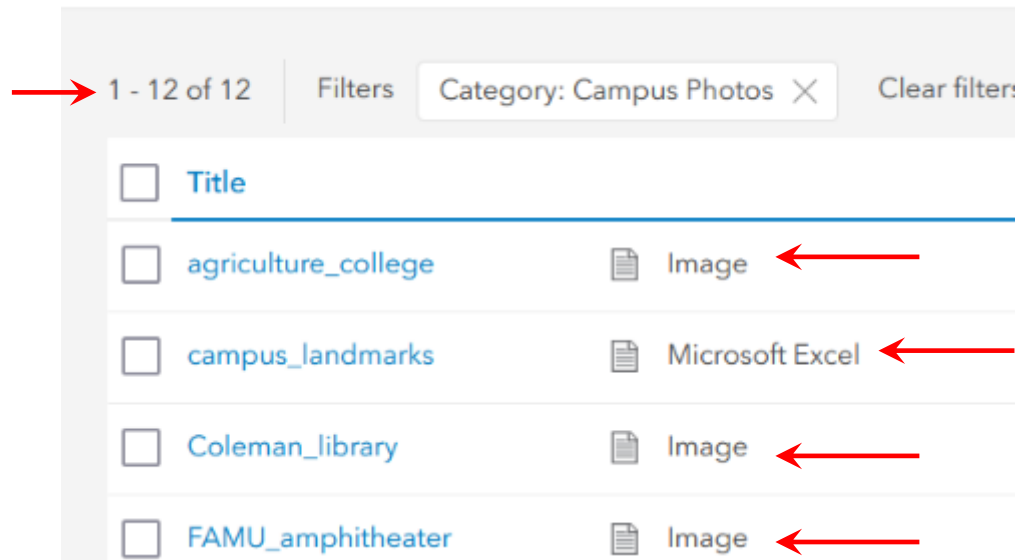


Make sure the Table view is selected.



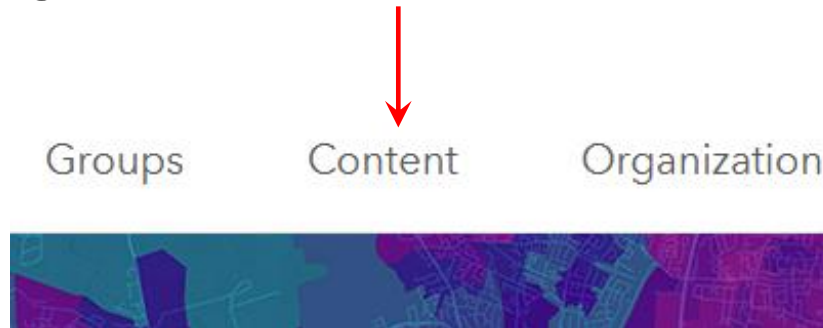
You should see 12 files, 11 photographs (images) and one Microsoft Excel file.

You will use these files to add content to a new Campus Landmark layer that you will create and add to your map

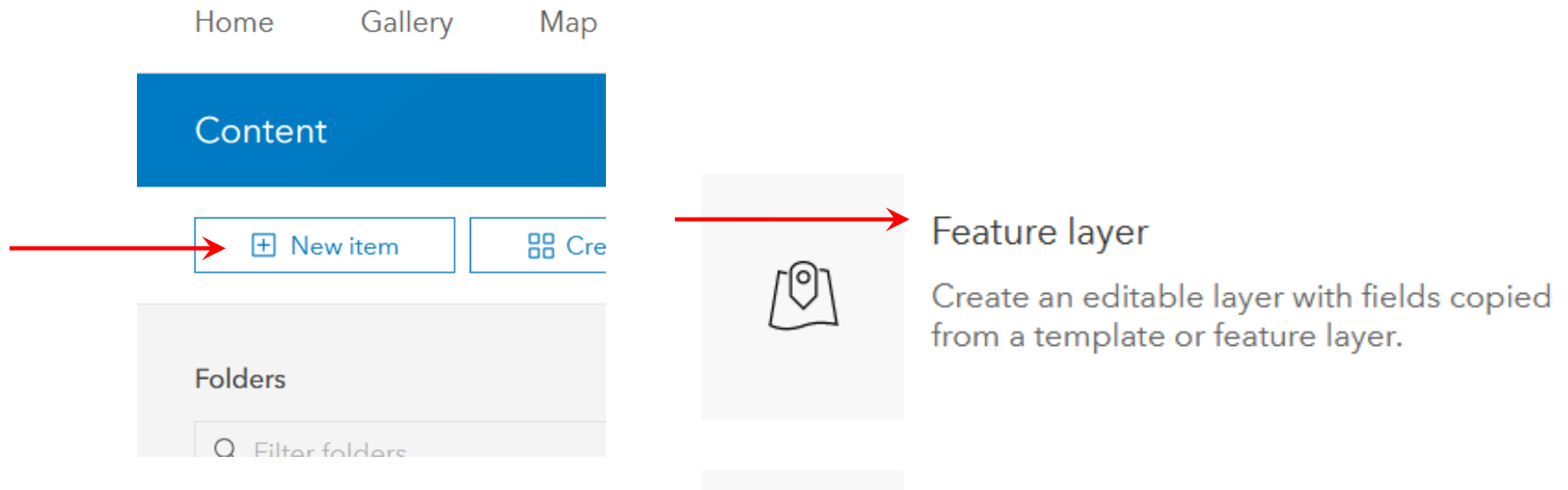


1. Create a feature layer for your map.

From the Home page, click on the Content tab.




From your Contents folder click on New Item. Click on Feature Layer.



Select Define Your Own Layer and click Next.

Create a feature layer

Select an option to create an empty feature layer.



Define your own layer
Specify the layers and tables.

Type in a name for your new layer (the name Campus Landmarks is used for this example) and select the type as Point Layer. Click Next.

Create a feature layer ×

Specify name and type

-+-+ Point layer ▼

+ Add

Options

Add GPS metadata fields

Add fields to layers that support capturing GPS receiver information.

Enable Z-values

Allows modeling point, polyline, and polygon features in 3D.

Back

Cancel

Next

You see that the new layer will be stored in your Content folder. Type in 4H Tech Changemakers in the Tags field, then click Save.

New item

Title

Photo Map Tour

Folder

🏠 kmilla2

Categories

Assign categories

Tags

4H Tech Changemakers × Add tags

Summary

Add a summary

Characters left: 2048



Once you have created the new layer you will see its overview page. (To get back to this page from your Contents page just click on the new layer and this overview will open.)


Click on the layer icon.

Home Gallery Map Scene Notebook Groups Content Organization

Campus Landmarks

Overview Data

Edit thumbnail



Add to Favorites

[Add a brief summary about the item.](#) Edit

Feature Layer (hosted) by kmilla2

Item created: Apr 5, 2023 Item updated: Apr 5, 2023 View count: 22

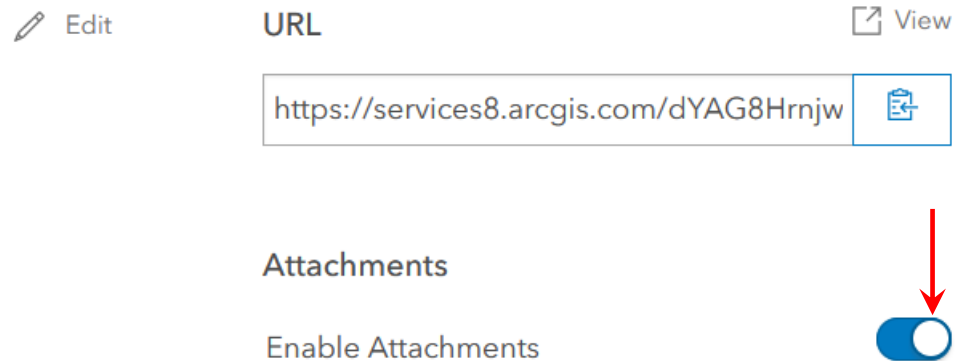
Description Edit

[Add an in-depth description of the item.](#)

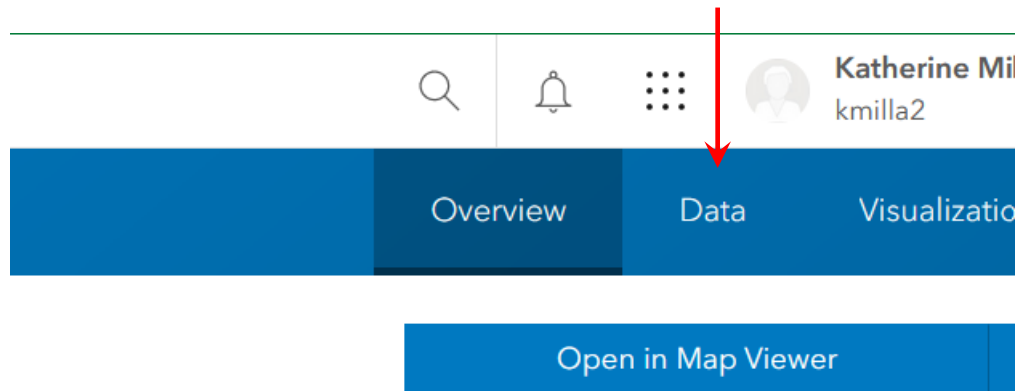
Layers

Campus Landmarks
Point layer

Scroll down and click on the slider button to Enable Attachments.



Click on the Data tab.



Click on the Fields view tab.

← Campus Landmarks / Campus Landmarks Data ▾

Table Fields

Double-click a value in the table to change it. Data updated: Apr 5, 2023, 1:19 PM

Campus Landmarks (Features: 1, Selected: 0)

| OBJECTID | Photos and Files |
|----------|------------------|
| 1 | (0) Add |

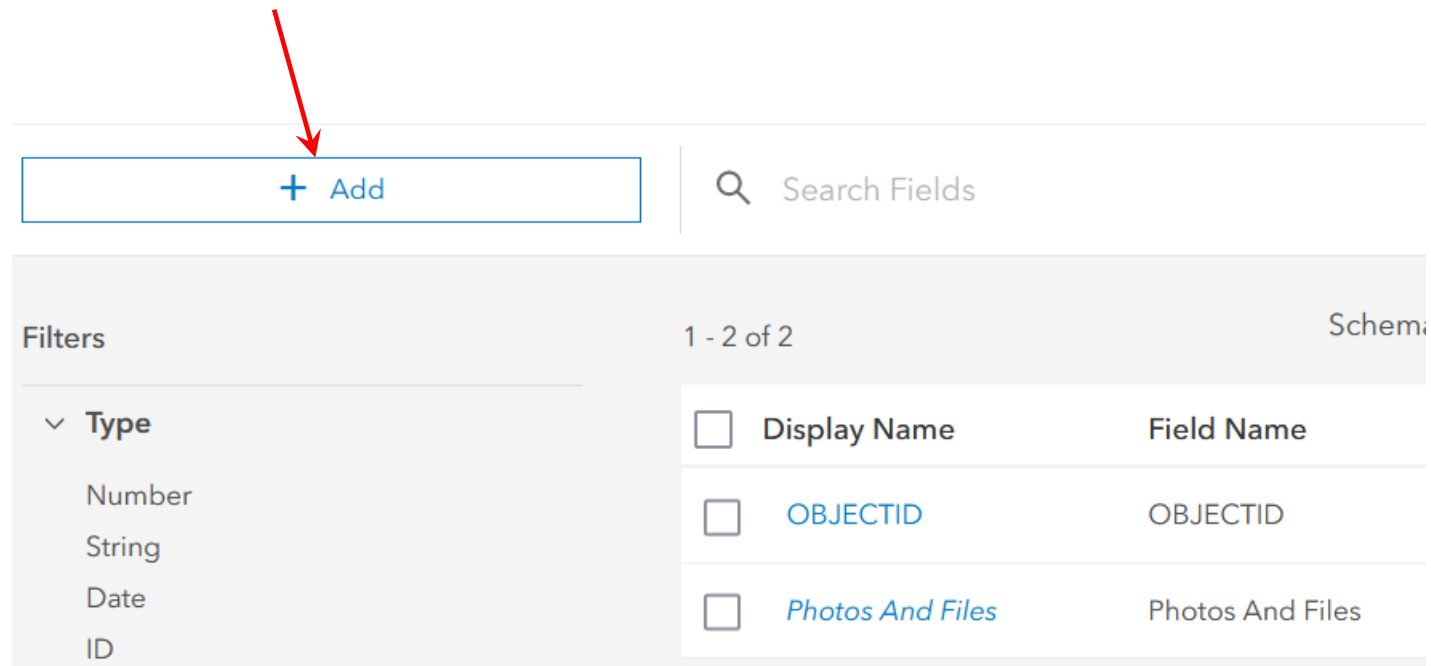
You will see that the table has two fields, OBJECTID and Photos and Files.

1 - 2 of 2 Schema updated: Apr 12, 2023, 10:32 AM

| <input type="checkbox"/> Display Name | Field Name | Type |
|---|------------------|------------|
| <input type="checkbox"/> OBJECTID | OBJECTID | ObjectID |
| <input type="checkbox"/> Photos And Files | Photos And Files | Attachment |

The OBJECTID field is created automatically and will assign a record number to each point as you create them in the layer. The Photos and Files layer allows you to insert your photos for each landmark directly into the table.

We are going to add two fields to hold the landmark name and address for each point. Click on the Add button



The screenshot shows a user interface for managing fields. At the top, there is a search bar labeled "Search Fields" and a button labeled "+ Add" which is highlighted with a red arrow. Below the search bar, there is a table with two columns: "Display Name" and "Field Name". The table contains three rows of data:

| Display Name | Field Name |
|---|------------------|
| <input type="checkbox"/> Display Name | Field Name |
| <input type="checkbox"/> OBJECTID | OBJECTID |
| <input type="checkbox"/> Photos And Files | Photos And Files |

On the left side of the interface, there is a "Filters" section with a dropdown menu labeled "Type". The dropdown menu is open, showing the following options: Number, String, Date, and ID.

Add Field



Field Name:

Name



Display Name:

Landmark Name



Type:

String



Length:

75



Default Value:
(Optional)

Allow Null Values:



Add New Field

Cancel

For the Field Name type in Name. The Field Name must begin with a letter, can only contain letters, numbers, and “-”, and **cannot have spaces in it.**

For the Display Name Type in Landmark Name. The display name, also known as an “alias” is what will show in the data table column heading and **can contain spaces.** Use it when you want the heading to show something more explanatory to your audience about the data field.

The field Type is String (text). For the Length type in 75.

Click Add New Field

The Data View tab appears, and you see your new field with the Display Name displayed.

The screenshot shows a data management interface. At the top, there is a search bar labeled "Search Fields" and a "+ Add" button. Below the search bar, there is a "Filters" section on the left with a dropdown menu for "Type" containing options: Number, String, Date, ID, Attachment, and Related Table. The main area displays a table with 3 fields. The table has a header row with columns: "Display Name", "Field Name", and "Type". The data rows are:

| <input type="checkbox"/> | Display Name | Field Name | Type |
|--------------------------|------------------|------------------|------------|
| <input type="checkbox"/> | OBJECTID | OBJECTID | ObjectID |
| <input type="checkbox"/> | Landmark Name | Name | String |
| <input type="checkbox"/> | Photos And Files | Photos And Files | Attachment |

At the top right of the table area, it says "1 - 3 of 3" and "Schema updated: Apr 12, 2023, 11:01 AM". A red arrow points from the "+ Add" button to the "Landmark Name" field in the table.

Add another field.

This field will display the location of the landmark. Fill in the fields as shown below and click Add New Field

Add Field ✕

Field Name:

Display Name:

Type: ▼

Length:

Default Value:
(Optional)

Allow Null Values:

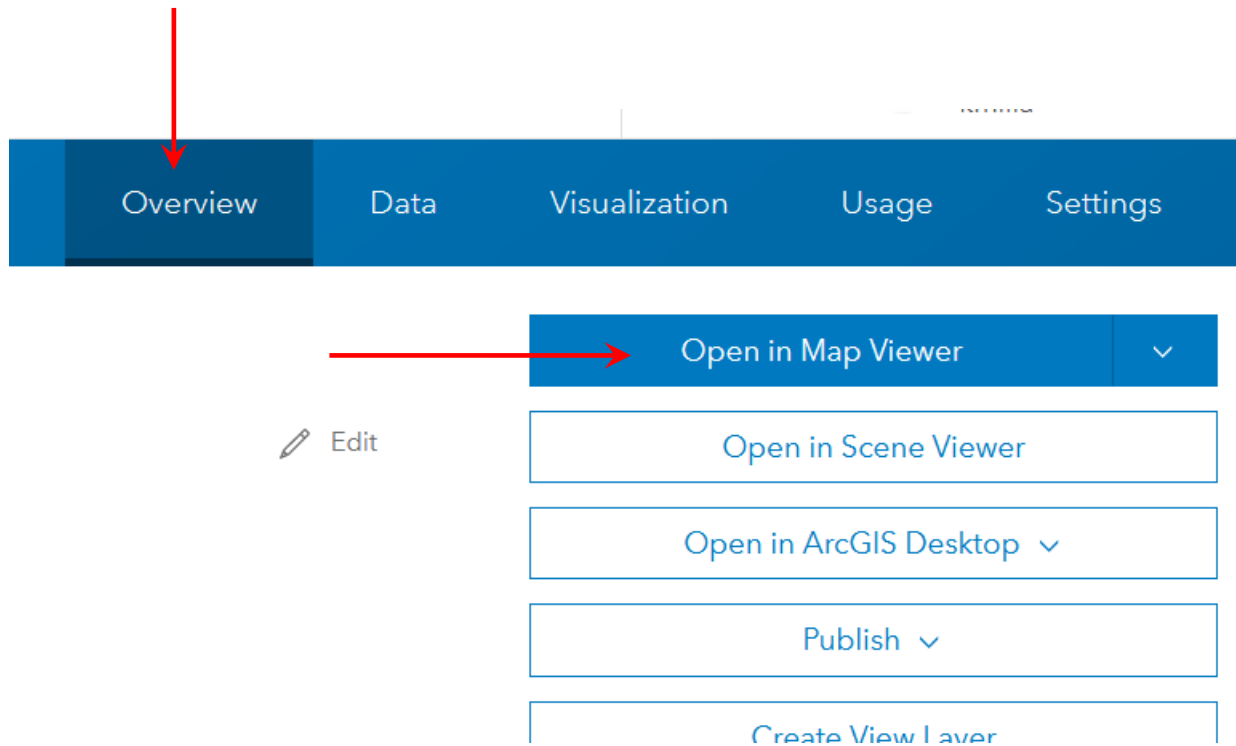
Now you have four fields in your layer, but there are no features in the layer yet. Click on the Overview tab.

The screenshot shows a software interface with a top navigation bar containing four tabs: 'Landmarks', 'Overview', 'Data', and 'Visualization'. A red arrow points to the 'Overview' tab. Below the tabs, there are two buttons: 'Table' and 'Fields'. Below these buttons is a search bar labeled 'Search Fields' with a magnifying glass icon. To the right of the search bar are three icons: a grid, a list, and a vertical double-headed arrow. Below the search bar is a table with the following data:

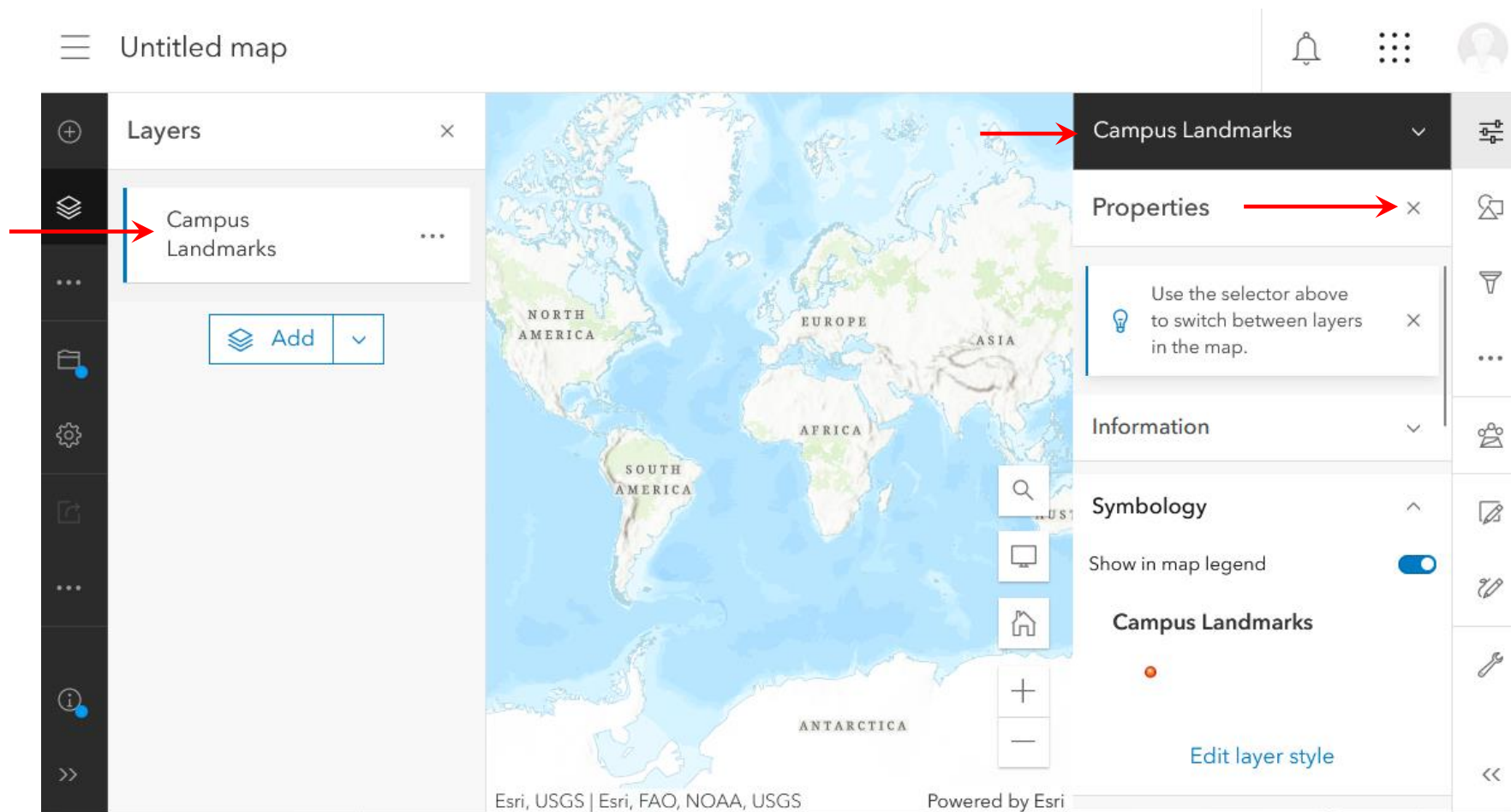
| <input type="checkbox"/> | Display Name | Field Name | Type |
|--------------------------|------------------|------------------|------------|
| <input type="checkbox"/> | OBJECTID | OBJECTID | ObjectID |
| <input type="checkbox"/> | Landmark Name | Name | String |
| <input type="checkbox"/> | Location | Location | String |
| <input type="checkbox"/> | Photos And Files | Photos And Files | Attachment |

1 - 4 of 4 Schema updated: Apr 12, 2023, 11:05 AM

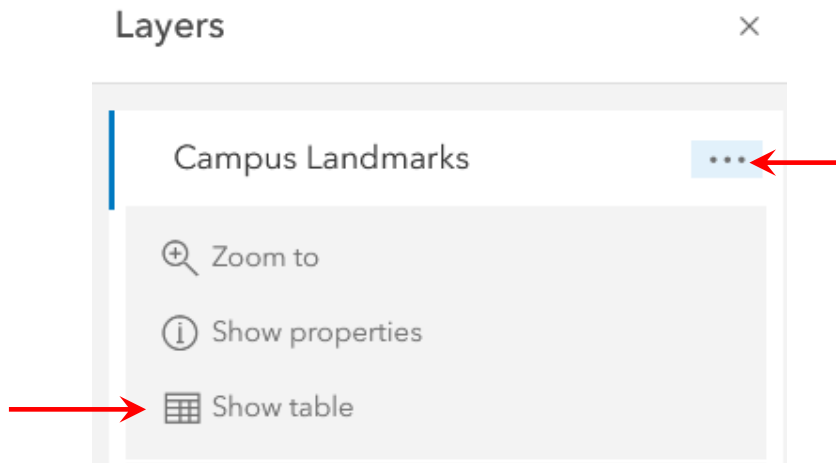
Click on Open in Map Viewer



A window opens showing a map of the world and the layer you just created appears in the Layers pane on the left side. On the right side is the Properties panel where you can set different display features for the new layer. Close the Properties panel by clicking on the X.

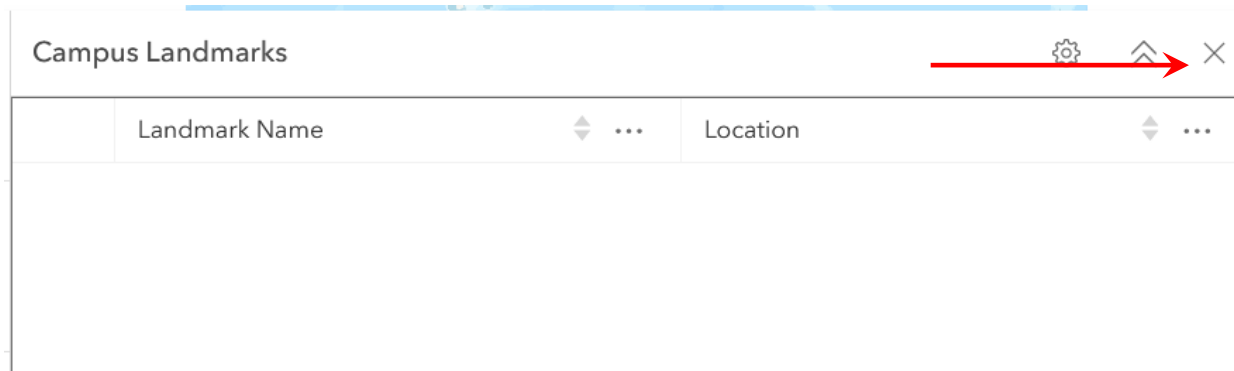


On the Layers pane click on the three dots and click on Show Table.



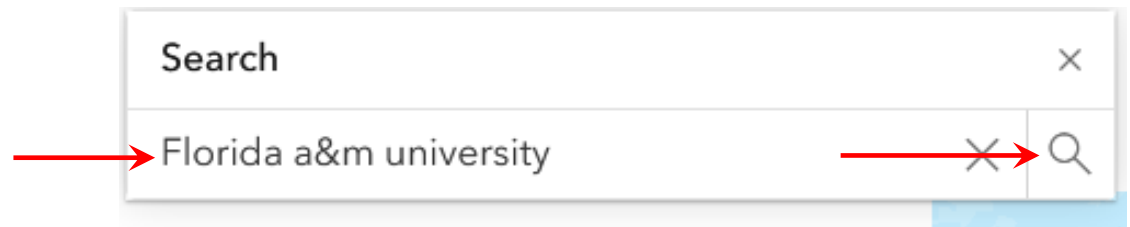
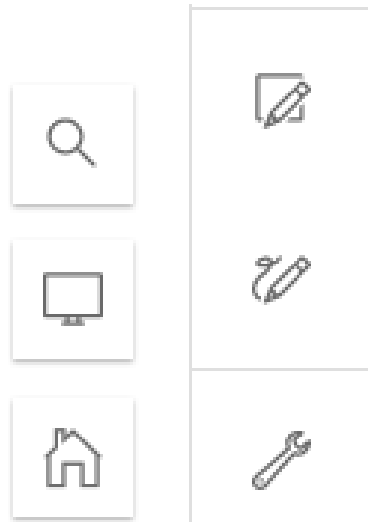
A table opens displaying the fields you just added. Right now, the table is empty. You are going points to the layer representing the locations of some campus landmarks.

Close the table by clicking on the X in the right corner

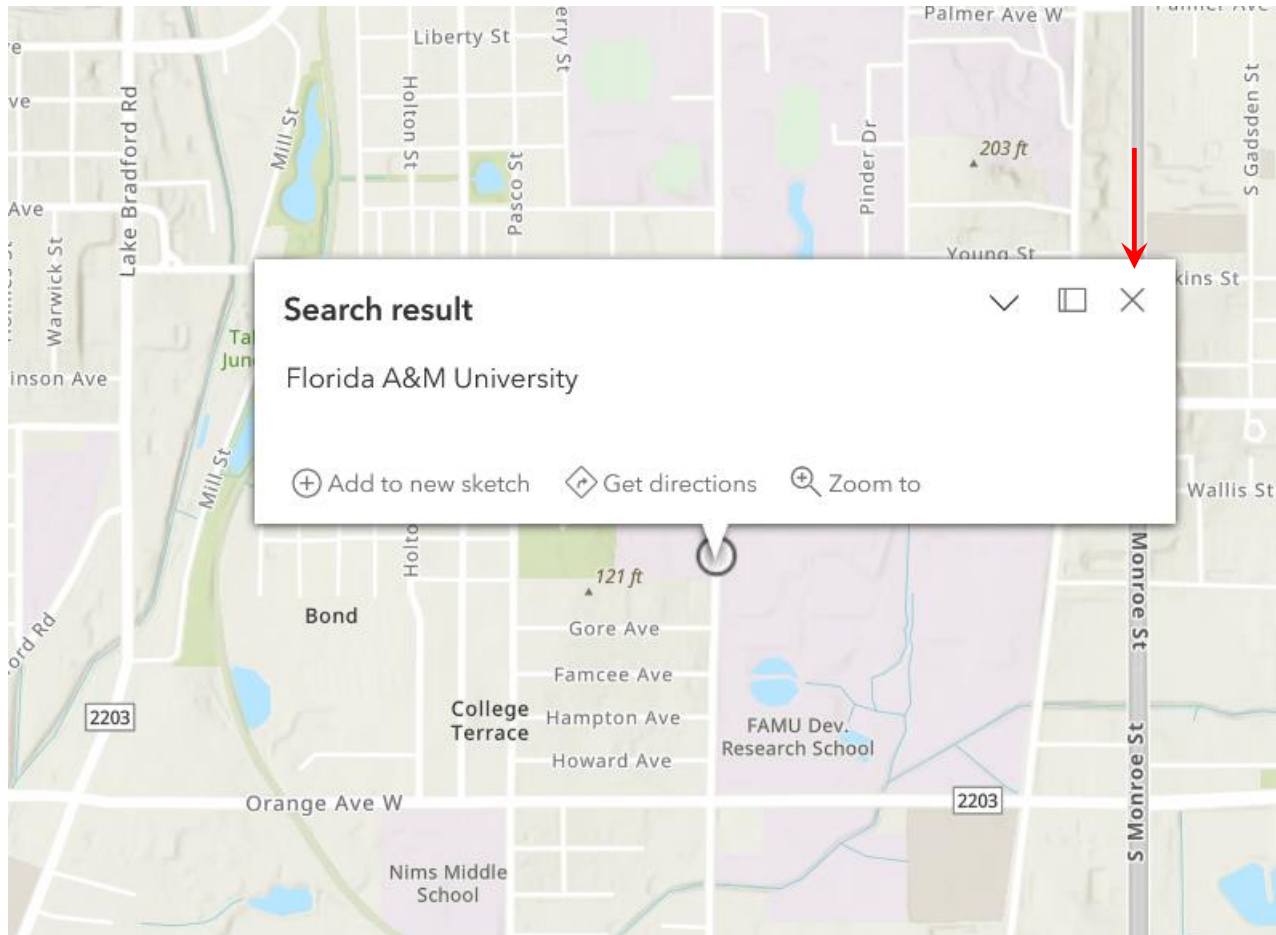


Click on the Search (magnifying glass) icon in the lower right corner of the map.

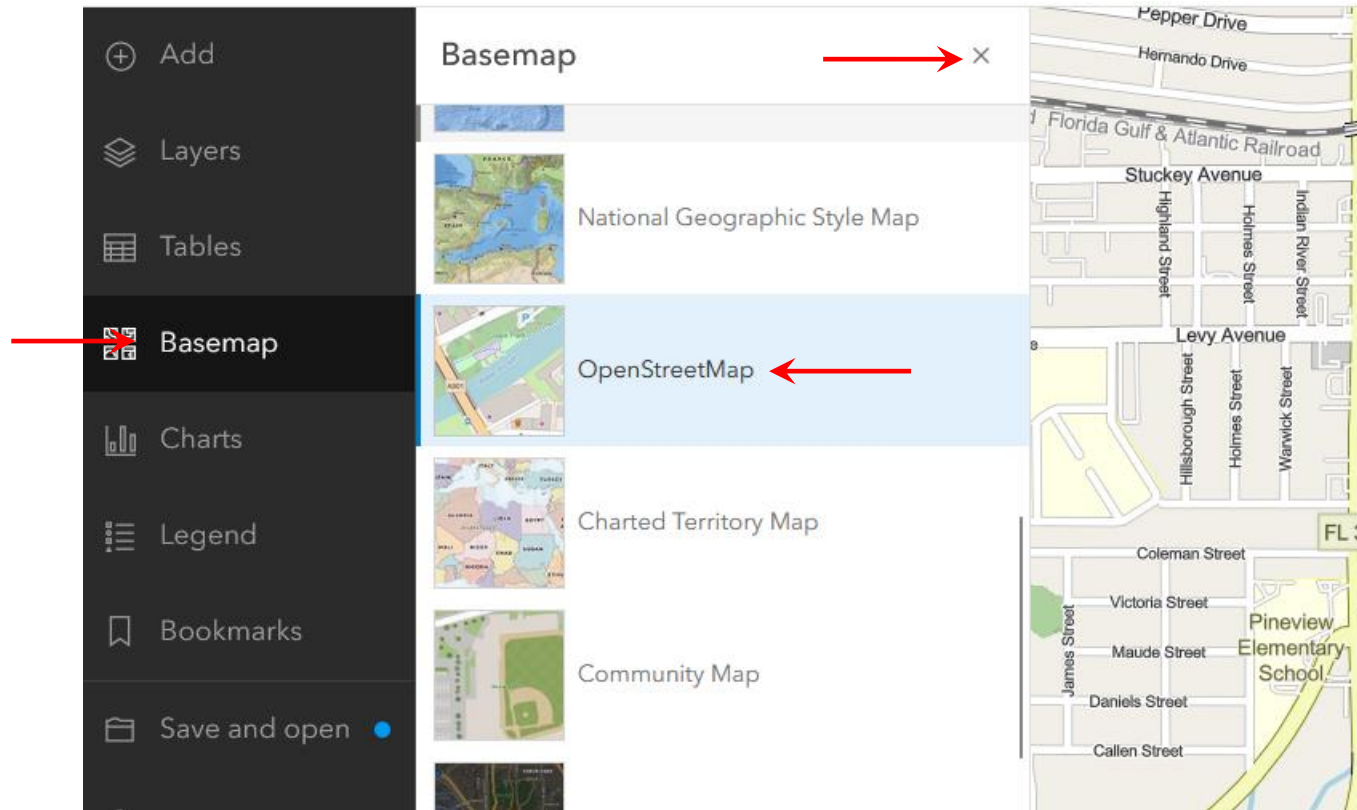
Type in Florida A&M University and click the search icon.



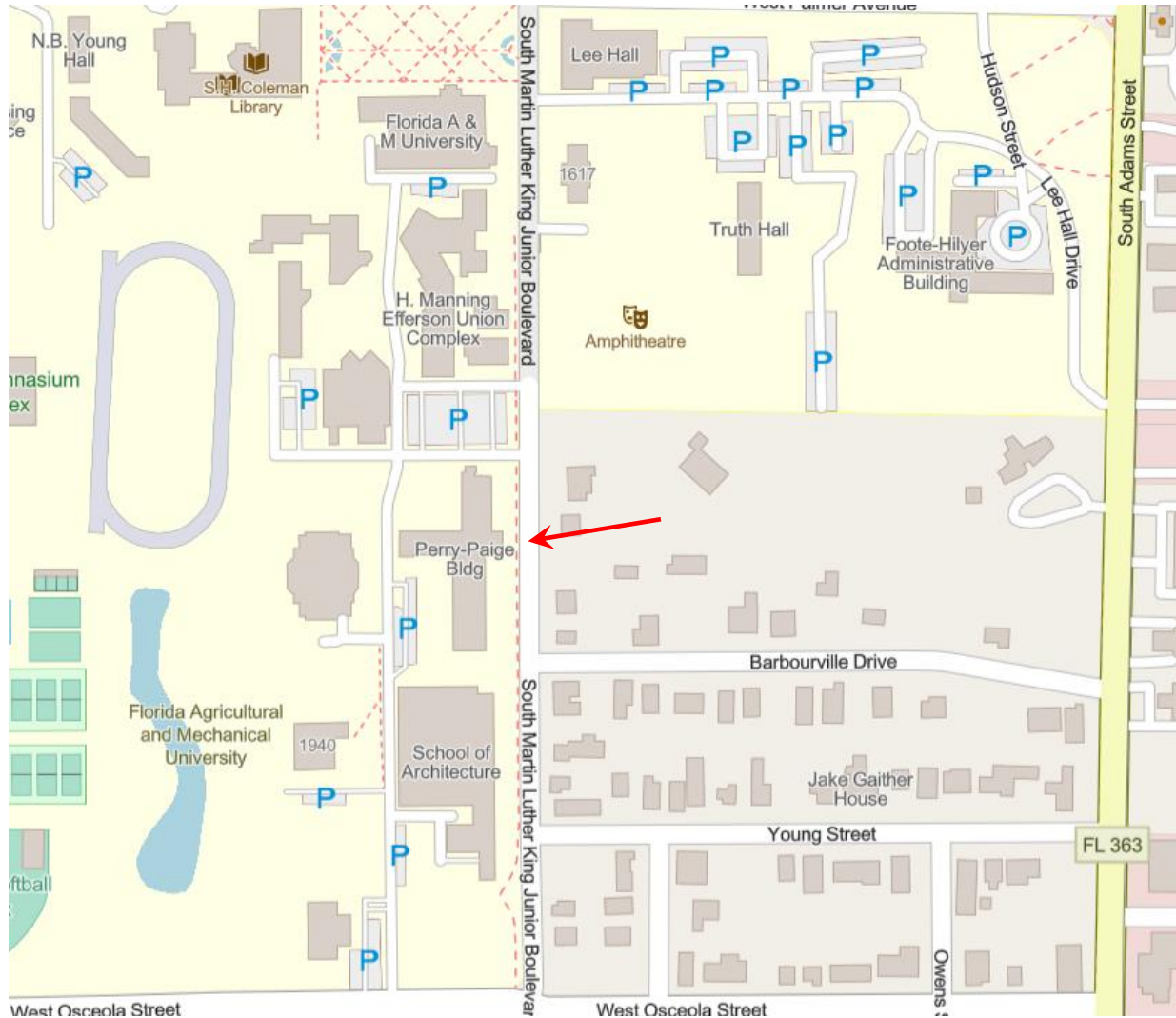
The map zooms in to the FAMU campus. Close the popup window by clicking on the x in the corner.



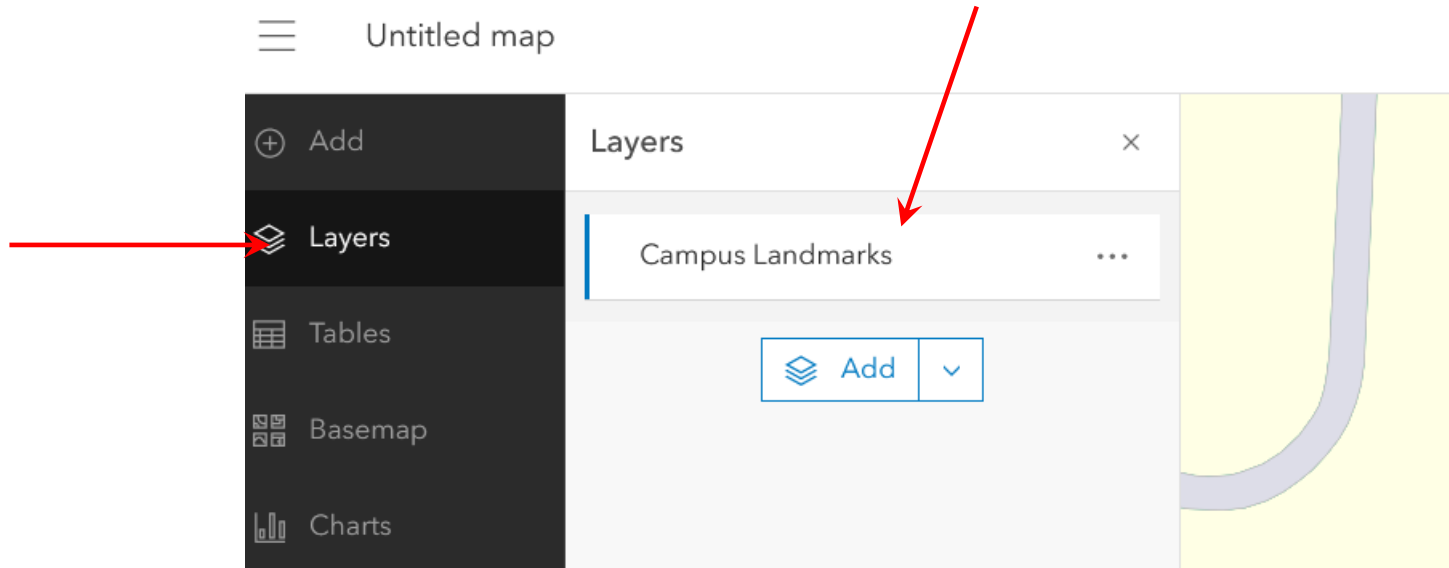
Change the basemap to OpenStreetMap and close the Basemap pane by clicking on the X.



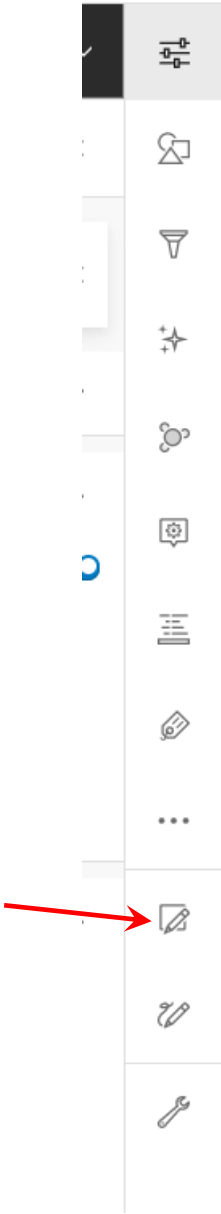
Center the basemap so the Perry-Paige building is approximately in the center.



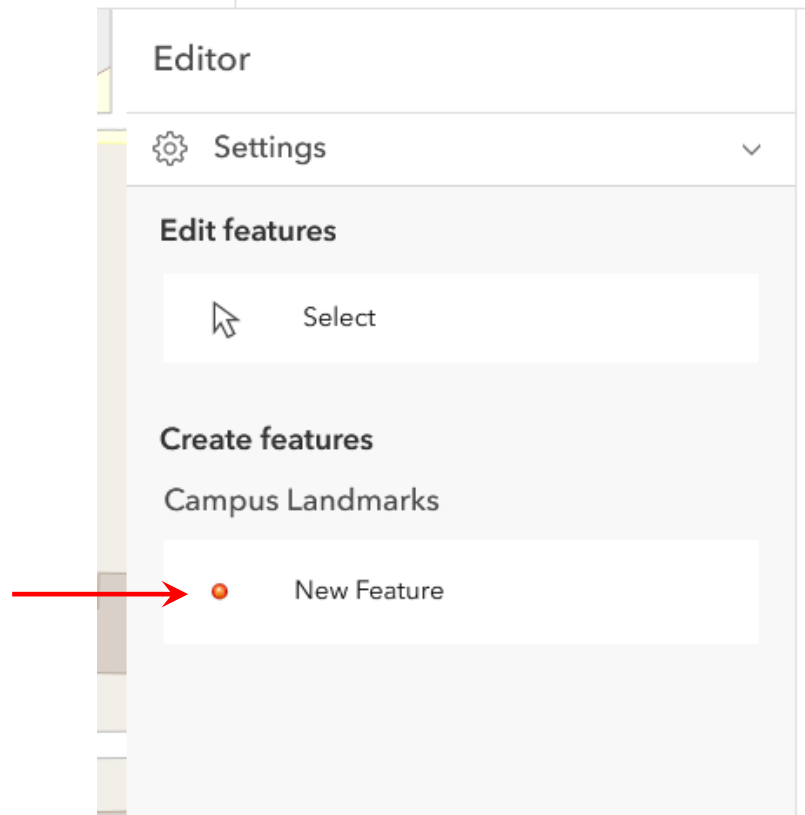
Make sure the new layer is selected. To select the layer, make sure the Layers pane is open and click on the layer.



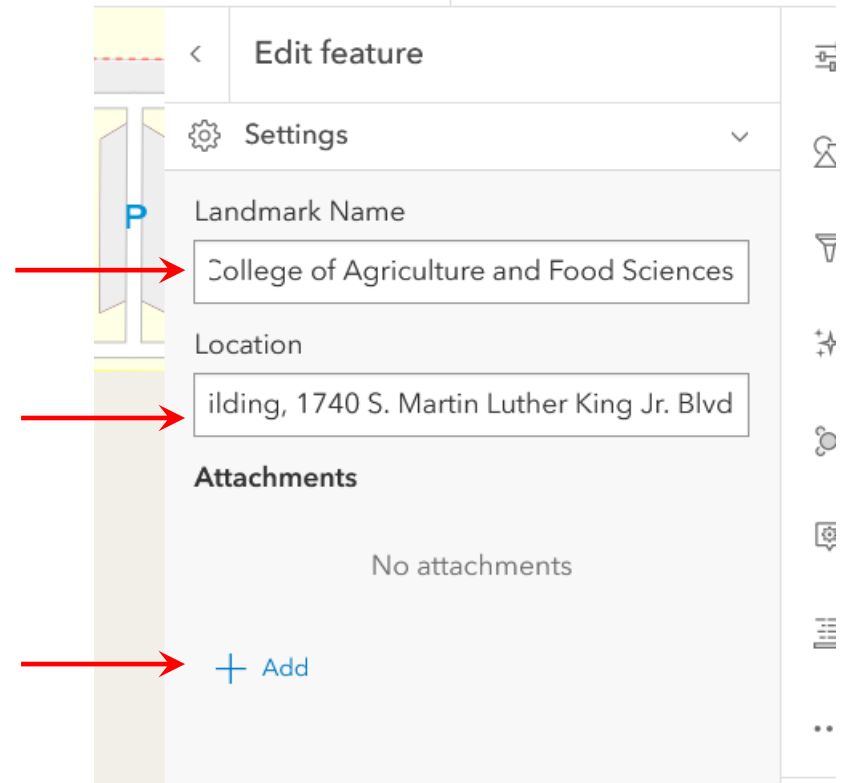
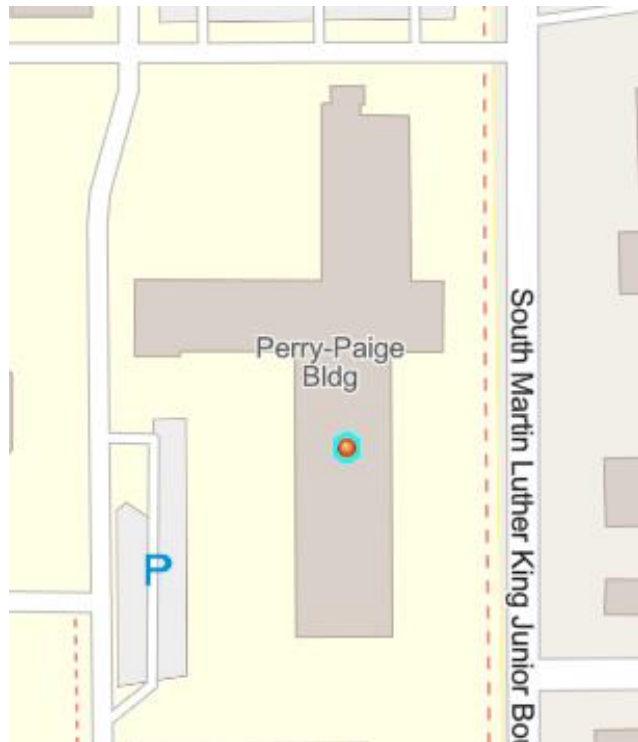
On the right-side vertical tool bar Click on the Edit tool.



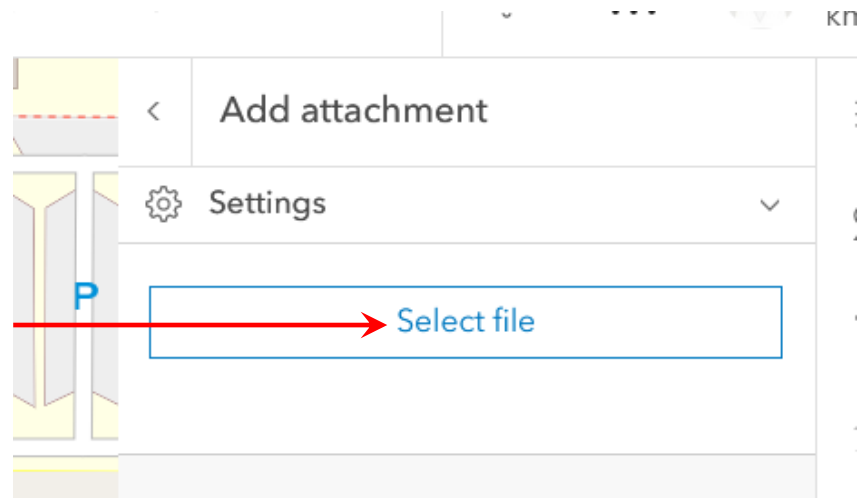
The Editor pane opens. The Select tool lets you select features from the map for editing. Right now, there are no features in the layer so we will use the New Feature tool to create some. Click on the New Feature tool.



With the New Feature tool still selected, move the cursor to the map. The cursor turns to a crosshair centered on the new feature symbol. The College of Agriculture is in the south wing of the Perry-Paige building. Move the cursor to that location and click. The attribute window for the feature opens and you can fill in the Landmark Name and Location from the spreadsheet. Click the Add button to add the photo.



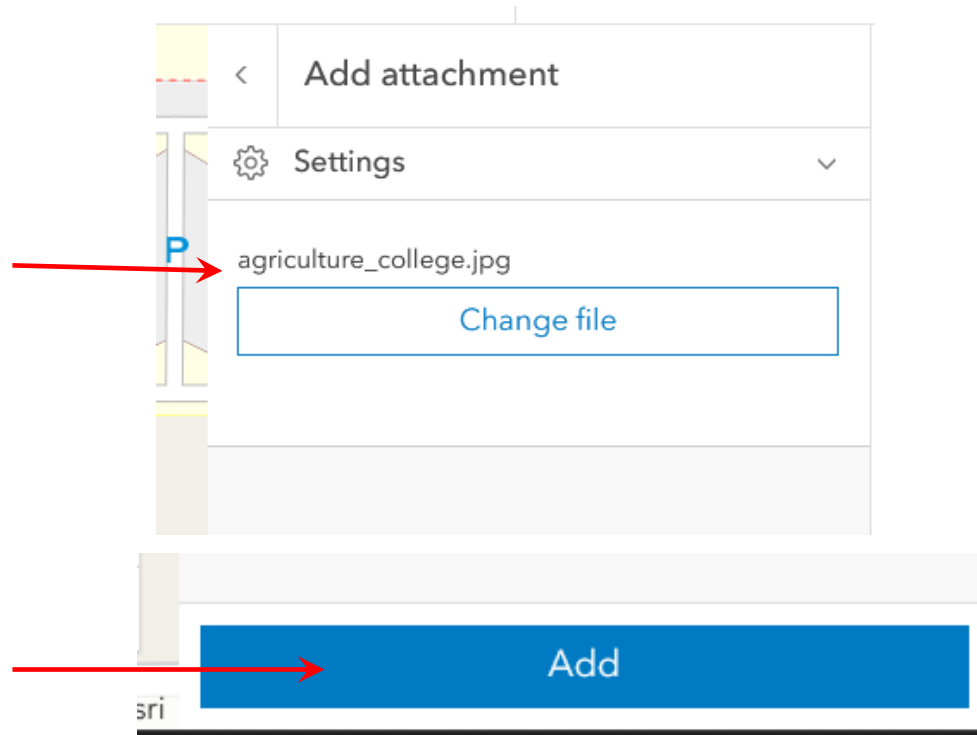
Click the Select File button.



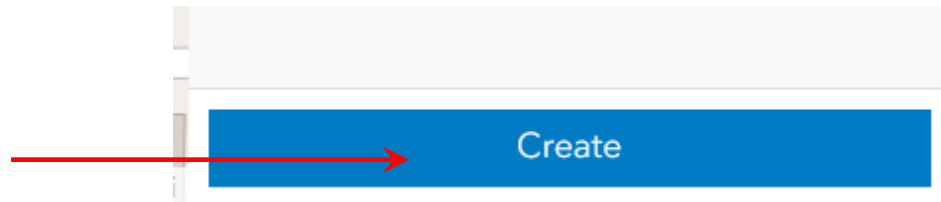
Navigate to your photos folder and double click the photos of the building entrance.



You will see your file in the Add Attachment menu. Click on Add.



Click on Create on the Editor menu to create the new point feature



Your photo will be added to the Edit panel.

< Edit feature

Settings


Landmark Name

College of Agriculture and Food Sciences

Location

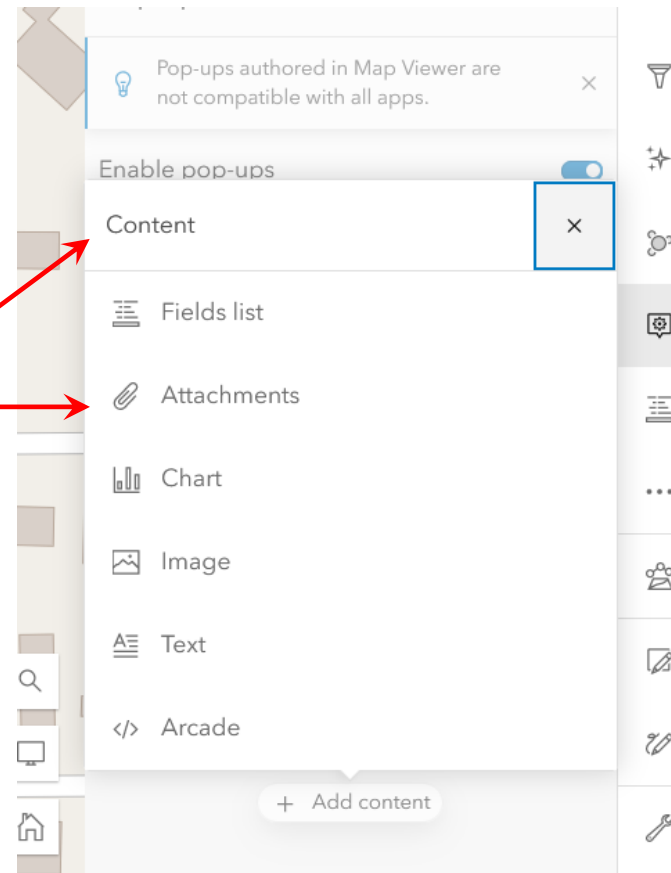
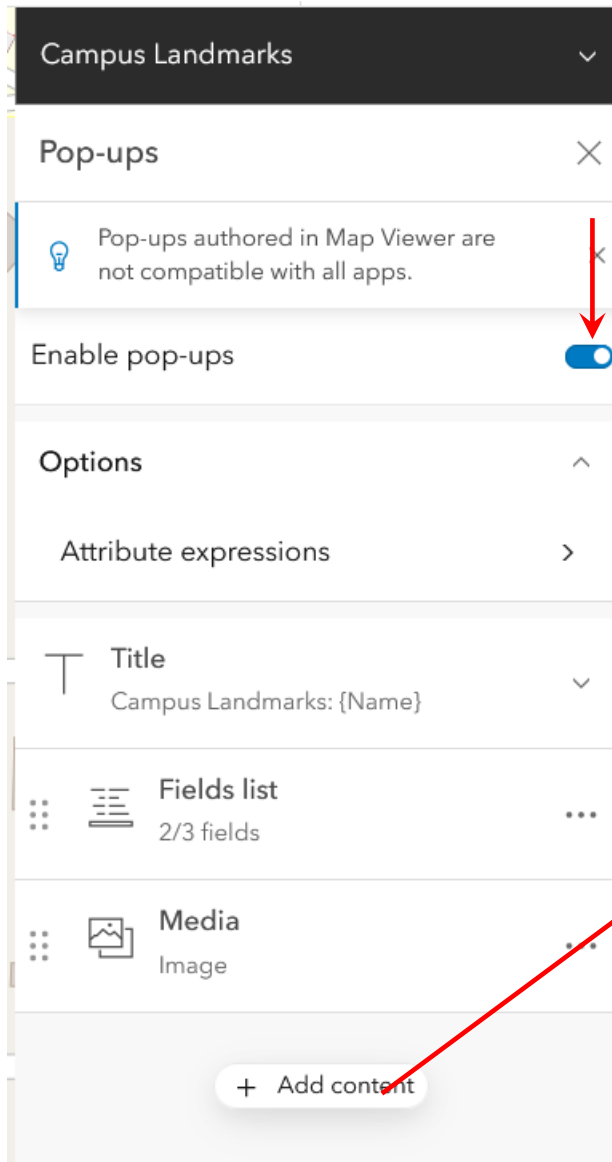
ilding, 1740 S. Martin Luther King Jr. Blvd

Attachments

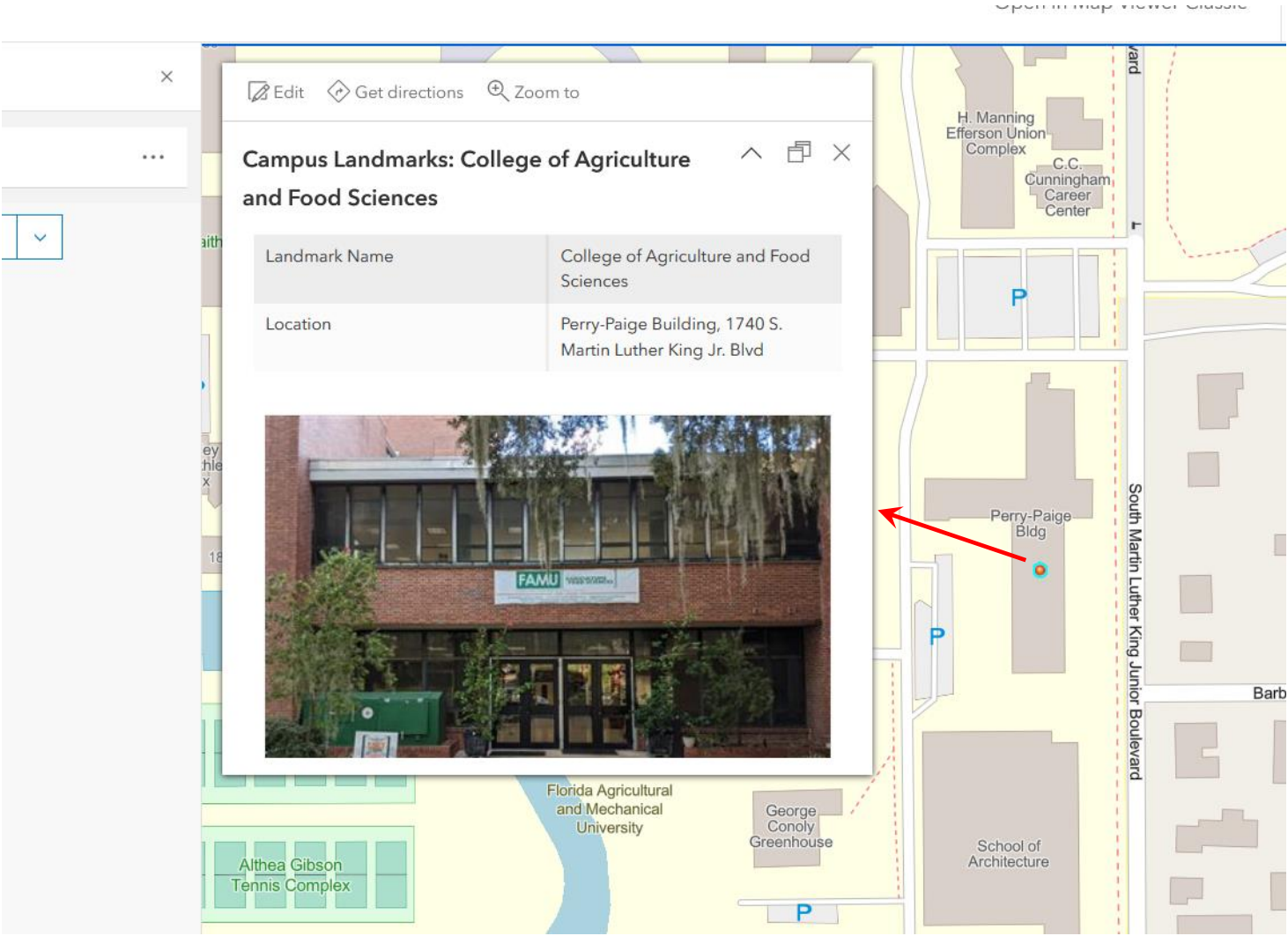


Click on the Pop-ups tool on the right-side menu. Slide the Enable Pop-ups slider to the right. Click on Add Content and select Attachments.

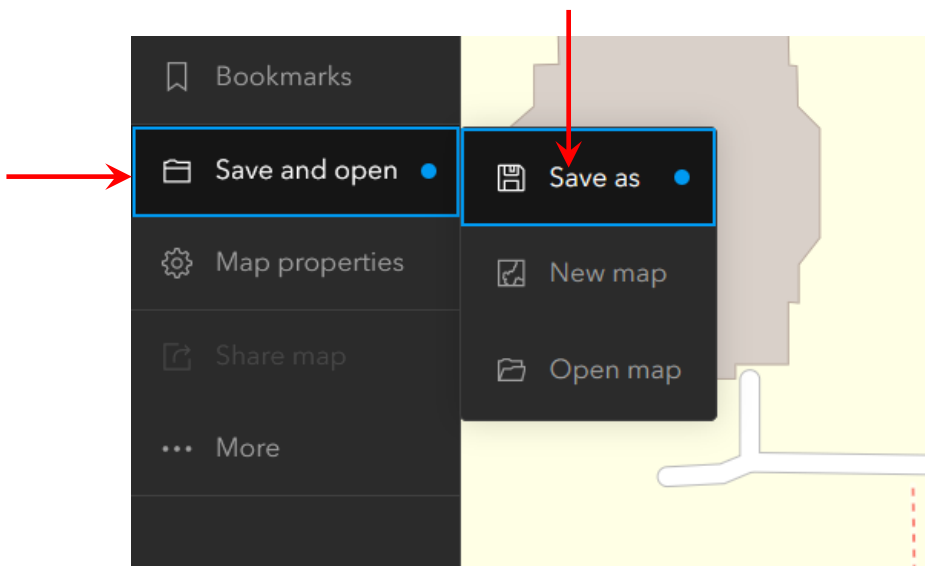
Close the Pop-ups menu by clicking on the X.



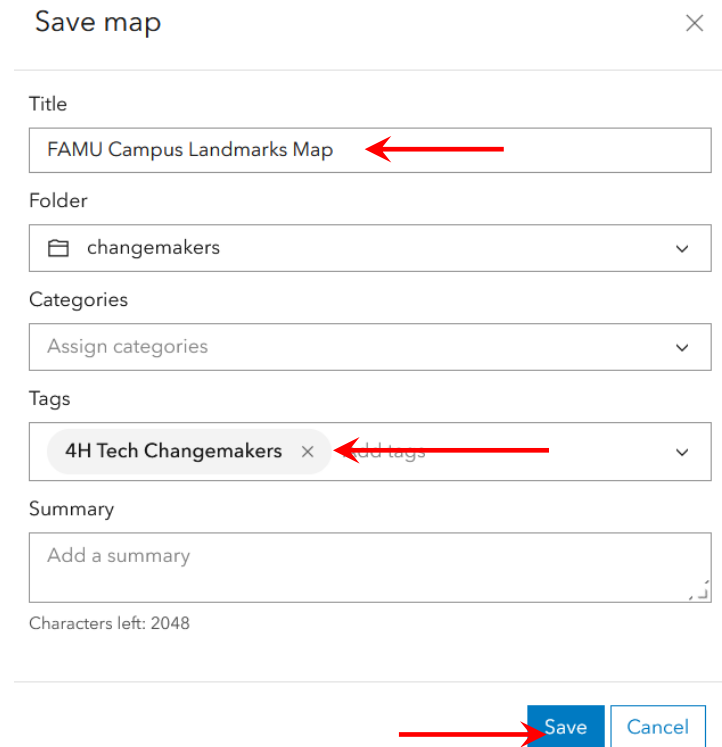
Now you can click on the point and the table information and photo will appear in a pop-up window.



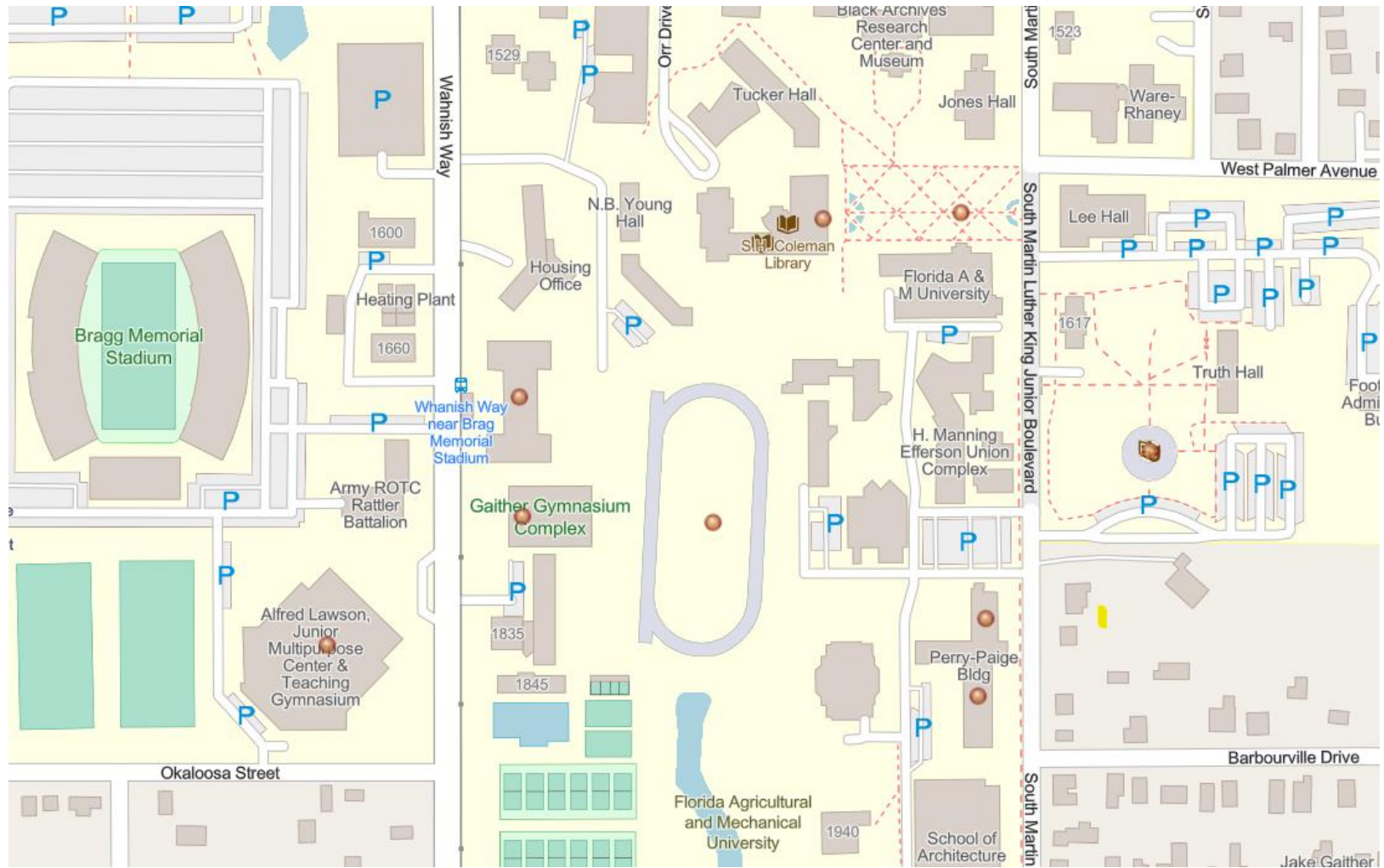
Now that you have created your first feature, save your map by clicking on the Save and Open tab on the left vertical menu. You see a blue dot next to the menu name. This indicates that there are edits that haven't been saved yet. Select Save As.



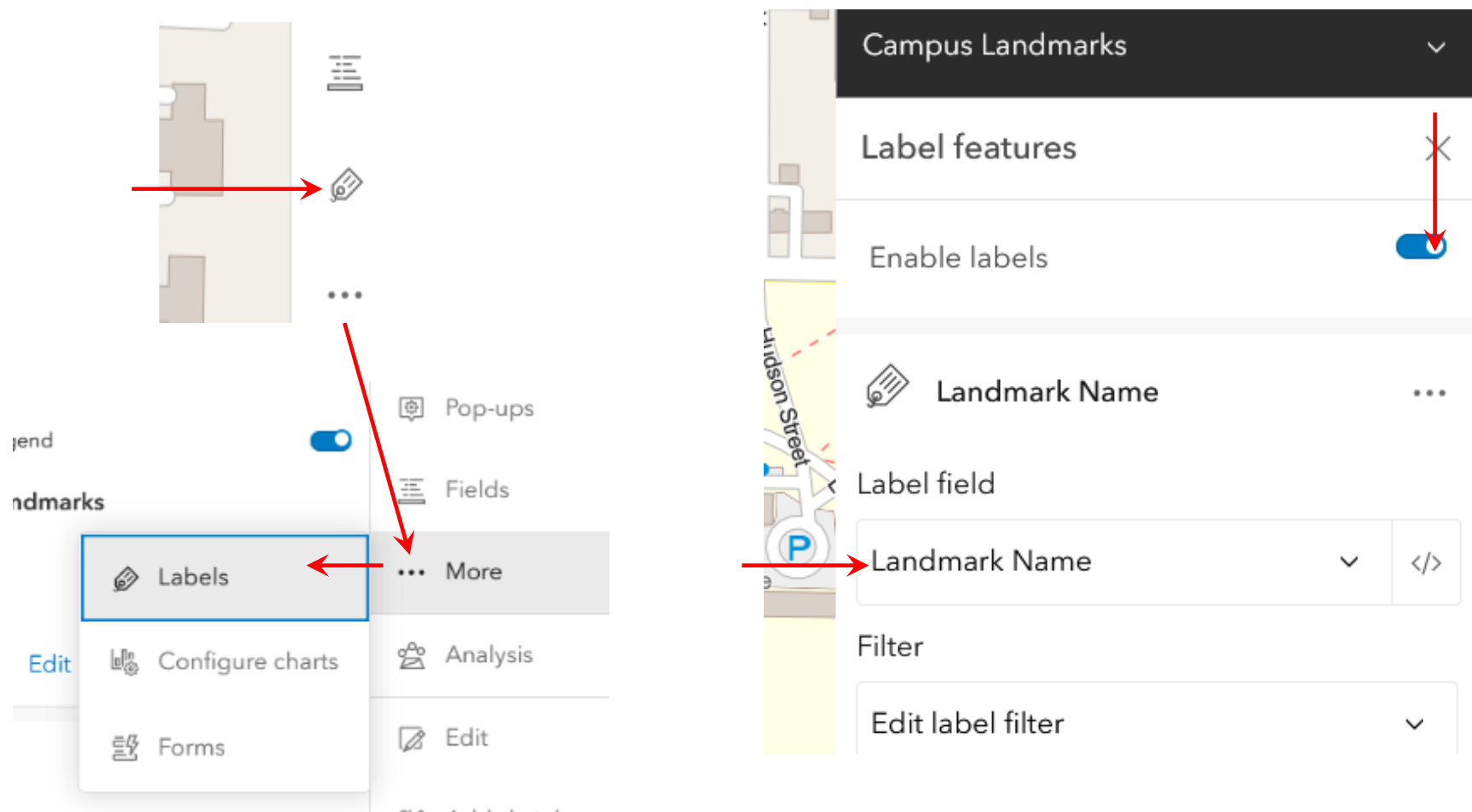
If you have not saved the map before a menu will open prompting you for a title. Type in a title and add a tag as shown below and click Save



Create the rest of the features and save your map.



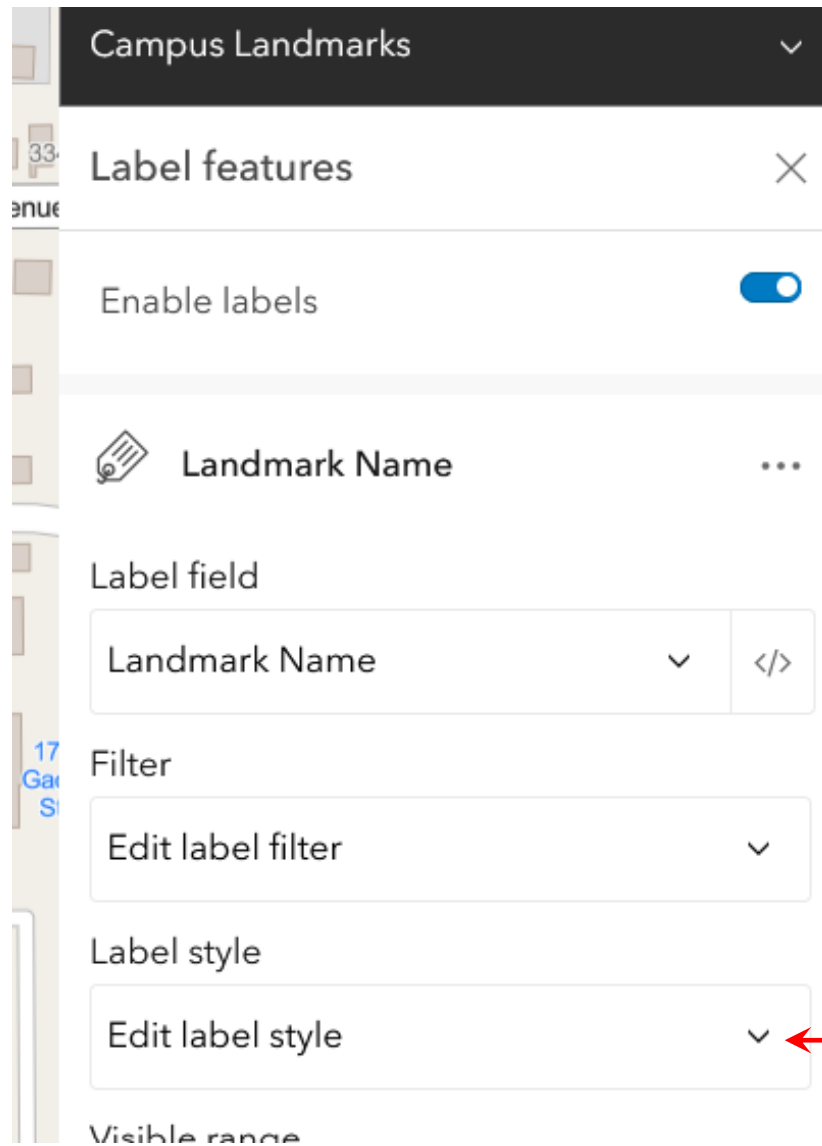
Now you will label your point features. Click on the Label button on the right-side toolbar. The Label Features pane appears. Make sure that Enable Labels is set to on and that Landmark Name is selected as the Label Field



Now you will see your landmarks labelled. But the labels don't stand out on the map very well. Let's change the label properties.

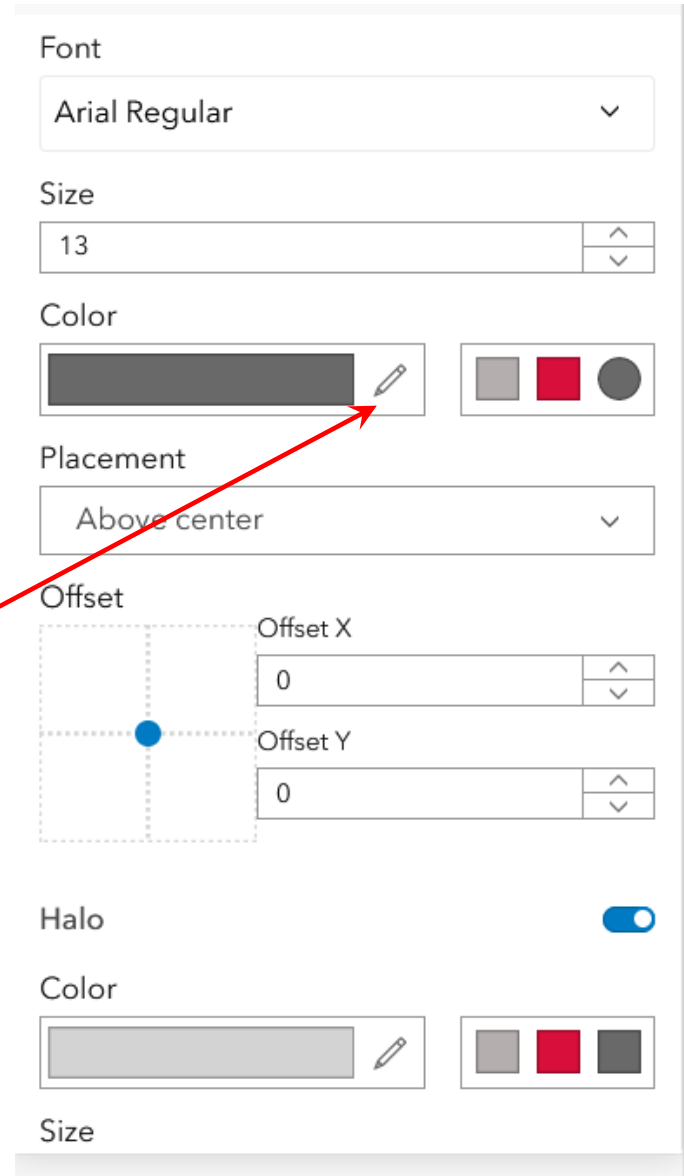


Click on the Edit Label Style drop-down box.

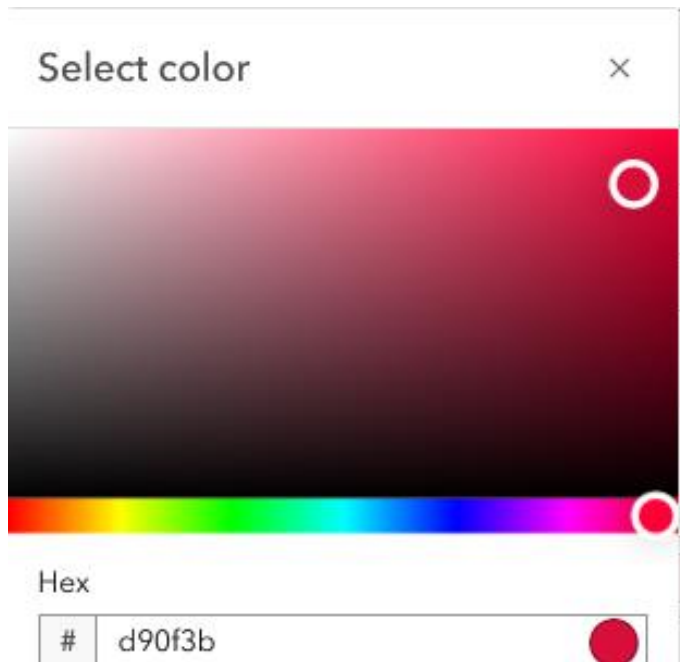


The Label Style pane opens. On this pane you can edit various properties of the labels, including the font type, font size, font color, the label offset position, the color of the halo surrounding the label font, and halo line thickness.

Click on the pencil icon next to font color.



Move the cursor around in the color field of the Color Selector to pick a color that stands out on the map. In the example below a bright pink color has been selected.



Select a contrasting color for the symbol halo. In the example below white has been selected for the halo color and the halo size has been set to 2.



Now let's look at some features of the web map you created. Go to the map and click on the Perry-Paige building point feature. In the popup window click on Edit.

→ Edit Get directions Zoom to

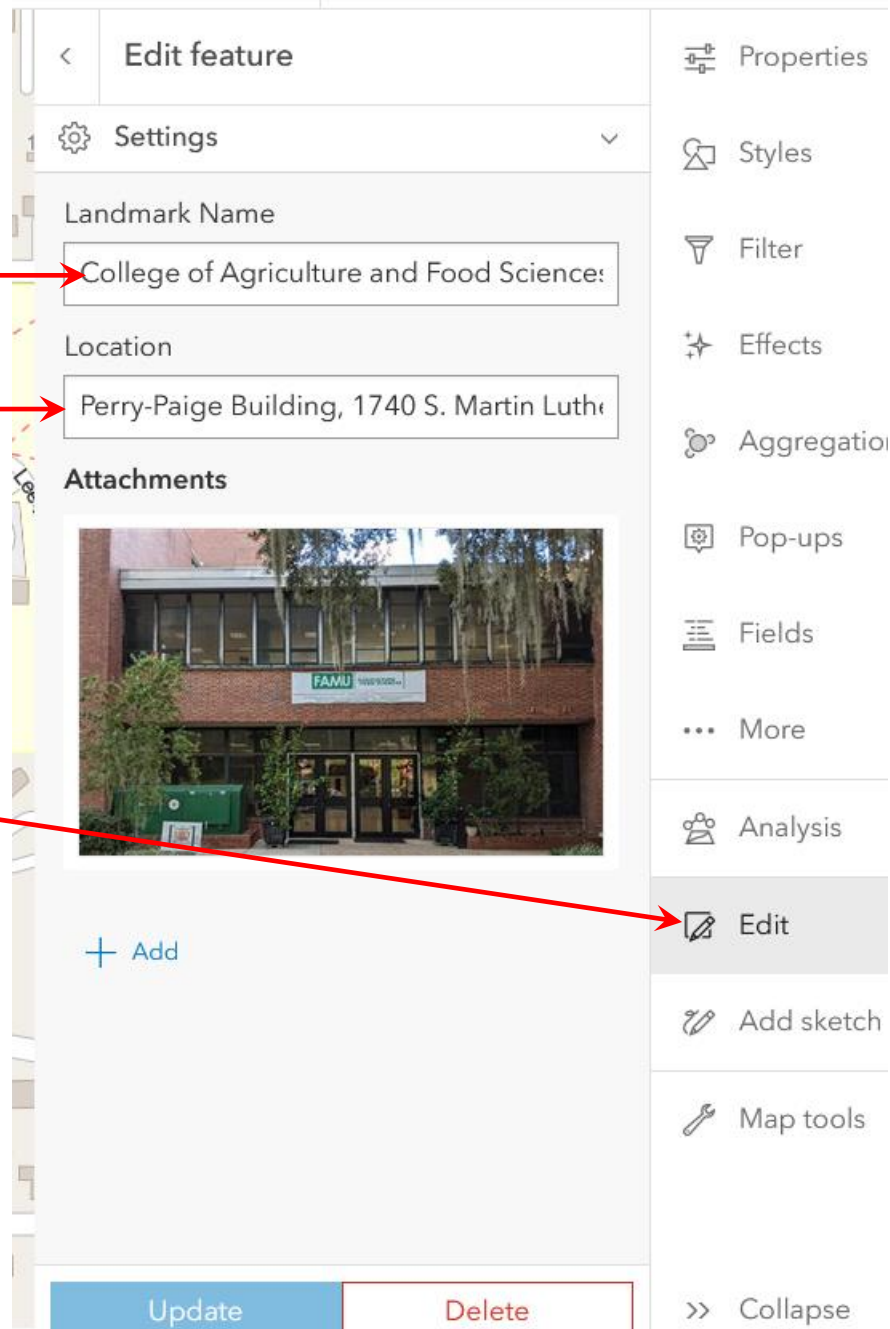
Campus Landmarks: College of Agriculture and Food Sciences ^ ☰ ✕

| | |
|---------------|---|
| Landmark Name | College of Agriculture and Food Sciences |
| Location | Perry-Paige Building, 1740 S. Martin Luther King Jr. Blvd |

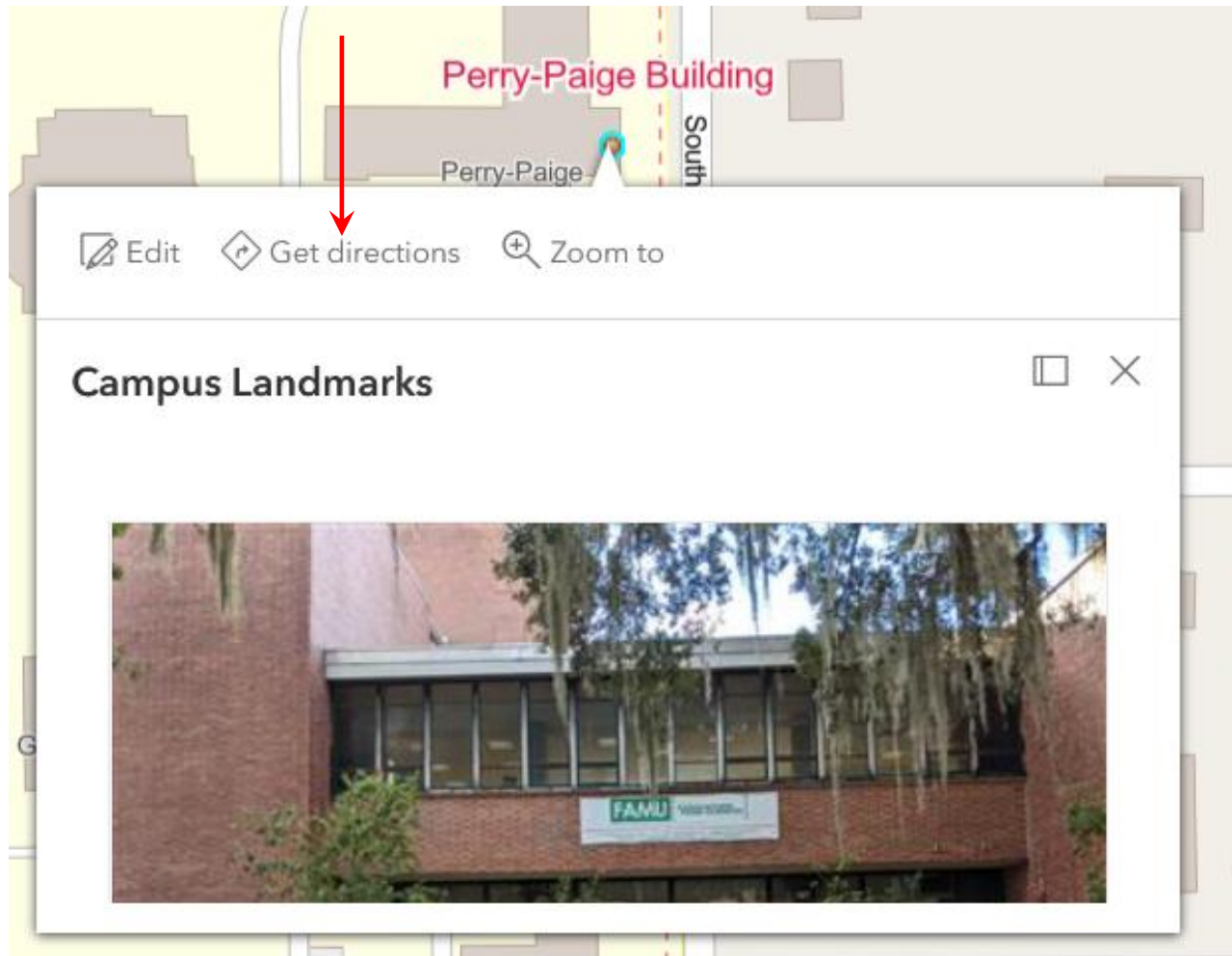


The Edit Feature pane appears. The point feature attributes can be edited and updated.

Close the Editor pane by clicking on the Edit icon.

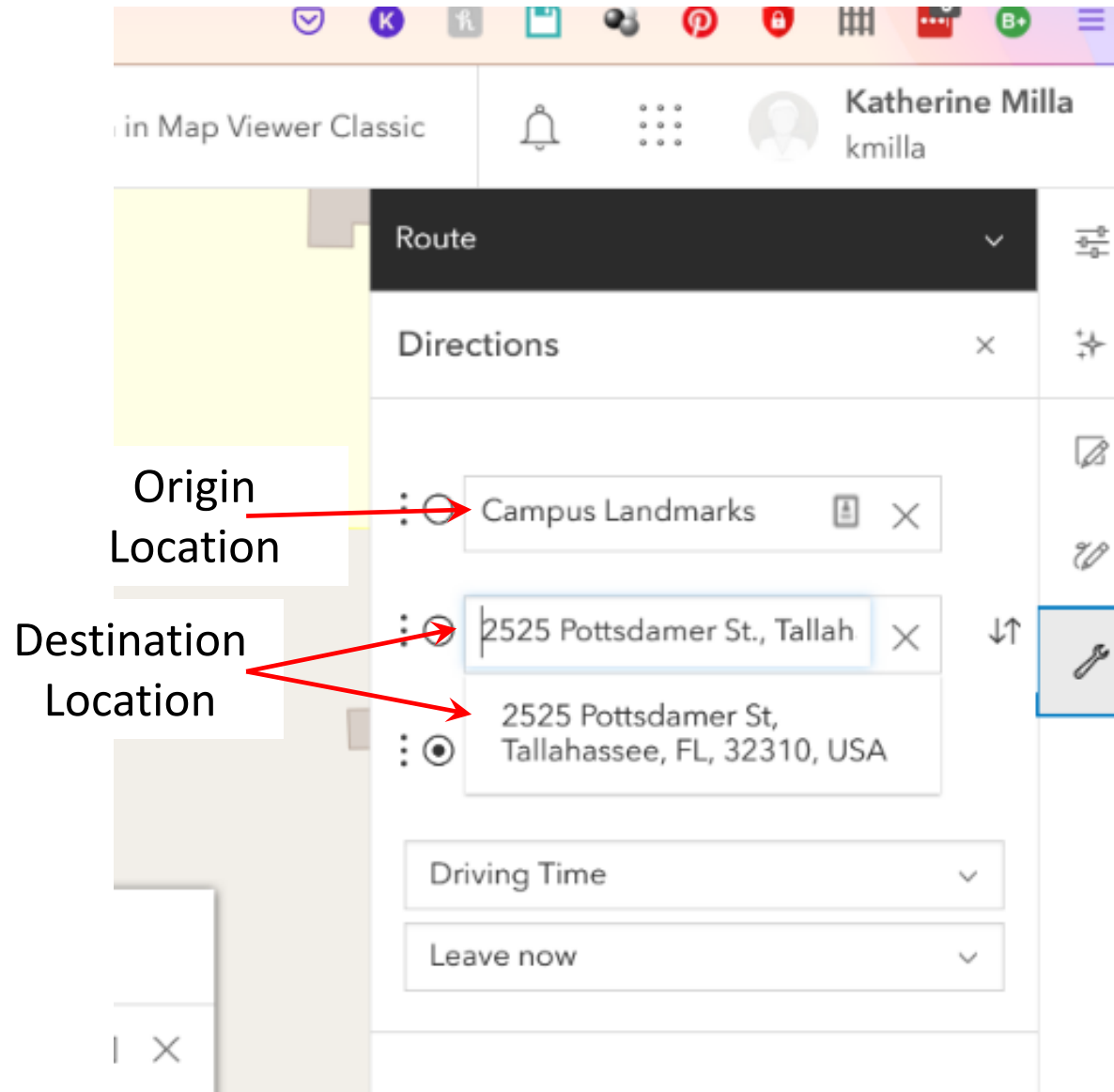


Click on the Perry-Paige point feature again and click on Get Directions in the Popup window.

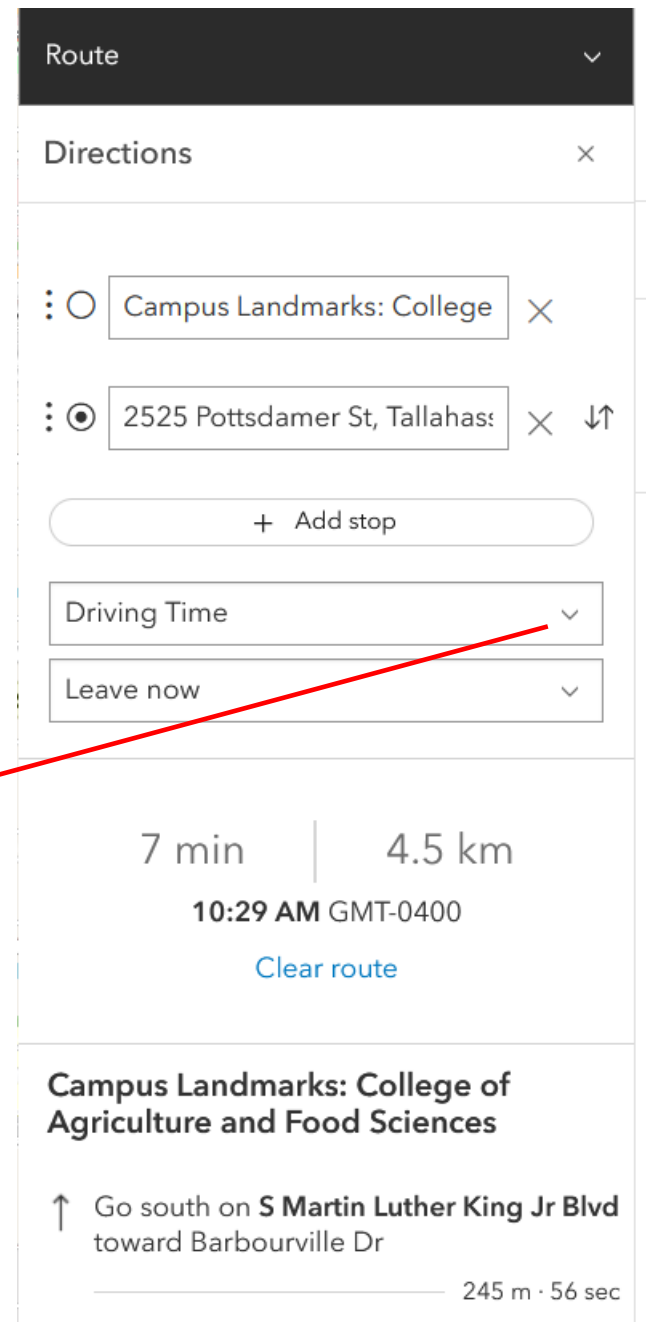
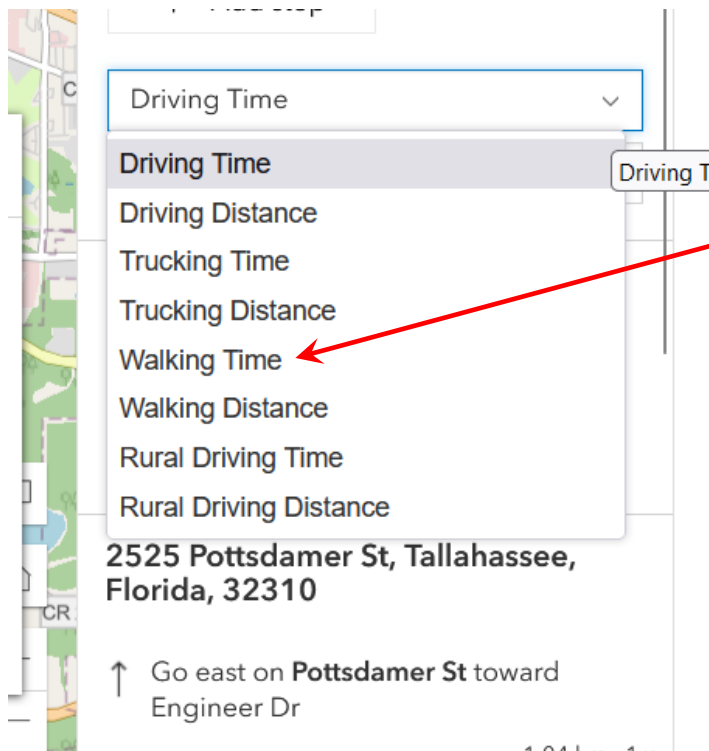


The Route pane opens with the selected point set as the origin point.

Plot a route to the FAMU-FSU College of Engineering. Begin typing the address, 2525 Pottsdamer Street. As you type, ArcGIS will suggest addresses that match your text. If you see your desired location appear, click on it.

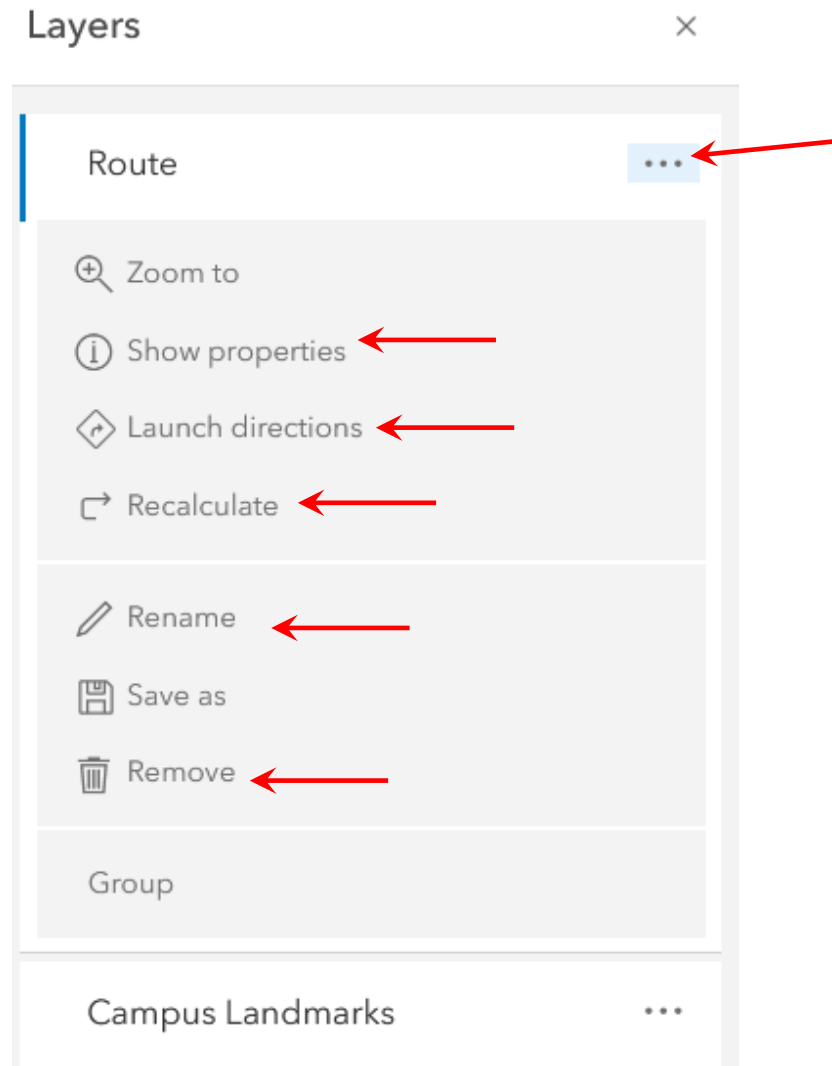


The Route pane is populated with information on the trip, including driving time and directions. Clicking on the Driving Time field allows you to select different options, such as walking time.

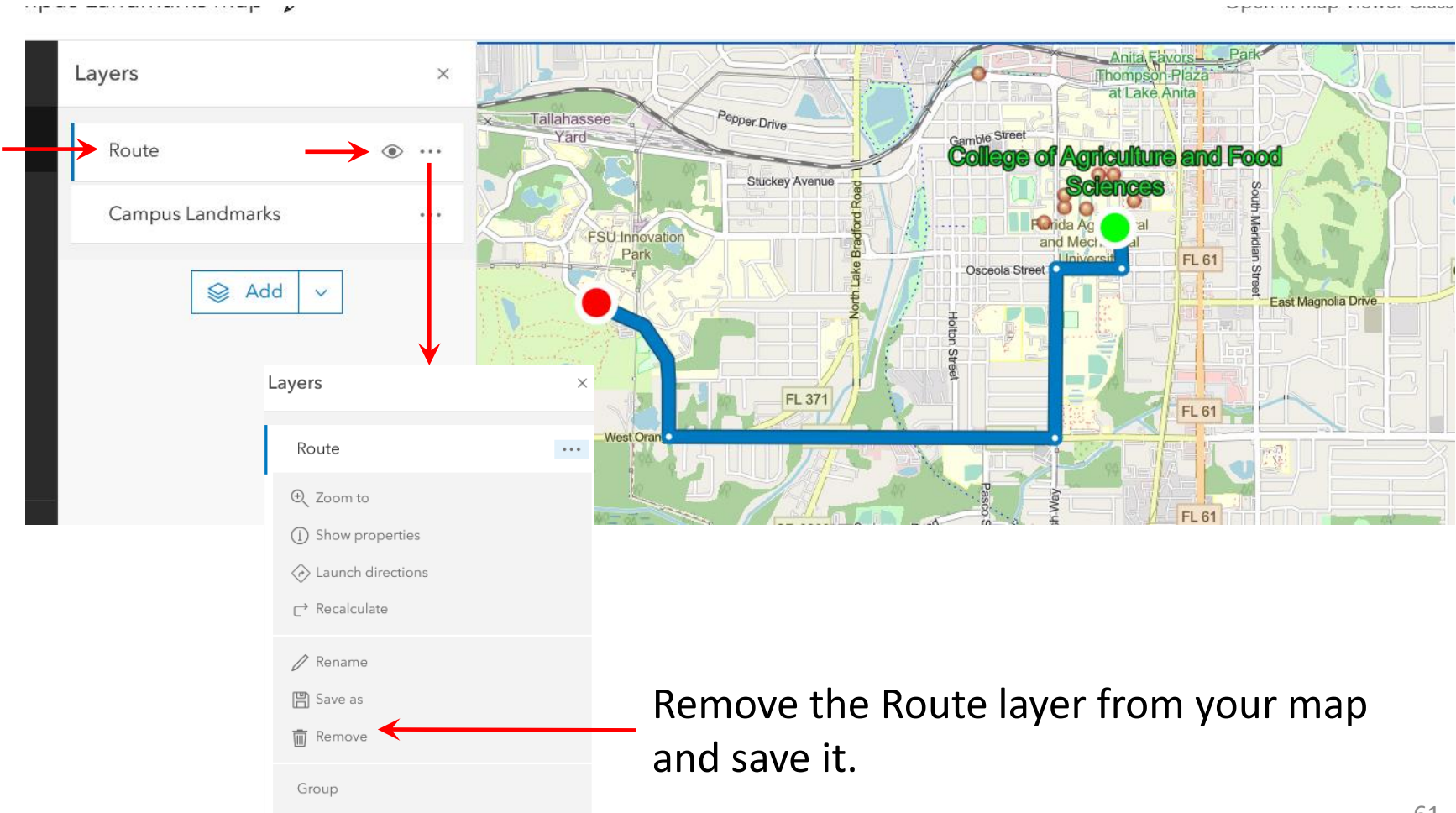


The route you just created is added to the map as a new layer. Open the Layers pane and you will see it. You can turn the layer on and off with the eye icon. Expand the Route layer options menu and examine the options. For example, you can show the layer properties and edit some of its characteristics, launch the directions, recalculate the route and rename it.

For this exercise remove the Route and save the map.



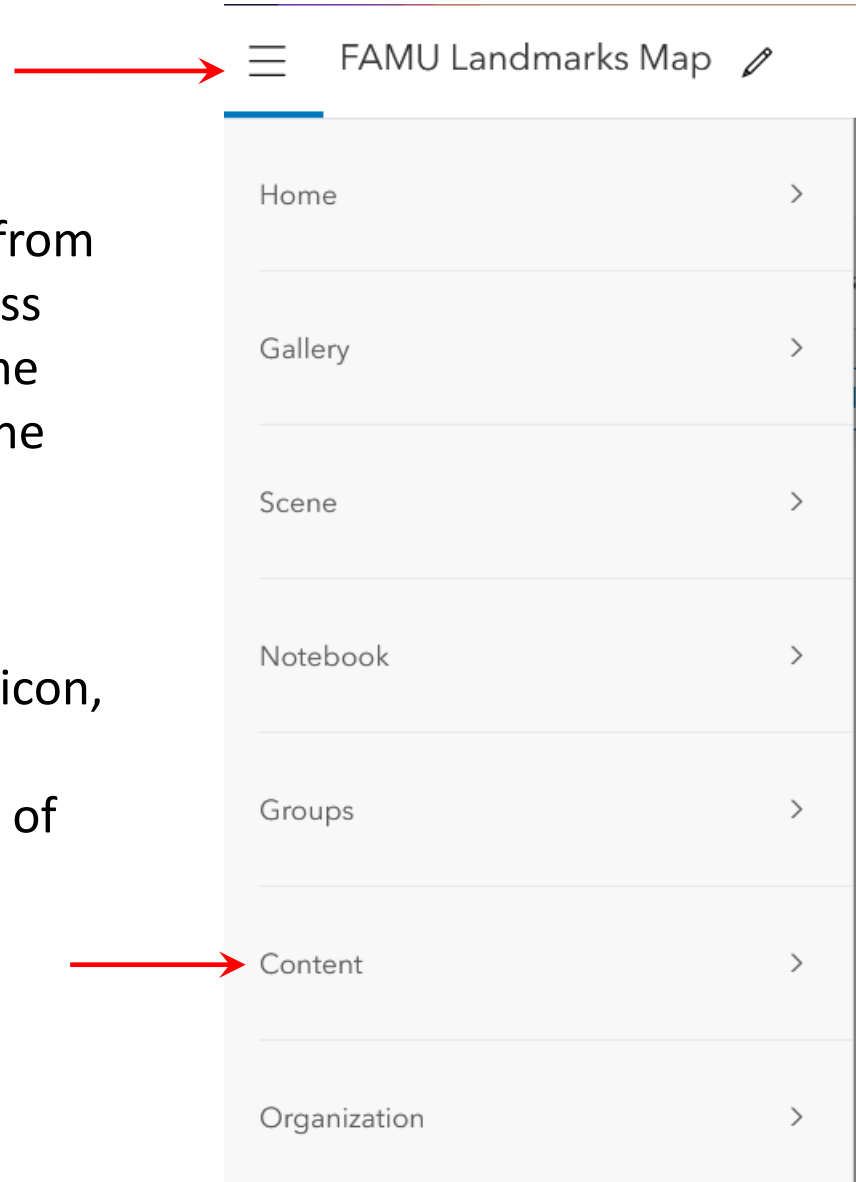
The route you just created is added to the map as a new layer. Open the Layers pane and you will see it. You can turn the layer on and off with the eye icon. Expand the Route layer options menu and examine the options. For example, you can show the layer properties and edit some of its characteristics, launch the directions, recalculate the route and rename it.



Remove the Route layer from your map and save it.

Now you are going to create an app from your Web Map that anyone can access and use. First you need to apply some security settings to the layer so no one can change the layer.

Click on the three horizontal lines (sometimes called the “hamburger” icon, presumably because it resembles a hamburger patty between two slices of bread). Click on Content.



Click on the Layer (NOT the Web Map but the Layer you created and added to the Web Map)


The screenshot shows a list of layers in a web map interface. Each layer entry consists of a checkbox, a layer name, and a type icon with a label. The layers are:

- Title
- FAMU Campus Landmarks Map (Web Map)
- Campus Landmarks (Feature layer (hosted))
- tech_changemakers_presentation (PDF)


Two red arrows point to the 'Campus Landmarks' layer name and the 'Feature layer (hosted)' type label, respectively.


The layer's overview page opens. Click on the Settings tab.





Campus Landmarks 


Overview Data Visualization Usage **Settings**

 Edit thumbnail




 Add to Favorites


Add a brief summary about the item.  Edit


 Feature layer (hosted) by kmilla2

Item created: Apr 12, 2023 Item updated: Apr 12, 2023
View count: 12


Open in Map Viewer 


Open in Scene Viewer


Open in ArcGIS Desktop 

Publish 

Create View Layer

Export Data 

Update Data 

Description  Edit

Add a in-depth description of the item.

Make sure the Delete Protection and Public Data Collection checkboxes are checked.

Delete Protection

Prevent this item from being acc

Public Data Collection

Approve this layer to be shared

If the public does not require editing c
also improves performance, especially

Click on Edit Extent

Delete Protection

Prevent this item from being accidentally deleted.

Delete Item

Extent

Items with an extent can be found when searching for items by location.

Edit Extent

Save

Cancel

Search on Florida A&M University. The map will zoom in to the FAMU campus. Click on Draw the Extent on the Map and draw a box on the map that covers the entire FAMU campus and a little north of Gaines Street. Click Save.

Set Extent

Create an extent based on

Current features in layer

Use location search.

Florida A&M University

Draw the extent on the map.

Draw Extent

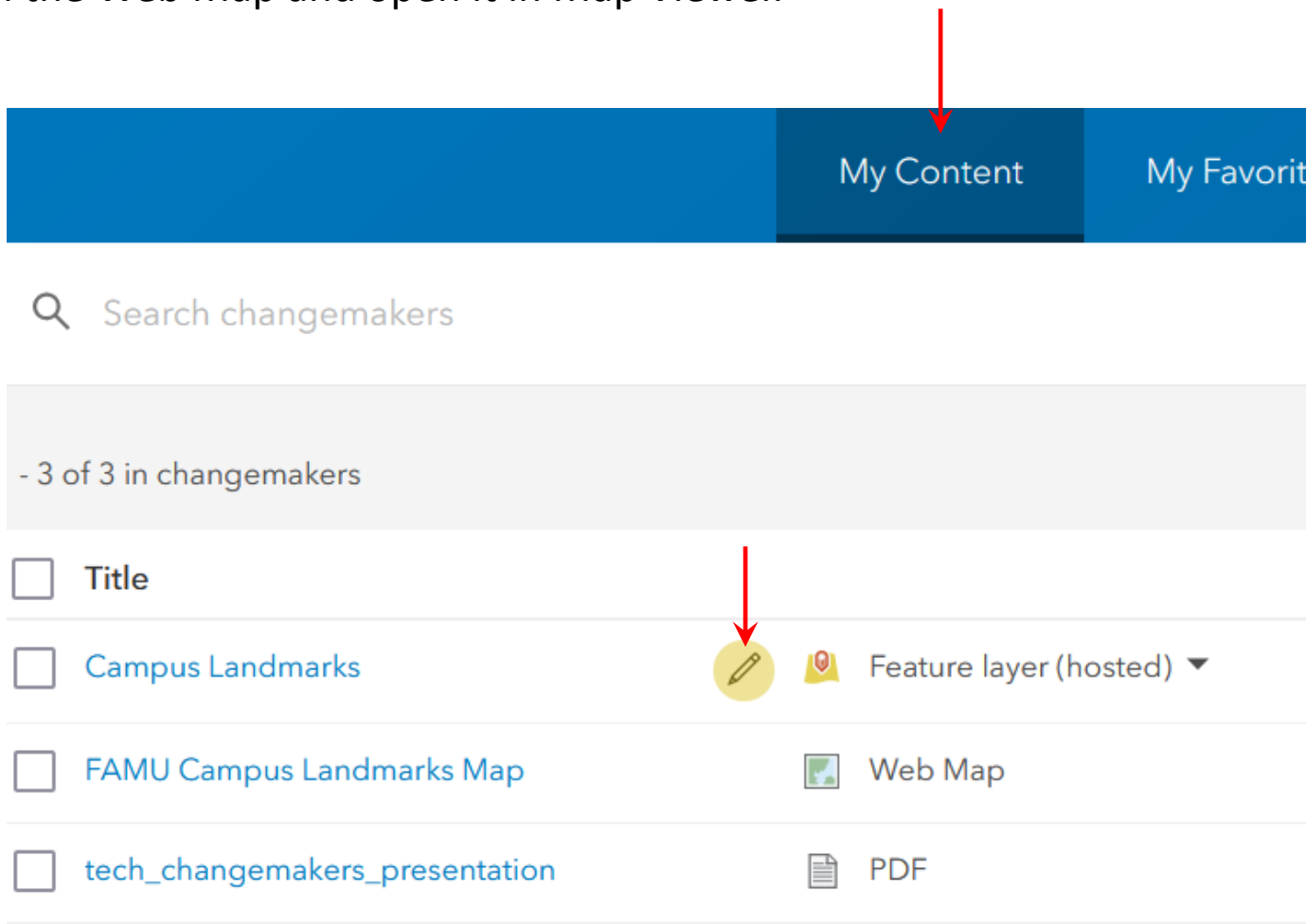
> Coordinates

Tallahassee-Leon County GIS, FDEP, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bu

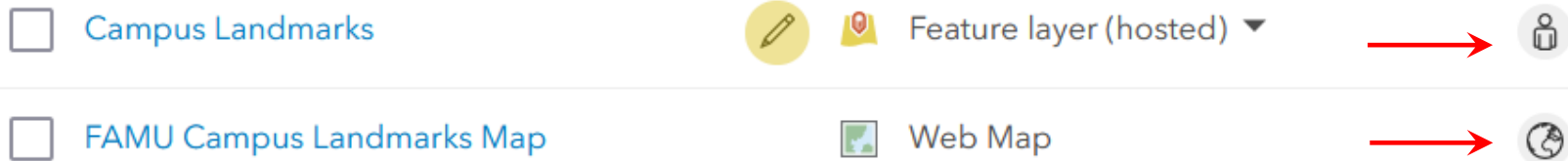
Save Cancel

Return to your Content page. Now you should see a pencil icon next the Feature Layer indicating that the layer is approved for editing by the public.

Click on the Web Map and open it in Map Viewer.






You need to make sure that both the hosted feature layer and the web map are shared with the public so that anyone can see the map without having to log in to ArcGIS Online. The world icon indicates that sharing is set to everyone. In the example below the person icon indicates that only you can see the hosted feature layer. To change the sharing level, click on the icon.



Click on the Everyone (public) selection and Save.

Share ✕

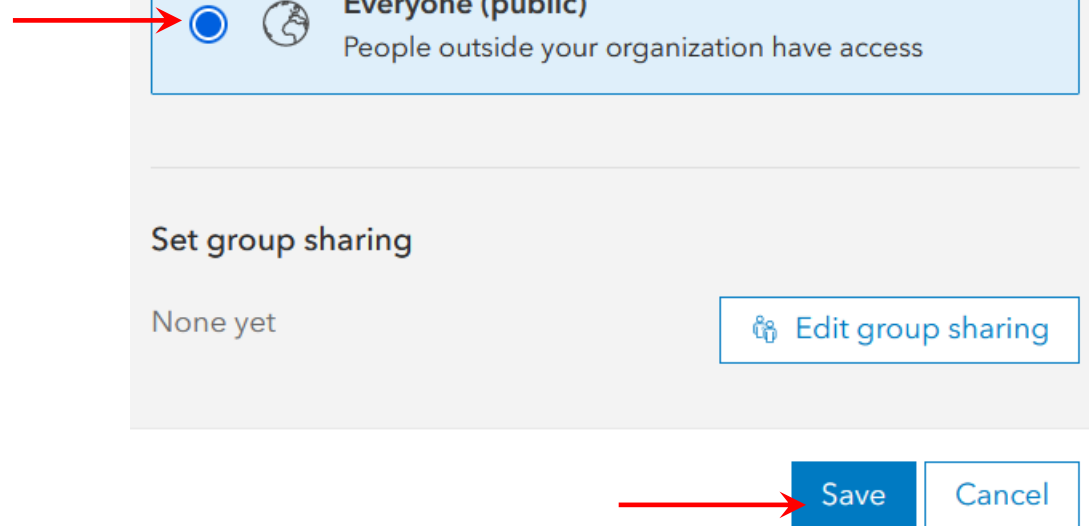
Set sharing level ↶ Revert

-  **Owner**
Owner of the item(s) has access
-  **Organization**
All members of your organization have access
-  **Everyone (public)**
People outside your organization have access

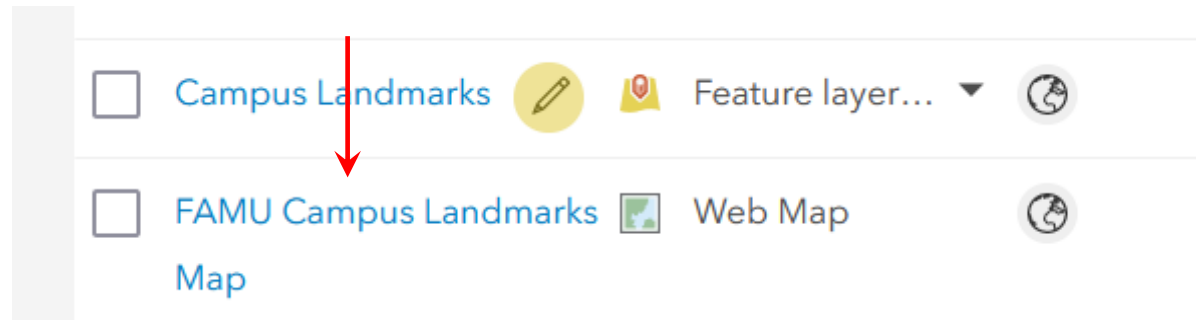
Set group sharing

None yet Edit group sharing

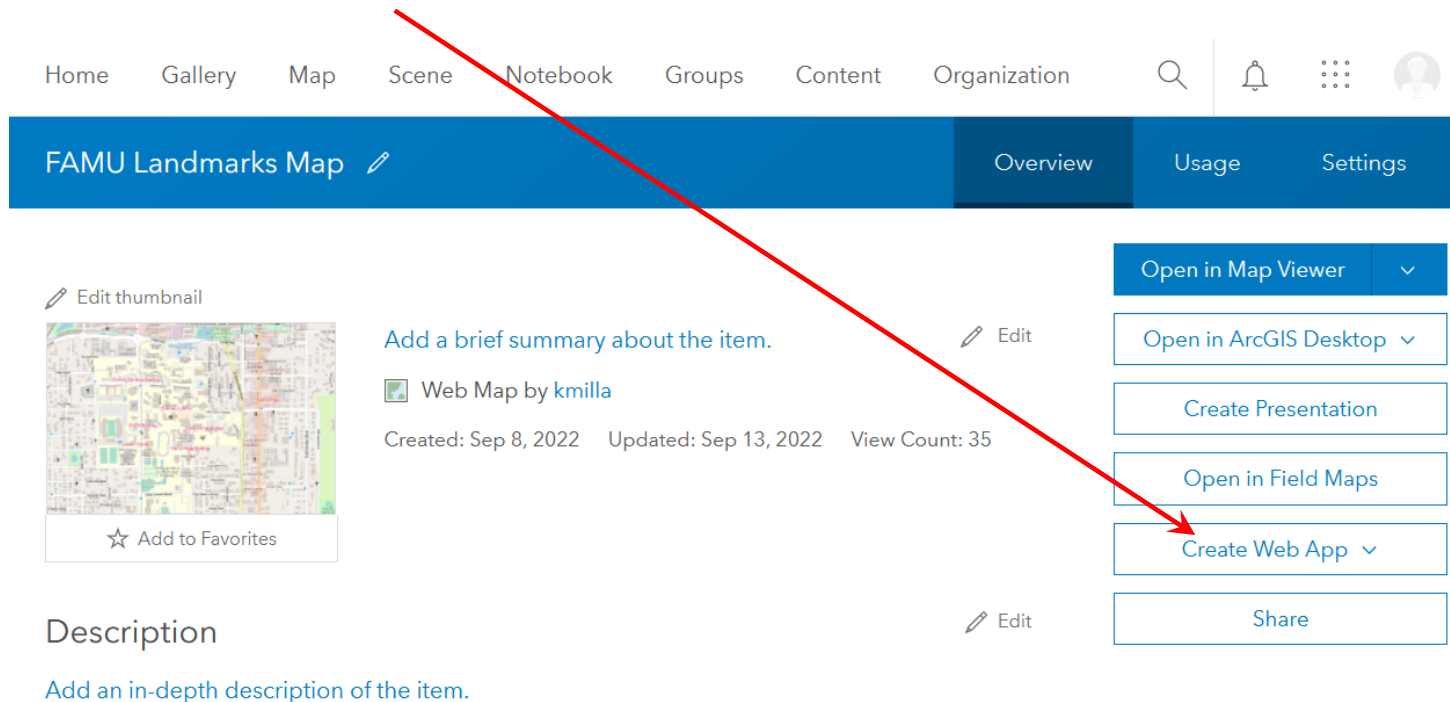
Save Cancel



Now you are ready to create the app. From the Content page and click on the Web Map.



From the Overview page click on Create Web App.



Select Instant Apps.

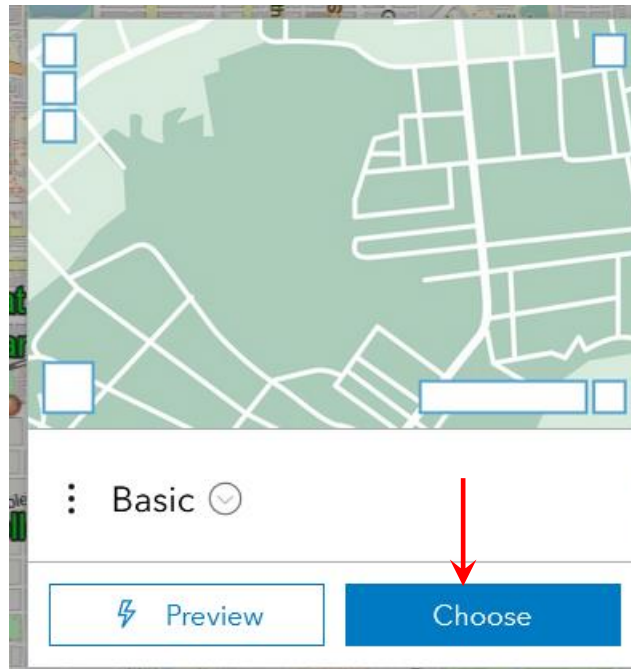


Instant Apps

Choose an app to provide a focused experience using your map.

Create Web App ▾

Select the Basic App.



Accept the field defaults. Click Create App.

Create app - Basic ×

Give your app a title

FAMU Landmarks Map ×


Add tags

Add tags ∨

Save in folder

kmillla ∨

Close Create app



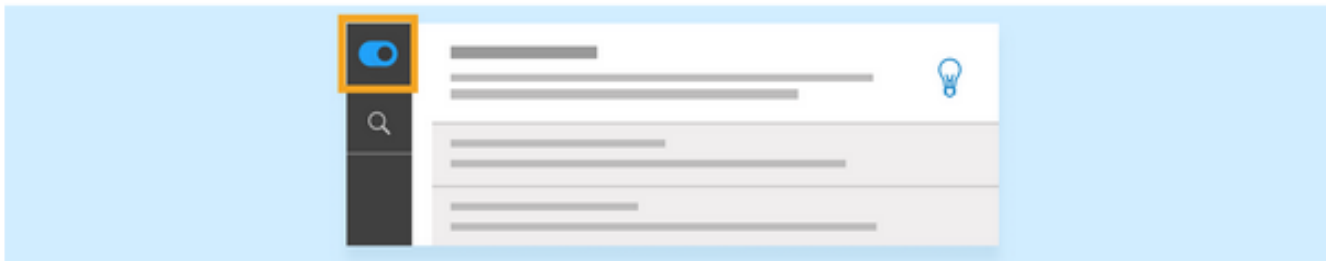
Click through the informational windows and accept the default settings.

Express

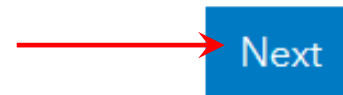


Browse all settings


Use express mode to focus on the most essential settings for the app. Turn off Express to browse and configure all the available app settings.



1 of 5



Express

The most essential settings to consider when publishing this app 

Step 1. Map

Select a map or a scene to display in your app

Step 2. About

Include information to help readers understand your map

Step 3. Interactivity

Configure the tools needed for an effective experience of exploring/analyzing your map


Step 4. Theme & Layout

Customize the look of your app

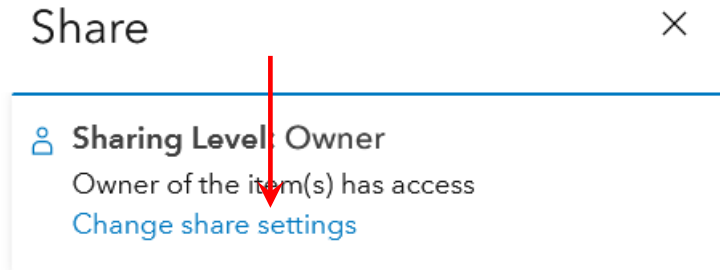
Exit

Publish

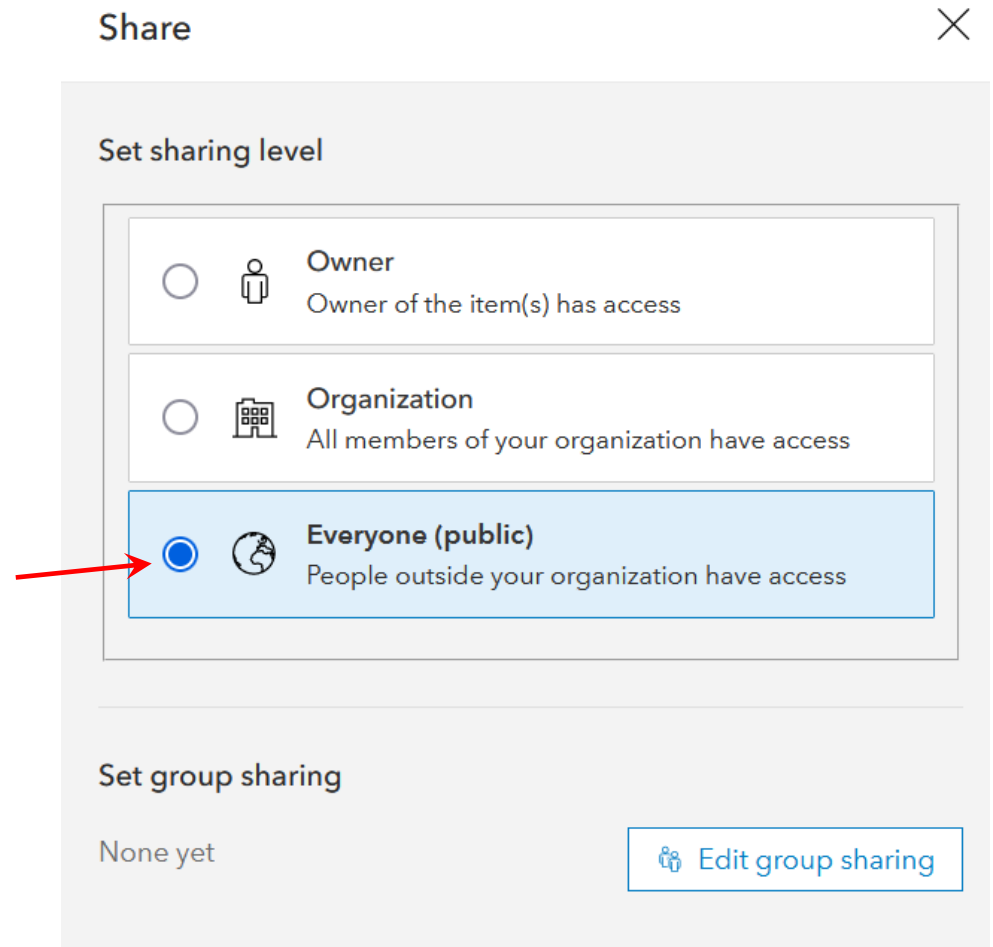
Click on Publish
then click on
Confirm.



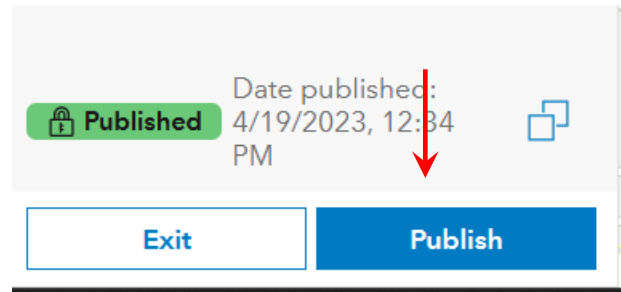
Under Share click Change Share Settings



Set the Sharing Level to Everyone and click Save.



If necessary, click Publish again.



Share



Sharing Level: Public

People outside your organization have access

[Change share settings](#)



Copy Link



Facebook



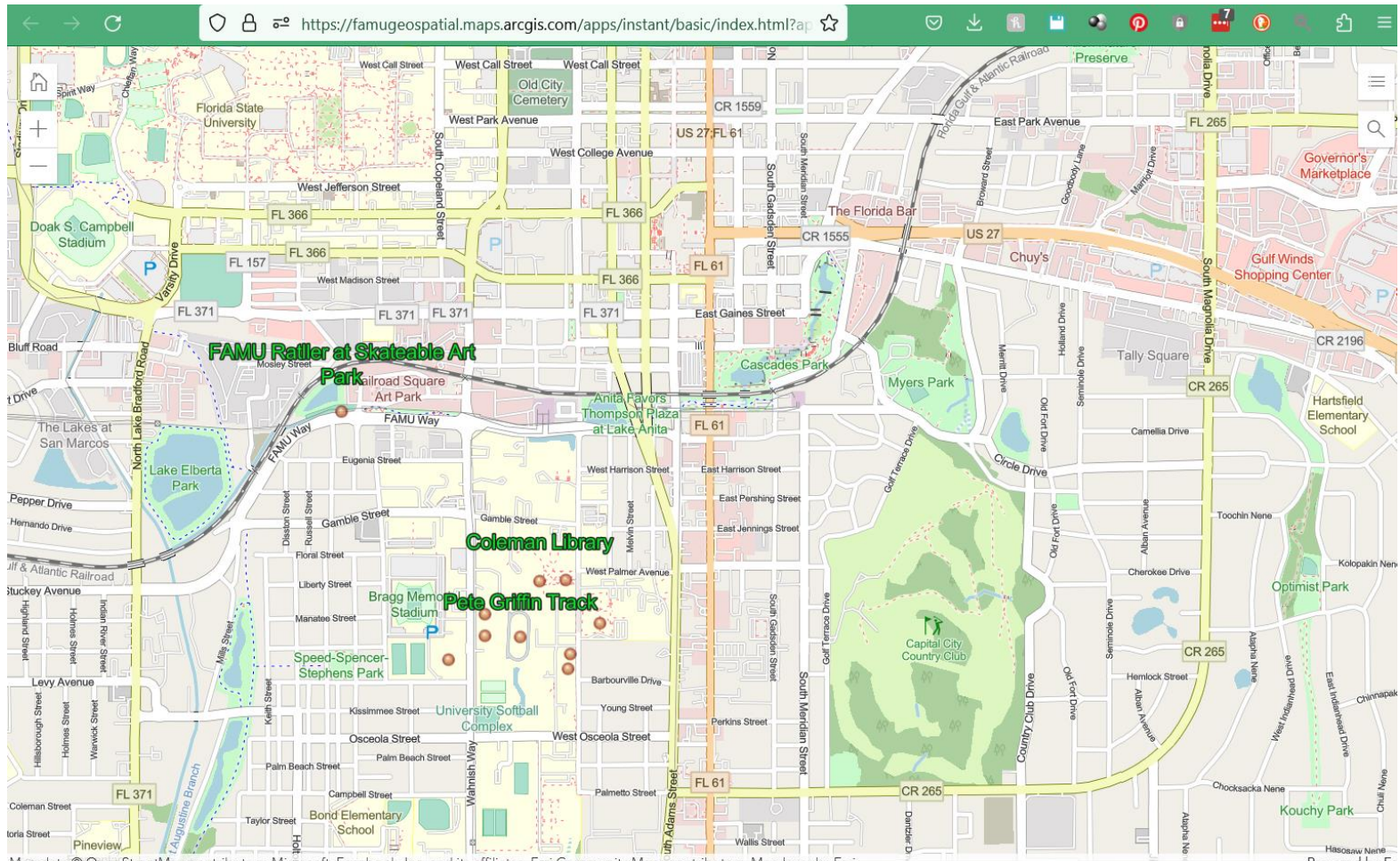
Twitter

Close

Launch

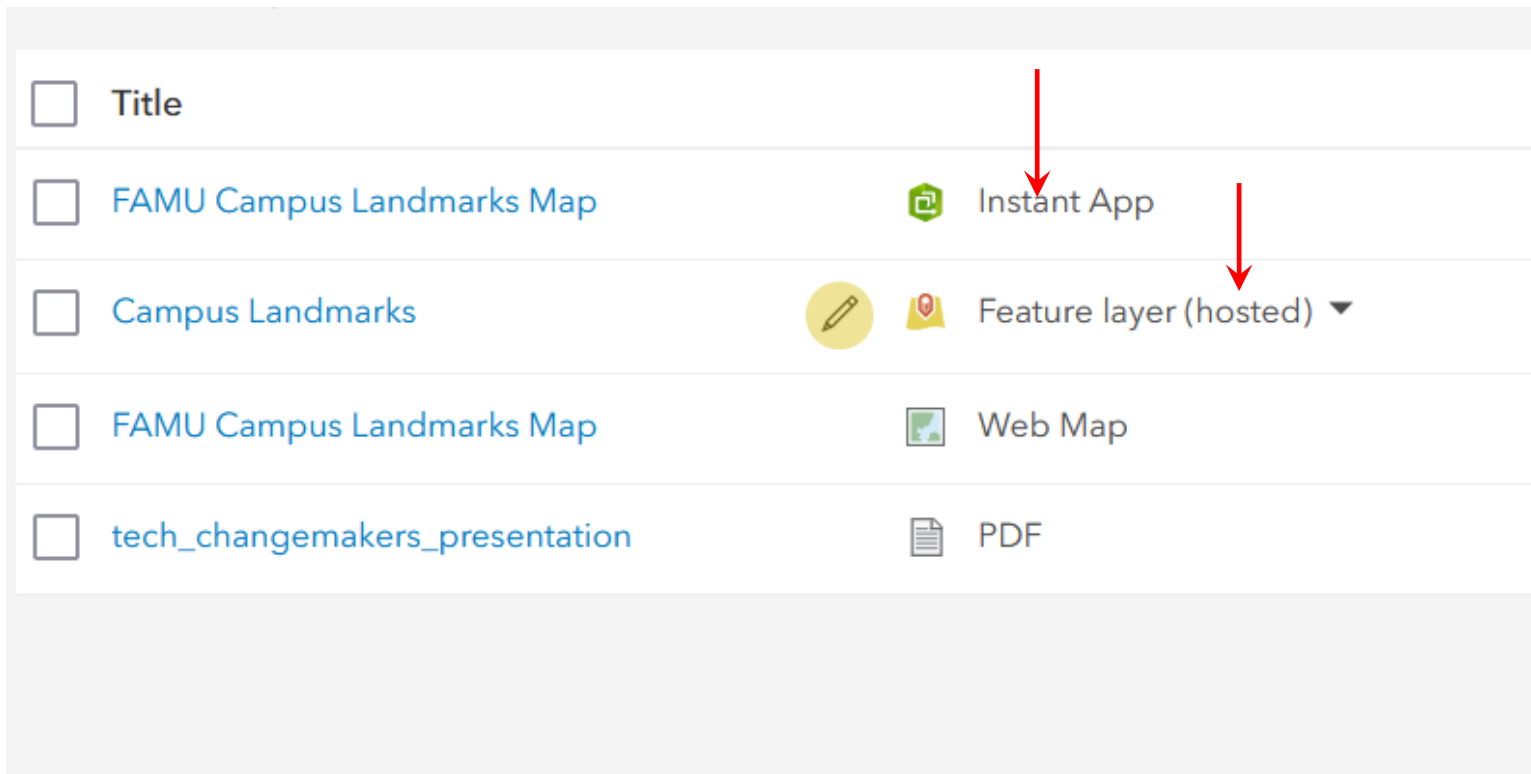
Click Launch.

Your map should now be visible to everyone who has the link. They can zoom in and out and click on the landmarks to see the photos and attribute data.



Go back to your Content page. You should see your new map App. The App is the mapping application. The app calls up the hosted feature which is separate from the app. The layer can be edited, and the updates will be incorporated in the App map.

Click on the app to open its overview page.



Scroll down until you see the URL field for your app. Click on the Copy button to copy the URL. Test the map by logging out of your ArcGIS Online account and then paste the URL into a web browser and see if you can interact with the map. If you can't access it, then go back over the sharing steps. Send the link to a friend and have them test it too just to be sure.

URL

 View

<https://famugeospatial.maps.arcgis.com/>

