

Guided Exercise

Share Open Data Through a Web App

Section 6 Exercise 1

08/2017



Share Open Data Through a Web App

Time to complete

Approximately 30-40 minutes.

Introduction

In this section, we are going to show you how to find and explore data from [ArcGIS Hub Open Data](#), and then [build a basic web app](#) from your search results.

In the lecture, Courtney discussed Washington D.C.'s Vision Zero Initiative from her perspective as a cyclist with concerns about safety. The Vision Zero Initiative crowdsources locations of perceived risks by pedestrians, bikers, and car drivers, which the government hopes to use to improve safety on D.C.'s streets. The crowdsourced data is vetted and made public through the government's open-data portal for anyone to access.

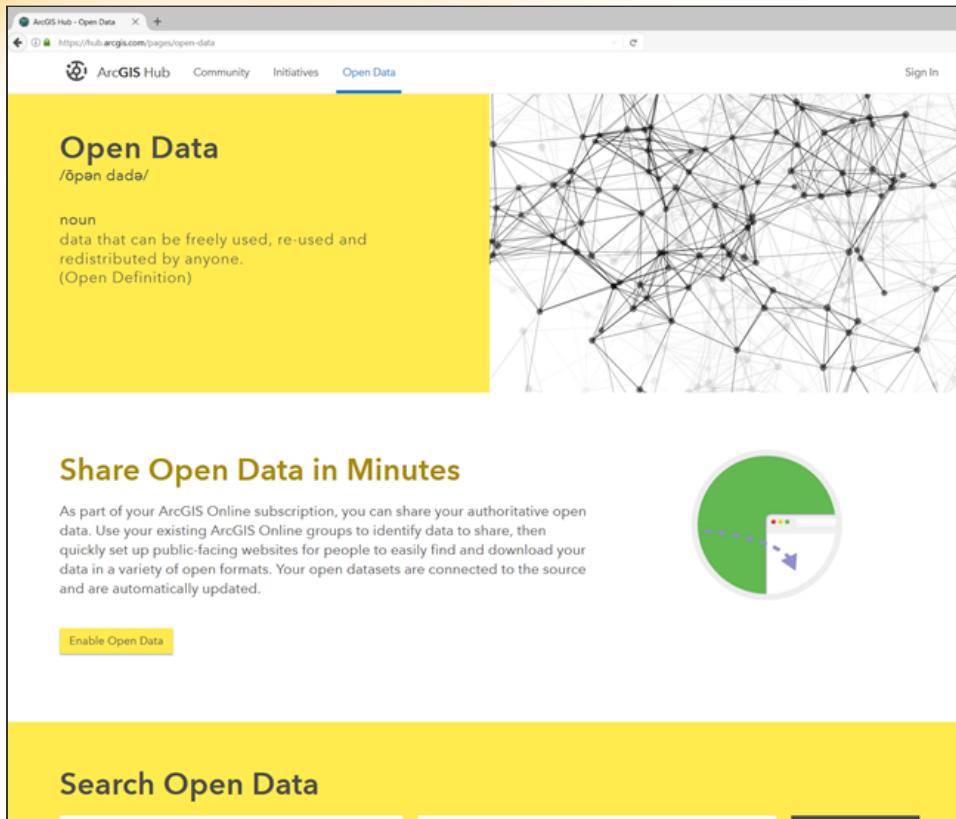
Courtney already spoke about perceived risks for bikers, so [we will shift our focus to perceived risks for pedestrians](#). In this exercise, your goal is to create a web app that shares locations that people feel are unsafe as they walk through the District.

Let's Get Started!

First, you will find a dataset to use.

Step 1: Find an applicable raw dataset

- a Open a new Internet browser tab or window.
- b Browse to <https://hub.arcgis.com/pages/open-data>.



Open Data
/ōpən dātə/

noun
data that can be freely used, re-used and redistributed by anyone.
(Open Definition)

Share Open Data in Minutes

As part of your ArcGIS Online subscription, you can share your authoritative open data. Use your existing ArcGIS Online groups to identify data to share, then quickly set up public-facing websites for people to easily find and download your data in a variety of open formats. Your open datasets are connected to the source and are automatically updated.

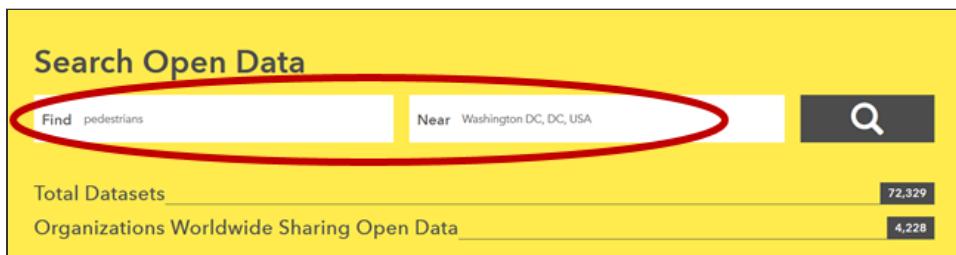
Enable Open Data

Search Open Data

This site consolidates all of the open-data portals in ArcGIS Online and allows you to easily search and visualize information.

- c Scroll down and, in the Find field, type **pedestrians**, and in the Near field, type **Washington, DC, DC, USA**.

Note: As you type Washington, DC, the correct search query should appear in the drop-down menu.



Search Open Data

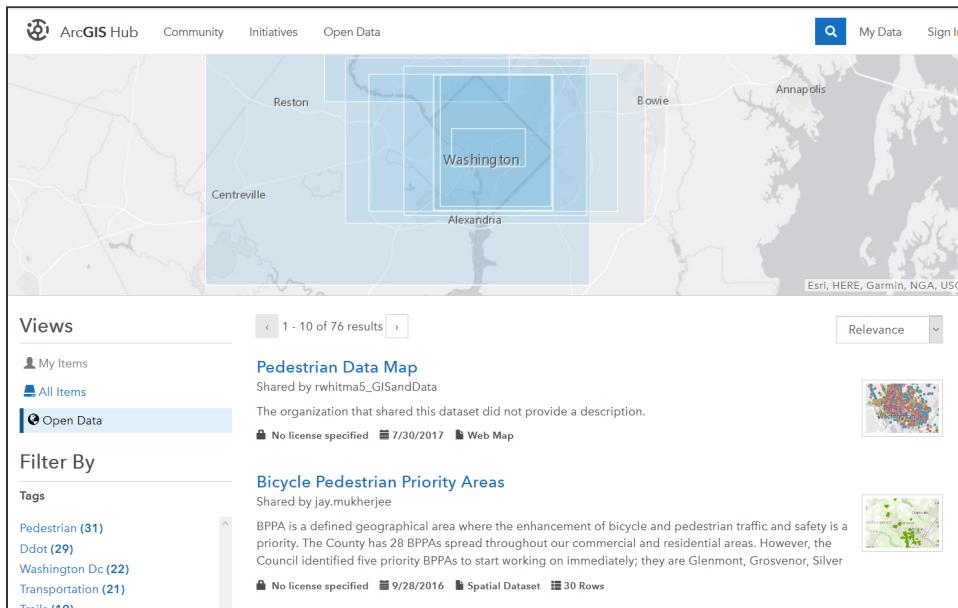
Find Near

Total Datasets **72,329**
Organizations Worldwide Sharing Open Data **4,228**

- d Click the magnifying glass button to view results.

Note: The number of datasets available through opendata.arcgis.com is growing constantly; your search results may vary depending on when you are enrolled in this course.

- e The search results give you a lot of information about available datasets, including titles, the individuals who shared them, descriptions, and their number of features.



The screenshot shows the ArcGIS Hub interface for searching open data. At the top, there's a map of the Washington, D.C. region with several blue boxes highlighting different datasets. Below the map, the search results are displayed:

- Pedestrian Data Map**
Shared by rwhitma5_GISandData
The organization that shared this dataset did not provide a description.
No license specified | 7/30/2017 | Web Map
- Bicycle Pedestrian Priority Areas**
Shared by jay.mukherjee
BPPA is a defined geographical area where the enhancement of bicycle and pedestrian traffic and safety is a priority. The County has 28 BPPAs spread throughout our commercial and residential areas. However, the Council identified five priority BPPAs to start working on immediately; they are Glenmont, Grosvenor, Silver Spring, Takoma Park, and Rockville.
No license specified | 9/28/2016 | Spatial Dataset | 30 Rows

- f Look for the **Vision Zero Safety** (Shared by DCGISopendata) dataset in the results.

Hint: Use the numbered buttons at the bottom of the results list to page through all results.

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The screenshot shows the ArcGIS Hub interface with a search results page. The search term 'Transportation' has returned 21 items. The results are categorized by type: Trails (19), Source (1), Content Type (spatial dataset (60), table (11), web map (5)). The 'Vision Zero Safety' dataset is highlighted with a red oval. It is described as 'Shared by DCGISopendata' and is a 'Spatial Dataset' with 5,340 rows. Below it are other datasets like 'Crashes in DC', '2016 Bicycle Automatic Counts, Daily (regional)', '2014 District of Columbia Bicycle Counts', and 'VDOT Bicycle Counts (FY 2013, 2014, 2016, 2017)'. Each dataset has a thumbnail icon and a brief description.

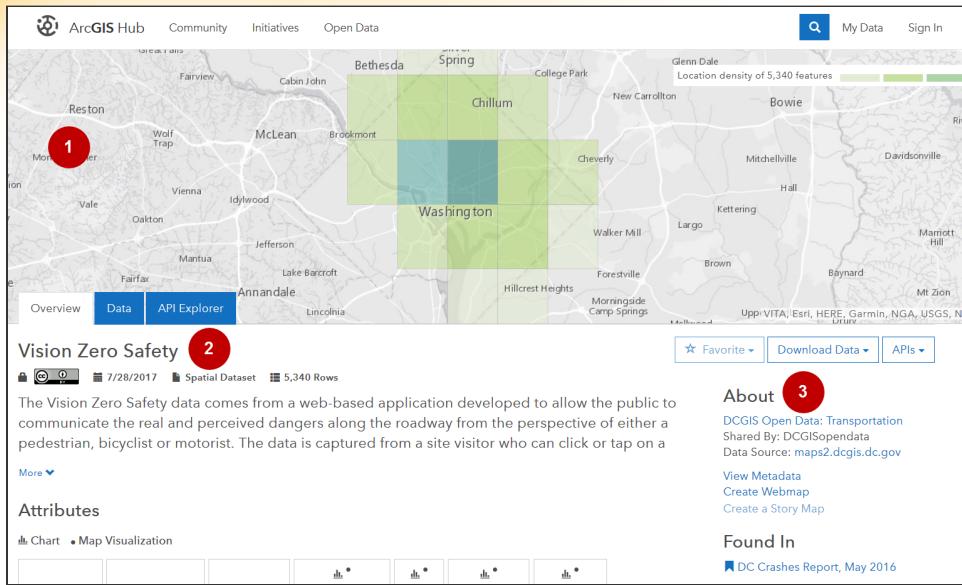
g Read the description. Note the user who published it, as well as the number of rows.

h Click the title, Vision Zero Safety.

You should see three main components:

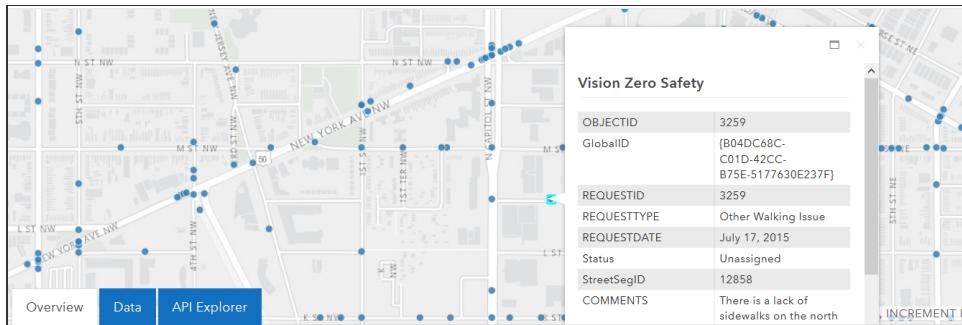
1. The map view at the top of the page
2. Overview information in the center of the page
3. Metadata in the right panel

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In the map view, the point data is represented. When zoomed out, the point features are aggregated to polygons that visualize feature density.

You have the ability to pan and zoom, as well as click point features to retrieve information from pop-up windows when you are zoomed in close enough.



On the Overview tab, you can see the full description of the dataset, a list of dataset attributes and data types, and a list of related datasets. There is more information in the right panel, with links to additional detailed metadata. What you see on this page is data about the data. What about the data itself? Let's take a look.

Step 2: Explore features in the dataset

- Click the Data tab to view the data in tabular format.

▼ OBJECTID	▼ GlobalID	▼ REQUESTID	▼ REQUESTTYPE	▼ REQUESTDATE	▼ Status	▼ StreetSegID
1699	{C8433E67-0AB8-4297-8501-C...	1699	Double parking	7/7/2015, 12:13 PM	Unassigned	7159
3173	{C4CA05D0-16EA-4CC9-902D...	3173	Cyclist behavior	7/17/2015, 4:25 AM	Unassigned	4925
3806	{797DBCE1-06DC-40B1-9A95...	3806	Not enough time to cross	7/27/2015, 1:59 PM	Unassigned	12336
4036	{138AB8BB-8513-46FD-B052-2...	4036	Other Driving Issue	7/28/2015, 11:25 AM	Unassigned	1746
4093	{C80A28FB-83D9-4BF7-B833-...	4093	Failure to stop for pedestrians	7/29/2015, 1:13 PM	Unassigned	5675
5122	{61D5A9C2-5E41-4A3E-BB53...	5122	Cyclist behavior	8/6/2015, 5:31 PM	Unassigned	12034
5545	{794367F9-A652-4952-B850-9...	5545	Red light running	8/13/2015, 10:43 AM	Unassigned	7019
15964	{C7B31232-E601-4F48-BC0A-0...	15964	Not enough time to cross	12/17/2015, 7:52 AM	Unassigned	8124
16196	{1FC2C00B-3429-43FF-9F6D-5...	16196	Accessibility Issue	12/21/2015, 8:17 AM	Unassigned	10409
27057	{9FDD626E-B36F-4889-B450-8...		Red light running			

Note: The number of rows in the table might vary from the above screen shot, as data is continually added.

This may take a minute to load, depending on your connection.

You are going to be looking at the features in this dataset. A feature is a representation of a real-world object in the form of a point, line, or polygon. The features are tied to rows in a table in which specific pieces of information about them can be stored.

- b** Use the horizontal scroll bar below the table or your arrow keys to scroll to the right to view the information populating the different table fields in this dataset. Scroll down to view the different features.
- c** Page through the dataset using the buttons below the table, and examine some of the features.

You have access to the entire attribute table in this view, but scrolling through it all is not going to accomplish much. You'll use the filtering tools to help narrow the dataset to features that you are interested in.

Step 3: Filter the data

- a** In the table, click the Filter button in the USERTYPE field.

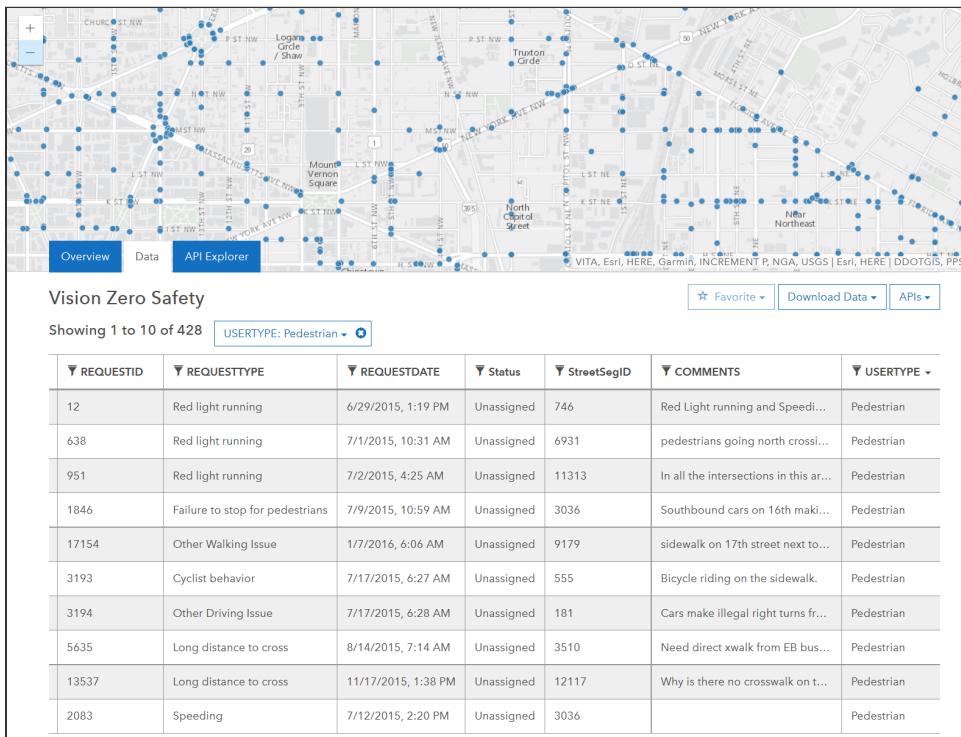


- b** Click the **USERTYPE** filter box that appears next to the dataset results, and select the **Pedestrian** check box to filter down to only pedestrian data.

*Hint: The **USERTYPE** column appears at the far right of the table.*

Vision Zero Safety						
Showing 1 to 10 of 422 USERTYPE <input checked="" type="checkbox"/>						
▼ REQUESTID	▼ REQUESTTYPE	▼ REQUESTDATE	▼ Status	▼ StreetSegID	▼ COMMENTS	▼ USERTYPE ▾
A8A7...	37	6/29/2015, 1:30 PM	Unassigned	10647	When making a right from Wes...	Biker
-94B2...	2800	7/16/2015, 4:37 AM	Unassigned	13000	There's no safe way to cross N...	Biker

- c** Zoom in and out on the map a few times to see both the table and map view respond to your selection, returning only features related to pedestrian concerns within the map extent.

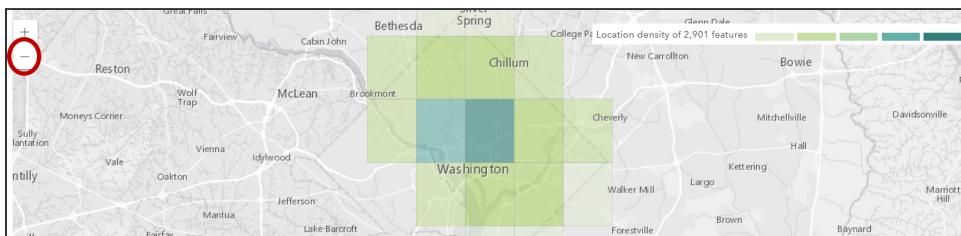


At this point, **you have isolated a subset of the data and would like to export it**, so that you can use the more advanced symbolization and analysis tools in either ArcGIS Online or ArcGIS for Desktop.

Step 4: Export the data

- a Zoom out so that all of the pedestrian features are within the map extent.

Hint: Use the Zoom Out button in the upper-left corner of the map.



You will download the dataset as a shapefile, which is a vector data storage format for storing the location, shape, and attributes of geographic features. A shapefile is stored in a set of related files and contains one feature class.

- b Click Download Data and, from the drop-down list, in the Filtered Dataset section, select Shapefile to download the subset as a zipped file.

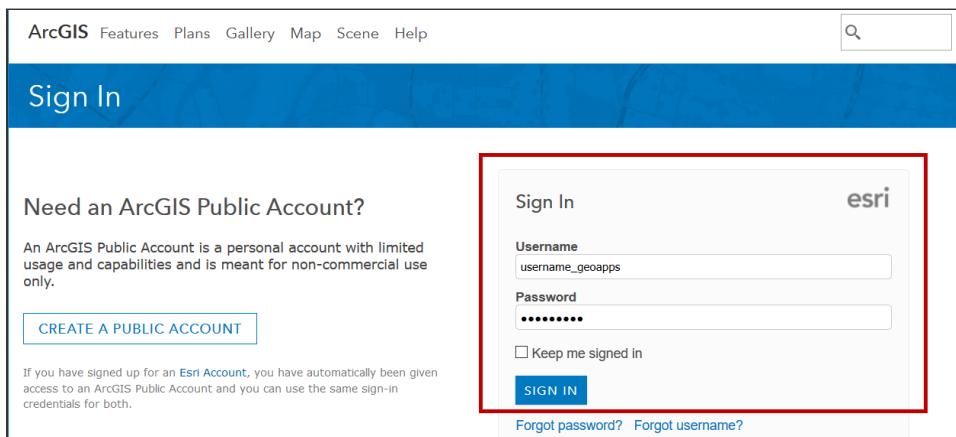
REQUESTID	REQUESTTYPE	REQUESTDATE	Status	StreetSegID	COMMENTS
95	Failure to stop for pedestrians	6/29/2015, 1:44 PM	Unassigned	6571	
3153	Failure to stop for pedestrians	7/16/2015, 6:13 PM	Unassigned	5790	This light has a pedestrian signal but it's not working
3415	Stop sign running	7/18/2015, 8:19 AM	Unassigned	13096	46th & Davenport intersection
4919	Failure to stop for pedestrians	8/4/2015, 4:22 AM	Unassigned	7908	Please install pedestrian signal
30626	Failure to stop for pedestrians	8/13/2016, 8:10 AM	Unassigned	4065	Drivers really speed down this street
4930	Failure to stop for pedestrians	8/4/2015, 4:23 AM	Unassigned	9644	Please install pedestrian crosswalk
4933	Failure to stop for pedestrians	8/4/2015, 4:25 AM	Unassigned	249	Please install pedestrian crosswalk
15902	Speeding	12/16/2015, 2:19 PM	Unassigned	9963	Drivers run stop signs and speed
15907	Stop sign running	12/16/2015, 4:16 PM	Unassigned	1149	I live on this street near intersection
4929	Failure to stop for pedestrians	8/4/2015, 4:23 AM	Unassigned	9340	Please install pedestrian crosswalk

- c Save the Vision_Zero_Safety file to a location on your computer.

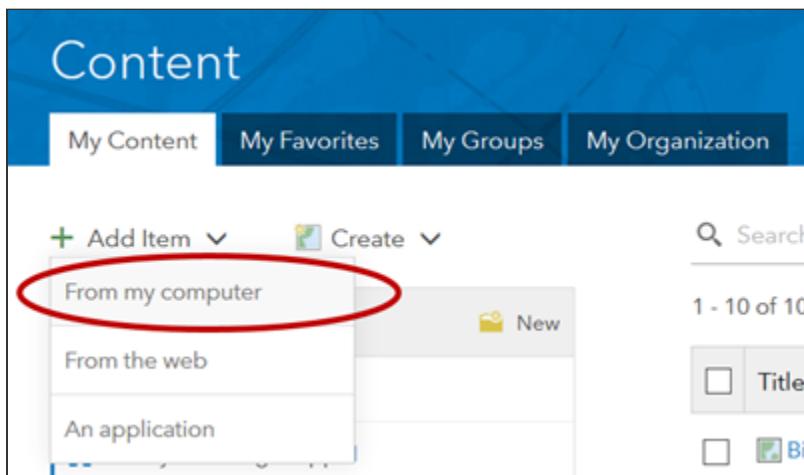
Step 5: Publish a hosted feature layer

- a Browse to www.arcgis.com and click Sign In.
- b Sign in to ArcGIS Online using the ArcGIS Online credentials explained at the start of this course.

Note: The Section 1 Exercise 1 PDF explains how to determine your ArcGIS Online credentials (username and password) for this course. If you have trouble signing in, email gistraining@esri.com for assistance.



- c At the top of the window, click Content.



- d Click Add Item and select From My Computer.
- e Click Browse, **browse to the zipped shapefile that you downloaded**, and open it.
- f Keep the **Publish This File As A Hosted Feature Layer** check box selected.

A hosted feature layer is the ArcGIS Online equivalent of a shapefile or feature class. In this case, it is your point features for pedestrian concern locations and the tabular information associated with them. When you publish this data as a hosted feature layer, you have access to it on any browser in ArcGIS Online.

- g Change the title of your file so that it is unique. Add relevant tags such as **pedestrian safety** and **Washington D.C.**. Press Enter after typing each tag.

Item from my computer [?](#)

Add an item from your computer.

File:

Vision_Zero_Safety.zip

Contents

▾

Publish this file as a hosted layer. (Adds a hosted layer item with the same name.)

Title:

Vision_Zero_Safety_BrendanONeill

Tags:

pedestrian safety [×](#) Washington D.C. [×](#)

Add tag(s)

- h Click Add Item.

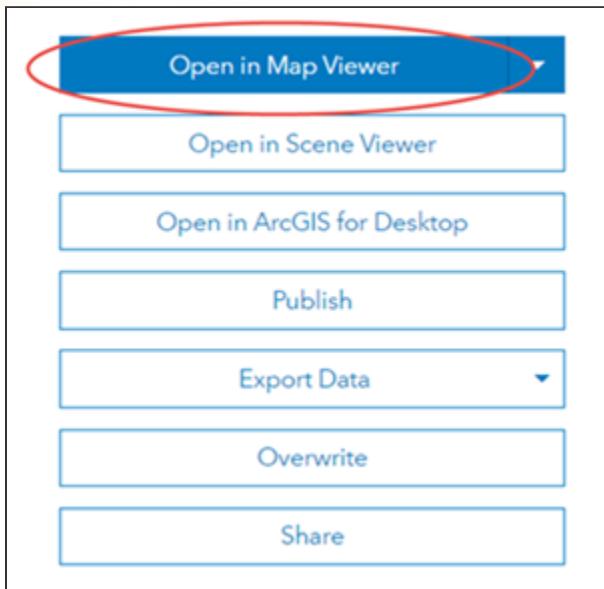
Note: It may take a few minutes to finish publishing your hosted feature layer.

You are redirected to the new item's detail page. When the bars stop pulsating and the service has been created, you are ready to **add your feature layer to the Map Viewer**.

Step 6: Add a feature layer to the map

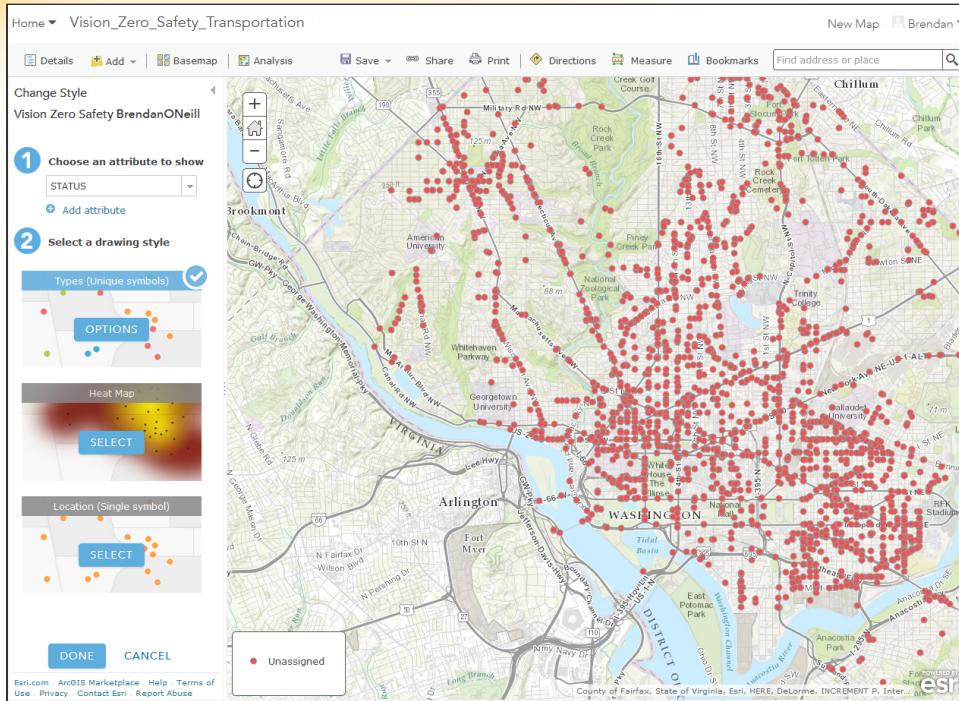
- a Click Open in Map Viewer.

This selection will direct you to the [Map Viewer](#), the web client we use to author maps in ArcGIS Online.



You should see the following map in your Map Viewer. Because you want your operational layer (the pedestrian concerns features) to stand out against your basemap, you'll want to [change the basemap](#).

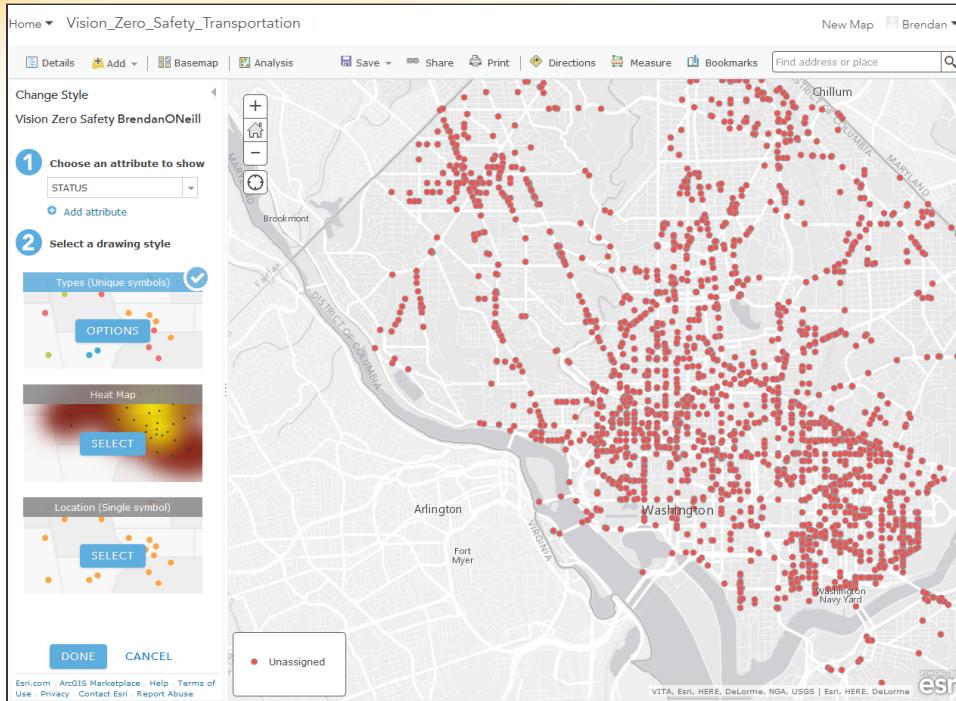
Hint: You can zoom in to see details.



Step 7: Change the basemap

A basemap is a non-editable layer that provides background, or reference information, in your map. Operational layers are the features that are added to a basemap, which can be symbolized, edited, and configured so that information is returned in a pop-up when clicked.

- a In the upper-left corner, click Basemap and select Light Gray Canvas.



Notice that the red points stand out better on the light gray background.

Step 8: Symbolize the data

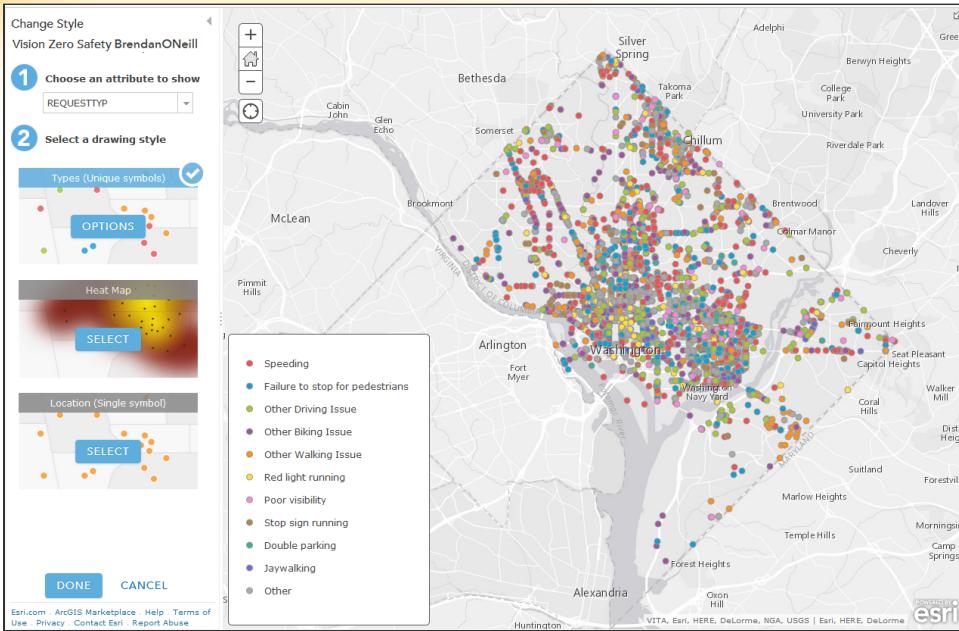
Next, you'll want to symbolize your data based on the request type.

You can see that the Vision Zero Safety Transportation layer is currently turned on (the check box is selected).

Note: The Change Style pane is automatically opened when you add the layer. If it is not open, in the Contents pane, hover over the name of the layer and click the Change Style button.

- a At the top of the Change Style pane, for Choose An Attribute To Show, select REQUESTTYP.

You should see the features on the map change colors so that they are symbolized based on the type of request made. Feel free to explore the different drawing type options. In this exercise, you will leave the default symbology.

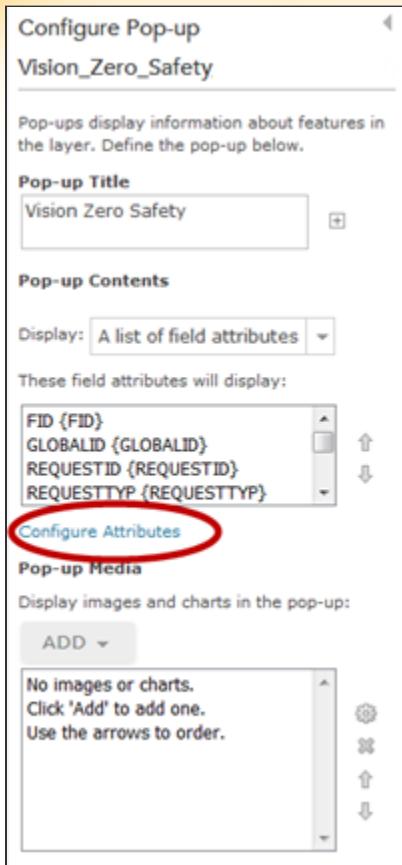


- b Click Done.

Now that the features are symbolized, let's make some changes to the pop-up so that when users interact with the map, they see only relevant information.

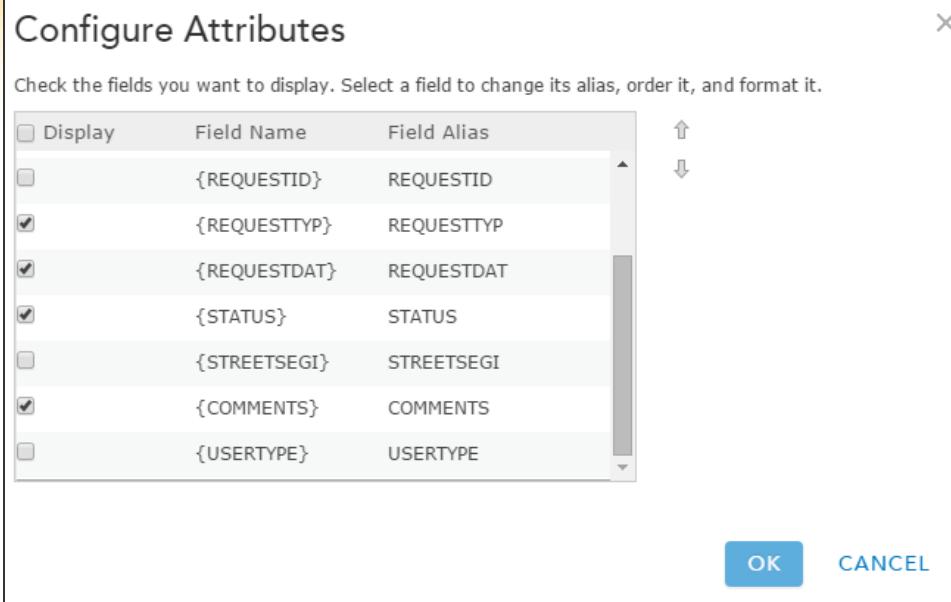
Step 9: Modify the information pop-up

- In the Contents pane, hover your mouse pointer over the Vision Zero Safety Transportation layer and click the More Options button.
- From the drop-down list, select Configure Pop-up.
- Change the pop-up title to **Vision Zero Safety**.
- Click Configure Attributes (it appears as blue text in the middle of the pane).



Here, you have the option to enable or disable the display of an attribute and change the **Field Alias** (the text that displays in the pop-up).

- e) Disable all of the fields except REQUESTTYP, REQUESTDAT, STATUS, and COMMENTS.



The names of these fields are standardized to make data processing more efficient. However, you want the information to be understood by humans and easily read in your pop-ups, so let's change the field aliases.

- f For each row, click the text in the Field Alias column, type the desired alias (see the following list), and press Enter.

Field Name	Field Alias
REQUESTTYP	Type
REQUESTDAT	Date
STATUS	Status
COMMENTS	Comments

Configure Attributes

Check the fields you want to display. Select a field to change its alias, order it, and format it.

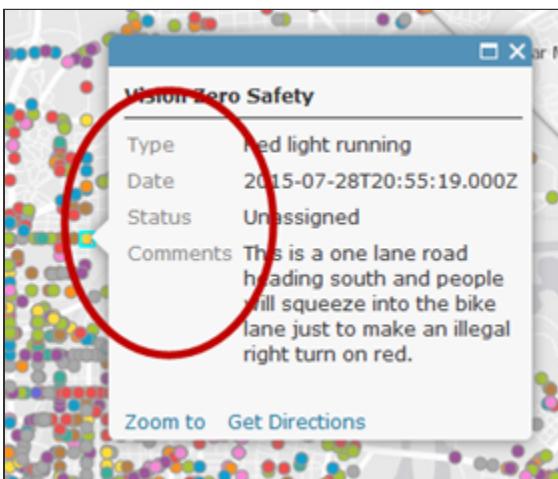
Display	Field Name	Field Alias
<input type="checkbox"/>	{REQUESTID}	REQUESTID
<input checked="" type="checkbox"/>	{REQUESTTYP}	Type
<input checked="" type="checkbox"/>	{REQUESTDAT}	Date
<input checked="" type="checkbox"/>	{STATUS}	Status
<input type="checkbox"/>	{STREETSEGI}	STREETSEGI
<input checked="" type="checkbox"/>	{COMMENTS}	Comments
<input type="checkbox"/>	{USERTYPE}	USERTYPE



OK **CANCEL**

- g After you are done editing the pop-up, click OK to close the Configure Attributes window.
- h Click **OK** to save your pop-up and close the Configure Pop-up pane.

Note: If you click on a point on the map now, the pop-up will reflect these changes.



Everything is looking good! In order to create a web app from your map, you must first save it.

Step 10: Save and share your web map

- a Click Save and, from the drop-down list, select Save As, and then type an appropriate title and summary, as well as relevant tags to help users find your app in ArcGIS Online.
- b Click Save Map.

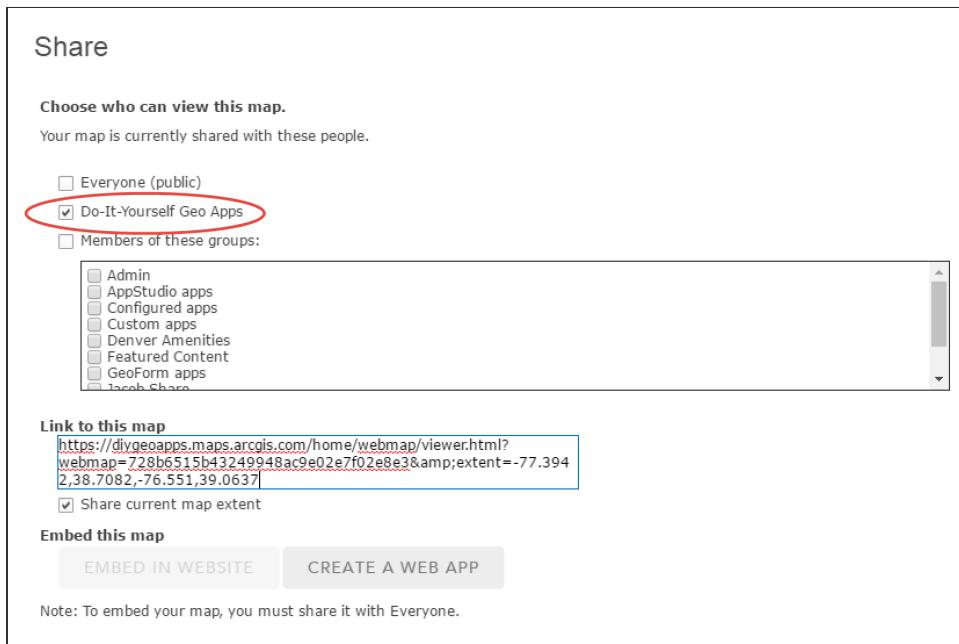
Remember, the Map Viewer is where we author maps. If you want to share your map with people who are not involved in the authoring stage of map production, you should share the contents of your map as a web app. You can choose from many configurable apps, which serve as templates for web app creation. For this exercise, you are going to share your information with the Basic Viewer configurable app.

- c Click Share.

The Share window appears, which allows you to share your app with the public, your organization, or groups that you own or belong to.



- d For now, select the Do-It-Yourself Geo Apps organization.



Share

Choose who can view this map.
Your map is currently shared with these people.

Everyone (public)
 Do-It-Yourself Geo Apps
 Members of these groups:

- Admin
- AppStudio apps
- Configured apps
- Custom apps
- Denver Amenities
- Featured Content
- GeoForm apps
- Jacob Charon

Link to this map
<https://diygeoapps.maps.arcgis.com/home/webmap/viewer.html?webmap=728b6515b43249948ac9e02e/f02e8e3&extent=-77.3942,38.7082,-76.551,39.0637>

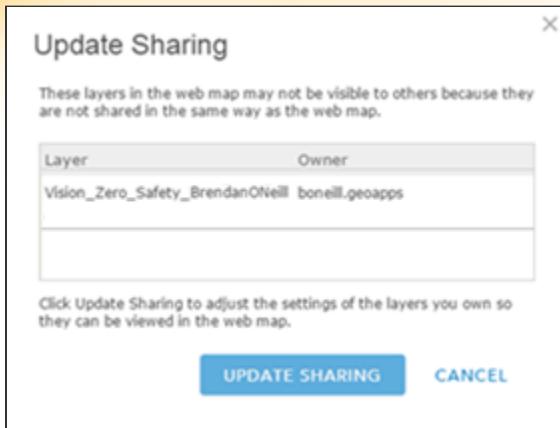
Share current map extent

Embed this map

[EMBED IN WEBSITE](#) [CREATE A WEB APP](#)

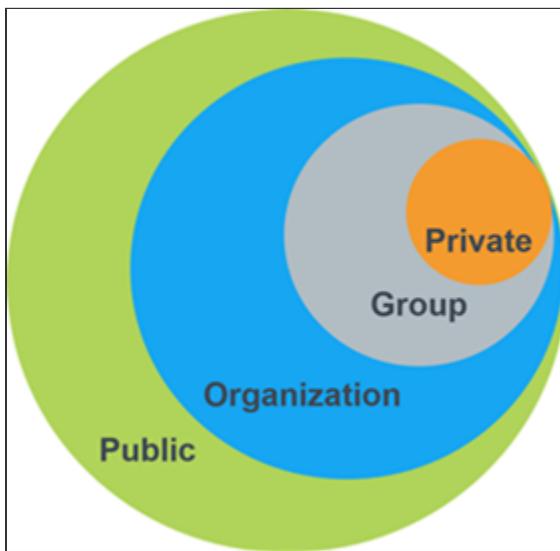
Note: To embed your map, you must share it with Everyone.

- e In the Update Sharing window, click Update Sharing to adjust the settings on your Vision_Zero_Safety_Transportation layer.



By default, layers in ArcGIS Online are private; when you published the layer that you exported from <https://hub.arcgis.com/pages/open-data>, the sharing settings were set to private. When you set the sharing settings for a web map, ArcGIS Online detects any layers in that web map that do not have the same sharing settings and prompts you to update them. This update is important because if a user opens a web map or app that is shared to an organization or the public, and it has layers in it that are private, they will be asked for the user name and password of the owner of that private layer. Because they will not know your user name and password, they will not be able to view the data. Needless to say, that is not a good user experience!

The following graphic illustrates how layers, web maps, and web apps can be shared in ArcGIS Online. For more information about sharing, click [here](#).



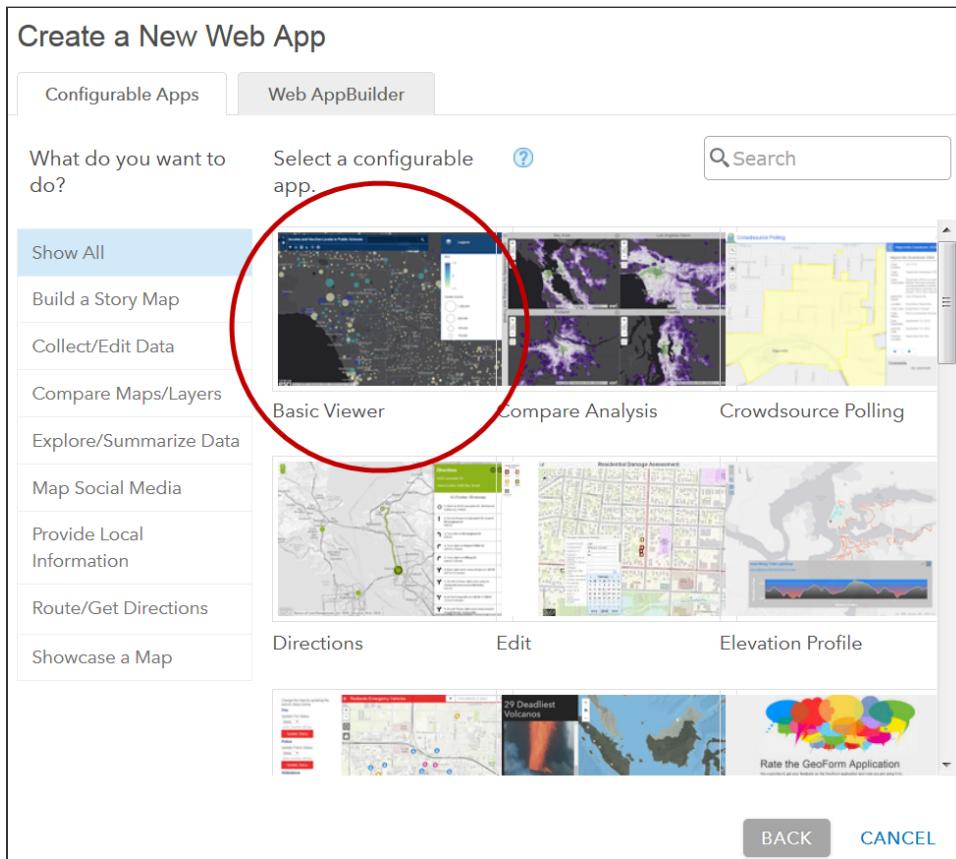
Almost there!

Step 11: Create a web app

- a Click Create A Web App.

In the Create A New Web App dialogue box, you should see a number of configurable apps organized by what you are trying to achieve with your app. If you'd like, you can explore how these different configurable apps can be used. For now, though, you are going to use a simple Basic Viewer app.

- b Select Basic Viewer and click Create Web App.



You are greeted with another dialog box that has already imported information from your web map.

- c Make any changes to the title, tags, and summary that you feel are necessary, and then click Done.

You are now in the Builder Mode for your Basic Viewer web app. Here, you can see a preview of your app on the right and a configuration panel on the left. There are many configuration

settings that you can explore, and we encourage you to do so! Whenever you make changes, click Save and your preview will be updated.

- d After configuring your app to your tastes, click Save and then click Close.

Note: You must click Save at least once first.

You should now see your app's Item Details page.

- e Click View Application to see your work!

Conclusion

Congratulations, you have just built your own web app using open data from Washington, D.C.'s Vision Zero Safety Initiative!