



ESRI EXTERNAL

ArcGIS Solutions: Archived help

ArcGIS Enterprise 11.0

Updated March 2024

Table of contents

3D Basemaps	5
Address Data Management.....	26
Adopt-A-Stop	42
AED Inventory.....	62
Agricultural Best Management Practices.....	67
Broadband Outreach.....	72
Business Resilience	86
Capital Project Planning.....	100
Capital Project Tracking	108
Citizen Problem Reporter	116
Code Enforcement Operations.....	132
Communications Data Management	136
Community Data Aggregation	155
Community Health Assessment	163
Community Health Outreach	173
Community Science	186
Conservation Easement Monitoring	194
Conservation Outreach	199
Crime Analysis.....	204
Dam Safety	224
Damage Assessment.....	228
Development Impact Analysis	252
District Energy Data Management.....	260
Election Management	272
Election Outreach	299
Election Results	315
Emergency Debris Management.....	325
Emergency Management Operations.....	357
Environmental Analysis.....	374
Equitable Property Value	379
Fire Accreditation Analysis.....	389
Fire Hydrant Inspection.....	398

[Back to top](#)

Fire Hydrant Inspection	403
Fire Safety Survey	412
Fire Service Maps	418
Flood Impact Analysis	424
Homelessness Risk Reduction.....	432
Invasive Pest Inspections.....	439
Know Your Zone	448
Land Use Outreach.....	453
Lead Service Line Inventory.....	458
Market Development.....	472
Mosquito Service Requests.....	481
Mosquito Surveillance	488
Mosquito Treatments	492
Neighborhood Services.....	499
My Trash Services	504
Neighborhood Early Warning	514
Neighborhood Stabilization	517
Network Path Planner	528
Operations Management.....	532
Outage Damage Assessment	543
Parcel Drafter.....	552
Parcel Value Analysis	557
Park Infrastructure Management.....	563
Participatory Budgeting.....	576
Performance Management.....	582
Plans and Drawings	596
Police Transparency	601
Protection Operations	630
Public Notification	636
Public Parking	640
Recreation Outreach.....	650
Road Closures	664
Road Network Data Management	672
School Locator	676
Sewer Data Management	684

[Back to top](#)

Social Equity Analysis	702
Special Event Operations.....	708
Special Event Permitting and Operations	728
Stormwater Data Management	752
Target Hazard Analysis	775
Tax Reverted Property	780
Traffic Crash Analysis	784
Transit Outreach	793
Transit Safety.....	801
Transportation 511	810
Tree Management.....	819
Vaccine Coverage Analysis.....	839
Vision Zero.....	843
Walkout Survey.....	860
Water Distribution Data Management	870
Weather Operational Effects	888
Wildlife Management.....	898

3D Basemaps

This solution documentation has been archived and is no longer updated. Content and links may be outdated. The capabilities have been replaced with [3D Buildings](#) and [Tree Data Management](#).

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to 3D Basemaps

3D Basemaps can be used to author and maintain a 3D basemap for your organization.

It provides a series of workflows that streamline the creation and maintenance of a 3D basemap that supports diverse information needs. This optimized approach allows organizations to use existing data (for example, lidar, building footprints, and utilities) and generate 3D visualizations that increase understanding and community engagement. 3D Basemaps is typically implemented by planning departments, emergency management agencies, GIS departments, and utilities that want to use 3D basemaps to visualize the built environment.

The 3D Basemaps solution delivers a set of capabilities that help you use existing data, develop a standard set of 3D layers, and visualize your community in an immersive way.

Requirements

The 3D Basemaps solution requires the following:

- ArcGIS Enterprise
- ArcGIS Pro 2.9 or later (Advanced)
 - ArcGIS 3D Analyst extension
 - ArcGIS Spatial Analyst extension

Information products

3D Basemaps includes the following information products:

Item	Description	Minimum user type
3D Basemaps	An ArcGIS Pro project used by GIS analysts and mapping technicians to create and maintain a 3D basemap for their organization	GIS Professional Advanced

[Back to top](#)

Release notes

The following are the release notes:

Version	Description
1.5	<ul style="list-style-type: none">• A new 3D Basemaps ArcGIS Pro project to support ArcGIS Pro 3.0.• Added a workflow to create 3D water features such as lakes, rivers and coastal waters from 2D polygon features.• New offset option in the Modify Ground Surface tool.• Added the ability to buffer floor plates inwards as well as outwards.• 3D Tree symbols can now be set through the symbology pane.
1.4	<ul style="list-style-type: none">• Added deep learning for power line classification in lidar.• Added the ability to extract power line features from lidar.• Any web map with feature layers can now be quickly added to your 3D basemap.
1.3	<ul style="list-style-type: none">• Resolved an issue when a meter-based coordinate system is used with the Windows language set to other than English.• Resolved an issue with roof form extraction when running multiple times on large datasets.
1.2	<ul style="list-style-type: none">• Added an integrated mesh editing and maintenance workflow• Added the ability to color trees in lidar point clouds• Lidar class codes can now be preserved when classifying trees using deep learning• Improved stability of footprint segmentation• Fixed an issue with extracting tree points using cluster analysis
1.1	<ul style="list-style-type: none">• Added deep learning for tree classification in lidar• Added tree extraction using cluster analysis• Significantly improved the performance and quality of building footprint extraction• Added links to 3D analysis solutions that can use 3D basemaps layers• Fixed an issue with building footprint extraction in ArcGIS Pro 2.6
1.0	<ul style="list-style-type: none">• First release of 3D Basemaps

[Back to top](#)

Use 3D Basemaps

The 3D Basemaps solution delivers a set of capabilities that help you leverage existing data (for example, lidar, building footprints, utilities), develop a standard set of 3D layers, and visualize your community in an immersive way.

In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

Get to know 3D Basemaps

You will assume the role of a mapping technician responsible for creating a 3D basemap for your community. The 3D Basemaps ArcGIS Pro project includes a series of tasks to help guide you through these workflows. The first set of tasks will help you get to know 3D Basemaps.

1. Start the ArcGIS Pro application and open the 3D Basemaps project.
2. On the **View** tab, in the **Windows** group, click **Catalog**, and click **Catalog Pane**.
3. In the **Catalog** pane, expand the **Tasks** folder, and double-click the **Getting to know 3D Basemaps** task and go through the various subtasks.

Understand the 3D Basemaps solution

The 3D Basemaps solution uses existing data within the organization such as lidar, building footprints, power lines, and underground pipe features. Your 3D basemap can be created at different levels of detail (LOD) depending on the quality of the input lidar data. This first task will guide you through the data requirements and help you learn how you can utilize your 3D basemap in other workflows and applications.

Download sample data

Sample data is provided to help you learn how to use the 3D Basemaps solution. Click to expand the **Getting to know 3D Basemaps** task group and double-click the **Download sample data** task. Click the **sample data** hyperlink to download sample data for Naperville and Philadelphia. Using the sample data the first time will help you learn how to use the tasks and how to organize your data.

Start using 3D Basemaps

The 3D Basemaps project includes a task workflow that provides a structured sequence using tasks and steps. Follow the steps in this task to learn how to use the 3D Basemaps solution.

Publish data for your 3D Basemaps

After you have reviewed the Get to know 3D Basemaps section, you can begin using the solution with your data. The following set of tasks will help you learn how to use 3D Basemaps.

1. On the **View** tab, in the **Windows** group, click **Catalog**, and click **Catalog Pane**.
2. In the **Catalog** pane, expand the **Tasks** folder, and double-click the **How to use 3D Basemaps** task and go through the various subtasks.

Publish ground elevation surface

Detailed elevation layers can be automatically generated from the input lidar data. These layers are used to create buildings and vegetation layers. The ground elevation layer can be used to enhance the existing elevation in your 3D scene.

To publish your ground elevation surface, click the **Publish ground elevation surface** task and follow the steps provided.

Extract elevation surfaces from LAS dataset

This task extracts three elevation surfaces from the LAS dataset: a ground elevation (dtm), a surface elevation (dsm), and a normalized surface elevation (ndsm). These surfaces are used to create buildings and vegetation layers. The ground elevation layer can also be used to improve the ground in your scene.

Publish ground elevation

This task publishes the ground elevation layer to your organization. Reprojection to Web Mercator with height in meters is only required if you want to use the published layers in a global web scene.

Publish buildings

Buildings with simple roof structures can be generated automatically from the lidar. Attributes such as building height, eave height, and the roof form are extracted from the lidar and added to the building footprints. Procedural rules are then used to create the 3D roof structures. High-density lidar (point spacing less than 3 feet) and building footprint segmentation are needed to model complex roof structures.

Note:

The quality of the roof structures is dependent on the quality of the input lidar and building footprint data. A lidar point spacing of 3 feet or less is required, 1 foot or less is recommended. Building footprints with one roof type within their boundary (for example, suburban areas) will produce higher-quality roof structures than footprints with multiple

[Back to top](#)

roof types (for example, city centers). These footprints require splitting, segmentation, and updating of the roof form attributes.

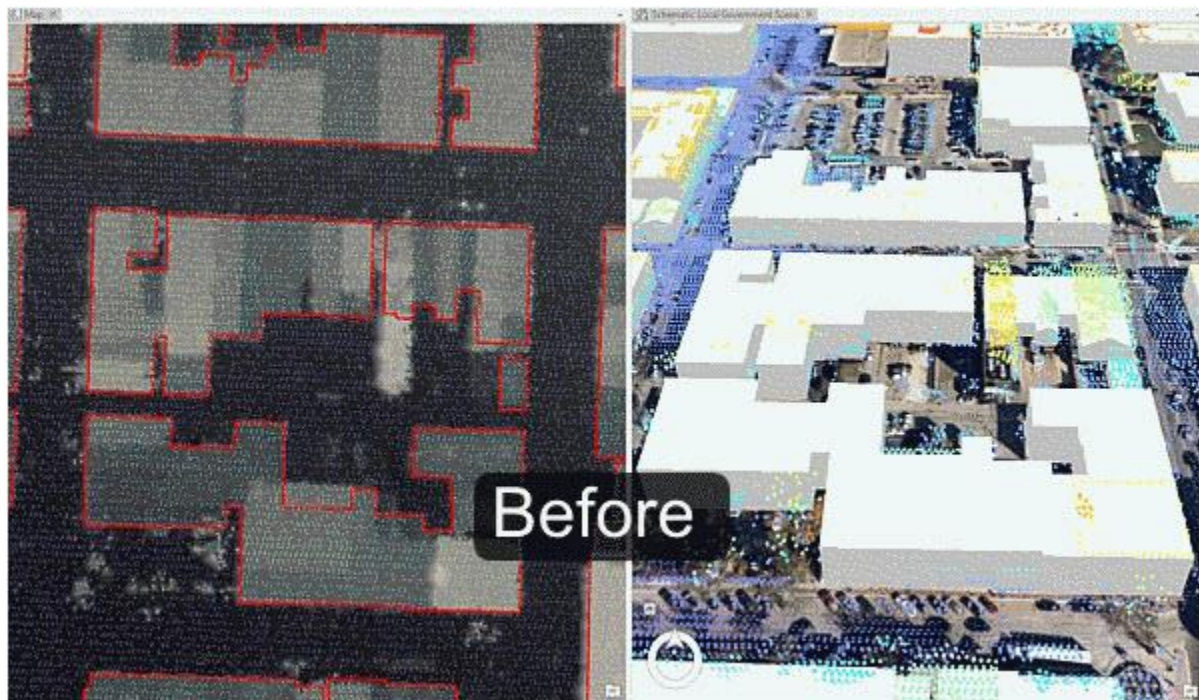
To publish your buildings, expand the **Publish buildings** group task and follow the steps provided.

Extract building footprints (optional)

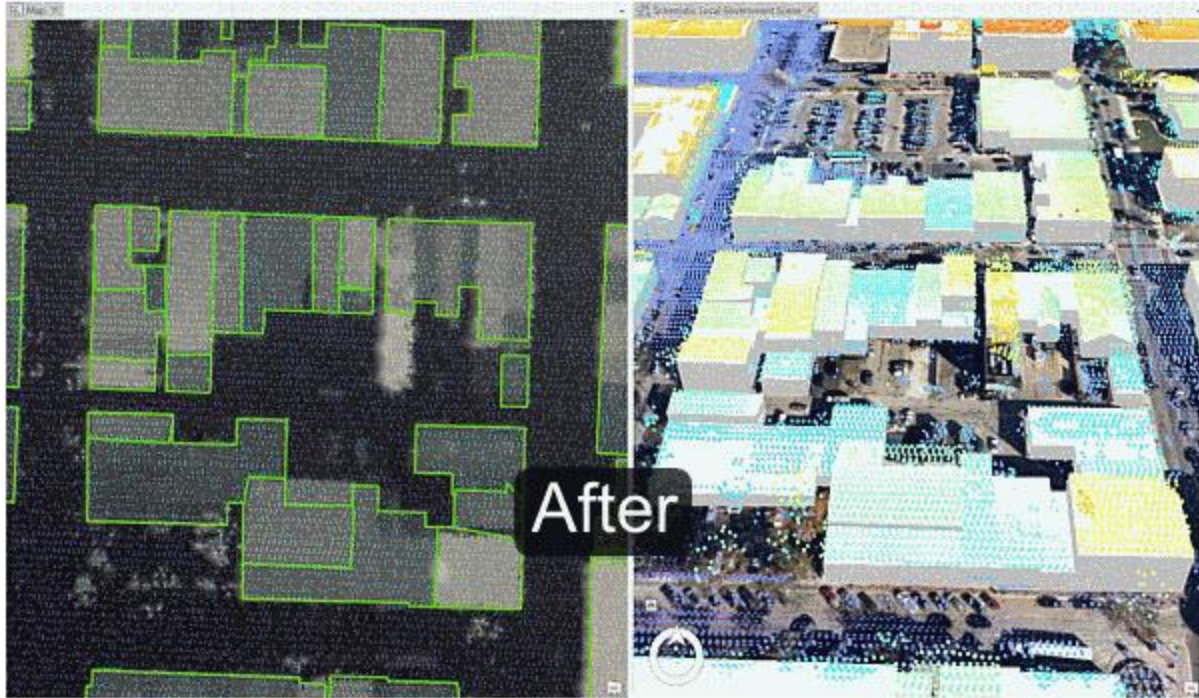
Run the **Extract building footprints** task to optionally extract building footprints from lidar. It is not required if you have an accurate footprint feature class.

Preprocess building footprints (optional)

Run the **Preprocess building footprints** task to prepare the building footprints for a realistic 3D visualization. Some building footprints may contain several roof types and roof parts. To accurately represent these buildings, they need to be split into their separate parts. Building footprints can be split with another feature class or by differences in elevation.



This image shows the result of building extraction before preprocessing of building footprints.



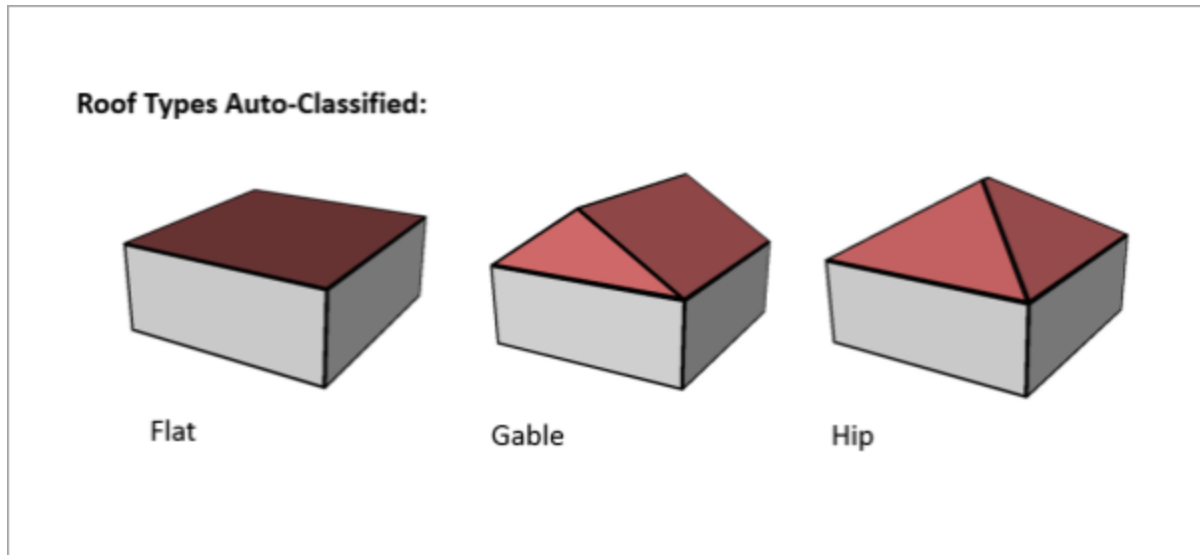
This image shows the result of building extraction after preprocessing of building footprints.

Tip:

Separate features of similar size into separate feature classes before running segmentation to improve segmentation quality. Use different spectral and spatial detail for each of these feature classes to tweak the roof segmentation for your data. Merge the feature classes when finished.

Create buildings

Run the **Create buildings** task to create a 3D building layer. This task uses the elevation surfaces and building footprints to find both flat and sloped planar areas within a roof area of a building. It estimates a standard architectural form for the roof based on the attributes collected from these planar surfaces. These attributes are then used to inform a procedural rule that generates these features in 3D.



This image shows the roof types that will be automatically classified.

Review buildings

Run the **Review buildings** task to inspect your building roof forms. The **Confidence Measurement** tool reports the following measurement (attribute added to the building footprints):

Note:

The **RMSE** field shows the root mean square error of the generated building multipatch to the underlying surface model. The higher this number, the more likely that the building creation encountered an error in classification. In general, a value of 1 meter (3 feet) or less is desirable, though this depends on the required application of the output features, and the resolution of the input data.

Modify buildings

Use the **Modify buildings** task to further improve the quality of the building roof forms. The building roof form is driven by the attributes that are generated by the Create buildings task and by the underlying the building footprint. To refine the building roof form, modify the attributes or the building footprint.

Tip:

The attributes that control the roof form are building height, eave height, roof direction, and the type of roof are **BLDGHEIGHT**, **EAVEHEIGHT**, **ROOFORM**, **RoofDirAdjust**. By editing these attributes, you can adjust your building models to better match the lidar data.

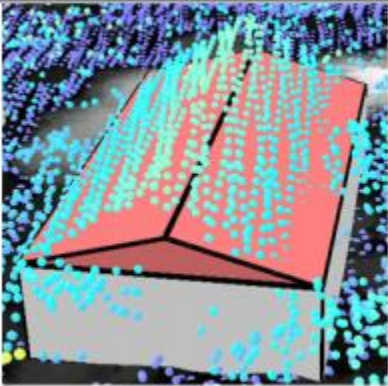
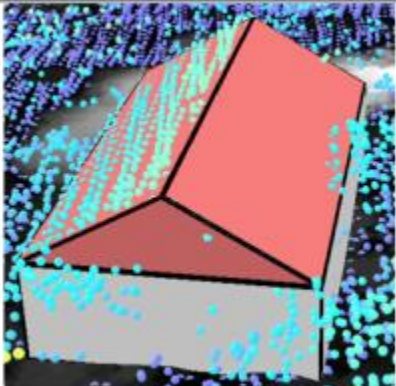
[Back to top](#)

BLDGHEIGHT	EAVEHEIGHT	ROOFORM	BuildingFID	BASEELEV	ROOFDIR	RoofDirAdjust	RMSE
14.604	9.651	Shed	Building_11	676.0673	270	0	20.52087
20.3991	14.3113	Shed	Building_5	676.4396	180	0	20.76236
12.0947	9.3237	Shed	Building_12	675.0941	180	0	10.80013
40.7024	20.3622	Gable	Building_4	675.0016	90	0	28.61115
23.9771	16.05	Gable	Building_6	677.0032	90	0	22.10649
13.1209	8.4976	Gable	Building_9	674.629	90	0	11.42449
12.7899	9.8137	Shed	Building_17	676.435	0	0	12.90138
30.3233	8.9956	Hip	Building_1	673.9857	<Null>	0	19.56937

Building footprint attributes that control the roof form.

Building height

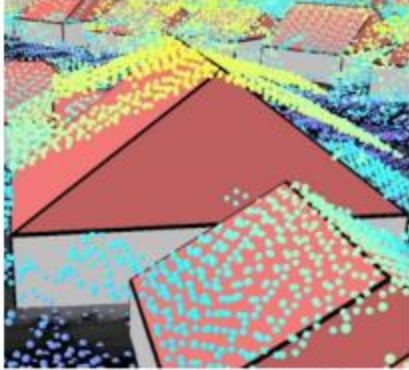
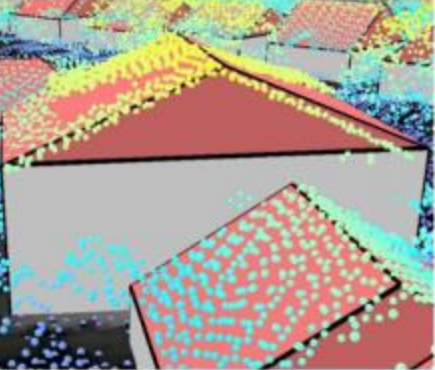
If the ridge of the building is not at the correct height, identify the elevation of a LAS point on the true ridge by clicking the LAS point while having the Explore tool active. You will need to subtract the BASEELEV value from the LAS elevation to get the correct BLDGHEIGHT value.

Issue	Solution	Result
 <p>Incorrect building height at 25</p>	Update the 'BLDGHEIGHT' field for the feature of interest	 <p>Corrected Building height at 35</p>

Results of manual updating of the BLDGHEIGHT attribute are shown.

Eave height

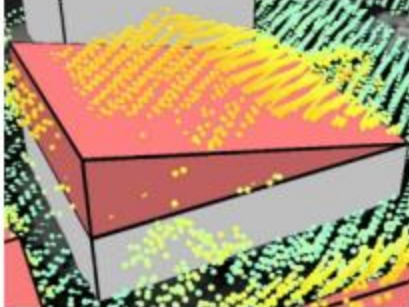
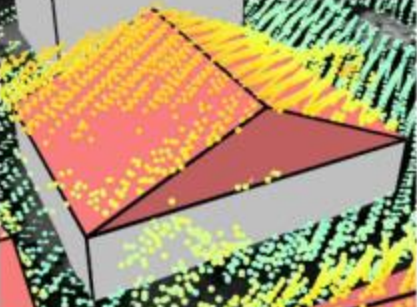
Similar to building height, reference the lidar to obtain the correct eave height. You will need to subtract the BASEELEV from the lidar elevation to get the correct the EAVEHEIGHT value.

Issue	Solution	Result
 <p data-bbox="207 646 553 678">Incorrect eave height at 32</p>	<p data-bbox="639 279 907 401">Update the 'EAVEHEIGHT' field for the feature of interest</p>	 <p data-bbox="935 646 1268 678">Corrected eave height at 50</p>

Results of manual updating of the EAVEHEIGHT attribute are shown.

Roof form

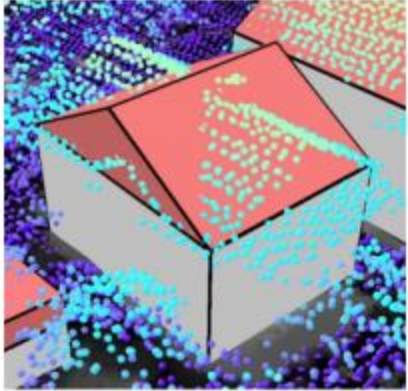
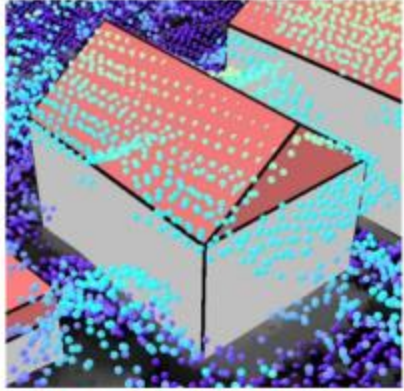
If your roof type does not match the lidar data, change the roof type by choosing the correct roof form from the drop-down list.

Issue	Solution	Result
 <p data-bbox="207 1377 561 1409">Incorrect Roof Type (Shed)</p>	<p data-bbox="639 1073 907 1226">Update the 'ROOFFORM' field for the feature of interest to the correct type</p>	 <p data-bbox="935 1377 1287 1409">Roof Type Corrected (Gable)</p>

Results of manual updating of the ROOFFORM attribute are shown.

Roof direction

Adjust the direction of the roof by modifying the RoofDirAdjust field. The default value is 0. A value of 1 will rotate the roof counterclockwise 90 degrees, or a value of 2 will rotate it 180 degrees.

Issue	Solution	Result
 <p data-bbox="207 667 521 695">Incorrect Roof Direction</p>	<p data-bbox="643 279 873 495">Input an integer value (0, 1, or 2) in the 'RoofDirAdjust' field to rotate the direction of the building model counter-clockwise.</p>	 <p data-bbox="927 667 1230 695">Roof Direction Corrected</p>

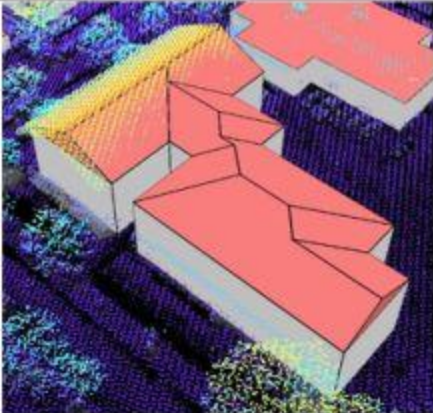
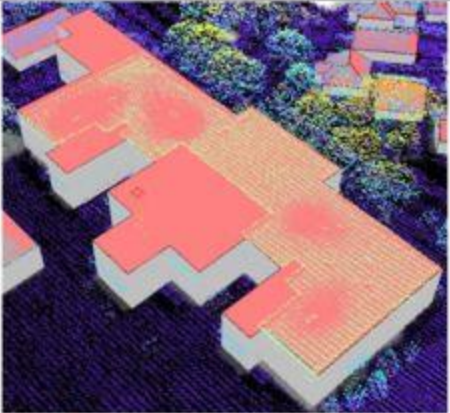
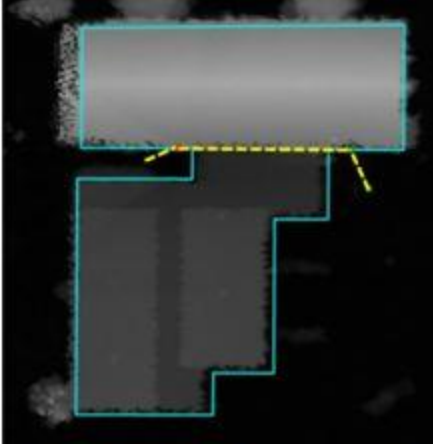
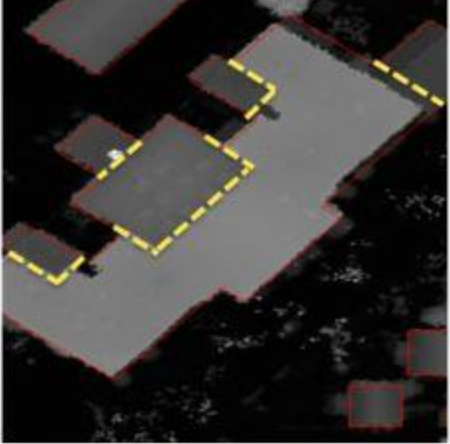
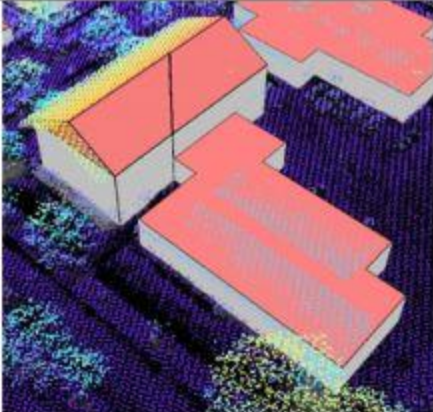
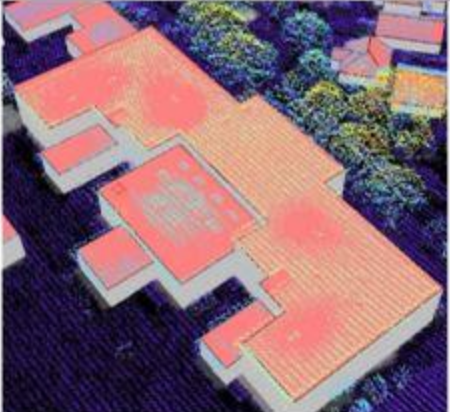
Results of manual updating of the RoofDirAdjust attribute are shown.

Split roof segments

Some building footprints may contain several roof types and roof parts. To accurately represent these buildings, you can split the footprints into separate features manually and update the attributes for each feature accordingly.

To edit the building footprints, complete the following steps:

1. Select the feature you want to segment.
2. Use the **Split** tool in the Roof Segmentation task, or in the **Modify Features** pane to segment the selected feature.
3. Edit the attributes as needed with the new sections of the building footprint.

	Multiple Roof Types	Multi-tier Roofs
Identify building requiring segmentation		
Split building feature in 2D view at roof edge		
Update attributes of new building part features to generate building correctly		

Results of manual splitting of buildings are shown.


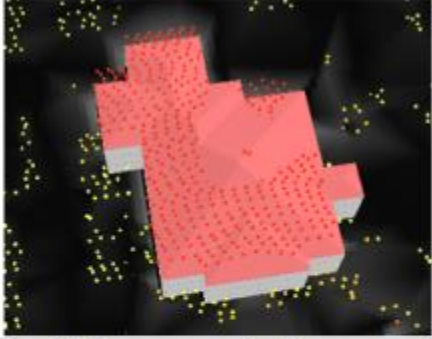
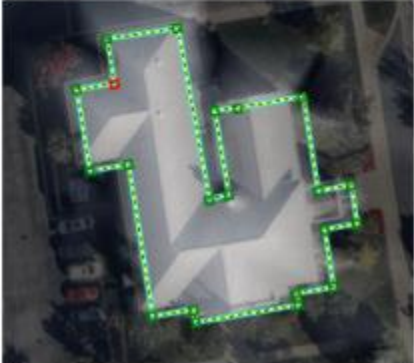
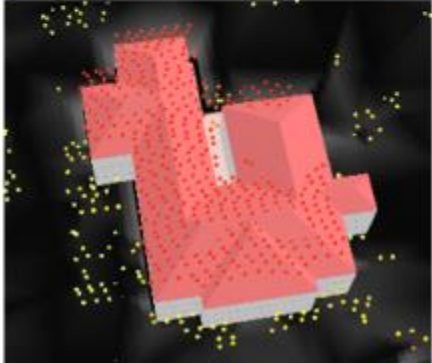
Modify building vertices

Sometimes building footprints may have been created incorrectly and do not represent the building adequately, resulting in lower-quality roof forms.

To edit the building footprints, complete the following steps:

[Back to top](#)

1. Select the feature you want to modify.
2. Use the Vertices tool in the Modify Building Vertices task, or on the **Edit** tab to modify the selected feature.
3. Edit the attributes as needed with the modified building footprint.

	2D view with DSM and aerial photograph	3D view with Lidar points
Identify building requiring vertex modification		
Modify the vertices		


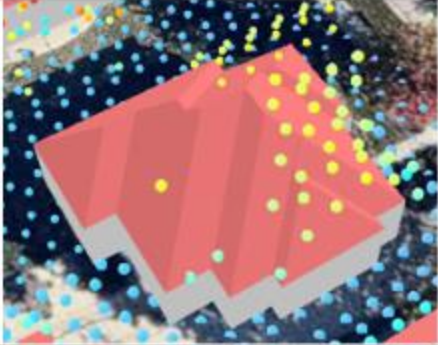
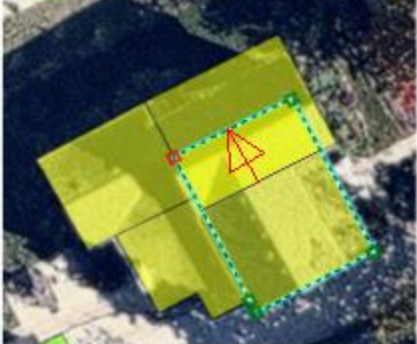
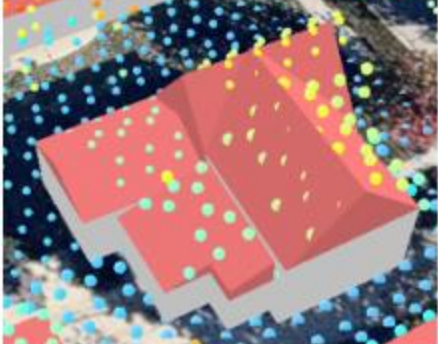
Results of manual updating of building vertices are shown.

Create cross gable roof forms

You can also use vertex editing to make cross gable roof forms. To do so, complete the following steps:

1. Select the feature you want to modify.
2. Use the **Split** tool in the Roof Segmentation task, or on the **Edit** tab to segment the building footprint according to the roof forms present within the footprint.
3. Use the **Vertices** tool in the Modify Building Vertices task, or in the **Modify Features** pane to extend one gable roof into the other one.
4. Edit the attributes as needed with the modified building footprint.

[Back to top](#)

	2D view with DSM and aerial photograph	3D view with Lidar points
Identify building requiring segmentation and vertex modification.		
Segment according to the different roof forms within the footprint. Then modify the vertices and attributes.		

Results of manual updating of cross gable roof forms are shown.

Fuse buildings

If you have segmented some building footprints into separate features, you can use the **Fuse buildings** task to fuse the building features that represent building parts back together in the resulting 3D building features.

Note:

Review and modification of buildings is done on the building footprint layer with procedural symbology. Fusing saves the modification to multipatch format for texture adding and publishing.

Add textures to buildings (optional)

Use this task to add realistic textures to the previously extracted buildings.

Note:

Textures depict generic usage of buildings and are applied based on footprint size. Using high-resolution textures will result in large output, potentially leading to decreased visualization performance.

[Back to top](#)

Publish buildings layer

This task publishes the building layer to your organization. Reprojection to Web Mercator with height in meters is only required if you want to use the published layers in a global web scene.

Update buildings (optional)

Use this task if new lidar is available. It compares an existing 3D multipatch building layer with a new lidar dataset to verify whether there are any updates required due to new construction or demolition. If changes have been detected, these can then be merged back into the original 3D building layer.

To update your existing buildings, you will need the following data:

- Multipatch buildings
- Lidar with ground and buildings classified

The Update Buildings process accomplishes the following purposes:

- Detects changes between input 3D multipatch buildings and new lidar. The output is building update polygons where changes have been detected depending on the input parameters.
- Creates LOD2 update buildings using the building update polygons and the lidar.
- Merges the LOD2 update buildings with the existing 3D buildings.

Publish floors

Building Floors can be created using the Publish floors task. The input is multipatch buildings, which can come from the Publish buildings task or from other sources such as CityEngine or third-party providers. The output is building floor plates and floor volumes. Floors can be created using a Building Space Use table where the building will be split into tiers or groups of floors, each with their own number of floors, floor height, space use, and color. Alternatively, building attributes such as number of floors, ground floor height, upper floor height, and roof height can be used to create the floors.

Note:

Splitting buildings into floors can take a long time to run, especially when the initial split failed, and a more time-intensive splitting algorithm must be used. Ensure you only split the buildings that are required. Also, factors such as building size and complexity will affect the processing time.

In the **Task Pane**, click the **Publish floors** task and follow the steps provided.

Create building floors

This tool splits existing 3D buildings into floors based on building attributes. You can use the buildings created in the Publish buildings task or bring in your own buildings.

One option to create building floors is to use the building space use table to split the building into tiers or groups of individual floors with defined space use. The building space use table has several attributes that describe the different tiers within the building. Each tier has an attribute defining space use, number of floors, floor color, and floor height. The BuildingTypeName attribute is the identifier that links the Building Space Use table to the building features. An example building space use table can be found in the tables folder of the 3D basemaps ArcGIS Pro project.

Create floor volumes

If you require floor volumes, use the Create floor volumes task to create floor volumes out of the 3D floor plates. The Extrude By Attribute geoprocessing tool requires a building feature class with space usage information that includes floor height.

Publish trees

Tree location, size, and width can be extracted from ground classified lidar as point features. Tree point features are then symbolized using procedural rules and can be schematic or realistic. If trees are classified in the lidar, the quality of the tree extraction will improve.

In the **Task pane**, expand the **Publish trees** group task and follow the steps provided.

Classify trees in lidar using deep learning

Run this tool to optionally classify trees in the lidar using a deep learning model. Classified trees will improve the vegetation extraction but keep in mind that deep learning is computationally very intensive, and a powerful GPU is needed to process large datasets faster. Depending on data size and available hardware, it can take hours to finish. Start with one LAS file to see processing time on your system.

To work with the deep learning tools in ArcGIS Pro, you need to install supported deep learning frameworks packages. See [deep learning frameworks](#) for ArcGIS.

A [tree classification model](#) trained by Esri can be downloaded from ArcGIS Living Atlas of the World or you can create your own model using the Training a Deep Learning model for Point Cloud Classification notebook that can be found in the notebooks folder of the 3D basemaps ArcGIS Pro project.

Extract tree points using surface analysis

Use this tool to extract tree points from the lidar using surface analysis. This type of extraction is faster for large lidar datasets, but the results are less accurate than using cluster analysis for dense lidar (point spacing less than 1.5 feet/0.5 meters).

Extract tree points using cluster analysis

Use this tool to extract tree points from the lidar using cluster analysis. This type of extraction is slower for large lidar datasets, but the results are more accurate than using surface analysis.

Note:

When creating the 3D trees, make sure to verify the **Vegetation class code**. The correct class codes for vegetation is typically 5. The tool will verify whether your lidar has this code, but trees might be represented by other codes as well. Visually review your lidar and verify what class code tree points have by clicking a tree lidar point. If the vegetation has not been classified, enter the class code that represents the vegetation, for example, 0 or 1.

Tip:

Use the Extract tree points using surface analysis tool to create an initial vegetation layer. Run the Extract tree points using cluster analysis tool for lidar files for which you need detailed trees and replace the trees from the initial layer with the more detailed trees where needed.

Create colorized lidar trees

Classified lidar can also be used directly to visualize trees. This step extracts just the tree points from the input lidar and uses aerial imagery to colorize them.

Publish bridges

If bridge surfaces are classified in the lidar and the lidar is dense enough, it is possible to extract the bridge surfaces as 3D polygons. 3D bridges can then be created by applying procedural rules.

In the **Task pane**, expand the **Publish bridges** group task and follow the steps provided.

Create bridges

In the Extract bridge surfaces from lidar step, enter the following:

- **Class Code**—The class code that represents the bridge surfaces.

[Back to top](#)

- **Sampling Value**—Experiment with this value to improve processing speed and output quality.
- **Bridge Area**—This is the minimum area that defines a bridge surface.

Note:

The bridge surface should be a separate class code. If bridge surfaces are not classified in the lidar, you can [interactively classify the bridge surfaces](#) in ArcGIS Pro.

Note:

Only rectangular bridge surfaces and models are supported.

Publish power lines

Power line features such as wires and support structure locations with height can be extracted from classified lidar as line and point features. Simple symbology or procedural rules can be used to visualize the power lines in 3D. A wide variety of conductor and tower configurations are supported when using procedural rules. It is also possible to use your existing GIS data instead of the features extracted from lidar.

In the **Task pane**, expand the **Publish power lines** group task and follow the steps provided.

Classify power line features in lidar using deep learning

Run this tool to optionally classify wires and support structures in the lidar using a deep learning model. Classified power lines will improve the wire and support structure locations extraction, but keep in mind that deep learning is computationally very intensive, and a powerful GPU is needed to process large datasets faster. Depending on data size and available hardware, it can take hours to finish. Start with one .las file to see processing time on your system.

To work with the deep learning tools in ArcGIS Pro, you need to install supported deep learning frameworks packages. See [Install deep learning frameworks for ArcGIS](#).

A [power line classification](#) model trained by Esri can be downloaded from ArcGIS Living Atlas, or you can create your own model using the Training a Deep Learning model for Point Cloud Classification notebook that can be found in the notebooks folder of the 3D basemaps ArcGIS Pro project.

After classification using deep learning, you can manually improve the classification further in the next step.

Extract wires from lidar

This step extracts the wires as features from the classified lidar. It models each segment of a power line between two suspension points as individual line features. Use this step if you need to extract all wires as PolylineZ features.

Note:

For best extraction results, ensure the average lidar point spacing is less than 1 foot or 30 centimeters.

Extract support structure locations from lidar

Use this step to extract the support structure locations from lidar as PointZ (x,y,z) features with height as the attribute.

Note:

For best extraction results, ensure the average lidar point spacing is less than 1 foot or 30 centimeters.

Symbolize wires

Use this step to visualize the wire features that were extracted from lidar as 3D tubes.

Symbolize support structure locations

Use this step to symbolize the support structures as complete transmission or distribution lines including wires and towers or poles. This can be useful if you need a realistic visual representation of the transmission or distribution lines with wires connected to the support structures.

Note:

In this step, wires are modeled as catenary curves with a default sag to span ratio of 0.035, which may differ from the classified wire points in the lidar.

Run the Create transmission lines task to create 3D transmission lines. Enter the following:

- **Voltage**—Select the voltage for the transmission line. The values for the voltage list are read from the TowerLUTable table located in the project tables directory. Change these values to modify conductor and tower features.
- **Tower configuration**—Experiment with these parameters to create the desired towers.

Run the Create distribution lines task to create 3D distribution lines. Enter the following:

Pole configuration—Experiment with these parameters to create the desired poles.

[Back to top](#)

Note:

Both tools support point features as input. You can use existing features or features that have been extracted from lidar, or you can manually create features. A line and tower attribute must be present. The line attribute should describe which line the points belong to and the tower attribute should describe the tower order per line. Connected lines are not supported.

Note:

This tool requires that the [Microsoft Access Database Engine driver](#) be installed.

Publish underground pipes

You can turn your existing 2D underground utility features into 3D features using elevation attributes.

In the **Task pane**, expand the **Publish underground pipes** group task and follow the steps provided.

Create gravity mains

Run the Create gravity mains task to create 3D gravity-driven mains. The first time you run this step, you evaluate the current state of the gravity mains and highlight errors. After reviewing the errors and updating fields that are incorrect, run Interpolate gravity mains to calculate any remaining missing values.

Create manholes

Run the Create manholes task to create 3D manhole features.

Create laterals

Run the Create laterals task to create 3D lateral features.

Create a surface trench

Run the Create a surface trench task to better visualize underground pipe features.

Publish integrated mesh

An integrated mesh is a textured continuous meshed surface capturing a current state of an area or city. They are often derived from drone, aerial, or satellite imagery via photogrammetric processing.

[Back to top](#)

In the **Tasks** pane, expand the **Publish integrated mesh** group task and follow the steps provided.

Add integrated mesh

This step adds an integrated mesh to your scene. A mesh (.s1pk) is typically created from photogrammetric sources, like imagery captured by drones and processed with Drone2Map or SiteScan. There are also several Esri partners that specialize in producing city-scale integrated mesh for purchase.

Modify integrated mesh

Use this step to make a modification to an integrated mesh layer. You can create a new modification or import from an existing polygon feature layer. Mesh modifications are useful to be able to show other 3D layers such as buildings, trees or bridges together with the integrated mesh.

Publish integrated mesh layer

This step publishes the integrated mesh layer to your organization. Reprojection to Web Mercator with height in meters is only required if you wish to use the published layer in a global web scene.

Run **Share as new web scene** to publish the entire scene as web scene to your organization. Remove all the layers that you don't want to publish from the scene before publishing.

Run **Share as scene layer** if you need to add an integrated mesh to an existing web scene.

Modify integrated mesh in web scene

This tool modifies an integrated mesh in a published web scene without having to republish the entire mesh as a new web scene.

Publish water features

This task allows you to create and publish 3D water features as multipatch features and polygon features. Water features can represent flat water bodies such as lakes and coastal waters as well as rivers with a certain gradient. This task works well with flat water features and river features at city scale. Larger features with a lot of gradient will result in many polygons which may lead to performance degradation.

Create water features

This step creates water features as 2D polygons. You can skip this step if you already have a polygon feature class that defines the water features.

[Back to top](#)

Modify water features

The water features need to have a depth attribute that describes the average depth for each water feature. These values are used to modify the ground elevation for the area of the water features so that the water surface features display properly.

In this step you can calculate the depth values for all water features. If you want specific depth values for each water features, open the feature attribute table and set the values manually.

Create 3D water features

This step allows you to create 3D water features from the 2D water features and a ground elevation (dtm) surface as input.

This tool outputs a multipatch layer and a polygon layer representing the 3D water level. Use the multipatch layer to visualize large areas of flooding as this format is suited for fast rendering of many features. Use the polygon layer if you want to leverage water animation in ArcGIS Pro and the Scene viewer.

Symbolize water features

Use this step to symbolize the water features with a water renderer.

Publish 3D Basemaps

The 3D basemap is a web scene that can be used across the ArcGIS platform.

In the **Task pane**, expand the **Publish 3D basemap web scene** group task and follow the steps provided.

Publish 3D basemap web scene

Use this step to create a web scene containing the 3D basemap layers.

Tip:

For more information on creating a web scene, see [Get started with scenes](#).

Add web map to web scene

Use this step to add the layers of a web map to a web scene; for example, you can add a web map to the 3D basemaps web scene.

Address Data Management

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar 2026
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Introduction to Address Data Management

Address Data Management can be used to maintain an authoritative address repository and continuously improve the quality of address data.

Addresses describe a physical place. Typically, an address includes the number assigned to a structure, the name of the street and town, or municipality. Assigning addresses is an essential act of government, often local government, and is critical to the provision of efficient services and cost-effective commerce in a community (for example, 911, permitting, billing, assessment and taxation). While many address authorities have a central database of address information, the physical location of those addresses eludes them. Address Data Management is typically implemented by address authorities, planning departments, dispatch centers, GIS departments, and other local government organizations that want to develop an address repository that supports diverse information needs and continuously improve the quality of this information.

The Address Data Management solution delivers a set of capabilities that help you maintain an authoritative address repository, continuously improve the quality of address data, and share address information with internal and external stakeholders.

Requirements

Address Data Management requires the following:

- ArcGIS Enterprise
- ArcGIS Pro 2.8 or later (Standard or Advanced)
 - ArcGIS Data Reviewer (optional)
- ArcGIS Workforce
- ArcGIS Field Maps
- ArcGIS Survey123 Connect

[Back to top](#)

Information products

Address Data Management includes the following information products:

Item	Description	Minimum user type
Address Data Management	An ArcGIS Pro project used to maintain an inventory of road centerlines, valid road names, site addresses, and related mailing addresses	GIS Professional Standard
Addressing	An ArcGIS Hub site used by the general public to learn more about addressing and how they are assigned	Not required
Master Address Locator	A Media Map app used by the general public to validate an address used to deliver public safety and other government services	Not required
Address Request Form	An ArcGIS Survey123 form used by the general public to request a new address or report a potential error in the master address repository	Not required
Address Assignments	An ArcGIS Workforce project used by addressing staff to manage address field operations. Field users access the Address Assignments project using the ArcGIS Workforce mobile app.	Mobile Worker
Address Field Inventory	An ArcGIS Field Maps map used by addressing staff to collect address information while in the field	Mobile Worker

[Back to top](#)

Release notes

The following are the release notes:

Version	Description
2.0	<ul style="list-style-type: none">• A new feature template in the Address Data Management Pro project helps users create one, or more, site addresses at a defined location (for example, new subdivision).• A series of new tasks in the Address Data Management Pro project help users split a road at a defined location (for example, municipal boundary) and calculate USNG coordinates for a site address.• A series of new rules in the Address Data Management Pro project help users calculate the municipality on a new road or site address, create a new postal address for each site address, and find common errors in address ranges and site addresses (for example, overlapping address ranges, site addresses that do not fall within an address range).• A new Address hub site that can be used to learn more about addressing and how they are assigned.• A new app that can be used to validate an address used to deliver public safety and other government services.• A new survey form that can be used to request a new address or report a potential error in the master address repository.• A new ArcGIS Workforce project that can be used to manage address field operations.• A new map that can be used to collect address information while in the field.
1.0	<ul style="list-style-type: none">• First release of Address Data Management

Configure Address Data Management

Learn how to configure the Address Data Management solution to meet specific needs in your organization.

Configure address data management project

The Address Data Management solution includes an ArcGIS Pro project and sample data you can use to explore data management workflows. When you are ready to configure the project, a series of tasks are included to help you review the schema, make modifications to the maps and layers, load your data, and optionally migrate into ArcGIS Enterprise.

1. Sign in to your ArcGIS organization and browse to the Address Data Management Desktop Application Template.
2. Open the item page and click **Download**.
3. Unzip and open the Address Data Management ArcGIS Pro project.
4. On the **View** tab, in the **Windows** group, click **Catalog Pane**.
5. In the **Catalog** pane, expand the **Tasks** folder, and double-click the **Address Data Management** task.
6. In the **Tasks** pane, expand the **Configure Address Data Management** task group.

Review schema

Included in the solution is a data dictionary that describes the feature classes, relationship classes, and domains included in the Address Data Management geodatabase.

To review the data dictionary, browse to the Data Dictionary.htm file included with the Address Data Management project and open in your default web browser.

Define spatial reference

The Address Data Management project comes with two file geodatabases. Address Data Management Sample.gdb contains data designed to help test workflows supported in the solution.

Address Data Management.gdb is an empty geodatabase with the same schema and a spatial reference set to Web Mercator. You can use this geodatabase to define your spatial reference and load your data.

To define the spatial reference, follow the steps in the **Define spatial reference** task.

Configure maps, layers, and rules

The Address Data Management solution leverages preconfigured attribute rules to automate many of the editing workflows. For example, when you create an address point, a unique ID is automatically generated for the point.

In some cases, you may need to modify the default schema included with the solution to meet your organization's needs. If you need to remove or rename fields that are used in any of the attribute rules, you must first update the rule to remove the reference to the field. Adding new fields does not impact the rules. You may also want to add additional rules or configure the feature templates to set the default attributes applied when a feature is created.

To modify the schema, attribute rules, and feature templates of the layers, follow the steps in the **Configure maps, layers, and rules** task.

Load your data

When you have completed any schema modifications, you can load your existing data into the Address Data Management layers by following the steps in the **Load your data** task.

Load into ArcGIS Enterprise

While everything included with the Address Data Management solution is supported in a file geodatabase, some organizations may choose to manage this data in ArcGIS Enterprise. In Enterprise, the Address Data Management requires branch version to evaluate the validation rules and branch versioned datasets need to be published as a feature service to edit in ArcGIS Pro.

To copy the Address Data Management schema into ArcGIS Enterprise and publish as a branch versioned feature service, follow the steps in the **Load into ArcGIS Enterprise** task.

Modify address request survey

The Address Data Management solution includes an Address Request Form survey that can be used by the general public to request a new address or report a potential error in the master address inventory. Review the preconfigured questions and align the survey with your organizational policies and desired outcomes.

1. Install [ArcGIS Survey123 Connect](#).
2. Click **Address Request Form** to download the survey.
3. In the **Download** window, click **Download** and click **OK**.
4. Click **Address Request Form** to open the survey.
5. On the left, from the side toolbar, click the **XLSForm** button.
6. At the bottom of the Microsoft Excel spreadsheet, click the **choices** tab.

[Back to top](#)

This tab comprises all the selectable options for survey questions.

7. Click the **survey** tab.

This tab comprises all the questions in the survey.

8. Click the **settings** tab.





This tab contains options for controlling the presentation and behavior in the survey.

9. Revise the survey to reflect your needs.
10. Save and close the Microsoft Excel spreadsheet and preview your changes in ArcGIS Survey123 Connect.
11. In ArcGIS Survey123 Connect, in the left toolbar, click **Publish** to publish your changes.
12. Click **Publish survey** to publish your changes, and then click **OK**.

Configure Addressing site

The Address Data Management solution includes the Addressing ArcGIS Hub site that your organization can configure with your branding and use to share addressing information.

Update with organizational information

1. Verify that you are signed in to your ArcGIS organization and browse to the Addressing site.
2. From the item page, click **Configure**.
3. If necessary, click the **Edit** button  to open the site editor.
4. Scroll to the **Verify Your Address** section, hover over the card, and click the edit pencil .
5. Enter your email address.
6. Scroll to the **Address Assignment** section, hover over the card, and click the edit pencil .
7. Enter the URL to your address regulations.
8. Scroll to the **Frequently Asked Questions** section, hover over the card, click the edit pencil, and update the questions and answers.
9. To modify your site's footer, on the left, click the **Customize Toggle** button .
10. Click **Footer**.

A custom footer is provided. In most cases, you will need to update it with your organization's branding, contact information, and social media references.
11. Click the **HTML** box.

The **HTML** window appears.
12. Make the necessary changes and click **Apply**.
13. Click **Save**.

14. In the upper-left corner of the page, click the **Exit edit mode** button.

Share items with public

Several layers, maps, and apps included in the Address Data Management solution must be shared with everyone so they can be accessed by the public on the Addressing site. To share your items with everyone, use the guide below and complete the following steps:

1. Verify that you are signed in to your ArcGIS organization and browse to the Address Data Management folder.
2. Check the check box next to each of the items below:

Item	Name
Feature Layer (hosted, view)	SiteAddresses_public
Feature Layer (hosted, view)	ProposedSiteAddresses_submit
Web Map	Master Address Locator
Web Mapping Application	Master Address Locator
Form	Address Request Form
Site Application	Addressing

3. Click **Share**.
4. In the **Share** window, click **Everyone (public)** and click **Save**.
The **Warning: Sharing editable layers publicly** message appears notifying you that you are sharing editable layers publicly.
5. Click **Update**.
6. Click **OK** and click **Save**.

Publish address locators

You can author the address locators described below in ArcGIS Pro from the layers managed in the Address Data Management solution:

- Composite
- Dual Range
- Site address
- Road name

Once you have authored the locators, you can use them in ArcGIS Pro to locate places using addresses along the left or right side of a road, rooftop address locations, and road names. You can also share the locators with your organization and use them in many ArcGIS Solutions.

Learn how to [create an address locator](#) and more about the components of an address locator in the ArcGIS Pro help.

[Back to top](#)

Share address data

On a routine schedule, you can publish address data managed in Address Data Management in other formats and share this reformatted data with other organizations. Two common publication formats are Esri Community Maps and National Emergency Number Association (NENA) NG911.

The Community Maps Program for Addresses provides the best available data to support the ArcGIS World Geocoding Service. You can contribute point address data to enhance the geocoding experience of your ArcGIS users. The Community Maps Program provides a toolbox to assist data Contributors with preparing their address layers prior to sending them into the Esri Community Maps Program. Learn how to become a [Community Maps Contributor](#) and what address elements can be shared with the ArcGIS user community.

The NENA Guidelines were designed to meet public safety address needs. But they do not address other uses (permitting, billing, land records, etc.) of address data. The address layers in the Address Data Management solution have been optimized for data management in ArcGIS and support diverse address data needs (ie. service delivery, mailing, etc.). NENA's mandatory fields, and most of the recommended fields, have been incorporated in the address layers and NENA compliant layers can easily be produced from the address layers included in the Address Data Management solution.

Join road name elements

The Address Data Management solution stores the unique elements of a road name (for example, direction, name, and type) in the Master Road Names table and uses an attribute rule to create a full road name. Rather than repeating the unique road name elements on every road centerline and site address feature, a full road name is stored on each feature. Community Maps, NENA NG911 and many other publication formats expect unique road elements to be stored on each feature. Road name elements contained in the Master Road Names records can be joined to road centerlines and site addresses using the Make Query Table tool. This query table can then be consumed in the Community Maps toolset or exported to a desired format, such as NENA NG911.

To join road name elements to your road centerlines, complete the following steps:

1. Open the Address Data Management ArcGIS Pro project.
2. Click **Tools** in the **Geoprocessing** group on the **Analysis** tab of the ribbon.
3. In the **Geoprocessing** pane, search for Make Query Table.
4. Open the Make Query Table tool.
5. In the **Input Tables** parameter select the Master Road Name table and the Local Streets layer.

You can select any of the road layers, the join will run against all the roads in the RoadCenterline feature class.

6. In the **Fields** parameter from drop down arrow, click the **Toggle All Checkboxes**.

[Back to top](#)

7. Uncheck the OBJECTID fields for the MasterRoadName and RoadCenterline feature classes.
8. Click **Add**.
9. In the **Expression** parameter, click **New Expression**.
10. Click the **SQL** toggle button.
11. Paste the following code:

```
RoadCenterline.fullname = MasterRoadName.fullname And  
RoadCenterline.munileft = MasterRoadName.municipality
```

Note:

If you are working in enterprise you will need to provide the full qualified name of the feature class or table.

12. In the **Table Name** parameter, type Roads.
13. In the **Key Field Options**, select Generate a key field.
14. Click **Run**.

Note:

The output layer will contain the roads with the joined Master Road Name attributes. If a road is missing from the Query Table there was no matching road name in the Master Road Name table.

To join road name elements to your site addresses, complete the following steps:

1. Open the Make Query Table tool.
2. In the **Input Tables** parameter select the Master Road Name table and the Site Addresses layer.
3. In the **Fields** parameter from drop down arrow, click the **Toggle All Checkboxes**.
4. Uncheck the OBJECTID fields for the MasterRoadName and SiteAddressPoint feature classes.
5. Click **Add**.
6. In the **Expression** parameter, click **New Expression**.
7. Click the **SQL** toggle button.
8. Paste the following code:

```
SiteAddressPoint.fullname = MasterRoadName.fullname And  
SiteAddressPoint.municipality = MasterRoadName.municipality
```

Note:

If you are working in enterprise you will need to provide the full qualified name of the feature class or table.

9. In the **Table Name** parameter, type Site Addresses.
10. In the **Key Field Options**, select Generate a key field.
11. Click **Run**.

Note:

The output layer will contain the roads with the joined Master Road Name attributes. If a road is missing from the Query Table there was no matching road name in the Master Road Name table.

Use Address Data Management

The Address Data Management solution delivers a set of capabilities that help you maintain an authoritative address repository, continuously improve the quality of address data, and share address information with internal and external stakeholders.

In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

Maintain address inventory

You will assume the role of a mapping technician responsible for maintaining an inventory of road centerlines, valid road names, site addresses, and related mailing addresses.

The Address Data Management ArcGIS Pro project includes a series of tasks to help guide you through these workflows.

1. Sign in to your ArcGIS organization and browse to the Address Data Management Desktop Application Template.
2. Open the item page and click **Download**.
3. Unzip and open the Address Data Management ArcGIS Pro project.
4. On the **View** tab, in the **Windows** group, click **Catalog Pane**.
5. In the **Catalog** pane, expand the **Tasks** folder, and double-click the **Address Data Management** task.
6. In the **Tasks** pane, click the **How to Use Address Data Management** task group to expand the collection of tasks.

Add new roads

Roads are line segments representing centerlines of all roadways or carriageways that support address geocoding and mapping. They are also a resource for the agencies responsible for the active management of the road network. Typically, this information is compiled from orthorectified aerial imagery and record drawings.

The road features leverage a valid list of road names that can be assigned to a road and subsequent site address. The Master Road Names table includes the unique elements of a road name (for example, direction, name, and type) and uses an attribute rule to create a full road name. To ensure data integrity, the Master Road Names table constrains the road names that can be populated in the road centerlines and site addresses.

The feature classification and type schema for the roads is based on a functional classification of roads provided by the Federal Highway Administration (FHWA). Specific attributes and default values vary for each feature type.

To manage the Master Road Name table and add new roads, follow the steps in the **Add new roads** task.

Add site addresses

Site addresses represent the location of a site or service delivery address assigned by a local government. Typically, site addresses are placed on top of the associated structure. Alternatively, they may be placed at the center of a parcel or in close proximity to the curb cut.

Site addresses are related to two other address layers:

- Address points that represent the location along the road network where the specific site or service delivery address has been assigned.
- Entrance points that represent the location where the public, or a service provider, gains access to the specific site address. In urban settings, an entrance point can represent a driveway for a home that is on a corner lot and the address is assigned off an adjacent road. In rural areas, an entrance point can represent a shared driveway that provides access to many homes. Entrance points are optional and can be added on a case-by-case basis.

Each site address may have one or more postal addresses associated with it. Postal addresses provide contact information for the owner or occupant of the building or buildings associated with a site address. The Owner / Occupant field indicates whether the postal address is for the owner, occupant, or both.

The feature classification and type schema for the site addresses is based on a status field. This status field allows local governments to identify pending, temporary, and current addresses.

To add a new site address and one, or more, related postal addresses and building entrances, follow the steps in the **Add site addresses** task.

Update road names

Road names may change during the plan review process and as a result, pending road names must be updated. When road name changes are made, the changes are pushed to the site address features to ensure data integrity is maintained

To modify a pending road name and update related features, follow the steps in the **Update road names** task.

Split existing roads

When constructing new roads, existing roads will split at the intersection of the new road and the address ranges will be prorated based on the length of each segment. In some cases, existing roads may not be split at an intersection or where a boundary (for example, municipal boundary) crosses a road.

To split existing roads at an intersection or where a boundary crosses a road, follow the steps in the **Split existing roads** task.

Modify road and address parity

In some cases, roads were not drawn in the direction of ascending address ranges and the direction of the line must be flipped to improve address geocoding. This may also mean the address range parity is incorrect and must be flipped as well.

To modify the road direction or address parity, follow the steps in the **Flip roads and swap parity** task.

Create road intersections

When creating new roads, existing roads are split at intersections along the new road. An inventory of road intersections with the names of relevant crossroads is often required by 911 systems and to manage right-of-way assets.

To create road intersections, follow the steps in the **Create road intersections** task.

Add USNG coordinates

The United States National Grid (USNG) standard provides a nationally consistent grid reference system and creates a more interoperable environment for developing location-based services within the United States. Some business systems require site address points have an associated USNG coordinate.

To add USNG coordinates to site addresses, follow the steps in the **Add USNG coordinates** task.

Validate address data

You can use the Address Data Management solution to validate, maintain, and improve the integrity of your address data. The solution includes validation and topology rules configured on the address layers can help you identify and resolve common errors in your address data.

To validate address integrity, follow the steps in the **Validate address data** task.

Request address correction

You will first assume the role of a resident or member of the public. When attempting to file a permit application, you search for an address, but the result is incorrect. You will use the Addressing site and Address Request Form to report an erroneous address.

1. In a browser, go to the Addressing site.
2. Scroll to the **Verify Your Address** section and review the story.
3. In the **Master Address Locator** search box, enter an address.

You see suggestions as you type and are able to choose the address from the search results.

The results show several site addresses in the area.


4. Click a site address and review the additional details.

If you do not see an address, or see an error, return to the Addressing site and complete the Address Request Form.

5. Scroll to the **Request New Address** section and review the story.
6. Click **Request Address**.
7. Complete the survey and click **Submit**.

Resolve address correction

You will now assume the role of a supervisor at an addressing authority. As a supervisor, you are responsible for assigning field crews to verify missing or incorrect address reports from stakeholders. Using the Address Assignments ArcGIS Workforce project, you will create a new assignment using the missing address report and assign it to one of your mobile workers.

1. In a browser, sign in to your ArcGIS organization and click the **Apps** button  in the header of the site.
2. From the app launcher, click **ArcGIS Workforce** to open the app.
3. Click Address Assignments to open the project.

Tip:

Workforce projects

When implementing the Address Data Management solution in your organization, you must add anyone responsible for verifying addresses in the field to the Address Assignments ArcGIS Workforce project with a Mobile Worker role. You can add users and assign roles in the configuration settings of the project. To access configuration settings, hover over **Address Assignments** project and click **Configure**. Click the **Users** tab. For the purposes of this exercise, ensure your named user account is assigned as a dispatcher and as a mobile worker. Click **My Projects** tab to return to your projects.

4. On the map, select the address you created in the previous section and click the **+** **Create Assignment** at the bottom of the pop-up window.
5. From the **Create Assignment** panel, fill in the following details:
 - For **Assignment Type**, choose **Verify Address**.
 - For **Assigned to**, choose a worker.
 - For **Priority**, choose **Medium**.
 - For **Due Date**, choose tomorrow.
6. Click **Create Assignment**.

[Back to top](#)

Verify address correction

You will now assume the role of a mobile worker at an addressing authority. As a mobile worker, you are responsible for verifying missing or incorrect address reports. Using the Address Assignments ArcGIS Workforce project, you will review and update the status of your assignments and open the Address Field Inventory map in ArcGIS Field Maps to verify missing addresses.

1. Download Workforce for ArcGIS and ArcGIS Field Maps apps onto your mobile device.
2. Open the Workforce for ArcGIS app and sign in to your ArcGIS organization.
3. Tap the **Address Assignments** project.
4. Tap **Verify Address** from the **To Do** list.
5. Tap **Start**.
6. Tap **Open Field Maps**.

This opens the Address Field Inventory map in ArcGIS Field Maps and defaults to the location of the assignment.

7. Tap the missing address point at the same location.
8. Tap **Edit** to modify the details of the address.

At this point, verify the details of the address and make any necessary changes to the attributes and location of the address.

9. Tap **Verified** and tap **Yes**.
10. Tap **Submit** (iOS) or the check mark (Android).

The address point changes from red to green and now reflects any edits you made during verification.

11. Return to the Workforce for ArcGIS app and tap **Finish** to complete the assignment.

Collect new addresses in field

You will continue your role as a mobile worker at an addressing authority. You are responsible for collecting addresses for a new commercial development in the community. You will use the Address Field Inventory map in ArcGIS Field Maps to collect new addresses in the field.

1. From your mobile device, open the ArcGIS Field Maps app.
Tap the back arrow, if necessary, to go back to the **Maps** list.
2. Tap the **Address Field Inventory** map.
3. Tap **Add** and tap **Proposed Site Addresses**.
4. Swipe up and enter the details of the address.

When adding multiple addresses, they may have common attributes such as the road name and municipality. You can create a copy of an existing address point by selecting it and tapping **Copy**.

5. Tap **Submit** (iOS) or the check mark (Android).

Incorporate proposed site addresses

You will assume the role of a mapping technician responsible for incorporating verified proposed site addresses submitted through the Address Request Form or collected in the field using Address Field Inventory into your authoritative site address. The Address Data Management ArcGIS Pro project can be used to copy and paste these points into your site address layer and mark the proposed site address as incorporated.

1. Open the Address Data Management ArcGIS Pro project.
2. Click **Add Data** in the **Layer** group on the **Map** tab of the ribbon.
3. Under **Portal** browse into **My Content** and select the ProposedSiteAddresses feature layer deployed with the solution.
4. Click **Ok**.
5. Select a verified proposed site address point.
6. Click the **Copy** button in the **Clipboard** group on the **Edit** tab of the ribbon.
7. Click the **Paste** dropdown in the **Clipboard** group.
8. Select **Paste Special**.
9. From the **Paste Special** window select **Layer** and select Site Addresses from the dropdown.
10. Check **Keep source attribute values** and click **Ok**.
11. Select the proposed site address you copied.
12. From the **Attributes** pane update the Incorporated field to Yes.
13. Click **Apply**.

The verified proposed site address has been incorporated into your authoritative site address layer and marked incorporated.

Adopt-A-Stop

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Adopt-A-Stop

Adopt-A-Stop can be used to operate stop adoption programs that allow volunteers to adopt transit stops and clean them for the community.

A transit ride begins and ends at a stop, and a rider's overall experience includes not only the ride, but their time spent at transit stops. Adopt-A-Stop programs seek to improve this experience and reduce maintenance costs by leveraging individual volunteers and organizations to clean transit stops. Program volunteers are typically asked to inspect their stops, remove trash, and report graffiti or serious damage at regular intervals. This simple action has a big impact on rider satisfaction, safety around the stop and the quality of life in a neighborhood. Adopt-A-Stop is typically implemented by transit agencies that want to engage the community and maximize the capacity of operations staff.

The Adopt-A-Stop solution delivers a set of capabilities that help you engage volunteers to keep transit stops clean, manage participants, and monitor the performance of the adoption program.

Requirements

Adopt-A-Stop requires the following:

- ArcGIS Enterprise
- ArcGIS Web AppBuilder (Developer Edition) 2.11 or later
- ArcGIS Pro 2.5 or later (Basic, Standard, or Advanced)
- SMTP Server

[Back to top](#)

Information products

Adopt-A-Stop includes the following information products:

Item	Description	Minimum user type
Adopt-A-Stop	An ArcGIS Hub site used by the general public to learn how to get involved in the Adopt-A-Stop program	Not required
Adopt-A-Stop	An ArcGIS Pro project package used by transit personnel to configure the Adopt-A-Stop app and publish supporting web tools to ArcGIS Enterprise	GIS Professional Standard with Web tool publisher permission
Adopt-A-Stop Manager	A Crowdsourcing Manager app used by transit personnel to manage Adopt-A-Stop participants	Editor
Adopt-A-Stop Dashboard	An ArcGIS Dashboards app used by transit personnel to monitor the Adopt-A-Stop program	Viewer

Release notes

The following are the release notes:

Version	Description
1.0	<ul style="list-style-type: none">First release of Adopt-A-Stop

Configure Adopt-A-Stop

Learn how to configure the Adopt-A-Stop solution to meet specific needs in your organization.

Publish the Adopt-A-Stop app

The Adopt-A-Stop solution includes an ArcGIS Pro project used to publish the Adopt-A-Stop app. When you are ready to publish the app, a series of tasks are included to help you get started.

Get started

Use the ArcGIS Pro project to familiarize yourself with Adopt-A-Stop.

1. Sign in to your ArcGIS organization and browse to the Adopt-A-Stop Project Package.
2. Open the item page and click **Download**.
3. Browse to and open the Adopt-A-Stop project.
4. On the **View** tab, in the **Windows** group, click **Catalog Pane**.
5. In the **Catalog** pane, expand the **Tasks** folder, and double-click the **Adopt-A-Stop** task.
6. In the **Tasks** pane, expand the **Getting to Know Adopt-A-Stop** task group.
7. Double-click **Understanding Adopt-A-Stop** task to review it.

Configure Adopt-A-Stop

Use the ArcGIS Pro project to set up Adopt-A-Stop.

1. In the **Tasks** pane, expand the **Configure Adopt-A-Stop** task group.
2. Use the **Configure Adopt-A-Stop** task group to access several tasks that guide you through:
 - Load your transit stops into the AdoptAStops feature layer deployed with the solution.
 - Set up a user table in ArcGIS Enterprise to store program participants.
 - Publish the authentication geoprocessing webtool.
 - Configure the Adopt-A-Stop app.

Contact participants

Use the ArcGIS Pro project to configure tools necessary for contacting participants in the Adopt-A-Stop program.

1. In the **Tasks** pane, expand the **Contact participants** task group.

[Back to top](#)

The **Contact participants** task group contains tasks to help you contact program participants by sending bulk emails or contacting a selection of participants by local or attribute.

2. Follow the task instructions to configure the bulk email model with your SMTP server and contact participants.

Configure the Adopt-A-Stop site

The Adopt-A-Stop solution includes the Adopt-A-Stop ArcGIS Hub site. This site can be configured with your organization's branding and used to share information about the Adopt-A-Stop program with the public.

Update with organizational information


After deploying the Adopt-A-Stop solution, the Adopt-A-Stop Hub site layout only requires a few updates to fit your local context.

To update the site with your organizational information, complete the following steps:


1. Verify that you are signed in to your ArcGIS organization and browse to the Adopt-A-Stop site.
2. From the item page, click **Configure**.
3. Scroll to the statistics section under the Hub site title.

The **Stops Adopted** and **Cleaned This Month** summary statistic cards are already linked to the Adopt-A-Stop solution's AdoptAStops_public feature layer. These statistics automatically update as participants adopt stops and report cleanings using the Adopt-A-Stop app.

The **Volunteers** statistic is provided in a text card styled to resemble the summary statistic cards, but you can manually enter a statistic of your choice, independent of the solution data. You can update the **Volunteers** text card with the number of program participants, a metric of your choice, or you can replace the text card with a summary statistics card and connect it to the AdoptAStops_public feature layer in a similar fashion to the other dynamic statistics cards.

4. To update the **Volunteers** card, hover over the card, click the edit pencil , and update the text.

Note:

To add a summary statistics card to the existing row, see [Display key metrics](#). Then, after the card has been added to the row, hover over the existing **Volunteers** card and click the delete button .


5. Scroll to the **Adopt a Stop** section, hover over the card, and click the edit pencil.
6. Click the **Adopt Stop** button and click the Edit button.

[Back to top](#)

7. Type the Adopt-A-Stop app URL published using the Adopt-A-Stop ArcGIS Pro project into the **Link Destination** text box and click **Add Link**.

Tip:

Browse to the Adopt-A-Stop app. Open the item page, click **View Application**, and copy the app URL.

8. Scroll to any additional sections that you want to update, hover over the card, and click the edit pencil  that appears in the horizontal toolbar, and then edit the content with information specific to your organization.
9. In the side panel, click **Footer**.

A custom footer is provided. In most cases, you will need to update it with your organization's branding, contact information, and social media references.

10. Click the **HTML** text box.

The **HTML** window appears.

11. Make the necessary changes and click **Apply**.
12. Click **Save**.
13. Click the **Save** drop-down arrow and click **Publish Draft**.

Share items with the public

Several layer views, maps and apps included in the Adopt-A-Stop solution must be shared with everyone so they can be accessed by the public on the Adopt-A-Stop site.

To share items with the public, complete the following steps:

1. Verify that you are signed in to your ArcGIS organization and browse to the Adopt-A-Stop folder.
2. Next to each of the following items, check the check box:

Name	Item type
AdoptAStops_public	Feature layer (hosted, view)
Adopt-A-Stop	Web Map
Adopt-A-Stop	Web Mapping Application
Adopt-A-Stop	Site Application

3. Click **Share**.
4. In the **Share** window, click **Everyone (public)** and click **Save**.

The **Warning: Sharing editable layers publicly** message appears notifying you that you are sharing editable layers publicly.

5. Click **Update**.


Deploy a related solution

This site references content from the Transit Outreach solution. To deploy the Transit Outreach solution, follow the steps in the [Deploy an ArcGIS Solution](#) section.

Update solution references

After you have deployed the Transit Outreach solution, you can access Transit Outreach items from the Adopt-A-Stop site.

To update your site with an item from Transit Outreach, complete the following steps:

1. Verify that you are signed in to your ArcGIS organization and browse to the Adopt-A-Stop site.
2. From the item page, click **Configure**.
3. Scroll to the **Report a Problem** section, hover over the **Submit a Report** card, and click the edit pencil .
4. Click **Submit Report** and click the Edit button.
5. In a separate browser tab or window opened to your ArcGIS organization, browse to the Transit Outreach folder and open the Transit Rider Reporter form item page.
6. Click **Open in Survey123** and choose **Open in browser**, and then copy the URL.
7. In the Adopt-A-Stop site, paste the Transit Rider Reporter form URL into the **Link Destination** text box and click **Add Link**.
8. Hover over the **Contact Call Center** text card and click the edit pencil.
9. Edit the text with information applicable to your organization.
10. Click **Save**.
11. Click the **Save** drop-down arrow and click **Publish Draft**.

Share other solution items with the public

Several layer views, maps and apps included in the Transit Outreach solution must be shared with everyone so they can be accessed by the public on the Adopt-A-Stop site.

To share items with the public, complete the following steps:

1. Verify that you are signed in to your ArcGIS organization and browse to the Transit Outreach folder.
2. Next to each of the following items, check the check box:

Name	Item
TransitRiderReports_public	Feature layer (hosted, view)
Transit Rider Reporter	Form

3. Click **Share**.
4. In the **Share** window, click **Everyone (public)** and click **Save**.

[Back to top](#)

The **Warning: Sharing editable layers publicly** message appears notifying you that you are sharing editable layers publicly.

5. Click **Update**.

Adopta widget settings

The Adopt-A-Stop app uses the Adopta widget with preconfigured settings and actions. Optionally, you can modify and expand the Adopta widget's settings to meet your organization's needs. Use the tables below to understand the Adopta widget's configuration settings and capabilities.

Layer and Authentication settings

The Layer and Authentication settings allow you to configure behaviors as well as the look and feel of the user interface.

Setting	Description
Asset nickname field	Field that stores the stop's nickname.
Login screen message	Message that appears when signing in to the application.
Additional signup field	Fields in the UserTable to be displayed in the sign up form in addition to email—for example, add first and last name, address, and phone number.
Show asset address	Display the reverse geocoded address of a stop in the details view.
Asset highlight color	Color of selection symbol displayed around the stop symbol when it is selected on the map.
Tolerance setting	New stops are created if no asset is found within the tolerance.
My asset symbol	Choose a symbol and set the size of user-adopted stops.

Actions

The primary actions used for the Adopt-A-Stop app are assign (Adopt) and unassign (Opt out). You can configure additional actions as needed.

Setting	Description
Assign status settings	Allows you to label the button (Adopt) in the asset detail view and specify additional actions that occur after clicking the assign status button.
Unassigned status settings	Allows you to configure the unassigned label (Abandoned) in the asset detail view and specify additional actions that occur after clicking the unassigned label.
Additional status settings	Allows you add additional actions you want adopters to report on—for example, damaged stops.
Primary Status	Displays text and status buttons in the Adopta application—for example, Is the stop cleaned?

[Back to top](#)

Before action image	Image that is displayed before performing an action.
After action image	Image that is displayed after performing an action.

Messages

The Adopt-A-Stop app displays messages based on user interaction—for example, Thank you for adopting stop name. You can modify the messages or create additional messages according to your organization’s needs.

Setting	Description
Assign	Message displayed when an asset is successfully assigned. Use '{assetTitle}', for example, to display the title of asset in message.
Unassign	Message displayed when an asset is successfully unassigned.
Action	Message displayed when action is successfully completed. Use '{actionName}', for example, to display the name of action in message.
Asset not found	Message displayed when asset is not found.
Asset already assigned	Message displayed when asset is already assigned. Use '{assetTitle}', for example, to display the title of asset in message.
Unable to perform action	Message displayed when action is not successful. Use '{actionName}', for example, to display the name of the action message.
Asset creation	Message displayed when creating an asset. Use '{layerName}', for example, to display the name of the layer in message.
Create asset failed	Message displayed when asset creating fails.
User token expired	Message displayed when user token is expired and generated.
Signup/Login success	Message displayed after successful sign up or log in.
Home screen (when logged in)	Message displayed in widgets home screen after user logs into the application.
Cursor tooltip before login	Message displayed when the user hovers over the map with their pointer before logging in to the application.
Cursor tooltip after login	Message displayed when the user hovers over the map with their pointer after logging in to the application.
Nickname hint	The text displayed in the nickname hint text box.

Use Adopt-A-Stop

The Adopt-A-Stop solution delivers a set of capabilities that help you engage volunteers to keep transit stops clean, manage participants, and monitor the performance of the adoption program.

[Back to top](#)

In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

Note:

Use your organization's data or configured apps to follow these workflows.

Adopt a stop

First, you'll assume the role of a transit rider who wants to participate in your local transit agency's adopt-a-stop program. You'll use the Adopt-A-Stop app to submit an adoption request and report the stop is clean.

1. In a browser, from the Adopt-A-Stop solution, view the Adopt-A-Stop site.
2. Scroll to the **Adopt-A-Stop** section, and then click **Adopt Stop** to open the Adopt-A-Stop app.
3. In the panel on the right, type your email address, and then click **Login/Sign Up** to sign up and begin the adoption process.
4. In the form, type your contact details, and then click **Sign Up**.

The Adopt-A-Stop app sends an email with program details and a link that you will use to log in to the app.

5. In the email, click **Login**.

Returning users also receive an email with a link used to sign in to the app.

The Adopt-A-Stop app opens in a browser with your newly created user authenticated. Notice the instructions to select a stop on map to adopt.

6. Select an available stop to adopt (the gray symbols on the map). Optionally, add a nickname to your stop in the text box. Click **Adopt**.

Adopt-A-Stop displays a thank you message. The Adopt-A-Stop pane displays your stop as Adoption Pending and allows you to report if the stop is clean or to opt out of adopting the stop. You can use the Adopt-A-Stop app to regularly report cleanings.

Manage adoptions and participants


You are now a transit agency employee managing the stop adoption program. You will use the Adopt-A-Stop Manager app to approve adoption requests and contact program participants.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Adopt-A-Stop solution.
2. View the Adopt-A-Stop Manager app.

Pending and adopted stop requests are listed in the table at the top. The table can be sorted and filtered in various ways.

3. In the table, click the **Adoption Status** column filter, and then for **Status is**, choose **Pending**.

[Back to top](#)

4. Click the **Date Adopted** column header and choose **Sort in descending order**.
The pending adoption requests are now listed with the most recent request at the top.
5. Select a pending adoption request from the table.
The map selects the stop and zooms to the appropriate location, and the request details open at the bottom left.
6. Review the details.
7. In the details, click the participant's email address to share information about your Adopt-A-Stop program with the participant.
Adopt-A-Stop Manager opens your email client and presents a preformatted subject.
After contacting the participant, you are ready to approve the adoption request.
8. In the Adopt-A-Stop Manager app, in the request details, click the **Edit record** button .
9. For **Adoption Status**, choose **Adopted**.
10. Optionally, modify the nickname to ensure it is appropriate to be displayed in Adopt-A-Stop app.
11. Click **Save**.
12. Optionally, click a record in the table, and then in its details, click **Manage Adopter's Stops** to launch the Adopt-A-Stop app and manage the stops adopted by the selected user.

You can use this workflow to remove an adopter from a stop, making it available for adoption.

Monitor the program

You will continue your role as a transit agency employee, this time looking to monitor the Adopt-A-Stop program. You will use the Adopt-A-Stop Dashboard to review key metrics and trends.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Adopt-A-Stop solution.
2. View the Adopt-A-Stop Dashboard app.
The Adopt-A-Stop Dashboard displays new adoptions and cleaning charts by month and provides management a quick view of program activity over time.
3. On the left, adjust filters to explore transit stop status, type, date adopted and last cleaned.
Note:
Dashboard charts are linked. If you click a month in either **New Adoptions by Month** or **Cleanings by Month** charts, related details are filtered and updated in other elements in the dashboard.
4. On the right, select a stop from the list to view key details. Alternatively, click a stop on the map.

[Back to top](#)

5. Optionally, in a pop-up, click **Manage Stop** in the pop-up to launch the Adopt-A-Stop Manager app.

Configure Adopt-A-Stop

Learn how to configure the Adopt-A-Stop solution to meet specific needs in your organization.

Publish the Adopt-A-Stop app

The Adopt-A-Stop solution includes an ArcGIS Pro project used to publish the Adopt-A-Stop app. When you are ready to publish the app, a series of tasks are included to help you get started.

Get started

Use the ArcGIS Pro project to familiarize yourself with Adopt-A-Stop.

1. Sign in to your ArcGIS organization and browse to the Adopt-A-Stop Project Package.
2. Open the item page and click **Download**.
3. Browse to and open the Adopt-A-Stop project.
4. On the **View** tab, in the **Windows** group, click **Catalog Pane**.
5. In the **Catalog** pane, expand the **Tasks** folder, and double-click the **Adopt-A-Stop** task.
6. In the **Tasks** pane, expand the **Getting to Know Adopt-A-Stop** task group.
7. Double-click **Understanding Adopt-A-Stop** task to review it.

Configure Adopt-A-Stop

Use the ArcGIS Pro project to set up Adopt-A-Stop.

1. In the **Tasks** pane, expand the **Configure Adopt-A-Stop** task group.
2. Use the **Configure Adopt-A-Stop** task group to access several tasks that guide you through:
 - Load your transit stops into the AdoptAStops feature layer deployed with the solution.
 - Set up a user table in ArcGIS Enterprise to store program participants.
 - Publish the authentication geoprocessing webtool.
 - Configure the Adopt-A-Stop app.

Contact participants

Use the ArcGIS Pro project to configure tools necessary for contacting participants in the Adopt-A-Stop program.

1. In the **Tasks** pane, expand the **Contact participants** task group.

[Back to top](#)

The **Contact participants** task group contains tasks to help you contact program participants by sending bulk emails or contacting a selection of participants by local or attribute.

2. Follow the task instructions to configure the bulk email model with your SMTP server and contact participants.

Configure the Adopt-A-Stop site

The Adopt-A-Stop solution includes the Adopt-A-Stop ArcGIS Hub site. This site can be configured with your organization's branding and used to share information about the Adopt-A-Stop program with the public.

Update with organizational information


After deploying the Adopt-A-Stop solution, the Adopt-A-Stop Hub site layout only requires a few updates to fit your local context.

To update the site with your organizational information, complete the following steps:


1. Verify that you are signed in to your ArcGIS organization and browse to the Adopt-A-Stop site.
2. From the item page, click **Configure**.
3. Scroll to the statistics section under the Hub site title.

The **Stops Adopted** and **Cleaned This Month** summary statistic cards are already linked to the Adopt-A-Stop solution's AdoptAStops_public feature layer. These statistics automatically update as participants adopt stops and report cleanings using the Adopt-A-Stop app.

The **Volunteers** statistic is provided in a text card styled to resemble the summary statistic cards, but you can manually enter a statistic of your choice, independent of the solution data. You can update the **Volunteers** text card with the number of program participants, a metric of your choice, or you can replace the text card with a summary statistics card and connect it to the AdoptAStops_public feature layer in a similar fashion to the other dynamic statistics cards.

4. To update the **Volunteers** card, hover over the card, click the edit pencil , and update the text.

Note:

To add a summary statistics card to the existing row, see [Display key metrics](#). Then, after the card has been added to the row, hover over the existing **Volunteers** card and click the delete button .


5. Scroll to the **Adopt a Stop** section, hover over the card, and click the edit pencil.
6. Click the **Adopt Stop** button and click the Edit button.

[Back to top](#)

7. Type the Adopt-A-Stop app URL published using the Adopt-A-Stop ArcGIS Pro project into the **Link Destination** text box and click **Add Link**.

Tip:

Browse to the Adopt-A-Stop app. Open the item page, click **View Application**, and copy the app URL.

8. Scroll to any additional sections that you want to update, hover over the card, and click the edit pencil  that appears in the horizontal toolbar, and then edit the content with information specific to your organization.
9. In the side panel, click **Footer**.

A custom footer is provided. In most cases, you will need to update it with your organization's branding, contact information, and social media references.

10. Click the **HTML** text box.

The **HTML** window appears.

11. Make the necessary changes and click **Apply**.
12. Click **Save**.
13. Click the **Save** drop-down arrow and click **Publish Draft**.

Share items with the public

Several layer views, maps and apps included in the Adopt-A-Stop solution must be shared with everyone so they can be accessed by the public on the Adopt-A-Stop site.

To share items with the public, complete the following steps:

1. Verify that you are signed in to your ArcGIS organization and browse to the Adopt-A-Stop folder.
2. Next to each of the following items, check the check box:

Name	Item type
AdoptAStops_public	Feature layer (hosted, view)
Adopt-A-Stop	Web Map
Adopt-A-Stop	Web Mapping Application
Adopt-A-Stop	Site Application

3. Click **Share**.
4. In the **Share** window, click **Everyone (public)** and click **Save**.

The **Warning: Sharing editable layers publicly** message appears notifying you that you are sharing editable layers publicly.

5. Click **Update**.

[Back to top](#)


Deploy a related solution

This site references content from the Transit Outreach solution. To deploy the Transit Outreach solution, follow the steps in the [Deploy an ArcGIS Solution](#) section.

Update solution references

After you have deployed the Transit Outreach solution, you can access Transit Outreach items from the Adopt-A-Stop site.

To update your site with an item from Transit Outreach, complete the following steps:

1. Verify that you are signed in to your ArcGIS organization and browse to the Adopt-A-Stop site.
2. From the item page, click **Configure**.
3. Scroll to the **Report a Problem** section, hover over the **Submit a Report** card, and click the edit pencil .
4. Click **Submit Report** and click the Edit button.
5. In a separate browser tab or window opened to your ArcGIS organization, browse to the Transit Outreach folder and open the Transit Rider Reporter form item page.
6. Click **Open in Survey123** and choose **Open in browser**, and then copy the URL.
7. In the Adopt-A-Stop site, paste the Transit Rider Reporter form URL into the **Link Destination** text box and click **Add Link**.
8. Hover over the **Contact Call Center** text card and click the edit pencil.
9. Edit the text with information applicable to your organization.
10. Click **Save**.
11. Click the **Save** drop-down arrow and click **Publish Draft**.

Share other solution items with the public

Several layer views, maps and apps included in the Transit Outreach solution must be shared with everyone so they can be accessed by the public on the Adopt-A-Stop site.

To share items with the public, complete the following steps:

1. Verify that you are signed in to your ArcGIS organization and browse to the Transit Outreach folder.
2. Next to each of the following items, check the check box:

Name	Item
TransitRiderReports_public	Feature layer (hosted, view)
Transit Rider Reporter	Form

3. Click **Share**.
4. In the **Share** window, click **Everyone (public)** and click **Save**.

[Back to top](#)

The **Warning: Sharing editable layers publicly** message appears notifying you that you are sharing editable layers publicly.

5. Click **Update**.

Adopta widget settings

The Adopt-A-Stop app uses the Adopta widget with preconfigured settings and actions. Optionally, you can modify and expand the Adopta widget's settings to meet your organization's needs. Use the tables below to understand the Adopta widget's configuration settings and capabilities.

Layer and Authentication settings

The Layer and Authentication settings allow you to configure behaviors as well as the look and feel of the user interface.

Setting	Description
Asset nickname field	Field that stores the stop's nickname.
Login screen message	Message that appears when signing in to the application.
Additional signup field	Fields in the UserTable to be displayed in the sign up form in addition to email—for example, add first and last name, address, and phone number.
Show asset address	Display the reverse geocoded address of a stop in the details view.
Asset highlight color	Color of selection symbol displayed around the stop symbol when it is selected on the map.
Tolerance setting	New stops are created if no asset is found within the tolerance.
My asset symbol	Choose a symbol and set the size of user-adopted stops.

Actions

The primary actions used for the Adopt-A-Stop app are assign (Adopt) and unassign (Opt out). You can configure additional actions as needed.

Setting	Description
Assign status settings	Allows you to label the button (Adopt) in the asset detail view and specify additional actions that occur after clicking the assign status button.
Unassigned status settings	Allows you to configure the unassigned label (Abandoned) in the asset detail view and specify additional actions that occur after clicking the unassigned label.
Additional status settings	Allows you add additional actions you want adopters to report on—for example, damaged stops.
Primary Status	Displays text and status buttons in the Adopta application—for example, Is the stop cleaned?

[Back to top](#)

Before action image	Image that is displayed before performing an action.
After action image	Image that is displayed after performing an action.

Messages

The Adopt-A-Stop app displays messages based on user interaction—for example, Thank you for adopting stop name. You can modify the messages or create additional messages according to your organization’s needs.

Setting	Description
Assign	Message displayed when an asset is successfully assigned. Use '{assetTitle}', for example, to display the title of asset in message.
Unassign	Message displayed when an asset is successfully unassigned.
Action	Message displayed when action is successfully completed. Use '{actionName}', for example, to display the name of action in message.
Asset not found	Message displayed when asset is not found.
Asset already assigned	Message displayed when asset is already assigned. Use '{assetTitle}', for example, to display the title of asset in message.
Unable to perform action	Message displayed when action is not successful. Use '{actionName}', for example, to display the name of the action message.
Asset creation	Message displayed when creating an asset. Use '{layerName}', for example, to display the name of the layer in message.
Create asset failed	Message displayed when asset creating fails.
User token expired	Message displayed when user token is expired and generated.
Signup/Login success	Message displayed after successful sign up or log in.
Home screen (when logged in)	Message displayed in widgets home screen after user logs into the application.
Cursor tooltip before login	Message displayed when the user hovers over the map with their pointer before logging in to the application.
Cursor tooltip after login	Message displayed when the user hovers over the map with their pointer after logging in to the application.
Nickname hint	The text displayed in the nickname hint text box.

Use Adopt-A-Stop

The Adopt-A-Stop solution delivers a set of capabilities that help you engage volunteers to keep transit stops clean, manage participants, and monitor the performance of the adoption program.

In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

Note:

Use your organization's data or configured apps to follow these workflows.

Adopt a stop

First, you'll assume the role of a transit rider who wants to participate in your local transit agency's adopt-a-stop program. You'll use the Adopt-A-Stop app to submit an adoption request and report the stop is clean.

1. In a browser, from the Adopt-A-Stop solution, view the Adopt-A-Stop site.
2. Scroll to the **Adopt-A-Stop** section, and then click **Adopt Stop** to open the Adopt-A-Stop app.
3. In the panel on the right, type your email address, and then click **Login/Sign Up** to sign up and begin the adoption process.
4. In the form, type your contact details, and then click **Sign Up**.

The Adopt-A-Stop app sends an email with program details and a link that you will use to log in to the app.

5. In the email, click **Login**.

Returning users also receive an email with a link used to sign in to the app.

The Adopt-A-Stop app opens in a browser with your newly created user authenticated. Notice the instructions to select a stop on map to adopt.

6. Select an available stop to adopt (the gray symbols on the map). Optionally, add a nickname to your stop in the text box. Click **Adopt**.

Adopt-A-Stop displays a thank you message. The Adopt-A-Stop pane displays your stop as Adoption Pending and allows you to report if the stop is clean or to opt out of adopting the stop. You can use the Adopt-A-Stop app to regularly report cleanings.

Manage adoptions and participants


You are now a transit agency employee managing the stop adoption program. You will use the Adopt-A-Stop Manager app to approve adoption requests and contact program participants.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Adopt-A-Stop solution.

[Back to top](#)

2. View the Adopt-A-Stop Manager app.

Pending and adopted stop requests are listed in the table at the top. The table can be sorted and filtered in various ways.

3. In the table, click the **Adoption Status** column filter, and then for **Status is**, choose **Pending**.
4. Click the **Date Adopted** column header and choose **Sort in descending order**.
The pending adoption requests are now listed with the most recent request at the top.
5. Select a pending adoption request from the table.
The map selects the stop and zooms to the appropriate location, and the request details open at the bottom left.
6. Review the details.
7. In the details, click the participant's email address to share information about your Adopt-A-Stop program with the participant.
Adopt-A-Stop Manager opens your email client and presents a preformatted subject.
After contacting the participant, you are ready to approve the adoption request.
8. In the Adopt-A-Stop Manager app, in the request details, click the **Edit record** button .
9. For **Adoption Status**, choose **Adopted**.
10. Optionally, modify the nickname to ensure it is appropriate to be displayed in Adopt-A-Stop app.
11. Click **Save**.
12. Optionally, click a record in the table, and then in its details, click **Manage Adopter's Stops** to launch the Adopt-A-Stop app and manage the stops adopted by the selected user.
You can use this workflow to remove an adopter from a stop, making it available for adoption.

Monitor the program

You will continue your role as a transit agency employee, this time looking to monitor the Adopt-A-Stop program. You will use the Adopt-A-Stop Dashboard to review key metrics and trends.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Adopt-A-Stop solution.
2. View the Adopt-A-Stop Dashboard app.
The Adopt-A-Stop Dashboard displays new adoptions and cleaning charts by month and provides management a quick view of program activity over time.
3. On the left, adjust filters to explore transit stop status, type, date adopted and last cleaned.

Note:

[Back to top](#)

Dashboard charts are linked. If you click a month in either **New Adoptions by Month** or **Cleanings by Month** charts, related details are filtered and updated in other elements in the dashboard.

4. On the right, select a stop from the list to view key details. Alternatively, click a stop on the map.
5. Optionally, in a pop-up, click **Manage Stop** in the pop-up to launch the Adopt-A-Stop Manager app.

AED Inventory

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to AED Inventory

AED Inventory can be used to maintain an inventory of automated external defibrillators (AEDs) and share the location of AEDs with internal stakeholders and the public.

An AED is a portable electronic device that automatically diagnoses the life-threatening cardiac arrhythmias and is able to treat them through defibrillation. Defibrillators are typically found in office buildings, airports, educational facilities, and other locations where people congregate. Proactively managing and communicating AED information helps dispatchers inform first responders when a cardiac emergency occurs. AED Inventory is typically implemented by public safety agencies that want to have a single catalog of AEDs and share this information with internal stakeholders and the public.

The AED Inventory solution delivers a set of capabilities that help you inventory AEDs, share authoritative AEDs with computer aided dispatch systems or consumer applications, and inform the public.

Requirements

AED Inventory requires the following:

- ArcGIS Enterprise

Information products

AED Inventory includes the following information products:

Item	Description	Minimum user type
AED Inventory	An ArcGIS Survey123 form used by fire personnel to inventory automated external defibrillators (AEDs)	Editor
AED Inventory	A map used by internal stakeholders to locate AEDs near a given location	Viewer

[Back to top](#)

Release notes

The following are the release notes:

Version	Description
1.0	<ul style="list-style-type: none"><li data-bbox="461 346 911 373">• First release of AED Inventory

Configure AED Inventory

AED Inventory can be used to inventory automated external defibrillators (AEDs) and share the location of AEDs with internal stakeholders and the public.

In this topic, you'll learn how to configure the AED Inventory solution to meet specific needs in your organization.

Modify AED Inventory survey

The AED Inventory solution includes a survey that can be used to inventory defibrillators. Review the preconfigured questions and align the survey with your organizational policies and desired outcomes.

To modify the AED Inventory survey, complete the following steps:

1. Sign in to your ArcGIS organization and browse to the AED Inventory form.
2. Open the item page and click **Open in Survey 123 > Manage in Survey123 website**.
3. Click the **Design** tab.
4. Make your edits to the survey and save the changes.
5. Click **Publish** twice.

Use AED Inventory

The AED Inventory solution delivers a set of capabilities that help you inventory AEDs, share authoritative AEDs with computer aided dispatch systems or consumer applications, and inform the public.

In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

Note:

Use your organization's data or configured apps to follow these workflows.

Collect defibrillators in the field

In many cases, a field assessment of existing automated external defibrillators (AEDs) may be the most efficient way to develop an AED inventory. The information collected in the field can then be shared with internal stakeholders and the public.

You will assume the role of a mobile worker in a public safety agency. In this workflow, you have been asked to use ArcGIS Survey123 to access your AED Inventory form and inventory defibrillators in your community.

1. On your mobile device, in ArcGIS Survey123, open the AED Inventory form.

Tip:

The form can also be accessed from a browser by signing in to your ArcGIS organization, browsing to the AED Inventory form, and choosing to open the form in a browser.

2. Tap **Collect**.
3. Complete the form with as much information as possible.

Note:

Required information is marked with a red asterisk.

Tip:

Automated external defibrillators (AEDs) can be inventoried in the office on a desktop computer or in the field from your mobile device. If you allow your browser to access your location while in the field, your current location can also be used to inventory an automated external defibrillator.

4. Tap the check mark to submit the form, and then tap **Send now**.
5. Repeat these steps for each AED.

Tip:

[Back to top](#)

You can share the URL to the AED Inventory form with your mobile workers so they can access the survey form directly on their device. When they click on the URL, they will be asked to sign in to your ArcGIS organization before completing the survey.

Locate a defibrillator

Communicating automated external defibrillator information helps public safety staff locate the closest defibrillator. The AED Inventory map can be used to communicate automated external defibrillator alternatives and locate one nearby.

Find a defibrillator

You will assume the role of a public safety staff member. In this workflow, you are interested in locating a defibrillator near a given location in a downtown or neighborhood.

1. Sign in to your ArcGIS organization, and then browse to the AED Inventory solution.
2. Open the AED Inventory map in Map Viewer.

Tip:

You can share the URL to the AED Inventory map with your public safety staff so they can access the map directly on their device. When they click on the URL, they will be asked to sign in to your ArcGIS organization before accessing the map.

3. On the right, in the Settings (light) toolbar, click **Search**.

Tip:

If you do not see **Search** in the toolbar, click **Map tools** and choose **Search**.

4. In the search box, type the location.
The results show any automated external defibrillators in the area.
5. On the map, click a defibrillator and review the additional details.
If you do not see a defibrillator, zoom out to a larger area.

Agricultural Best Management Practices

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Agricultural Best Management Practices

Agricultural Best Management Practices can be used to enroll agricultural producers in best management practice programs and monitor the success of those programs.

It simplifies the enrollment and verification process in best management practice programs and helps agriculture agencies promote efficient water resource practices. Monitoring enrollment and verification data in near real time allows program managers to target outreach efforts where they are needed to ensure water quality for everyone. Agricultural Best Management Practices is typically implemented by agriculture agencies and other government agencies that want to increase participation in best management practice programs.

The Agricultural Best Management Practices solution delivers a set of capabilities that help you enroll participants in best management practices (BMP) programs, verify those participants, and analyze trends in BMP programs.

Requirements

Agricultural Best Management Practices requires the following:

- ArcGIS Enterprise
- ArcGIS Survey123
- Survey123 Connect

Information products

Agricultural Best Management Practices includes the following information products:

Item	Description	Minimum user type
Best Management Practice Dashboard	An ArcGIS Dashboards app used by program managers to evaluate BMP program status with policy makers, stakeholders, and the public	Viewer
BMP Enrollment Status	An ArcGIS Dashboards app used by agriculture staff to monitor BMP enrollment and verification status	Viewer
BMP Enrollment Survey	An ArcGIS Survey123 form used by mobile workers to enroll agriculture producers in BMP programs	Mobile Worker
BMP Verification Survey	An ArcGIS Survey123 form used by mobile workers to validate BMP programs in the field	Mobile Worker

Release notes

The following are the release notes:

Version	Description
1.0	<ul style="list-style-type: none">First release of Agricultural Best Management Practices

[Back to top](#)

Configure Agricultural Best Management Practices

In this topic, you will learn how to configure the Agricultural Best Management Practices solution to meet specific needs in your organization.

Load data

Agricultural Best Management Practices can be used to enroll and verify agricultural producers in best management practice programs and monitor the success of those programs. In some cases, you may already have this information in ArcGIS or another business system.

Review the layers provided with the solution and determine what source data you want to load. Then, load your existing data into the layers provided with the ArcGIS Solution before sharing the maps or applications.

Once you have determined what source data must be loaded, complete the data loading workflow below.

Load data from a shapefile

Load data for the BMPEnrollments and BPMPProgramSummary feature layers from a shapefile by following the steps below:

1. Create a .zip file of your shapefile.
2. In your ArcGIS organization, browse to the feature layer you wish to populate.
3. On the feature layer item details page, Click **Update Data** and select **Append Data to Layer**.
4. Under **Filename**, click **Choose File**.
5. Navigate to your .zip file and click **Open**.
6. Under **Contents**, select **Shapefile**.
7. Click **Upload and Continue**.
8. Choose the layer that you wish to load data into and the layer that contains the updated data.
9. Uncheck **Update existing features**.
10. Click **Show field matching** and map the fields between the two layers.
11. Click **Apply Updates**.

Tip:

To make additional updates to a hosted feature layer, see [Append data to layers](#).

Use Agricultural Best Management Practices

The Agricultural Best Management Practices solution delivers a set of capabilities that help you enroll participants in best management practices (BMP) programs, verify those participants, and analyze trends in BMP programs.

In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

Note:

Use your organization's data or configured apps to follow these workflows.

Manage BMP programs

The BMP Enrollment Survey can be used by program managers to enroll agricultural producers in BMP programs. The BMP Verification Survey verifies that best management practices are being followed, while the BMP Enrollment Status dashboard can be used to track participation and understand participation trends.

Enroll participants

You will assume the role of a mobile worker enrolling agricultural producers in BMP programs.

1. Download ArcGIS Survey123 to a mobile device, if necessary.
2. On the mobile device, open the app, and then open the BMP Enrollment Survey form.
3. Tap **Collect**.
4. Complete the survey with as much information as possible.
5. Tap the check mark, and then tap **Send Now** to submit the form.

Verify participants

You will assume the role of a mobile worker verifying agricultural producers enrolled in BMP programs are adhering to best management practices.

1. On a mobile device, in ArcGIS Survey123, open the BMP Verification Survey.
2. Tap **Inbox** and, if no surveys appear, tap **Refresh**.
3. Find your site in the list or tap **Map** to find sites near you.
4. After you find your site, tap it to open the survey.
5. Scroll to the **Verification of Implementation** section and update the information.
6. Tap the check mark, and then tap **Send Now**.

Monitor participation

You will assume the role of a BMP manager monitoring enrollment and verification trends in your BMP program.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Agricultural Best Management Practices solution.
2. View the BMP Enrollment Status app.
3. Use the dashboard to visualize your data.

Use best management practices metrics

The Best Management Practice Dashboard can be used by policy makers and constituents to understand overall program metrics for watersheds, counties, or legislative boundaries. It is typically used to understand how BMP programs are improving water quality, the total number of producers, and acres enrolled in BMP programs.

Monitor best management practices metrics

You will assume the role of a BMP manager monitoring the impact programs are having.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Agricultural Best Management Practices solution.
2. View the Best Management Practice Dashboard.
3. Use the dashboard to visualize your data.

Broadband Outreach

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Broadband Outreach

Broadband Outreach can be used to understand broadband coverage and promote actions being taken to address the digital divide.

In a connected world, access to reliable broadband internet service is essential. Today, the FCC estimates that approximately 35% of Americans do not have reliable access to service (25MB download / 3MB upload). In some areas, internet access is either limited, unavailable, or unaffordable for those in need. Understanding where gaps in broadband coverage exist helps governments make smart broadband infrastructure investments and promote equitable access. Broadband Outreach is typically implemented by state and local governments that want to understand where broadband gaps exist in their community and how actions they are taking impact access or needs.

The Broadband Outreach solution delivers a set of capabilities that help you inventory broadband investments and resources, understand broadband coverage in your community, and promote actions being taken to address the digital divide.

Requirements

Broadband Outreach requires the following:

- ArcGIS Enterprise
- ArcGIS Survey123 Connect

Information products

Broadband Outreach includes the following information products:

Item	Description	Minimum user type
Broadband Outreach	An ArcGIS Hub site used by the general public to learn more about broadband investments being made and how they can help improve coverage maps in order to advance digital equity.	Not required
Broadband Speed Test	An ArcGIS Survey123 form used by the general public and businesses to record broadband speed test results and feedback.	Not required
Broadband Survey Results	A Media app used by the general public to view Broadband Speed Test survey results.	Not required
Public WiFi Locator	A Nearby app used by the general public to find public WiFi locations.	Not required
Broadband Investments	An ArcGIS Experience Builder app used by the general public and other interested parties to review broadband investment projects.	Not required
Broadband Infrastructure Inventory	An ArcGIS Experience Builder app used by program analysts to create and edit Public WiFi and broadband project locations.	Editor
Broadband Coverage Dashboard	An ArcGIS Dashboards app used by the director to monitor broadband survey metrics.	Viewer

Release notes

The following are the release notes:

Version	Description
1.0	<ul style="list-style-type: none">First release of Broadband Outreach

Configure Broadband Outreach

Broadband Outreach can be used to understand broadband coverage and promote actions being taken to address the digital divide.

In this topic, you'll learn how to configure the Broadband Outreach solution to meet specific needs in your organization.

Load data

Broadband projects and WiFi locations can be loaded from a shapefile by completing the following steps:

1. Create a .zip file of a shapefile of the broadband projects.
2. Sign in to your ArcGIS organization and browse to the BroadbandProjects feature layer.
3. From the item page, click **Update Data > Append Data to Layer**.
4. Click **Choose File**, browse to the .zip file containing the shapefile with the broadband projects, and click **Open**.
5. Click **Upload and Continue**.
6. Click the **Choose the layer to update** drop-down arrow and choose **Broadband Projects**.
7. Uncheck **Update existing features**.
8. Click **Show field matching** to map the fields from the file to the fields in the layer.
9. Click **Apply Updates**.

Tip:

To make additional updates to a hosted feature layer, see [Append data to layers](#).

10. Repeat steps 1-9 to load Wifi locations into the WiFiLocations feature layer.

Modify Broadband Speed Test survey

To modify the Broadband Speed Test survey reporting area choice list, complete the following steps:

1. Install [ArcGIS Survey123 Connect](#).
2. Start ArcGIS Survey123 Connect and sign in to your ArcGIS organization.
3. Click **Broadband Speed Test** to download the survey.
4. In the **Download** window, click **Download** and click **OK**.
5. Click **Broadband Speed Test** to open the survey.
6. On the left, from the side toolbar, click the **XLSForm** button.

[Back to top](#)

7. At the bottom of the Microsoft Excel spreadsheet, click the **choices** tab.
This tab comprises all the selectable options for survey questions.
8. Update the **providerlist** choice list to reflect the internet service providers (ISP) available in your area.
9. Revise the survey to reflect your needs.
10. Save and close the Microsoft Excel spreadsheet and preview your changes in ArcGIS Survey123 Connect.
11. In ArcGIS Survey123 Connect, in the left toolbar, click **Publish** to publish your changes.
12. Click **Publish survey** to publish your changes, and then click **OK**.

Configure Public WiFi Locator app

Configurable apps have common configuration options that you may want to extend. The Public WiFi Locator app can be extended to allow directions from your current location.

To configure the Public WiFi Locator app to provide directions to the nearest location, complete the following steps:

1. Verify that you are signed in to your ArcGIS organization and browse to the Public WiFi Locator app.
2. From the item page, click **Configure App**.
Close the **Welcome to the App Setup Page** splash page, if necessary.
3. In the left side panel, make sure you are in Full Setup mode and click **Nearby**.
4. Click **Options** then click the **Show directions** toggle button.
5. Check the check box next to layers you want to include a directions link for.
6. Click **Publish**.
7. Click **Confirm**.

The **Authorize premium content** window appears indicating the number of credits consumed.




8. Click **Authorize**.
9. Click **Confirm**.
10. Click **Launch**.

Configure Broadband Outreach site

The Broadband Outreach solution includes the Broadband Outreach ArcGIS Hub site that your organization can configure with your branding and use to share broadband information with the public.

Update with organizational information

After deploying the Broadband Outreach solution, the Broadband Outreach site layout only requires a few updates to fit your local context. Consider what information you already have and what you can most easily find. To update your site, complete the following steps:

1. Verify that you are signed in to your ArcGIS organization and browse to the Broadband Outreach site.
2. From the item page, click **Configure**.
3. If necessary, click the **Edit** button  to open the site editor.
4. Hover over each image card in the site, click the edit pencil , and update the placeholder images with images from your organization.
5. Scroll to the **Additional Resources** section, hover over each text card, and click the edit pencil.
6. Update the resources in the text box and repeat for each resource you would like to add.
7. Scroll to the **Frequently Asked Questions** section, hover over the card, click the edit pencil, and update the questions and answers.
8. To modify your site's footer, on the left, click the **Customize Toggle** button .
9. In the side panel, click **Footer**.
A custom footer is provided. In most cases, you will need to update it with your organization's branding, contact information, and social media references.
10. Click the **HTML** box.
The **HTML** window appears.
11. Make the necessary changes and click **Apply**.
12. Click **Save**.
13. In the upper-left corner of the page, click the **Exit edit mode** button.

Share Broadband Outreach items

When you deploy the Broadband Outreach solution, it will create a Broadband Outreach site, and two Groups (Core Team and Followers) in your ArcGIS organization. Several maps and apps included in the Broadband Outreach solution must be shared with the general public so they can submit surveys and view broadband information.

To share the Broadband Outreach maps and apps, follow the steps below:

1. Verify that you are signed in to your ArcGIS organization and browse to the Broadband Outreach folder.
2. Check the check box next to each of the items below:

Item	Name
Feature Layer (hosted)	BroadbandSpeedTest
Feature Layer (hosted, view)	BroadbandSpeedTest_public
Feature Layer (hosted, view)	BroadbandProjects_public
Feature Layer (hosted, view)	WiFiLocations_public
Web Map	Broadband Investments
Web Map	Broadband Survey Results
Web Map	Public WiFi Locator
Web Mapping Application	Broadband Investments
Web Mapping Application	Broadband Survey Results
Web Mapping Application	Public WiFi Locator
Form	Broadband Speed Test
Dashboard	Broadband Investments Dashboard
Dashboard	Broadband Investments Dashboard Mobile
Site Application	Broadband Outreach

3. Click **Share**.
4. In the **Share** window, click **Everyone (public)** and click **Save**.



The **Warning: Sharing editable layers publicly** message appears notifying you that you are sharing editable layers publicly.

5. Click **Update**.

Add equity and inclusion app

Optionally, an equity analysis index can be created by program analysts. Once published it can be shared with the general public via a web mapping application. This app can be used to see how need is distributed across the community.

To add an app link to the equity and inclusion section, complete the following steps:

1. Verify that you are signed in to your ArcGIS organization and browse to the Broadband Outreach site.
2. From the item page, click **Configure**.
3. If necessary, click the **Edit** button  to open the site editor.
4. Scroll to the **Equity and Inclusion** section, click the edit pencil , and update the button hyperlink.
5. Make the necessary changes and click **Apply**.
6. Click **Save**.

[Back to top](#)

7. In the upper-left corner of the page, click the **Exit edit mode** button.

Use Broadband Outreach

The Broadband Outreach solution delivers a set of capabilities that help you inventory broadband investments and resources, understand broadband coverage in your community, and promote actions being taken to address the digital divide.

In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

Promote broadband and digital equity programs

The Broadband Outreach ArcGIS Hub site can be used to promote broadband investments and digital equity programs in your community.

In this section, you'll assume the role of a member of the public and explore broadband and digital equity programs in your community.

Submit a broadband access and speed survey

The Broadband Speed Test survey can be used to help broadband staff to find gaps in high-speed internet service and identify areas of need.

1. Sign in to your ArcGIS organization and browse to the Broadband Outreach ArcGIS Hub site.
2. Open the item page and click **View**.
3. Navigate to the **Current Broadband Coverage** section and click the **Launch Survey** button.
4. Ensure you are connected to your home WiFi network and turn off cellular service if you are using a mobile device.
5. Enter your address in the search box and select the corresponding location from the drop-down.
6. Answer corresponding survey questions and click **Submit**.

Examine broadband speed test survey results

The Broadband Survey Results app can be used to examine broadband speed test results.

1. Verify that you are signed in to your ArcGIS organization and browse to the Broadband Outreach ArcGIS Hub site.
2. Open the item page and click **View**.
3. Scroll to the **Broadband Survey Results** section.
4. Explore the embedded app to view broadband speed test results.

Locate a public WiFi hotspot

The Public WiFi Locator can be used to find WiFi hotspots that are available for use.

1. Verify that you are signed in to your ArcGIS organization and browse to the Broadband Outreach ArcGIS Hub site.
2. Open the item page and click **View**.
3. Navigate to the **WiFi Hotspots** section and click the **Launch App** button.
4. Enter your address in the search box or click Search this area in the map window.
5. Explore public WiFi locations and details.

Review broadband investments

The Broadband Investments app can be used to find information about broadband projects in their community.

1. Verify that you are signed in to your ArcGIS organization and browse to the Broadband Outreach ArcGIS Hub site.
2. Open the item page and click **View**.
3. Navigate to the **Active Broadband Investments** section and click the **Launch App** button.
4. In the left panel, choose **Planned Start Date** filters to further explore and refine broadband project results.
5. Click a project from the **Projects** list to see where the project is located, and to show the project detail.
6. Pan and zoom around the map to refine the list of projects and project details.

Inventory investments and WiFi hotspots

The Broadband Infrastructure Inventory app can be used by program analysts to create, edit, and review investments and WiFi hotspots. New broadband features can be added as new WiFi locations or broadband projects go online.

You'll now assume the role of a program analyst. In this workflow, you are asked to review and add new broadband investments and WiFi hotspots.

Edit broadband infrastructure

1. Sign in to your ArcGIS organization and browse to the Broadband Infrastructure Inventory app.
2. Open the item page and click **View**.
3. Select a broadband project on the map.

[Back to top](#)

4. Review the attribute information and enter the remaining details for the broadband project.
5. When you're finished, click **Update**.

Add a new WiFi location

1. Verify that you are signed in to your ArcGIS organization and browse to the Broadband Infrastructure Inventory app.
2. Open the item page and click **View**.
3. In the **Editor** widget, click **New Feature** under **WiFi Locations**.
4. Add a new WiFi location to the map.
5. Enter details for the WiFi location, scroll to the bottom of the form, and click **Create**.
6. Repeat steps 1-3 for each WiFi location.

Monitor broadband coverage

The Broadband Coverage Dashboard can be used by the director to understand broadband speed test survey results and identify coverage gaps in the community.

You'll now assume the role of director. In this workflow, you will explore how broadband coverage is distributed across the community and analyze survey results to understand patterns in access or speed.

1. Sign in to your ArcGIS organization and browse to the Broadband Coverage Dashboard app.
2. Open the item page and click **View Dashboard**.
3. Click the graphs to explore the surveys submitted.
4. Review indicators to see the range and average download speed, upload speed and ping results.
5. Click the **Average Download Speed by ISP** graph to see how results vary by provider.
6. Examine trends in survey responses by survey date, location type, ethnicity and race using filters in the left panel.
7. Click a survey in the map to see additional details.

Analyze broadband equity

The Social Equity Analysis solution delivers a set of capabilities that can help you understand broadband coverage, analyze community characteristics, and generate a broadband equity index that can be used to educate internal and external stakeholders.

In this section, you'll assume the role of a broadband program analyst and use the Social Equity Analysis solution to analyze broadband equity.

Deploy the Social Equity Analysis solution

To perform a broadband equity analysis, complete the following steps:

1. Sign in to your ArcGIS organization in the ArcGIS Solutions app.
2. Navigate to the Social Equity Analysis solution and click **Deploy Now**.
3. Review licensing requirements and download the Social Equity Analysis Desktop Application Template.
4. Unzip and open the Social Equity Analysis ArcGIS Pro project.

Evaluate conditions and actions

Use the tasks in the Social Equity Analysis ArcGIS Pro project to summarize and load data into your broadband reporting areas.

1. On the **View** tab, in the **Windows** group, click **Catalog Pane**
2. In the **Catalog** pane, expand the **Tasks** folder, and double-click the **Social Equity Analysis** task.
3. In the **Tasks** pane, click the **Evaluate Conditions and Actions** task group to expand the collection of tasks.
4. In the **Tasks** pane, double-click the **Prepare community asset, condition and outcome data** task and follow the steps provided.
5. Review and share results.

Note:

In step 3 of the Prepare community asset, condition and outcome data task, when adding demographic data to reporting areas, keep the Total Population variable but adjust the other variables you'd like to enrich. Some common indicators you may want to use when looking at broadband coverage are:

- HHs w/No Internet Access
- Population Age 65+
- Child Population
- Median Household Income

Relevant community characteristics are unique to each geography, you will want to focus on the characteristics that matter to your community - use the Broadband Coverage Dashboard to help inform your analysis.

[Back to top](#)

If you'd like to summarize download and upload speeds by reporting area. In step 5 of the **Prepare community asset, condition and outcome data** task, select the BroadbandSpeedTest layer as the Input Summary Features. Under Summary Fields, specify the download and upload speed fields and select "Mean" as the corresponding statistic. By checking the box next to "Add shape summary attributes" a field will be added to the output calculating the number of speed test survey results corresponding to each reporting area.

In step 6 of the **Prepare community asset, condition and outcome data** task, you can normalize broadband coverage by a chosen demographic variable. Using the example analysis above an average download/upload speed is already normalized, so you can skip this step.

Identify community characteristics

Use the community indicators data, or enriched variables, from the previous steps and the tasks in the Social Equity Analysis ArcGIS Pro project to identify focus variables and find areas with a higher preponderance of these factors.

1. On the **View** tab, in the **Windows** group, click **Catalog Pane**.
2. In the **Catalog** pane, expand the **Tasks** folder, and double-click the **Social Equity Analysis** task.
3. In the **Tasks** pane, expand the **Tasks** folder, click the **Identify Community Characteristics** task group to expand the collection of tasks.
4. In the **Tasks** pane, double click the **Prepare community characteristic data** task, and follow the steps provided.
5. In step 1, set the **Enriched Boundaries** parameter as the enriched layer with your summarized broadband coverage speeds.
6. In the **Focus Factors (High to Low focus variables)**, click the drop-down and choose all variables where high values equate to a higher focus. Following the example, choose: HHs w/No Internet Access, Population Age 65+, Child Population.
7. In the **Focus Factors (Low to High focus variables)**, click the drop-down and choose all variables where low values equate to a high focus. Following the example, choose: Median Household Income.
8. Type CommunityCharacteristicsIndex for the **Output Layer**, click **Run**.
9. Review and share results.

Create equity analysis index

Use the previously generated broadband coverage and community characteristics data from the previous steps and the tasks in the Social Equity Analysis ArcGIS Pro project to identify and rank need across your reporting areas.

1. Open the Social Equity Analysis ArcGIS Pro Project.

2. On the **View** tab, in the **Windows** group, click **Catalog Pane**
3. In the **Catalog** pane, expand the **Tasks** folder, and double-click the **Social Equity Analysis** task.
4. In the **Tasks** pane, click the **Create Equity Analysis Index** task group to expand the collection of tasks.
5. In the **Tasks** pane, double-click the **Create equity analysis index map** task and follow the steps provided.
6. In step 1, set the **Input Features** parameter as the CommunityCharacteristicsIndex created in previous steps.
7. In the **Focus Factors (High to Low focus variables)**, click the drop-down and choose all variables where high values equate to a higher focus. Following the example, there are no variables.
8. In the **Focus Factors (Low to High focus variables)**, click the drop-down and choose all variables where low values equate to a high focus. Following the example, choose: Average Download Speeds and Rank.
9. Type EquityAnalysisIndex for the **Output Layer**, click **Run**.
10. Review the created index, and in step 3 share the resulting Equity Analysis Index as a web layer.

Publish broadband equity analysis index

Once the Equity Analysis Index map is shared as a web layer using the Social Equity Analysis ArcGIS Pro project, the resulting map can be shared with the general public. To add one, or more, layers to a web map, complete the following steps:

1. Sign in to your ArcGIS organization and browse to the Equity Analysis Index web map.
2. Open the item details and click **Open in Map Viewer**.
3. In the left pane, click **Add**, select **Browse Layers**.
4. Search for the Equity Analysis Index layer or alternative layer that was shared using the Social Equity Analysis tasks.
5. Click the **Add** button.
6. Open the Layer pane, click the Options ellipses on the Equity Analysis Index layer, click **Zoom to**.
7. **Save** the map.
8. Browse to the Equity Analysis Index application, open the item details page and click **View Application**.
9. The Equity Analysis Index map is now available in the application to be shared.

Explore community need

Once the Equity Analysis Index is created and shared with the public, it can be used by the general public to understand how broadband need is distributed across the community.

[Back to top](#)

You'll now assume the role of a member of the general public. You are asked to use the Equity Analysis Index app to explore broadband need in the community.

1. Sign in to your ArcGIS organization and browse to the Equity Analysis Index app.
2. Open the item page and click **View Application**.
3. Search for an address or click a reporting area on the map.
A popup will display showing the Equity Rank Score and details for the given area.
4. Review other communities and examine how need is distributed across the region.
5. The **Information** tab displays details regarding the map.
6. Click the **Share** icon to copy a link or share the app on social media.

Business Resilience

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Business Resilience

Business Resilience can be used to better understand the current status of asset locations.

Organizations focus on allowing key leaders to have constant awareness of threats to the organization. Security and risk teams must be able to have one location that visually communicates information to allow decision makers to take action when a threat occurs or a status changes at a location. Analysts must create assessment reports based on threats or changes to the facility and be able to share these assessments with key leadership at the facility level and up to the C-suite level for actionable decision making. Business Resilience is typically implemented by organizations that want to take a proactive, data-driven approach to plan, manage, and enhance current business operations.

The Business Resilience solution delivers key leadership the ability to share the status of retail stores, manufacturing plants, and other facilities. The solution provides the ability to understand and update the current status and review and share operational assessments to key leaders.

Requirements

Business Resilience requires the following:

- ArcGIS Enterprise
- ArcGIS Survey123 Connect

Information products

Business Resilience includes the following information products:

Item	Description	Minimum user type
Business Resilience Web App	An ArcGIS Web AppBuilder app used by analysts to understand, manage, and maintain the operational status of an organization	Editor
Operational Assessment Survey	An ArcGIS Survey123 form app used by facility managers to report the facility status	Editor
Facility Manager	An ArcGIS Web AppBuilder app used by analysts to maintain an organization's facility information	Editor
FacilitySource	An Excel document used to load and validate an authoritative list of facilities into ArcGIS	Not required

Release notes

The following are the release notes:

Version	Description
1.1	<ul style="list-style-type: none">An update to the Operational Assessment Survey to support multiple images and automates contact data entry.An update to the facility layer symbology.An update to the facility and operational assessment layer schemas.
1.0	<ul style="list-style-type: none">First release of Business Resilience

Configure Business Resilience

In this topic, you will learn how to configure the Business Resilience solution to meet specific needs in your organization.

Prevent duplicate records

To support the updating of data using the Append Data to Layer and to ensure accurate statistics within the information products of the solution. You'll need to add an attribute index which applies a [unique constraint](#) to facility_id field in the facilities layer.

To add an unique constraint, complete the steps below:

1. Sign in to your ArcGIS Enterprise portal.
2. At the top of the site, click **Content**.
3. On the **My Content** tab, type Facilities in the search box.
4. On the left under **Folders**, click the folder Business Resilience was deployed to.
5. On the right side of the page, click **Facilities** to view it details.
6. Under the **Layers** section, click **Facilities**.
7. In the URL section, click **View**.

A new tab opens into the ArcGIS REST Service Directory for this item.

8. In the URL bar of the browser, edit the URL with the following changes:
 - a. Add the word admin between /rest/ and /services/. (For example: ArcGIS/rest/admin/services/facilities.)
 - b. Scroll to the bottom of the page and click on **Add to Definition**.
 - c. A window appears where you will be entering JSON to add an index to the layer.
 - d. In the text box, copy the following:

```
{
  "indexes" : [{
    "name" : "facility_id_Index",
    "fields" : "facility_id",
    "isAscending" : false,
    "isUnique" : true,
    "description" : ""
  }]
}
```

- e. Click **Add To Layer Definition** to commit update.

The following message will appear if add was successful. {"success": true}

9. In the browser, return to the Facilities layer tab and click on the **Data** tab.

[Back to top](#)

10. Click the **Fields** and click on Facility ID.

This page reveals the properties for the facility_id field. Under **Settings**, the **Unique** field is set to Yes.

Load data

Organizations can use Business Resilience as a source of information to understand risk to their company's critical infrastructure.

Facility information must be loaded before using the app. Use the FacilitySource file to organize facility information before loading it into ArcGIS. Ensure that you populate the Facility ID column with unique values in the FacilitySource file.

Note:

Each row in the FacilitySource Excel document must have a unique facility ID; otherwise, your data will not load correctly.

In some cases, you may already have an inventory of facilities in ArcGIS. If you do, review the layers provided with the solution and determine what, if any, source data you would like to load. Then, load your existing data into the layers provided with the ArcGIS Solution before sharing the maps or applications.

Note:

If you need to load data into the solution, you may want to develop a source-target matrix to track how your source data will be loaded into the target layer or layers used in the solution.

To load your facilities from a spreadsheet, complete the steps below:

1. If necessary, sign in to your ArcGIS organization and browse to the FacilitySource item.
2. Open the item details page.
3. Click **Download**.
4. Edit the Excel file and populate your facility information in the document. When complete, save the spreadsheet tab containing your data as a CSV file.

Note:

At a minimum, you need to provide a unique facility ID and the latitude and longitude for each facility in the FacilitySource file. If you don't have a unique ID, you can edit the Excel file and copy this formula into the first row of the facilityid column: `=CONCATENATE("Facility-", TEXT(ROW(A1),"00000"))`. You can then drag the right corner of the cell downward to fill the formula for all facilities, giving each a unique ID.

5. In your ArcGIS organization, at the top of the site, click **Content**.
6. On the **My Content** tab, type facilities in the search box.

[Back to top](#)

7. On the left under **Folders**, click the folder Business Resilience was deployed to.
8. Click the item title for **Facilities** to view its details.
9. Click **Update Data** and click **Append Data to Layer**.
10. Under **Filename**, choose your CSV.
11. Click **Upload and Continue**.
12. Uncheck **Update existing features**

Note:

If features exist in the layer that you would like to update, do not uncheck.

13. Click **Show field matching** to map the fields.

Note:

While field matching is auto mapped ensure that the fields are properly mapped.

14. Click **Apply Updates**.

Configure the survey form

To show your facility information in the survey form, you will use ArcGIS Survey123 Connect to make necessary updates. Adding your facility information to the form enables an extra level of data validation to ensure that facility information is correct and the respondent's questions are associated with the correct facility.

Open the form using ArcGIS Survey123 Connect

If Survey123 Connect is not already downloaded, you can find the download link on the [ArcGIS Survey123 Resources](#) page.

1. If necessary, sign in to your ArcGIS organization.
2. At the top of the site, click **Content**.
3. On the **My Content** tab, type Operational Assessment Survey in the search box.
4. On the left under **Folders**, click the folder Business Resilience was deployed to.
5. Click the item title for Operational Assessment Survey to view its details.
6. Click **Open in Survey123** and click **Edit in Survey123 Connect**.

ArcGIS Survey123 Connect opens.

Note:

If this is your first time opening ArcGIS Survey123 Connect, you may need to add your organization's portal and sign in. To add the URL, click **Settings**. Then, in the **Settings** window, click **Add Connection** and paste the URL. Click **OK**. After

[Back to top](#)

adding the connection, click **Sign in** to sign in to your organization. Verify that the active connection is set to the correct URL.

7. Click the Operational Assessment Survey form to download the survey.
8. Click the Operational Assessment Survey form again to open the survey.

Update survey form with Facilities service URL

The survey form is configured to pass values from the Facilities layer and populate questions based on a [custom URL scheme](#) using the facility ID. To get the URL for the facility layer, open your browser and complete the following steps.

1. If necessary, sign in to your ArcGIS organization.
2. At the top of the site, click **Content**.
3. On the **My Content** tab, type Facilities in the search box.
4. On the left under **Folders**, click the folder Business Resilience was deployed to.
5. Click the item title for **Facilities** to view its details.
6. Under the **Layers** section, click **Facilities**.
7. In the lower right section name URL, click the **Copy** button to copy to your clipboard.

Note:

The service URL should include the layer reference index **/0**. For example:

```
https://services9.arcgis.com/9S3xKDKM8mHbxXx/arcgis/rest/services/Facilities/FeatureServer/0
```

8. Paste the URL into a plain text document to keep it available and go back to ArcGIS Survey123 Connect.
9. In the left pane, click **Open XLSForm Spreadsheet**.
An Excel window appears where you are presented with survey property settings.
10. In the **Survey** tab, scroll to the right until you see the default **column**.
11. In the row labeled **facility_url**, copy the URL of the survey from your text document and paste it into the cell for the default column.
12. Save the Microsoft Excel spreadsheet and close it.
13. In ArcGIS Survey123 Connect, click **Publish** in the left pane to publish the changes.

Update the survey URL fields

The Facilities feature layer is used in the Business Resilience Web App to map your facilities, display their data contained in the attribute table, and connect to the Operational Assessment Survey. Complete the steps below to add the survey URLs as attributes in the Facilities layer.

[Back to top](#)

Acquire the URL of the survey

To get the URL of the survey, complete the following steps:

1. If necessary, sign in to your ArcGIS organization.
2. At the top of the site, click **Content**.
3. On the **My Content** tab, type Operational Assessment Survey in the search box.
4. On the left under **Folders**, click the folder Business Resilience was deployed to.
5. Click the item title for Operational Assessment Survey to view its details.
6. Click **Open in Survey123 > Open in Survey123 app**.

Note:

A new tab opens, prompting you to open into Survey123 app. Click **Cancel** and remove "&open=native" from the URL to open survey directly into the browser.

7. In the address bar of the browser, copy the survey URL, including the question mark and portalURL= statement.

Note:

For example, if the URL is as follows:

```
https://survey123.arcgis.com/share/aee97bcef4d24c9187da9590ec86b67c?portalUrl=https://LearnGIS.maps.arcgis.com
```

This URL will be used to populate the survey URL attributes for the Facilities layer.

8. Paste the URL into a plain text document to keep it available.

Populate the Base Survey URL field

To populate the **Base Survey URL** field, complete the following steps:

1. If necessary, sign in to your ArcGIS organization.
2. At the top of the site, click **Content**.
3. On the **My Content** tab, type Facilities in the search box.
4. On the left under **Folders**, click the folder Business Resilience was deployed to.
5. Click the item title for Facilities to view its details.
6. Click the **Data** tab.
A table view of the layer appears.
7. Scroll to the right until you see the **Base Survey URL** field. Click **Base Survey URL** and click **Calculate**.

[Back to top](#)

- In the **Calculate Field** pane, click Arcade.
- In the Arcade calculator, type the following:

```
var BaseURL = ""
```

- Copy the URL of the survey from your text document and paste it between the quotation marks.
- Add a new line and type the following:

```
return BaseURL
```

- Click **OK**.

The string is added to each record in the Facilities layer's **Base Survey URL** field.

Note:

This calculation must be manually run when new features added to the Facilities layer.

Populate the Assessment Survey URL field

To populate the **Assessment Survey URL** field, complete the following steps:

- Scroll to the right until you see **Assessment Survey URL**. Click **Assessment Survey URL** and click **Calculate**.
- In the **Calculate Field** pane, click Arcade.
- Copy and paste the Arcade expression into the expression box:

```
var BaseURL = $feature["base_survey_url"]
```

```
var JoinedURL = BaseURL + "&field:survey_facility_id=" + UrlEncode($feature["facility_id"])
```

```
return JoinedURL
```

- Click **OK**.

The **Assessment Survey URL** field is populated with URLs that also have the field parameter set to the corresponding facility's ID value.

Note:

This calculation must be manually run when new features added to the Facilities layer.

Use Business Resilience

In this topic, you will learn how to use the Business Resilience solution and the set of capabilities and features that it provides.

Note:

Use your organization's data or configured apps to follow these workflows.

Visualize hazards

There are a variety of hazards, such as severe weather, fires, earthquakes, and hurricanes, that have the potential to affect your facilities. Many organizations have large geographic footprints and may be impacted by a diverse array of natural hazards and threats.

The Business Resilience solution allows an analyst in an operation center to monitor hazards that may threaten your facilities.

To use the Business Resilience solution to visualize hazards, complete the following steps:

1. In a browser, open the Business Resilience Web App.

On the right side of the app, the layers pane is divided into the following sections:

- **Organizational Assets**
- **Weather Layers**
- **Drought and Wildfires**
- **Natural Disasters**

In the **Organizational Assets** section of the **Layers** pane, the Operational Assessment Survey and Facilities layers are turned on by default.

Facilities are represented by point features that appear on the map and are symbolized to indicate their status.

The Operational Assessment Survey layer shows results of surveys that have been submitted by facility managers.

2. In the upper right of the **Weather Layers** section, click the options menu and click **Turn all layers on**.

These layers contain real-time weather feeds, many of which are published by the National Weather Service. Use these layers to track potential severe weather threats to your facilities.

To see the symbology for these layers, you can expand them individually by clicking the arrows to the left of the layer visibility check boxes.

3. To optionally view more details on each layer, click the options button and click **Show item details**. Otherwise, in the upper right of the **Weather Layers** section, click the options menu and click **Turn all layers off**.

[Back to top](#)

Tip:

You can also use keyboard shortcuts to turn groups of layers on or off and expand or collapse them. Press the Ctrl key and check the layer check box to turn layers on or off in the same level. Press the Ctrl key and click the arrow to expand or collapse a layer in the same level.

4. In the upper right of the **Wildfires and Active Fires** section, click the options menu and click **Turn all layers on**.

These layers contain the latest up-to-date information on current and ongoing fire-related incidents. Areas suffering drought conditions may be at greater risk of wildfire, so these areas may pose an elevated risk to your facilities. Use these layers to track potential fire-related threats to your facilities.

To see the symbology for these layers, you can expand them individually by clicking the arrows to the left of the layer visibility check boxes.

5. To optionally view more details on each layer, click the options button and click **Show item details**. Otherwise, in the upper right of the **Droughts and Wildfires** section, click the options menu and click **Turn all layers off**.

6. In the upper right of the **Natural Disasters** section, click the context menu to expand and click **Turn all layers on**.

These layers contain real-time feeds of the latest natural hazards, such as hurricanes and earthquakes.

To see the symbology for these layers, you can expand them individually by clicking the arrows to the left of the layer visibility check boxes.

7. To optionally view more details on each layer, click the options button and click **Show item details**. Otherwise, in the upper right of the **Natural Disasters** section, click the options menu and click **Turn all layers off**.

Tip:

When you configure the Business Resilience Web App, you can include your own sections, groups, and layers. For example, if you are tracking threats to coastal facilities, you can create another section named **Coastal Threats** and include layers from the National Weather Service, such as **High Surf Advisory**, **Areal Flood Warning**, and **Coastal Flood Watch**.

Send an assessment survey

The role of an analyst in the operations center is to watch over the multitude of threats that may impact one or more assets within your organization. When a threat has been detected to potentially impact one or more facilities, it is imperative to alert the facility administrators of the possible impact and understand the potential effects of the even on the facility to minimize

disruption. The Business Resilience Web App is configured to allow you to quickly send out an assessment to the facility manager.

Send an assessment to a single facility

In this workflow, you will take on the role of an analyst who has been alerted to an event that is threatening a facility. You will be sending an assessment form to gather relevant information from the facility manager at the threatened facility.

1. In a browser, open the Business Resilience Web App app if you do not have it open already.
2. Select a facility of interest from the list on the left side of the application or zoom to the location of the facility and click the facility.

In the pop-up window, general details about the facility are provided.

3. On the pop-up, in the **Notes** section, click the **Click here to send Operational Assessment to Facility Administrator** link.

An email opens in your email client. It is populated with the email address of the facility manager, the name of the manager, text requesting information about the event, and a hyperlink to a survey that the manager can use to reply with status information.

4. Select the **[INSERT EVENT DESCRIPTION AND DETAILS HERE]** text in the email and add any other information that may be useful to the facility manager in evaluating the threat.
5. Send the email to the manager.

Send an assessment to multiple facilities

In this workflow, you will take on the role of an analyst who has identified a hurricane event that is threatening multiple facilities. You will be sending assessments form to gather relevant information from the facility manager at the threatened facilities.

1. In a browser, open the Business Resilience Web App if you do not have it open already.
2. Select the **Create Assessment Report** widget in the upper right of the application, above the layers pane.
3. With the Create Assessment Report widget open, define an area of interest by searching for a location in the **Place Name** tool or using the **Draw** tool. Click the **Draw** tool and click the **Select by Rectangle** button.

4. Click **Choose selectable layers** to expand the layer list and select **Hurricane Irma Example – Forecast Cone**. Uncheck all other layers.

You can use the **Choose selectable layer** list to define the layers that are selectable on the map.

5. On the map, drag a small box on the Hurricane Irma forecast cone feature. This selects the feature from the service, just as it would select a feature in a live Hurricane Forecast feed.

6. Optionally, set a **Buffer distance** value to select facilities that are also within a distance from the selected feature, and click **Report**.

The report of facilities within the buffer around the forecast cone is generated.

7. In the **Create Assessment Report** pane, click the **Expand** button next to **Facilities** to expand the list.

The report contains information about each facility, including the facility ID, a survey link, the number of employees at the location, and the manager's name and email address.

8. If you would like a CSV file of selected facilities, click the **Download** button.
9. If you want a PDF report, click the **Print** button, choose a report layout size, and click the **Print** button to generate the report.
10. In the header section of the report web page, click **Print** to save.

Tip:

You can get a list of all the email addresses from the downloaded CSV file of selected facilities. Find the email column and copy the facility manager email address to your clipboard, and paste it into your email client to send a report.

Submit an assessment survey

For an organization to assess impacts, facility managers can share relevant information about the operational status of their facility and the impact of a likely event. The Operational Assessment Survey allows facility managers to submit this information back to the operations center. The survey contains assessment questions about the exterior, interior, and employee vulnerability. This information allows decision makers to understand the threat, prioritize aid, and allocate supporting resources throughout the organization.

In this workflow, you will take on the role of a facility manager at a threatened facility and use the survey link to send status information to the operations center.

1. In a browser, open the Operational Assessment Survey.

This is a link to the survey for Facility #104.

Note:

The URL for the survey includes the facility ID. This ties the survey to a specific facility location and allows the survey to be populated with information about the facility, saving the manager time.

The survey opens in a browser tab. The **Potential Impact Assessment** section is open with a number of questions that you can answer to communicate your facility's status back to the operations center.

2. Click the header for the top section, **Facility Location Details**.

The details for your facility are prepopulated in the survey.

3. Complete the **Potential Impact Assessment** section.

[Back to top](#)

Parameter	Value
External Vulnerability	Select Low .
Interior Vulnerability	Select Negligible .
Employee Vulnerability	Select Moderate .
Employee Vulnerability Extent	Select 25% to 50% .
Do you foresee the need to possibly temporarily close this location due to this event?	Select Maybe/Not Sure .
Is there a potential need for local evacuation?	Select No .
Describe any relevant information, thoughts, strategies, or issues	Type relevant information.

- Optionally, upload pictures of the facility and of any vulnerability concerns in the **Media** group to provide further context.
- Once the survey is completed, click the **Submit** button.

Review assessments

Upon submission of assessment reports, they appear as points on the map. The feedback in the survey is key to assessing the potential impact to the health and safety of customers, employees, and assets while also understanding how to facilitate resources and minimize interruptions.

In this workflow, you will take on the role of the analyst in the command center reviewing an open submission by a facility manager.

- In a browser, open the Business Resilience Web App app.
- In the **Facilities** pane on the left side of the Business Resilience web app, expand the **Assessment Status** section if it is not already expanded.

This group contains a list of assessments by status with the latest submission at the bottom.

- Click the latest submission in the list.
The assessment is selected, and the pop-up appears on the map.
- On the pop-up, in the lower right corner, click the **Options** button and click **Smart Editor**.
The **Review Assessments** pane appears. You can see the responses the facility manager sent, describing the probable impact of the event on the facility.
- Review the information provided by the facility manager.
- Optionally, change the status from **Open** to **Under Review**.
- Click **Save** and close the **Review Assessments** pane.

The assessment status changes to **Under Review** on the map and in the **Assessment Status** group. Once the review status is set to **Closed**, the assessment is removed from the list and the map.

[Back to top](#)

Modify operational status

Upon review of an assessment, an analyst can modify the status of one or more facilities in the organization to reflect its current state for visual awareness. This is important when working with a team that needs to keep track of the overall operational impact to an organization and share the latest information with an executive audience.

In this workflow, you will take on the role of the analyst in the command center updating the operational status of facilities to reflect their current state.

1. In a browser, open the Business Resilience Web App if you do not have it open already.
2. Zoom in on the map to the facility you want to update.
3. Select the **Modify Facility Status** widget from the upper right of the application, above the layers pane.
4. In the **Modify Facility Status** pane, click the **Select by Rectangle** button.
5. Drag a box around the facility you want to modify.

The **Modify Facility Status** window appears with multiple drop-down buttons.

Note:

You can also select and update multiple facilities at the same time.

6. Enter the following values for the parameters:

Parameter	Value
Notes	Manager reports local flooding with the power and gas service out.
Operating Status	Select Impacted .
Electric Service Status	Select Impacted .
Fire System Status	Select Operating .
HVAC Status	Select Operating .
Gas Service Status	Select Impacted .
Water Service Status	Select Operating .

7. Click **Save**.

The change in status updates the symbology of update facilities on the map as well as the **Facilities** list on the left side to reflect the current count of facilities by status.

Capital Project Planning

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Capital Project Planning

Capital Project Planning can be used to define a project portfolio, organize the portfolio into an official capital improvement plan, and share the plan with internal and external stakeholders.

High-quality infrastructure is essential to a community's economic vitality and quality of life. A good capital project planning process helps communities make smart infrastructure improvements and investments in their future. Governments may have hundreds of projects in their capital improvement plan (CIP) that range in cost from thousands to billions of dollars. Managing this CIP comes with inherent challenges that can impact the schedule, quality, and cost of infrastructure improvements. Capital Project Planning is typically implemented by government agencies and utilities that want an efficient way to manage and share a capital improvement plan.

The Capital Project Planning solution delivers a set of capabilities that help you define capital project plans, coordinate project schedules with internal and external agencies, manage pavement moratoriums, organize a project portfolio into an official capital improvement plan, and share capital improvement plans with the public and other key stakeholders.

Requirements

Capital Project Planning requires the following:

- ArcGIS Enterprise

Information products

Capital Project Planning includes the following information products:

Item	Description	Minimum user type
Capital Project Plans	A Category Gallery app that includes a collection of ArcGIS Web AppBuilder apps used by project leads to organize new capital project plans and revise project information during the planning process	Editor
Capital Project Review	A Crowdsourcing Manager app used by plan review staff to organize a project portfolio into an official capital improvement plan	Editor
Capital Project Review Dashboard	An ArcGIS Dashboards app used by plan review staff to examine proposed projects before inclusion in an official capital improvement plan	Viewer
External Agency Projects	An ArcGIS Web AppBuilder app used by private utilities and external agencies to share capital projects planned for their respective infrastructure	Editor
Pavement Moratoriums	An ArcGIS Web AppBuilder app used by engineering and operations staff to inventory moratoriums that preclude, or restrict, right-of-way activity on newly paved streets	Editor
Capital Improvement Plan	An ArcGIS Experience Builder app used by the public and other interested parties to review projects included in the capital improvement plan	Viewer (required if application is used for internal purposes only)

Release notes

The following are the release notes:

Version	Description
1.1	<ul style="list-style-type: none">A new Capital Project Plans app.
1.0	<ul style="list-style-type: none">First release of Capital Project Planning

Use Capital Project Planning

The Capital Project Planning solution delivers a set of capabilities that help you define capital project plans, coordinate project schedules with internal and external agencies, manage pavement moratoriums, organize a project portfolio into an official capital improvement plan, and share capital improvement plans with the public and other key stakeholders.

In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

Note:

Use your organization's data or configured apps to follow these workflows.

Manage pavement moratoriums

Engineering and operations staff of a local municipality are typically responsible for inventorying moratoriums that preclude or restrict right-of-way activity on newly paved streets. Moratoriums identified by staff are shared with municipal departments, private utilities, and other external agencies so that they can understand the impact of any work planned in the same right-of-way.

You will assume the role of a municipality staff member and will use the Pavement Moratoriums app to create new and update existing pavement moratoriums.

Add a pavement moratorium

In this workflow, you will use the Pavement Moratoriums app to create a pavement moratorium.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Capital Project Planning solution.
2. View the Pavement Moratoriums app.
The app opens with the **Create Moratorium** widget opened by default.
3. On the map, use the search field to zoom to your area.
4. In the **Create Moratorium** widget, click the **Pavement Moratoriums** template, and then uncheck the **Save new features automatically** check box.

Note:

When **Save new features automatically** is checked, edits are automatically saved without opening the **Pavement Moratoriums** form. This option is useful when you want to digitize new features quickly.

5. On the map, draw a new pavement moratorium.
A **Pavement Moratoriums** form opens on the right.

[Back to top](#)

6. Complete the form with your moratorium information.
7. Click **Save** to complete the pavement moratorium creation workflow.

Edit a pavement moratorium

In this workflow, you will edit the details for an existing moratorium.

1. In the **Create Moratorium** widget, unselect the **Pavement Moratoriums** template, if necessary.
2. On the map, select the moratorium that you just created.
The **Pavement Moratoriums** form opens on the right.
3. Revise the form information, and then click **Save**.

Delete a pavement moratorium

In this workflow, you will delete an existing moratorium from the app.

1. In the **Create Moratorium** widget, unselect the **Pavement Moratoriums** template, if necessary.
2. On the map, select the moratorium that you just created.
The **Pavement Moratoriums** form opens on the right.
3. Click **Delete**, and then confirm the deletion.

Note:

If you plan to complete subsequent workflows, ensure that you leave at least one moratorium in the app.

Create and share project plans

Capital projects, typically defined for water, sewer, stormwater, parks, facility, and transportation assets in a community, can be visualized together with external agencies' projects when the agencies plan and schedule work for their respective infrastructure. Sharing this information helps identify potential project conflicts and can become the foundation for public-private partnership opportunities.

Infrastructure project planning and coordination between municipalities and external agencies can be achieved by using the Capital Project Planning and External Agency Projects apps.

Create and share external agency projects

In this workflow, you will assume the role of a project lead from a private utility who is responsible for coordinating infrastructure development and improvement activities with the

[Back to top](#)

local municipality. You will use the External Agency Projects app to gain insight into existing external projects and pavement moratoriums and to enter new project information.

The updates that you provide in the External Agency Projects app will be immediately available to the municipality plan review team and will aid in their coordination of schedules of planned projects.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Capital Project Planning solution.
2. View the External Agency Projects app.
The app opens with the **Sort Projects** widget opened by default. This widget allows you to search for and filter existing external agency projects by company name.
3. To create a new external agency project, at the top right, click the **Create Project** button.
The **Create Project** widget opens.
4. On the map, use the search field to zoom to your area.
5. In the **Create Project** widget, click the **External Agency Projects** template, and then uncheck the **Save new features automatically** check box.

Note:

When **Save new features automatically** is checked, edits are automatically saved without opening the **Pavement Moratoriums** form. This option is useful when you want to digitize new features quickly.

6. On the map, draw a new external project boundary.
An **External Agency Projects** form opens on the right.
7. Complete the form with your project information.
8. Click **Save** to complete the external agency project creation workflow.

Define capital project plans

In this workflow, you will assume the role of a public works organization project lead who is responsible for organizing new capital project plans and revising project information during the planning process. You will use the Capital Project Plans app to gain insight into existing project plans, external agency projects, and pavement moratoriums and to create a project plan.

After all relevant information has been added to the project plan and is ready for internal review, you will be able to share your plan with members of the coordinating body.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Capital Project Planning solution.
2. View the Capital Project Plans app.
The Capital Project Plans app is a gallery that contains individual Capital Project Planning apps for water, sewer, stormwater, facilities, and transportation projects.
3. Click the Sewer Project Plans app.

[Back to top](#)

The app opens with the **Create Plan** widget opened by default. This widget allows you to create, edit, and delete sewer plans.

4. On the map, use the search field to zoom to your area.
5. To create a sewer project plan, in the **Create Plan** widget, click the **Sewer Collection** template.
6. On the map, draw a new sewer project.

A **Sewer Project Plans** form opens on the right.

7. Complete the form with your project information.

The **Project Status** parameter allows you to share your project in the Capital Project Review app with members of the coordinating body.

8. To share your plan with members of review board, for **Project Status**, choose **Analysis and Review**.
9. Click **Save** to complete the capital project plan creation workflow.

Tip:

Existing sewer project plans can also be edited or deleted. To edit or complete a plan, click the **Sewer Collection** template to unselect it, and then on the map, select an existing sewer project plan to enable the **Sewer Project Plans** form. In the form, you can edit plan information, update the feature's geometry, or delete the plan.

Organize and review the project portfolio

Many agencies have a coordinating body that is responsible for examining project proposals and preparing a consolidated list of projects that align with community goals and strategic priorities.

Project-planning organization and review can be achieved using the Capital Project Review Dashboard and the Capital Project Review app.

Review the portfolio of capital project plans

In this workflow, you will assume the role of a member of the coordinating body that is responsible for reviewing proposed projects. You will use the Capital Project Review Dashboard to examine proposed projects, visualize project schedules, and summarize estimated costs.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Capital Project Planning solution.
2. View the Capital Project Review Dashboard app.

On the right, any capital projects submitted for analysis and review are listed.

[Back to top](#)

Tip:

If you do not have any projects listed, return to and complete the **Define capital project plans** workflow.

3. On the left, adjust the filters to refine the capital project list by type, fiscal year, funding source, status, and planned start date.

Note:

Filter options will vary based on the types of projects submitted.

4. On the right, in the **Capital Projects** list, click the name of a capital project to zoom to it on the map.
5. On the map, click a project to see a pop-up with more information about the project.
6. If a proposed plan is ready for further review, click the **Review Now** button to launch the selected capital project plan within the Capital Project Review app.

Organize the project portfolio into an official capital improvement plan

In this workflow, you will assume the role of a member of the coordinating body that is responsible for reviewing proposed projects. You will use the Capital Project Review app to sort various key characteristics of a project and update project information, such as status, fiscal year, and funding sources, where appropriate.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Capital Project Planning solution.


2. View the Capital Project Review app.

The same portfolio of projects from the Capital Project Review Dashboard are visible in this app.

3. At the top, in the table, click a column head to sort and filter the project list by that key field.

4. In the table, click a project to view its details.

The project details appear in the bottom left pane. If any items were attached when the project was created, you will see **Details** and **Attachments** tabs.

5. Click the **Details** tab, and then click the **Edit record** button  , if necessary.

As a decision maker, you can refine plan information such as funding source, fiscal year, project status and phase, and whether a project is funded.

6. In the project details, click the **Project Status** drop-down arrow and choose **Board Authorized**, and then click the **Funded Project** drop-down arrow and choose **Yes**.

These settings ensure that the project will be included in the capital improvement plan (CIP).

7. Click **Save**.

Because you have authorized the project and marked it as funded, it is no longer listed in the Capital Project Review app.

[Back to top](#)

Explore the capital improvement plan

In this workflow, you will assume the role of a community member who is interested in learning more about projects being planned in your community and where they are located. You will use the Capital Improvement Plan app to review projects included in the capital improvement plan (CIP).

1. In a browser, from the Capital Project Tracking solution, view the Capital Improvement Plan web experience app.

Any projects that you authorized and marked as funded in the previous step appear in the **Projects** pane.

2. In the left panel, under **Type**, check an option or options, and then set **Planned Start Date** filters to further explore and refine capital improvement plan results.

Note:

Filter options will vary based on the types of projects listed.

3. In the **Projects** pane, click a project to zoom to it on the map and view project details.
4. On the map, click the Home button to zoom to the full extent of the project map.
You can also use the map extent to filter results.
5. Pan and zoom the map to refine the list of projects and project details.

Capital Project Tracking

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Capital Project Tracking

Capital Project Tracking can be used to manage an active project portfolio, communicate project status, and share project updates with internal and external stakeholders.

Managing a large project portfolio and quickly communicating progress is a challenge for government agencies and utilities. Many times, the lack of information leads to expensive project changes, budget overruns, frustrated executives and a disenfranchised public. Maintaining effective communication with internal and external stakeholders throughout the life cycle of a capital project increases transparency and strengthens public trust. It also assures stakeholders that public dollars are being spent effectively and improvements are being made in a timely manner. Capital Project Tracking is typically implemented by government agencies and utilities that want to proactively share the status of active capital projects with the communities they serve.

The Capital Project Tracking solution delivers a set of capabilities that help you manage the status of active capital projects, track project performance, share project progress with internal stakeholders, and communicate investments being made with the public.

Requirements

Capital Project Tracking requires the following:

- ArcGIS Enterprise

Information products

Capital Project Tracking includes the following information products:

Item	Description	Minimum user type
Maximizing Capital Expenditures	An ArcGIS Hub site used by the public to learn more about public investments being made and how they can participate in the capital project planning process	Not required
Capital Project Dashboard	An ArcGIS Experience Builder app used by internal and external stakeholders to monitor active capital projects	Viewer (required for internal stakeholders)
Capital Project Reports	A Crowdscore Manager app used by project leads to manage the status of active capital projects and communicate the schedule, quality, and cost to internal and external stakeholders	Editor

Release notes

The following are the release notes:

Version	Description
1.0	<ul style="list-style-type: none">First release of Capital Project Tracking

[Back to top](#)

Configure Capital Project Tracking

In this topic, you will learn how to configure the Capital Project Tracking solution to meet specific needs in your organization.

Load capital projects

The Capital Project Tracking solution is built on the same foundational feature layer, InfrastructureProjects, used in the Capital Project Planning solution. If you have also deployed the Capital Project Planning solution, you can use that solution to define project plans and organize your project portfolio into a capital improvement plan. Once projects have been approved and funded, they will display in the Capital Project Tracking solution.

If you are using another system for project planning and want to use the Capital Project Tracking solution to report and share active projects with key stakeholders and the public, you will need to load these projects into the InfrastructureProjects feature layer. You will also need to update the Project Status, Funded Project, and Project Phase fields to make the projects visible in the Capital Project Reports and Capital Project Dashboard apps.

Load data from a shapefile

Capital projects can be loaded from a shapefile by completing the following steps:

1. Create a .zip file of a shapefile of your capital projects.
2. Sign in to your ArcGIS organization and browse to the InfrastructureProjects feature layer.
3. Open the item page and click **Update Data > Append Data to Layer**.
4. Click **Choose File** and browse to a .zip file containing the shapefile with your capital projects, and click **Open**.
5. Click **Upload and Continue**.
6. Click the **Choose the layer that you wish to append data into** drop-down arrow and choose the **Infrastructure Projects**.
7. Uncheck **Update existing features**.
8. Click **Show field matching** to map the fields.

Note:

The only required field is the projtype (Project Type) field. This is a text field that defines the type of project and supports the following values: Facilities, Parks, Sewer Collection, Stormwater Drainage, Transportation, Water Distribution, and Other.

9. Click **Apply Updates**.

Tip:

To make additional updates to a hosted feature layer, see [Append data to layers](#).

[Back to top](#)

Update project attributes

The Capital Project Reports and Capital Project Dashboard apps both use feature layer views to ensure only approved and funded projects are visible. Projects will only display in these apps if the **Project Status** is set to Board Authorized, **Funded Project** is set to Yes. And **Project Phase** is set to PreDesign, Design, Construction, or Closeout.

To update the project attributes, complete the following steps:

1. Verify that you are signed in to your ArcGIS organization and browse to the InfrastructureProjects feature layer.
2. Open the item page and click the **Data** tab.
3. Click within a cell in the table and edit the attributes of the project.

To update all projects with the same attribute, complete the remaining steps:

4. Click the column containing the values you want to update.
5. Click **Calculate**.
6. Click **SQL**.
7. Enter the value you want to apply. For text fields, you need to surround the value with single quotes, for example, 'Board Authorized'.

Tip:

For more information, see [Calculate field values](#).

Configure the Maximizing Capital Expenditures site

The Capital Project Tracking solution includes the Maximizing Capital Expenditures ArcGIS Hub site. This site can be configured with your organization's branding and used to share important capital investment and planning information with the public.

Update with organizational information

After deploying the Capital Project Tracking solution, the Maximizing Capital Expenditures Hub site layout only requires a few updates to fit your local context.

To update the site with your organizational information, complete the following steps:


1. Verify that you are signed in to your ArcGIS organization and browse to the Maximizing Capital Expenditures site.
2. From the item page, click **Configure**.
3. Scroll to the statistics section under the Hub site title.

The **Capital Projects** and **Public Investment (dollars)** summary statistics cards are already linked to the Capital Project Tracking solution's

[Back to top](#)

InfrastructureProjects_allfundedprojects feature layer. These statistics will automatically update as you load data into the feature layer.

The **Public Workshops** statistic is provided in a text card styled to resemble the summary statistics cards, but you can manually enter a statistic of your choice, independent of feature layer data. You can update the **Public Workshops** text card using a metric of your choice, or you can replace the text card with a summary statistics card and connect it to the InfrastructureProjects_allfundedprojects feature layer in a similar fashion to the other dynamic statistics cards.

4. Scroll to any additional sections that you want to update, hover over the card, and click the edit pencil  that appears in the horizontal toolbar, and then edit the content with information specific to your organization.
5. In the side panel, click **Footer**.
A custom footer is provided. In most cases, you will need to update it with your organization's branding, contact information, and social media references.
6. Click the **HTML** text box.
The **HTML** window appears.
7. Make the necessary changes and click **Apply**.
8. Click **Save**.
9. Click the **Save** drop-down arrow and click **Publish Draft**.

Share items with the public

Several layer views, maps and apps included in the Capital Project Tracking solution must be shared with everyone so they can be accessed by the public on the Maximizing Capital Expenditures site.

To share items with the public, complete the following steps:

1. Verify that you are signed in to your ArcGIS organization and browse to the Capital Project Tracking folder.
2. Next to each of the following items, check the check box:

Name	Item type
InfrastructureProjects_allfundedprojects	Feature layer (hosted, view)
Capital Project Dashboard	Web Map
Capital Project Dashboard	Dashboard
Capital Project Mobile Dashboard	Dashboard
Capital Project Dashboard	Web Experience
Maximizing Capital Expenditures	Site Application

3. Click **Share**.
4. In the **Share** window, click **Everyone (public)** and click **Save**.

[Back to top](#)

The **Warning: Sharing editable layers publicly** message appears notifying you that you are sharing editable layers publicly.

5. Click **Update**.

Use Capital Project Tracking

The Capital Project Tracking solution delivers a set of capabilities that help you manage the status of active capital projects, track project performance, share project progress with internal stakeholders, and communicate investments being made with the public.

In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.


Note:

Use your organization's data or configured apps to follow these workflows.

Update capital project status

You will first assume the role of a public works project lead responsible for communicating schedule, quality, and cost updates on active capital projects.

The updates you provide in the Capital Project Reports app will be immediately viewable to the public and key stakeholders through the Maximizing Capital Expenditures site and the Capital Projects Dashboard.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Capital Project Tracking solution.
2. View the Capital Project Reports app.
The Capital Project Reports app shows all categories of capital projects by default.
3. On the left, click a report type to view active capital projects.
4. At the top of the page, in the table, click a project report to view project details.
At the bottom left, you see the project's current information, including any attachments and comments associated with the project.
5. To edit the project's information, on the **Details** tab, click **Edit** .
6. Update the parameters with new values.
7. Click **Save**.

Monitor active capital projects

As a member of the community, you are interested in learning more about the active capital projects in the community and whether they are on schedule and budget. You will use the Maximizing Capital Expenditures site to learn about the active public investments being made in the community and how you can participate in the capital project planning process.

1. In a browser, from the Capital Project Tracking solution, view the Maximizing Capital Expenditures site.

2. Scroll to the **Active Capital Projects** section and click the **Review Active Projects** button.

On the left, under Active Projects, any active projects are listed.

3. On the left, adjust the filters to refine the list by type, phase, or fiscal year.

The map's current extent can also further refine the results shown in the **Active Projects** list.

4. Pan and zoom around the map to dynamically update the refined results in the dashboard.

Note:

Using the map extent to refine dashboard results will also honor dashboard filters for **Type**, **Phase**, or **Fiscal Year**, if enabled.

5. To view the location and project details for a project, click a project in the **Active Project** list.

Selecting a project from the **Active Projects** list automatically pans and zooms the map to the selected project and updates and filters the project summary and detail information.

Citizen Problem Reporter

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Citizen Problem Reporter

Citizen Problem Reporter can be used to solicit non-emergency requests (for example, blight, graffiti, trash, potholes, clogged drains, and flooding) from the general public.

It provides 24/7 access to an organization and the location-enabled requests helps efficiently triage requests to the correct person or department responsible for its resolution. This accelerated approach improves the quality of life in a community and reduces long-term asset maintenance costs. Citizen Problem Reporter is typically implemented by planning departments, public works agencies, utilities, and other local government organizations that want to take a data-driven approach to asset maintenance or code enforcement.

The Citizen Problem Reporter solution delivers a set of capabilities that help you solicit requests from the public, manage the response to each request, solicit feedback from the public after addressing a request, and monitor the resolution of non-emergency requests in a community.

Requirements

Citizen Problem Reporter requires the following:

- ArcGIS Enterprise
- ArcGIS Survey123 Connect

Information products

Citizen Problem Reporter includes the following information products:

Item	Description	Minimum user type
Citizen Request Center	An ArcGIS Hub site used by the general public to learn how they can submit a non-emergency request to help improve the community	Community Identity (optional)
Citizen Problem Reporter	A Crowdsourcing Reporter app used by the general public to submit non-emergency requests in their community	Community Identity (optional)
Citizen Problem Satisfaction Survey	An ArcGIS Survey123 form used by the general public to report their satisfaction regarding the service requested	Not required
Citizen Problem Manager	A Crowdsourcing Manager app used by local government personnel to triage non-emergency requests and update the status of each	Editor
Citizen Problem Dashboard	An ArcGIS Dashboards app used by local government personnel to monitor non-emergency requests and satisfaction survey responses	Editor

Release notes

The following are the release notes:

Version	Description
2.0	<ul style="list-style-type: none">A new Citizen Problem Reporter app with a simplified process for modifying and adding request categories and types.A new Citizen Problem Manager app with the ability to add public comments that display in the Citizen Problem Reporter app.A new Citizen Request Center site promoting the use of community identities to submit and track the status of submitted requests.A new Citizen Problem Dashboard with additional filtering capabilities and an average resolution time indicator.
1.0	<ul style="list-style-type: none">First release of Citizen Problem Reporter

Configure Citizen Problem Reporter

Learn how to configure the Citizen Problem Reporter solution to meet specific needs in your organization.

Modify request categories and types

The Citizen Problem Reporter app allows the public to submit nonemergency requests. Requests types are grouped into categories that make it easier to submit a request. The request categories and types are defined in the Request Types .csv file deployed with the solution.

Complete the following steps to modify the request categories and types available in the Citizen Problem Reporter app.

1. Sign in to your ArcGIS organization and browse to the Request Types .csv file.
2. Open the item page and click **Download**.
3. Open the Request Types .csv file; add, remove, or modify the request categories and types; and save your changes.


Tip:

The source field column defines whether the values apply to the request category (reqcategory) or request type (reqtype) field. The name field defines the value that is written to the feature. The label field defines the value shown in the app drop-down menu. The source value field defines which category the type will display under.

4. On the Request Types item page, click **Upload**, browse to your modified .csv file, and click **Update Item**.

Configure Citizen Request Center site

The Citizen Problem Reporter solution includes the Citizen Request Center ArcGIS Hub site that your organization can configure with your branding and can use to share information about nonemergency problem reporting with the public.

1. Verify that you are signed in to your ArcGIS organization and browse to the Citizen Request Center site.
2. From the item page, click **Configure**.
3. If necessary, click the **Edit** button  to open the site editor.
4. Scroll to the **Frequently Asked Questions** section, hover over the card, click the edit pencil, and update the questions and answers.
5. In the side panel, click **Footer**.

A custom footer is provided. In most cases, you will need to update it with your organization's branding, contact information, and social media references.

[Back to top](#)

6. Click the **HTML** box.
The **HTML** window appears.
7. Make the necessary changes and click **Apply**.
8. Click **Save**.
9. When you're finished, click the **Save** drop-down menu and click **Publish Draft**.

Share items with the public

Several layer views, maps, and apps included in the Citizen Problem Reporter solution must be shared with everyone so they can be accessed by the public on the Citizen Request Center site. To share your Citizen Problem Reporter items with everyone, use the guide below and complete the following steps:

1. Verify that you are signed in to your ArcGIS organization and browse to the Citizen Problem Reporter folder.
2. Check the box next to each of the items below:

Item	Name
Feature Layer (hosted, view)	Requests_public
Feature Layer (hosted, view)	Requests_reporter
Feature Layer (hosted, view)	SatisfactionSurveys_public
Feature Layer (hosted, view)	SatisfactionSurveys_submit
CSV	Request Types
Web Map	Citizen Problem Reporter
Web Mapping Application	Citizen Problem Reporter
Form	Citizen Problem Satisfaction Survey
Site Application	Citizen Request Center

3. Click **Share**.
4. In the **Share** window, click **Everyone (public)** and click **Save**.
The **Warning: Sharing editable layers publicly** message appears notifying you that you are sharing editable layers publicly.
5. Click **Update**.
6. Click **Groups** at the top of the site.
7. Open the Citizen Problem Reporter group page and click **Settings**.
8. Under **Who can view this group**, click **Everyone (public)**, and click **Save**.

[Back to top](#)

Revise satisfaction survey questions

The Citizen Problem Satisfaction Survey allows you to solicit feedback from the public that helps you improve your community's customer service. The survey includes six questions. In some cases, you may want to add or remove questions from the survey.

1. Install [ArcGIS Survey123 Connect](#).
2. Start ArcGIS Survey123 Connect and sign in to your ArcGIS organization.
3. Click **Citizen Problem Satisfaction Survey** to download the survey.
4. In the **Download** window, click **Download** and click **OK**.
5. Click **Citizen Problem Satisfaction Survey** again to open the survey.
6. On the side toolbar, click the **Open XLSForm Spreadsheet** button.
7. In the Microsoft Excel spreadsheet, click the **choices** tab.
This tab comprises all the selectable options for survey questions.
8. Click the **survey** tab.
This tab comprises all the questions in the survey.
9. Revise the survey to reflect your needs.
10. Save and close the Microsoft Excel spreadsheet and preview your changes in ArcGIS Survey123 Connect.
11. In ArcGIS Survey123 Connect, click **Publish** on the side toolbar to publish your changes.
12. Click **Publish survey** to publish your changes and click **OK**.

Extend Citizen Problem Reporter

You can extend the Citizen Problem Reporter solution with a set of Python tools that can be used to generate report IDs, moderate reports, send email notifications, and enrich reports. These tools can be executed automatically via Task Scheduler, and as new problem reports are submitted or updated, the corresponding action occurs.

Add the ServiceFunctions toolbox

The ServiceFunctions toolbox contains tools for generating report IDs, moderating reports, sending email notifications, and enriching reports. Download and add the ServiceFunctions toolbox to your ArcGIS Pro project before configuring the appropriate tools.

1. [Download](#) the ServiceFunctions toolbox.
2. Browse to the `ServiceSupport.zip` file and unzip the file to the location from which you want to the tools to execute.
3. Open ArcGIS Pro and create a new project.
4. Sign in to the ArcGIS organization to which you deployed the Citizen Problem Reporter solution, if necessary.

[Back to top](#)

5. On the **View** tab, in the **Windows** group, click the **Catalog** pane, if necessary.
6. In the **Catalog** pane, right-click **Toolboxes** and choose **Add Toolbox**.
The **Add Toolbox** dialog box appears.
7. Browse to the ServiceSupport folder.
8. Click the **ServiceSupport.pyt** Python toolbox, and click **OK**.
9. In the **Catalog** pane, expand **Toolboxes** and **ServiceSupport.pyt**.
If you've never used the ServiceSupport toolbox before, run the Define Connection Settings tool to establish a connection between the toolbox and the Requests feature layer.
10. In the **Catalog** pane, in the **ServiceSupport.pyt** Python toolbox, double-click the **Define Connection Settings** tool.
11. In the **ArcGIS Online organization or ArcGIS Enterprise portal URL** parameter, click the drop-down arrow and choose a URL.
12. In the **Username** parameter, type your user name for the organization you chose in step 11.
13. In the **Password** parameter, type your password for the user name provided in the **Username**.
14. Click **Run**.

Generate report IDs

Many workflows require you to generate a unique identifier when a feature or record is created so it can be referenced and tracked in other workflows. You can use the Generate IDs tool to configure custom unique identifiers that will be applied to features at a regularly scheduled interval of your choosing. The tool only generates the configuration; you must run an additional script (provided) to update the features with incrementing identifier values.

1. In the **Catalog** pane, expand **Toolboxes** and **ServiceSupport.pyt**, if necessary.
2. Double-click the **Generate IDs** tool.
3. In the **Layer** parameter, click **Browse**.
The **Layer** dialog box appears.
4. Under **Portal**, click **My Content**.
5. Double-click the **Citizen Problem Reporter** folder.
6. Double-click the **Requests** feature layer.
7. Click **Requests**, and click **OK**.
Expand **General Identifier Settings**. If the tool has not been run previously, start by specifying at least one identifier sequence.
8. In the **Sequence Name** parameter, type a name for the sequence.
This value appears in the drop-down menu for selecting the sequence to assign to each layer.

[Back to top](#)

9. In the **Pattern** parameter, type a pattern to use for the sequence.
This can be a combination of letters, numbers, and symbols. Mark the location for the incrementing value with a pair of curly braces {}. Python formatting is applied to the pattern text, so string formatting syntax such as {0:03d} pads the incrementing number section with zeros to a length of 3. For example, the expression seq-{0:05d} creates the following pattern of values: seq-00001, seq-00002, seq-00003, and so on.
10. In the **Next Value** parameter, type a value.
When initially creating the sequence, this must be the first value in the identifiers. After this point, this value shows the value to be used for the next identifier generated.
11. In the **Interval** parameter, type a value.
The interval by which the identifier values increase between features. For example, an initial Next Value of 1 and an Interval of 10 creates identifiers with the incrementing values of 1, 11, 21, and so on.
Deleting or changing these sequences impacts all the layers that are configured to use the edited sequences.
12. Optionally, edit the identifier configuration and run the tool to overwrite the existing identifier configuration for the selected layer.

Note:

If an identifier configuration already exists, a check box appears that, when checked, deletes the existing identifier configuration for the selected layer.

13. Choose the moderation list to use to process the features in the selected layer.
14. Choose the sequence to use to generate the identifiers for each feature in the layer.
15. Choose a text field to store the generated identifier.
16. Click **Run** to write out the identifier configuration for the layer and any changes to the identifier sequences.
17. To configure identifiers for another layer, rerun the tool with the settings for the next layer.
General Identifier Settings are not specific to any one layer—they apply to all layers configured using this tool.

Moderate reports

Public comment apps can occasionally generate feedback that should not be made publicly visible. Data entered into specific fields, such as personal information, can be hidden and protected using the pop-up configuration and layer security, but sometimes entire comments need to be hidden to avoid displaying sensitive or explicit content to other users.

You can hide features by updating the value of a field so that it no longer meets the requirements of a filter applied to that layer in the map. You can use the **Moderate Reports** tool to configure which layers and fields to scan for explicit or sensitive words and phrases and how to update the feature so that it can be filtered from the map. You can choose

how often to scan features and records. The tool only generates the configuration; an additional script (provided) must be run to scan the features.

1. In the **Catalog** pane, expand **Toolboxes** and **ServiceSupport.pyt**.

2. Double-click the **Moderate Reports** tool.

3. In the **Layer** parameter, click **Browse**.

The **Layer** dialog box appears.

4. Under **Portal**, click **My Content**.

5. Double-click the **Citizen Problem Reporter** folder.

6. Double-click the **Requests** feature layer.

7. Click **Requests**, and click **OK**.

Expand **General Moderation Settings**. If the tool has not been run previously, start by specifying at least one moderation list.

8. In the **List Name** parameter, type a name.

This value appears in the drop-down menu for selecting the moderation list use when scanning each layer.

9. In the **Filter Type** parameter, click the drop-down arrow and choose to scan feature for words and phrases that exactly match the provided list of words and phrases.

For example, when the filter type is EXACT, if the list contains the word duck, the script updates the specified field when the feature contains the word duck, but not when it contains the word duckling. When the filter type is FUZZY, the script updates the feature when either duck or duckling are found.

10. In the **Words and Phrases** parameter, type a word or phrase. Provide a comma-separated list of words or phrases to scan for.

Keep in mind that deleting or changing these lists will impacts all the layers that are configured to use the edited sequences.

11. If a moderation configuration already exists for the selected layer, choose to edit an existing configuration by selecting the name of the moderation list used in the configuration, or choose the option to add a new moderation configuration.

If you choose to edit an existing configuration, a check box appears that, when checked, deletes the existing moderation configuration for the selected layer. Alternatively, edit the moderation configuration and run the tool to overwrite the existing moderation configuration for the selected layer and moderation list.

To add a new moderation configuration, click the **Add New** button and continue with the following steps.

12. Choose the moderation list to use to process the features in the selected layer.

13. Choose the fields that will be scanned for content that matches the words and phrases in the selected moderation list.

14. Optionally, provide an SQL query to only apply moderation to some features.

[Back to top](#)


If no query is provided, all features are processed.

15. Use the **Field to Update** parameter when a match is found between the value of a field and the content of a moderation list. Use the **Found Value** parameter to specify the value that should be written to this field indicating a match.
16. Click **Run**.

Send email notifications

Many workflows require that an email be sent when a feature or record is created and updated. You can use the **Send Emails** tool to configure emails that can be sent based on attribute values and a schedule of your choosing. The tool only generates the configuration; you must run an additional script (provided) to actually generate and send the emails.

1. In the **Catalog** pane, expand **Toolboxes** and **ServiceSupport.pyt**.
2. Double-click the **Send Emails** tool.
3. In the **Layer** parameter, click **Browse**.
The **Layer** dialog box appears.
4. Under **Portal**, click **My Content**.
5. Double-click the **Citizen Problem Reporter** folder.
6. Double-click the **Requests** feature layer.
7. Click **Requests**, and click **OK**.

All existing email settings for the layer load and can be edited by updating the parameter values for each configuration. To delete a single email configuration, click the **Remove** button  next to the configuration. To delete all the email configurations for the layer, check the **Delete all existing email configurations for this layer** check box. Run the tool to save your changes.

8. In the **Email Template** parameter, click **Browse** to access the ServiceSupport folder.
9. Click one of the HTML templates for the body of the email, and click **OK**.

To add attributes from the triggering feature to the email, use unique string keys in the places where the values should appear in the HTML and reference these strings in the **Find** parameter of the **Email Substitutions** section of the **General Email Settings** along with the name of the field that contains the value to be substituted for the string key in the **Replace** parameter.

10. Optionally, in the **SQL Query** parameter, provide an SQL query to only trigger an email from specific features.

If no query is provided, all features trigger emails every time the script is run, so you most likely want to use this query along with the **Field to Update** and **Sent Value** parameters to ensure that the same email isn't sent repeatedly for the same feature.

11. In the **Recipient Email Address** parameter, type an email address of the recipient or the name of a field in the layer that contains the address of the recipient.

[Back to top](#)

12. In the **Email Subject** parameter, type the subject for the email.
Similar to the email body provided in the HTML document, this text can contain string keys that will be swapped out for attribute values based on the **Find** and **Replace** values defined in the Email Substitutions list in the General Email Settings section.
13. In the **Field to Update** parameter, type Email. When the email has been sent for each feature, use the **Sent Value** parameter to specify the value that should be written to this field indicating that the email has been sent.
This field and value can be used in the previously described SQL query to prevent duplicate emails from being sent.
14. Configure additional emails to be sent for the currently selected layer by clicking the **Add New** button.
Emails will be sent in the order they are configured. Expand **General Email Settings**. If the tool has not been run previously, start by specifying the connection information for your SMTP server in the tool.
15. In the **SMTP Server** parameter, type the URL of the SMTP server used for sending emails.
16. In the **SMTP Username** parameter, type the user name required to authenticate to the SMTP server. This is not required if authenticating through a port.
17. In the **SMTP Password** parameter, type the password required to authenticate to the SMTP server. This is not required if authenticating through a port.
18. In the **From Address** parameter, type the address from which the emails should be sent.
19. In the **Reply Address** parameter, type the address that should be used for any replies to the email message.
20. Check or uncheck the **Use TLS** check box to turn on or off TLS.
21. In the **Email Substitutions** section, type **Find** and **Replace** values. Swap out one piece of text for another in the outgoing email subject or body.
Anywhere a value in the **Find** parameter is found in the email subject or body, it will be replaced with the corresponding value from the **Replace** parameter. If the value in the **Replace** parameter is a field in the layer, the **Find** value will be replaced with the value in that field in the triggering feature. For example, to add the ID of a feature from the REQUESTID field to the email subject, include a piece of text such as {ID} in the configured Email Subject, and add {ID} to the **Find** parameter and REQUESTID to the **Replace** parameter. All specified substitutions are applied to all emails configured for all layers so, while the Find values can be any piece of text, it's suggested that you use something that is clearly variable-like and unlikely to appear elsewhere in the messages in a literal form.
Deleting or changing these settings impacts all the emails for all the layers configured with this tool.
22. Click **Run**.

Enrich reports

Reports made in public comment apps can be enriched with information about the report location. You can then use this information to efficiently direct the report to the correct person or agency responsible for its resolution.

You can then use the Enrich Reports tool to configure which attribute values to calculate from a coincident or intersecting set of features at a regularly scheduled interval of your choosing. Note that the tool only generates the configuration; you must run an additional script (provided) to update the features based on intersecting features.

1. In the **Catalog** pane, expand **Toolboxes** and **ServiceSupport.pyt**.

2. Double-click the **Enrich Reports** tool.

3. In the **Layer** parameter, click the browse button.

The **Layer** dialog box appears.

4. Under **Portal**, click **My Content**.

5. Double-click the **Citizen Problem Reporter** folder.

6. Double-click the **Requests** feature layer.

7. Click **Requests**, and click **OK**.

8. In the **Enrichment** parameter, if an enrichment configuration already exists for the selected layer, choose to either edit an existing configuration by selecting the configuration from the drop-down list, or choose the option to add a new enrichment configuration.

If you choose to edit an existing configuration, a check box appears that, when checked, deletes the existing enrichment configuration for the selected layer. Alternatively, edit the configuration and run the tool to save the changes. To add a new enrichment configuration, click the **Add New** button and continue with the following steps.

9. Choose the polygon feature layer that will provide the enriching attribute values by either choosing a layer from the active map or by browsing to your hosted content and choosing a polygon feature layer.

10. In the **Source Field** parameter, click the drop-down arrow and choose a field from the enrichment layer.

11. In the **Target Field** parameter, click the drop-down arrow and choose a field from the Requests feature layer.

The script does not process features that already have a value in the target field.

12. In the **Priority** parameter, type a value. Specify the priority for this enrichment configuration relative to the other configurations for the Requests feature layer.

Enrichment configurations for a layer that have a lower priority value will override enrichment configurations with a higher value. For example, a layer has two enrichment configurations that use the same target field, but one has a priority value of 1 and the other has a priority of 2. If the configuration with priority 1 does not produce a valid value for the field, the field is populated with the value produced from the configuration with priority 2.

[Back to top](#)

13. Click **Run**.

Set up Task Scheduler

Use Windows Task Scheduler to schedule the script to generate report IDs when a feature or record is created, moderate reports when feedback contains inappropriate language, send email notifications when a feature or record is created or updated, or enrich reports. All the tools in this toolbox share a common configuration file and execution script, so only one scheduled task is required to automate running all the associated processes.

1. Open the Task Scheduler on the computer that is hosting the scripts.
2. Click **Action > Create Task** and name your task.
3. Click the **Action** tab and click **New**.
4. Set **Action** to **Start a Program**.
5. Browse to the location of your Python 3 installation (for example, <default directory>\C:\Program Files\ArcGIS\Pro\bin\Python\envs\arcgispro-py3\python.exe).
6. In the **Add arguments** text box, type the name of the script (`servicefunctions.py`).
7. In the **Start in** text box, type the path to the folder where your script is and click **OK**.
8. Click the **Trigger** tab, click **New**, and set a schedule for your task.
9. Click **OK**.

When the trigger occurs, the scripts begin scanning the configured layers and, for each one, processing (in order) configurations for generating identifiers, enriching reports, moderating reports, and sending emails.

Use Citizen Problem Reporter

The Citizen Problem Reporter solution delivers a set of capabilities that help you solicit reports from the public, manage the response to each report, solicit feedback from the public after addressing a report, and monitor the resolution of nonemergency reports in a community.

In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

Submit nonemergency problem reports

You will first assume the role of a concerned resident in the community who is notifying the city of a burned-out light in the park.

1. In a browser, go to the Citizen Request Center site.
2. Scroll to the **Join Our Community** section.

This section only applies when an organization is licensed for ArcGIS Hub Premium. When community residents do not have a community account or are not signed in to the Citizen Request Center site, the site displays buttons to **Create an account** or **Sign In** with an existing account. Creating an account allows users to view their submissions to more easily track the status of their requests. In the following steps, a community resident has created an account and is signed in to the Citizen Request Center site.

3. Scroll to the **Request Service** section and click the **Submit a Request** button to open the Citizen Problem Reporter app.
4. On the **Citizen Problem Reporter** page, click **Sign in with ArcGIS**.

Tip:

Share the maps, app, and group with everyone (public) to allow users to proceed as a guest. For more information, see [Share items with the public](#).

5. Click **Submit a Request**.
6. For **Category**, choose **Park**.
7. For **Request Type**, choose **Light Out**.
8. In the form, provide additional details and contact information.
When signed in, user's first name, last name, and email address will automatically be populated.
9. Click the **Add a Location** text box and click the location of your broken park light on the map.
10. To submit a request, click **Report It**.
11. Click your name near the top of the Citizen Problem Reporter app and click **My Submissions**.
12. At the top of the list of requests, click the **Park - Light Out** request to select it.

The park light out request you reported appears. As the request moves through its life cycle (Submitted, Received, In Progress, and Completed), the status bar updates.


[Back to top](#)

13. Optionally, click **Leave a reply** to display the comment form and add a new comment.

You and others can add comments to update or highlight information related to the initial request to authorities. The department or agency who is responding to the request can also add comments to provide updates on the progress.

Respond to problem reports

You are now an employee for the city who is responsible for responding to submitted problem reports, assigning them to the appropriate department for resolution.

1. In a browser, go to the Citizen Request Center site.
2. At the top of the site, click **Manage Requests**.
This is an internal page that can be shared with users inside the organization responsible for responding to requests.
3. Scroll to the **Manage Requests** section.
4. In the Citizen Problem Manager app, click the **Request Category** column filter.
5. Click **Unique**, click the **Request Category is** drop-down arrow and choose **Tree**.
6. Click the **Request Type** column filter.
7. Type Light Out in the **Request Type is** text box.
8. In the **Request** table, identify and click the request you reported.
Review the details of the problem in the lower left corner of the app.
9. On the **Details** tab, click the **Edit** button .
10. Click the **Status** drop-down arrow and choose **Received**.
11. Click **Save**.
Public Works staff are ready to address the problem.
12. On the **Details** tab, click the **Edit** button.
13. Click the **Status** drop-down arrow and choose **In Progress**.
14. In the **Assigned To** text box, type Public Works.
15. Click **Save**.
16. On the **Comments** tab, click the **Add Record** button.
17. In the **Comments** text box, type Public Works is working on this issue.

Tip:

When **Visible to Public** is set to **Yes**, the comment will display in the Citizen Problem Reporter app.

18. Click **Save**.
Public Works staff inform you that the park light bulb has been replaced.
19. On the **Details** tab, click the **Edit** button.

[Back to top](#)

20. Click the **Status** drop-down arrow and choose **Completed**.
21. For **Resolved On**, choose the current date.
22. In the **Resolution** text box, type Park light bulb has been replaced.
23. Click **Save**.

Once the issue is complete, the status indicator changes and the details now provide information about when and how the issue was resolved.

24. On the **Details** tab, click the **Send Satisfaction Survey** button.
25. Review the formatted email and click send.

Provide feedback on work performed

In the previous section, you sent an email containing a link to a satisfaction survey. You will now respond to the survey as the resident who originally submitted the request with your feedback on how the issue was handled.

1. Open the email.
2. Click the URL in the email to open the Citizen Problem Satisfaction Survey.
3. In the app, complete the first four survey questions.
4. Optionally, for **Do you have any other comments or concerns**, add any other comments.
5. For **Would you like to be contacted for more information**, click **Yes**.
6. Provide information for the **Full Name**, **Phone**, and **Email** parameters.
7. Click **Submit**.

Monitor reports and measure performance

As a program manager for the city, you want to know how well the citizen problem program is functioning, monitor the reports coming in, and see how satisfied the residents are with the program.

1. In a browser, go to the Citizen Request Center site.
2. At the top of the site, click **Manage Requests**.
3. Scroll to the **Monitor Performance** section.
4. In the Citizen Problem Dashboard app, review the high-level metrics on the **Overview** tab.

The **Overview** tab displays infographics of categories of reported problems. This information gives management a quick overview of the number of open requests submitted by the public.

5. Click the **Requests** tab at the bottom of the dashboard.

[Back to top](#)

The **Requests** tab allows a department manager to monitor how their department is doing when it comes to resolving requests. The page displays the top request categories and types, summarizes requests by month, and provides metrics on the average time to resolution.

6. Use the graphs to filter and explore active and resolved requests.

Dashboard charts are linked. As you click and select a category in one chart, related details are filtered and updated in other charts on the dashboard to allow a manager to identify issues and areas that need attention. The filtering is also linked to indicators and charts on the **Survey Results** tab.

7. Click the **Survey Results** tab at the bottom of the dashboard and explore the survey responses.

The **Survey Results** tab displays the results from the Citizen Satisfaction Survey. The indicators on the tab include **Resolution Quality**, **Resolution Time**, and **Customer Service** indicators that identify whether a community is below or above its target.

The **Recommended Problem Reporter to Friend or Colleague** chart is used to display whether the user who submitted the survey would recommend Citizen Problem Reporter to a friend or colleague. The right side of the dashboard displays the number of surveys submitted and their details.

8. Locate your response in the **Surveys** list and click it to see the details.

Code Enforcement Operations

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Code Enforcement Operations

Code Enforcement Operations can be used to collect and monitor code violations and related inspection information.

It provides access to code violation and inspection information in the field, which helps streamline field operations and improve communication between field and office staff. This improved process can decrease the overall time it takes to cite and resolve potential code violations. Code Enforcement Operations is typically implemented by code enforcement, zoning administrators, and other local government agencies that want to improve their response time resolving code violations.

The Code Enforcement Operations solution delivers a set of capabilities that help you review potential code violations, inspect code violations in the field, and monitor the resolution of code violations in a community.

Requirements

Code Enforcement Operations requires the following:

- ArcGIS Enterprise
- ArcGIS Field Maps

[Back to top](#)

Information products

Code Enforcement Operations includes the following information products:

Item	Description	Minimum user type
Code Violation	A map used by code enforcement officers, building officials, and zoning administrators to collect code violation and related inspection information	Mobile Worker
Code Violation Dashboard	An ArcGIS Dashboards app used by planning and zoning administrators to monitor code violations	Viewer

Release notes

The following are the release notes:

Version	Description
1.0	<ul style="list-style-type: none">• First release of Code Enforcement Operations

Use Code Enforcement Operations

The Code Enforcement Operations solution delivers a set of capabilities that help you review potential code violations, inspect code violations in the field, and monitor the resolution of code violations in a community.

In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

Note:

Use your organization's data or configured apps to follow these workflows.

Collect code violations

You will start by assuming the role of a code enforcement officer responsible for verifying a potential code violation. You are asked to use Code Violation to visit a potential code violation in the field and verify the details.

1. Download ArcGIS Field Maps to a mobile device, if necessary.
2. On the mobile device, open the app, and then sign in to your ArcGIS organization.
3. Tap the Code Violation map to open it.
4. Tap the plus sign to open the ArcGIS Field Maps form.
5. Complete the form, using the following table as a guide:

Parameter	Value
Violation ID	Type a unique ID.
Full Address	Type the property address, if applicable.
Location	Type a description of the location (for example, front yard), if applicable.
Violation Type	Choose a category.
Description	Type a description.
Municipal Code	Type the violation code number.
Visible	Choose Yes or No .
Date Submitted	Choose the appropriate date.
Name	Type the contact's name.
Phone	Type the contact's phone number.
Email	Type the contact's email.
Violation Status	Choose Open or Closed .

6. Tap **Submit** or the check mark to submit the form.

[Back to top](#)

Monitor code violation status

Now, you will assume the role of a planning or zoning administrator responsible for reviewing current open and closed violations. You are asked to use Code Violation Dashboard to monitor code violations.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Code Enforcement Operations solution.
2. View the Code Violation Dashboard app.
The Code Violation Dashboard opens, showing all submitted code violations.
3. Review the high-level metrics about code violations, such as blight, illegal signs, and overgrown yards.
4. On the left, use filters to refine the results by violation type, status, or date.
5. On the right, click a specific code violation to review the violation ID, location on the premises, and property address.

Note:

Alternatively, click a point on the map.

Communications Data Management

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Communications Data Management

Communications Data Management can be used to map coax, copper, fiber, and wireless system assets, edit data, view system maps in the field and office, view asset reports, and collaborate with map notes.

It turns ArcGIS into a system for communications organizations to easily inventory their assets and keep information up to date. It provides simple to use interactive system maps and dashboards for office and field staff, and increases collaboration.

After deploying, organizations with no digital communication data can immediately begin mapping their systems using GPS or digitizing data with web or desktop software. Organizations with existing spatial data can load it and begin using the apps.

Requirements

Communications Data Management requires the following:

- ArcGIS Enterprise
- ArcGIS Pro 2.9 or later (Basic, Standard, or Advanced)
- ArcGIS Field Maps

Information products

Communications Data Management includes the following information products:

Item	Description	Minimum user type
Communications Data Manager	An ArcGIS Pro package used to manage communication system data and map notes	GIS Professional (Basic, Standard, or Advanced)
Communications Editor	An ArcGIS Web AppBuilder application used to edit communication data and map notes	Editor
Communications Viewer	An ArcGIS Web AppBuilder application used to view and manage map notes	Editor
Communications Dashboard	An ArcGIS Dashboards application used to view communication asset information	Viewer
Communications Map Notes Manager	An ArcGIS Web AppBuilder application used to review and manage map notes	Editor
Communications Mobile Viewer	A map used in ArcGIS Field Maps to view communication system assets and create map notes in the field	Mobile Worker
Communications Asset Collector	A map used in ArcGIS Field Maps to capture communication assets and create map notes from the field	Mobile Worker

Release notes

The following are the release notes:

Version	Description
1.2	<ul style="list-style-type: none">The Minimal Gallery app has been removed from the solution item.
1.1	<ul style="list-style-type: none">Name changed from Communications Data Management for ArcGIS Online to Communications Data Management.
1.0	<ul style="list-style-type: none">The first release of Communications Data Management for ArcGIS Online

Configure Communications Data Management

The Communications Data Management solution can be configured to meet specific needs in your organization. The sections below outline some administrative tasks to update and manage the solution to fit your organization's needs.

Load data

In some cases, you may need to load existing data into the solution before sharing the maps or applications. Review the maps or applications provided with the solution and determine what, if any, source data you want to load. Communications Data Management also includes a data model to store information about typical communications system assets. To explore the schema, view the [data dictionary](#).

Tip:

If you do have to load data into the solution, you may want to develop a source-target matrix to track how your source data will be loaded into the target layer or layers used in the solution.

Depending on the format of your source data, you may choose to append your source data to the new layers. Once you have determined what source data must be loaded, complete one of the data loading workflows below:

Use the Append tool

In ArcGIS Pro, the [Append](#) tool can be used to append multiple input datasets to an existing target dataset. Input datasets can be point, line, or polygon feature classes.

To append features to the target layer or layers using the Append tool, complete the steps below:



1. In ArcGIS Pro, sign in to your ArcGIS organization.
2. To open the **Communications Data Manager** project, click **Open another project**, click **My Content** under **Portal**, double-click the **Communications Data Management** folder, and click **Communications Data Manager**.
3. Add your existing source layers to a new map. To add the target feature layers from the CommunicationsSystem feature service, click **My Content** under **Portal**, double-click the **Communications Data Management** folder, and add the CommunicationsSystem feature service to the map.
4. On the **Analysis** tab, in the **Geoprocessing** group, click **Tools** to open the **Geoprocessing** pane.
5. In the search bar, type Append and click to open the **Append** tool.
6. Add your existing communications data from the map to the **Input Datasets** parameter.
7. For **Target Datasets**, use the **CommunicationsSystem** features in the map.

[Back to top](#)

8. In the **Schema Type** parameter, use the drop-down menu to choose **Use the Field Map to reconcile schema differences** to perform field mapping.
9. Update your field mapping and click **Run**.
10. Repeat this process as needed to load all your existing data into the target communications schema.

Use the Data Loading Tools

The Data Loading toolbox can be used in ArcGIS Pro to streamline loading data from a source to a target dataset and provide the ability to perform in-process data transformation. Setup the [Data Loading toolbox](#) before getting started with the steps below.

1. Open the **Communications Data Manager** project.
2. On the **Project** tab, click **Python** to access the Python Package Manager.
3. Under **Project Environment**, click **Manage Environments**.
4. Click **Clone Default**  to clone your default environment.
5. Click the **Active** button for the new environment, and click **OK**.
6. Restart ArcGIS Pro to allow your environment changes to take effect.
7. In the Python Package Manager, click **Add Packages** to see the Python packages available for installation.
8. Click **Refresh**  to update the list of available packages.
9. In the **Search** box, type `dltolutions` to find the **Data Loading Tools** toolbox.
10. Select the **dltolutions** package and click the drop-down arrow to update the version.
11. Click **Install**.

The **Install Package** dialog box appears.

12. Review the terms and conditions and check the box to agree.
13. Click **Install** to install the package.
14. Once the installation is complete, close ArcGIS Pro.

The **Data Loading Tools** toolbox is now installed. The next time you start ArcGIS Pro, you can access it from the geoprocessing toolboxes.

15. Review [An overview of the Data Loading toolbox](#) to learn more about the tools and how to use them to load data into the CommunicationsSystem layers.

Configure the Communications Data Manager ArcGIS Pro project

The Communications Data Manager project includes a Communications Data Manager map with broken links.

1. In ArcGIS Pro, sign in to your ArcGIS organization.
2. To open the **Communications Data Manager** project, click **Open another project**, click **My Content** under **Portal**, double-click the **Communications Data Management** folder, and click **Communications Data Manager**.
3. In the **Catalog** pane, expand **Maps** and double-click **Communications Data Manager** to open the map.
4. In the **Contents** pane, click the red exclamation point **!** next to the **Map Notes** layer.
The **Change Data Source** dialog box appears.
5. Click **My Content** under **Portal**, double-click the **Communications Data Management** folder, double-click the **CommunicationsMapNotes_managing** feature service, and double-click the **Map Notes** layer.
6. In the **Contents** pane, click the red exclamation point **!** next to the **Regional Cable Components** layer.
The **Change Data Source** dialog box appears.
7. Click **My Content** under **Portal**, double-click the **Communications Data Management** folder, double-click the **CommunicationsSystem_editing** feature service, and double-click the **Regional Cable Components** layer.
The data source is repaired for the remaining layers.
8. In the **Contents** pane, right click the **Communications Data Manager** map and click **Properties**.
9. Click the **Coordinate Systems** tab. In the **XY Coordinate Systems Available** section select the coordinate system that matches the layers in the map.

Note:

Ensure the coordinate system of the map matches that of the feature layers deployed in the solution. If these do not match there may be discrepancies in what units are displayed in the map.

10. Click **Save** to save the project.

Add members to groups in your organization

Included with Communications Data Management are four groups designed to help managers organize their members based on their privileges and their work. The solution includes the following groups: Communications Editors, Communications Field Users, Communications Map Notes Managers, and Communications Office Users.

To add members to the groups, complete the following steps:

1. In a browser, sign in to your ArcGIS organization.
Verify that you have privileges to manage member groups before continuing.
2. Click **Groups** at the top of the site.
3. Click the name of the group to open the group details pages.

[Back to top](#)

4. On the **Settings** tab, edit and update the properties of the group, including access, sharing properties, and group ownership.
5. Click the **Overview** tab and click **Invite users**.
6. Select the members you want to add and click **Add to group**.
7. Repeat steps 3 through 6 for each group you need to add members to.

The provided groups are intended to be utilized by members with a minimum of the following user types in order to fully use the provided maps and apps:

Group name	User type
Communications Editors	<ul style="list-style-type: none"> • Editor • GIS Professional Basic with ArcGIS Pro (minimum of one license recommended)
Communications Field Users	<ul style="list-style-type: none"> • Mobile Worker
Communications Map Notes Managers	<ul style="list-style-type: none"> • Editor
Communications Office Users	<ul style="list-style-type: none"> • Editor

Set the default map extent to your service territory

When the Communications Data Management solution is deployed into your organization, it uses the [map default](#) set in your organization. If this property has not been set, you may want to quickly update a few maps and apps to your service territory manually to avoid having to pan and zoom to your area each time you open a map. Follow the steps below to update the initial extent of the maps and apps provided with this solution.



1. In a browser, sign in to your ArcGIS organization.
2. To set the default map extent for the **Communications Viewer** application, browse to the **Communications Viewer** item page and click **Edit Application**.
3. On the **Map** tab, zoom the map to the desired extent and click **Use current map view** under **Set initial extent**. Click **Save**.
4. Repeat steps 2 and 3 to set the default map extent for the **Communications Editor** and **Communications Map Notes Manager** applications.
5. To set the default map extent for the **Communications Asset Collector** map, open the **Communications Asset Collector** map.
6. Zoom the map to the desired extent and save it.
7. Repeat steps 5 and 6 for the **Communications Mobile Viewer** map.

Configure the dashboard

When you deploy the Communications Data Management solution to your organization you have the option to change spatial reference. If you selected a spatial reference with a linear

[Back to top](#)

unit other than meters, you will need to revise the dashboard by completing the following steps.

1. In a browser, sign in to your ArcGIS organization.
2. To set the default map extent for the **Communications Dashboard** application, browse to the **Communications Dashboard** item page and click **Edit Dashboard**.
3. Navigate to the **Civil & Engineering Assets** tab and click the configure button  on first indicator.
4. On the **Data** tab, change the **Factor** setting to the correct conversion.
The dashboard **Factor** setting is configured to convert meters to miles. Learn more about how to [Convert Values](#).
5. Repeat steps 3 through 4 until all indicators on the **Civil & Engineering Assets** tab have been updated.
6. Click the save button  .

Use Communications Data Management


The Communications Data Management solution can be used by staff to collect and manage system information. This solution allows an organization to manage communications data to obtain information about the current state of their system. These workflows are intended for editors, mobile workers, and managers who want to use the maps and apps to manage their data. You will learn how to use the Communications Data Management solution to add new assets from the field, manage communications data in the web and desktop, and view and interact with a dashboard to find key statistics about your system.

Add data in the field

In these workflows, you will be taking the role of a mobile worker collecting data in the field. If you have a mobile-centric workforce, this may be the best option to collect new data or validate existing data.

Collect existing poles

As a mobile worker, collect existing poles in the field.

1. Open the ArcGIS Field Maps app and sign in to your ArcGIS organization.
2. Open the Communications Asset Collector map.
3. Browse to the collection location.
4. Tap **Add** .
5. From the list of features, search for **Pole** by swiping up or typing **Po1e** in the filter search bar.

If the pole is added to an inaccurate location, or you want to move the point manually, move the crosshairs to the correct location by panning the map and tapping **Update Point**. This moves the added pole to the specified location.

6. Fill in any attributes and tap **Submit**.


Note:

Move to a safe location to fill in the attributes. The added pole remains in its original location.

7. Ensure the last collected pole is selected and browse to the next pole location. Tap the **Copy** button at the bottom of the screen to create a copy of the previously added pole at the location of the new pole.
8. Adjust any attributes as needed and tap **Submit**.

Collect existing handholes

As a mobile worker, collect existing handholes in the field.

1. Open the ArcGIS Field Maps app and sign in to your ArcGIS organization.
2. Open the Communications Asset Collector map.
3. Browse to the collection location.
4. Tap **Add** .
5. From the list of features, search for **Handhole** by swiping up or typing Handhole in the filter search bar.

If the handhole is added to an inaccurate location, or you want to move the point manually, move the crosshairs to the correct location by panning the map and tapping **Update Point**. This moves the added handhole to the specified location.

6. Fill in any attributes and tap **Submit**.

Note:

Move to a safe location to fill in the attributes. The added handhole remains in its original location.

7. Ensure the last collected handhole is selected and browse to the next handhole location. Tap the **Copy** button at the bottom of the screen to create a copy of the previously added handhole at the location of the new handhole.
8. Adjust any attributes as needed and tap **Submit**.

Add map notes

As a mobile worker, you can add a map note to the system.

1. Open the ArcGIS Field Maps app and sign in to your ArcGIS organization.
2. Open the Communications Asset Collector map.
3. Browse to the map note location.
4. Tap **Add**.
5. From the list of features, search for the **Map Notes** type by swiping up or typing a description in the filter search bar, select the **Map Notes** type, and add the note to the map by sketching a polygon in the map note location.
6. Fill in the attributes and click **Submit**.

The map note is added to the map and is available to be viewed and reviewed by others in the organization.

Add data in the web

In the workflows below, you will be taking the role of an editor adding data in ArcGIS Online. The workflows explain how to add data in the web, use the provided dashboard, and add and manage map notes.

[Back to top](#)

Add wire aerial supports to connect poles

As an editor, you can add an aerial span to connect poles in the web.

1. In a browser, sign in to your ArcGIS organization.
2. At the top of the site, click **Groups**.
3. Browse to the **Communications Editors** group and locate the **Communications Editor** app. Click **View Application** to launch the app.

In the Communications Editor app, the **Asset Editor** widget is open by default on the left side of the window when the app opens.

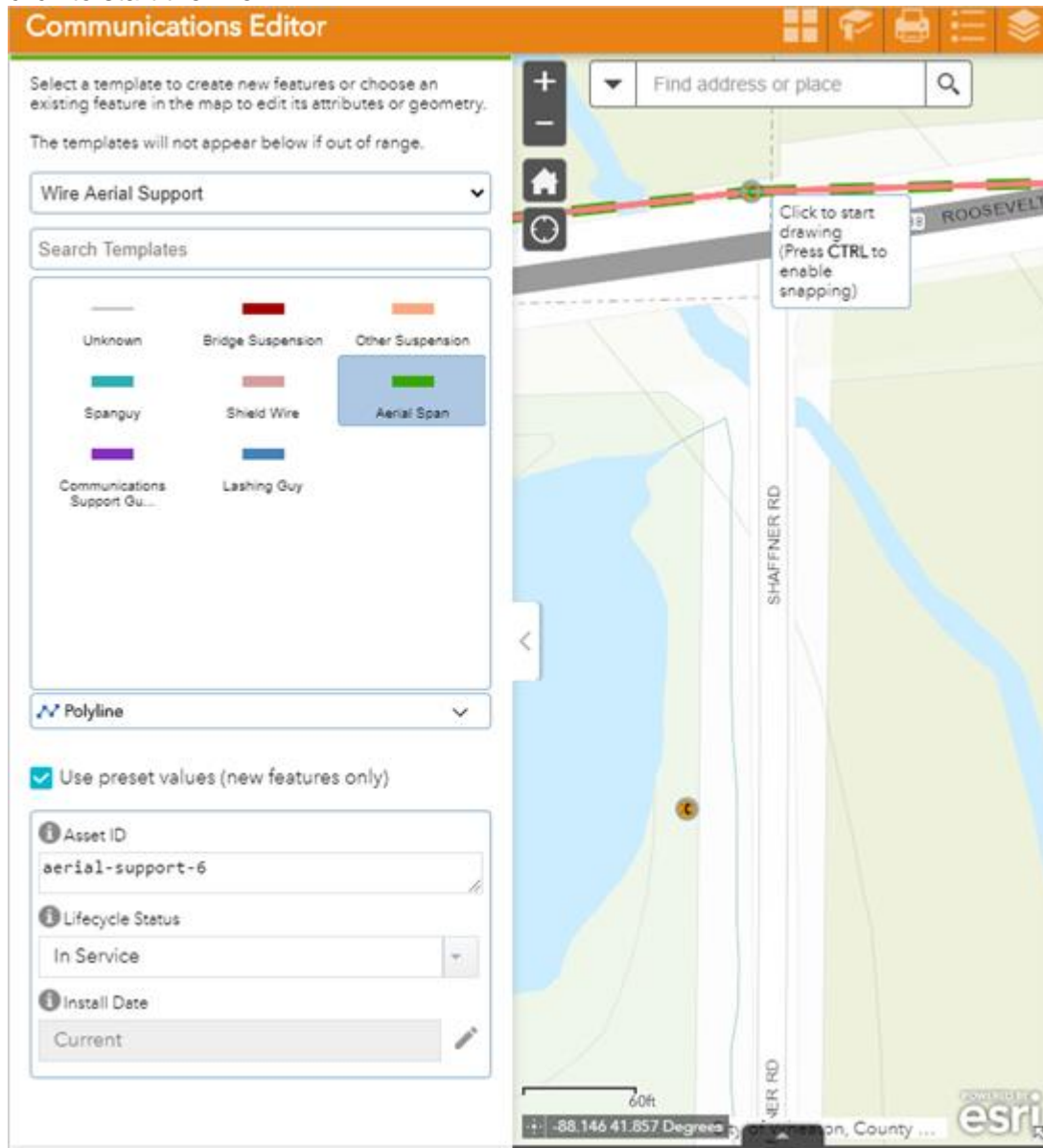
4. In the **Asset Editor** pane, click the template drop-down menu and select **Wire Aerial Support**, and select **Aerial Span** from the list of options.

Note:

Zoom to the visible range for the Wire Aerial Support layer if no templates are visible in the Asset Editor.

5. Scroll down and fill in the preset values.

6. With **Aerial Span** selected, press Ctrl to snap to the pole by hovering over the point, and click to start the line.



7. Draw the aerial span to the next pole, press Ctrl, and double-click to finish the sketch. You are prompted to update attributes and save.
8. Click **Save**.
9. Repeat steps 4 through 8 to add the remaining aerial spans.

Add trenches to connect handholes

As an editor, you can add a trench to connect handholes in the web.

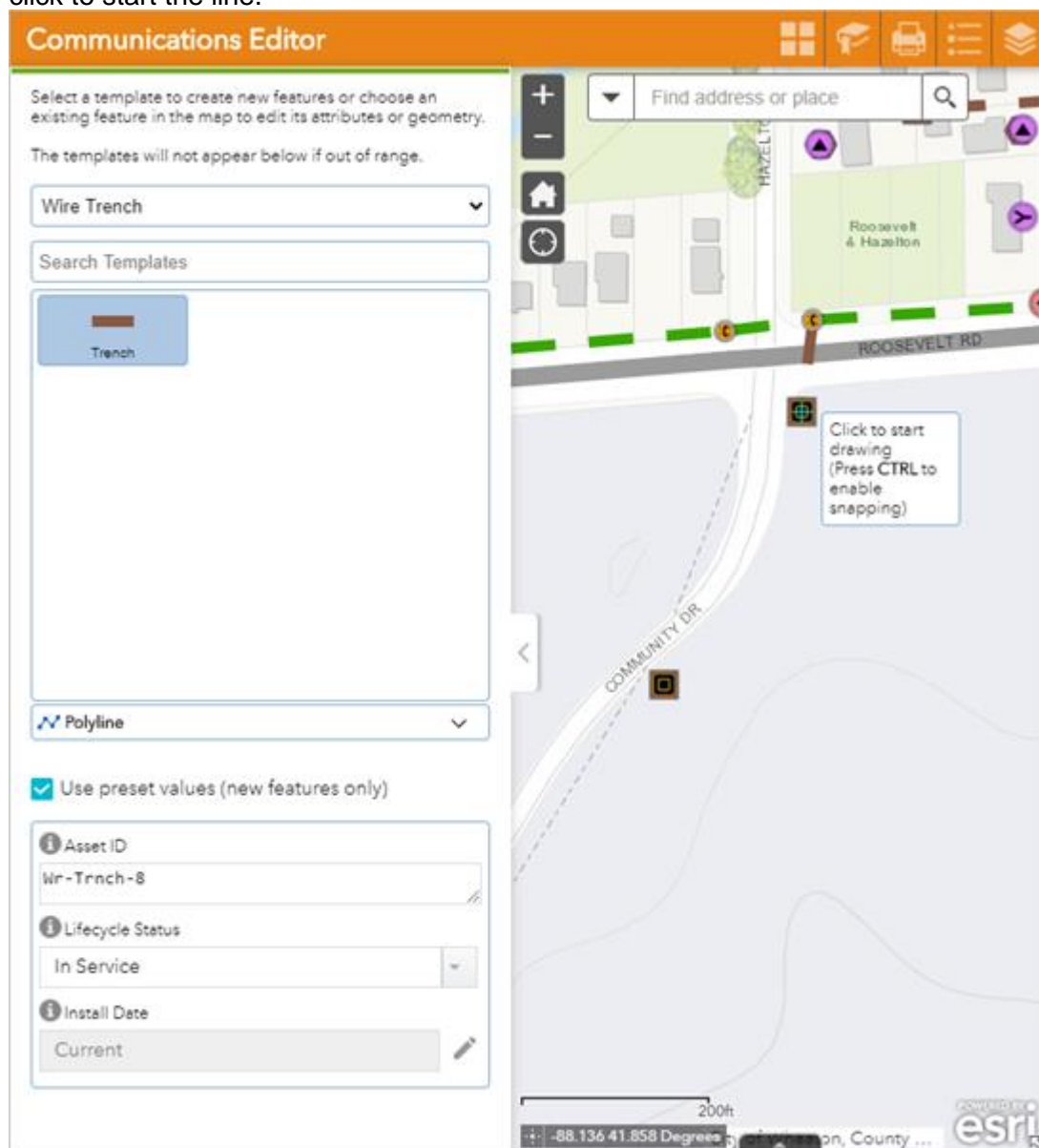
1. In a browser, sign in to your ArcGIS organization.

[Back to top](#)

2. At the top of the site, click **Groups**.
3. Browse to the **Communications Editors** group and locate the **Communications Editor** app. Click **View Application** to launch the app.

In the Communications Editor app, the **Asset Editor** widget is open by default on the left side of the window when the app opens.

4. In the **Asset Editor** pane, click the template drop-down menu and select **Wire Trench**, and select **Trench** from the list of options.
5. Scroll down and fill in the preset values.
6. With **Trench** selected, press Ctrl to snap to the handhole by hovering over the point, and click to start the line.



7. Draw the trench to the next handhole, press Ctrl, and double-click to finish the sketch. You are prompted to update attributes and save.

[Back to top](#)

8. Click **Save**.
9. Repeat steps 4 through 8 to add the remaining trenches.

Add map notes

As a user, you can add a map note to the system.

1. In a browser, sign in to your ArcGIS organization.
2. At the top of the site, click **Groups**.
3. Browse to the **Communications Office Users** group and locate the **Communications Viewer** app. Click **View Application** to launch the app.
 - a. In the Communications Viewer, click the **Map Notes Editor** widget to open it.
 - b. Choose a map note issue type and sketch a polygon in the desired map note location.
 - c. Enter attributes and click **Save**.

Manage map notes

As a GIS manager, you can review and resolve map notes about your system to ensure issues are addressed.

1. In a browser, sign in to your ArcGIS organization.
2. At the top of the site, click **Groups**.
3. Browse to the **Communications Map Notes Managers** group and locate the **Communications Map Notes Manager** app. Click **View Application** to launch the app.

In the upper right of the app, there are a number of widgets that have been configured to filter, edit, update, and manage map notes.

4. Review the list of included widgets to learn how to use them to manage map notes:
 - **Legend**—View a list of included layers in the map. The legend displays what is visible on the map, so zooming in or out can expand or reduce the list if scale suppression is set on the layers.
 - **Filter**—Use the Creation Date, Issue, and Severity filters to view only map notes that fit the entered criteria. Select a date range or an option from the drop-down menu and turn on a filter to view the selection on the map.
 - **Batch Edit Map Notes**—Select a group of map notes using one of the selection tools and update values for all the selected features at once.
 - **Map Notes Editor**—Add a new map note or edit an existing map note.
 - **Map Notes Summary**—View all the map notes by status and expand each section to view the individual notes. Click a note to zoom to it on the map and view its attributes in a pop-up.

These changes are reflected in other apps and maps across the system so others in your organization can view the latest information.

Use the communications dashboard

As a member of the utility, you want to have a comprehensive view of your communications system assets.

1. In a browser, sign in to your ArcGIS organization.
2. At the top of the site, click **Groups**.
3. Browse to the **Communications Office Users** group and locate the **Communications Dashboard** app. Click **View Dashboard** to launch the dashboard.
4. View system statistics on the **Civil & Engineering Assets** tab, **Point of Presence (PoP) Assets** tab, and on the **Structural Assets** tab to view the asset information.

Add data in ArcGIS Pro

In the workflows below, you will be taking the role of an editor adding data in ArcGIS Pro. If you have known locations of assets or as-built drawings to work from, the following workflows can demonstrate using ArcGIS Pro to add data to your communications system.

Note:

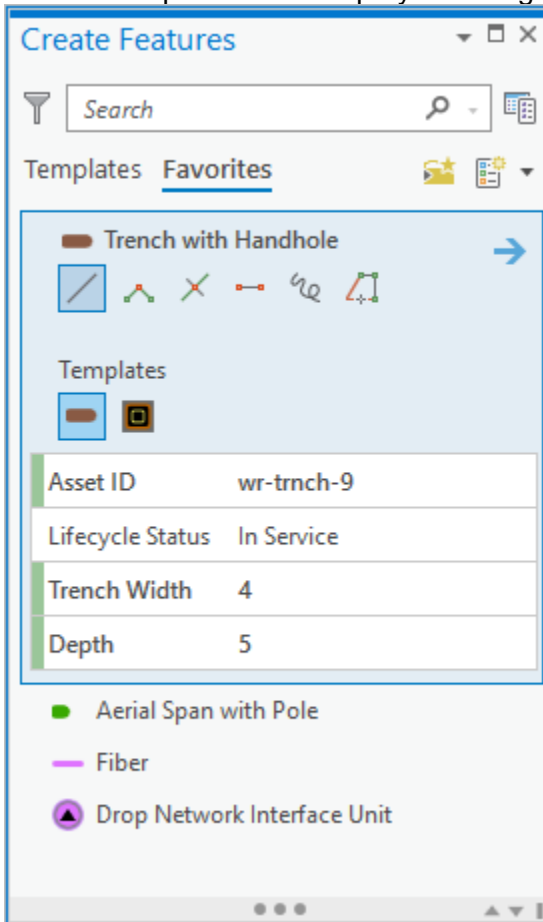
The first time you open the Communications Data Manager map in ArcGIS Pro, the layers will show as broken. Follow the steps to [Configure the Communications Data Manager ArcGIS Pro project](#) to fix your layers.

Add a commercial service

As an editor, you can add a commercial service to the map in ArcGIS Pro.

1. After receiving the **Communications Data Manager** editing ArcGIS Pro project, sign in to your ArcGIS organization.
2. In the **Catalog** pane, expand **Maps** and double-click **Communications Data Manager** to open the map.
3. On the **Edit** tab, in the **Snapping** group, click **Snapping** and turn snapping on.
4. On the **Edit** tab, in the **Features** group, click **Create**.
The **Create Features** pane appears.
5. Select the **Trench with Handhole** group template from the **Favorites** list and click through the included templates to fill in the attributes.

6. Add the template to the map by following the steps below:

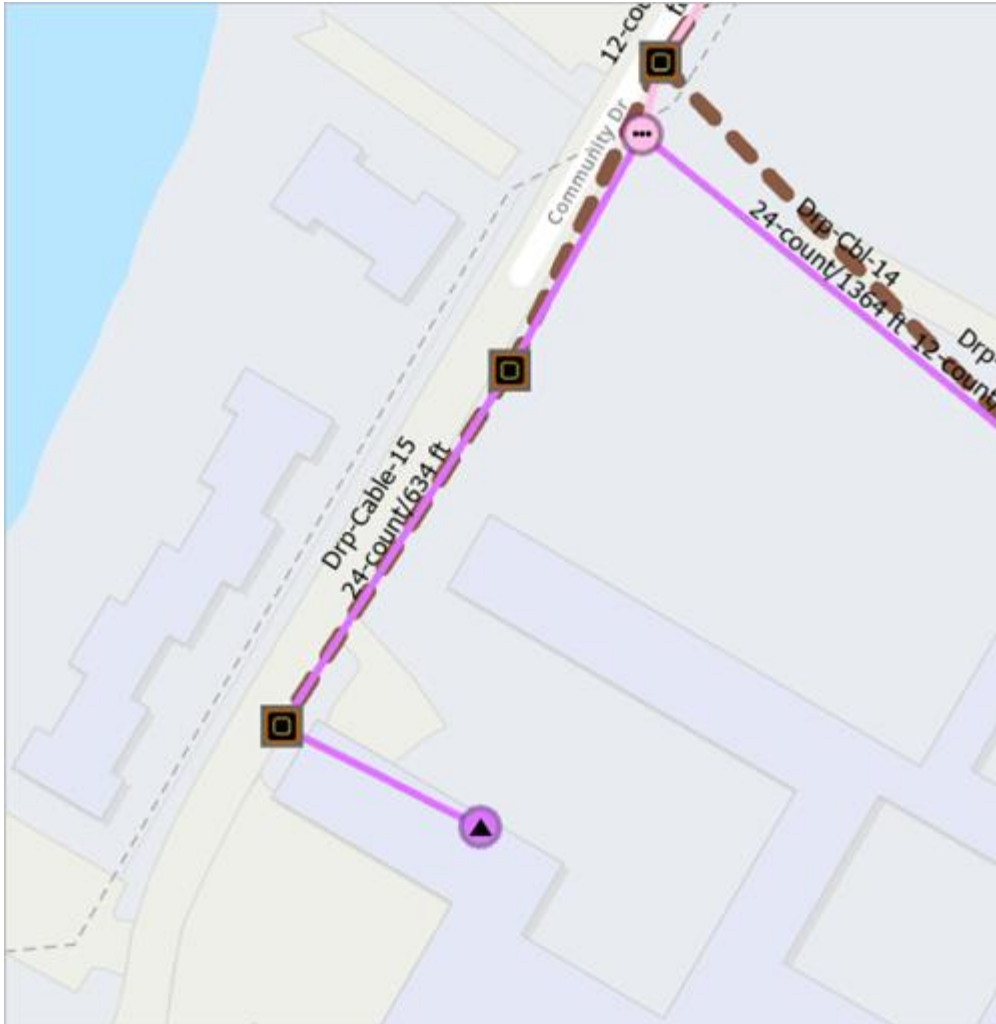


- a. Click the location on the map to start the trench.
- b. Double-click at the location of the handhole.

This adds the trench and handhole.

7. Repeat steps 5 through 6 to add the remaining structural assets for your commercial service.
8. Select the **Drop Network Interface Unit** template from the **Favorites** list and fill in the attributes.
9. Add the drop network interface unit to the map at the commercial customers' location.
10. Select the **Fiber Drop Cable** template from the **Favorites** list and fill in the attributes.
11. Add the fiber template to the map by following the steps below:
 - a. Click the hub terminator on the map to start the fiber cable.
 - b. Snap to and click on each handhole.
 - c. Finish the sketch by double-clicking at the drop network interface unit.

[Back to top](#)



Extend a residential service

As an editor, you can extend a residential service to the map in ArcGIS Pro.

1. After receiving the **Communications Data Manager** editing ArcGIS Pro project, sign in to your ArcGIS organization.
2. In the **Catalog** pane, expand **Maps** and double-click **Communications Data Manager** to open the map.
3. On the **Edit** tab, in the **Snapping** group, click **Snapping** and turn snapping on.
4. On the **Edit** tab, in the **Features** group, click **Create**.

The **Create Features** pane appears.

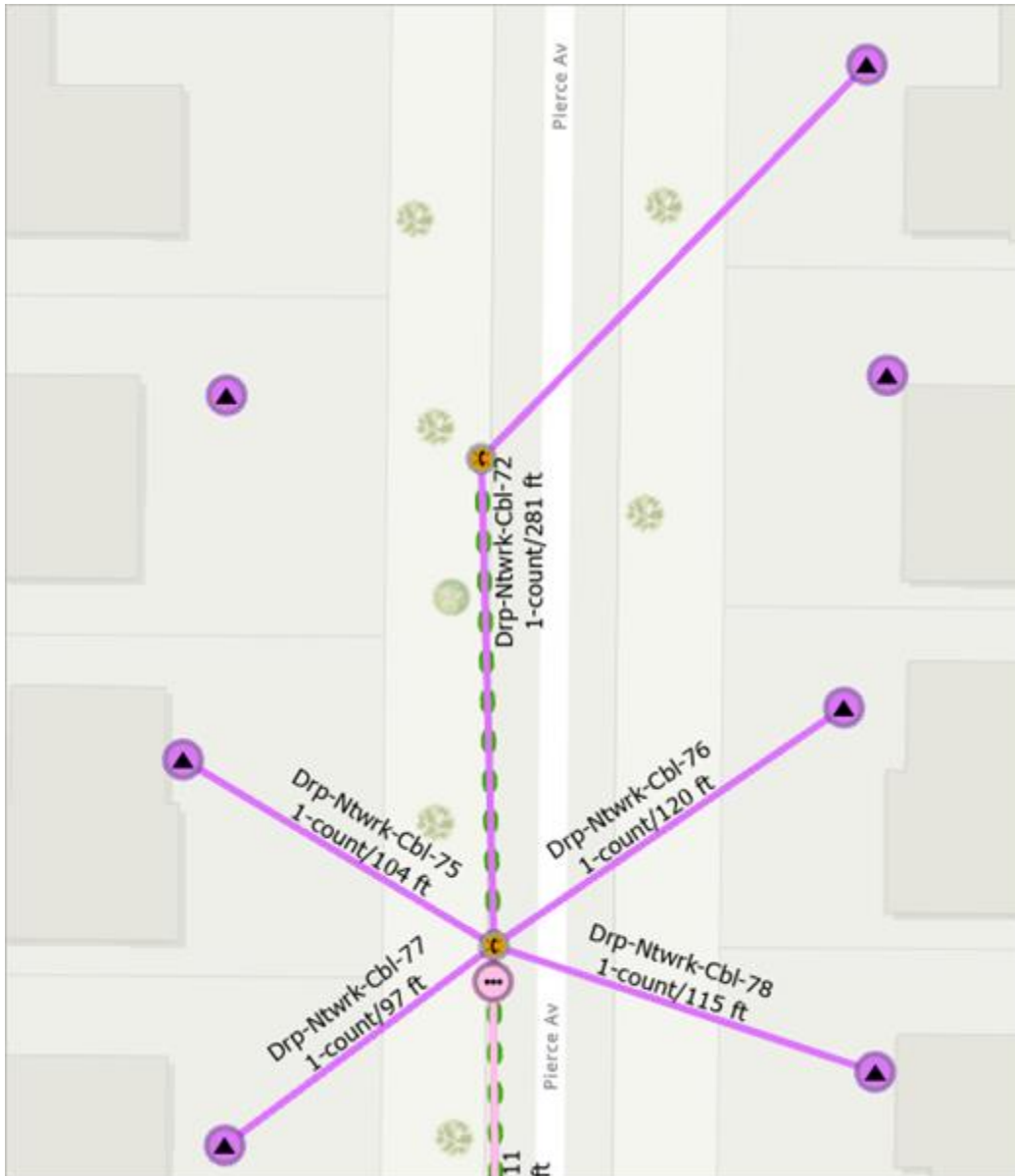
5. Select the **Aerial Span with Pole** group template from the **Favorites** list and click through the included templates to fill in the attributes.
6. Add the template to the map by following the steps below:
 - a. Click the location on the map to start the aerial span.

[Back to top](#)

b. Double-click at the location of the pole

This adds the aerial span and pole.

7. Repeat steps 5 through 6 to add the remaining structural assets for extending your residential service.
8. Select the **Drop Network Interface Unit** template from the **Favorites** list and fill in the attributes.
9. Add a drop network interface unit to the map for each customer.
10. Select the **Fiber Drop Cable** template from the **Favorites** list and fill in the attributes.
11. Add the fiber template to the map by following the steps below:
 - a. Click the hub terminator on the map to start the fiber cable.
 - b. Snap and click on each pole along the way to the drop network interface unit.
 - c. Finish the sketch by double-clicking at the drop network interface.



12. Repeat steps 10 through 11 for each customer service.

Add map notes

As an editor, you can add a map note to the system.

1. After receiving the **Communications Data Manager** editing ArcGIS Pro project, sign in to your ArcGIS organization.
2. In the **Catalog** pane, expand **Maps** and double-click **Communications Data Manager** to open the map.
3. On the **Edit** tab, in the **Features** group, click **Create**.
The **Create Features** pane appears.

[Back to top](#)

4. In the **Favorites** list, expand the **Map Notes** folder and choose a **Map Note** option. Add the map note by digitizing a polygon on the map at the desired location.
5. On the **Map** tab, in the **Selection** group, click **Attributes** and fill in the attributes.

The map note is added to the map and is available to be viewed and reviewed by others in the organization.

Community Data Aggregation

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Community Data Aggregation

Community Data Aggregation can be used to aggregate authoritative data (for example, addresses and parcels) and deliver focused maps and locators to key stakeholders.

It provides a series of tools and standard layers that streamline the maintenance of regional address and parcel information. Traditionally, address and parcel data is managed by local governments. Aggregating this data into larger geographies (county, region, watershed, or state) helps organizations address common needs or issues that affect residents in many local governments. Community Data Aggregation is typically implemented by state and regional organizations that want to access authoritative data and address emergency response, permitting, as well as address land use and regulatory issues at a more regional level.

The Community Data Aggregation solution delivers a set of capabilities that help you transform and load data source data (for example, addresses and parcels) in to target dataset with a standard information model.

Requirements

Community Data Aggregation requires the following:

- ArcGIS Enterprise
- ArcGIS Pro 2.6 - 2.9 (Basic, Standard or Advanced)

Information products

Community Data Aggregation includes the following information products:

Item	Description	Minimum user type
CommunityAddresses	A feature layer to help organizations aggregate address information from authoritative sources	Not Required
CommunityParcels	A feature layer to help organizations aggregate parcel information from authoritative sources	Not Required
DataAssistant	An ArcGIS Pro Add-in that includes the Data Assistant ribbon and a series of tools that have been optimized for migrating data from a source dataset to a target dataset	GIS Professional Basic

Release notes

The following are the release notes:

Version	Description
1.0	<ul style="list-style-type: none">• First release of Community Data Aggregation

[Back to top](#)

Configure Community Data Aggregation

Learn how to configure the Community Data Aggregation solution to meet specific needs in your organization.

Set up data aggregation project

Before you begin aggregating data, create an ArcGIS Pro project, install the Data Assistant add-in, and add the Data Assistant ribbon to the project so you can access the tools and features of the add-in.

Data Assistant add-in

The Data Assistant add-in includes a series of tools that have been optimized for migrating data from a source dataset to a target dataset that may have a different data structure. It includes a series of predefined methods to automatically populate attributes when migrating data to the target dataset. For example, one method concatenates multiple source fields into a single target field. Other methods help you extract the left or right characters from a field or split a single source field into multiple target fields.

To use the Data Assistant add-in, you must install the Data Assistant add-in on each ArcGIS Pro machine that will be used to migrate data from a source dataset to one or more target datasets.

To install the Data Assistant add-in, complete the following steps:

1. Deploy the **Community Data Aggregation** solution.
2. Browse to the **Content** section of your ArcGIS organization.
3. Click the **DataAssistant** item to open the item details page and click the **Download** button to download the add-in.
4. Extract the DataAssistant .zip file.
5. Close any open or running ArcGIS applications.
6. Using Windows Explorer, browse to the DataAssistant folder.
7. Double-click DataAssistant.esriAddInX to run the installer.
8. Click the **Install add-in** button.

Data aggregation project

You can use an ArcGIS Pro project and the Data Assistant add-in to migrate community datasets from one or more source datasets to a target dataset.

To create a data aggregation project, complete the following steps:

[Back to top](#)

1. In ArcGIS Pro, click **Add Data** and browse to the My Content folder in the active portal. Select the CommunityAddresses or CommunityParcels layer that deployed with the solution.
2. Click **Add Data** and browse to your source data. Add your source data to the map.
3. Click the **Data Assistant** ribbon. Ensure that the Data Assistant add-in loaded and is accessible in ArcGIS Pro.
4. Save the data aggregation project.

Data mapping

The **Configure Data Mapping** dialog box allows you to configure settings in a selected source-target configuration file.

File panel

The Data Assistant file properties define the active source-target configuration file and allow you to further configure the source dataset, target dataset, and replace settings.

Property	Description
Source-Target Configuration File	The active source-target configuration file for Data Mapping.
Source Layer	The path to the source layer for the active configuration file.
Replace By Field Value	When enabled, defines the selection query for the target layer that will be used when the Replace Data tool is executed.
Target Layer	The path to the target layer for the active configuration file.

Fields panel

The Data Assistant field methods define the actions to occur when migrating data from a source dataset to a target dataset. You can use them to populate new values in the target dataset or perform more advanced field mapping that may be necessary when the target dataset has a different data structure.

You can configure the following Data Assistant methods in your data migration project:

Method	Description
Copy	Copy source field values to target fields.
Default Value	Sets a default value for a field.
Value Map	Set target values based on source value.
Change Case	Change the case of the source text string.
Concatenate	Concatenate source values into a string.
Left	Extract a number of characters from the left.
Right	Extract a number of characters from the right.
Substring	Extract a set of characters from a string.
Split	Split a string into parts and use one part.
Conditional Value	Construct an if/else statement.

[Back to top](#)

Domain Map	Load and map domains values.
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Data Assistant settings

You configure the following settings for Data Assistant.

Match library

When updated, the Data Assistant Match Library will assist with automatically creating field mappings based on configuration files you create.

Setting	Description
Update Match Library	The Match Library will be updated to include the settings in the currently selected source-target configuration file.
Clear Match Library	All saved settings in the Match Library will be erased.

Use Community Data Aggregation

The Community Data Aggregation solution delivers a set of capabilities that help you transform and load data source data (for example, addresses and parcels) in to target dataset with a standard information model.

In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.








This solution supports two parcel data aggregation models, both of which are supported by the same set of tools:

- The Contributor Model allows authoritative data producers to update the community layers directly on a regular schedule.
- The Aggregator Model allows authoritative data producers to send their data to a community aggregator so the community layer can be updated.

Choose a parcel data aggregation model (Contributor or Aggregator) and configure the Data Assistant to load your source data.

A quick tour of Data Assistant

The Data Assistant add-In includes a set of focused tools that are organized on a Data Assistant toolbar. These tools enable you to create data mapping files and load or replace data in your target datasets.

Tool	Tool name	Description
	New File	Creates a new source-target configuration file for the selected source and target datasets.
	Data Mapper	Enables users to define the field mapping and settings for the selected source-target configure file.
	Preview	Creates a preview of the output from the source-target configuration file in a local database with a sub-set of records.
	Stage	Stage Results in a local database using a subset of the records, skip final processing.
	Append Data	Appends data into the target dataset from the source dataset according to the settings in the source-target configuration file.
	Replace Data	When the Replace By Field Value option has been enabled and configured, replaces data in the target dataset from the source dataset according to the settings in the source-target configuration file.
	Settings	Optional settings for the data mapping tool.

[Back to top](#)

Load data using Data Assistant add-in

The Data Assistant add-in can be used by organization staff in order to migrate data from a source to target dataset, as well as schedule automated updates of the community layers.

Update community layer

The Data Assistant Add-In includes a series of tools that have been optimized for migrating data to the CommunityParcels and CommunityAddresses hosted feature layers, as well as updating this data on a regular interval.

To migrate your source data to one of the hosted feature layers provided and configure updates, complete the following steps:

1. Open your data aggregation project in ArcGIS Pro.
2. Sign in to your ArcGIS organization and make it the active portal.
3. Click the **Data Assistant** ribbon.
4. In the **Source Dataset** parameter, browse to the source dataset, and then click **OK**.
5. In the **Target Dataset** parameter, browse to the CommunityParcels or CommunityAddresses dataset, and then click **OK**.
6. In the **Source-Target Configuration File** parameter, browse to an output location and provide a name, and then click **OK**.
7. Click **Run**.
8. Click **Data Mapper** and select the Configuration File you created previously. Click **Fields**.
9. Select the source fields and review the initial field mapping. Configure any additional fields and required data assistant methods. Once complete, click **Apply**.

Tip:

For hosted feature layers in ArcGIS Online, navigate to the **Data** tab and click **Fields** to find more information about each field in the data model.

10. Optionally, click **Preview** and select a configuration file. Specify the Number of Features you'd like to generate in the preview. Click **Run**.
11. Click **Append Data** or **Replace Data** and select the Configuration File you created previously.
 - If you are contributing or aggregating data for the first time, choose **Append Data**. This tool will add all features in the source dataset to the target dataset.
 - If you are updating data that already exists in the target dataset, choose **Replace Data**. This tool will use a defined query to replace specific features in the target dataset.
12. Click **Run**.

[Back to top](#)

Note:

In the **Settings** tool, the Update Match Library option can be used to use the updated field mapping to use fuzzy logic in order to speed up data loading in the future.

Schedule updates

The Data Assistant tools can be used with Windows Task Scheduler to update layers on a regular interval. Scheduled updates will ensure users have access to current information to support more dynamic decision-making.

To update community data on a schedule, complete the following steps:

1. Using ArcGIS Pro, open the Python window
2. Import ArcPy by typing the following command:

```
import arcpy
```
3. Import a python toolbox from the Data Assistant tools by typing the following command:

```
arcpy.ImportToolbox(r"C:\Users\user\AppData\Local\Esri\ArcGISPro\AssemblyCache\{28142961-b645-420f-ba2a-72bcf8212558}\GPTools\DataLoadingAssistant.tbx")
```
4. Specify your XML configuration file by typing the following command:

```
arcpy.dla.ReplaceData(r"C:\Users\youruserprofile\Documents\ArcGIS\Projects\MyProject\ReplaceData.xml")
```

Note:

Using the Append Data and the Replace data tools, you can specify multiple XML files, separate each XML file with “;”

5. Right-click in python window and choose to **Save Transcript**, this will save a new python file.
6. Open Windows Task Scheduler.

Note:

Use Windows Start menu search box to find Windows Task Scheduler.

7. Select **Action > Create Task** and name your task.
8. Select the **Actions** tab and click **New**.
9. Set **Action** to **Start a Program**.
10. Browse to the location of your ArcGIS Pro python installation.

```
C:\Program Files\ArcGIS\Pro\bin\Python\Scripts\propy.bat
```
11. In the **Add Arguments** text box, enter the full path of the script saved in step 5.

[Back to top](#)

Community Health Assessment

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Community Health Assessment

Community Health Assessment can be used to collect community health information, at the household-level, required for disaster response or health action plans.

Health and human services professionals need information to make informed decisions as they allocate health resources. Timely access to community health information helps leaders maintain situational awareness, confirm assumptions, and understand community need. The Community Assessment for Public Health Emergency Response ([CASPER](#)) framework (developed by the World Health Organization and adopted by the United States Centers for Disease Control and Prevention) to plan randomized clusters, conduct health assessments, and monitor progress accordingly was used. This framework has become a common methodology used to understand community need. Community Health Assessment is typically implemented by health and human services agencies or health care organizations that want to use CASPER principles as they conduct health assessments to understand community need.

The Community Health Assessment solution delivers a set of capabilities that help you plan community health survey areas, collect survey responses from random households, and monitor key indicators as the assessment occurs.

Requirements

Community Health Assessment requires the following:

- ArcGIS Enterprise
- ArcGIS Pro 2.9 or later

Note:

To use this ArcGIS Solution an ArcGIS Online organizational account is required to configure the [GeoEnrichment Service](#) to work with ArcGIS Enterprise.

Information products

Community Health Assessment includes the following information products:

Item	Description	Required user type
Community Health Assessment Planner	An ArcGIS Pro project used by public health agencies to plan community health survey clusters used to conduct assessment surveys.	GIS Professional Basic
Community Health Assessment Manager	A configuration of the Crowdsourcing Manager app used by assessment managers to assign survey teams.	Editor
Community Health Assessment Survey	An ArcGIS Survey123 form used by assessment managers to conduct health assessments.	Mobile Worker
Community Health Assessment Progress Dashboard	An ArcGIS Dashboards app used by health and human services managers to monitor survey teams and the progress of a health assessment.	Viewer
Community Health Assessment Dashboard	An ArcGIS Dashboards app used by epidemiologists and executives to monitor key indicators as the assessment occurs.	Viewer

Release notes

The following are the release notes:

Version	Description
1.3	<ul style="list-style-type: none">A new Community Health Assessment Planner ArcGIS Pro project.A new Community Health Assessment Survey map.
1.2	<ul style="list-style-type: none">A new Community Health Assessment Progress Dashboard app.A new Community Health Assessment Dashboard app.A new Community Health Assessment Planner.
1.1	<ul style="list-style-type: none">A new Community Health Assessment Planner ArcGIS Pro project that resolves an issue where a layer reference was missing.
1.0	<ul style="list-style-type: none">First release of Community Health Assessment

[Back to top](#)

Configure Community Health Assessment

Configure the Community Health Assessment solution to meet specific needs in your organization.

Modify the survey

The Community Health Assessment Survey is a survey with a comprehensive collection of questions, all based on the Community Assessment for Public Health Emergency Response (CASPER) [Toolkit](#). In addition to the questions provided in the toolkit, questions for coronavirus disease 2019 (COVID-19) assessments are included. You have the option to add your own specific questions or hide some of the questions you do not need.

All of the steps below use ArcGIS Survey123 Connect to modify the survey. See [Install ArcGIS Survey123](#) for more information.

Note:

The following changes may impact the Community Health Assessment Progress Dashboard or the Community Health Assessment Dashboard. See [dashboards documentation](#) to learn more about configuring dashboards.

Hide questions

There are over 200 questions in the survey, and many may not be relevant to the issues that you want to assess. The survey has logical groupings of questions. Individual questions can be hidden, or entire groups of questions can be hidden if necessary.

1. Start ArcGIS Survey123 Connect and sign in to your ArcGIS organization.
2. Click **Community Health Assessment Survey** to download the survey.
3. Click **Community Health Assessment Survey** again to open the survey.
4. In the left pane, click **Open XLSForm Spreadsheet**.
5. In the Microsoft Excel spreadsheet, verify the **survey** tab is highlighted.
6. Find a green highlighted row of the type: **begin group**. For example, find the group named damage repair.
7. Scroll over to the relevant column.
8. Change the value of the relevant column to `false`.

This process will hide all questions within that group. You can also do this for specific questions within a group.

9. Save the Microsoft Excel spreadsheet and preview your changes in ArcGIS Survey123 Connect to verify the group no longer appears.
10. In ArcGIS Survey123 Connect, click **Publish** in the left pane to publish your changes.

[Back to top](#)

Change a survey event

Health assessments are often designed in the context of an emergency or event. Therefore, several questions may pertain to the status of that event. By default, the Community Health Assessment Survey specifies the event to be COVID-19. You can change one variable name in the survey to a different event, such as the name of a flood or hurricane. Then all questions will update to that name.

1. Start ArcGIS Survey123 Connect and sign in to your ArcGIS organization.
2. Click **Community Health Assessment Survey** to download the survey.
3. Click **Community Health Assessment Survey** again to open the survey.
4. In the left pane, click **Open XLSForm Spreadsheet**.
5. In the Microsoft Excel spreadsheet, verify the **survey** tab is highlighted.
6. Select the first row for the **surveyevent** variable.
7. Scroll over to the **default** column. The value should read COVID-19 Pandemic.
8. Change the value from COVID-19 Pandemic to the name of another event or disaster.
There are several questions in the survey that use the surveyevent variable. Each question will be updated with the name of the new event or disaster.
9. Save the Microsoft Excel spreadsheet and preview your changes in ArcGIS Survey123 Connect.
10. In ArcGIS Survey123 Connect, click **Publish** in the left pane to publish your changes.

Change the team names list

By default, the survey has a drop-down list of team names as simple number values for Team 1 through Team 15. Follow the steps below to change the list to a smaller number of teams or to change the names of your teams.

1. Start ArcGIS Survey123 Connect and sign in to your ArcGIS organization.
2. Click **Community Health Assessment Survey** to download the survey.
3. Click **Community Health Assessment Survey** again to open the survey.
4. In the left pane, click **Open XLSForm Spreadsheet**.
5. In the Microsoft Excel spreadsheet, click the **choices** tab. This tab comprises all the selectable options for survey questions.
6. Near the top of the spreadsheet, revise the survey to reflect your team names.
7. Save the Microsoft Excel spreadsheet and preview your changes in ArcGIS Survey123 Connect.
8. In ArcGIS Survey123 Connect, click **Publish** in the left pane to publish your changes.

Add questions

Your community may have special circumstances you want to assess. Follow the steps below to add questions to the survey.

1. Sign in to your ArcGIS organization and browse to the Community Health Assessment Survey hosted feature layer.
2. [Add a new field](#) to a layer in the Community Health Assessment Survey hosted feature layer.
3. Start ArcGIS Survey123 Connect and sign in to your ArcGIS organization.
4. Click Community Health Assessment Survey to download the survey.
5. Click Community Health Assessment Survey again to open the survey.
6. In the left pane, click **Open XLSForm Spreadsheet**.
7. In the Microsoft Excel spreadsheet, verify the **survey** tab is highlighted.
8. Insert new records that represent your new fields. Refer to the [Survey123 Connect documentation](#) for more details on modifying surveys.
9. Save the Microsoft Excel spreadsheet and preview your changes in ArcGIS Survey123 Connect.
10. In ArcGIS Survey123 Connect, click **Publish** in the left pane to publish your changes.
11. Save the Microsoft Excel spreadsheet and preview your changes in ArcGIS Survey123 Connect.
12. In ArcGIS Survey123 Connect, click **Publish** in the left pane to publish your changes.

Use Community Health Assessment

The Community Health Assessment solution delivers a set of capabilities that help you plan community health survey areas, collect survey responses from random households, and monitor key indicators as the assessment occurs.

In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

Note:

Use your organization's data or configured apps to follow these workflows.

Plan survey areas

The Community Health Assessment is based on guidelines from the Centers for Disease Control and Prevention (CDC) Community Assessment for Public Health Emergency Response ([CASPER](#)) framework. The CASPER framework uses a randomized sampling methodology to determine in which areas community surveys should be conducted to produce a result that is representative of the entire study area.

Typically, in this specific CASPER methodology, a Community Health Assessment is conducted using 30 survey areas or clusters within the survey area. These clusters are commonly defined by census blocks as the geographic unit. The clusters are randomly selected, with the number of households given a higher weight, which increases the chance of a census block being selected. Once the clusters are defined, interview teams will select seven households in each survey area to conduct survey assessments. This workflow will guide you through the process of defining the survey areas (clusters).

Plan and create survey areas

You will start by assuming the role of an epidemiologist or GIS analyst who will create the survey areas within the area of interest to define where the assessments will be conducted.

1. Download and open the Community Health Assessment Planner ArcGIS Pro project and sign in using your ArcGIS organizational account.
2. On the **View** tab, in the **Windows** group, click **Catalog** and click **Catalog Pane**.
3. In the **Catalog** pane, expand **Tasks** and double-click the **Getting Started Task**.
4. Complete all steps in the **Add Survey Area** step.

This task provides an overview of the process to add a Survey Areas layer that is deployed with the solution. The layer will have a broken reference, which you will point to the deployed hosted feature layer.

5. In the **Catalog** pane, expand **Tasks** and double-click **Plan Survey Areas**.
6. Complete all steps in the **Plan Survey Areas** task.

[Back to top](#)

This task guides you through the process of identifying a geography, creating the random 30 areas based on census blocks included in the project, and sharing the results to be used in other apps.

Assign teams

Once the survey areas are defined, you can assign teams to conduct the surveys within the selected survey areas. The Community Health Assessment Manager allows you to assign teams to the survey areas from the previous task.

Assign teams and notify team members

You will now assume the role of a community assessment manager or team lead who needs to assign teams and notify team members in their survey areas.

1. Sign in to your ArcGIS organization and browse to the Community Health Assessment Manager app.
2. Select a record in the table that you want to assign a team.
3. Review the details of the survey area and click the **Edit** button in the upper right corner of the pane.
4. Change the **Team** value to a team in the drop-down list. Optionally, add more comments on this survey area.
5. Click **Save**.

Once a team is assigned, you can notify individual teams of their duties and monitor progress.

6. Click the **Send Survey Info** button.

This button opens an email that can be sent to team members who will conduct the assessments in the field.

Conduct health assessment surveys

Team members conduct assessments in the field at defined intervals (using the CASPER methodology) based on the number of housing units in each survey area.

Conduct surveys in your survey area

You will now assume the role of an interview team member who will conduct surveys in the field using your mobile device. The team manager has previously assigned you to a team.

Note:

The default survey has many questions that may not be related to your assessment. See the [Configure Community Health Assessment](#) topic to learn how to modify the survey.

1. Open the email sent by the team manager, as described in the previous step.
The instructions indicate the number of surveys and how surveys must be conducted.
2. Click the first hyperlink to open a map of the assigned survey area.
This hyperlink is used to help you ensure you are conducting assessments in the assigned survey area. You can use the GPS on the map to verify your location and determine whether you are currently within the assigned survey area.
3. Click the second hyperlink to access the survey.
4. If this is the first time conducting the survey, click the **Download** button to download the Survey123 field app.
5. Sign in to ArcGIS Survey123.
6. Expand the **Identification and physical location** information.
7. Fill in all information in this group.
8. Expand the **Demographic and functional needs** section.
9. Fill in all information in this group.
10. Scroll down to the end of the survey.
11. Make sure to choose a value for **Survey Status End**.
12. Click the green check mark in the lower right to submit the survey.

Tip:

The Survey123 app allows you to complete the surveys offline. The email from the team manager automatically fills in the team, housing units, and survey area ID when using the app with the steps described above. However, a browser version of the Community Health Assessment Survey can also be used if the app is not installed.

Complete an incomplete survey

In some cases, the person you are interviewing may be unwilling or unable to complete the survey in one visit and may agree to finish the survey at a later time or date. In this case, you can complete a survey you submitted that is incomplete.

1. Open the Survey123 app.
2. Select the incomplete Community Health Assessment Survey.
3. At the bottom of the screen, click **Sent**.

Note:

This option will only appear if you have submitted surveys with the value of Incomplete.

4. Fill in the remaining information in the survey and submit.

Monitor assessment progress

Now, you will assume the role of the assessment manager or team leader who wants to monitor progress of the assessments being captured in the field. The [CASPER toolkit](#) has specific criteria defined for cooperation rates, contact rates, and completion goals. The traditional goal is to complete 80 percent of the surveys expected. This dashboard will help you determine whether you are reaching those metrics and whether the teams are completing their work.

1. Sign in to your ArcGIS organization and browse to the Community Health Assessment Progress Dashboard.
2. Open the Community Health Assessment Progress Dashboard app.
The app opens with an overview of the current status.
3. Review the list of teams and click a team in the chart to see the dashboard update.
4. Select the other charts to monitor the progress of the health assessment.

Visualize key metrics from the assessment

The demographic and functional needs section of the survey is particularly useful to executives who want a quick glance of their community. Visualizing the demographic information will help determine whether the demographic you have surveyed aligns with the overall makeup of the community. In addition, key metrics such as monitoring rent and mortgage payments or access to healthy foods are vital health indicators.

1. Sign in to your ArcGIS organization and browse to the Community Health Assessment Dashboard app.
2. Open Community Health Assessment Dashboard.
The app opens with an overview of the key indicators captured in the field.
3. Review the **Age Distribution** chart and click a specific age category to see the dashboard update.
4. Select the other charts to monitor the progress of the health assessment.

View detailed survey results

The demographic dashboard shows only a portion of what could be captured during assessments. Epidemiologists may prefer to highlight different information from the survey. You can [create a dashboard](#) or modify the demographic dashboard to see these results. In addition, you can export these results to share in other software applications.

1. In a browser, go to [My Surveys](#) and sign in.
2. Click **Community Health Assessment Survey**.
3. Click the **Analyze** tab.
4. Scroll down to examine the various questions that were asked during the survey.

[Back to top](#)

5. In the upper left, search for a key term of another question collection such as COVID.
6. Click the **Data** tab.
7. Click the **Export** drop-down menu and export to an Excel file.

Community Health Outreach

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Community Health Outreach

Community Health Outreach can be used to communicate health initiatives, increase participation in key initiatives, and ensure the public knows where they can locate health services.

Health and Human Services agencies have learned that a community's health goes beyond just access to healthcare services. Understanding the interplay of behavior, physical and social environments, biological and genetic factors, and access to health systems helps health and human services agencies devise initiatives that ultimately increase the well-being of all residents. Increasing public health requires a robust and transparent public education campaign that provides accurate healthcare information, progress on key healthy community initiatives, and guidance needed to access assistance. A key aspect of any healthy community program is a web destination that helps the public locate healthcare providers, review key initiatives, request assistance and volunteer to help. Community Health Outreach is typically implemented by public or private health and human services agencies that want to increase the quality of life for all residents and ensure the public understands where health services can be found in the community.

The Community Health Outreach solution delivers a set of capabilities that help you launch a healthy communities web destination, provide an authoritative inventory of healthcare services, and engage the public in key health initiatives that increase the quality of life for all.

Requirements

Community Health Outreach requires the following:

- ArcGIS Enterprise
- ArcGIS Survey123 Connect

Information products

Community Health Outreach includes the following information products:

Item	Description	Required User Type
Health Resource Inventory	An ArcGIS Web AppBuilder app used by health and human service agencies to inventory all health resources in their community	Editor
Healthy Communities	An ArcGIS Hub site used by health and human service agencies to communicate key health initiatives, upcoming events, and ensure the public knows resources available for their health needs	Not required
Health Resource Locator	An ArcGIS Web AppBuilder app used by the public to locate health resources	Not required
Health Resource Feedback	An ArcGIS Survey123 form used by providers or the general public add their location or provide updated information to the Health Resource Inventory	Not required
Healthy Community Outreach Volunteers	An ArcGIS Survey123 form used by the public to volunteer to help with various public health outreach activities	Not required
Healthy Communities Pledge	An ArcGIS Survey123 form used by the public to pledge to lead healthy lives	Not required
Community Health Volunteer Manager	A Crowdsourcing Manager app used by health and human services staff to manage volunteers	Editor

Release notes

The following are the release notes:

Version	Description
1.0	<ul style="list-style-type: none">First release of Community Health Outreach

Configure Community Health Outreach

In this topic, you will learn how to configure the Community Health Outreach solution to meet specific needs in your organization.

Load data

In some cases, you may already have this information in ArcGIS or another mapping system. Review the layers provided with the solution and determine what source data you want to load. Then, load your existing data into the layers provided with the solution before sharing the maps or apps.

Once you have determined what source data must be loaded, complete one or more of the data loading workflows below.

Load data from a shapefile or file geodatabase

Load data into a health resource layer from a shapefile or file geodatabase by completing the following steps:

1. Create a .zip file of your shapefile or file geodatabase.
2. Sign in to your ArcGIS organization and browse to the feature layer you want to populate.
3. Open the item page and click **Update Data > Append Data to Layer**.
4. Click **Choose File** and browse to your .zip file, and click **Open**.
5. Click the **Contents** drop-down arrow and choose **Shapefile** or **File Geodatabase**.
6. Click **Upload and Continue**.
7. Click **Choose the layer that you want to load data into** drop-down arrow and choose the layer that contains the updated data.
8. Uncheck **Update existing features**.
9. Click **Show field matching** and map the fields between the two layers.
10. Click **Apply Updates**.

Tip:

To make additional updates to a hosted feature layer, see [Append data to layers](#).

Populate operational hours

This solution leverages the [Opening Hours Specification](#) to display operating hours for a place or service. When you populate the data fully, Arcade expressions interpret the data and display the operating hours in a human-readable format in the map pop-up. Understanding the data specification and options in the Arcade expressions will help you populate your data and display it in the maps and apps provided with the ArcGIS Solution.

[Back to top](#)

Operating Hours Specification

The Operating Hours Specification allows you to store a combination of operating hours in a single field but relies on a series of data standards to render the information correctly. To ensure operating hours are displayed correctly, follow the standards below:

- Enter all times using a 24-hour clock without a leading 0—for example, Tu (7:00-19:00).
- Use a two-letter abbreviation for each day, with the first letter capitalized—for example, Mo, Tu, We, Th, Fr, Sa, Su.
- When a location is open 24 hours a day, use 24 Hours—for example, Mo (24 Hours).
- When a location is closed on a specific day, use Closed—for example, Sa-Sun (Closed).
- Enclose all times and closed statuses in parentheses—for example, Tu (7:00-19:00); We-Mo (Closed).
- Separate days and ranges with a semicolon to denote the two (or more) groups—for example, Th-Fr (7:00-19:00); Sa (24 Hours).

Using the standards above, a diverse set of operating hours can be populated for your places and services. Some common examples include the following:

- To specify the place is open from 9:00 a.m. to 5:00 p.m. seven days a week, populate the operating hours field with the following: Mo-Su (9:00-17:00).
- To specify the place is open from 9:00 a.m. to 5:00 p.m. during the week and closed on weekends, populate the operating hours field with the following: Mo-Fr (9:00-17:00); Sa-Su (Closed).
- To specify the place is open one day (Tuesday) a week, populate the operating hours field with the following: Tu (7:00-19:00); We-Mo (Closed).
- To specify the place has operating hours that vary by day, populate the operating hours field with the following: Mo-Tu (9:00-17:00); We (Closed); Th-Fr (7:00-19:00); Sa (24 Hours); Su (Closed).

Operating hours data can be populated all at once for many places and services using [Calculate field values](#) or uniquely entered for each place or service using an application provided with the solution.

Arcade expressions

The Arcade expressions include several settings that allow you to configure the look and feel of the operating hours when they are displayed in the web map pop-up. The expressions work with the operating hours data and web map pop-up configurations to display current operating hours in your map and app.

This solution uses three Arcade expressions: Hours, Days, and Open/Closed. To modify one of these expressions, complete the following steps:

1. Verify that you are signed in to your ArcGIS organization and browse to the Health Resource Locator map.

[Back to top](#)

2. Open the item page and click **Open in Map Viewer Classic**.
3. Click **More Options** and click **Configure Pop-up** on a health resource layer.
4. Under **Attribute Expressions**, double-click the Arcade expression you want to modify.

Each Arcade expression has a set of variables that can be configured according to your organization's needs. Review the expression notes and modify the variables as needed. Do not change anything else in the expressions.

5. Click **OK**.
6. Repeat the above steps for each health resource layer in the map.

Configure Health Resource Locator

The Health Resource Locator can be used by the public to locate health resources. It has some common configuration options you may want to explore and directions from your current location to a health resource can be enabled.

Configure directions

Health Resource Locator can be configured to provide directions to the nearest health resources. Follow the steps below to enable directions:

1. Verify that you are signed in to your ArcGIS organization and browse to the Health Resource Locator app.
2. Click **Edit Application**.
3. Browse to the Locate Health services widget and click the **Edit** button.
4. Click the **Direction Settings** tab, check **Enable Directions** and click **OK**.
5. Save the app and share it with everyone.
6. Open the app.

Modify surveys

The Healthy Community Outreach Volunteers form can be used by the public to volunteer to help with various public health outreach activities. After reviewing the survey, you may decide you want to collect additional information from volunteers when they apply.

To modify the volunteer survey, complete the following steps:

1. Start ArcGIS Survey123 Connect and sign in to your ArcGIS organization.
2. Click a survey and if prompted, download the Healthy Community Outreach Volunteers survey.

Note:

If you have not downloaded the chosen survey, you will be prompted to click Download in the Download window, then click OK. You will also need to click the survey again to open it.




3. On the side toolbar, click the **Open XLSForm spreadsheet** button.
4. Edit the survey to reflect your needs.
5. **Save** and close the Microsoft Excel spreadsheet.
6. In ArcGIS Survey123 Connect, click **Publish** on the side toolbar to publish your changes.

Configure Healthy Communities site

The Community Health Outreach solution includes the Healthy Communities ArcGIS Hub site that your organization can configure with your branding and use to share community health information with the public.

Update with organizational information

After deploying the Community Health Outreach solution, the Healthy Communities site layout only requires a few updates to fit your local context. Consider what information you already have and what you can most easily find. To update your site, complete the following steps:

1. Verify that you are signed in to your ArcGIS organization and browse to the Healthy Communities site.
2. Open the item page and click **Configure App**.
3. Click the edit button  to open the site editor.
4. Scroll to the **Our Focus** section, hover over each text card and click edit pencil .
5. Update the focus area into the text box and repeat for each focus area.
6. Scroll to the **Frequently Asked Questions** section, hover over the card and click the edit pencil, and update the questions and answers.
7. Scroll to the **Partners** section, hover over the card and click the edit pencil, and update the image.
8. To modify your site's footer, click **Customize Toggle**  on the side panel.
9. Click **Footer**.

A custom footer is already provided, and in most cases, it needs to be updated with your organization's branding, contact information, and social media references.
10. Click the **HTML** text box.

The **HTML** window appears.
11. Make the necessary changes and click **Apply**.

[Back to top](#)

12. Click **Save**.

Add health initiatives

The Healthy Communities hub site includes a section that can be used to share information on key health initiatives. You can share links to other hub sites, web destinations, or even health related apps. There are several other ArcGIS Solutions you could deploy to assist with the key health initiatives (for example, homelessness, COVID-19, and addiction). Any one of those solutions could be cataloged in the key initiatives section.

To add key health initiatives, complete the following steps:

1. Verify that you are signed in to your ArcGIS organization and browse to the Healthy Communities site.
2. Click **Configure App**.
3. Click the **Edit** tool on the left of the screen.
4. Scroll to the **Programs and Initiatives** section.
5. Hover over the gallery and click Edit.
6. For **Select Groups**, choose the group used to catalog the hub sites, web destinations, or health related apps are shared.

Tip:

Each hub site, external web destination or health related app must be organized in a group before it can be shared in the Healthy Communities site.

7. Click **Save**.
8. Click the drop-down arrow next to Save, and chose **Publish Draft**.

Share health metrics

The Healthy Communities hub site includes a section that can be used to share health metrics. You can share a link to an existing dashboard you might have. If you do not have an existing dashboard, you can deploy the Performance Management solution and use this solution to communicate health metrics and progress made.

To share health metrics, complete the following steps:

1. Verify that you are signed in to your ArcGIS organization and browse to the Healthy Communities site.
2. Open the item page and click **View Application**.
3. Click the **Edit** button to open the site editor.
4. Scroll to the **How Are We Doing?** section, hover over the card and click the settings button.
5. Click the **Select Application** button.

[Back to top](#)

6. Browse to your dashboard or deployment of the Performance Management solution and click **Select**.
7. Click **Save** and click **Publish Draft**.

Share items with public

Several maps and apps included in the Community Health Outreach solution must be shared with everyone to display on the public-facing hub site. The solution includes several feature layer views to avoid sensitive or incorrect data from being shared accidentally. Use the information below to help determine which items need to be shared with everyone.

To share the Community Health Outreach maps and apps, complete the following steps:

1. Verify that you are signed in to your ArcGIS organization and browse to the Health Resource Locator app.
2. Open the item page and click **Share**.
3. In the Share window, click **Everyone** (public).
4. Click **Save**.
5. Repeat steps 2 through 5 to share the following items with everyone:

Item Type	Item Name
Web Map	Health Resource Locator
Feature Layer (hosted, view)	AddictionFacilities_public
Feature Layer (hosted, view)	HomelessServices_public
Feature Layer (hosted, view)	MentalHealthFacilities_public
Feature Layer (hosted, view)	PublicHealthFacilities_public
Feature Layer (hosted, view)	HealthcareFacilities_public
Feature Layer (hosted, view)	MedicalFacilities_public
Form	Healthy Communities Outreach Volunteers
Feature Layer (hosted, view)	HealthyCommunityOutreachVolunteers_public
Web Map	Healthy Community Outreach Volunteers
Form	Healthy Communities Pledge
Feature Layer (hosted, view)	HealthyCommunitiesPledge_public
Site Application	Healthy Communities
Form	Health Resource Feedback
Feature Layer (hosted, view)	HealthResourceFeedback_public

Use Community Health Outreach

The Community Health Outreach solution delivers a set of capabilities that help you launch a healthy communities web destination, provide an authoritative inventory of healthcare services, and engage the public in key health initiatives that increase the quality of life for all.

In this topic, you'll learn how to use the applications in the solution by assuming various roles of individuals performing these duties.

Note:

Use your organization's data or configured apps to follow these workflows.

Inventory health resources

Health resources in a community can often change. New providers become available, operating hours and contact information at certain facilities change over time. This can make it challenging for citizens in your community to know where to find accurate information. A variety of health resources can be added to your inventory and shared with the public. The Health Resource Inventory app can be used by health and human service agencies to inventory health resources that will be shared with the public.

In this workflow, you will assume the role of a staff member in a health and human services agency. You have been asked to inventory known health resources in your community.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Community Health Outreach solution.
2. View the Health Resource Inventory app.
3. On the right, click the **Resource Editor** to open the widget, if necessary. Scroll through the list of available health resource types and place the location of a resource of your choice on the map.

The widget includes templates for various health resource types.

4. In the widget, click the drop-down arrow or use the search field to locate the resource type.
5. Click the resource symbol, and then click the resource's location on the map to place the point.

Tip:

If you already have a list of health resources in a spreadsheet, you can use the **Load Health Resources** tool to load the entire list of testing sites.

Note:

The Load Health Resources widget will [consume credits](#) if you use an address in your spreadsheet to create the new health resource location.

6. In the **Resource Editor**, complete the form with details about the health resource location that you placed on the map; be as complete as possible.

Tip:

This solution leverages the Operating Hours Specification and relies on a series of data standards—for example, Mo-Fr (7:00-19:00)—to render the operating hours correctly. For more information, see [Populate operating hours](#).

7. Click **Save** to place the point on the map.
8. Repeat these steps for each health resource that you want to add to your inventory.

Review healthy community destination

Improving public health outcomes requires a robust and transparent public education campaign that provides accurate healthcare information, progress on key healthy community initiatives, and guidance needed to access assistance. A key aspect of any healthy community program is a web destination that helps the public locate healthcare providers, review key initiatives, request assistance and volunteer to help.

In this workflow, you will assume the role of a resident or member of the public. You are interested in the healthy community program, key initiatives, health resources available in the community.

1. In a browser, from the Community Health Outreach solution, view the Healthy Communities hub site.
2. Review the information on the site, including the Healthy Communities program focus, frequently asked questions, upcoming events, and other information provided.
3. Scroll to the **Programs and Initiatives** section and review the healthy community initiatives in your community.

Note:

Each initiative may link to a separate ArcGIS Hub site, depending on how you configured your site.

Take healthy community pledge

A healthy community is built on active participation and recognition of important factors that influence a persons health. Raising awareness and encouraging members of the public to live healthy lifestyles is an important aspect of a public education campaign. The Healthy Communities Pledge survey can be used to create awareness of key health issues and collect public pledges to lead healthy lives. To take the pledge, complete the following steps:

1. Return to the Healthy Communities hub site, if necessary, and then scroll to the **Healthy Communities Pledge** section.
2. Click the **Take the Pledge** button.
3. Complete the survey, and then press **Submit**.

[Back to top](#)

Locate health resources

Access to comprehensive health care services is important for promoting and maintaining health, preventing and managing disease, reducing unnecessary disability and premature death, and achieving health equity for all. The Health Resource Locator app can be used by the public to locate health resources. To locate health resources in the community, complete the following steps:

1. Return to the Healthy Communities hub site, if necessary, and then scroll to the **Find Health Services** section.
2. Click the **Find Health Services** button.
The Health Resource Locator app opens and shows all health resources from your inventory.
3. Use the **Locate Health Services** widget to search for an address or place, or click the location on the map.
4. Optionally, drag the slider to increase or decrease your search radius.
The results shown in the **Locate Health Services** widget highlight the various health resources near the location that you entered and within your search radius.
5. In the widget, click one of the results.

Tip:

If you do not see any results, search for a new location or drag the slider to increase the search radius.

Contribute missing health resources

Developing a comprehensive inventory of health care providers is challenging. New providers will open, existing providers may close, and information you have about existing providers will continuously evolve. Engaging health care providers and the public is one way you can curate a health resource inventory and respond to changes in the community. The Health Resource Feedback survey can be used by providers to add a missing health resource location. It can also be used by the public to correct inaccurate information presented in the Health Resource Locator.

In this workflow, you will assume the role of a staff member at a local health care provider. You have noticed that your health care facility is not visible in the Health Resource Locator and have been asked to add the facility and services provided.

1. Return to the Healthy Communities hub site, if necessary, and then scroll to the **Find Health Services** section.
2. Click the **let us know** hyperlink.
3. Complete the **Health Resource Feedback** survey, and then click **Submit**.

Tip:

The feedback will not appear in the Health Resource Locator until it has been reviewed and approved by the health and human services agency in the Health Resource Inventory app. To be notified automatically when these submissions are entered, you can set up [Survey123 webhooks](#).

Volunteer to help

Health and Human Services agencies are always looking for volunteers that can help with activities that advance the overall health of the community. The Healthy Community Outreach Volunteers survey can be used by the public to volunteer to help with various public health outreach activities.

In this workflow, you will assume the role of an engaged resident in the community. You have noticed several healthy community issues that are of interest to you and you want to volunteer your time, experiences, and skills.

1. Return to the Healthy Communities hub site, if necessary, and then scroll to the **Volunteer to Help** section.
2. Click the **Volunteer Now** button.
3. Complete the Healthy Community Outreach Volunteers form, and then click **Submit**.

Manage volunteers

As volunteers offer to help with a variety of health outreach activities, health and human services staff must contact the volunteers to ensure that each volunteer has the required skills and experiences and then align their skills and experiences with appropriate volunteer opportunities. The Community Health Volunteer Manager can be used by health and human services staff to manage volunteers.

In this workflow, you will assume the role of a staff member in a health and human services agency. You have been asked to review volunteer applications and contact each volunteer after you have completed your review.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Community Health Outreach solution.
2. View the Community Health Volunteer Manager app.
3. Expand the left panel, if necessary and click the Healthy Community Outreach Volunteers map.
4. From either the table or the map, select a volunteer.
The volunteer's application opens at the bottom left.
5. Review the volunteer's application form.
6. Click **Edit** button to begin editing.

[Back to top](#)

7. Click the **Status** drop-down arrow and choose a status.
8. Optionally, in the comments text box, add comments to the volunteer application form.
9. Click **Save**.
10. Click **Send Volunteer Email**.

Your email client opens, which allows you to format the email message and attach any additional information that you want to share with the volunteer.

Review health resource contributions

Engaging health care providers and the public is one way you can curate a health resource inventory and respond to changes in the community but it is critical to review contributions made through the Health Resource Feedback form before making them visible in the Health Resource Locator app.

In this workflow, you'll assume the role of a staff member in a health and human services agency. You have been asked to review health resource contributions and make the necessary updates to your inventory.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Community Health Outreach solution.
2. View the Health Resource Inventory app.
On the map, red diamonds indicate the locations marked in feedback contributions.
3. On the right, click the **Resource Editor** button to open the widget, if necessary.
4. On the map, click a red diamond.

Tip:

Current health care resources will be symbolized with a circle.

5. Review the health resource contribution.
6. If applicable, use the information in the contribution to create a health resource or update an existing one.
7. After you finish updating your inventory, click the red diamond again to open the feedback form, and then change the status to **Reviewed**.

Changing the status removes the contribution from the Health Resource Inventory.

Community Science

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Community Science

Community Science can be used to solicit plant and animal observations from community scientists, manage each observation, and monitor community science programs.

It encourages engagement with community scientists, and the location-enabled observations help community science program managers evaluate the effectiveness of community science initiatives. Contributing plant and animal observations to a larger initiative gives community scientists a sense of ownership and investment in the protection of these areas, and exploring observations submitted by others encourages further engagement. Community Science is typically implemented by conservation organizations, natural resource departments, and other government agencies that want to take a data-driven approach to conserving plant and animal populations.

The Community Science solution delivers a set of capabilities that help you engage community scientists, manage incoming observations, and monitor community science programs.

Requirements

Community Science requires the following:

- ArcGIS Enterprise
- ArcGIS Survey123
- Survey123 Connect

Information products

Community Science includes the following information products:

Item	Description	Minimum user type
Community Science Dashboard	An ArcGIS Dashboards app used by conservation staff to explore reports	Viewer
Community Science Manager	A Crowdsourcing Manager app used by conservation staff to monitor and verify reports	Editor
Community Science Survey	An ArcGIS Survey123 form used by community scientists to report plant and animal observations in wildlife areas	Mobile Worker

Release notes

The following are the release notes:

Version	Description
1.0	<ul style="list-style-type: none">First release of Community Science

[Back to top](#)

Configure Community Science

In this topic, you will learn how to configure the Community Science solution to meet specific needs in your organization.

Edit survey categories

Community Science Survey presents community scientists with a set of categories for their report. Each category is stored as a separate path in an SVG file. You can add and remove categories to reflect the types of reports that may be collected in your area by editing the SVG file in a vector graphics editor.

Tip:

[Learn more](#) about using SVG files in ArcGIS Survey123.

Remove a category

Removing a category from the Community Science Survey does not affect any observations that were previously collected. To remove a category in Community Science Survey, complete the following steps:

1. Download and install Survey123 Connect.
2. Sign in to Survey123 Connect using the account that owns your Community Science Survey application.
3. Use Survey123 Connect to download and open your Community Science Survey.
4. From the menu on the left side of the app, click **Files**.
Windows Explorer opens to the directory containing the downloaded files for the Community Science Survey.
5. Open the media directory.
This folder contains the SVG files with the options for each of the categories.
6. Open the file that contains the option you want to remove. You can use a text editor, but an editor such as Inkscape allows you to visualize the changes as you make them.
7. Select and delete the option you want to remove. Each option consists of three paths: a colored square, one or several text elements, and a line drawing of an organism that belongs to the category. Delete all three belonging to the option you are removing.
8. If necessary, rearrange the other categories to fill in the hole.
9. Save the changes to the SVG file.
10. In Survey123 Connect, click the **Update** button to preview your changes. If you are satisfied, click the **Publish** button to push your changes to your published survey.

[Back to top](#)

Note:

No changes are necessary in the XLSX form to remove a category from the Community Science Survey.

11. Open the Item Details page for the survey hosted feature layer and click **Data** and then click the **Fields** button.
12. If you want to remove a top-level category, click the **I saw a** field name. Remove the category from the list of values.
13. Click the **observation** field. Remove the relevant category of categories from the list of values.
14. Confirm that the category has been removed from the Dashboard view by repeating step 11 on the Dashboard layer.
15. Open the Survey123 field app and refresh the survey by clicking the **Refresh** button on the **Download Surveys** screen. Open the survey to view the changes.

Add a category

Adding a category from the Community Science Survey app does not affect any observations that were previously collected. To add a top-level category from Community Science Survey, complete the following steps:

1. Open the Item Details page for the survey hosted feature layer and click **Data** and then click the **Fields** button.
2. Click the **I saw a** field name. Add the new category to the list of values.
3. Confirm that the category has been added to the Dashboard view by repeating step 1 on the Dashboard layer.
4. Download and install Survey123 Connect.
5. Sign in to Survey123 Connect using the account that owns the Community Science Survey.
6. Use Survey123 Connect to download and open the Community Science Survey.
7. Click the **XLSForm** button to open the survey spreadsheet.
8. On the **Choices** tab, add the new option to the category list. Save the XLS form.
9. From the menu on the left side of the app, click **Files**.

Windows Explorer opens to the directory containing the downloaded files for the Community Science Survey.

10. Open the media directory.
This folder contains the SVG files with the options for each of the categories.
11. Open the category.svg file. You can use a text editor, but an editor such as Inkscape allows you to visualize the changes as you make them.
12. Copy and paste an existing option. Each option consists of three paths: a colored square, one or several text elements, and a line drawing of an organism that belongs to the category. Make sure you copy and paste all components.

[Back to top](#)

13. Update the **id** property of the colored square to match the name (not the label) of the new option.
14. Update the contents of the text to reflect your new category.
15. If necessary, rearrange the categories, update the color, and provide a new graphic.
16. Save the changes to the SVG file.
17. In Survey123 Connect, click the **Update** button to preview your changes. If you are satisfied, click the **Publish** button to push your changes to your published survey.
18. Open the Survey123 field app and refresh the survey by clicking the **Refresh** button on the **Download Surveys** screen. Open the survey to view the changes.

Add a subcategory

Adding a subcategory to the Community Science Survey app does not affect any observations that were previously collected. To add a second-level category to the Community Science Survey, complete the following steps:

1. Open the **Details** page for the survey feature layer and click **Data > Fields**.
2. Click the **category** field name. Add the new option to the list of values.
3. Repeat the previous step for the dashboard view.
4. Download and install Survey123 Connect.
5. Sign in to Survey123 Connect using the account that owns the Community Science Survey.
6. Use Survey123 Connect to download and open your Community Science Survey.
7. Click the **XLSForm** button to open the survey spreadsheet.
8. On the **Choices** tab, add the new option to the appropriate list. If you are creating a new list of options for a new category, create a new list. Save the XLS form.
9. Optionally, add choices to the **condition** and **observationtype** lists for the new subcategory.
10. If you are creating a new list of options for a new category, you will also need to add a question to the survey. Follow the pattern of the other subcategory selection questions to create a question that will display the appropriate subcategories when the new category is selected. Save the XLS form. If you are only adding a new option to an existing category, no new question is required.
11. From the menu on the left side of Survey123 Connect, click **Files**.
Windows Explorer opens to the directory containing the downloaded files for the Community Science Survey.
12. Open the media directory.
This folder contains the SVG files with the options for each of the categories.
13. Open the SVG file that corresponds to the category where you want to add a new option. If you are adding options for a new category, copy, paste, rename, and edit an existing

[Back to top](#)

file. You can use a text editor, but an editor such as Inkscape allows you to visualize the changes as you make them.

14. Copy and paste an existing option within the SVG file. Each option consists of three paths: a colored square, one or several text elements, and a line drawing of an organism that belongs to the category. Make sure you copy and paste all components.
15. Update the **id** property of the colored square to match the name (not the label) of the new option.
16. Update the contents of the text to reflect your new option.
17. If necessary, rearrange the options, update the color, and provide a new graphic.
18. Save the changes to the SVG file.
19. In Survey123 Connect, click the **Update** button to preview your changes. If you are satisfied, click the **Publish** button to push your changes to your published survey.
20. Open the Survey123 field app and refresh the survey by clicking the **Refresh** button on the **Download Surveys** screen. Open the survey to view the changes.

Use Community Science

The Community Science solution delivers a set of capabilities that help you engage community scientists, manage incoming observations, and monitor community science programs.

In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

Note:

Use your organization's data or configured apps to follow these workflows.

Submit a community science report

You will assume the role of a member of the general public setting out on a day hike in a local park. You will use the Community Science Survey app to submit observations along the way.

1. In ArcGIS Survey123, open the Community Science Survey form.
2. At the bottom of the app, tap **Collect** to begin collecting data.
3. Tap the tile that best represents the type of organism you have observed, and then tap to report how you observed it.
4. At the bottom of the app, tap the arrow to continue to the next question.
5. On the next page, fill in as many details as you can, and then tap the arrow to continue to the next question.

A photo or audio recording is used to help verify a report. Therefore, you are required to upload one.

6. Take or upload a photo or audio recording (for audio observations) of the organism, and then tap the arrow to continue to the next question.
7. Tap the map to provide the observation location and tap the date to provide information about when you made the observation, and then tap the arrow to continue to the next question.
8. Provide any additional information about the observation that could be helpful in verifying the reported organism, and then tap the arrow to continue to the next question.
9. Optionally, provide your name and email address.

When you provide this information, the report is counted toward the top contributor ratings in the Community Science Dashboard.

10. At the bottom of the app, tap the check mark.


If you are working in a disconnected environment, you can save your report in your outbox and then submit it when you have connectivity.

11. Choose whether to submit the survey now or save it for later.

[Back to top](#)

Manage community science reports

You will assume the role of a conservation staff member who verifies incoming reports based on the presented evidence. You will use the Community Science Manager app to verify a community science report.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Community Science solution.
2. View the Community Science Manager app.
3. In the **Status** column, click the filter button, and then for **Status**, choose **Unverified**.
4. In the **Observation Time** column, click the arrows and choose **Sort in ascending order**.
The oldest reports are now at the top of the table.
5. Click a report to select it.
The report opens in the information panel at the bottom right.
6. Review the details and attached media.
7. Click the **Edit Record** button  , and then, if necessary, edit the categorization and identification of the organism based on the evidence provided.
8. Update the status to **Verified**.
9. Click **Save** to update the report.

Explore community science reports

You will assume the role of either a conservation staff member or a member of the general public who wants to explore the submitted community science reports. You will use the Community Science Dashboard to filter and explore the dataset to see what types of observations have been submitted.

1. In a browser, from the Community Science solution, view the Community Science Dashboard.
2. On the left, adjust the filters to refine the results by category, type of organism observed, status, or observation date.
The map, charts, count, and observation list update to show a subset of the data based on your filters.
3. On the serial charts, click the bars to further filter the results.
4. On the right, click a report in the list to review its details.
5. Continue exploring and applying filters to reveal more details about the community science program.
6. After you finish, close the Community Science Dashboard app.

Conservation Easement Monitoring

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Conservation Easement Monitoring

Conservation Easement Monitoring can be used to routinely inspect conservation easements and monitor conservation easement programs.

It streamlines the inspection of conservation easements established to protect natural resources such as forests, riparian areas, and wildlife. The generation of property reports strengthens communication with conservation easement stakeholders and promotes compliance with the terms of each easement. Conservation Easement Monitoring is typically implemented by forestry departments, natural resource departments, and other conservation organizations that want to take a data-driven approach to managing conservation easements.

The Conservation Easement Monitoring solution delivers a set of capabilities that help you understand current property conditions, inspect conservation easements, monitor conservation easement programs, and engage conservation easement stakeholders.

Requirements

Conservation Easement Monitoring requires the following:

- ArcGIS Enterprise
- ArcGIS Field Maps
- ArcGIS Survey123
- Survey123 Connect

Information products

Conservation Easement Monitoring includes the following information products:

Item	Description	Minimum user type
Conservation Easement Dashboard	An ArcGIS Dashboards app used by conservation staff to monitor the results and progress of conservation easement inspections	Viewer
Conservation Easement Survey	An ArcGIS Survey123 form used by mobile workers to inspect conservation easements	Mobile Worker
Conservation Easement Monitoring	A map used by mobile workers to review existing conservation easements and start a routine inspection of a given easement	Mobile Worker

Release notes

The following are the release notes:

Version	Description
1.0	<ul style="list-style-type: none">First release of Conservation Easement Monitoring

Configure Conservation Easement Monitoring

In this topic, you will learn how to configure the Conservation Easement Monitoring solution to meet specific needs in your organization.

Load data

Conservation Easement Monitoring can be used to routinely inspect conservation easements and monitor conservation easement programs. In some cases, you may have this information in ArcGIS or another business system already.

Review the layers provided with the solution and determine what source data you want to load. Then, load your existing data into the layers provided with the ArcGIS Solution before sharing the maps or applications.

Once you have determined what source data must be loaded, complete the data loading workflow below.

Load data from a shapefile

Load data for ConservationEasements from a shapefile by following the steps below:

1. Create a .zip file of your shapefile.
2. In your ArcGIS organization, browse to the feature layer you wish to populate.
3. On the feature layer item details page, Click **Update Data** and select **Append Data to Layer**.
4. Under **Filename**, click **Choose File**.
5. Navigate to your .zip file and click **Open**.
6. Under **Contents**, select **Shapefile**.
7. Click **Upload and Continue**.
8. Choose the layer that you wish to load data into and the layer that contains the updated data.
9. Uncheck **Update existing features**.
10. Click **Show field matching** and map the fields between the two layers.
11. Click **Apply Updates**.

Tip:

To make additional updates to a hosted feature layer, see [Append data to layers](#).

Use Conservation Easement Monitoring

The Conservation Easement Monitoring solution delivers a set of capabilities that help you understand current property conditions, inspect conservation easements, monitor conservation easement programs, and engage conservation easement stakeholders.

In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

Note:

Use your organization's data or configured apps to follow these workflows.

Conduct conservation easements inspections

You will start by assuming the role of a mobile worker in a state forestry department capturing an inspection of a conservation easement. You are asked to use the Conservation Easement Survey to capture inspection details.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Conservation Easement Monitoring solution.
2. View the Conservation Easement Monitoring map.
3. On the map, click the conservation easement that you want to inspect.

A pop-up with information about the conservation easement property appears.

4. In the pop-up, review the conservation easement property details, and then click **Start Inspection** to launch the Conservation Easement Survey.

The form opens. Property information has been automatically completed with details from the Conservation Easement Monitoring map.

5. Complete the remaining survey parameters with as much additional information as possible.
6. Click **Submit**, and then if necessary, click **Send now**.

Monitor conservation easement programs

Next, you will assume the role of a program manager in a state forestry department. You are responsible for monitoring the status of a conservation easement program. You will view the overall status of your conservation easement program and then look more closely at specific locations.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Conservation Easement Monitoring solution.
2. View the Conservation Easement Dashboard.

The Conservation Easement Dashboard opens with an overview of the current program status. The overview displays key metrics. This information gives management a quick

[Back to top](#)

overview of the total number of conservation easements, conservation easements that require follow up after inspection, and completed conservation easement inspections.

3. In the filter panel, for **Follow Up Required**, choose **Yes**.
4. In the right panel, at the bottom, click the **List** tab, and then select an inspection from the list.

The map zooms to the inspection location, and the inspection report opens in a pop-up.

5. Review the information in the pop-up.

Share inspection results

Finally, you will assume the role of a conservation staff member in a state forestry department. You are responsible for generating an inspection report to send to the conservation easement owner or property manager.

In a browser, go to the ArcGIS Survey123 website and sign in with your ArcGIS organization credentials.

Open the Conservation Easement Survey, and then click the **Data** tab.

1. From the table, select a conservation easement inspection.
2. At the top of the page, click **Report**.
3. In the **Report** panel, provide a report name, and then for **Format**, choose **Portable Document Format (.pdf)**.
4. Click **Generate** to create the inspection report.

Note:

You can generate conservation easement inspection reports for multiple inspections at the same time. There are two options: Select multiple inspections from the Conservation Easement Survey table or select the **All records in the table** option in the **Report** pane.

Note:

To learn more about printing reports in ArcGIS Survey123, see [Print survey results](#)

Conservation Outreach

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Conservation Outreach

Conservation Outreach can be used to track wildlife conflicts and engage stakeholders in and around protected areas.

It provides 24/7 access to conservation outreach information and the location-enabled wildlife conflict reports help conservation staff mitigate future wildlife conflicts. Conservation Outreach is typically implemented by conservation organizations that want to take a data-driven approach to managing conflicts between humans and wildlife.

The Conservation Outreach solution delivers a set of capabilities that help you capture conflicts between humans and wildlife, manage the resolution of each conflict, and monitor outreach activities in and around protected areas.

Requirements

Conservation Outreach requires the following:

- ArcGIS Enterprise
- ArcGIS Survey123

Information products

Conservation Outreach includes the following information products:

Item	Description	Minimum user type
Wildlife Conflict Dashboard	An ArcGIS Dashboards app used by conservation staff to monitor the status of wildlife conflict incidents within and around protected areas	Viewer
Wildlife Conflict Manager	A Crowdsourcing Manager app used by conservation staff to manage and update wildlife conflict incident reports	Editor
Wildlife Conflict Reporter	An ArcGIS Survey123 form used by conservation staff to collect wildlife conflict incident reports	Mobile Worker

Release notes

The following are the release notes:

Version	Description
1.0	<ul style="list-style-type: none">First release of Conservation Outreach

[Back to top](#)

Configure Conservation Outreach

In this topic, you will learn how to configure the Conservation Outreach solution to meet specific needs in your organization.

Load data

Conservation Outreach can be used to track wildlife conflicts and engage stakeholders in and around protected areas. In some cases, you may have this information in ArcGIS or another business system already.

Review the layers provided with the solution and determine what source data you want to load. Then, load your existing data into the layers provided with the ArcGIS Solution before sharing the maps or applications.

Once you have determined what source data must be loaded, complete the data loading workflow below.

Load data from a shapefile

Load data for WildlifeConflicts from a shapefile by following the steps below:

1. Create a .zip file of your shapefile.
2. In your ArcGIS organization, browse to the feature layer you wish to populate.
3. On the feature layer item details page, Click **Update Data** and select **Append Data to Layer**.
4. Under **Filename**, click **Choose File**.
5. Navigate to your .zip file and click **Open**.
6. Under **Contents**, select **Shapefile**.
7. Click **Upload and Continue**.
8. Choose the layer that you wish to load data into and the layer that contains the updated data.
9. Uncheck **Update existing features**.
10. Click **Show field matching** and map the fields between the two layers.
11. Click **Apply Updates**.

Tip:

To make additional updates to a hosted feature layer, see [Append data to layers](#).

Use Conservation Outreach

The Conservation Outreach solution delivers a set of capabilities that help you capture and manage wildlife conflicts and engage local communities.

In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

Note:

Use your organization's data or configured apps to follow these workflows.

Collect wildlife conflict incidents

You will start by assuming the role of a mobile worker in a protected area collecting wildlife conflict incidents. You have been asked to use the Wildlife Conflict Reporter survey to collect wildlife conflict incidents.

1. On a mobile device, in ArcGIS Survey123, open the Wildlife Conflict Reporter form.
2. Tap **Collect**.
3. Complete the survey with as much information as possible.


Note:

Required information is marked with a red asterisk.

4. Tap **Submit**, and then tap **Send now**.

Manage wildlife conflicts

Next, you will assume the role of a community outreach staff member. You will review wildlife conflict incidents by completing the following steps:

1. In a browser, sign in to your ArcGIS organization, and then browse to the Conservation Outreach solution.
2. View the Wildlife Conflict Manager app.
Wildlife incident reports are listed in the table at the top. The table can be sorted and filtered in various ways.
3. In the table column headers, use the filters and arrows to filter results.
4. Select a wildlife conflict incident from the table.
The report details open at the bottom left.
5. In the report details, click the **Edit Record** button .
6. Make any necessary updates to the report, and then click **Save**.

[Back to top](#)

Monitor wildlife conflict programs

Now, you will assume the role of a protected area manager. You will monitor the status of wildlife conflict incidents within and around a protected area.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Conservation Outreach solution.
2. View the Wildlife Conflict Dashboard app.
3. On the left, adjust the filters to refine the results.
4. On the right, select a wildlife conflict incident from the list.
The map zooms to the incident, and a pop-up with incident details appears.
5. Review the incident details.

Crime Analysis

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Crime Analysis

Crime Analysis can be used to enhance public safety, identify emerging trends, organize law enforcement operations and plan crime-prevention strategies.

It improves productivity of crime analysts with specialized tools and a tailored desktop GIS interface for mapping data and performing spatial analysis, making it easier to quickly generate high-quality crime analysis map products. Improved crime analyst productivity helps law enforcement decision makers optimize resource allocation, solve cases, and implement more effective crime-reduction strategies. Crime Analysis is typically implemented by law enforcement agencies that want to use data-driven strategies to reduce crime and improve police operations.

The Crime Analysis solution delivers a set of capabilities to help you manage incident data, conduct tactical and strategic analysis, perform investigative analysis, and share web-based or hard-copy information products with decision makers.

Requirements

Crime Analysis requires the following:

- ArcGIS Enterprise
- ArcGIS Pro 3.0 (Basic, Standard, or Advanced)
- ArcGIS Spatial Analyst (optional)

[Back to top](#)

Information products

Crime Analysis includes the following information products:

Item	Description	Minimum User Type
CrimeAnalysis.esriAddInX	An ArcGIS Pro add-in used to map, identify, and communicate geospatial patterns in law enforcement data.	ArcGIS Desktop Basic or GIS Professional Basic
CrimeAnalysisSolution	An ArcGIS Pro project that leverages the capabilities included in the Crime Analysis add-in to generate a standard set of crime maps.	ArcGIS Desktop Basic or GIS Professional Basic

Release notes

The following are the release notes:

Version	Description
3.0	<ul style="list-style-type: none">A new Crime Analysis Add-In (2022.7.21) that includes support for ArcGIS Pro 3.0 and all languages supported in ArcGIS Pro 3.0.A series of enhancements to the Crime Analysis ArcGIS Pro project.
2.1	<ul style="list-style-type: none">A new Crime Analysis Add-In (2021.6.29) that resolves an issue that could cause the Crime Analysis ribbon to become unresponsive.A series of enhancements to the Crime Analysis ArcGIS Pro project.
2.0	<ul style="list-style-type: none">A new Crime Analysis Add-In (2020.12.17) that includes a new ribbon design and analysis gallery.A series of new capabilities have been added: Add Graphics Layer, Colocation Analysis tool, Density-based Clustering tool, Link Charts, and Reports.Existing tools have been updated to simplify parameters, streamline licensing and increase performance. In some cases, tool names have also been changed.
1.0	<ul style="list-style-type: none">Crime Analysis is now available in the ArcGIS Solutions app.The Crime Analysis Add-In (2019.10.16).

[Back to top](#)

Configure Crime Analysis

The Crime Analysis solution can be deployed in your ArcGIS Enterprise account. After deploying the solution to your ArcGIS Enterprise account, download, install and configure it to meet the needs in your organization.

Download and install Crime Analysis solution

The Crime Analysis solution includes the Crime Analysis Add-In, ArcGIS Pro project, sample data, and maps you can use to explore common crime analysis workflows. Before you begin, you will need to download the CrimeAnalysis.zip file containing the ArcGIS Pro project and Crime Analysis add-in. After this file is downloaded to your computer and extracted, you can install the add-in and open the ArcGIS Pro project.

Tip:

If you are upgrading from a previous version of the Crime Analysis Add-In, you are required to [remove the previous version of the add-in](#) before completing the following steps.

Follow the steps below to download and install the Crime Analysis solution:

1. Sign in to your ArcGIS organization and click **Content** at the top of the website.
2. Click the **My Content** tab, and then click **CrimeAnalysis.zip** to open the item page.
3. Click the **Download** button and browse to a folder on your computer.
4. Extract CrimeAnalysis.zip.
5. Browse to the CrimeAnalysis folder where you extracted the CrimeAnalysis.zip file.
6. Double-click **CrimeAnalysis.esriAddInX** to run the installer.
7. Click the **Install Add-In** button.

Automate Geoprocessing Tools

Note:

This workflow is optional and doesn't need to be completed in order to work with the solution.

All geoprocessing tools can be scheduled to run automatically on your computer using the [scheduling capabilities](#) in ArcGIS Pro or Windows Task Scheduler. Scheduling frequently run tools can improve productivity by reducing manual steps that you do routinely. For example, by scheduling the Update Features With Incident Records tool to run nightly, datasets can get geocoded and updated into a web layer overnight, so you have updated data ready to use when you arrive to work. Likewise, if you are preparing a monthly Compstat report, Kernel

[Back to top](#)

Density or other analysis tools can be automated to run on a monthly schedule to simplify the process.

Disable the Crime Analysis ribbon

Note:

This workflow is optional and doesn't need to be completed in order to work with the solution.

The Crime Analysis ribbon is automatically added to your projects when you install the Crime Analysis add-in. To disable the Crime Analysis ribbon, follow these steps:

1. From an open project, click the **Project** tab on the ribbon. Alternatively, on the ArcGIS Pro home page, click **Settings**.
2. Click **Options**, and then click Crime Analysis.
3. Disable **Show Crime Analysis tab**, click OK, and then at the top left, click the back arrow.

When the Crime Analysis ribbon is disabled, it will no longer appear in ArcGIS Pro, but the tools will appear contextually in various locations throughout the ArcGIS Pro user interface. For example, on the Analysis ribbon, users will see a Crime Analysis button that lists all the solution tools.

Note:

[Learn more](#) about how to remove an add-in.

Use Crime Analysis

The Crime Analysis solution delivers a set of capabilities to help you manage incident data, conduct tactical and strategic analysis, perform investigative analysis, and share web-based or hard-copy information products with decision makers.

In this topic, you'll learn how to use the Crime Analysis solution by exploring the Crime Analysis ArcGIS Pro project and key crime analysis workflows it supports.

Note:

Use your organization's data or configured apps to follow these workflows.

Review the Crime Analysis project

Crime Analysis includes an ArcGIS Pro project with the Crime Analysis add-in. The project includes the Crime Analysis tab and ribbon, which can be used to conduct a series of key analytical functions to support crime analysis. Before using the Crime Analysis tools with your data, familiarize yourself with the contents of the Crime Analysis project.

1. Browse to the CrimeAnalysis folder and open the CrimeAnalysisSolution.aprx ArcGIS Pro project.
2. On the ribbon, click the Crime Analysis tab.
3. The ribbon includes four groups of tools: Data Management, Selection, Analysis Tools, and Information Products.
4. In the **Catalog** pane, expand **Maps** and review the sample maps and **notes** provided.

Note:

If you do not see the **Catalog** pane, from the **View** tab, in the **Windows** group, click **Catalog**, and then click **Catalog Pane**.

Manage incident data

To perform analysis, crime analysts must first import data from disparate record systems and prepare it for use in GIS. Data import and management activities such as geocoding, date field transformations, and appending of spatial data must be performed daily. These time-consuming but necessary activities leave little time for actual analysis, which limits analyst productivity. Crime Analysis provides tools to help analysts automate data import and simplify common data management activities.

To learn more about managing data using Crime Analysis, go to the CrimeAnalysisSolution ArcGIS Pro project and open the following maps:

- **Enhance Attributes map**

[Back to top](#)

- **Import Incidents (Update Features With Incident Records)**

Focus on specific incidents

Crime analysts ask a wide variety of analytical questions on behalf of the organizations they support, which requires the analysts to query their data from a variety of date-based, spatial, and field attribute perspectives that can be challenging to perform without the use of GIS. Crime Analysis provides selection tools that can be used individually or in tandem to interrogate incident data and focus on specific problem subsets.

To learn more about performing selections using Crime Analysis, go to the CrimeAnalysisSolution ArcGIS Pro project and open the following maps:

- **Summarize Percent Change and Select Layer by Date and Time**
- **Kernel Density and Minus**

Conduct tactical and strategic analysis

Crime analysts support the data-driven crime reduction efforts of law enforcement agencies by using tactical analysis methods to identify short-term crime patterns and strategic analysis methods to support the identification and evaluation of long-term crime problems and trends. Central to these methods are spatial analysis—specifically hotspot identification—but analysts can be challenged with understanding which techniques are available and are appropriate to the type of analysis they are trying to perform. Crime Analysis curates new and traditional spatial analysis tools appropriate for tactical and strategic crime analysis, which makes it easy for analysts to discover the right tool for the job.

To learn more about conducting tactical and strategic analysis using Crime Analysis, go to the CrimeAnalysisSolution ArcGIS Pro project and open the following maps:

- **80-20 Analysis (Hot Streets)**
- **80-20 Analysis (Repeat Locations)**
- **Colocation Analysis**
- **Density-based Clustering**
- **Kernel Density and Minus**
- **Emerging Hot Spot Analysis and Space Time Cube**
- **Optimized Hot Spot Analysis and Calendar Heat Chart**
- **Summarize Incident Count**
- **Summarize Percent Change and Select Layer by Date and Time**
- **RNR-Calculate Prediction Zones**

[Back to top](#)

- **RNR-Export Near Repeat Calculator Table**
- **RNR-Repeat and Near Repeat Classification 2D**
- **RNR-Repeat and Near Repeat Classification 3D**

Perform investigative analysis

Crime analysts support investigations by using data to explore the relationships between people, events, and locations. Investigative analysis helps investigators uncover criminal networks and understand suspect activity patterns through analysis of cell phone records, financial transactions, and other investigative data sources. These forms of analysis have previously required specialized, expensive, single-purpose software programs. Crime Analysis provides a set of analytical tools to support common investigative workflows such as cell phone analysis, financial analysis, temporal sequencing of GPS or incident data, and visualizing spatial relationships, such as the relationship between the locations of motor vehicle thefts with where those vehicles are recovered.

To learn more about performing investigative analysis using Crime Analysis, go to the CrimeAnalysisSolution ArcGIS Pro project and open the following maps:

- **CPA-2D Cell Phone Points to Track Segments**
- **CPA-3D Cell Phone Points to Track Segments**
- **CPA-Cell Site Records to Feature Class**
- **CPA-Cell Phone Records to Feature Class**
- **CPA-Pairwise Dissolve**
- **CPA-Find Space Time Matches**
- **CPA-Generate Call Links**
- **CPA-Generate Sector Lines**
- **Origin Destination Links (MV Theft to Recovery)**
- **Origin Destination Links (Financial Crime)**
- **Origin Destination Links and Link Chart (Gang Turf to Member Homes)**
- **Points to Track Segments**

Share maps and reports

To share their work with stakeholders and decision makers, crime analysts prepare information products to summarize their results. Analysts get requests to deliver these products in both hard-copy and interactive forms. To support the needs of their customers, analysts need flexible options to deliver analysis results. Crime Analysis provides a set of information product options, including hard-copy map layouts, a rich charting library, tabular

[Back to top](#)

reports, link analysis charts, and the ability to publish layers and maps into web mapping applications in ArcGIS Enterprise or ArcGIS Online.

To learn more about sharing maps and reports using Crime Analysis, go to the CrimeAnalysisSolution ArcGIS Pro project and open the following maps:

- **Optimized Hot Spot Analysis and Calendar Heat Chart**
- **Origin Destination Links and Link Chart (Gang Turf to Member Homes)**

Crime Analysis Tool Reference

The Crime Analysis solution delivers a set of capabilities to help you manage and query incident data, conduct tactical, strategic, and investigative analysis, and share web-based and hard-copy information products with decision makers.

In this topic, you'll learn how to use the Crime Analysis solution by exploring Crime Analysis tools, navigating the Crime Analysis Add-In, and reviewing the Repeat and Near Repeat tools.

Crime Analysis tools

The Crime Analysis solution contains many tools to support key analytical functions to manage data, select crime incidents, conduct tactical and strategic analysis, investigate crime patterns, and share information with other law enforcement personnel. These tools are accessed through the Crime Analysis tab and ribbon which is automatically added to your projects when you install the Crime Analysis add-in. The following sections contain a list of the tool groups on the ribbon, with details for each tool in chronological order according to a typical crime analysis process.

Note:

You will need to ensure the Crime Analysis add-in is installed before you can review the Crime Analysis tools. See [Configure Crime Analysis](#) for more information.

Data Management tools

Crime analysts can import data from disparate record systems to perform spatial analysis using ArcGIS Pro. In many cases, the data must also be geocoded and prepared for analysis. For example, you may want to append information about police operational boundaries, transform date values, or perform other transformation functions. The Data Management group includes a series of tools that can be used for manual or automatic data import, geocoding, and enhancing of data for use in crime mapping and spatial analysis.

The following tools and commands are included in the Data Management group of the Crime Analysis ribbon:

Name	Description
Add Data	An ArcGIS Pro menu command that references data management tools that add data to the map.
Add Graphics Layer	An ArcGIS Pro menu command that provides a way to include simple notations on a map or layout that highlight particular areas or label places.
Import Records	An ArcGIS Pro Crime Analysis and Safety toolbox that converts a nonspatial table to point features based on x,y coordinates or street addresses and updates an existing dataset with new or updated record information from the table.

[Back to top](#)

Convert Time Field	An ArcGIS Pro Data Management tool that converts time values stored in a string or numeric field to a date field.
Feature To 3D By Time	An ArcGIS Pro Crime Analysis and Safety toolbox that creates a 3D feature class using date values from input features.
Convert Coordinate Notation	An ArcGIS Pro Data Management tool that converts coordinate notations contained in one or two fields from one notation format to another.
Add Date Attributes	An ArcGIS Pro Crime Analysis and Safety toolbox that adds fields containing date or time properties from an input date field, such as day, month, and year.
Join Attributes From Polygon	An ArcGIS Pro Crime Analysis and Safety toolbox that joins attributes from input polygon features to input point features.
Enrich	An ArcGIS Pro Analysis tool that enriches data by adding demographic and landscape facts about the people and places that surround or are inside data locations.

Selection tools

Before applying spatial analysis methods, crime analysts use queries to select subsets of data related to their topic of analysis. The Selection group on the ribbon includes a series of tools to perform spatial, temporal, or location-based queries of your data.

The following tools and commands are included in the Selection group of the Crime Analysis ribbon:

Name	Description
Explore	An ArcGIS Pro command that allows you to explore maps and scenes by zooming in and out and moving around, or, in the case of scenes, moving up or down and looking around.
Select	An ArcGIS Pro command that provides an interactive feature selection by clicking a single feature in the view or digitizing a shape to select a set of features.
Select By Attributes	An ArcGIS Pro Data Management tool that adds, updates, or removes a layer or table-view selection based on an attribute query.
Select By Location	An ArcGIS Pro Data Management tool that selects features in a layer based on a spatial relationship to features in another dataset.
Select Layer By Date and Time	An ArcGIS Pro Crime Analysis and Safety toolbox used to select records based on date and time ranges or date properties, such as a single date, a time range, a time period, days of the week, a month, or a year.
Attributes	An ArcGIS Pro command that displays the Attribute pane.
Clear	An ArcGIS Pro command that clears the current selection in the active map.
Layer From Selection	An ArcGIS Pro command that creates a layer based on a selected set of features in an existing layer.

Analysis tools

Crime analysts perform many types of analyses to support the needs of law enforcement decision makers in their organization. The Analysis Tools group includes a gallery of tools that

[Back to top](#)

can be used to perform a variety of hotspot detection techniques and other spatial methods that can be applied as part of tactical or strategic crime analysis projects. The gallery also includes tools to apply spatial methods in support of investigations, such as cell phone analysis, crime series sequencing, or motor vehicle theft to recovery linking.

The following tools and commands are included in the Analysis Tools group of the Crime Analysis ribbon:

Name	Description
Summary Statistics	An ArcGIS Pro Analysis tool that calculates summary statistics for field(s) in a table.
Buffer	An ArcGIS Pro Analysis tool that creates buffer polygons around input features to a specified distance.
80-20 Analysis	An ArcGIS Pro Crime Analysis and Safety toolbox used to conduct an 80/20 analysis of features and determines cluster locations by creating a graduated symbol layer based on the number of incidents occurring at each location.
Summarize Incident Count	An ArcGIS Pro Crime Analysis and Safety toolbox used to create a feature class with coincident point counts. Coincident point counts for line and point features are determined by a specified maximum distance. Point counts for polygon features are determined by whether point features or portions of features overlap with the polygon feature.
Summarize Percent Change	An ArcGIS Pro Crime Analysis and Safety toolbox used to calculate the percent change for features that correspond with point features that represent two equal comparison time periods.
Optimized Hot Spot Analysis	An ArcGIS Pro Spatial Statistics tool that creates a map of statistically significant hot and cold spots using the Getis-Ord G_i^* statistic.
Kernel Density	An ArcGIS Pro Spatial Analyst tool that calculates a magnitude-per-unit area from point or polyline features using a kernel function to fit a smoothly tapered surface to each point or polyline. This tool requires a Spatial Analyst license.
Minus	An ArcGIS Pro Spatial Analyst tool that subtracts the value of the second input raster from the value of the first input raster on a cell-by-cell basis.
Create Space Time Cube By Aggregating Points	An ArcGIS Pro Space Time Pattern Mining tool that summarizes a set of points into a netCDF data structure by aggregating them into space-time bins.
Emerging Hot Spot Analysis	An ArcGIS Pro Space Time Pattern Mining tool that identifies trends in the clustering of point densities.
Colocation Analysis	An ArcGIS Pro Intelligence tool that measures local patterns of spatial association, or colocation, between two categories of point features using the colocation quotient statistic.
Density-based Clustering	An ArcGIS Pro Spatial Statistics tool that finds clusters of point features within surrounding noise based on their spatial distribution.
Points To Tracks Segments	An ArcGIS Pro Intelligence tool that converts a series of output paths from time-enabled sequences of input point data, such as GPS points.

[Back to top](#)

Generate Origin-Destination Links	An ArcGIS Pro Analysis tool that generates connecting lines from origin features to destination features. The result is often referred to as a spider diagram.
Cell Site Records to Feature Class	An ArcGIS Pro Crime Analysis and Safety toolbox tool used to create cell site points and sector polygons based on input latitude, longitude, azimuth, beamwidth, and radius information from a cell site table.
Cell Phone Records to Feature Class	An ArcGIS Pro Crime Analysis and Safety toolbox tool used to import cell phone records from wireless network providers and associates those records with a cell site and sector feature classes as generated by the Cell Site Records To Feature Class tool based on identifier fields.
Generate Call Links	An ArcGIS Pro Crime Analysis and Safety toolbox tool used to create line features that represent the call links between phones, using cell site points or cell site antenna sectors based on the start date and time of the call.
Find Space Time Matches	An ArcGIS Pro Crime Analysis and Safety toolbox tool that identifies matches between two feature classes based on proximity, time extent, or both.
Generate Sector Lines	An ArcGIS Pro Crime Analysis and Safety toolbox tool used to create line features that represent the extent of cell site antenna sectors.
Pairwise Dissolve	An ArcGIS Pro Data Management tool that aggregates features based on specified attributes.
Export Near Repeat Calculator Table	A Repeat and Near Repeat tool that creates a CSV file in the format required by the Near Repeat Calculator from an input feature class. The Near Repeat Calculator is a tool published by Temple University for examining the statistical significance of repeat and near-repeat patterns in a dataset.
Repeat and Near Repeat Classification	A Repeat and Near Repeat tool that uses a series of distance and time values to classify incidents as originators, repeats, or near repeats, and to identify potential spatial and temporal relationships between incidents.
Calculate Prediction Zones	A Repeat and Near Repeat tool that identifies areas at risk of repeat and near-repeat incidents by specifying the spatial and temporal range of influence of past incidents.

Information products

After an analysis is complete, crime analysts often prepare hard-copy maps and web-based information products to help their organizations make data-driven decisions. The Information Products group includes a series of tools to create information products for analysis consumers, including link charts, hard-copy maps, charts, and reports, and to publish maps and layers to organizational web GIS portals.

The following tools and commands are included in the Information Products group of the Crime Analysis ribbon:

Name	Description
Create Chart	An ArcGIS Pro command that creates a chart to visualize categories, distribution, change and relationships in your data.

[Back to top](#)

New Link Chart	An ArcGIS Pro command used to generate a link chart to visualize relationships between entities in your data and is a complementary view to the map.
New Report	An ArcGIS Pro command used to generate a report to share a well-formatted, multipage representation of your data. A report can contain a tabular list of attributes, summary information, or both.
New Layout	An ArcGIS Pro command that creates a layout and adds it to the project.
Web Map	An ArcGIS Pro command used to share the active map as a web map to your organization.
Web Layer	An ArcGIS Pro command used to share all data layers in the active map as a new web layer to your organization.

Repeat and Near Repeat Analysis tools

[Repeat Victimization](#) is an empirically observed phenomenon where when a location becomes the victim of a specific type of crime, that location has an elevated risk of subsequent victimization, a risk which drops precipitously over time. A corollary phenomenon is known as [Near-Repeat Victimization](#), whereby locations immediately around a location that has been victimized are at elevated risk, a level that drops both as time passes and as the distance from the originating victim increases. Repeat and Near Repeat patterns have been observed across a wide variety of crime types, are believed to be spatial artifacts of serial offending behaviors, and thus have important implications for crime prevention and investigations.

The Crime Analysis solution includes three custom geoprocessing tools to support analyses relative to Repeat and Near Repeat Victimization patterns. The Export Near Repeat Calculator Table tool can be used with Temple University's Near Repeat Calculator to identify statistically significant patterns of Repeat and Near Repeat Victimization. The Near Repeat Classification tool can be used to identify historical patterns of repeat and near-repeat victimization, which can support investigative efforts to connect and clear cases that were not otherwise known to be part of a pattern. The Calculate Prediction Zones tool can be used to generate daily tactical crime risk predictions based on Repeat Victimization and Near-Repeat Victimization risk for recent crime locations. These risk predictions can be used to inform police operational strategies for crime reduction.

The tools in the Crime Analysis solution related to Repeat and Near Repeat Victimization (Export Near Repeat Calculator Table, Repeat and Near Repeat Classification, and Calculate Prediction Zones) were developed in cooperation with Spencer Chainey, Ph.D., Associate Professor in Security and Crime Science at the Jill Dando Institute of Security and Crime Science, University College London.

Export Near Repeat Calculator Table Tool

The Near Repeat Calculator is a tool published by Temple University for examining the statistical significance of repeat and near-repeat patterns in a dataset. When a statistically significant repeat or near-repeat pattern is found, the spatial and temporal bandwidths of the pattern can then be used as parameters for analyses involving the Repeat and Near Repeat Classification Tool and the Calculate Prediction Zones tool. This tool creates a comma-

[Back to top](#)

separated values (CSV) file from an input feature class in the format required by the Near Repeat Calculator.

Usage

- Input features must have a date field.
- The output comma-separated values (CSV) file does not contain any field headers because they are not supported by the Near Repeat Calculator. In order, the output fields are X, Y, Date.

Syntax

ExportNearRepeatCalculatorTable_crime (Input_Feature_Class, Output_Table, Date_Field)

Parameter	Explanation	Data Type
Output Table	Specify the path and file name of output comma-separated values (CSV) file.	File
Date Field	The field in the input feature class that contains the date on which each incident occurred. If the date of the incident spans a range (for example, date information is recorded in two fields that represent the from and to dates), choose the date field you consider to be most appropriate. It will usually be the date at the beginning of the date range.	Field

Licensing information:

- ArcGIS Desktop Basic: Yes
- ArcGIS Desktop Standard: Yes
- ArcGIS Advanced: Yes

Repeat and Near Repeat Classification tool

Use a series of distance and time values to classify incidents as originators, repeats, or near repeats, and to identify potential spatial and temporal relationships between incidents.

Usage

- The Input Features must be a point feature class or shape file with a date field, representing the locations of incidents.
- The tool will use all points with date values. Incidents without valid dates will be excluded and a warning message will print to the screen listing the skipped incidents.
- This tool will honor a selected set of features. When the Input Features contain a selection, only the selected features will be considered when classifying features and building connections.

[Back to top](#)

- Incidents are classified as O (Originator), NR (near repeat), or R (repeat) according to their proximity to each other in space and time using each combination of the specified spatial and temporal band values and the specified repeat distance.
- Incidents are classified as originators if they are the originator of at least one other incident and have no preceding incidents within the current spatial and temporal ranges.
- Incidents are classified as near-repeat incidents when they follow a previous repeat, near-repeat, or originating incident within the current spatial and temporal ranges, and do not meet the criteria to be classified as a repeat incident.
- Incidents are classified as repeat incidents when they occur within the specified repeat distance and the current temporal range. An incident that meets the requirements for both a repeat and a near-repeat incident is classified as a repeat.
- Incidents that do not meet the criteria for any of the above are left unclassified.
- This tool creates the following three outputs:
 - A copy of the input incident features with classification fields added. These fields are populated with the classification values for each incident within each set to spatial and temporal ranges. For example, if a repeat distance of 1 map unit (Feet), spatial bands of 100 and 200 map units (Feet), and temporal bands of 7 and 14 days are specified, the tool will append six fields with the following field names and aliases:
 - sb0tb1 (1 ft / 7 Days): Classification of incidents that are originators of repeat incidents occurring no more than 7 days later and incidents that occurred within the repeat distance and 7 days of a previous incident.
 - sb0tb1 (1 ft / 14 Days): Classification of incidents that are originators of repeat incidents occurring no more than 14 days later, and incidents that occurred within the repeat distance and 14 days of a previous incident.
 - sb1tb1 (100 ft / 7 Days): Classification of incidents that are originators of repeat and near-repeat incidents occurring no more than 7 days later and incidents that occurred within 100 map units and 7 days of a previous incident.
 - sb1tb2 (100 ft / 14 Days): Classification of incidents that are originators of repeat and near-repeat incidents occurring no more than 14 days later and incidents that occurred within 100 map units and 14 days of a previous incident.
 - sb2tb1 (200 ft / 7 Days): Classification of incidents that are originators of repeat and near-repeat incidents occurring no more than 7 days later and incidents that occurred within 200 map units and 7 days of a previous incident.
 - sb2tb2 (200 ft / 14 Days): Classification of incidents that are originators of repeat and near-repeat incidents occurring no more than 14 days later and incidents that occurred within 200 map units and 14 days of a previous incident.
 - The tool also appends a field called ZVALUE with values that represent the number of days between each incident and the smallest date value in the

[Back to top](#)

dataset. These values can be used to visualize the time sequence of incidents in ArcGIS Pro so that oldest incidents appear near the ground and more recent incidents appear farther from the ground.

- A line feature class that is populated with z-enabled line features representing the potential relationships between repeat and near-repeat incidents and their originators. The z values for each vertex correspond to the ZVALUE field value for the incident that occurs at that vertex.
- A comma-separated values (CSV) file summary report with the number of incidents processed, the counts and proportions of incidents that fall within each spatial and temporal band combination, and the estimated half-life and half-distance values which can be used as inputs for the Calculate Prediction Zones tool.
- All distances are calculated using geodesic measurements.

Syntax

RepeatNearRepeatClassification_crime (Input_Feature_Class, Output_Incident_Points, Output_Incident_Connection_Lines, Output_Summary_Report_Location, Date_Field, Repeat_Incident_Distance, Spatial_Bands, Temporal_Bands)

Parameter	Explanation	Data Type
Input Feature Class	Feature class containing points that represent the location of incidents to classify. The data contained in the features class will typically cover a long time period (for example, one year). The feature class must have a date field (in date format) and all features must have date values.	Feature Layer
Output Incident Points	Output feature class containing calculated classification values.	Feature Layer or Feature Class
Output Summary Report Location	The results from the analysis of repeats and near repeats written into a summary report (CSV file format) for review. The report can be found in this folder after the tool has completed successfully. The results are also written to the Messages section of the Results window.	Folder
Date Field	The field in the input feature class containing the date on which each incident occurred. If the date of the incident spans a range (for example, date information is recorded in two fields that represent the from and to dates), choose the date field you consider to be most appropriate. It will usually be the date at the beginning of the date range. Values in the date field are used to calculate the number of days between each incident.	Field
Repeat Incident Distance	Maximum distance in the units of the input feature class where adjacent incidents are considered repeats rather than near repeats. A value of 0 is exact to the accuracy of the coordinate system. If the geocoding of the input feature class is likely to vary very slightly, it is recommended this value be set to 1 (in other words, incidents will be classified as repeats	Double

[Back to top](#)

	if the distance between them is less than or equal to 1 map unit).	
Spatial Bands	Distance in the units of the input feature class to classify near incidents. Multiple bands can be entered. For example, bands of 200m and 400m will classify features that are located up to and including 200m from a previous incident and up to and including 400m of a previous incident.	Multiple Value
Temporal Bands	Number of days to classify near incidents. Multiple bands can be entered. For example, bands of 7, 14 and 21 days will classify features that took place up to and including 7 days, 14 days, and 21 days of a previous incident.	Multiple Value

Licensing information:

- ArcGIS Desktop Basic: No
- ArcGIS Desktop Standard: No
- ArcGIS Advanced: Yes

Calculate Prediction Zones tool

Identify areas at risk of repeat and near-repeat incidents by specifying the spatial and temporal range of influence of past incidents.

Usage

- The Input Features must be a point feature class or shape file with a date field, representing the locations of incidents.
- The tool will use all points with date values in the Temporal Range of Influence preceding the Initial Processing Date. Features with date values outside this range and features with null or invalid date values will not be processed.
- This tool will honor a selected set of features. When the Input Features contain a selection, only the selected features will be considered when building the prediction zones.
- Incidents that occur closer in time to the Initial Processing Date will have more influence over the prediction zones than older incidents. Areas nearer to incidents will be considered to have a greater risk of future incidents, up to the Spatial Range of Influence. Use the Spatial Half Distance and Temporal Half Life parameters to modify the rate of decay of influence.
- The following fields are populated in the output feature class:
 - CREATEDATE: Text field populated with the date and time the features are created.
 - STARTDATE: The Initial Processing Date, or the calculated date if TODAY or YESTERDAY is the input value.
 - TIMEBAND: The Temporal Range of Influence used to generate the features.

[Back to top](#)

- SPACEBAND: The Spatial Range of Influence used to generate the features.
- RISKRANGE: The classification of risk for the area defined by that polygon. Higher values have a higher level of risk and lower values have a lower value of risk based on the location and dates of nearby incidents.
- This tool creates up to two outputs:
 - A raster representation of the levels of risk over the area covered by the incidents.
 - Polygons generated by binning the raster values into a number of Risk Ranges are appended to the Output Prediction Zones Feature Class, as previously described.
- Although storing the output raster in a geodatabase is supported, it is recommended to store the raster in a folder rather than a geodatabase, especially if this tool will be run as a scheduled task.
- All distances are calculated using geodesic measurements.
- This tool requires the Spatial Analyst extension.

Syntax

CalculatePredictionZones_crime (Input_Features, Output_Prediction_Zones_Raster, Output_Prediction_Zones_Feature_Class, Date_Field, Initial_Processing_Date, Spatial_Range_of_Influence, Spatial_Half_Distance, Temporal_Range_of_Influence, Temporal_Half_Life, Risk_Calculation_Method, Number_of_Risk_Ranges)

Parameter	Explanation	Data Type
Input Features	Feature class containing points that represent the location of incidents and from which prediction zones will be calculated. The feature class must have a date field (in date format) and all features must have date values.	Feature Layer
Point Join Features	Point features coincident with the input polygon or line features.	Feature Layer
Output Prediction Zones Raster	Output prediction zone raster.	Raster Layer
Output Prediction Zones Feature Class	Output feature class with polygons that represent the prediction zones.	Feature Class or Feature Layer
Date Field	The field in the input feature class containing the date on which each incident occurred. If the date of the incident spans a range (for example, date information is recorded in two fields that represent the from and to dates), choose the date field you consider to be most appropriate. It will usually be the date at the beginning of the date range. Values in the date field are used to calculate the level of future risk based on a combination of when the incident occurred, the Initial Processing Date and the temporal decay in risk (determined	Field

[Back to top](#)

	from the Temporal Range of Influence and the Temporal Half Life).	
Initial Processing Date	The date to use from the Input Feature Class for creating the prediction zones.	Date
Spatial Range of Influence	This value determines the size of the prediction zones around each incident (in the units of the coordinate system of the Input Feature Class). The value refers to the maximum distance from an incident that the incident is estimated to have on influencing the risk of future incidents taking place. Additionally, this value can be based on the area around an incident that is considered to be practical for resource targeting and deployment (for example, the area to which additional patrols are targeted).	Double
Spatial Half Distance	The distance from an incident at which the risk is estimated to be half that of another incident taking place (a near-repeat). This value is used to calculate the exponential rate of decay in the spatial risk of a near-repeat incident and must be lower than the value for the Spatial Range of Influence. Distance units are the units of the coordinate system of the input feature class. A useful initial value to apply is half the value of the Spatial Range of Influence.	Double
Temporal Range of Influence	This value refers to the number of days before the Initial Processing Date that incidents are estimated to have an influence on the risk of future incidents taking place. More recent incidents have the greatest level of influence on future risk. Incidents that took place between the Initial Processing Date and the value for the Temporal Range of Influence are used for creating prediction zones. For example, if this value is set to 3, only incidents for the Initial Processing Date and the two days prior would be used for creating prediction zones. Incidents that took place three days ago would have less of an influence on the risk of future incidents than those that took place on the Initial Processing Date.	Double
Temporal Half Life	The number of days before the Initial Processing Date on which the risk is estimated to be half that of further incidents taking place immediately after the Initial Processing Date. (For example, incidents that take place on the Initial Processing Date are considered to have the greatest influence on the risk of future incidents taking place. Incidents before the Initial Processing Date have less influence on future risk.) This value is used to calculate the exponential rate of decay in the temporal risk of a repeat and near-repeat incident and must be lower than the value for the Temporal Range of Influence. A useful initial value to apply is half the value of the Temporal Range of Influence.	Double
Risk Calculation Method	Choose the method for calculating the predictive risk. 'CUMULATIVE' (default) creates prediction zones where the value of each cell is the sum of any prediction zone cells that overlap.	String

[Back to top](#)

	'MAXIMUM' creates prediction zones where the value of each cell is the maximum value of any prediction zone cells that overlap.	
Number of Risk Ranges	Integer value that represents the number of ranges that will be used in the polygon version of the output for representing the variation in predicted risk (for example, if this value is set to 2, two Risk Ranges would determine areas of primary risk from areas of secondary risk).	Long

Licensing information:

- ArcGIS Desktop Basic: Requires Spatial Analyst
- ArcGIS Desktop Standard: Requires Spatial Analyst
- ArcGIS Advanced: Requires Spatial Analyst

Dam Safety

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Dam Safety

Dam Safety can be used to routinely inspect dams to ensure the dams they regulate are in good condition and provide the service for which they were intended.

It provides dam safety programs the necessary resources to adequately inspect and monitor their inventories. This standardized approach minimizes failure risk and improves safety of this critical infrastructure used for flood protection, water supply, hydropower, irrigation, and recreation. Dam Safety is typically implemented by natural resource departments and other government agencies that want to modernize their dam inspection programs.

The Dam Safety solution delivers a set of capabilities that help you routinely inspect dams, manage work assignments, and monitor inspection programs.

Requirements

Dam Safety requires the following:

- ArcGIS Enterprise
- ArcGIS Pro 2.6 or later (Basic, Standard, or Advanced)
- ArcGIS Survey123
- ArcGIS Workforce
- Survey123 Connect

Information products

Dam Safety includes the following information products:

Item	Description	Minimum user type
Dam Inspection Dashboard	An ArcGIS Dashboards app used by dam safety staff to review fieldwork activity and monitor the progress of dam inspection programs	Viewer
Dam Inspection Survey	An ArcGIS Survey123 form used by mobile workers to inspect upstream reservoirs, downstream hazards, and other relevant information at dam sites	Mobile Worker
Dam Inspection Assignments	An ArcGIS Workforce Classic project used by dam safety staff to manage dam inspection assignments and track the status of each inspection. Mobile workers access the Dam Inspection Assignments project using the Workforce for ArcGIS mobile app	Mobile Worker
Dam Safety	An ArcGIS Pro project used by mapping technicians to inventory dam information (for example, location and specifications) and assign dam sites to mobile workers	GIS Professional Basic

Release notes

The following are the release notes:

Version	Description
1.0	<ul style="list-style-type: none">• First release of Dam Safety

[Back to top](#)

Use Dam Safety

The Dam Safety solution delivers a set of capabilities that help you routinely inspect dams, manage fieldwork assignments, and monitor inspection programs.

In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

Note:

Use your organization's data or configured apps to follow these workflows.

Prepare dam inspections

You will start by assuming the role of a dam safety staff member responsible for coordinating dam safety field operations. You are asked to use the Dam Safety ArcGIS Pro project to setup your organization's dam safety field operations. Follow the defined tasks to add inspectors, inventory dam information, and assign dam sites to mobile workers.

To open the ArcGIS Pro project tasks, complete the following steps:

1. In a browser, sign in to your ArcGIS organization, and then browse to the Dam Safety solution.
2. Download the Dam Safety desktop application template and unzip the folder.
3. From the unzipped folder, open **Dam Safety.aprx** in ArcGIS Pro.
4. In ArcGIS Pro, in the **Catalog** pane, expand **Tasks**, and then double-click the Dam Safety task.

Note:

If you do not see the **Catalog** pane, from the **View** tab, in the **Windows** group, click **Catalog Pane**.

5. In the **Tasks** pane, expand the **How to Use Dam Safety** task group to see the collection of tasks.
6. Follow the steps in each task.

Complete a dam inspection

Next, you will assume the role of a dam safety inspector responsible for conducting safety inspections of dams. You are asked to use the Dam Inspection Survey to conduct a dam safety inspection.

1. Install the Survey123 field app on your mobile device, if necessary.
2. Open the Survey123 field app, and then download and open the Dam Inspection Survey.
3. Tap **Inbox**.

[Back to top](#)

4. Select a survey from the inbox, and then complete it.
5. After the survey is complete, tap the check mark, and then tap **Send Now** to submit the survey.

Create dam inspection reports

In the previous section, you completed a dam safety inspection. You will now create an inspection report of the dam safety inspection to provide to the dam owner.

1. In a browser, go to the Survey123 website and sign in, if necessary.
2. Open the Dam Inspection Survey, and then click the **Data** tab.
3. From the Dam Inspection Survey table, select a survey.
4. Click the **Report** button.
5. In the **Report** panel, type a report name, and then for **Format**, choose **PDF**.
6. Note:
7. Generating reports consumes credits. To see how many credits your report will consume, click **Show credits**.
8. Click the **Generate** button to create the inspection report.

Note:

To learn more about printing reports in ArcGIS Survey123, see [Print survey results](#).

Monitor dam inspections

Finally, you will assume the role of a dam safety program manager responsible for managing a dam safety program. You are asked to review key metrics to better understand your dam safety program.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Dam Safety solution.
2. View the Dam Inspection Dashboard app.
3. On the left, adjust the filters to refine the inspection list results by the hazard classification, specific watershed, inspector name, inspection type, or inspection date.
4. In the Dam Condition chart, click any bar to filter by dam condition.
5. In the **Inspections Completed** panel, select any inspection to see important inspection details.

Damage Assessment

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Damage Assessment

Damage Assessment can be used to conduct initial damage assessments after a natural disaster or catastrophic incident.

Initial damage assessments are used by local officials to understand the severity and magnitude of damage to public and private property after an incident. In some cases, they may also contribute to a Joint Preliminary Damage Assessment conducted by Federal, State and Local officials after a disaster declaration. Information collected during these assessments is analyzed to determine if the incident-related costs and damages qualify for any State and/or Federal assistance. Any delays in the assessments could make an organization ineligible for State or Federal assistance. Damage Assessment is typically implemented by emergency management agencies that want to quickly understand the impact of a natural disaster, or catastrophic incident, and immediately assign resources to appropriate response and recovery activities.

The Damage Assessment solution delivers a set of capabilities that help you collect damage reports, assign initial damage assessments, monitor the impact of a disaster on the community, brief internal stakeholders, and share information with the public.

Requirements

The Damage Assessment solution requires the following:

- ArcGIS Enterprise
- ArcGIS Notebook Server
- ArcGIS Survey123
- ArcGIS Survey123 Connect
- ArcGIS QuickCapture

[Back to top](#)

Information products

Damage Assessment includes the following information products:

Item	Description	Minimum User Type
Damage Assessment	An ArcGIS Hub Basic site used by emergency management agencies to share damage assessment information with internal stakeholders and the public	Not required
Damage Assessment Photo Viewer	An Attachment Viewer app use by emergency management staff and the public to view photos from windshield reports of damaged property	Not required
Public Damage Report	An ArcGIS Survey123 form used by the public to report damages to residence or businesses.	Not required
Damage Assessment Operations	An ArcGIS Experience Builder app used by emergency management staff to manage, monitor and administer damage assessments	Editor
Windshield Damage Report	An ArcGIS QuickCapture project used by public safety or trained volunteers to rapidly capture damage reports	Mobile Worker
Individual Assistance Survey	An ArcGIS Survey123 form used by field inspectors with the Survey123 app to conduct initial damage assessments for private properties	Mobile Worker
Public Assistance Survey	An ArcGIS Survey123 form used by field inspectors with the Survey123 app to conduct initial damage assessments for public-owned facilities	Mobile Worker
Individual Assistance Express Survey	An ArcGIS Survey123 form used by field inspectors with the Survey123 app to assess damage that has impacted many structures, with varying damage levels, in one location (i.e. neighborhood, apartment building, mobile home park, etc.)	Mobile Worker
Archive Damage Assessment	An ArcGIS Notebook used by GIS professionals to archive damage assessment reports after an incident	Creator
Damage Assessment Photo Extraction	An ArcGIS Notebook used by GIS professionals to extract every photo collected during the initial damage assessment	Creator

Release notes

The following are the release notes:

Version	Description
3.1	<ul style="list-style-type: none">• A new Windshield Damage Report ArcGIS QuickCapture project.
3.0	<ul style="list-style-type: none">• A resolution to an issue where dependant questions in the Individual Assistance Express Survey weren't being displayed. This issue required updates to all related info products.• A new ArcGIS QuickCapture project.• A new Damage Assessment Photo Extraction and Archive Damage Assessment notebook.
2.0	<ul style="list-style-type: none">• A new Damage Assessment hub site that can be used to share damage assessment information with internal stakeholders and the public.• A new app that can be used by the public to view photos of property damage.• A new app that can be used by internal stakeholders to manage, monitor and administer damage assessments.• A new survey form that can be used to collect public damage reports.• A series of new survey forms that can be used to conduct Individual Assistance and Public Assistance assessments.• A new ArcGIS QuickCapture project that can be used to collect Windshield Damage Reports.• A series of new tools that can be used to collaborate with other agencies, share reports, export photos and archive data.• A series of new damage assessment layers and related feature layer views.
1.0	<ul style="list-style-type: none">• First release of Damage Assessment.

[Back to top](#)

Configure Damage Assessment

Learn how to configure Damage Assessment to meet specific needs in your organization.

Manage active incidents

Over time you may experience several emergency incidents. Therefore, it will be important to name each incident so you will be able to track the damage assessments associated to each incident. The Damage Assessment Operations application can be used to create incident names.

Create an incident name so that all damage reports and assessments can be collected for each individual incident, complete the following steps:

1. Deploy the Damage Assessment solution and open the Damage Assessment Operations application.

Note:

The Damage Assessment Operations app can be used by emergency management staff to manage, monitor and administer damage assessments.

2. Click **Administer**.

The Administration Tools page will open with several administration tools.

3. In the Administer page, review the instructions in the Manage Active Incidents option and click the **Incident Names csv** link.

The IncidentNames item page will open in your ArcGIS organization. This item contains a CSV file that can be used to update as each new incident occurs.

4. Click **Download** and open the IncidentNames CSV file on your computer.
5. Add a new incident name in the first field and save the file with the changes.
6. Click **Update** on the IncidentNames item page and choose the updated IncidentNames file on your computer then click **Update Item**.

The new incident name has been added to the list of incidents and will appear on each survey when damage reports are collected.

Modify surveys

The Damage Assessment solution includes four surveys: Public Damage Report, Individual Assistance Survey, Individual Assistance Express Survey, and Public Assistance Survey. These surveys are all based largely upon [FEMA PDA Guidebook](#). You can modify these surveys by adding your own questions or include logic to populate other values such as a Parcel Identification Number (PIN).

Tip:

The Damage Assessment Operations, Individual Assistance Survey, Public Assistance Survey and Individual Assistance Express Survey forms are configured to provide address information and will consume credits using the ArcGIS World Geocoding Service. [Learn more about credit usage when using the geocoding service.](#)

Modify incident list

You may choose to limit the content of the Public Damage Report. For example, you may want the public to see only the current incident and not all incidents in the past.

Follow the steps below to change the content of the Public Damage Report survey.

1. Sign in to your ArcGIS Online organization and search for the Public Damage Report form.
2. Install ArcGIS Survey123 Connect if you have not already installed it.
3. Start ArcGIS Survey123 Connect and sign in to your ArcGIS organization.
4. Click Public Damage Report survey to download the survey.
5. Click Public Damage Report survey again to open the survey.
6. On the left pane, click **Open XLSForm** to open Microsoft Excel spreadsheet.
7. Click the **choices** tab.
8. Revise the list of name values to reflect the incidents you want to see the public report to use.
9. Save the Microsoft Excel spreadsheet.
10. In ArcGIS Survey123 Connect, click **Publish** in the left pane to publish your changes.

Populate parcel information (optional)

Parcel information can be used to link damage assessments to home ownership. The parcel information can then be included in each damage report. You can also use other boundary or jurisdiction data to populate your survey as long as you have the boundary data published as web layer.

Optionally, follow the steps below to incorporate your parcels in the surveys.

1. Start ArcGIS Survey123 Connect and sign in to your ArcGIS organization.
2. Click Individual Assistance Survey to download the survey.
3. Click Individual Assistance Survey again to open the survey.
4. On the bottom pane, click **Scripts**.
5. In the **myJSFunctions.js** file find the following line:
`https://services.arcgis.com/15kuuRedeiUA0fF5pwAerered/arcgis/rest/services/YourParcelLayer/FeatureServer/0`

[Back to top](#)

6. Replace the URL in step 5 with a URL that represents your parcel layer.
7. On the right pane, click **Save** to save the script.
8. On the left pane, click **Open XLSForm** to open the Excel spreadsheet.
9. Find the hidden **parcelid** row.
10. Scroll over to the calculation column.
11. Add the following logic in the cell:
`pulldata("@json",${json},"attributes.PARCEL_NO")`
12. Update the Parcel_NO value in step 11 to the name of the field that represents your parcel identifier from the feature layer.
13. **Save** the spreadsheet
14. Preview your changes in ArcGIS Survey123 Connect.
15. In ArcGIS Survey123 Connect, click **Publish** in the left pane to publish your changes.

Tip:

Mobile workers face the challenge of collecting accurate information in the field. After a disaster, reference data such as parcel boundaries can help ensure accurate data collection. It can also help mobile workers navigate to assigned location so the correct information can be captured. To add authoritative data such as parcel boundaries, or address points to the survey in your map. Add the reference layers to the web map for Individual Assistance Survey or Public Assistance Survey and save the map. You'll then see this layer in the survey map.

Configure Damage Assessment Operations

The Damage Assessment Operations app allows the damage assessment coordinator to manage, monitor and administer damage assessments. This app can be configured to make the management and administration process easier by adding and updating mobile workers and creating in app level help to help fit organizational needs.

Add mobile workers

The Damage Assessment Operations app allows the damage assessment coordinator to assign reports to field personnel to conduct the damage assessments. The damage assessment coordinator can type in the username to assign the assessment. However, a more efficient way to manage the process is to maintain a list of mobile workers so that you can follow up with them if necessary. This can also be used as a predefined list of users to make it easier to select the name instead of typing.

To add or update the list of mobile workers, complete the following steps:

1. Sign into your ArcGIS organization.
2. Search for the IndividualAssistance feature layer and open the item details.

[Back to top](#)

3. Click **Data**.
4. Click **Fields**.
5. Scroll near the bottom and click the **Assigned To** field.
6. Click **Create List**.
7. For Label and Code enter values that represent the ArcGIS username.

Note:

The Code field value needs to match the ArcGIS username. The Label field value can be a user-friendly name or also be the username.

8. Repeat and add all the usernames that are supporting operations for your active incident.
9. Click **Save**.
Now when assigning users in the Damage Assessment Operations app, you will be able to select mobile workers from a drop-down list. This will help ensure consistency.
10. Repeat all the above steps for the PublicAssistance feature layer and save.

Note:

In the Damage Assessment Manager app within the Damage Assessment Operations app, the **Update Multiple Reports** widget includes a drop-down list that can be used to easily assign users. This widget requires the list for both the IndividualAssistance and PublicAssistance mobile workers be identical.

Update help

Additionally, you may choose to update the Damage Assessment Operations help page to include step-by-step instructions appropriate for your organization. To get started, copy the [help documentation](#) into the page and then modify it to fit your organizational needs.

Configure the Damage Assessment Operations app help page to fit your organization by completing the following steps:

1. Navigate to the item page for the Damage Assessment Center app and click the **Edit** button.
2. Click the **Page** button to open the page panel and select the **Help** page.
3. Use the **Body** node of the page panel to navigate between each section.
4. To update the text or images select the element in the layout and make the necessary changes.
5. Click **Save** then click **publish** in ArcGIS Experience Builder.


Configure the Damage Assessment site

The Damage Assessment solution includes the Damage Assessment ArcGIS Hub. This site can be configured with your organization's branding and used to share information with the public.

To update the site with your organizational information, complete the following steps:

Prepare images for the Damage Assessment site


To locate QR codes for the Damage Assessment site internal destination page, complete the following steps:

1. Verify that you are signed in to your ArcGIS organization.
2. Click the **Apps** button  in the header of the site and click QuickCapture.
3. Open the Windshield Damage Report project and click **Share**.
4. In the **Sharing** dialog box, under **Sharing options**, click **QR Code**, and then right-click the QR code and save the image locally.
5. Close the ArcGIS QuickCapture designer.
6. Open [ArcGIS Survey123](#) and sign in, if necessary.
7. Open the Individual Assistance Survey.
8. Click **Collaborate**.
9. Next to **Share this survey**, click the **Show the QR Code** button and then click **Click to download**.
10. Repeat the previous steps for the Individual Assistance Express Survey and Public Assistance Survey.
11. Close the ArcGIS Survey123 website.

Update with organizational information

After deploying the Damage Assessment solution, the Damage Assessment Hub layout requires a few updates to fit your local context.


To update the site with your organizational information, complete the following steps:

1. Verify that you are signed in to your ArcGIS organization and browse to the Damage Assessment site.
2. From the item page, click **Configure**.
3. At the top of the site, hover over the animated message and click the edit pencil , and then click **Edit in HTML**.
4. Update the existing text to the message that you want promote with the community.

The existing code is `Advisory issued on Sept 19, 2021 at 8:00AM EST. Watch for severe flooding. Adhere to local evacuation notices.`

Note:

You can remove an animated banner when a warning period has expired or there is nothing to report. In edit mode, point to the animated banner. On the right, in the vertical toolbar, click the edit pencil. In the side panel, scroll to **Row CSS Class** and delete the word **warning**. When you are ready to enable the animated banner, type **warning** in the **Row CSS Class** text box, and then, if necessary, repeat the previous step to modify the message.

5. Click **Save**.
6. Scroll to any sections that you want to update, hover over the card, and click the edit pencil  that appears in the horizontal toolbar, and then edit the content with information specific to your organization.
7. In the side panel, click **Footer**.
A custom footer is provided. In most cases, you will need to update it with your organization's branding, contact information, and social media references.
8. Click the **HTML** text box.
The **HTML** window appears.
9. Make the necessary changes and click **Apply**.
10. Click **Save**.
11. Click the **Save** drop-down arrow and click **Publish Draft**.

Next, you will edit content on the associated **Internal Destination** Hub page.

12. In the side panel, next to **Customize**, click the **number of associated pages** button.
13. Under **Home**, click **Internal Destination**.
14. Scroll to the **Windshield Damage Report** section, hover over the **Place QR Code Here** image card, and click the edit pencil.
15. In the side panel, click the **Clear Image** button to delete the placeholder image, and then upload the QR code that you previously saved locally.
16. Repeat these steps to replace the QR code placeholder images for the **Individual Assistance Survey**, **Individual Assistance Express Survey** and **Public Assistance Survey** sections.
17. Scroll down to **Damage Categories** and find the placeholder for damage categories, **Affected**, **Minor**, **Major**, **Destroyed** and **Inaccessible**. Replace the placeholder images with your own damage guidance photos.
18. Scroll to the **Frequently Asked Questions** section, hover over the card and click the edit pencil, and update the questions and answers.
19. On the **Internal Destination** hub page click **Save**. Under the **Save** menu click **Publish Draft**.

[Back to top](#)

You may now share your HUB page with others in your organization with unique QR codes for your mobile applications to provide quick access to mobile personnel.

20. Click **Save**.

21. Click the **Save** drop-down arrow and click **Publish Draft**.

You can now share your internal Hub page with others in your organization. The unique QR codes provide field personnel with quick access to your organization's mobile applications.

Share items with the public

Several layer views, maps and apps included in the Damage Assessment solution must be shared with everyone so they can be accessed by the public on the Damage Assessment site.

To share items with the public, complete the following steps:

1. Verify that you are signed in to your ArcGIS organization and browse to the Damage Assessment folder.
2. Next to each of the following items, check the check box:

Name	Item type
Public Damage Report	Form
IndividualAssistance_report	Feature layer (hosted, view)
Public Damage Report	Web Map
Damage Assessment Photo Viewer	Web Mapping Application
Damage Assessment Photo Viewer	Web Map
IndividualAssistance_public	Feature layer (hosted, view)
Damage Assessment	Site Application

Caution:

The Internal Destination page should not be shared with the public.

3. Click **Share**.

4. In the **Share** window, click **Everyone (public)** and click **Save**.

The **Warning: Sharing editable layers publicly** message appears notifying you that you are sharing editable layers publicly.

5. Click **Update**.

Use Damage Assessment

The Damage Assessment solution delivers a set of capabilities that help you collect damage reports, assign initial damage assessments, monitor the impact of a disaster on the community, brief internal stakeholders, and share information with the public.

In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

Note:

Use your organization's data or configured apps to follow these workflows.

Initial damage assessment process

The Federal Emergency Management Agency (FEMA) has two programs that provide assistance when a [natural disaster or catastrophic event occurs](#). These programs are referred to as Individual Assistance and Public Assistance. The Damage Assessment solution supports both programs.

Information collected during the initial damage assessment is provided to state and federal authorities to conduct the Joint Preliminary Damage Assessments. This information can be collected early in the process and shared with partner agencies, saving time and helping to prioritize recovery activities.

Many incidents don't result in a state or federal declaration but still require some degree of assistance. The Damage Assessment solution can be used for either declared or nondeclared emergencies. This process includes collecting damage reports, managing damage reports, and monitoring and sharing damage reports with other authorized agencies.

As damage reports are collected, some of the information can be shared with the public to keep them informed of the recovery activities.

Understand community impact

During an emergency, it's important for residents in the community to learn how the community has been impacted and how the recovery activities may affect them. The Damage Assessment can be used by emergency management agencies to share damage assessment information with those who have been impacted.

In this workflow, you will assume the role of a resident in the community who wants to learn more about the impact of the incident on the community and submit a damage report.

1. Sign in to your ArcGIS organization and browse to the Damage Assessment to learn how the community has been impacted by the disaster.
2. Review the scrolling text at the top of the site to get critical information on the current situation.

[Back to top](#)

3. Review the number of damage assessments completed, number of properties destroyed, and number that have major damage.
4. Scroll to the **Damage Reports** section.
5. Click **Review conditions** to open the Damage Assessment Photo Viewer app.
The Damage Assessment Photo Viewer app opens with information about damage assessment photos in the community.
6. Click **Explore Damage Photos**.
7. Click one of the photos in the photo panel on the left.
8. Click the **Zoom To** button in the photo panel.
9. Click the **View in full screen** button in the upper left of the photo panel.
10. When you are finished reviewing the full extent of the photo, click the **Exit full screen** button in the upper right corner of the photo.
11. Click the **Back** arrow to review more damage report photos.
12. Use the **Zoom in** and **Zoom out** buttons to navigate the map.

Note:

You can also share the Damage Assessment Photo Viewer using the Facebook, Twitter, or Send a link buttons in the upper right corner of the application window.

13. Close the Damage Assessment Photo Viewer application when you are done reviewing.
14. Scroll down the page of the Damage Assessment to view additional information about the incident.
15. Review the Report Damage, Frequently Asked Questions, and Cleanup Events sections to learn more about how the community is responding to the disaster.

Submit public damage report

Immediately after the emergency response and rescue operations are completed, initial damage assessments can be submitted to determine the impact of the incident. The Damage Assessment solution allows residents of a community to submit public damage reports using an ArcGIS Survey123 form available on an emergency management hub site that is hosted by the local jurisdiction.

In this workflow, you will assume the role of a resident in the community who needs to submit a damage report on residential property.

Tip:

In some situations, it may not be appropriate to collect damage reports from the public. Therefore, you may choose to skip this workflow and move to the Submit Windshield Damage Reports section if you have chosen not to use the Public Damage Reports.

1. Sign in to your ArcGIS organization and browse to the Damage Assessment and scroll down the page.
2. Click the **Report damage** button.
The Public Damage Report survey form is opened in the browser.
3. Select the **Incident Name** from the drop-down list.

Note:

Review [Configure Damage Assessment](#) for more information populating the incident list. If you have not completed this step, the survey will display a default list of choices.

4. Select the **Property Type**.
5. Enter the **Property Location** information as prompted.
6. Enter the **Structure Type**, **Home Ownership**, and **Homeowners Insurance** information and click **Next**.
7. Enter the **Contact Information** and click **Next**.
8. Select the type of disaster and other damage information, and then click **Next**.
9. Attach a photo for **Damage Extent**, **Additional Context**, **Curbside Image**, and **Close-Up Image** as needed.
10. Click the **Submit** button to complete the public damage report.

Manage damage reports

The Damage Assessment Operations app can be used by emergency management staff to manage, monitor, and share damage information.

In this workflow, you will assume the role of a damage assessment coordinator in the emergency management agency who needs to review, update, and assign damage reports to be assessed.

1. Sign in to your ArcGIS organization and browse to the Damage Assessment Operations application.
2. Click **Manage** to review the number of submitted reports, assigned reports, and completed reports.
3. Click **Manage Damage Reports** under the **Manage** tab at the top of the application window.

Review damage reports

As damage reports are submitted, they are added to the Review Damage Reports list. This list provides an organized way to review, update, and assign field users to conduct the initial damage assessments. This list displays damage reports for Individual Assistance and Public Assistance programs. At the top of each list is a number indicating the total number of damage reports within the map view for each program.

[Back to top](#)

1. In the **Review Damage Reports** pane, click **Individual Assistance** to review the damage reports listed by address.
2. Click any damage report in the list to see the date, status, and type of damage report for the selected address.
3. Click the damage report to view a pop-up with additional details.
4. Click **Zoom to** in the pop-up.

Note:

By default, the application is filtered to only show those reports that are unassigned. This allows the coordinator to focus on only those reports that need to be assigned to field personnel to conduct the initial damage assessment.

5. In the **Damage report filter**, turn off **Filter unassigned individual assistance** to see all damage reports.
All damage reports are displayed, including those that have been assigned.
6. Turn on **Filter individual assistance by assigned user** to see all damage reports that have been assigned.

Tip:

After you deploy the Damage Assessment solution to your organization, you can enter a username in the **Assigned To** text box to find all damage reports assigned to a user in your organization.

7. Turn on **Filter individual assistance by status** and select **Completed** from the drop-down list to see all damage assessments for individual assistance that have been completed.
8. Repeat the same steps for the Public Assistance damage report filters.
9. Turn on **Filter unassigned individual assistance** to see all submitted damage reports.

Update damage reports

1. In the **Review Damage Reports** pane, click **Individual Assistance** to review the damage reports listed by address.

Note:

Damage reports that have been submitted for the same address multiple times have a number higher than one. This can occur if a resident has submitted a public damage report more than once for the same address. Windshield damage reports will not contain an address but may appear near the same location.

2. Scroll down the list and select an address with two or more reports.
3. Review the date in the list of repeated damage reports for the same address to determine which are duplicates of the original record.

[Back to top](#)

4. Click one of the repeated damage reports in the list and zoom in to the selected feature.
5. Decide which damage report is correct and which is a duplicate.
6. In the pop-up, click the more (...) button and click the **Smart Editor** option.
7. In the edit panel, set **Report Status** to **Duplicate**, which removes it from the map if the **Filter unassigned individual assistance** option is on.
8. Click the original damage report and change **Report Status** to **Assigned**.
9. Change **Assigned** to a username.

Note:

The username must be a valid username in the ArcGIS Online organization.

10. Enter any concerns or instructions in the **Coordinator Comments** field.
11. If necessary, move the damage report to the correct location, such as a building.

Note:

After you move the damage report point on top of a building, the **Street Address** field will be updated using a reverse geocoder to reflect the correct address. When you zoom in to street level, you can use the **Switch Basemaps** tool to help visualize the building on which the damage report should be placed.

12. Click **Save** to update the damage report location and attributes.

Tip:

The same procedure can be used to review, edit, and assign public assistance damage reports.

Assign damage reports

After large disasters such as a wildfire, earthquake, or hurricane, it may be necessary to use additional field personnel from other agencies. In these situations, a reference grid can be helpful to assign those resources and to monitor damage reports within each grid. Then use **Update Multiple Records** to assign multiple damage reports to a single user.

1. Click **Create a Reference Grid** in the upper right of the application window.
2. Click **Define a Grid from an Area**.
3. Click the arrow next to **By Dimension**.
4. Click the **Draw GRG Area using extent** button and draw a rectangular box around a large geographic area.
5. Click **Create GRG**.

A geographic reference grid will be created with damage reports inside each grid that is labeled.

[Back to top](#)

Note:

You can create an assignment grid based on a user-defined dimension or reference system such as United States National Grid (USNG). You can also publish it to the Damage Assessment Grid layer if you want the assignment grid to persist.

6. Click **Update Multiple Reports** in the upper right of the application window.
7. Click the **Extent** button and draw a rectangle around a group of damage reports within a grid cell.
8. Select an **Incident Name** from the drop-down list to assign
9. Select **Assigned** from the **Report Status** drop-down list
10. Enter a username to assign multiple damage reports to the same user.

Tip:

You can change the status of multiple damage reports to **Duplicate**, **Invalid**, or **Inactive** if necessary.

11. Click **Save**.

Note:

The color of the point representing the damage report will change, indicating it is now assigned. If **Filter Unassigned Individual Assistance reports** is on, the damage report points will be removed from the map.

Conduct damage assessments

After the damage reports have been assigned by the damage assessment coordinator, public safety officials will need to conduct the damage assessments that have been assigned to them. Each mobile worker who has been assigned to conduct an assessment will receive the assignment in the inbox of the survey they are using.

Submit windshield damage reports

Immediately after the disaster, it is important to determine the severity of the impact to the community. In some situations, public safety personnel who are already in the field may be able to provide an initial assessment of damages. Windshield Damage Report is an ArcGIS QuickCapture mobile app that can be used by public safety or volunteers to rapidly capture damage reports while traveling down a road.

In this workflow, you will assume the role of a public safety official who needs to submit windshield damage reports.

1. In a browser, go to the **Internal Destination** on the Damage Assessment.
2. Scroll down the page and find the section on the **Windshield Damage Reports**.

[Back to top](#)

3. Use the camera on your mobile device and capture the Quick Response code (**QR code**) to open the Windshield Damage Report.
4. Scroll down the page to the **Damage Categories** section and review the images and description for each damage level.

Note:

More information on the degree of damage descriptions can be found in the appendix of the [FEMA Preliminary Damage Assessment Guide](#).

5. Click one of the damage levels in the **Individual Assistance** group.
6. Take a picture and send the report.
7. Repeat for one of the **Public Assistance** damage categories.
The Windshield Reports are added to the list of damage reports.

Perform Individual Assistance assessment

Note:

When using the Windshield Report, the incident name is not populated. You can open the QuickCapture project and set the default or manually set the incident names after they are collected.

The Individual Assistance Survey can be used by public safety personnel to gather details of private property losses and direct assistance to disaster survivors.

In this workflow, you will assume the role of a mobile worker in the emergency management agency who needs to conduct the damage assessments assigned to you using the Individual Assistance Survey.

1. In a browser, go to the **Internal Destination** on the Damage Assessment.
2. Scroll down the page and find the section on the **Individual Assistance Surveys**.
3. Use the camera on your mobile device and capture the **QR code** to open the Individual Assistance Survey.

Note:

If you don't have a QR code assigned to your survey, you can open the ArcGIS Survey123 app on your mobile device and sign in to your organization. Then download the survey to begin the process.

Note:

The Individual Assistance Survey must be used on the ArcGIS Survey123 app on your mobile device. Using the form in a web browser will not perform needed calculations.

4. Click the **Inbox** to review which damage reports are assigned to you.

Tip:

If the survey is open in the collect mode, close the survey and find the inbox at the bottom of the survey item page. The number indicates how many damage assessments have been assigned to you. If you do not have assignments, you may choose Collect and perform brand assessments on the fly.

5. Click **Refresh** to update the list of assignments.
6. Click the nearest assigned damage report.

Note:

When you open a public damage report, some of the information will be provided, which allows you to accept or change it as needed. When you open a Windshield Damage Report, only the damage level will be provided. You will need to complete the assessment by providing all the necessary details for each location.

7. Fill in all relevant information and add **photos**.
8. Click **Submit**.
9. Move to the next property in your list.

Perform Individual Assistance Express assessment

The Individual Assistance Express Survey complements the Individual Assistance Survey and can be used to simultaneously capture many damage structures—for example, a neighborhood, an apartment building, a mobile home park—with varying levels of damage.

In this workflow, you will assume the role of a mobile worker in the emergency management agency who needs to conduct the damage assessments assigned to you for multiple buildings using the Individual Assistance Express Survey.

1. In a browser, go to the **Internal Destination** on the Damage Assessment.
2. Scroll down the page and find the section on the **Individual Assistance Express Survey**.
3. Use the camera on your mobile device and capture the **QR code** to open the Individual Assistance Express survey.

Note:

If you don't have a QR code assigned to your survey, you can open the ArcGIS Survey123 app on your mobile device and sign in to your organization. Then download the survey to begin the process.

Note:

[Back to top](#)

The Individual Assistance Express Survey must be used on the ArcGIS Survey123 app on your mobile device. Using the form in a web browser will not perform needed calculations.

4. Click **Collect** to collect information for an area of properties.

Note:

The structure of this survey is slightly different so that you can assess damages for buildings, streets, blocks, or subdivisions and indicate the number of properties affected at each damage level.

5. Fill in all relevant information and add **photos**.
6. Click **Submit**.

Perform Public Assistance assessment

The Public Assistance Survey can be used by public safety personnel to gather details of public-owned properties such as schools, bridges, water treatment plants, and other facilities.

In this workflow, you will assume the role of a mobile worker in the emergency management agency who needs to conduct the damage assessments assigned to you using the Public Assistance Survey.

1. In a browser, go to the **Internal Destination** on the Damage Assessment.
2. Scroll down the page and find the section on the **Public Assistance Surveys**.
3. Use the camera on your mobile device and capture the **QR code** to open the Public Assistance Survey.

Note:

If you don't have a QR code assigned to your survey, you can open the ArcGIS Survey123 app on your mobile device and sign in to your organization. Then download the survey to begin the process.

Note:

The Public Assistance Survey must be used on the ArcGIS Survey123 app on your mobile device. Using the form in a web browser will not perform needed calculations.

4. Click **Collect** to collect information for a new Public Assistance assessment.

Note:

When you select the type of assessment, additional questions will be displayed that are relevant to the type of facility. Additional questions for the cost will be displayed when you select cost status.

5. Fill in all relevant information and add **photos**.
6. Click **Submit**.

[Back to top](#)

Monitor damage assessments

When an incident occurs, local governments need to ensure Individual Assistance priorities and Public Assistance needs are effectively captured and communicated to state and federal authorities to help the community recover. Emergency managers can monitor the impact to the community as the damage assessments are conducted to determine whether a state or national declaration threshold has been exceeded.

The impact on the community can be measured in the Individual Assistance Dashboard and Public Assistance Dashboard.

In this workflow, you will assume the role of an emergency manager who needs to review key metrics for both the individual assistance and public assistance damage assessments.

1. Sign in to your ArcGIS organization and browse to the Damage Assessment Operations application.
2. Click **Monitor** to review the number of destroyed and major impacted properties.
3. Click **Individual Assistance** under the **Monitor** tab.
4. Select the **Incident Name** from the drop-down list on the left side of the dashboard.
5. Zoom in to a specific area.

Note:

The damage level indicators and the damage report list will be updated as you move the map extent.

6. Select a **Type of Dwelling**.
7. Select the **Owner**, **Renter**, or **Occupant** category from the list.
8. Select an option in the **Insured** category.
9. Review the total number of damage reports for the selected incident.
10. Review the number of damaged properties in each damage level.

Note:

The percentage indicator in each damage level shows the percent of all damage assessments. The Unknown and Unaffected may be properties that have not been assessed yet.

11. Click one of the damage reports in the list on the right side of the dashboard
12. In the pop-up, scroll down to review the information gathered for that assessment and review a photo of the damage if available.
13. Close the pop-up.
14. Click **Completed** under the **Report Status** heading on the left side of the dashboard.
15. Click **Public Report** under the **Report Type** heading to determine how many damage reports were submitted by the public.
16. Continue reviewing the damage assessments by selecting other categories and comparing the results.

[Back to top](#)

17. Click **Public Assistance** under the **Monitor** tab.
18. Select the **Incident Name** from the drop-down list on the left side of the dashboard.
19. Zoom in to a specific area.
20. Select the desired **Public Assistance Category**.
21. Review the total damage estimate of damage reports for the selected category.
22. Click one of the damage reports in the list on the right side of the dashboard.
23. Review the information in the pop-up on the selected facility.

Administer damage assessments

Local emergency managers need to be able to manage damage assessments for multiple disasters over time. This can be challenging when the recovery period of those disasters can be a year or more. The Damage Assessment solution provides administrative tools to help you prepare damage assessment for impending incidents and close out damage assessments from past incidents.

Collaborate with partners

Information that is collected during the initial damage assessment process can be shared with state and federal agencies. This shared damage assessment information can be used as the starting point for the Joint Preliminary Damage Assessment (PDA) process. Just as the initial damage assessment process is used to identify the damage, the PDA process is used to validate the damage in a request for state or national declaration.

In this workflow, you will assume the role of the damage assessment coordinator who needs to share damage assessments with partner agencies.

1. Sign in to your ArcGIS organization and browse to the Damage Assessment Operations app.
2. Click **Administer** to open the administration tools page.
3. Under the Collaborate with partners heading, click **Damage Assessment Collaboration** to open the group page.

An item page for that group will be opened with a layer view of the completed damage assessments for both the Individual Assistance and Public Assistance feature layers. These noneditable layer views can be further restricted by limiting the fields you want to display.

4. Click **Invite Users** to open a list of named users in your organization.
5. Select the named users from the list that you need to share the layers.
6. Click **Add members to group**.

Note:

For more information about sharing, see [About distributed collaboration](#).

Manage active incidents

When a disaster happens, it is critical to prepare to conduct the initial damage assessments quickly. The first step in that process is to add an incident name to a list so that all damage reports and assessments can be assigned to the correct incident. You can add the incident name to a CSV file and upload the incident name list at the beginning of each incident. The incident names will then appear in the drop-down list for each survey when they are downloaded or refreshed. This assures that the incident name in damage reports will be easily accessible and consistent for all mobile workers. The incident names list in the dashboards will also be populated as damage assessments are submitted for review.

In this workflow, you will assume the role of the damage assessment coordinator who needs to prepare for the next disaster by updating the list of incident names.

1. Sign in to your ArcGIS organization and browse to the Damage Assessment Operations app.
2. Click **Administer** to open the Administration Tools page.
3. Click **IncidentNames CSV** under the Update Incident List heading.
An item page will be displayed for **IncidentNames.csv**.
4. Click **Download** and save the CSV file on your computer.
5. Open the CSV file and update the names of the incidents, and then save your changes.
6. Click **Update** on the IncidentNames item page to upload your updated IncidentNames list.

Note:

Mobile workers may need to update their surveys on their mobile devices to see the new incidents.

Provision users

The Damage Assessment Mobile Users group includes all the applications, web maps and layers needed to support mobile workflows and the Damage Assessment Operations applications. If you have additional mobile workers or assessment managers that need to access these applications, you can quickly add them to the group.

1. Click **Administer** to open the Administration Tools page.
2. Scroll down to **Provision users to groups**.
3. Click the **Damage Assessment Mobile Users** group.
4. Click **Invite users** and add the users who need appropriate access.

Generate reports

You may be asked to generate a report summarizing and listing all damage assessments. A simple report can be generated to include all Individual Assistance damage reports.

In this workflow, you will assume the role of the damage assessment coordinator who needs to produce a hard-copy report for decision makers.

1. Click **Administer** to open the Administration Tools page.
2. Click data view to generate a report.
3. Type a report name and, optionally, choose the format.
4. Click **Generate**.
5. Click **Download** and view the report.

Note:

The default report is a generalized street sheet style report. These reports are extensible and the template document provided can be modified. See the [Survey123 Report templates documentation](#) for guidance on extending the report.

Export photos

Some partner agencies may want to view the photos captured during the initial damage assessment process. This can be important to prove the damage levels from each assessment. You can use the Damage Assessment Photo Extraction Notebook to export photos into a ZIP file that can be shared.

In this workflow, you will assume the role of the damage assessment coordinator who needs to share damage assessment photos with partner agencies.

Note:

You must be assigned a role of Administrator or custom role which includes the privilege to Create and edit notebooks in order to run an ArcGIS Notebooks and complete the following steps.

1. Click **Administer** to open the Administration Tools page.
2. Click **Damage Assessment Photo Extraction Notebook**.
3. Follow the instructions in the notebook to create a ZIP file of photos for the selected incident.
4. Close the notebook.

Archive incidents

The Damage Assessment solution is designed for centralized management of all damages over time. This design allows you to continue to conduct all damage assessments in one layer for the Individual Assistance and another layer for the Public Assistance damage reports. You do not need to deploy the entire solution for each new incident.

When a disaster is over, it is important to close out the initial damage assessments that are completed. You can archive all completed damage assessments for each incident to a separate layer. This separate incident layer can be used for reviewing past incidents and

[Back to top](#)

ensures you are ready to start conducting damage assessments for any new incident. The archived damage assessments for each incident can also be used as a backup in case of data loss.

In addition, you may want to clean up the IndividualAssistance or PublicAssistance layer to only show incidents that are active by deleting damage assessments of past incidents. The Archive Damage Assessments Notebook can be used to archive and copy damage reports to a separate layer.

In this workflow, you will assume the role of the damage assessment coordinator who needs to close the incident by archiving the damage assessment of a specific incident.

Note:

You must be assigned a role of Administrator or custom role which includes the privilege to Create and edit notebooks in order to run an ArcGIS Notebooks and complete the following steps.

1. Click **Archive Damage Assessment Notebook** to open the notebook.
2. Follow the instructions in the notebook to archive damage assessments for the selected incident.
3. Close the notebook.

Development Impact Analysis

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Development Impact Analysis

Development Impact Analysis can be used to evaluate proposed developments and assess their impact on solar radiation, shadows, and viewsheds in a community.

It provides specialized workflows to produce information products for a comprehensive planning review. This optimized approach helps create powerful 3D visuals that can be used to inform stakeholders and improve public involvement in the development process. Development Impact Analysis is typically implemented by planning departments, design firms, and other local government agencies that want to create effective visualizations that highlight the impact of proposed developments.

The Development Impact Analysis solution delivers a set of capabilities that help you create solar radiation maps, evaluate how proposed developments will cast shadows on existing buildings, and review the impact on viewsheds.

Requirements

Development Impact Analysis requires the following:

- ArcGIS Enterprise
- ArcGIS Pro 2.9 or later (Advanced)
 - ArcGIS 3D Analyst extension
 - ArcGIS Spatial Analyst extension

[Back to top](#)

Information products

Development Impact Analysis includes the following information products:

Item	Description	Minimum user type
Solar Radiation Analysis	An ArcGIS Pro project used by government planners to calculate solar radiation maps for the wider community	GIS Professional Advanced
Shadow Impact Analysis	An ArcGIS Pro project used by government planners to evaluate the shadow impact of proposed or existing buildings on the surrounding community	GIS Professional Advanced
Visibility Analysis	An ArcGIS Pro project used by planners to assess the visibility from or visibility of a proposed development within the community	GIS Professional Advanced

Release notes

The following are the release notes:

Version	Description
1.1	<ul style="list-style-type: none">• A new Solar Radiation Analysis ArcGIS Pro project to support ArcGIS Pro 3.0.• A new Shadow Impact Analysis ArcGIS Pro project to support ArcGIS Pro 3.0.• A new Visibility Analysis ArcGIS Pro project to support ArcGIS Pro 3.0.• Added the ability to use integrated meshes as obstruction terrain in Visibility Analysis.
1.0	<ul style="list-style-type: none">• First release of Development Impact Analysis

Use Development Impact Analysis

The Development Impact Analysis solution delivers a set of capabilities that help you create solar radiation maps, evaluate how proposed developments will cast shadows on existing buildings, and review the impact on viewsheds.

In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

Shadow impact analysis

Planners can use Shadow Impact Analysis to evaluate the shadow impact of proposed or existing buildings on the surrounding community.

Two tasks are available to assess shadow impact:

- Check Shadows
- Analyze Shadows

Check shadows

You will start by assuming the role of a planner responsible for evaluating the shadow impact of proposed or existing buildings on the surrounding community. You are asked to use the Shadow Impact Analysis ArcGIS Pro project to review potential shadow impacts of proposed or existing buildings. Follow the Check Shadows task to do a quick visual shadow check.

1. Download the ShadowImpactAnalysis Desktop Application Template and unzip.
2. Open the ShadowImpactAnalysis.aprx in the unzipped folder.
3. On the **View** tab, in the **Windows** group, click **Catalog**, and click **Catalog Pane**.
4. In the **Catalog** pane, expand the **Tasks** folder, and double-click the Check Shadows task.
5. Follow the steps in each task.

Note:

Only use the created sun point locations for display purposes. All shadow impact calculations are based on the attributes of the sun points features, not the display location. Use **Observer Horizon Distance** to set the distance to the observer.

Analyze shadows

Next, you will continue with the role of a planner responsible for evaluating the shadow impact of proposed or existing buildings on the surrounding community. Follow the Analyze Shadows task to evaluate shadow impact of features by calculating cumulative shadow duration and area for the time period of interest.

1. Download the ShadowImpactAnalysis Desktop Application Template and unzip.
2. Open ShadowImpactAnalysis.aprx in the unzipped folder.
3. On the **View** tab, in the **Windows** group, click **Catalog**, and click **Catalog Pane**.
4. In the **Catalog** pane, expand the **Tasks** folder, and double-click the Analyze Shadows task.
5. Follow the steps in each task.

The Create Shadows step creates shadow panels on the observer features that will hold the shadow attributes:

- shadow_h—The number of hours each observer panel is in shadow
- shadow_hits—The number of time intervals (sun positions) each observer panel is in shadow
- num_suns—The number of suns
- start_date—The start date and time
- end_date—The end date and time

Note:

Check Shadows task only shows shadows as graphics in the scene, giving you a visual indication of where the shadows are going to be. The Analyze Shadows task allows you to evaluate shadow impact of features by calculating cumulative shadow duration and area for the time period of interest. This analysis takes longer to run than the Check Shadow task but calculates cumulative shadow duration and area as features with shadow attributes as opposed to only a visual display of the shadows.

Shadow hits are the number of suns that cannot be seen from the observer panel. Depending on the time interval, the shadow hits can be the same as the shadow hours (time interval is 1 hour), less than the shadow hours (time interval is more than 1h), or more than the shadow hours (time interval is less than 1h).

If your goal is to compare shadow impacts between different conditions, you must run this task multiple times, once per scenario in the comparison, such as existing versus proposed conditions. For example, the proposed scenario includes a model for a new development in the list of obstruction features along with existing buildings, whereas the existing conditions only include existing buildings in the obstruction features.

To create shadow panels for a specific time during the day (for example, 10 a.m.), open the Sun Positions attribute table and click a record that corresponds to the time interval of interest. This selection is honored by the Create Shadow step.

Solar radiation analysis

You will now assume the role of a planner responsible for calculating solar radiation maps for the wider community. You are asked to use the Solar Radiation Analysis ArcGIS Pro project to visualize solar radiation on the ground as well as on the roofs of buildings in a 3D scene and

evaluate total solar radiation per selected roof area. Follow the defined tasks to calculate solar radiation rasters, visualize solar radiation on building roofs, summarize solar radiation for selected roof areas, and publish the results.

1. Download the SolarRadiationAnalysis Desktop Application Template and unzip.
2. Open the SolarRadiationAnalysis.aprx in the unzipped folder.
3. On the **View** tab, in the **Windows** group, click **Catalog**, and click **Catalog Pane**.
4. In the **Catalog** pane, expand the **Tasks** folder, and double-click the Solar Radiation Analysis task.
5. Follow the steps in each task.

Note:

The atmospheric parameters used in this analysis are calibrated to historic solar radiation averages provided by the [NASA Surface meteorology and Solar Energy global datasets](#).

These averages are provided at a one-degree resolution for the globe. While this resolution is adequate for most analyses, there may be some inaccuracy in areas with high variability in weather patterns over short distances. The accuracy of the solar radiation values is dependent on the quality of the input data.

Visibility analysis

Government agencies can use Visibility Analysis to assess visibility for the wider community. For example, planners, architects, and real estate appraisers can use Visibility Analysis to determine visibility of or from a proposed development from or of surrounding locations. Event planners can use the solution to calculate event visibility from specific locations or surrounding buildings.

Two tasks are available to assess visibility:

- Explore Visibility
- Analyze Visibility

Explore visibility

You will now assume the role of a planner responsible for conducting visibility assessments. You have been asked to use the Visibility Analysis ArcGIS Pro project to determine visibility of or from a proposed development from or of surrounding locations. Follow the Explore Visibility task to quickly explore visibility in your scene.

1. Download the VisibilityAnalysis Desktop Application Template and unzip.
2. Open the VisibilityAnalysis.aprx in the unzipped folder.
3. On the **View** tab, in the **Windows** group, click **Catalog**, and click **Catalog Pane**.
4. In the **Catalog** pane, expand the **Tasks** folder, and double-click the Explore Visibility task.

[Back to top](#)

5. Follow the steps in each task.

Note:

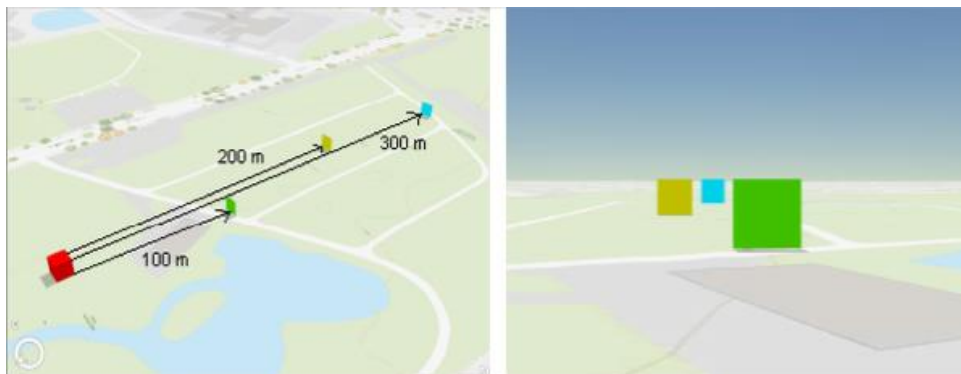
Typically, these tools are used to get an idea of visibility in your scene. The analytical results displayed by these tools are temporary and are not saved with the project, nor are they included in map packages. If you require analytical results as data including a measurement of how visible an object is, consider using the Analyze Visibility task.

Analyze visibility

Next, you will continue with the role of a planner responsible for conducting visibility assessments. You have been asked to use the Visibility Analysis ArcGIS Pro project to determine visibility of or from a proposed development from or of surrounding locations. Follow the Analyze Visibility task to perform a detailed visibility assessment.

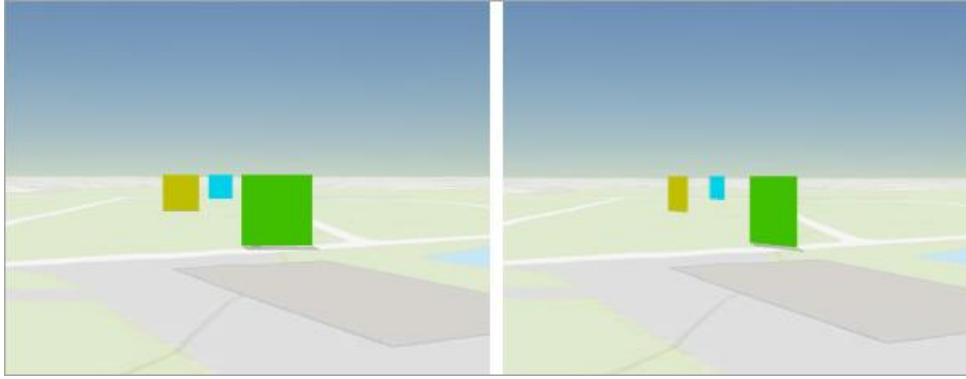
Note:

This task calculates the perceived and actual visible area of the target as an attribute of the observer. Distance and angle are considered when calculating perceived visibility because targets that are further away and under an angle from the observer appear smaller.



Objects that are further away from the observer appear smaller and are less visible compared to the objects that are closer to the observer.

Also, the angle of the targets in relation to the observer is considered because if a target is facing slightly away from the observer, it is less visible.



Targets facing away from the observer appear smaller.

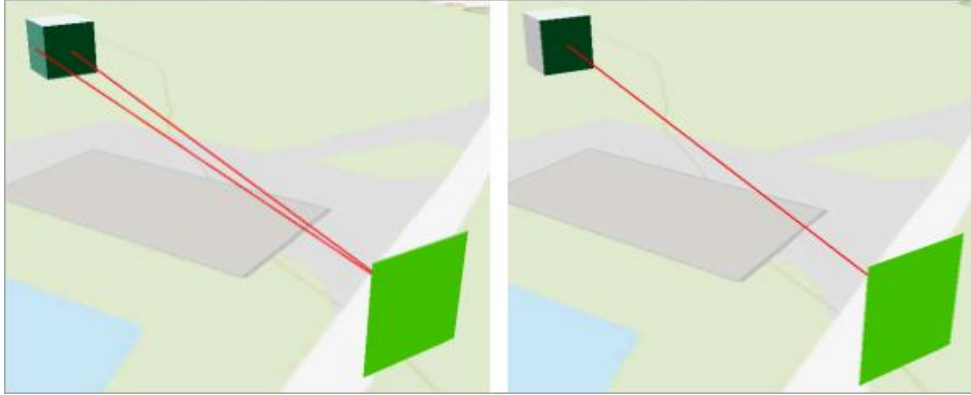
1. Download the VisibilityAnalysis Desktop Application Template and unzip.
2. Open the `VisibilityAnalysis.aprx` in the unzipped folder.
3. On the **View** tab, in the **Windows** group, click **Catalog**, and click **Catalog Pane**.
4. In the **Catalog** pane, expand the **Tasks** folder, and double-click the Analyze Visibility task.
5. Follow the steps in each task.

Note:

Analyze Visibility samples the observer and target features in 3D space and creates the following attributes on each observer panel describing the target visibility from the observer panel:

- **Deviation**—Average angle between the observer and target panels.
- **ActualArea**—The actual area of all targets visible from the observer.
- **PerceivedArea**—The perceived area of all targets from the observer, adjusted for distance and angle. The area of the closest target is used to proportionally calculate the target areas that are further away.
- **PerceivedAreaPercentage**—Percentage value of **PerceivedArea**. This attribute is typically used for symbolization.
- **NumOfSightLines**—Number of sight lines from the observer to all visible target panels.

The average angle of the observer feature panel in relation to the target lines of sight is saved in the **Deviation** attribute. Currently, the observer deviation is not used in the visibility calculations, meaning all observer panels that have a deviation of less than 90 degrees are considered to have line of sight on the targets. Use **Select By Attributes** on the **Deviation** attribute to find the panels that have a smaller angle or window of visibility.



Visibility is shown on the observer in the upper left without taking into account deviation (left image) and with deviation less than 45 degrees (right image).

District Energy Data Management

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to District Energy Data Management

District Energy Data Management can be used to map district heating and cooling assets, edit data, view system maps in the field and office, view asset reports, and collaborate with map notes.

It turns ArcGIS into a system for district energy organizations to easily inventory their assets and keep information up to date. It provides simple to use interactive system maps and dashboards for office and field staff, and increases collaboration.

After deploying, organizations with no district energy data can immediately begin mapping their district energy systems using GPS or digitizing data with web or desktop software. Organizations with existing spatial heating and cooling data can load it and begin using the apps.

Requirements

District Energy Data Management requires the following:

- ArcGIS Enterprise
- ArcGIS Pro 2.9 (Standard, or Advanced)
- ArcGIS Field Maps

Information products

District Energy Data Management includes the following information products:

Item	Description	Minimum user type
District Energy Data Manager	An ArcGIS Pro project package used to manage district energy system data and map notes	GIS Professional (Basic, Standard, or Advanced)
District Energy Editor	An ArcGIS Web AppBuilder application used to edit district energy system data and map notes	Editor
District Energy Viewer	An ArcGIS Web AppBuilder application used to view district energy map and create map notes	Editor
District Energy Dashboard	An ArcGIS Dashboards application used to view district energy asset information	Viewer
District Energy Map Notes Manager	An ArcGIS Web AppBuilder application used to review and manage map notes	Editor
District Energy Mobile Viewer	A map used in ArcGIS Field Maps to view district energy system assets to view district energy system assets and view or create map notes	Mobile Worker
District Energy Asset Collector	A map used in ArcGIS Field Maps to capture and modify district energy assets and create map notes from the field	Mobile Worker

Release notes

The following are the release notes:

Version	Description
1.1	<ul style="list-style-type: none">The Minimal Gallery app has been removed from the solution item.
1.0	<ul style="list-style-type: none">First release of District Energy Data Management

Configure District Energy Data Management

It turns ArcGIS into a system for district energy organizations to easily inventory their assets and keep information up to date. It provides simple to use interactive system maps and dashboards for office and field staff, and increases collaboration.

The District Energy Data Management solution can be configured to meet specific needs in your organization. The sections below outline some administrative tasks to update and manage the solution to fit your organization's needs.

Load data

In some cases, you may need to load existing data into the solution before sharing the maps or applications. Review the maps or applications provided with the solution and determine what, if any, source data you want to load. District Energy Data Management also includes a data model to store information about typical district energy system assets. To explore the schema, view the [data dictionary](#).

Tip:

If you do have to load data into the solution, you may want to develop a source-target matrix to track how your source data will be loaded into the target layer or layers used in the solution.

Depending on the format of your source data, you may choose to append your source data to the new layers. Once you have determined what source data must be loaded, complete one of the data loading workflows below:

Use the Append tool

In ArcGIS Pro, the [Append](#) can be used to append multiple input datasets to an existing target dataset. Input datasets can be point, line, or polygon feature classes.

To append features to the target layer or layers using the Append tool, complete the steps below:



1. In ArcGIS Pro, sign in to your ArcGIS organization.
2. To open the **District Energy Data Manager** project, click **Open another project**, click **My Content** under **Portal**, double-click the **District Energy Data Management** folder, and click **District Energy Data Manager**.
3. Add your existing source layers to a new map. To add the target feature layers from the DistrictEnergySystem feature service, click **My Content** under **Portal**, double-click the **District Energy Data Management** folder, and add the DistrictEnergySystem feature service to the map.
4. On the **Analysis** tab, in the **Geoprocessing** group, click **Tools** to open the **Geoprocessing** pane.
5. In the search bar, type Append and click to open the **Append** tool.

[Back to top](#)

6. Add your existing district energy data from the map to the **Input Datasets** parameter.
7. For **Target Datasets**, use the **DistrictEnergySystem** features in the map.
8. In the **Schema Type** parameter, use the drop-down menu to choose **Use the Field Map to reconcile schema differences** to perform field mapping.
9. Update your field mapping and click **Run**.
10. Repeat this process as needed to load all your existing data into the target district energy schema.

Use the Data Loading Tools

The Data Loading toolbox can be used in ArcGIS Pro to streamline loading data from a source to a target dataset and provide the ability to perform in-process data transformation. Setup the [Data Loading toolbox](#) before getting started with the steps below.

1. Open the **District Energy Data Manager** project.
2. On the **Project** tab, click **Python** to access the Python Package Manager.
3. Under **Project Environment**, click **Manage Environments**.
4. Click **Clone Default**  to clone your default environment.
5. Click the **Active** button for the new environment, and click **OK**.
6. Restart ArcGIS Pro to allow your environment changes to take effect.
7. In the Python Package Manager, click **Add Packages** to see the Python packages available for installation.
8. Click **Refresh**  to update the list of available packages.
9. In the **Search** box, type `d1tsolutions` to find the Data Loading Tools toolbox.
10. Select the **d1tsolutions** package and click the drop-down arrow to update the version.
11. Click **Install**.
12. The **Install Package** dialog box appears.
13. Review the terms and conditions and check the box to agree.
14. Click **Install** to install the package.
15. Once the installation is complete, close ArcGIS Pro.
16. The Data Loading Tools toolbox is now installed. The next time you start ArcGIS Pro, you can access it from the geoprocessing toolboxes.
17. Review [An overview of the Data Loading toolbox](#) to learn more about the tools and how to use them to load data into the **DistrictEnergySystem** layers.

Configure the District Energy Data Manager ArcGIS Pro project

The District Energy Data Manager project includes a District Energy Data Manager map with broken links.

1. In ArcGIS Pro, sign in to your ArcGIS organization.
2. To open the **District Energy Data Manager** project, click **Open another project**, click **My Content** under **Portal**, double-click the **District Energy Data Management** folder, and click **District Energy Data Manager**.
3. In the **Catalog** pane, expand **Maps** and double-click **District Energy Data Manager** to open the map.
4. In the **Contents** pane, click the red exclamation point **!** next to the **Map Notes** layer.
5. The **Change Data Source** dialog box appears.
6. Click **My Content** under **Portal**, double-click the **District Energy Data Management** folder, double-click the **MapNotes_managing** feature service, and double-click the **Map Notes** layer.
7. In the **Contents** pane, click the red exclamation point **!** next to the **Pump** layer.
8. The **Change Data Source** dialog box appears.
9. Click **My Content** under **Portal**, double-click the **District Energy Data Management** folder, double-click the **DistrictEnergySystem_editing** feature service, and double-click the **Pump** layer.
10. The data source is repaired for the remaining layers.
11. In the **Contents** pane, right click the **District Energy Data Manager** map and click **Properties**.
12. Click the **Coordinate Systems** tab. In the **XY Coordinate Systems Available** section select the coordinate system that matches the layers in the map.

Note:

Ensure the coordinate system of the map matches that of the feature layers deployed in the solution. If these do not match there may be discrepancies in what units are displayed in the map.

13. Click **Save** to save the project.

Add members to groups in your organization

Included with District Energy Data Management are four groups designed to help managers organize their members based on their privileges and their work. The solution includes the following groups: District Energy Editors, District Energy Field Users, District Energy Map Notes Managers, and District Energy Office Users.

To add members to the groups, complete the following steps:

[Back to top](#)

1. In a browser, sign in to your ArcGIS organization.
2. Verify that you have privileges to manage member groups before continuing.
3. Click **Groups** at the top of the site.
4. Click the name of the group to open the group details pages.
5. On the **Settings** tab, edit and update the properties of the group, including access, sharing properties, and group ownership.
6. Click the **Overview** tab and click **Invite users**.
7. Select the members you want to add and click **Add to group**.
8. Repeat steps 3 through 6 for each group you need to add members to.

The provided groups are intended to be utilized by members with a minimum of the following user types in order to fully use the provided maps and apps:

Group name	User type
District Energy Editors	<ul style="list-style-type: none"> • Editor • GIS Professional Basic with ArcGIS Pro (minimum of one license recommended)
District Energy Field Users	<ul style="list-style-type: none"> • Mobile Worker
District Energy Map Notes Managers	<ul style="list-style-type: none"> • Editor
District Energy Office Users	<ul style="list-style-type: none"> • Editor

Set the default map extent to your service territory



When the District Energy Data Management solution is deployed into your organization, it uses the [map default](#) set in your organization. If this property has not been set, you may want to quickly update a few maps and apps to your service territory manually to avoid having to pan and zoom to your area each time you open a map. Follow the steps below to update the initial extent of the maps and apps provided with this solution.

1. In a browser, sign in to your ArcGIS organization.
2. To set the default map extent for the **District Energy Viewer** application, browse to the **District Energy Viewer** item page and click **Edit Application**.
3. On the **Map** tab, zoom the map to the desired extent and click **Use current map view** under **Set initial extent**. Click **Save**.
4. Repeat steps 2 and 3 to set the default map extent for the **District Energy Editor** and **District Energy Map Notes Manager** applications.
5. To set the default map extent for the **District Energy Asset Collector** map, open the **District Energy Asset Collector** map.
6. Zoom the map to the desired extent and save it.
7. Repeat steps 5 and 6 for the **District Energy Mobile Viewer** map.

[Back to top](#)

Configure the dashboard

When you deploy the District Energy Data Management solution to your organization you have the option to change spatial reference. If you selected a spatial reference with a linear unit other than meters, you will need to revise the dashboard by completing the following steps.

1. In a browser, sign in to your ArcGIS organization.
2. To set the default map extent for the **District Energy Dashboard** application, browse to the **District Energy Dashboard** item page and click **Edit Dashboard**.
3. Navigate to the **Pipes** tab and click the configure button  on the **Transmission Main** indicator.
4. On the **Data** tab, toggle-on the value conversion switch to expose the conversion settings. Change the **Factor** setting to the correct conversion.
The dashboard **Factor** setting is configured to convert meters to other units. Learn more about how to [Convert Values](#).
5. On the **General** tab, click edit to modify the description. Update the description to the correct unit.
6. Click **Done** to save your changes.
7. Repeat steps 3 and 6 for each of the indicators on the **Pipes** tab.
8. Click the save button .

Use District Energy Data Management

After deploying, organizations with no district energy data can immediately begin mapping their district energy systems using GPS or digitizing data with web or desktop software. Organizations with existing spatial heating and cooling data can load it and begin using the apps.



In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

Add data in the field

In these workflows, you will be taking the role of a mobile worker collecting data in the field. If you have a mobile-centric workforce, this may be the best option to collect new data or validate existing data.

Collect flow meter features

As a mobile worker, you can collect flow meters and/or controllable valve service using ArcGIS Field Maps in the field.

1. In ArcGIS Field Maps open the District Energy Asset Collector map.
2. Browse to the collection location.
3. Tap **Add** .
4. From the list of features, search for the type of meter. In this example you are collecting a flow meter. Search for **Flow** by swiping up or typing flow in the filter search bar and select **Flow** under **Meter**.
A point is added to your location.
5. Fill in any attributes and tap **Submit**.
6. Ensure the last collected meter is selected and browse to the next meter location. Tap the **Copy** button at the bottom of the screen to copy the previously added meter to the location of the new meter.
7. Adjust the attributes and tap **Submit**.
8. If the meter has an accompanying controllable valve service, you can add it next.
9. Tap **Add** .
10. From the list of features, search for **Service** by swiping up or typing service in the filter search bar and select **Service** under **Controllable Valve Service**.
A point is added to your location.
11. Fill in any attributes and tap **Submit**.

[Back to top](#)

Add map notes

As a mobile worker, you can add a map note to the system.

1. In ArcGIS Field Maps open the District Energy Asset Collector map.
2. Navigate to the map note location.
3. Tap **Add**.
4. From the list of features, search for the **Map Notes** type by swiping up or typing a description in the filter search bar, select the **Map Notes** type, and add the note to the map by sketching a polygon in the map note location.
5. Fill in the attributes and click **Submit**.
6. The map note is added to the map and is available to be viewed and reviewed by others in the organization.

Add data in the web

In the workflows below, you will be taking the role of an editor adding data in ArcGIS Online. The workflows explain how to add data in the web, use the provided dashboard, and add and manage map notes.

Add service connections

As an editor, you want to use a web app to add service connections to the map.

1. In a browser, sign in to your ArcGIS organization.
2. At the top of the site, click **Groups**.
3. Browse to the **District Energy Editors** group and locate the **District Energy Editor** app. Click **View Application** to launch the app.

In the District Energy Editor app, the **Asset Editor** widget is open by default on the left side of the window when the app opens.

4. In the **Asset Editor** pane, click the template drop-down menu and select **Service Connection**, and select **Service Connection** from the list of options.
5. Scroll down and fill in the preset values.
6. With service connection selected, click to add the service connection to the map.
7. You are prompted to update attributes and click **Save**.
8. Continue adding service connections, changing the service connection type as needed.
The template and preset attributes remain selected so you can continue adding service connections.

Add map notes

As a user, you can add a map note to the system.

1. Browse to the **District Energy Office Users** group and locate the **District Energy Viewer** app. Click **View Application** to launch the app.

- a. In the District Energy Viewer, click the **Map Notes Editor** widget to open it.
- b. Choose a map note issue type and sketch a polygon in the desired map note location.
- c. Enter attributes and click **Save**.

Map note changes are reflected in other apps and maps across the system so others in your organization can view the latest information.

Manage map notes

As a GIS manager, you can review and resolve map notes about your system to ensure issues are addressed.

1. Browse to the **District Energy Map Notes Managers** group and locate the **District Energy Map Notes Manager** app. Click **View Application** to launch the app.

In the upper right of the app, there are a number of widgets that have been configured to filter, edit, update, and manage map notes.

2. Review the list of included widgets to learn how to use them to manage map notes:
 - **Legend**—View a list of included layers in the map. The legend displays what is visible on the map, so zooming in or out can expand or reduce the list if scale suppression is set on the layers.
 - **Filter**—Use the Creation Date, Issue, and Severity filters to view only map notes that fit the entered criteria. Select a date range or an option from the drop-down menu and turn on a filter to view the selection on the map.
 - **Batch Edit Map Notes**—Select a group of map notes using one of the selection tools and update values for all the selected features at once.
 - **Map Notes Editor**—Add a new map note or edit an existing map note.
 - **Map Notes Summary**—View all the map notes by status and expand each section to view the individual notes. Click a note to zoom to it on the map and view its attributes in a pop-up.

Use the district energy dashboard

As a member of the utility, you want to have a comprehensive view of your district energy system assets.

1. Browse to the **District Energy Office Users** group and locate the **District Energy Dashboard** app. Click **View Dashboard** to launch the dashboard.
2. View the district energy system statistics on the **General** tab, click the **Asset** tab to view district energy asset details, click the **Pump** and **Heat Exchanger** to view other critical statistics.

Add data in ArcGIS Pro

In the workflows below, you will be taking the role of an editor adding data in ArcGIS Pro. If you have known locations of assets or as-built drawings, the following workflows demonstrate using ArcGIS Pro to add data to your district energy system.

Note:

The first time you open the District Energy Data Manager map in ArcGIS Pro, the layers will show as broken. Follow the steps to [Configure the District Energy Data Manager ArcGIS Pro project](#) to fix your layers.

Add service pipes

As an editor, you can add a service lateral and service connection to the map in ArcGIS Pro.

1. Open the **District Energy Data Manager** ArcGIS Pro project, sign in to your ArcGIS organization.
2. In the **Catalog** pane, expand **Maps** and double-click **District Energy Data Manager** to open the map.
3. On the **Edit** tab, in the **Snapping** group, click **Snapping** and turn snapping on.
4. On the **Edit** tab, in the **Features** group, click **Create**.
The **Create Features** pane appears.
5. Select **Supply** from the **Service Pipe** template.
6. Add the template to the map by clicking at each bend of the pipe. Double-click on the map to complete the sketch of the service laterals.
7. On the **Map** tab, in the **Selection** group, click **Attributes** and fill in the attributes.
8. Repeat steps 5 through 7 to add the **Return** service pipe to the map by selecting the **Return** template in place of the **Supply** template.
9. Once both **Supply** and **Return** services have been added, you will add the **Service Connection**.
10. Select **Service Connection** from the **Service Connection** template.
11. Add the template to the map by clicking a location of the **Service Connection**.
12. On the **Map** tab, in the **Selection** group, click **Attributes** and fill in the attributes.

Add features from an as-built drawing

As an editor, you can add assets such as supply and return laterals, controllable valves, and meters to the system from an as-built drawing.

1. In the **Catalog** pane, expand **Maps** and double-click **District Energy Data Manager** to open the map.

2. On the **Map** tab, in the **Layers** group, click **Add Data**. Browse to the location of the as-built drawing, select it, and click **OK** to add it to the map.
3. With the image selected in the **Contents** pane, browse to the **Raster Layer** ribbon. On the **Appearance** tab, in the **Effects** group, change the **Layer Transparency** setting to 50%.
4. On the **Imagery** tab, in the **Alignment** group, select **Georeferencing**.
If you are unfamiliar with georeferencing, see [Overview of georeferencing](#) in the ArcGIS Pro help.
5. On the **Georeferencing** tab, in the **Adjust** group, click **Add Control Points**.
 - a. Add a minimum of two control points to connect your image to your known map positions.
 - b. Once you have added all the control points, browse to the **Georeferencing** tab and click **Save**.
6. On the **Edit** tab, in the **Snapping** group, click **Snapping** and turn snapping on.
7. On the **Edit** tab, in the **Features** group, click **Create**.
The **Create Features** pane appears.
8. Select an asset from the template list and add the asset to the map where it corresponds to the georeferenced as-built drawing.
9. On the **Map** tab, in the **Selection** group, click **Attributes** and fill in the attributes.
10. Remove the image from the **Contents** pane once digitizing is complete.

Add map notes

As an editor, you can add a map note to the system.

1. In the **Catalog** pane, expand **Maps** and double-click **District Energy Data Manager** to open the map.
2. On the **Edit** tab, in the **Features** group, click **Create**.
The **Create Features** pane appears.
3. In the **Favorites** list, expand the **Map Notes** folder and choose a **Map Note** option. Add the map note by digitizing a polygon on the map at the desired location.
4. On the **Map** tab, in the **Selection** group, click **Attributes** and fill in the attributes.
The map note is added to the map and is available to be viewed and reviewed by others in the organization.

Election Management

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Election Management

Election Management can be used to manage election day activities, monitor performance, and gauge voter sentiment.

Election offices, in communities large and small, respond to issues and requests from polling places and voting centers. Issues with computer hardware, facilities, or supplies impact wait times and confidence in the election process. Furthermore, many communities have increased early voting options and the use of official ballot drop boxes. As a result, reliable ballot chain of custody processes are imperative. Election Management is typically implemented by clerks, election commissions, or secretary of state offices that want to run efficient elections and increase confidence in the voting process.

The Election Management solution delivers a set of capabilities that help election officials report wait times and request assistance at voting centers and polling places, dispatch field staff to respond to requests, track ballot chain of custody, monitor the performance of voting locations, and gauge the satisfaction of voters on Election Day.

Requirements

Election Management requires the following:

- ArcGIS Enterprise
- ArcGIS Pro 2.9 or later (Standard or Advanced)
- ArcGIS Workforce
- ArcGIS Survey123 Connect

Information products

Election Management includes the following information products:

Item	Description	Minimum user type
Election Assistant	A Crowdsourcing Polling app used by poll workers to routinely report wait times and request assistance (for example, additional ballots or computer support) at their assigned voting center or polling place	Editor
Election Manager	An ArcGIS Workforce project used by elections staff to manage election day requests for assistance and track the resolution of each request. Field users access the Election Manager project using the ArcGIS Workforce mobile app.	Mobile Workerv
Collection Checklist	An ArcGIS Survey123 form used by ballot collection officers to document ballot chain of custody at the drop box location	Mobile Worker
Return Checklist	An ArcGIS Survey123 form used by ballot collection officers to document ballot chain of custody at election headquarters	Mobile Worker
Drop Box Requests	An ArcGIS Survey123 form used by ballot collection officers to submit ballot drop box requests for service	Mobile Worker
Voter Satisfaction Survey	An ArcGIS Survey123 form used by clerks and election officials to gauge voter satisfaction and sentiment during an ongoing election	Not required
Election Requests Dashboard	An ArcGIS Dashboards app used by clerks and election officials to monitor requests for assistance	Viewer
Election Wait Times Dashboard	An ArcGIS Dashboards app used by clerks and election officials to monitor wait times during an ongoing election	Viewer
Ballot Collection Dashboard	An ArcGIS Dashboards app used by clerks and election officials to monitor ballot chain of custody activities	Viewer
Election Performance Center	An ArcGIS Experience Builder app used by clerks and election officials to view all the performance dashboards in a single app	Viewer
Voter Satisfaction Dashboard	An ArcGIS Dashboards app used by clerks and election officials to monitor voter satisfaction during an ongoing election	Viewer
Become An Election Worker	An ArcGIS Hub site used by the general public to learn more about becoming an election worker in their community ArcGIS Hub Premium is required when Community Identities are used for election workers	Not required
Election Worker Application	An ArcGIS Survey123 form used by community members to express interest in becoming election workers	Community Identity
Election Worker Manager	A Crowdsourcing Manager app used by election staff to manage election worker applications	Editor

[Back to top](#)

Election Worker Notebook	An ArcGIS Notebooks app used to grant election workers access to election apps	Editor
Election Data Management	An ArcGIS Pro project used by mapping technicians to inventory and maintain electoral districts, precincts, voting centers, and polling places	GIS Professional Standard

Release notes

The following are the release notes:

Date	Description
2.0	<ul style="list-style-type: none"> Updated the Election Assistant app to include voting location search functionality. A new collection of apps to conduct and monitor ballot drop box chain of custody activities. A new collection of focused ArcGIS Dashboards to monitor election performance. A new collection of apps to solicit and manage election workers and provide information to potential and current workers.
1.1	<ul style="list-style-type: none"> Updated the Election Manager project from ArcGIS Workforce Classic to ArcGIS Workforce.
1.0	<ul style="list-style-type: none"> First release of Election Management

Configure Election Management

Election Management can be used to manage election day activities, monitor performance, and gauge voter sentiment.

Learn how to configure the Election Management solution to meet specific needs in your organization.

Manage election data

The Election Data Management ArcGIS Pro project includes a series of tasks to help guide you through creating, loading, and maintaining an inventory of electoral districts, voting locations, and voting precincts.

Get started

To get started with Election Data Management, complete the following steps.

1. Sign in to your ArcGIS organization and browse to the Election Data Management Desktop Application Template.
2. Open the item page, and then click **Download**.
3. Unzip and open the Election Data Management ArcGIS Pro project.
4. On the **View** tab, in the **Windows** group, click **Catalog Pane**.
5. In the **Catalog** pane, expand the **Tasks** folder, and then double-click the **Election Data Management** task item.
6. In the **Tasks** pane, click the **Getting Started** task group to expand the collection of tasks.

Election Data Management is used to load, create, and edit foundational election data used in apps such as My Elected Representative, Election Polling Places, and Election Manager. The solution uses three foundational datasets:

- Voting Locations
- Voting Precincts
- Electoral Districts

Voting Locations contains facilities where voters can cast ballots and is defined by a point layer. They can be either polling places, voting centers, or ballot drop boxes, depending on your community's needs. Voting centers and ballot drop boxes can be modified to allow early voting.

Voting Precincts contains areas that define your community's precincts and is defined by a polygon layer. They are related to voting locations by a unique ID and define the unique polling place where voters in a precinct should cast ballots.

Electoral Districts contains geographies that define an elected office's area of representation and is defined by a polygon layer. For example, a mayor's Electoral District is the municipal boundary. Key attributes are used in My Elected Representative app.

[Back to top](#)

Before proceeding to subsequent tasks, follow the instructions in the **Add election geography layer** task to add the ElectionGeography feature layer deployed with the solution.

Load existing election data

Your election agency may have existing polling place, voting center, ballot drop box, voting precinct, or electoral district data, which can be loaded into the ElectionGeography feature layer.

Voting Locations are designated as either Polling Places, Voting Centers, or Ballot Drop Boxes using the Voting Facility Type field. Both Voting Centers and Polling Places use a standard for operational days and hours in the Voting Centers and Election Polling Places apps included with the Election Outreach solution. To load existing voting location data, designate the type and format the operational days and hours, following the instructions in the **Polling places, Voting centers, and Ballot drop boxes** tasks.

The voting precinct's relationship with a polling place is defined by populating the Polling GlobalID field with the GlobalID from the corresponding polling place. Establishing this relationship allows the Election Polling Places app to display the appropriate polling place when a user searches by address or defines a location on the map. Follow the instructions in the **Voting precincts** task to load existing data and establish the relationship.

Follow the instructions in the **Electoral districts** task to load existing electoral district data.

Create new election data

You may need to create new election data if existing data is not available. Follow the instructions in the **Create new election data** task group to create new voting locations, voting precincts, and electoral districts.

Note:


Map layers must be visible to create new data.

Prepare for the next election

Election data changes over time as new voting locations are established, precincts are modified, and election cycles are completed. You must update key fields, such as the next election date, to maintain election data accuracy and ensure that public facing apps included with the Election Outreach solution display the correct information. Use the **Next election date, Next voter registration date, and Early voting start and end date** tasks to update key date fields as election cycles are completed. Use the **Modify voting locations, Modify precincts, and Modify electoral districts** tasks to edit your election data.

Modify election and drop box request types

When voting location workers create requests using the Election Assistant app and the Election Requests form, requests are automatically created as assignments in the corresponding Election Manager ArcGIS Workforce project. Requests submitted by ballot collection officers using the Drop Box Requests form also create assignments in the Election Manager project. Using Election Manager, dispatchers can assign requests to field rovers. Additionally, a dispatcher may need to create an assignment directly without a request from a voting location worker. For example, dispatchers can optionally create ballot collection assignments to initiate the ballot collection workflow. Follow the steps below to add additional request types to the Election Manager Workforce project and the Election Requests ArcGIS Survey123 form.

1. Verify that you are signed in to your ArcGIS organization and click the **Apps** button  in the header of the site.
2. From the app launcher, click **Workforce** to open the app.
3. Under **Projects**, hover over the **Election Manager** project, and click **Configure**.
4. Click the **Assignment Types** tab.
5. In the text box, enter a new assignment type, and then click **+ Type**.
6. Repeat until all new assignments types have been added.

Before populating the new assignment types into the Election Requests form, you will first copy the GlobalID for each new assignment type.

7. In your ArcGIS organization, browse to the Election Manager feature layer.
8. Open the item page, and then click **Open in Map Viewer**.
9. On the **Contents** (dark) toolbar, click **Tables**.
10. Click the **Assignment Types** layer.
11. In the table header, click **Tools**, and then check the **GlobalID** field to show (unhide) in the table.
12. Click **Done** to close the pop-up window.
13. Expand the **GlobalID** field and copy the first new assignment type's ID.
14. Paste the copied GlobalID into Microsoft Notepad or another text editor for reference.
15. If applicable, copy any additional assignment type's ID into the same text editor.

Update the Election Requests form

Update the Election Requests form with each new assignment type.

1. Install [ArcGIS Survey123 Connect](#).
2. Start ArcGIS Survey123 Connect and sign in to your ArcGIS organization.
3. Click **Election Requests** to download the survey.
4. In the **Download** window, click **Download** and click **OK**.

[Back to top](#)

5. Click **Election Requests** to open the survey.
6. On the left, from the side toolbar, click the **XLSForm** button.
7. At the bottom of the Microsoft Excel spreadsheet, click the **choices** tab.
This tab comprises all the selectable options for survey questions.
8. In the **list_name** column, type ASSIGN_TYPE.
9. From the text editor, copy the GlobalID.
10. In the **name** column, paste the GlobalID, and before and after the GlobalID, add curly braces (for example, {5b3e80df-aec7-4739-929f-8cb70cdbc62c}).
11. In the **label** column, type the assignment type.
12. For each new assignment type, repeat the previous steps.
13. Save and close the Microsoft Excel spreadsheet and preview your changes in ArcGIS Survey123 Connect.
14. In ArcGIS Survey123 Connect, in the left toolbar, click **Publish** to publish your changes.
15. Click **Publish survey** to publish your changes, and then click **OK**.

Update the Drop Box Requests form

Update the Drop Box Requests form with each new assignment type.

1. Install [ArcGIS Survey123 Connect](#).
2. Start ArcGIS Survey123 Connect and sign in to your ArcGIS organization.
3. Click **Drop Box Requests** to download the survey.
4. In the **Download** window, click **Download** and click **OK**.
5. Click **Election Requests** to open the survey.
6. On the left, from the side toolbar, click the **XLSForm** button.
7. At the bottom of the Microsoft Excel spreadsheet, click the **choices** tab.
This tab comprises all the selectable options for survey questions.
8. In the **list_name** column, type ASSIGN_TYPE.
9. From the text editor, copy the GlobalID.
10. In the **name** column, paste the GlobalID, and before and after the GlobalID, add curly braces (for example, {5b3e80df-aec7-4739-929f-8cb70cdbc62c}).
11. In the **label** column, type the assignment type.
12. For each new assignment type, repeat the previous steps.
13. At the bottom of the Microsoft Excel spreadsheet, click the **survey** tab.
This tab comprises all the questions in the survey.
14. For the **select_one ASSIGN_TYPE** question, in the **readonly** column, remove the **yes** setting.

15. For the **select_one ASSIGN_TYPE** question, in the **default** column, remove the GlobalID.

Note:

When adding more than one request type, it may be helpful to select an **appearance** such as **minimal** on the **select_one ASSIGN_TYPE** question.

16. Save and close the Microsoft Excel spreadsheet and preview your changes in ArcGIS Survey123 Connect.
17. In ArcGIS Survey123 Connect, in the left toolbar, click **Publish** to publish your changes.
18. Click **Publish survey** to publish your changes, and then click **OK**.

Configure location tracking

Ballot collection officers use ArcGIS Field Maps to track their locations while collecting ballots in the field. Location tracks can then be added and viewed in the Ballot Collection Dashboard app.

Enable location tracking

First, location tracking needs to be enabled for your ArcGIS Organization. Then, members of the organization need to be licensed.

1. To enable location tracking for your ArcGIS Organization, see [configure location tracking](#).
2. The ArcGIS Tracker license is available as an add-on for all user types. See ArcGIS Tracker [requirements](#) for more information.

Create a track view

After enabling location tracking for your ArcGIS Organization, you will create a track view that will be used by ballot collection officers in the field.

You will use Track Viewer to create a track view of ballot collection officers.

1. In a browser, sign in to your organization and open Track Viewer.
By default, if Track Viewer is installed and you have the view location tracks privilege, it is in the app launcher. Installation is often done as part of [enabling location tracking](#).
2. Click **Create View**.
3. Type a view name, such as ballotcollectiontracking, and then click **Create View**.

Tip:

Make a note of the name used for the view. The view is a hosted feature layer view and will be referenced in later steps when adding the feature layer to the Ballot Collection Dashboard.

When you create the view, a [group in ArcGIS Online](#) that controls access to the view is also created.

4. On the **Mobile Users** tab, follow these steps to add ballot collection officers to be tracked in the field.
 - a. For **Select to add mobile users**, click the drop-down menu.
 - b. Search for each ballot collection officer, and then click **Add**.

Tip:

When using the **Ballot Collection Officers** group provide access to the apps used by ballot collection officers, search for **Ballot Collection Officers** group and click **Add**.



When you create the view, a [group in](#) ArcGIS Online that controls access to the view is also created.

Note:

While you can add any user as a mobile user, that user won't have a last known location or track until they are [tracked with the Field Maps mobile app](#), [tracked with the QuickCapture mobile app](#), or [tracked with the Indoors mobile app](#).

Visualize tracks

You will now add the track view to the Ballot Collection Dashboard to visualize location tracks with ballot collection activities.

1. In a browser, sign in to your organization and open the Ballot Collection Dashboard Web Map.
2. On the **Contents** (dark) toolbar, click **Add**  and click **Browse layers**.
3. Search for ballotcollectiontracking or the name of the track view created above.
4. Click **Add**  on the layer result to add the layer to the map.
5. Save the Ballot Collection Dashboard Web Map.
6. Verify that you are signed in to your ArcGIS organization, and then browse to the Ballot Collection Dashboard.
7. From the item page, click **Edit Dashboard**.
8. Hover over the upper right corner of the **Time** selector, and then click the **Configure** button.

[Back to top](#)

9. Select the **Actions** tab.
10. Expand the **Filter** section.
11. Under Ballot Collection Dashboard, next to **Track Lines**, **Tracks**, and **Last Known Locations** click the toggle button.
12. Use the following table to select the appropriate **Target field**.

Layer	Target field
Track lines	End Time
Tracks	Location Timestamp
Last known Locations	Location Timestamp

13. Click **Done**.
14. Hover over the upper right corner of the **Team Captain** selector and click the **Configure** button.
15. Select the **Actions** tab.
16. Expand the **Filter** section.
17. Under Ballot Collection Dashboard, next to **Track Lines**, **Tracks**, and **Last Known Locations** click the toggle button.
18. For each location tracking layer's **Target field**, select **Full Name**.
19. Click **Done**.
20. Click the **Save** button.

Update drop box and team information

The Collection Checklist and Return Checklist forms use choice lists to help ballot collection officers enter correct information. Drop box locations, ballot collection teams and election officials are stored in csv files included with the Election Management Solution.

The csv files allow information to be updated quickly when needed.

Update ballot collection locations

The Collection Checklist and Return Checklist forms define the name of the ballot drop box's location with the DropBoxes csv file, which is linked to the ArcGIS Survey123 forms. Updating the DropBoxes csv file helps ballot collection officers enter correct information and ensures that the Ballot Collection Dashboard functions properly.

1. Sign into your ArcGIS organization and locate the DropBoxes csv file.
2. Click **Download** and open the DropBoxes csv file on your computer.
3. In the **name** and **label** columns, enter the location name of the ballot drop box.

Note:

The name should be unique and match the location name of the ballot drop box populated in the Voting Locations layer of the ElectionGeography feature layer.

4. In the **globalid** column, enter the globalid of the ballot drop box.

Note:

The globalid should match the globalid of the ballot drop box in the Voting Locations layer of the ElectionGeography feature layer.

5. In the **address** column, enter the address of the ballot drop box.
6. In the **id** column, enter the id of the ballot drop box.

The result should look similar to the following table.

name	label	globalid	address	id
Drop box location name 1	Drop box location name 1	56f43792-1e83-4bb7-ada5-725c508011e2	101 S Main St	DB-1
Drop box location name 2	Drop box location name 2	38faa2b7-974c-439b-8b80-11e725f62679	202 N Main St	DB-2

7. Repeat steps 3 through 6 for each ballot drop box.
8. Save the DropBoxes file.
9. On the DropBoxes item page, click **Update**, browse to the updated DropBoxes file on your computer, and click **Update Item**.

Note:

The Collection Checklist and Return Checklist will utilize the updated DropBoxes csv file the next time they are used.

Update ballot collection teams

The Collection Checklist and Return Checklist forms define the name collection team members with the Team csv file which is linked to the ArcGIS Survey123 forms. Team Captain is populated with the user currently logged into the ArcGIS Survey123 app. Team Assistant and Driver are defined using the Team csv file. Updating the Team csv file helps ballot collection officers enter correct information quickly and ensures that all team members are accurately entered.

1. Sign into your ArcGIS organization and locate the Team csv file.
2. Click **Download** and open the Team csv file on your computer.
3. In the **name** and **label** columns, enter the team member's name.
4. In the **assistant** column, enter the name of the team member who will be working with the previous team member.

[Back to top](#)

- Repeat steps 3 and 4 for each team member.

Note:

The name and assistant pairings should be comprehensive for each team of two. For example, each team member should be entered in both the name and assistant column. The result should look similar to the below table.

name	label	assistant
Jane Doe	Jane Doe	John Doe
John Doe	John Doe	Jane Doe

- Save the Team file.
- On the Team item page, click **Update**, browse to the updated Team file on your computer, and click **Update Item**.

Note:

The Collection Checklist and Return Checklist will utilize the updated Team csv file the next time they are used.

Update election officials

The Return Checklist form defines the name election official receiving ballots from the collection team with the ElectionOfficials csv file which is linked to the ArcGIS Survey123 form. Updating the ElectionOfficials csv file helps ballot collection officers enter correct information quickly.

- Sign into your ArcGIS organization and locate the Team csv file.
- Click **Download** and open the ElectionOfficials csv file on your computer.
- In the **name** and **label** columns, enter the election official's name.
- Repeat steps 2 and 3 for each election official.

Note:

The result should look similar to the following table.

name	label
Jane Doe	Jane Doe
John Doe	John Doe

- Save the ElectionOfficials file.
- On the ElectionOfficials item page, click **Update**, browse to the updated ElectionOfficials file on your computer, and click **Update Item**.

[Back to top](#)

Note:

The Return Checklist will utilize the updated ElectionOfficials csv file the next time it is used.

Update ballot collection forms

The Collection Checklist and Return Checklist allows you to track ballot chain of custody as teams collect ballots from official ballot drop boxes. In some cases, you may want to add or remove questions from the survey.

1. Start ArcGIS Survey123 Connect and sign in to your ArcGIS organization.
2. Click **Collection Checklist** to download the survey.
3. In the **Download** window, click **Download**, and then click **OK**.
4. Click **Collection Checklist** again to open the survey.
5. In the **XLSForm Modified** window, click **Yes**.
6. On the side toolbar, click **Open XLSForm Spreadsheet**.
7. In the Microsoft Excel spreadsheet, click the **choices** tab.
This tab comprises all the selectable options for survey questions.
8. Click the **survey** tab.
This tab comprises all the questions in the survey.
9. Revise the survey to reflect your needs.
10. Save and close the Microsoft Excel spreadsheet and then preview your changes in Survey123 Connect.
11. In Survey123 Connect, click **Publish** on the side toolbar.
12. Click **Publish survey** to publish your changes, and then click **OK**.
13. Repeat steps 2 through 12 for the Return Checklist.

Update the voter satisfaction survey

The Voter Satisfaction Survey allows you to solicit feedback from voters to help you gauge voter sentiment during an ongoing election. In some cases, you may want to add or remove questions from the survey.

1. Start ArcGIS Survey123 Connect and sign in to your ArcGIS organization.
2. Click **Voter Satisfaction Survey** to download the survey.
3. In the **Download** window, click **Download** and click **OK**.
4. Click **Voter Satisfaction Survey** again to open the survey.
5. In the **XLSForm Modified** window, click **Yes**.

6. On the side toolbar, click **Open XLSForm Spreadsheet**.
7. In the Microsoft Excel spreadsheet, click the **choices** tab.
This tab comprises all the selectable options for survey questions.
8. Click the **survey** tab.
This tab comprises all the questions in the survey.
9. Revise the survey to reflect your needs.
10. Save and close the Microsoft Excel spreadsheet and then preview your changes in Survey123 Connect.
11. In Survey123 Connect, click **Publish** on the side toolbar.
12. Click **Publish survey** to publish your changes, and then click **OK**.

Create Election Assistant direct URLs


Election Assistant is accessed through a URL in a web browser. To report a wait time or request assistance, election workers then use either the map or list to select their assigned polling place or voting center. Organizations that have many voting locations may want to provide poll workers a direct URL to the Election Assistant app. You can use a web browser URL parameter to help poll workers by opening the Election Assistant app with the proper voting location already selected.

By adding a facilityid parameter to the app URL, Election Assistant selects the location without user interaction. Ensure that each voting location has a unique identifier in the facilityid field in the ElectionGeography feature layer. For example, by adding &facilityid=89 to the app URL, Election Assistant selects facility ID number 89. The full URL is similar to this one:

```
https://myorganization.maps.arcgis.com/apps/CrowdsourcingPolling/index.html?appid=449f9c890c584c9395a393ad5a541bc6&facilityid=89
```

Configure Become An Election Worker site

The Election Management solution includes the Become An Election Worker ArcGIS Hub site, which can be configured with your branding. Your organization can use this site to solicit election workers and share access to the apps that election workers need to complete their tasks.

1. Verify that you are signed in to your ArcGIS organization and browse to the Become An Election Worker site.
2. From the item page, click **Configure**.
3. If necessary, click the **Edit** button  to open the site editor.
4. Scroll to the **Frequently Asked Questions** section, hover over the card, click the edit pencil, and update the questions and answers.

[Back to top](#)

5. Scroll to the **Additional Resources** section, hover over the card, click the edit pencil, and update the text and **Learn More** buttons.
6. In the side panel, click **Footer**.
A custom footer is provided. In most cases, you will need to update it with your organization's branding, contact information, and social media references.
7. Click the **HTML** box.
The **HTML** window appears.
8. Make the necessary changes and click **Apply**.
9. Click **Save**.
10. When you're finished, click the **Save** drop-down menu and choose **Publish Draft**.

Share items with the public

The Become An Election Worker site must be shared with everyone so that it can be accessed by the public. To share your Become An Election Worker site with everyone, use the guide below and complete the following steps:

1. Verify that you are signed in to your ArcGIS organization and browse to the Become An Election Worker folder.
2. Next to each of the following items, check the check box:

Item	Name
Site Application	Become An Election Worker

3. Click **Share**.
4. In the **Share** window, click **Everyone (public)** and click **Save**.
5. Click **Update**.

Administer election workers

The Election Management solution can be used to solicit election workers. Mapping technicians can configure the Election Worker Notebook to help election staff manage the process efficiently.

Share Election Election Worker Application with Hub Community Members group

To apply to become an election worker, a user must have a community user account and be signed into the Become An Election Worker site. To grant access to the Election Worker Application, you should share the form and the ElectionWorkerApplications_submit feature layer to the Hub Community Members group. This group is automatically created during Hub Premium activation and contains all members of your community organization. As new

community members join, they will be automatically added to this group and will have access to the Election Worker Application form.

1. Verify that you are signed in to your ArcGIS organization and browse to the Election Management folder.
2. Check the box next to the Election Worker Application Form and ElectionWorkerApplications_submit Feature Layer (hosted, view).
3. Click **Share**.
4. In the Share window, click **Edit group sharing**.
5. Check the box next to the Hub Community Members group.
6. Click **OK**.
7. Click **Save**.

Schedule the Election Worker Notebook

When election staff use the Election Worker Manager app to approve election worker applications, the Election Worker Notebook grants volunteers access to election apps according to election worker's approved roles.

Follow the steps below to schedule the Election Worker Notebook to run as a scheduled task.

Note:

To run and schedule ArcGIS Notebooks and complete the following steps, you must be assigned an Administrator role or a custom role that includes the privilege to create, edit, and schedule notebooks.

1. Verify that you are signed in to your ArcGIS organization and browse to the Election Worker Notebook item.
2. Open the item page and click **Open Notebook**.
3. Click **Tasks**.
4. Click **Create Task**.
5. For **Title**, type Election Worker Task, and then click **Next**.
6. The task can be configured to run nightly by selecting **Day** from the **Repeat Type** drop-down then selecting **1 - Every Day** from the **Repeat Interval** drop-down.
7. Select a **Time** for the task to run like 3:00 AM.
8. Click **Create Task** to finish scheduling the notebook

Use Election Management

The Election Management solution delivers a set of capabilities that help election officials report wait times and request assistance at voting centers and polling places, dispatch field staff to respond to requests, track ballot chain of custody, monitor the performance of voting locations, and gauge the satisfaction of voters on Election Day.

In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

Report wait times

You will first assume the role of a voting location worker tasked with reporting voter wait times at a regular interval throughout the day.

1. In a browser, go to the Election Assistant app.
2. Select a voting location using the list or map.

Note:

Optionally, use the search box to search by voting location name.

3. On the information panel, click the **Report wait time** button.
4. In the Election Wait Times form, enter and submit a wait time in minutes.
5. Click **Submit**.

Note:

The Election Wait Times form will reload and can be used to submit additional wait times for the selected voting location without returning to the Election Assistant app.

Request assistance

You will continue the role of a voting location worker who now needs to request assistance.

1. In a browser, sign in to your ArcGIS Online organization, browse to the Election Management folder, and open the Election Assistant app.
2. Select a voting location using the list or map.

Note:

Optionally, use the search box to search by voting location name.

3. On the information panel, click the **Request assistance** button.

[Back to top](#)

4. In the Election Requests form, fill in the following details:

Question	Answer
Request type	Select the type of request
How critical is your request?	Select a level of criticality
Provide additional details to help us understand your request	Describe the request or issue being reported
Attach an image if it will help describe your request	Optionally, attach an image


5. Click **Submit**.

Note:

The Election Requests form will reload and can be used to submit additional requests for the selected voting location without returning to the Election Assistant app.

Manage election requests

As requests for assistance are submitted by voting location workers, election staff review requests and assign field staff to resolve the request. Now, you will assume the role of a dispatcher who needs to assign open requests to field staff.

1. In a browser, sign in to your ArcGIS organization and click the **Apps** button  in the header of the site.
2. From the app launcher, click Workforce to open the app.
3. Under **Projects**, click Election Manager to open the project.

Tip:

When implementing the Election Management solution in your organization, add election staff responsible for resolving election requests in the field to the Election Manager ArcGIS Workforce project with a Mobile Worker role. You can add users and assign roles in the configuration settings of the project. To access configuration settings, hover over **Election Manager** project and click **Configure**. Click the **Users** tab. For the purposes of this exercise, ensure that your named user account is assigned as a dispatcher and as a mobile worker. Click the **My Projects** tab to return to your projects.

4. In the assignments list, click an assignment-type header or, on the map, click an election request.
5. Review the request details, click the **Assign** drop-down arrow and choose a mobile worker to resolve the issue.
6. Click the **Assignments** back button to return to the assignments list.

[Back to top](#)

Resolve election requests in the field

You will now assume the role of a rover during an ongoing election. As a rover, you are responsible for responding to and resolving requests submitted by voting location workers. Using the Election Manager Workforce project, you will review and update the status of your assignments.

1. Download the Workforce for ArcGIS app onto your mobile device.
2. Open the Workforce for ArcGIS app and sign in to your ArcGIS organization.
3. Tap the Election Manager project.
4. Select an assignment by tapping on it in the **To Do** list.
5. Tap **Start**.
6. Add notes or attachments to the assignment as needed.
7. Tap **Finish** to complete the assignment.

Collect ballots from official drop boxes

Many communities provide official ballot drop boxes where voters can cast their ballots early by mail. These ballots need to be securely retrieved by election staff and delivered to election headquarters. You will now assume the role of a ballot collection officer who is tasked with collecting ballots from official drop boxes.

Track locations from the field

The ability to quickly identify the location of ballot collection officers is critical to ballot chain of custody. Election officials can understand and document the location of their staff as they visit official ballot drop boxes to collect ballots.

You will enable location tracking using ArcGIS Field Maps.

1. Download ArcGIS Field Maps onto your mobile device.
2. Open the app on your mobile device, and sign in to your organization.
3. In the **Maps** list, tap the **My tracks** map card toggle button to turn on tracking and set the tracking duration.
4. After completing ballot collections and returning to election headquarters, in the **Maps** list, tap the **My tracks** map card toggle button to turn off tracking.

Complete the Collection Checklist

You will first complete the Collection Checklist, which documents ballot chain of custody activities at the ballot drop box.

1. Download the Survey123 field app onto your mobile device.
2. At the upper right, tap the **Menu** button, and then tap **Download Surveys**.

[Back to top](#)

Note:

You will download three ArcGIS Survey123 forms used in the ballot collection workflow.

3. Search for Collection Checklist and tap the **Download** button.
4. Search for Return Checklist and tap the **Download** button.
5. Search for Drop Box Requests and tap the **Download** button.
6. Tap the back arrow to return to the survey gallery.
7. Tap Collection Checklist form, and then tap **Collect**.
8. Tap the **Location name** drop-down arrow and choose the ballot drop box location.

Note:

The **Address** question is filled in based on the location name provided.

9. In the **Time arrived** question, tap the calendar and enter the time arrived at the ballot drop box.
10. Tap the **Team Assistant** drop-down arrow and choose the ballot collection team assistant.
The **Team Captain** is filled in with the full name of the user currently signed into the ArcGIS Survey123 app.
11. Optionally, tap the **Team Driver** drop-down arrow and choose the ballot collection team driver.
12. Optionally, use the barcode button or enter the drop box's current seal serial number.
13. Optionally, use the barcode button or enter the drop box's current lock serial number.
14. Enter the number of containers used to collect ballots from the drop box.
15. Tap the camera button to capture a photo of each container used. You must capture at least one photo per container used.
16. Tap the camera button to capture a photo of the drop box after the ballots have been removed.
17. Tap the camera button to capture a photo of the drop box after it has been closed, secured, and locked.
18. Optionally, use the barcode button or enter the drop box's new seal serial number.
19. Optionally, use the barcode button or enter the drop box's new lock serial number.
20. If ballots are being collected for the last time during an election, select **Yes** in the **Is this the final ballot collection for this election?** question. Tap the camera button to capture a photo of the drop box after it has been secured and closed for this election.
21. Answer the **Is there evidence of inappropriate electioneering** question by selecting **Yes** or **No**.

[Back to top](#)

22. If **Yes** is selected to the above question, use the text box to enter details, and then tap the camera button to capture one or more photos of inappropriate electioneering near the ballot drop box.
23. Optionally, assess the drop box's condition by selecting **Excellent**, **Good**, **Fair**, or **Poor**.

Note:

If **Poor** is selected, a photo is required and details must be entered into the text box.

24. Optionally, assess the location's condition by selecting **Excellent**, **Good**, **Fair**, or **Poor**.

Note:

When **Poor** is selected, a photo is required and details are required to be entered into the text box.

25. For the **Time departed** question, tap the calendar and enter the time departed from the ballot drop box location.
26. At the lower right, tap the check mark, and then tap **Send now**.

Note:

After submitting the Collection Checklist, the check list is available in the inbox until the Return Checklist is completed.

Complete the Return Checklist

You will now complete the workflow by filling out the Return Checklist, which documents ballot chain of custody as the ballots are returned to election headquarters.

1. If necessary, tap the back arrow to return to the survey gallery.
2. Tap the Return Checklist form and tap the **Inbox**.

Note:

You downloaded the Return Checklist in a previous step.

3. Tap the **Refresh** button.

Note:

The inbox displays a message with ballot drop locations that have a Collection Checklist completed by the current user are in need of the Return Checklist.

4. Tap the inbox record to open the Return Checklist.

Note:

The **Drop Box Information** and **Team** sections display details previously captured on the Collection Checklist.

5. In the **Time returning to headquarters** question, tap the calendar and enter the time returning to election headquarters.
6. Enter the number of containers submitted.

Note:

The number of containers submitted must match the number of containers used that was previously entered on the Collection Checklist.

7. Enter the number of ballots being submitted for processing after the first count.
8. Tap the **Name of the team member completing the first ballot count** drop-down arrow and choose the team member's name.
9. Enter the number of ballots being submitted for processing after the second count.

Note:

Two ballot counts are required on the Return Checklist. To submit the Return Checklist, the count numbers must match.

10. Enter the name of the team member completing the second ballot count.
11. Tap the **Name of the Official Receiving Transport Containers** drop-down arrow and choose the election official's name.
12. Tap the **Election Official** signature button, and then capture the election official's signature.
13. Tap the **Team Captain** signature button, and then capture the team captain's signature.
14. Tap the **Team Assistant** signature button, and then capture the team assistant's signature.
15. At the lower right, tap the check mark, and then tap **Send now**.

Submit drop box requests for service

While performing their ballot collection responsibilities, ballot collection officers may identify problems or other ballot drop box requests for service that need to be reported to election headquarters in order to be resolved at a later time. You will use the Drop Box Requests form to submit a request for service.

1. If necessary, tap the back arrow to return to the survey gallery.
2. Tap the Drop Box Requests form, and then tap **Collect**.
3. In the Drop Box Requests form, fill in the following details:

Question	Answer
Location name	Select the ballot drop box location
How critical is your request?	Select a level of criticality
Provide additional details to help us understand the problem	Describe the request or issue being reported
Attach an image if it will help describe the problem	Optionally, attach an image
Location	Use the map to identify the location of the ballot drop box

4. At the lower right, tap the check mark, and then tap **Send now**.

Gauge voter satisfaction

You will now assume the role of a voter who wants to help improve the voting experience for the next election by providing feedback on your voting experience.

1. In a browser, go to the Voter Satisfaction Survey.
2. Click **Yes** to indicate that you did vote in the most recent election.
3. Click the **Where did you vote** drop-down arrow and choose a voting location.
4. Complete the remaining questions in the survey, and then click **Submit**.

Monitor performance

You will now assume the role of a clerk or election official. As an election official, you want to know how an ongoing election is functioning throughout the community by monitoring ballot collections, requests, wait times, and voter satisfaction.

Note:

The Election Performance Center provides a unified view of the ArcGIS Dashboards apps described below. You can access the dashboards individually or by using the Election Performance Center.

Ballot collection activities

As ballots are being collected from official ballot drop boxes, you will use the Ballot Collection Dashboard to monitor ballot chain of custody activities.

1. Verify that you are signed in to your ArcGIS organization and browse to the Ballot Collection Dashboard.
2. From the **Location** drop-down menu, select a ballot drop box location.
The map, graphs, list, and metrics update to display information for the selected location.

[Back to top](#)

3. From the **Time** drop-down menu, select a **Predefined** option.
The map, graphs, list, and metrics update to display results for the selected location.
4. Optionally, use the **Calendar** to select a time range.
5. From the **Team Captain** drop-down menu, select a worker.
The map, graphs, list, and metrics update to display results for the selected location.
6. Click the graphs to explore the ballot collections.

Note:

Explore both the **Ballots** and **Containers** charts using the appropriate tabs.

7. On the left, select a collection in the collections list.
8. At the bottom of the dashboard, click the **Details** tab to view information and photos captured on the Collection Checklist and Return Checklist.

Election requests

As voting location workers submit requests for assistance and report issues, you will use the Election Requests Dashboard to monitor ongoing requests and their resolution.

1. Verify that you are signed in to your ArcGIS organization and browse to the Election Requests Dashboard.
2. From the **Location** drop-down menu, select a voting location.
The map, graphs, list, and metrics update to display information for the selected location.
3. From the **Time** drop-down menu, select a **Predefined** option.
The map, graphs, list, and metrics update to display results for the selected location.
4. Optionally, use the **Calendar** to select a time range.
5. From the **Worker** drop-down menu, select a worker.
The map, graphs, list, and metrics update to display results for the selected location.
6. Click the graphs to explore the election requests.

Note:

Dashboard charts are linked. If you click a status in the **Status** chart or a type in the **Request Type** chart, related details are filtered and updated in other elements in the dashboard.

7. On the right, select a request from the requests list.

Note:

The map, graphs, list, and metrics update to display information for the selected request.

Election wait times

As wait times are reported by voting location workers, you will use the Election Wait Times Dashboard to monitor wait times during an ongoing election.

1. Verify that you are signed in to your ArcGIS organization and browse to the Election Wait Times Dashboard.
2. From the **Location** drop-down menu, select a voting location.
The **Average wait by Hour** chart, **Average Wait metric**, and list update to display information for the selected location.
3. From the **Not Reported Within** drop-down menu, select an option.
The map, metrics, and list update to display voting locations that have not reported a wait time within the selected time frame.
4. From the list on the right, select a location.

Note:

The map and graph update to display information for the selected location.

Voter satisfaction

As voters share their feedback on their voting experience using the Voter Satisfaction Survey, you will use the Voter Satisfaction Dashboard to understand voter feedback.

1. Verify that you are signed in to your ArcGIS organization and browse to the Voter Satisfaction Dashboard.
2. From the **Location** drop-down menu, select a voting location.
The map, metrics, chart and list update to display information for the selected location.
3. From the **Time** drop-down menu, select an option.
The map, graphs, list, and metrics update to display results for the selected time.
4. Optionally, use the **Calendar** to select a time range.
5. From the list on the right, select a Voter Satisfaction Survey response.

Note:

The map, graph, and metrics update to display information for the selected survey response.

Apply to be an election worker

Note:

The following workflows are designed to support election organizations using ArcGIS Hub Premium Community Identities for paid volunteers or temporary staff. When using ArcGIS Named Users, these workflows do not need to be completed.

Election offices hire paid volunteers or temporary election workers to increase their staff capacity during an election. Election workers are often members of the community that perform tasks like assisting voters.

You will now assume the role of a community resident that is interested in becoming an election worker.

1. In a browser, go to the [Become An Election Worker](#) site.
2. Scroll to the **Become an Election Worker** section.

When visitors to the site are not signed in, the Become An Election Worker site displays the buttons to **Create an account** or **Sign In** with an existing account. If a user is signed into the site, the Become An Election Worker site displays an **Apply** button, which can be used to access the Election Worker Application form. In the following steps, the user has created an account and is signed into the Become An Election Worker site.

3. Click the **Apply** button.
4. Complete the Election Worker Application form to express interest in becoming an election worker.

The application will be reviewed by election staff using the Election Worker Manager app. After the application has been approved, the applicant can access election apps on the Become An Election Worker site.

5. Close the Election Worker Application and return to the Become An Election Worker site.

Election staff use the Election Worker Manager app to approve applicants for roles as Election Rovers, Ballot Collection Officers, or Voting Location Workers. Appropriately named sections are displayed when an applicant's Election Worker Application has been approved by election staff and one or more role is assigned.


6. Follow the instructions in the **Election Rovers** section to access the Election Manager ArcGIS Workforce project.
7. Follow the instructions in the **Ballot Collection Officers** section to access the Collection Checklist, Return Checklist and Drop Box Requests ArcGIS Survey123 forms.
8. In the **Voting Location Workers** section, click the **Launch App** button to access the Election Assistant app.

Manage election workers

You will now assume the role of election staff responsible for approving election worker applications and allocating staff.

[Back to top](#)

In this workflow, you are asked to use the Election Worker Manager app to review and approve election worker applications.

1. In a browser, go to the Election Worker Manager app.
2. Click the **Status** column filter.
3. Click the **Status is** drop-down arrow and choose **Pending** to view applications with a pending status.
4. Click one of the applications to view its details and the types of election activities the applicant is interested in performing.
5. On the **Details** tab, click the **Edit** button .
6. Click the **Status** drop-down arrow and choose **Approved**.
7. If the worker is approved as an election rover, click the **Rover** drop-down arrow and choose **Yes**.
8. If the worker is approved as a ballot collection officer, click the **Ballot Collection Officer** drop-down arrow and choose **Yes**.
9. If the worker is approved as a voting location worker, click the **Voting Location Worker** drop-down arrow and choose **Yes**.
10. Click **Save**.

The Election Worker Notebook can be used to schedule a process that grants access to the appropriate election apps based on the roles that election workers are approved to perform.

Election worker role	Value
Rover	Granted access to the Election Manager Election Manager ArcGIS Workforce project and added as mobile workers
Ballot Collection Officer	Granted access to the Collection Checklist, Return Checklist and Drop Box Requests ArcGIS Survey123 forms
Voting Location Worker	Granted access to the Election Assistant app to report wait times and request assistance

Election Outreach

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Election Outreach

Election Outreach can be used to educate the public and help voters find an appropriate voting center or Election Day polling place.

State and local governments strive to improve voter participation through open communication and a sense of collaboration. Elections departments look for ways to increase voter turnout and engage constituents, but are faced with changing behaviors of citizens who seem disconnected from the democratic process. Helping voters locate where they can vote and understand voting options removes voter confusion. Communicating wait times to voters reduces congestion at polling places or voting centers and increases participation by helping voters decide when they want to cast their ballot on Election Day. Election Outreach is typically implemented by clerks, election commissions, or secretary of state offices that want to inform voters and increase participation in the elections.

The Election Outreach solution delivers a set of capabilities that help you share information about current elected representatives with the public, get voters to an appropriate voting center or Election Day polling place, and communicate voting wait times.

Requirements

Election Outreach requires the following:

- ArcGIS Enterprise
- ArcGIS Pro 2.9 or later (Standard or Advanced)

Information products

Election Outreach includes the following information products:

Item	Description	Minimum user type
Promoting Transparent Elections	An ArcGIS Hub site used by the general public to access election information	Not required
My Elected Representative	A Zone Lookup app used by the general public to determine who represents them in local, state, and federal elected offices	Not required
Election Polling Places	A Zone Lookup app used by voters to locate a polling place where ballots can be cast on Election Day	Not required
Voting Centers	A Nearby app used by voters to locate voting centers and official ballot drop boxes	Not required
Election Data Management	An ArcGIS Pro project used by mapping technicians to inventory and maintain electoral districts, precincts, voting centers, and polling places	GIS Professional Standard

Release notes

The following are the release notes:

Version	Description
2.0	<ul style="list-style-type: none">Updated Promoting Transparent Elections to embed the My Elected Representative app.Updated My Elected Representative, Election Polling Places and Voting Centers to use ArcGIS Instant Apps.Updated Voting Centers and Election Data Management to include ballot drop boxes.Updated ElectionGeography schema to support additional early voting patterns.
1.0	<ul style="list-style-type: none">First release of Election Outreach

Configure Election Outreach

Election Outreach can be used to educate the public and help voters find an appropriate voting center or Election Day polling place.

In this topic, you will learn how to configure the Election Outreach solution to meet specific needs in your organization.

Manage election data

The Election Data Management ArcGIS Pro project includes a series of tasks to help guide you through creating, loading, and maintaining an inventory of electoral districts, voting locations, and voting precincts.

Get started

To get started with Election Data Management, complete the following steps.

1. Sign in to your ArcGIS organization and browse to the Election Data Management Desktop Application Template.
2. Open the item page, and then click **Download**.
3. Unzip and open the Election Data Management ArcGIS Pro project.
4. On the **View** tab, in the **Windows** group, click **Catalog Pane**.
5. In the **Catalog** pane, expand the **Tasks** folder, and then double-click the **Election Data Management** task item.
6. In the **Tasks** pane, click the **Getting Started** task group to expand the collection of tasks.

Election Data Management is used to load, create, and edit foundational election data used in apps such as My Elected Representative, Election Polling Places, and Election Manager. The solution uses three foundational datasets:

- Voting Locations
- Voting Precincts
- Electoral Districts

Voting Locations contains facilities where voters can cast ballots and is defined by a point layer. They can be either polling places, voting centers, or ballot drop boxes, depending on your community's needs. Voting centers and ballot drop boxes can be modified to allow early voting.

Voting Precincts contains areas that define your community's precincts and is defined by a polygon layer. They are related to voting locations by a unique ID and define the unique polling place where voters in a precinct should cast ballots.

Electoral Districts contains geographies that define an elected office's area of representation and is defined by a polygon layer. For example, a mayor's Electoral District is the municipal boundary. Key attributes are used in My Elected Representative app.

[Back to top](#)

Before proceeding to subsequent tasks, follow the instructions in the **Add election geography layer** task to add the ElectionGeography feature layer deployed with the solution.

Load existing election data

Your election agency may have existing polling place, voting center, ballot drop box, voting precinct, or electoral district data, which can be loaded into the ElectionGeography feature layer.

Voting Locations are designated as either Polling Places, Voting Centers, or Ballot Drop Boxes using the Voting Facility Type field. Both Voting Centers and Polling Places use a standard for operational days and hours in the Voting Centers and Election Polling Places apps included with the Election Outreach solution. To load existing voting location data, designate the type and format the operational days and hours, following the instructions in the **Polling places, Voting centers, and Ballot drop boxes** tasks.

The voting precinct's relationship with a polling place is defined by populating the Polling GlobalID field with the GlobalID from the corresponding polling place. Establishing this relationship allows the Election Polling Places app to display the appropriate polling place when a user searches by address or defines a location on the map. Follow the instructions in the **Voting precincts** task to load existing data and establish the relationship.

Follow the instructions in the **Electoral districts** task to load existing electoral district data.

Create new election data

You may need to create new election data if existing data is not available. Follow the instructions in the **Create new election data** task group to create new voting locations, voting precincts, and electoral districts.

Note:

Map layers must be visible to create new data.

Prepare for the next election

Election data changes over time as new voting locations are established, precincts are modified, and election cycles are completed. You must update key fields, such as the next election date, to maintain election data accuracy and ensure that public facing apps included with the Election Outreach solution display the correct information. Use the **Next election date, Next voter registration date, and Early voting start and end date** tasks to update key date fields as election cycles are completed. Use the **Modify voting locations, Modify precincts, and Modify electoral districts** tasks to edit your election data.

Populating operational hours

This solution leverages the [Opening Hours Specification](#) to display operating hours for a place or service. When you populate the data fully, Arcade expressions interpret the data and display the operating hours in a human-readable format in the map pop-up. Understanding the data specification and options in the Arcade expressions will help you populate your data and display it in the maps and apps provided with the ArcGIS Solution.

Operating Hours Specification

The Operating Hours Specification allows you to store a combination of operating hours in a single field but relies on a series of data standards to render the information correctly. To ensure operating hours are displayed correctly, follow the standards below:

- Enter all times using a 24-hour clock without a leading 0—for example, Tu (7:00-19:00).
- Use a two-letter abbreviation for each day, with the first letter capitalized—for example, Mo, Tu, We, Th, Fr, Sa, Su.
- When a location is open 24 hours a day, use 24 Hours—for example, Mo (24 Hours).
- When a location is closed on a specific day, use Closed—for example, Sa-Sun (Closed).
- Enclose all times and closed statuses in parentheses—for example, Tu (7:00-19:00); We-Mo (Closed).
- Separate days and ranges with a semicolon to denote the two (or more) groups—for example, Th-Fr (7:00-19:00); Sa (24 Hours).

Using the standards above, a diverse set of operating hours can be populated for your places and services. Some common examples include the following:

- To specify the place is open from 9:00 a.m. to 5:00 p.m. seven days a week, populate the operating hours field with the following: Mo-Su (9:00-17:00).
- To specify the place is open from 9:00 a.m. to 5:00 p.m. during the week and closed on weekends, populate the operating hours field with the following: Mo-Fr (9:00-17:00); Sa-Su (Closed).
- To specify the place is open one day (Tuesday) a week, populate the operating hours field with the following: Tu (7:00-19:00); We-Mo (Closed).
- To specify the place has operating hours that vary by day, populate the operating hours field with the following: Mo-Tu (9:00-17:00); We (Closed); Th-Fr (7:00-19:00); Sa (24 Hours); Su (Closed).

Operating hours data can be populated all at once for many places and services using [Calculate field values](#) or uniquely entered for each place or service using an application provided with the solution.

Arcade expressions

The Arcade expressions include several settings that allow you configure the look and feel of the operating hours when they are displayed in the web map pop-up. The expressions work

[Back to top](#)

with the operating hours data and web map pop-up configurations to display current operating hours in your map and app.

This solution uses several Arcade expressions. To modify one of these expressions, complete the following steps:

1. Verify that you are signed in to your ArcGIS organization and browse to the Election Polling Places or Voting Centers map.
2. Open the item page, and then click **Open in Map Viewer**.
3. In the **Layers** pane, click the Polling Places or Voting Centers layer, and then in the settings toolbar, click **Configure Pop-ups**.
4. In the **Configure Pop-ups** pane, locate and click the Arcade element that you want to modify.
5. Click **Edit Expression** to open the Arcade expression editor window.
6. Each Arcade expression has a set of variables that can be configured according to your organization's needs.
7. Review the expression notes and modify the variables as needed.

Tip:

Copy and save all the Arcade syntax in the editor. This allows you to restore the original expression or discard changes.

8. Click **OK**.
9. Click **Save**.

Modify elected offices

My Elected Representative allows the general public to find who represents them in local, state, and federal elected offices. My Elected Representative includes several elected office layers, such as Mayor, County Clerk, Governor, and United States Senate. You can modify the elected offices available in the app to fit your needs. For example, you can configure My Elected Representative to display only locally elected offices.

Update domain values

First, you will review the elected offices in the ElectionGeography feature layer and identify an elected office your organization may want to add to My Elected Representative.

1. Verify that you are signed in to your ArcGIS organization and browse to the ElectionGeography feature layer.
2. Open the item page, and then click the **Data** tab.
3. Click **Fields**.
4. Click the **Layer** drop-down menu and choose **Electoral Districts**.

[Back to top](#)

5. In the list of fields, click the **Elected Office** display name.
6. In the **List of Values (Domain)** section, review the existing categories and identify ones that are not applicable and ones that are missing.
7. Next to **List of Values (Domain)**, click **Edit**.
8. Optionally, click the **Delete** button to remove a category from the list.
9. Click **Add**.
10. In the **Displayed Value** and **Stored Value** text boxes, type the new elected office name.
11. Repeat steps 9–10 to add the remaining elected offices.
12. Optionally, drag the elected office to a new location in the list to reorder them.
13. Click **Save**.

Update map

Next you will configure the My Elected Representative map to display the elected offices that you want to display in the My Elected Representative app.

1. Verify that you are signed in to your ArcGIS organization and browse to the My Elected Representative map.
2. Open the item page, and then click **Open in Map Viewer**.

The map opens. The **Layers** pane displays a list of several preconfigured elected office map layers ranging from Mayor to President of the United States. Each layer is filtered using the Elected Office field on the Electoral Districts feature layer.

3. To remove an unnecessary elected office layer, click **Options**, and then click **Remove**.
4. To duplicate a layer, click **Options** and then click **Duplicate**.
5. A new layer appears in the **Layers** pane.
6. To update the new layer's name, click **Options**, click **Rename**, type the elected office name in the **Title** text box, and click **OK**.
7. With the new layer selected, click **Filter** on the settings toolbar.

An existing filter expression is displayed. You will modify the expression to display the new elected office. The **Value** drop-down menu displays the values that you configured in a previous task.

8. From the drop-down menu, choose the appropriate elected office domain value, and then click **Save**.
9. Optionally, drag the layer to a new location in the **Layers** pane.

Tip:

You can also configure existing layers using the above steps. Modify the name and filter of an existing layer to match your configuration needs.

10. Click **Save**.

Update app

You will now configure the My Elected Representative app to use the elected offices configured in the My Elected Representative map.

1. Verify that you are signed in to your ArcGIS organization and browse to the My Elected Representative app.
2. Open the item page, and then click **Configure**.
3. Click the **Zone Lookup** tab.
4. Click **Options**.
5. In the **Layers to include in results** section, configure the layers searched in the app.

Tip:

Check the check box next to each of the layers available.

6. Click **Publish**.
7. Click **Confirm**.
8. Click **Launch**.

Manage wait times

When paired with the Election Management solution, Election Polling Places and Voting Centers can display election wait times on the map so that voters can make an informed decision about when to vote.

Share polling place wait times

The Election Polling Places map includes a Polling Place Wait Times layer that displays the current wait time. To share wait times in the Election Polling Places app, you'll make use of the included Polling Place Wait Times map layer.

1. Verify that you are signed in to your ArcGIS organization and browse to the Election Polling Places map.
2. Open the item page, and then click **Open in Map Viewer**.
3. Hover over the **Polling Place Wait Times** layer and click the **Show layer** button.

The map now displays the most recently reported wait time symbolized by the length of the wait reported. When an election is completed and you want to remove the wait times symbol, you can hide the Polling Place Wait Times layer.

4. Click **Save**.

Share voting center wait times

The Voting Centers map includes a Voting Center Wait Times layer that displays the current wait time. To share wait times in the Voting Centers app, you'll make use of the included Voting Center Wait Times map layer.

1. Verify that you are signed in to your ArcGIS organization and browse to the Voting Centers map.
2. Open the item page, and then click **Open in Map Viewer**.
3. Hover over the **Voting Centers** layer and click the **Hide layer** button.
4. Hover over the **Voting Center Wait Times** layer and click the **Show layer** button.

The map now displays the most recently reported wait time symbolized by the length of the wait reported. When an election is completed and you want to remove the wait times symbols, you can show the Voting Centers layer and hide the Voting Center Wait Times layer.

5. Click **Save**.

Hide polling place wait times

On Election Day, the Election Polling Places app automatically displays wait times tracked using the Election Management solution. Follow the steps below to remove wait times from the Election Polling Places app.

1. Verify that you are signed in to your ArcGIS organization and browse to the Election Polling Places map.
2. Open the item page, and then click **Open in Map Viewer**.
3. In the **Layers** pane, click the Polling Places layer, and then in the settings toolbar, click **Configure Pop-ups**.
4. In the **Configure Pop-ups** pane, locate the **Wait Times** Arcade element.

Tip:

Click the **Wait Times** Arcade element and click **Edit Expression** to open the Arcade expression editor window. Copy and save all the Arcade syntax in the editor in order to restore wait times or discard changes.

5. Delete the **Wait Times** Arcade element from the pop-up.
6. Click **Save**.

On Election Day, the pop-up does not display wait times but continues to display current information, such as the Today is Election Day message and operational status.

Hide voting center wait times

A voting center can be open on Election Day as well as for a period prior to Election Day. When a voting center is open and active, the Voting Centers app automatically displays wait

times tracked using the Election Management solution. Follow the steps below to remove wait times from the Voting Centers app.

1. Verify that you are signed in to your ArcGIS organization and browse to the Voting Centers map.
2. Open the item page, and then click **Open in Map Viewer**.
3. In the **Layers** pane, click the Voting Centers layer, and then in the settings toolbar, click **Configure Pop-ups**.
4. In the **Configure pop-ups** pane, locate the **Wait Times** Arcade element.

Tip:

Click the **Wait Times** Arcade element and click **Edit Expression** to open the Arcade expression editor window. Copy and save all the Arcade syntax in the editor in order to restore wait times or discard changes.

5. Delete the **Wait Times** Arcade element from the pop-up.
6. Click **Save**.

When a voting center is open and active, the pop-up does not display wait times but continues to display current information, such as the early voting timeframe and operational status.

Configure directions for the Voting Centers app

Note:

This workflow is optional and doesn't need to be completed in order to work with the solution.

The Voting Centers app can be used by the general public to locate voting centers and ballot drop boxes where they can cast their ballots. Directions to the nearest voting center or ballot drop box can be enabled so that users can quickly find the location they are looking for.

Follow the steps below to enable directions.


1. Verify that you are signed in to your ArcGIS organization and browse to the Voting Centers app.
2. From the item page, click **Configure App**.
Close the **Welcome to the App Setup Page** splash page, if necessary.
3. On the **Contents** (dark) toolbar, turn off the **Express Setup** toggle button, if necessary.
4. Click **Nearby > Options** and turn on the **Show directions** toggle button.
5. Next to the **Ballot Drop Boxes** and **Voting Centers** layers, check the check boxes.
6. Click **Publish**.

[Back to top](#)

Configure the Promoting Transparent Elections site

The Election Outreach solution includes the Promoting Transparent Elections ArcGIS Hub site that your organization can configure with your branding and use to share election information with the public.

1. Verify that you are signed in to your ArcGIS organization and browse to the Promoting Transparent Elections site.
2. Open the item page, and then click **Configure**.
3. Scroll through the site and review the content.

4. If necessary, click the **Edit** button  to open the site editor.
5. Scroll to the **Voting Locations** section, and then, for each image card, hover over the card, click the edit pencil and update the image.
6. Scroll to the **Frequently Asked Questions** section, hover over the card, click the edit pencil, and update the questions and answers.
7. In the side panel, click **Footer**.

A custom footer is provided. In most cases, you will need to update it with your organization's branding, contact information, and social media references.

8. Click the **HTML** box.
The **HTML** window appears.
9. Make the necessary changes and click **Apply**.
10. Click **Save**.
11. Under **Save**, click the drop-down menu and choose **Publish Draft**.

Sharing solution items

Several layer views, maps and apps included in the Election Outreach solution must be shared with everyone so that they can be accessed by the public on the Promoting Transparent Elections site. To share your election outreach items with everyone, use the guide below and complete the following steps:

1. Verify that you are signed in to your ArcGIS organization and browse to the Election Outreach folder.
2. Check the check box next to each of the items below:

Item	Name
Feature Layer (hosted, view)	VotingLocations_currentwait
Feature Layer (hosted, view)	ElectionGeography_public
Web Map	My Elected Representative
Web Map	Voting Centers
Web Map	Election Polling Places

[Back to top](#)

Web Mapping Application	My Elected Representative
Web Mapping Application	Voting Centers
Web Mapping Application	Election Polling Places
Site Application	Promoting Transparent Elections

3. Click **Share**.
4. In the **Share** window, click **Everyone (public)** and click **Save**.
The **Warning: Sharing editable layers publicly** message appears notifying you that you are sharing editable layers publicly.
5. Click **Update**.

Configure Election Management solution items

Note:

Complete this workflow when using the Election Management Solution's Become An Election Worker site and Voter Satisfaction Survey.

When paired with the Election Management solution, the Promoting Transparent Elections site can be configured to include links to the Become An Election Worker site and the Voter Satisfaction Survey for recruiting election workers and gauging voter sentiment.

Note:

Before continuing with the steps below, verify that the Become An Election Worker and Voter Satisfaction Survey apps and their associated maps and layers are shared with the public.

1. Verify that you are signed in to your ArcGIS organization and browse to the Become An Election Worker site.
2. Open the item page and scroll down to the URL section, and then click the **Copy** button.
3. Paste the URL into Windows Notepad or another text editor for reference.
4. Browse to the Voter Satisfaction Survey.
5. Open the item page, click **Open in Survey123 > Open in Survey123 app**.

Note:

A new tab opens, prompting you to open into Survey123 app. Click **Cancel** and remove "&open=native" from the URL to open survey directly into the browser.

6. In the address bar of the browser, copy the survey URL, including the question mark and portalURL= statement.

[Back to top](#)

Note:

For example, the URL is similar to this one:

```
https://survey123.arcgis.com/share/aee97bcef4d24c9187da9590ec86b67c?portalUrl=https://statelocaltryit.maps.arcgis.com
```

7. Paste the URL into Windows Notepad or another text editor for reference.
8. Browse to the Promoting Transparent Elections site.
9. Open the item page, and then click **Configure**.
10. Scroll to the **Become an election worker** section, and then hover over the text card and click the edit pencil.
11. Click the **Learn More** link, and then click **Edit**.
12. Enter the Become An Election Worker site URL into the **Link Destination** text box, and then click **Add Link**.
13. Scroll to the **Measuring voter satisfaction** section, and then hover over the text card and click the edit pencil.
14. Click the **Share Feedback** link, and then click **Edit**.
15. Enter the Voter Satisfaction Survey URL into the **Link Destination** text box, and then click **Add Link**.
16. Click **Save**.
17. Under **Save**, click the drop-down menu and choose **Publish Draft**.

Configure Election Results solution items

Note:

Complete this workflow when using the Election Results Solution.

When paired with the Election Results solution, the Promoting Transparent Elections site can be configured to include a link to the Election Results app to view map-based election results.

Note:

Before continuing with the steps below, verify that the Election Results app and its associated dashboards, maps and layers are shared with the public.

1. Verify that you are signed in to your ArcGIS organization and browse to the Election Results app.
2. Open the item page, scroll down to the URL section, and click the **Copy** button.
3. Paste the URL into Windows Notepad or another text editor for reference.
4. Browse to the Promoting Transparent Elections site.
5. Open the item page, and then click **Configure**.

[Back to top](#)

6. Scroll to the **Election Results** section, and then hover over the text card and click the edit pencil.
7. Click the **Explore Results** link, and then click **Edit**.
8. Enter the Election Results app URL into the **Link Destination** text box, and then click **Add Link**.
9. Click **Save**.
10. Under **Save**, click the drop-down menu and choose **Publish Draft**.

Use Election Outreach

The Election Outreach solution delivers a set of capabilities that help you share information about current elected representatives with the public, get voters to an appropriate voting center or Election Day polling place, and communicate voting wait times.

In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

Find elected representatives

You will assume the role of a resident in the community who wants to find information on elected representatives.

1. In a browser, go to the Promoting Transparent Elections site.
2. Scroll to the **Who's My Elected Representative** section.
3. In the **Search for an address** search box, type an address, and then press Enter.
4. Review the list of elected offices. Click an elected office to expand and view the elected representative's information.

Using the list of elected offices, you can discover your elected representatives and their contact information. For example, county commissioners are responsible for the management of county funds and have fiscal and regulatory powers.

Locate a polling place

Many states divide communities into geographic areas called precincts and assign registered voters to designated polling places based on their residential address. On Election Day, ballots are cast at these designated polling places and then tabulated to determine the winner of a political contest or proposal.

You will assume the role of a voter interested in locating the polling place where your ballot can be cast on Election Day.

1. In a browser, go to the Promoting Transparent Elections site.
2. Scroll to the **Voting Locations** section, and then, under the **Locate My Polling Place** header, click the **Launch App** button to open the Election Polling Places app.
3. In the **Search for an address to find your polling place** search box, type an address and press Enter.

The map updates to display the area covered by the voting precinct where the address is located.

The **Information** panel displays details about the polling place, such as the election date, location, operational hours, and contact information. If the app has been configured to show wait times, they can be visualized on the map, where polling place symbols are color-coded according to reported wait times. Depending on when you access the app, you will see an operational status of Open Now or Closed below the hours of operation.

[Back to top](#)

4. After you finish, return to the Promoting Transparent Elections site.

Locate voting centers and ballot drop boxes

Voting centers are an alternative to traditional, neighborhood-based precincts. When a jurisdiction opts to use voting centers, voters may cast their ballots on Election Day at any voting center in the jurisdiction, regardless of their residential address. Voting centers may also communicate early voting options such as ballot drop boxes.

As a voter in the community, you are interested in locating nearby voting centers and ballot drop boxes.

1. In a browser, go to the Promoting Transparent Elections site.
2. Scroll to the **Voting Locations** section, and then, under the **Locate a Voting Center** header, click the **Launch App** button to open the Voting Centers app.
3. In the **Search for an address or place** search box, type an address and press Enter.

Tip:

Alternatively, click the **Search this area** button near the top of the map.

The **Information** tab displays results for voting centers and ballot drop boxes that are located within the search area.

4. Expand **Voting Centers** and click a voting center from the search results.

The **Information** tab displays center-specific information such as the election date, location details, early voting time frame, operational hours, and contact information. If the app has been configured to show wait times, they can be visualized on the map, where voting center symbols are color-coded according to reported wait times. Depending on when you access the app, you will see an operational status of Open Now or Closed below the hours of operation.

5. Collapse **Voting Centers** and expand **Ballot Drop Boxes**.
6. Click a ballot drop box from the search results.

The **Information** tab displays center-specific information, such as the election date, location details, and early voting time frame.

Election Results

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Election Results

Election Results can be used to share results tabulated on election night and historical results shared after each election.

Election results for political contests, proposals, and voter turnout for one or more jurisdictions are integral to election night or post-election night reporting. Election results are often shared through files and tables that are difficult to examine. Sharing election results in a map-based application helps voters and other interested stakeholders quickly visualize voting trends in a community. Election Results is typically implemented by clerks, election commissions, or secretary of state offices that want to make election results accessible and understandable by voters, the media, and other interested stakeholders.

The Election Results solution delivers a set of capabilities that help you organize map-based election results, share results for each elected office or proposal, and communicate voter turnout for one or more jurisdictions.

Requirements

Election Results requires the following:

- ArcGIS Enterprise

Information products

Election Results includes the following information products:

Item	Description	Minimum user type
Election Results	An ArcGIS Experience Builder app used by the general public and other interested parties to view map-based election results	Not required

[Back to top](#)

Release notes

The following are the release notes:

Version	Description
2.0	<ul style="list-style-type: none">• A new ArcGIS Dashboards app optimized for display on mobile devices.• A new ArcGIS Experience Builder app that displays the correct dashboard, desktop or mobile, depending on the device.• Party domain now includes 10 nonpartisan categories to support nonpartisan and primary contests.• Results for all candidates are displayed in the map pop-up to better support multiple-winner contests.• Mail-in, early, and election day voting method metrics are now included.
1.0	<ul style="list-style-type: none">• First release of Election Results

Configure Election Results

In this topic, you'll learn how to configure the Election Results solution to meet specific needs in your organization.

Load data

The Election Results solution includes the ElectionResults feature layer used to store your tabulated election results data. The ElectionResults feature layer has two sublayers, Voting Jurisdictions and the Election Results table. Voting Jurisdictions stores the geographic jurisdiction you're using to visualize election results on a map (for example, County, Municipality, or Precinct). The Election Results table stores the results of ballot measures where each record represents the results of a ballot measure by contest, candidate, and jurisdiction. Each record in the Election Results table is also categorized as an Elected Office or Proposal using the Contest Category field.

In the example below, two candidates ran for mayor in a community with three precincts.

Tip:

Consider including the number of winners in the name of the contest and the party designation in the name of candidate. This information will provide more context for the contest and candidate in the Election Results app.

Contest	Contest Category	Jurisdiction Name	Candidate	Party	Number of Votes
Mayor (Vote for 1)	Elected Office	Precinct 1	John Doe (D)	Democratic	306
Mayor (Vote for 1)	Elected Office	Precinct 2	John Doe (D)	Democratic	147
Mayor (Vote for 1)	Elected Office	Precinct 3	John Doe (D)	Democratic	350
Mayor (Vote for 1)	Elected Office	Precinct 1	Jane Smith (R)	Republican	245
Mayor (Vote for 1)	Elected Office	Precinct 2	Jane Smith (R)	Republican	153
Mayor (Vote for 1)	Elected Office	Precinct 3	Jane Smith (R)	Republican	294

In the previous example, the candidates are symbolized by their traditional party color. The Party field domain also includes 10 nonpartisan options. These options can be used for any contest, including nonpartisan and primary contests, in which a candidate needs to have a unique color from other candidates in the same contest but the color is not tied to their political party. The following example shows a nonpartisan contest:

[Back to top](#)

Contest	Contest Category	Jurisdiction Name	Candidate	Party	Number of Votes
School Board (Vote for 2)	Elected Office	Precinct 1	John Doe	Nonpartisan 1	306
School Board (Vote for 2)	Elected Office	Precinct 2	John Doe	Nonpartisan 1	147
School Board (Vote for 2)	Elected Office	Precinct 3	John Doe	Nonpartisan 1	350
School Board (Vote for 2)	Elected Office	Precinct 1	Jane Smith	Nonpartisan 2	245
School Board (Vote for 2)	Elected Office	Precinct 2	Jane Smith	Nonpartisan 2	153
School Board (Vote for 2)	Elected Office	Precinct 3	Jane Smith	Nonpartisan 2	294

You can also use the Election Results table to store the results of ballot measure proposals. Yes and No are populated in the Candidate field, the Contest Category is Proposal, and the Party field is left blank. In the following example, Proposal 1 was voted on in a community with three precincts:

Contest	Contest Category	Jurisdiction Name	Candidate	Party	Number of Votes
Proposal 1	Proposal	Precinct 1	Yes		306
Proposal 1	Proposal	Precinct 2	Yes		147
Proposal 1	Proposal	Precinct 3	Yes		350
Proposal 1	Proposal	Precinct 1	No		245
Proposal 1	Proposal	Precinct 2	No		153
Proposal 1	Proposal	Precinct 3	No		294

Caution:

You can add new fields to the ElectionResults feature layer, but do not delete any fields from the Voting Jurisdictions layer or Election Results table. Deleting fields will break the ElectionResults_join view and the Election Results app.

Load election results

You can load election results data from a spreadsheet sourced from your tabulation system. The Election Results solution includes a .csv file that you can use to load data into the ElectionResults feature layer. Populate the ElectionResults.csv fields with your election results data, and complete the following steps to load your election results data:

1. Sign in to your ArcGIS organization and browse to the ElectionResults.csv item.
2. Open the item page and click **Download**.
3. Edit the .csv file and provide your election results data.
4. In your ArcGIS organization, browse to the ElectionResults feature layer.
5. Open the item page and click **Update Data > Append Data to Layer**.
6. Click **Choose File**, browse to your .csv file, and click **OK**.
7. Click **Upload and Continue**.

[Back to top](#)

8. Click the **Choose the layer that you wish to append data into** drop-down arrow and choose **Election Results**.
9. Uncheck **Update existing features**.
10. Click **Show field matching** to map the fields.
11. Click **Apply Updates**.

Load voting jurisdictions

Voting jurisdictions define the geographic jurisdiction you're using to visualize election results on a map (for example, County, Municipality, or Precinct) and also store voter turnout and method metrics. Voting jurisdictions can be loaded from a shapefile by completing the following steps:

1. Create a .zip file of a shapefile of your voting jurisdictions.
2. Sign in to your ArcGIS organization and browse to the ElectionResults feature layer.
3. Open the item page and click **Update Data > Append Data to Layer**.
4. Click **Choose File** and browse to a .zip file containing the shapefile with your voting jurisdictions, and click **Open**.
5. Click **Upload and Continue**.
6. Click the **Choose the layer that you wish to append data into** drop-down arrow and choose **Voting Jurisdictions**.
7. Uncheck **Update existing features**.
8. Click **Show field matching** to map the fields.

Note:

The only required field is the Jurisdiction Name (jurisdictionname) field. This is a text field that defines the unique name of the jurisdiction used in the relationship with the election results.

9. Click **Apply Updates**.

Tip:

To make additional updates to a hosted feature layer, see [Append data to layers](#).

Modify political parties

The Elected Office map symbolizes the jurisdiction using the party of the candidate who received the most votes for the jurisdiction. Each candidate is also displayed in the chart using the color associated with their party. The Party field in the ElectionResults feature layer has been configured with a domain containing some of the most common political parties in the United States and 10 nonpartisan party options that can be used to uniquely identify

candidates in the same contest. You may need to modify the political parties to match the candidates in your jurisdiction.

Complete the steps below to modify the political parties available in the Election Results app:

Update the field domain

To update the field domain, complete the following steps:

1. Sign in to your ArcGIS organization and browse to the ElectionResults feature layer.
2. On the item page, click the **Data** tab.
3. Select **Election Results** from the **Layer** drop-down menu.
4. Click **Fields**.
5. Click the **Party** field.
6. Click **Edit** next to **List of Values (Domain)**.
7. Optionally, click **Add**.
8. Type the party in the **Displayed Value** and **Stored Value** text boxes.
9. Optionally, click **Delete** to remove a party.
10. Optionally, drag the party to a new location in the list to reorder the list.
11. Click **Save**.

Update the map symbology



To update the map symbology, complete the following steps:

1. Confirm that you are signed in to your ArcGIS organization and browse to the Election Results - Elected Office web map.
2. On the item page, click **Open in Map Viewer**.
3. Select the **Elected Office Results** layer.
4. Click **Edit layer style** on the right side panel.
5. Click **Style options** under **Types (unique symbols)**.
6. Click the up arrow next to each of your new political parties to add them to the layer symbology.
7. Optionally, drag down any political parties you want to remove.
8. Click the symbol next to each new party to give it a custom color.
9. Click **Done**.
10. Click **Save**.

Update the dashboard chart

To update the dashboard chart, complete the following steps:


[Back to top](#)

1. Confirm that you are signed in to your ArcGIS organization and browse to the Election Results Desktop Dashboard.
2. Open the item page and click **Edit Dashboard**.
3. Hover over the upper left corner of the Elected Office Results chart and choose **Configure** .
4. Click the **Series** tab.
5. Click the **+ series** button.
6. Type the name of a new party and click **Add**.
7. Click the symbol next to the new party to give it the same color you configured in the map.
8. Repeat steps 5 through 7 for each new party.
9. Optionally, click **Delete**  next to each party you want to remove.
10. Click **Done**.
11. Click **Save**.
12. Repeat steps 1 through 11 for the Election Results Mobile Dashboard.

Remove the jurisdiction type filter

You can use Election Results to display results for different jurisdiction types, such as county, municipality, or precinct, in the same application. In many cases, you may only need to display results for a single jurisdiction type. In this case, the jurisdiction type filter is unnecessary and can be removed.

Complete the steps below to remove the jurisdiction type filter:

1. Confirm that you are signed in to your ArcGIS organization and browse to the Election Results Desktop Dashboard.
2. Open the item page and click **Edit Dashboard**.
3. Hover over the upper right corner of the **Jurisdiction Type** filter and choose **Delete** .
4. Click **Save**.
5. Repeat steps 1 through 4 for the Election Results Mobile Dashboard.

Modify voting method metrics

By default, three voting method metrics are included in the Election Results app, Mail-in, Early In Person, and Election Day. Communities may define these methods differently, for example, Absentee rather than Mail-in, or may not offer all of these methods. In these cases, you may want to update the voting methods that are reported in the Election Results app.

To modify the voting method metrics available in the Election Results app, complete the following steps:

[Back to top](#)

Update the map pop-up

To update the map pop-up, complete the following steps:



1. Confirm that you are signed in to your ArcGIS organization and browse to the Election Results - Voter Turnout web map.
2. On the item page, click **Open in Map Viewer**.
3. Select the **Voter Turnout** layer.
4. Click **Configure pop-ups** on the right side panel.
5. Click the **Arcade - Voting Turnout** element and click **Edit expression**.

The expression returns a table with a header row and three content rows for Mail-in, Early In Person, and Election Day. Each content row is surrounded with some HTML comments, for example, <!-- Begin Mail-in Row --> and <!-- End Mail-in Row -->. If you want to remove one of these rows because the voting method doesn't apply, delete everything between these two comment lines.

6. Make the changes to the voting method name in the table and click **OK**.
7. Click **Save**.

Update the dashboard indicators

To update the dashboard indicators, complete the following steps:

1. Confirm that you are signed in to your ArcGIS organization and browse to the Election Results Desktop Dashboard.
2. Open the item page and click **Edit Dashboard**.
3. Click the **Voter Turnout** tab.
4. To remove one of the voting method indicators, hover over the upper left corner of the indicators and choose **Delete** .
5. Optionally, hover over the upper left corner of the voting method indicators and choose **Configure** .
6. Click the **General** tab.
7. Click **Edit** next to the title and update the text you want to display in the indicator.
8. Click **Done**.
9. Click **Save**.
10. Repeat steps 1 through 9 for the Election Results Mobile Dashboard.


Note:

The tab in the mobile dashboard is named **Voting Method**.

Share historical results

You can deploy and configure the Election Results solution multiple times to share results for different elections. You can then share each of the Election Results apps with a single Portfolio app and embed them on your website.

To create a historical Election Results app using the Portfolio ArcGIS Instant Apps template, complete the following steps:

1. Sign in to your ArcGIS organization.
2. Click the **Apps** button  in the header of the site and click **Instant Apps**.
3. Click **Browse All** and search for **Portfolio**.
4. Click **Choose** on the Portfolio template.
5. Specify a title and tags and click **Create App**.
6. Click **Step 1. Portfolio**.
7. Click **Add new section**.
8. Click **Browse for content**, search for one of your Election Results apps, and click **Select section**.
9. Optionally, modify the **Section name** value to be specific to the election, for example, **2020 General Election**.
10. Click **Done**.
11. Repeat steps 7 through 10 for each Election Results app you want to share.
12. Optionally, change the **App layout** setting.
13. Click **Publish** and click **Confirm**.
14. Click **Change sharing settings** and share the app with **Everyone (public)**.
15. Embed the Historical Election Results app on your election website.

Use Election Results

The Election Results solution delivers a set of capabilities that help you organize map-based election results, share results for each elected office or proposal, and communicate voter turnout for one or more jurisdictions.

In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

Explore Election Results

You are a member of the general public who wants to explore the results of an election in your community.

1. In a browser, go to the Election Results app.
2. Under **Elected Offices**, explore additional contests using the filter in the left panel.
3. Both the map and the results graph at the bottom update when the contests are selected.
4. Select **Municipality** from the **Jurisdiction Type** drop-down menu.

Both the map and the Elected Offices filter update to display contests by municipality rather than precinct. You can use Election Results to display results by any jurisdiction type, such as county, municipality, or precinct.

5. Select a municipality on the map to view a list of candidates sorted by votes received for the selected elected office.
6. Select a municipality from the **Jurisdiction Name** drop-down menu.
The map, results graph, and voter turnout metrics update to display results for the selected municipality.
7. Select the **Proposal** tab on the bottom of the dashboard.
8. Explore proposal results using the left panel filters and the map.
9. Click the **Voter Turnout** tab on the bottom of the dashboard.
10. Explore voter turnout and voting method metrics using the left panel filters and the map.

Note:

On a mobile device, voter turnout information is displayed on three tabs, **Voter Turnout**, **Voting Method**, and **Turnout Map**.

Emergency Debris Management

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Emergency Debris Management

Emergency Debris Management can be used to expedite initial debris clearance, assess volume, and monitor the removal of disaster debris accumulated on roads, right-of-ways, and public facilities.

When disaster-related debris presents a threat to public health and safety, a community may act to negate the threat and ensure its economic recovery. In the immediate aftermath of an incident, the speed at which debris can be cleared from roads determines how quickly life safety resources can be mobilized. Before recovery and rebuilding efforts can begin, debris must be efficiently assessed and removed safely. These efforts can be expensive. If debris removal activities are not monitored and proper documentation maintained, federal reimbursement may be delayed. Emergency Debris Management is typically implemented by public works departments, emergency management agencies, and other local government organizations that want to improve the efficiency of their debris management operations and ensure federal guidelines are met.

The Emergency Debris Management solution delivers a set of capabilities that help you expedite initial debris clearance, assess debris removal needs, and monitor debris removal activities.

Requirements

Emergency Debris Management requires the following:

- ArcGIS Enterprise
- ArcGIS QuickCapture
- ArcGIS Survey123
- ArcGIS Workforce

[Back to top](#)

Information Products

Emergency Debris Management includes the following information products.

Item	Description	Minimum User Type
Emergency Debris Management Center	An ArcGIS Experience Builder app used by debris managers and operations leads to monitor progress and update status during the clearance, assessment, and removal phases of the debris management process	Editor
Road Debris Reporter	An ArcGIS QuickCapture app used by first responders during the first 72 hours of a disaster response to identify where debris is obstructing the roadway	Mobile Worker
Debris Clearance Assignments	An ArcGIS Workforce project used to manage road debris obstructions and clearance assignments	Mobile Worker
Debris Assessment Form	An ArcGIS Survey123 form used by assessors to perform debris assessments on public facilities or in the right-of-way	Mobile Worker
Load Ticket	An ArcGIS Survey123 form used by debris monitors at a load site to initiate a load monitoring ticket	Mobile Worker
Unload Ticket	An ArcGIS Survey123 form used by debris monitors at debris management sites to complete load monitoring tickets	Mobile Worker
Truck Certification Form	An ArcGIS Survey123 form used by assessors to document the capacity of trucks used for emergency debris removal	Mobile Worker
Debris Records Reviewer	An ArcGIS Experience Builder app used by contractors or auditors to view debris records from the field, and to review or export logs from the office	Viewer
Debris Removal Services	A Nearby app used by the public to understand the debris removal requirements, the pickup schedule for their property and where debris can be dropped off	Not required

Release Notes

The following are the release notes:

Version	Description
1.0	<ul style="list-style-type: none">• First release of Emergency Debris Management

[Back to top](#)

Configure Emergency Debris Management

In this topic, you will learn how to configure the Emergency Debris Management solution to meet specific needs in your organization.

Load data

Applications included in the Emergency Debris Management solution can leverage authoritative operational layers for debris management already managed by your organization. Existing GIS layers for debris work areas or routes, debris management sites, debris removal providers, and critical infrastructure can be appended into the corresponding layers within the solution. Review the layers provided with the solution and determine what source data you want to load. Then, load your existing data into the layers provided with the solution before sharing maps or apps.

Load data into the Debris Areas layer from a shapefile or file geodatabase by completing the following steps:

1. Create a .zip file of a shapefile or file geodatabase.
2. Sign in to your ArcGIS organization and browse to the feature layer you want to populate.
3. Open the item page and click **Update Data > Append Data to Layer**.
4. Click **Choose File** and browse to your .zip file, and click **Open**.
5. Click the **Contents** drop-down arrow and choose **Shapefile** or **File Geodatabase**.
6. Click **Upload** and **Continue**.
7. Click **Choose the layer to update** drop-down arrow and choose the layer that contains the updated data.
8. Uncheck **Update existing features**.
9. Click **Show field matching** to map the fields between the two layers.
10. Click **Apply Updates**.
11. Optionally, repeat steps 1-10 for the Debris Removal Providers and Debris Management Sites layers.

Note:

In order to use the Truck Certification Form, you must first load records in the DebrisRemovalProviders feature layer or create them using the **Manage Removal Status** app in the Emergency Debris Management Center.

Provision users

The Emergency Debris Management solution enables secure viewing and editing privileges to users based on their roles in the clearance, assessment, and removal workflows. To ensure privileges are appropriate to the needs of each user role, the Emergency Debris Management

[Back to top](#)

solution includes several role-specific sharing groups for managers, first responders and clearance field crew supervisors, assessors, monitors, and record reviewers such as contractor administrative staff or FEMA personnel. These groups are pre-configured with the layers, maps, and apps each role needs to perform their functions within the solution.

Add named user accounts to the corresponding groups, by completing the following steps:

1. Sign into your ArcGIS Organization.
2. Click **Groups**.
3. Search **My Groups** for Emergency Debris.
4. You will see five groups: Emergency Debris Management, Emergency Debris Monitors, Emergency Debris Record Reviewers, and Emergency Debris Clearance Crews.
5. Click the group you want to invite users to.
6. Click Invite users and add individuals performing that function to the group.

Assign personnel to ArcGIS Workforce

The Emergency Debris Management solution includes an ArcGIS Workforce project used by debris operations leads to assign debris clearance assignments to the supervisors of work crews in the field. Before the solution can be used, the named user accounts of each debris operations lead and work crew supervisors must be added to the Workforce project in the dispatcher and mobile worker roles, respectively.

Assign named users to the corresponding group, by completing the following steps:

1. Sign into your ArcGIS organization.
2. Go to the App Launcher, then click **Workforce**.
3. Mouse over Debris Clearance Assignments, then click **Configure**.
4. Click Users.
5. Use the Organization User drop-down list to select a user.
6. Use the Project Role drop-down list to select the role for that user.
7. Click Add User.
8. Repeat this process for each of your field crew supervisors.

Create incident names

Over time you may experience several emergency incidents. Therefore, it will be important to name each incident so you will be able to track the debris assessments and monitoring tickets associated to each incident. The Emergency Debris Management Center app can be used to create incident names.

To create and manage disaster incident names, complete the following steps:

1. Sign into your ArcGIS organization

2. Click on the down arrow next to the **Help** tab and click **Manage Incident Names**.
3. Click **Download** and open the IncidentName csv file on your computer.
4. Add a new incident name in the first field and save the file with the changes.
5. Click **Update** on the IncidentNames item page and choose the updated IncidentNames file on your computer then click **Update Item**.

The new incident name has been added to the list of incidents and will appear on each survey when debris reports are collected.

Modify surveys

The Emergency Debris Management solution includes the Load Ticket and Unload Ticket surveys. To prevent mistakes and ensure data quality, several fields in the surveys can use lookup lists generated from the unique values contained in a field from a separate layer. To complete the setup of this capability in the Load Ticket and Unload Ticket, the surveys must be edited using ArcGIS Survey123 Connect and then republished.

Tip:

The Load Ticket, Unload Ticket and Debris Assessment Form forms are configured to provide address information and will consume credits using the ArcGIS World Geocoding Service. [Learn more about credit usage when using the geocoding service.](#)

Update Load Ticket

To improve data quality, several fields in the Load Ticket can be updated with a dynamic list of values based on fields found in other layers. The Truck ID field in the Load Ticket is updated by a lookup list containing the truck IDs of all trucks that have been certified using the Truck Certification Form, which uses the TruckCertification related table in the DebrisRemovalProviders layer. Once a user selects a truck ID, the available values for the truck capacity and removal provider name fields are filtered to correspond to the values entered in the Truck Certification Form for the selected truck ID.

To add dynamic field lookup lists to the Load Ticket, complete the following steps:

1. Install ArcGIS Survey123 Connect.
2. Start ArcGIS Survey123 Connect and sign into your ArcGIS organization.
3. Click Load Ticket.
4. Click **Download** and **OK**.
5. Click Load Ticket again.
6. Click **XLSForm**.
7. A Microsoft Excel spreadsheet opens. Click the **survey** tab.
8. **Delete** the text in the type column of row 9 (Truck ID Number) and **type**:

[Back to top](#)

```
select_one trucknum
```

Note:

When saving, you may see the following warning message: "Please select yes if you are using a select_one or select_multiple XLS". Click **Yes**.

9. **Delete** the text in the type column of row 10 (Capacity) and **type**:

```
select_one deccap
```

10. **Delete** the text in the type column of row 13 (Contractor) and **type**:

```
select_one truckcont
```

11. **Paste** the following expression into the appearance column of row 9:

```
minimal search("TruckCertification1?url={your clipboard URL}/1","matches","idnum")
```

12. **Paste** the following expression into the appearance column of row 10:

```
minimal search("TruckCertification2?url={your clipboard URL}/1","matches","capacity","", "idnum",{truckid})
```

13. **Paste** the following expression into the appearance column of row 13:

```
minimal search("TruckCertification3?url={your clipboard URL}/1","matches","contractor","", "idnum",{truckid})
```

14. Sign into your ArcGIS organization.
15. Search for and click on for the DebrisRemovalProviders_monitors hosted Feature Layer View.
16. Scroll to the bottom of the Overview page for the DebrisRemovalProviders_monitors item, and in the URL section, click the **Copy** icon. This copies the layer service URL to your clipboard.
17. In row 9, **Replace** {your clipboard URL} with the url in your clipboard. Make sure the /1 remains at the end of the URL. Repeat for rows 10 and 13.
18. **Save and close** the spreadsheet.

Note:

When saving, you may see the following warning message: "The appearance value you gave is not one of the standard supported appearance types. If you're attempting to combine two different appearance types, ensure that they're separated by a space". Click **Yes**.

19. In ArcGIS Survey123 Connect, click **Publish**.

[Back to top](#)

Note:

After you click publish, you should see a modal window that says "The survey will be updated without affecting the existing data". If you get a different message or ArcGIS Survey123 Connect has displayed an error prior to clicking the Publish button, you have made an error in editing the XLSForm, and should review steps 5-17 for errors.

20. Click **Publish survey**.
21. When the publishing is complete, click **OK**.
22. **Click** the back button to exit the Load Ticket.

Update Unload Ticket

To improve data quality, the unloading location field in the Unload Ticket can be populated with a dynamic list containing only valid debris management site names found in the DebrisManagementSites layer.

To add a dynamic field lookup list to the Unload Ticket, complete the following steps:

1. Install ArcGIS Survey123 Connect.
2. Start ArcGIS Survey123 Connect and sign into your ArcGIS organization.
3. **Click** Unload Ticket.
4. Click **Download** and **OK**.
5. Click Unload Ticket again.
6. Click **XLSForm**.
7. A Microsoft Excel spreadsheet called Unload Ticket opens. Click the **survey** tab.
8. **Delete** the text in the type column of row 17 (Unloading location) and **type**:
`select_one dmsname`
9. **Paste** the following expression into the appearance column of row 17:
`autocomplete search("DebrisManagementSites?url={your clipboard URL}/0","matches","name")`
10. In a browser, sign into your ArcGIS organization.
11. Search for and click on for the DebrisManagementSites_monitors hosted Feature Layer View.
12. Scroll to the bottom of the Overview page for the DebrisManagementSites_monitors item, and in the URL section, click the **Copy** icon. This copies the service URL for this layer into your clipboard.
13. Return to the Microsoft Excel spreadsheet.
14. **Replace** {your clipboard URL} with the url in your clipboard. Make sure the /0 remains at the end of the URL.

[Back to top](#)

15. **Save and close** the spreadsheet.
16. In ArcGIS Survey123 Connect, click **Publish**.

Note:

After you click publish, you should see a modal window that says “The survey will be updated without affecting the existing data”. If you get a different message or ArcGIS Survey123 Connect has displayed an error prior to clicking the Publish button, you have made an error in editing the XLSForm, and should review steps 5 - 16 for errors.

17. Click **Publish survey**.
18. When the publishing is complete, click **OK**.
19. **Click** the back button to exit the Unload Ticket.

Configure Emergency Debris Management Center

Briefing mobile staff can be challenging, especially during times of an emergency and new tools may be learned quickly during an event. The Emergency Debris Management Center includes an Access Field Apps page that can be used during a briefing to help mobile staff get access to the apps they need by scanning a QR code, and simple instructions on how to get started. Before the page can be used, you must obtain the QR codes for each of your field apps and add them to the page in the Help section of the Emergency Debris Management Center app. Additionally, you can include step-by-step instructions appropriate your organization.

Prepare images

Follow the steps below to locate QR codes to be used in the Emergency Debris Management Center:

1. Verify that you are signed in to your ArcGIS organization and browse to the ArcGIS QuickCapture Designer.
2. Open the Road Debris Reporter project and click **share**.
3. Click **QR Code** the right click the **QR Code** and save the image locally.
4. Close ArcGIS QuickCapture Designer.
5. Open ArcGIS Survey123.
6. Open the Debris Assessment Form.
7. Click **Collaborate**. Next to **Share this survey**, click the **Show the QR Code** button and then, **Click to download** the QR code image locally.
8. Repeat the above steps 6 and 7 for the Truck Certification Form, Load Ticket and Unload Ticket.
9. Close the ArcGIS Survey123 website.

[Back to top](#)

Update help

For each Survey123 form, Debris Assessment Form, Truck Certification Form, Load Ticket, and Unload Ticket) upcomplete the following steps:

1. Verify that you are signed in to your ArcGIS organization and browse to the Emergency Debris Management Center and click **Edit**.
2. Click **Live View** in the Experience Builder designer header bar.
3. In the Emergency Debris Management Center app header, **click** the drop-down arrow next to Help, then click **Access Field Apps**.
4. Click on the sub- page that corresponds to the QR code you are updating.

Note:

The Debris Assessment Form QR code belongs on the Assessment Apps sub-page, while the Load Ticket, Unload Ticket, and Truck Certification Form belong on the Removal Apps sub-page.

5. Click on the image **Place QR Code Here**.
6. In the properties window for the image widget, click Select an image.
7. Click **Upload**. Use Windows file explorer to select the QR code you saved earlier.
8. Click the **Page** button to open the page panel and select the **Help** page.
9. Use the **Body** node of the page panel to navigate between each section.
10. To update the text or images select the element in the layout and make the necessary changes. You may choose to copy some of the [help documentation](#) into the page and then modify it to fit your organizational needs.
11. Click **Save** on the Experience Builder designer header bar, then click **Publish**.

Share items with the public

The Emergency Debris Management solution includes Debris Removal Services, an app used by the public to understand the debris removal schedule for their area or route, who to contact, what to do, and where to drop off debris. In order to make this app accessible to the public, the app and its associated map and layers must be shared publicly.

1. Sign into your ArcGIS Organization and browse to the Debris Removal Services app.
2. Open the item page and click **Share**.
3. In the **Share** window, click **Everyone (public)** and click **Save**.
4. Repeat steps 1 through 3 to share the following items with everyone:

Item	Name
Web Map	Debris Removal Services
Feature Layer (hosted, view)	DebrisAreas_public
Feature Layer (hosted, view)	DebrisRoutes_public
Feature Layer (hosted, view)	DebrisManagementSites_public

[Back to top](#)

Use work routes instead of areas (optional)

Organizations managing emergency debris assign assessors and removal providers to perform their work (and track their status) using polygon-based work areas. Typically, these work areas correspond to existing daily operational boundaries; for example, garbage pickup areas. Instead of areas, other organizations assign work using line-based routes, for example, snowplow routes. The Emergency Debris Management solution is configured by default to support polygon-based work areas using the DebrisAreas feature layer.

Optionally, the default solution configuration using polygon work areas may be reconfigured to use DebrisRoutes, a line-based feature layer included in the solution for using line-based work routes.

To replace the DebrisAreas layer with the DebrisRoutes layer, complete the following steps:

1. Sign into your ArcGIS organization.
2. Browse to the **Manage Assessment Status** web map and click **Open in Map Viewer Classic**.
3. Go to the **Content** pane. Check **Debris Routes** and Uncheck **Debris Areas**.
4. Click **Save**.
5. Repeat steps 2-4 for the following web maps:

- Debris Assessments Dashboard
- Debris Assessment Form
- Manage Removal Status
- Debris Removal Dashboard
- Debris Removal Services

Note:

In the above web maps, the DebrisRoutes layer already contains identical pop-up and symbology to the DebrisAreas layer, so no further layer configuration is required.

6. In the Debris Assessments Dashboard, reconfigure the following dashboard elements to point to the Debris Routes layer:
 - Assessment area by status
 - Assessment area list
 - Areas Fully Assessed
7. In the Debris Removal Dashboard, reconfigure the following dashboard elements to point to the Debris Routes layer:
 - Removal area by status
 - Removal area list
 - Removal areas completed

Note:

[Back to top](#)

When re-configuring dashboard elements, consider opening the dashboard edit mode in two separate browser windows so you can refer to the original element settings as you reconfigure.

8. Browse to the Debris Removal Services app and click **Configure App**.
9. Click Interactivity.
10. Click Results.
11. Uncheck **Debris removal service areas**. Check **Debris removal service routes**.
12. Click **Back**, then click **Text Results**.
13. Click **Edit** for **Text above results** section. Change removal service areas to **removal service routes**.
14. Click About.
15. Click **Edit** for **Edit Introduction Panel**. Change both instances of service area to **service route**.
16. Click **OK**, then click **Publish**, and Confirm.

Note:

The Debris Removal Services app will display all routes within the app's specified search distance, not just the nearest route to the selected location.

Configure directions (optional)

Optionally, you can configure the Debris Removal Services app to provide directions to the nearest debris drop-off site.

This configuration draws routes and provides directions using the [ArcGIS Online World Route Service](#). This service requires authorization to consume premium content as it consumes credits. [Learn more about credit usage when creating simple routes](#).

Follow the steps below to connect to a routing service and configure the app to enable directions.

1. Sign into your ArcGIS organization and browse to the Debris Removal Services app.
2. From the item page, click **Configure App**.
3. Close the **Welcome to the App Setup Page** splash page, if necessary.
4. Click **Nearby > Options** and turn on the **Show directions** toggle button.
5. Check the check box next to the **Debris drop-off sites** layer.
6. Click **Publish**.
7. Click **Confirm**.
8. The **Authorize premium content** window appears with information related to authorization.
9. Click **Authorize**.

[Back to top](#)

10. Click **Launch**.

Use the metric system (optional)

The Emergency Debris Management solution is configured to support the workflows of U.S. state and local emergency management and public works agencies, who perform emergency debris management based on guidelines from the Federal Emergency Management Agency (FEMA). These guidelines use the Imperial measurement system (feet and cubic yards) to measure disaster debris volume.

Optionally, the Emergency Debris Management solution can be reconfigured for organizations outside the U.S. who use the Metric system to measure disaster debris volume.

To switch Emergency Debris Management from the Imperial to the Metric measurement system, complete the following activities:

1. Start ArcGIS Survey123 Connect and sign into your ArcGIS organization.
2. **Click** Debris Assessment Form.
3. Click **XLSForm**.
4. A Microsoft Excel spreadsheet called Debris Assessment Form opens. Click the **survey** tab.
5. In the label column, **change** all Imperial measurement references to Metric (for example, change ft. to m., cu. yd to cu. m., in. to cm., and lbs. to kg.)
6. **Delete** the rows 9-11 (hazardoustree group, diameter and fill fields). These apply only to U.S. FEMA estimation methods which have no comparable international standard.
7. In the calculation field of row 15 (Est. Volume), **delete** the default function and **paste** in the following:

```
round((length*width*height),1)
```

8. **Click** the settings tab. In the instance_name field, change cu yd. to cu. m.
9. **Save and close** the spreadsheet.
10. In ArcGIS Survey123 Connect, click **Publish**.
11. **Repeat** steps 1-5 for the Truck Certification Form.
12. In the calculation field of row 35 (Final Truck Capacity), **delete** the default function and **paste** in the following:

```
if(selected({trucktype}, 'Round Bottom Truck'), round(((3.14 * ((number({truckdiam}) div 2) * (number({truckdiam}) div 2))) * number({trucklength})),2), round((number({trucklength}) * number({truckwidth}) * number({truckheight})) - (((number({hoistlength1}) + number({hoistlength2})) div 2) * number({hoistwidth}) * number({hoistheight}))) - (3.14 * (number({radiusft}) * number({radiusft})) * number({radiusheight})),2))
```

13. **Save and close** the spreadsheet.
14. In ArcGIS Survey123 Connect, click **Publish**.
15. **Repeat** steps 1-5 and 8-9 for the Load Ticket and Unload Ticket.
16. Go to the following web maps, review each layer, and in pop-ups **change** all labels Imperial measurement references to Metric (for example, change ft. to m., cu. yd to cu. m., in. to cm., and lbs. to kg.)
 - Manage Assessment Statuss
 - Debris Assessments Dashboard
 - Manage Removal Status
 - Debris Removal Dashboard
 - Debris Logs
 - Debris Records Reviewer
 - Debris Assessment Form
17. Go to the following apps, review the configuration and change all labels Imperial measurement references to Metric (for example, change ft. to m., cu. yd to cu. m., in. to cm., and lbs. to kg.)
 - Debris Assessments Dashboard
 - Debris Removal Dashboard

Administer debris reports

After an incident, organizations may choose to extract and delete data from the Emergency Debris Management solution in order to prepare for the next incident.

Many organizations require local copies of web layers for disaster recovery or archival purposes. Learn more about how to [export data from hosted feature layers](#) into a local file geodatabase to create a local copy of your data.

Organizations may also choose to delete historical data from feature layers after they have archived the data to a local file geodatabase. Learn more on how to delete all records from a feature layer using the ArcGIS REST API service directory in the topic below.

Delete features

To delete features from a hosted feature layer or table, complete the following steps:

Note:

This workflow is optional and doesn't need to be completed in order to work with the solution.

1. Sign in to your ArcGIS organization.

[Back to top](#)

2. Go to the **Overview** tab of the hosted feature layer or table.
3. In the lower right corner, in the URL category, click **View**.
The **ArcGIS REST Services Directory** for this page appears.
4. Click the link of the layer or table from which you want to delete records.
5. In the URL bar of the browser, edit the URL with the following changes.
 - a. Add the word `admin` between `rest/` and `services`. (For example: `ArcGIS/rest/admin/services/DebrisAreas`)
 - b. Add the word `truncate` between `0/` and `?token`. (For example: `FeatureServer/0/truncate?token=`)
6. In the next window, click **Truncate**.

Use Emergency Debris Management

The Emergency Debris Management solution delivers a set of capabilities that help you expedite initial debris clearance, assess debris removal needs, and monitor debris removal activities.

In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

Note:

Use your organization's data or configured apps to follow these workflows.

Prepare for an emergency incident

To prepare for disasters, effective organizations train in advance of an incident, using mock exercises to familiarize personnel with the processes and technology they will use in the field during a real disaster. The Emergency Debris Management solution include mobile apps, ArcGIS QuickCapture, ArcGIS Workforce, and ArcGIS Survey123, which mobile workers will need to be trained to use in advance of the disaster.

In this workflow, you will assume the role of the debris operations lead who needs to train mobile workers involved in debris clearance, assessment, and removal activities.

1. In a browser, go to the Emergency Debris Management Center app.
2. In the app header, click the **Help** drop-down arrow and choose **Access Field Apps**.

This page displays information that can be used in a training briefing to help teach mobile workers to use the mobile apps included in the solution. The page is organized by workflow, with separate tabs for debris clearance, assessment, and removal mobile apps. Each page includes basic information on how to download and open the app, along with a space to put a QR code that can be scanned by mobile workers to get the specific form or project used in the workflow.

Note:

For more information on how to modify text or add a QR code, see [Configure Emergency Debris Management Center](#).

Clear road debris

After a disaster strikes, one of the top response priorities of emergency managers is to rapidly identify and clear obstructed roads so that medical and search and rescue teams can provide critical life safety services to the community. The Emergency Debris Management solution provides a comprehensive system that can be used to report roads obstructed by debris, assign reports to field clearance crews, update the status of clearance assignments, and monitor the clearance process.

[Back to top](#)

Report road debris

To clear road debris, first responders or other emergency personnel must first drive the impacted area to identify locations where debris has obstructed roadway traffic.

In this workflow, you will assume the role of a first responder in the field that needs to report roads obstructed by debris.

1. Download the ArcGIS QuickCapture app onto your mobile device.
2. Open the ArcGIS QuickCapture app and sign in to your ArcGIS organization.
3. Select the add project button.
4. Select **Browse Projects** and select the **Road Debris Reporter** project card to download.
5. Tap the **Road Debris Reporter** project in the gallery to open it.

Note:

In a disaster response setting, it can be challenging to provision named user accounts to first responders identifying debris obstructions. By publicly sharing the Road Debris Reporter project, first responders can immediately access the project by using their mobile device to scan a QR code during a training briefing. If you elect to require named user access to this project, first responders will require a named user account to your ArcGIS organization and will need to sign in before proceeding.

6. Tap the button that most accurately describes the type of debris obstruction you are capturing.
7. Use the mobile device camera to take a photo of the debris, then tap **Done**.
8. Optionally, add comments describing the debris that may be helpful to the debris operations lead, and then tap **Done**.
9. If no comments are entered, tap **Skip**.

Records captured on your device will autosend at the time interval defined in the settings of the ArcGIS QuickCapture app. The default setting for the app is 30 seconds. If the app loses network connectivity, the app will attempt to send all records once network connectivity is re-established.

Record road debris reports from the office

After severe incidents, network connectivity may not be available for first responders as they search for roads obstructed by debris. As a result, first responders may not be able to use mobile apps, and debris operations leads will need to manually record this information from the office.

In this workflow, you will assume the role of a debris operations lead who needs to manually record a report of a road obstructed by debris.

1. In a browser, go to the Emergency Debris Management Center app.
2. In the app header, click the **Clear** drop-down arrow and choose **Assign Debris Crews**.
You will see the Debris Clearance Assignments Workforce project.
3. Click the Debris Clearance Assignments to open the project.
4. Click the **Assignments** button to create a road debris report.
5. For **Assignment Type**, choose the type of report.
6. Click **Search for an address** or click the map to add a new location of the report.
7. Under **Assign to**, click **Assign** and select the mobile worker who will complete the work.
You may choose to immediately assign it to a field crew supervisor.
8. For **Priority**, choose a priority level for the assignment.
9. When complete, click **Create Assignments**.

Assign debris clearance reports

Once a road obstruction has been identified, the debris operations lead assigns a field crew to clear debris from the roadway to make it passable again.

In this workflow, you will continue to assume the role of a debris operations lead who needs to assign field crews to a debris obstruction identified by a first responder.

1. In a browser, go to the Emergency Debris Management Center app.
2. In the app header, click the **Clear** drop-down arrow and click **Assign Debris Crews**.
You will now see the Debris Clearance Assignments Workforce project.
3. Click the Debris Clearance Assignments to open it.
4. Click an assignment from the list.
You can view the assignment location on the map and can click the attachment to view a photo of the debris.

Note:




The assignments in the list are created using the Road Debris Reporter ArcGIS QuickCapture project. Each observation captured using the project creates an assignment in the Debris Clearance Assignments ArcGIS Workforce project.

5. Under **Assign to**, click **Assign** and select the field crew supervisor you want to complete the work.
6. Optionally, click **Edit** under **Location** to modify the **Assignment Type**, **Location**, or **Priority**, or add a **Due Date** or a **Description**.

Update debris clearance status

During the initial response, debris clearance field crews clear debris from obstructed roads as they are assigned.

In this workflow, you will assume the role of a field crew supervisor who needs to direct crews to their next assignment and update the status of each assignment as it is completed.

1. Download the ArcGIS Workforce app onto your mobile device.
2. Open the ArcGIS Workforce app and sign in to your ArcGIS organization.
3. Tap the **Debris Clearance Field Worker Map** to download the map.
You will see a to do list of all the clearance assignments your field crew has been assigned, grouped by priority order.
4. Tap an assignment in the **To do** list to view its location on the map and details about the assignment.
5. Tap **Start** to begin working on an assignment.
6. To pause, decline, or reset the assignment, tap **Overflow**  and tap the status you require, or tap **Cancel**.
7. Tap **Finish** to complete the assignment and remove it from your to do list.
8. Optionally, to view your completed assignments, tap your **To Do** list, and tap **Completed**.
9. Changes to the status of your assignments will automatically sync with your ArcGIS organization at the default interval of every 15 minutes. To sync more frequently, tap **Sync**  ( if you have edits that aren't synced), then tap **Sync Now**.

Record debris clearance status from the office

After severe incidents, network connectivity may not be available for debris clearance field crews as they work through their clearance assignments. As a result, field crew supervisors may not be able to use mobile apps to update the status of assignments they complete, requiring the debris operations lead to record debris clearance assignment status manually.

In this workflow, you will assume the role of the debris operations lead who needs to update the status of debris clearance assignments using the Emergency Debris Management Center app.

1. In a browser, go to the Emergency Debris Management Center app.
2. In the app header, click the **Clear** drop-down arrow and choose **Manage Assignment Status**.
3. To find the assignments you want to update, enter the address in the search bar or zoom the map to the location.
4. Click the **Update clearance status** widget.
5. To filter the assignments you want to update, click the **Edit** tool in the filter column.
6. In the **Filter Layer** window, add one or more filter expressions and click **OK**.

[Back to top](#)

7. To update a single assignment, click the **Point** tool and click the assignment on the map; for updating multiple assignments, click the **Freehand Polygon** tool and draw a shape to select all features inside the shape.

A pop-up appears.

8. Choose an appropriate **Status**.
9. Optionally, enter notes in the **Notes** text box.
10. For **Completed On Date**, choose **New Date** and select a date.
11. Click **Save**.

All of your selected records will be updated to reflect the values you entered.

Monitor debris clearance

During the first 72 hours of a disaster response, the debris manager in the Emergency Operations Center monitors the debris clearance efforts and coordinates with Emergency Managers and other key stakeholders. The debris manager helps to provide situational awareness relative to the status of clearance efforts, and coordinates with the debris operations lead to prioritize clearance activities relative to opening arterial roads leading to critical health and safety infrastructure or other priority locations.

In this workflow, you will assume the role of the debris manager who needs to monitor the progress of debris clearance using the Emergency Debris Management Center app.

1. In a browser, go to the Emergency Debris Management Center app.
2. In the app header, click **Clear**.
The Debris Clearance Dashboard displays key performance indicators including active and completed requests, percent completed, requests by type, and requests by status.
3. To filter the dashboard by assignment type, click a column in the **Active requests by type** chart.
4. Click the column again to clear the filter.
5. To filter the dashboard by status, click a section in the **Active requests by work status** chart.
6. Click the section again to clear the filter.
7. To view an assignment on the map and view a photo, click an assignment in the **Active requests** list.

Assess debris

Once a disaster incident has passed, communities begin the recovery process by assessing the nature and extent of damage. With respect to debris generated from the incident, this means understanding where debris exists, the types of debris generated, and estimating debris volumes. This information, along with information generated from an [initial damage assessment](#), can be used by communities to determine whether to make a request to the

federal government for an emergency or major disaster declaration to receive assistance under the Stafford Act.

The Emergency Debris Management solution can be used by state and local governments to create and manage their assessment areas, perform debris assessments, update the status of assessment areas or routes, and monitor progress of assessment efforts.

Manage assessment areas

Before they can begin performing assessments, mobile workers must be assigned a work area. The debris operations lead is responsible for assigning each assessor to a designated work area. The nature of the work area will depend on the preferences of the jurisdiction; some prefer to use preexisting operational boundaries (public works service areas), some prefer service routes (garbage or snowplow routes), and some prefer a grid of uniform size. As assessors complete their work, debris operations leads will update the assessment status field to reflect the current progress in that work area.

Note:

By default, the Emergency Debris Management solution is configured to use polygon-based work areas. To learn more about loading your operational boundaries into the solution, see [Load data](#). If your organization prefers to use line-based work routes, see [Use work routes instead of areas](#).

In this workflow, you will assume the role of the debris operations lead who needs to assign an assessor and update the status of a work area.

1. In a browser, go to the Emergency Debris Management Center app.
2. In the app header, click the **Assess** drop-down arrow and click **Manage Assessment Status**.
3. Click a work area on the map.

The Manage assessment area status form for the selected work area appears in the **Manage assessment area status** widget. If you do not see the form, click the **Manage assessment area status** widget to activate it.

4. Enter the following information in the form:
 - a. For **Assessment Status**, choose **Assessment In Progress**.
 - b. For **Assessor Name**, type Anne Smith.
 - c. For **Assessor Email**, type asmith@gov.gov.
 - d. For **Assessor Phone**, type (555) 111-2222.
5. Click **Close**.

Create assessment grid (optional)

Some jurisdictions prefer to create a grid of uniform size for debris assessment and removal activities, especially when the disaster area of impact does not extend across the entire

[Back to top](#)

jurisdiction or has an extent that does not cleanly align with preexisting operational boundaries or routes. To create these grids, the debris operations lead works with a GIS professional to fit a grid appropriate for each unique disaster incident. In North America, emergency management agencies typically create grids using the U.S. National Grid reference system standard.

In this workflow, you will continue in the role of a debris operations lead who needs to create a reference grid and add it to the solution to manage assessment and removal areas.

Note:

Follow the steps below if you intend to use a grid to manage your assessment and removal areas.

1. In a browser, go to the Emergency Debris Management Center app.
2. In the app header, click the **Assess** drop-down arrow and click **Manage Assessment Status**.
3. Click the **Create work area from grid** widget.
4. Click the **Define a Grid from an Area** arrow.

Note:

Below are the steps for creating a grid based on a user-defined area according to the US National Grid reference system, but the widget supports additional methods. For more information, see [Gridded Reference Graphic widget](#).

5. Click the **By Reference System** arrow.
6. Click **Draw GRG Area using extent**.
7. Click the **Grid Size** drop-down arrow and select a grid size.
8. Turn the **Clip Grid to GRG Area** toggle button on to limit the grid to only the extent drawn.
9. Click **Create GRG**. Ensure that this grid meets your requirements before proceeding to the next step. If it does not, click the **Back** button, then click **Clear** to redo the grid.
10. After you have finished, ensure the **Published GRG Layer Name** is set to **Debris Areas**, and click **Publish**. The grid will be added to the DebrisAreas feature layer, which is also used in the Emergency Debris Management solution.

Perform debris assessment

Personnel assigned to perform debris assessments are responsible for documenting each pile of debris observed in the right of way or on public property within the work area they are assigned. This critical work is inherently time-consuming, but when performed on paper, the forms require subsequent data entry that delays access to debris volume information that is critically important to the disaster declaration request process.

In this workflow, you will assume the role of an assessor in the field who needs to perform debris assessments in their work area.

1. Download the ArcGIS Survey123 app onto your mobile device.
2. Open the ArcGIS Survey123 app and sign in to your ArcGIS organization.
3. Tap the **Menu** button at the upper right, then tap **Download Surveys**.
4. Search for Debris Assessment Form and tap the **Download** button.

Note:

You can access the Debris Assessment Form by tapping the back arrow and tapping the **Barcode** button in the search bar, then taking a photo of the QR code.

5. Tap the back arrow in the upper right.
6. Tap **Debris Assessment Form** and tap **Collect**.
7. Tap the **Incident Name** drop-down arrow and choose an incident to associate with the assessment.

The unique values in the drop-down list are derived from the IncidentNames.csv file used to manage disaster incident names for debris assessments and debris monitoring tickets.

8. Tap a location on the map, then tap the check mark in the lower right.

The Address field will autopopulate based on the location selected.

Note:

The reverse geocoding capability enabled in the Address field of the form may consume credits if the default address locator for your organization is the ArcGIS Online World Geocoding Service. To learn more about reverse geocoding geopoints, see [Reverse geocoding](#).

9. For **Status**, choose a value.
10. For **Type**, choose a value.

Note:

If you choose **Hazardous Limbs, Trees, and Stumps** from the type list, the **Hazardous Tree, Limbs, and Stumps Only** section appears. When you enter 24 for the **Tree Diameter (in.)** question, the **Est. Volume (cu. yd.)** question will be autocalculated based on the value entered in the tree diameter field.

The Debris Assessment Form is performing a diameter to volume calculation as prescribed by the FEMA Public Assistance Program and Policy Guide, assuming a stump diameter measured 2 feet off of the ground, a stump to root-ball diameter of 1:3.6, and a root-ball height of 31 inches.

11. Swipe up and enter the following values:

[Back to top](#)

- a. For **Length**, type 5.
 - b. For **Width**, type 4.
 - c. For **Height**, type 3.
12. When you tap the refresh button next to the **Est. Volume (cu yd.)** question, you will see a value autocalculate based on the values entered in the three previous fields. The calculated value should be 2.2. cubic yards of debris based on the values above.

Note:

The Debris Assessment Form performs the following calculation: (length in feet x width in feet x depth in feet)/27.

13. Swipe up and for **Reimbursable**, choose **Yes**.
14. Tap the check mark in the lower right and tap **Send now**.

Update debris assessment status

Once a removal crew has completed an initial pass of an area, assessors typically perform a review check to confirm that all initially assessed debris has been removed, and to document any subsequent debris placed at the right of way after the initial pass by the removal crew.

In this workflow, you will continue to assume the role as an assessor who needs to update the status of an assessment from the field.

1. Open ArcGIS Survey123 on your mobile device and sign in to your ArcGIS organization.
2. Tap **Debris Assessment Form** and tap **Inbox**.
3. Tap the **Refresh** button.
4. Tap **Map** to view assessments captured near your location.
5. Tap an assessment to edit it.
6. Change the **Status** from **Assessed** to **Removed**.
7. Tap the check mark in the lower right and tap **Send now**.

Update debris assessment status en masse

In some cases, it may be more efficient for a debris operations lead to update debris assessment status en masse rather than having an assessor update each assessment individually.

In this workflow, you will assume the role of a debris operations lead who needs to update the status of assessments in a completed area all at once.

1. In a browser, go to the Emergency Debris Management Center app.
2. In the app header, click the **Assess** drop-down arrow and click **Manage Assessment Status**.

3. Click the **Batch update assessment status** widget.
4. To filter the assessments you want to update, click the **Edit** tool in the filter column.
5. In the **Filter Layer** window, add one or more filter expressions and click **OK**.
6. To update a single assignment, click the **Point** tool and click the assignment on the map; for updating multiple assignments, click the **Freehand Polygon** tool and draw a shape to select all features inside the shape.
A pop-up appears.
7. Select an appropriate **Status** value, and then click **Save**.
The selected records will be updated to reflect the values you entered.

Monitor debris assessments

As recovery from a disaster begins, the debris manager in the Emergency Operations Center works with emergency managers, elected officials, and other key stakeholders to understand the impacts and scope of the disaster. As debris assessments get underway, the debris manager helps to provide situational awareness relative to the status of assessment efforts, and coordinates with the debris operations lead to ensure that debris is assessed in a timely fashion.

In this workflow, you will assume the role of the debris manager who needs to monitor the debris assessment process.

1. In a browser, go to the Emergency Debris Management Center app.
2. In the app header, click **Assess**.
The Debris Assessments Dashboard includes header selectors to filter by date range as well as incident name. Some dashboard elements will not display until an incident name is selected.
3. Click the **Incident** drop-down menu and choose an incident name.
4. The left panel shows a chart illustrating work areas by their assessment status, along with a list of each work area, the assessor assigned, and the area's status. Clicking a column will zoom the map to the work area, filter assessments by the work area's boundaries, and filter other dashboard elements to reflect the values specific to that work area.
5. The first tab in the right panel displays key performance indicators (KPIs) including the percent of work areas that have been fully assessed and the total volume active and completed requests, percent completed, requests by type, and requests by status.
6. Click the **Charts** tab.
The tab displays pie and serial charts displaying debris volumes by debris type, removal status, and assessor.
7. Click any chart component to filter the map and related dashboard elements.
8. Click the **Assessments** tab.
The tab displays a list of assessments in descending order by date of assessment.

9. Click a record in the **Assessment List** to zoom to the assessment location and view details and photos associated with it.

Remove debris

Removal of disaster debris is often the first visible step a community takes on the road to recovery. Municipalities responsible for debris removal face a challenging task, demonstrating responsiveness to community demands to get debris out of their neighborhoods; coordinating multiple contractors and removal service providers; storing and minimizing large volumes of debris while it awaits a final disposal location; and adhering to processes and meticulously documenting each step to ensure compliance with federal regulations for reimbursement.

The Emergency Debris Management solution can be used by state and local governments to support debris removal workflows including certification of trucks used in debris removal, managing removal provider work areas and status, completing debris monitoring load and unload tickets, sharing assessment or ticket logs with contractors and auditors, sharing information with the public, and monitoring the progress of removal efforts.

Certify debris removal truck capacity

To ensure compliance with the FEMA Public Assistance reimbursement program, trucks used for debris removal must have their capacity certified and documented by inspectors. These inspectors, typically public works employees, measure the capacity of each truck and document other key information such as identification numbers and information about the vehicle drivers and owners.

In this workflow, you will assume the role of an inspector who needs to document the capacity of a debris removal truck.

1. Open ArcGIS Survey123 on your mobile device and sign in to your ArcGIS organization.
2. Tap the **Menu** button at the upper right, then tap **Download Surveys**.
3. Search for Truck Certification Form and tap the **Download** button.

Note:

You can access the Truck Certification Form by tapping the back arrow and tapping the **Barcode** button in the search bar, then taking a photo of the QR code.

4. Tap **Truck Certification Form** and tap **Inbox**.
5. Tap the **Refresh** button.
6. Tap the name of the removal provider that you want to certify trucks for.

Tip:

The Truck Certification Form will only display removal providers that have records in the DebrisRemovalProviders feature layer. If an organization is not displayed in the list, they must first be added using the Manage Removal Status app.

7. Tap **Edit**.
8. Complete all the required questions in the survey.

Note:

To ensure data quality in debris monitoring tickets, the Load Ticket and Unload Ticket surveys use data captured by the Truck Certification Form survey including Truck ID, removal provider name, and truck capacity.

9. Tap the check mark in the lower right and tap **Send now**.

Create a Load Ticket

The FEMA Public Assistance reimbursement program requires that debris removal operations are observed and documented from initial debris collection to final disposal. Mobile workers, known as debris monitors, perform this work at each loading site, initiating a chain of custody that is completed by another monitor when a truck is unloaded at a debris management site or landfill.

In this workflow, you will assume the role of a loading site debris monitor who needs to create a Load Ticket to document the collection of a debris load in the field.

1. Open the ArcGIS Survey123 app and sign in to your ArcGIS organization.
2. Tap the **Menu** button at the upper right, then tap **Download Surveys**.
3. Search for Load Ticket and tap the **Download** button.

Note:

You can access Load Ticket by tapping the back arrow and tapping the **Barcode** button in the search bar, then taking a photo of the QR code.

4. Tap the back arrow in the upper right.
5. Tap **Load Ticket** and tap **Collect**.
6. Complete all the required questions in the survey.

Note:

There are two types of monitoring tickets in the Ticket Type field: Load tickets, used for collecting debris from the field and transporting to a debris management site; and Haulout tickets, used for collecting reduced debris from a debris management site and transporting it to a landfill.

Note:

The **Truck ID Number** question list is populated by all unique truck IDs captured by the Truck Certification Form. To ensure data quality, you cannot enter the ID number of a truck that has not been certified. When you select a valid truck ID, the **Capacity (cu. yd.)** and **Removal Provider Name** option are automatically updated to reflect valid values associated with the selected truck. To add a new certified truck, see [Certify debris removal truck capacity](#). To modify these automatic lookup settings, see [Modify surveys](#).

7. Tap the check mark in the lower right and tap **Send now**.

Create an Unload Ticket

At landfills or debris management sites, debris monitors are responsible for assessing the load size of each incoming truck unloading debris.

In this workflow, you will assume the role of a debris monitor at a debris management site who needs to create an Unload Ticket to document the disposal of a debris load.

1. Open the ArcGIS Survey123 app and sign in to your ArcGIS organization.
2. Tap the **Menu** button at the upper right, then tap **Download Surveys**.
3. Search for Unload Ticket and tap the **Download** button.
4. Tap **Unload Ticket** and tap **Inbox**.
5. Tap the **Refresh** button.

You see a list of all load tickets that have not yet had an Unload Ticket completed. As the debris monitor at a debris management site, you will choose the ticket that corresponds to the truck that has just pulled into your site to dispose its debris load.

6. Tap the debris management site you are monitoring.
7. Tap **Unloading location**.

Note:

The list is populated by all unique debris management sites captured in the DebrisManagementSites layer. To ensure data quality, you cannot enter the name of a debris management site that does not exist in the authoritative layer. To add a new debris management site, see [Manage debris removal status](#). To modify these automatic lookup settings, see [Modify surveys](#).

8. Tap **Unloading Date** to automatically select the current date and time.
9. Tap **Load Percent of Truck Capacity** and enter a value based on your visual estimation of what percentage of the truck is full, based on guidance from the FEMA Debris Monitoring guide.
10. Swipe up and tap **Load Size**.

The field will autopopulate based upon the certified capacity of the truck and the percent full value reported.

[Back to top](#)

11. Complete all the remaining required questions in the survey.
12. Tap the check mark in the lower right and tap **Send now**.

Manage debris removal status

As debris removal operations commence, the debris operations lead assigns work areas to each removal provider. The nature of the work area will depend on the preferences of the jurisdiction; some prefer to use preexisting operational boundaries (public works service areas), some prefer service routes (garbage or snowplow routes), and some prefer a grid of uniform size. As removal crews complete their work, debris operations leads will update the removal status field to reflect the current progress in that work area.

Note:

By default, the Emergency Debris Management solution is configured to use polygon-based work areas. To learn more about loading your operational boundaries into the solution, see [Load data](#). If your organization prefers to use line-based work routes, see [Use work routes instead of areas](#).

In this workflow, you will assume the role of the debris operations lead who needs to manage the assessor and status of a work area.

1. In a browser, go to the Emergency Debris Management Center app.
2. In the app header, click the **Remove** drop-down arrow and click **Manage Removal Resources And Status**.
3. Click a work area on the map.
Editable fields for the work area will now appear in the **Update resources** widget.
4. If you do not see editable fields, click the **Update resources** widget to activate it.
5. Enter the following information in the form:
 - a. For **Removal Provider Type**, choose **Contractor**.
 - b. For **Removal Provider Name**, type Connors Contractors.
 - c. For **Removal Status**, choose **Assigned**.
 - d. For **Removal Contact Name**, type James Connors.
 - e. For **Removal Contact Email**, type jconnors@disposal.com.
 - f. For **Removal Contact Phone**, type (555) 111-2222.
6. Click **Close**.

Manage providers and debris management sites

As removal operations occur, a debris operations lead may need to add or update removal resources to reflect a changing scope of work. This may include additional contractors or activating new debris management sites to keep up with capacity needs, or deactivating resources as operations come to a close.

[Back to top](#)

In this workflow, you will continue to assume the role of the debris operations lead who needs to manage a new removal provider or debris management site.

1. In a browser, go to the Emergency Debris Management Center app.
2. In the app header, click the **Remove** drop-down arrow and click **Manage Removal Resources And Status**.
3. To create a removal provider or debris management site, click a **Debris Removal Provider** template you want to create and click a location on the map.
4. Complete the form with your provider information and click **Save**.
5. Click **Close**.
6. To update a removal provider or debris management site, click the feature on the map you want to update.
7. Update the form and click **Save**.
8. Click **Close**.

Educate the public

After a disaster strikes, communities want to get back to normal as quickly as possible, and residents want to know when debris in front of their house will be removed. To expedite the removal process, residents are asked to segregate debris piles in their right of way according to specific types, helping municipalities pick up and process the debris efficiently. In addition, drop-off sites enable residents to drop-off specific types of debris, reducing the workload for removal crews.

In this workflow, you will assume the role of a resident who needs to know when debris will be removed from their street, what to do to prepare, and where they can drop off debris in the meantime.

1. In a browser, go to the Debris Removal Services app.
The information panel describes how to use the app and provides guidance for residents on how to sort their debris into separate piles to facilitate removal.
2. Click the X to close the information panel.
3. Find debris removal services for a location by clicking the map or entering an address in the search bar.
The app displays the service area for the selected location, and any drop-off sites within the selected search radius.
4. To change the search distance for finding drop-off sites, click and drag the distance slider to your desired distance.
5. Click **Filter** to filter drop-off sites by the debris types they accept.
6. Check the check box next to each type of debris you want to search for and click **Close**.
7. To search for a different location, click **Clear search location**.

Review removal progress

As recovery from a disaster begins, the debris manager in the Emergency Operations Center works with emergency managers, elected officials, and other key stakeholders to ensure that the debris removal process is handled expediently. The debris manager provides situational awareness relative to the status of the removal effort and coordinates with the debris operations lead to ensure that debris removal providers are completing their work in a timely fashion.


In this workflow, you will assume the role of the debris manager who needs to review the progress of the debris removal process.

1. In a browser, go to the Emergency Debris Management Center app.
2. In the app header, click **Remove**.
The Debris Removal Dashboard includes header selectors to filter by date range as well as incident name. Some dashboard elements will not display until an incident name is selected.
3. Click the **Incident** drop-down menu and choose an incident name.
4. The left panel shows a chart illustrating work areas by their removal status along with a list of each work area, the removal provider assigned, and the area's status. Clicking a column will zoom the map to the work area, filter tickets by the work area's boundaries, and filter other dashboard elements to reflect the values specific to that work area.
5. The first tab in the right panel displays key performance indicators (KPIs) including the percent of work areas where removal has been fully completed, the total volume of debris removed from the community, and the total volume of debris reduced and taken to a landfill or final disposal site.
6. Click the **Removal Charts** tab.
This tab displays charts displaying debris removal volumes by debris type and provider.
7. Click a chart column to filter the map and related dashboard elements.
8. Click the **Haulout Charts** tab.
This tab displays charts displaying volumes of debris hauled to landfills by debris type and provider.
9. Click a chart column to filter the map and related dashboard elements.
10. Click the **Tickets** tab.
This tab displays a list of debris monitoring tickets in descending order by date of assessment.
11. Click a record in the **Monitoring ticket list** to zoom the map to the ticket location and view details and photos associated with it.

Export debris logs

Debris operations leads are often asked to provide daily hard-copy logs of assessments or monitoring tickets for the various administrative needs of internal and external stakeholders.

In this workflow, you will assume the role of the debris operations lead who needs to export debris assessment records to provide to an internal stakeholder in the EOC.

1. In a browser, go to the Emergency Debris Management Center app.
2. In the app header, click the **Help** drop-down arrow and choose **View Logs**.
3. Click the **Filter** widget to view available filters for the debris assessments layer.
4. For **Debris type**, choose **White Goods** and click **Apply**.
5. Click the **Filter** widget to hide the available filters.
6. Click a record in the table.
Details about the record are displayed, and the map zooms and selects the record.
7. Click the **Photos** tab to view the photos associated with this record.
8. To export a CSV file of all your filtered data, click the **Actions** button , and then click **Export All** and choose **Export to CSV**.
9. To export a CSV file of a selected record in the table, click the **Actions** button, and then click **Export Selected** and choose **Export to CSV**.
10. To switch from debris assessments to debris monitoring tickets, click **Debris Monitoring Tickets**.

Share debris removal data


A variety of stakeholders need debris records to support their internal processes. Contractors use debris assessment records from the office and the field to identify the parts of a work area they need to complete, and to identify where specialized types of debris removal crews are required. Contractors also need access to monitoring tickets for invoicing purposes because their contracts are typically volume-based.

FEMA representatives from the Public Assistance program also need access to these records for auditing purposes, verifying that debris removed corresponds to debris assessed, and that FEMA documentation procedures for debris removal are being followed.

In this workflow, you will assume the role of a contractor who needs to export debris monitoring tickets from the office for generating an invoice.

1. In a browser, go to the Debris Records Reviewer app.
2. Click the **Filter** widget to view available filters for the debris monitoring tickets layer.
3. For **Select debris type(s)**, choose **Vegetative** and click **Apply**.
4. Click the **Filter** widget to hide the available filters.
5. Click a record in the table.
Details about the record are displayed, and the map zooms and selects the record.
6. Click the **Photos** tab to view the photos associated with this record.

[Back to top](#)

7. To export a CSV file of all your filtered data, click the **Actions** button , and then click **Export All** and choose **Export to CSV**.
8. To export a CSV file of a selected record in the table, click the **Actions** button, and then click **Export Selected** and choose **Export to CSV**.
9. To switch from assessments to tickets, click **Tickets**.

Note:

To accommodate small screens, the app layout is different on a mobile device. The Table widget is not visible and an arrow on the bottom of the screen (when tapped and **Tickets** is active) displays **Details**, **Photos**, and **Filters** for filter records. To view a record's details, tap either **Assessments** or **Tickets** above the map, tap a record on the map, and tap the arrow to open the panel.

Emergency Management Operations

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Emergency Management Operations

Emergency Management Operations can be used to manage incident operations and maintain situational awareness during emergency response and recovery phases.

The solution provides an integrated suite of role-based apps that helps emergency response personnel (for example, duty officers, field operations, incident commanders, and public information officers) share information as they perform the unique tasks required to accomplish incident objectives. Emergency Management Operations is typically implemented by emergency management agencies that want to use shared information during emergency response and recovery operations.

The Emergency Management Operations solution delivers a set of capabilities that help you to identify an emergency incident, define the impact, allocate resources, and communicate status to internal and external stakeholders.

Requirements

The Emergency Management Operations solution requires the following:

- ArcGIS Enterprise
- ArcGIS Pro 2.9 or later (Basic, Standard, or Advanced)

Note:

To use this solution ensure the following content and services are enabled and configured in ArcGIS Enterprise: [directions and routing utility service](#), [Living Atlas content](#) and Living Atlas subscriber content.

Information products

Emergency Management Operations includes the following information products:

Item	Description	Minimum user type
Situational Awareness Viewer	An ArcGIS Web AppBuilder app that can be used by emergency management personnel to understand the impact of an incident on public infrastructure and human populations	Editor
Operations Response	An ArcGIS Web AppBuilder app used by emergency management personnel to understand the status of emergency facilities and response teams	Editor
Incident Status Dashboard	An ArcGIS Dashboards app used by emergency management personnel to monitor response activities and measure progress on incident objectives	Viewer
Incident Briefing	A Portfolio app used by emergency management personnel to brief key stakeholders during an incident or event	Viewer
Public Information	A Nearby app used by the public to review authoritative information and understand the status of an incident or event	Not required
Emergency Management Maps	An ArcGIS Pro project used by mapping technicians to create a standard set of briefing and response maps	GIS Professional Basic
Emergency Response Volunteer Survey	An ArcGIS Survey123 form used by the general public to volunteer for emergency response activities.	Not required
Emergency Response	An ArcGIS Hub site used by emergency management agencies to share incident information with key stakeholders.	Not required

[Back to top](#)

Release notes

The following are the release notes:

Version	Description
1.2	<ul style="list-style-type: none">• A new Incident Briefing app that uses the Portfolio app.• A new Emergency Management Maps ArcGIS Pro project.
1.1	<ul style="list-style-type: none">• A new Emergency Response site that can be used to share incident data with key stakeholders.• A new Emergency Response Volunteer Survey form that can be used to solicit emergency response volunteers.• A new Incident Status Dashboard.• A new Incident Briefing app that leverages the new Incident Status Dashboard.• A new Situational Awareness Viewer and Operations Response app that includes updated map symbology and editing configurations.• A new Emergency Management Maps ArcGIS Pro project that includes a series of enhancements to the map book layouts.
1.0	<ul style="list-style-type: none">• First release of Emergency Management Operations

Configure Emergency Management Operations

Emergency Management Operations can be used to manage incident operations and maintain situational awareness during emergency response and recovery phases.

In this topic, you'll learn how to configure the Emergency Management Operations solution to meet specific needs in your organization.

Load data

The Emergency Management Operations solution includes a series of facility layers needed to support emergency response activities:

- Emergency Facilities—Police and fire
- Industrial Facilities—Factories, utilities
- Commercial Facilities—Shopping centers and businesses
- Medical Facilities—Hospitals and clinics
- Educational Facilities—Schools

In some cases, you may already have this information in ArcGIS or another mapping system. Review the layers provided with the solution and determine what source data you want to load. If you do not have an inventory of facility information in your ArcGIS organization, you may have them in a spreadsheet or another system you can export to a spreadsheet. Once you have created a spreadsheet for each facility type, you can load the data into the facility layers provided with the solution.

Load data from a spreadsheet

To load your facility data from a spreadsheet, complete the following steps:

1. If necessary, sign in to your ArcGIS organization.
2. At the top of the site, click **Content**.
3. On the **My Content** tab, type Emergency Management Operations in the search box.
4. Under **Item Type**, click **Layers**, then click **Feature Layers**.

Note:

Some of the feature layers have a suffix added such as **public**. These are layer views of the original source feature layer. These layer views are used to share information with the public without showing all the details or allowing the public to edit the layers. The original source layers do not have a suffix.

5. Click the title of the original source layer into which you want to load data to view the item details.
6. Click **Update Data**, then click **Append Data to Layer**.

[Back to top](#)

7. Under **Filename**, choose your spreadsheet.
8. Click **Upload**, then click **Continue**.
9. Click **Show field matching** to match the fields from the spreadsheet to the fields in the selected feature layer.
10. After you have matched the fields, click **Apply Updates**.
11. Click the **Data** tab on the banner of the item page to confirm your data has loaded successfully.

Tip:

To make additional updates to a hosted feature layer, see [Append data to layers](#).

Configure Public Information app

The Public Information app can be used by the public to review authoritative information and understand the status of an incident or event. Directions to the nearest facility can be enabled so users can quickly find the facility they are looking for.

Configure directions

Optionally, the Public Information app can be configured to provide directions to the nearest facility.

This configuration draws routes and provides directions using the [ArcGIS Online World Route Service](#). This service requires authorization to consume premium content as it consumes credits. [Learn more about credit usage when creating simple routes](#).

Follow the steps below to enable directions.

1. If necessary, sign in to your ArcGIS organization and browse to the Public Information app.
2. From the item page, click **Configure App**.
Close the **Welcome to the App Setup Page** splash page, if necessary.
3. Click **Nearby > Options** and turn on the **Show directions** toggle button.
4. Check the check box next to the **Local Incidents**, **Open Shelters** and **Road Blocks** layers.
5. Click **Publish**.
6. Click **Confirm**.
The **Authorize premium content** window appears with information related to authorization.
7. Click **Authorize**.
8. Click **Launch**.

[Back to top](#)

Modify volunteer survey

The Emergency Management Operations solution includes a Emergency Response Volunteer Survey that can be used by the general public to volunteer for emergency response activities. Review the preconfigured questions and align the survey with your organizational policies and desired outcomes.

To modify the Emergency Response Volunteer Survey, complete the following steps:


1. Verify that you are signed in to your ArcGIS organization and browse to the Emergency Response Volunteer Survey.
2. Open the item page and click **Open in Survey 123 > Manage in Survey123 website**.
3. Click the **Design** tab.
4. Make your edits to the survey and save the changes.
5. Click **Publish** twice.

Configure emergency response site

The Emergency Management Operations solution includes the Emergency Response ArcGIS Hub site that your organization can configure with your branding and use to share emergency information with the public.

Update with organizational information

After deploying the Emergency Management Operations solution, the Emergency Response site layout only requires a few updates to fit your local context. Consider what information you already have and what you can most easily find. To update your site, complete the following steps:


1. Verify that you are signed in to your ArcGIS organization and browse to the Emergency Response site.
2. Open the item page and click **Configure App**.
3. Click the edit button  to open the site editor.
4. In the title section of the site, click the **edit** button, click **Edit in HTML**, and the update the text below to reflect the message you want promote with the community.

```
<span><strong>Flood Warning</strong> in effect. More than 5" of rain expected in next 24 hours. Visit the Emergency Map for more information on local road closures.</span>
```

Note:

To remove the animated banner when a warning period has expired or there is nothing to report. Edit the Damage Assessment and then edit the row where the text is animated. In the Row CSS Class you will see the word **warning**, remove this text to

disable the animation. When you are ready to enable the animated banner, add **warning** to the CSS class and modify the message.

5. In the title section, click the **edit** button, click **Edit in HTML**, and then update the **Statistics** section listed under the title of the website.
The **Road Closures**, and **Evacuation Notices** statistics cards are linked to the layers used in the Public Information map. These stats automatically update as incident information is maintained using the Emergency Management Operations solution.
6. Scroll to the **Statistics** section listed under the title of the website.
The **Road Closures**, and **Evacuation Notices** statistics cards are linked to the layers used in the Public Information map. These stats automatically update as incident information is maintained using the Emergency Management Operations solution.
7. Scroll to the **Newsroom** section, hover over each card and click edit pencil .
8. Click the **Find a Shelter** button and click **Edit**.
9. Enter the URL to your Shelter Locator, if available, in the **Link Destination** text box and click **Add Link**.
10. In the Damage Assessment section, click the **Learn More** button and click **Edit**.
11. Enter the URL to your damage assessment site, if available, in the **Link Destination** text box and click **Add Link**.
12. Scroll to the **Apply Now** section, hover over the card and click edit pencil.
13. In the Debris Removal section, click the **Learn More** button and click **Edit**.
14. Enter the URL to your emergency debris management site or application, if available, in the **Link Destination** text box and click **Add Link**.
15. Scroll to the **Frequently Asked Questions** section, hover over the card and click the edit pencil, and update the questions and answers.
16. Click **Footer**.
A custom footer is already provided, and in most cases, it needs to be updated with your organization's branding, contact information, and social media references.
17. Click the **HTML** text box.
The **HTML** window appears.
18. Make the necessary changes and click **Apply**.
19. Click **Save**.

Share items with public

Several layer views, maps and apps included in the Emergency Management Operations solution must be shared with everyone so they can be accessed by the public on the Emergency Response site. To share your public emergency response items with everyone, use the guide below and complete the following steps:

1. Verify that you are signed in to your ArcGIS organization and browse to the Emergency Management Operations folder.

[Back to top](#)

2. Check the check box next to each of the items below:

Item	Name
Feature Layer (hosted, view)	EmergencyShelters_public
Feature Layer (hosted, view)	Evacuations_active_public
Feature Layer (hosted, view)	IncidentLocations_active_public
Feature Layer (hosted, view)	RoadClosures_active_public
Web Map	Public Information
Web Mapping Application	Public Information
Feature Layer (hosted, view)	EmergencyResponseVolunteer_fieldworker
Form	Emergency Response Volunteer Survey
Site Application	Emergency Response

3. Click **Share**.
4. In the **Share** window, click **Everyone (public)** and click **Save**.
Warning: Sharing editable layers publicly appears notifying that you are sharing editable layers publicly.
5. Click **Update**.

Use Emergency Management Operations

The Emergency Management Operations solution delivers a set of capabilities that help you to identify an emergency incident, define the impact, allocate resources, and communicate status to internal and external stakeholders.

In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

Note:

Use your organization's data or configured apps to follow these workflows.

Assess impact

The Situational Awareness Viewer can be used by emergency management personnel to understand the impact of an incident on public infrastructure and human populations. Situational Awareness Viewer includes incident information used in a suite of related emergency operations solutions essential to maintaining situation awareness.

In this workflow, you will assume the role of a duty watch officer responsible for assessing the incident impact and sharing that information with other users in the EOC.

Define an incident area

The incident area can be defined by selecting an existing incident, weather warning area, or storm report from Active Incidents and Warnings. An incident can also be created by creating a buffer around a point, line, or polygon.

To define the incident area using the sample data, complete the following steps:

1. In a browser, from the Emergency Management Operations solution, view the Situational Awareness Viewer.
2. From the **Active Incidents and Warnings** list, click an incident perimeter.

Note:

You can also define an incident area by clicking any existing polygon.

3. Click the more options button in the lower right corner of the pop-up window and choose **Set Location** to define the incident area.

The **Understand Impact** widget will open at the bottom of the screen with the impact of a one-mile buffer around the flooding incident.

Note:

The point, line, and polygon icons can be used to create another incident area by specifying a buffer distance around another location. This can be useful for accidents, chemical spills, tornado paths, wildfires, or any other type of incident.

4. Click the **Save** button in the Situation Awareness panel at the bottom of the screen to save the incident location in the Incident layer.
A pop-up will appear allowing you to enter parameters for this incident.
5. Enter an incident number, name, type, then click **Done**.

Identify potential impact

After the incident area has been defined, the impact to population, facilities, and infrastructure can be determined.

To identify the potential impact of an incident using a previously defined area, complete the following steps:

1. To determine the potential impact to the population, select the **Potential impact** tab in the Situation Awareness panel at the bottom of the screen.
The estimated potential impact to vulnerable populations in the incident area is displayed by age group.
2. To further understand the impact to population, select the **Special Needs** tab.
This tab displays a list of residents who have registered for assistance during an emergency.
3. To determine the impact to facilities, select the **Schools**, **Shelters**, and **Hospitals** tabs. Each tab displays the number of facilities in the incident area.
4. To determine the impact to road infrastructure, select the **Road Closures** tab. This tab displays the number of Road Closures in the incident area.
5. Click the Incident tab, then click the **Download** button to download all the incident information into a CSV file.

Note:

This CSV file can be given to the emergency management staff or volunteer coordinators.

6. Click the **Print** button to create a report of the potential impacted facilities, infrastructure, and human populations. In the properties window, enter a title, orientation, page size, and any comments, then click **OK**.

Note:

This report can be printed or saved electronically to share with emergency management staff.

[Back to top](#)

7. The **Snapshot** button can be used to create a time-stamped folder in your ArcGIS organization containing a map and feature layers. The map and feature layers can be used for after-action reports or other analysis.

Note:

The **Snapshot** button is enabled when deployed in your organization and is enabled.

8. Close the Situational Awareness Viewer app.

Understand operational needs

After the incident area has been defined and the impact has been determined, the operations personnel can plan and assign response activities. The Operations Response app can be used by emergency management personnel to understand the status of emergency facilities and response teams.

In this workflow, you will assume the role of the operations section personnel responsible for locating and assigning emergency response resources.

Find resources near an incident

Operations response begins by identifying the incident area and finding nearby resources to support tactical operations. You can search for an address or place to find a given location to help plan response activities near that location.

To locate resources near an incident, complete the following steps:

1. In a browser, from the Emergency Management Operations solution, view the Operations Response app.
2. In the search box, type an address.
3. Click the more options button in the lower right corner of the search result pop-up window.
4. Choose **Set Location** to define the incident area and specify a buffer distance of 1 mile.
5. Click the **MRP Deployments** tab to display a list of mission-ready packages within the specified buffer.
6. Click the **Response Facilities**, **Road Closures**, and **Schools, Shelters** tabs to find other resources.
7. Click the **Incident** tab, then click the **Download** button on the left side and open the CSV file to see the list of resources.

Note:

This information can be shared with other agencies or saved for an after-action report.

8. Explore other methods of defining incident boundaries by using the line tool to locate a linear incident such as a train derailment along the train tracks and use a buffer distance of 1 mile to see the impact area.
9. Click the **Start Over** button to remove the selected incident area, if necessary.

Locate response teams assigned to an incident

Mission teams that have been assigned to response activities can be located on the map with attributes and symbology for each type of response team. These locations and attributes can then be updated from the field as teams change or complete assignments.

To locate a response team assigned to an incident, complete the following steps:

1. Click the **Add Resources** widget in the upper right corner to view the resource that can be assigned to this incident.
2. In the Search Templates box, type Emergency to see a list of resources with that name.
3. Select **Emergency Medical Services** to add a point on the map near the point of the incident address.
4. In the Add Resources list for Mission Ready Packages, add the following attributes:

Parameter	Value
Name	EMS 1
MRP Type	medical
MRP Status	Acceptance of Mission
MRP Description	public requested assistance
NIMS Resource	Medical/Public Health System Assessment Team
NIMS Discipline	Emergency Medical Services
NIMS Resource Kind	Team/Equipment
NIMS Type	III

Leave the remaining attributes blank for now and close the Resources widget.

5. Use the **Directions** widget to get directions from the incident location to the nearest hospital.
6. Click the **Print** button in the Directions widget to print a map of the route with directions.

Note:

Operations Response can be used on a mobile device or printed directions can be sent to a mobile device if necessary.

7. Click **Clear** to clear the directions from the map.

Visualize incident status

As the incident unfolds, it is important for incident commanders to monitor response activities as they occur in real time. Typically, the county or state Emergency Operations Center displays the incident status on a big screen so all command staff can monitor events and make informed decisions.

In this workflow, you will assume the role of the incident command personnel responsible for monitoring the status of the incident and emergency response activities.

Monitor incident status

The Incident Status Dashboard can be used by emergency management staff to monitor response activities in the Emergency Operations Center and measure progress toward the incident objectives.

To monitor the status of an incident, complete the following steps:

1. In a browser, from the Emergency Management Operations solution, view the Incident Status Dashboard app.

Note:

The Incident Status Dashboard is designed to be a passive dashboard, meaning no interaction is necessary since it typically will be viewed on a big screen in the Emergency Operations Center.

2. Review the number of Active Incidents and Weather Warnings on the left side of the dashboard. As the active incidents increase, so does the demand on resources.
3. Review the number of Open Shelters and Shelter Occupancy on the right side of the dashboard. Each green symbol on the map indicates both the location and status of shelters. Closed shelters will appear in red. As the shelter occupancy increases past 75 percent, the gauge will turn red, indicating additional shelters will need to be opened to meet the demand.
4. Review the indicators at the bottom of the screen.
 - MRPs Deployed indicates the number of Mission Ready Packages that have been assigned or deployed. An MRP type describes a specific capability that has been developed, trained, and equipped to respond to a unique incident or situation.
 - Road Closures indicates the number of road closures within the current map extent.
 - PODs indicate the number of Points of Distribution where public safety agencies can distribute critical supplies to the public.
5. After you are done reviewing the information, close the Incident Status Dashboard.

Brief key stakeholders

During an incident, emergency management personnel must provide key decision makers with accurate and current information that communicates the scope of the emergency incident, the status of operational response, and resource availability. Using digital maps to brief key stakeholders ensures clear communication across all command levels and enables effective executive-level decision-making.

In this workflow, you will play the role of the incident command staff who is responsible for conducting the incident briefing. The briefing is conducted using a series of interactive apps in the Incident Briefing app.

To brief key stakeholders during an incident, complete the following steps:

1. In a browser, from the Emergency Management Operations solution, view the Incident Briefing app.
2. Review information in the **Incident Briefing Introduction** tab to see how the briefing app can be used.
3. Click **View maps**.
4. Click the **Situational Awareness** tab to see active incidents and warnings.

Note:

The Situational Awareness app is embedded in the Incident Briefing app to provide an interactive map showing the status of the incident. You can select an active incident to show the current situation and impact to the community.

5. Click the **Operations Response** tab to see current emergency response activities.

Note:

Questions often arise during an incident briefing such as how many teams are currently deployed or how many roads are closed. Because the Operations Response is embedded in the Incident Briefing app, questions such as this can be quickly answered with current information.

6. Click the **Incident Status** tab to see the overall picture of the current situation.
7. Close the **Incident Briefing** app when done reviewing.

Locate incident information

Citizens need access to information before, during, and after an incident to assess their personal risk and determine when to act. The Emergency Response site and Public Information app can be used by the public to review authoritative information and understand the status of an incident or event.

In this workflow, you will assume the role of a resident or member of the public that is interested in obtaining information about a current incident and volunteering to help if your skills are needed.

Find an open shelter

Follow the steps below to learn more about the incident and locate an open shelter:

1. In a browser, from the Emergency Management Operations solution, view the Emergency Response site.
2. Scroll to the Emergency Map and click **Launch app** to open the Public Information app.
3. In the **Public Information** pane, drag and use the buffer distance slider to set a distance of 3 miles.

The slider allows a user to define a distance once an address is entered or a location is identified on the map.

4. In the **Public Information** pane under **Search for an address or locate on map**, search for an address.
5. Click the **Expand All** button to review all the incident information near the specified address.
6. Scroll down the list of incident information to review the local incidents, evacuation notices, and weather warnings.
7. Click **Open Shelter** to review additional information about the selected shelter.
8. Close the Public Information app when you are done reviewing the incident information.

Volunteer to help

Follow the steps below to volunteer to help during an emergency incident.

1. In a browser, from the Emergency Management Operations solution, view the Emergency Response site.
2. Scroll to the **Volunteer to help** section.
3. Click the **Volunteer** button.
4. Complete the survey and click **Submit**.

Produce emergency maps

Often, field support personnel don't have access to the internet or real-time maps on devices during an emergency incident. Therefore, it may be necessary to produce paper maps of the current situation quickly. Emergency Management Maps can be used by emergency management mapping technicians to update the data sources with local incident data, share maps and data, and create standard hard copy briefing and response maps.

In this workflow, you will assume the role of a mapping technician supporting an emergency incident.

[Back to top](#)

Configure a project

Emergency Management Maps is an ArcGIS Pro project used by mapping technicians to create a standard set of briefing and response maps. It can be used to update source data for the current incident which can be used in the other apps that are part of the Emergency Management Operations solution.

Follow the steps below to configure the Emergency Management Maps project.

1. In a browser, sign in to your ArcGIS Online organization, and then click **My Contents**.
2. Locate the Emergency Management Operations folder.
3. Download the Emergency Management Maps desktop application template.
4. Start the ArcGIS Pro application and [open the project package from the active portal](#).
5. On the **View** tab, in the **Windows** group, click **Catalog**, and click **Catalog Pane**.
6. In the **Catalog** pane, expand the **Using your data** task group.
7. Click the **Update data sources** task and follow the instructions to update the ArcGIS Pro project to reference hosted feature layers.
8. Click the **Append your data** task and follow the instructions to add your data to the existing data schemas provided with the project.
9. Click the **Use existing geodatabase** task and follow the instructions to source layers with your data or published web layers.
10. Click the **Use Esri Demographic data** task and follow the instructions to use data included in ArcGIS Living Atlas of the World.

Share incident maps

Some situations require sharing data and maps with other people within the organization. After you resource the data in the previous workflow, you can share layers and maps with your data. You can also share the desktop application template with other mapping technicians.

Follow the steps below to share an incident map.

1. In the tasks panel, expand the **Share with your organization** task group.
2. Click **Share Layers** and follow the task instructions to publish your data as a web layer.
3. Click **Remap layer to use published layers** to replace layers in the project with the new published layers.
4. Click **Share maps** to share the maps as web maps with your organization after referencing web layers in the project maps.
5. Click **Create Shared Map Package** to create a map package that can be shared with other people in your organization to edit data and create map books.

Create a map book

One way to deliver standard hard copy briefing and response maps to field personnel is in the form of a map book. The map book can be either a series of the same map with individual pages covering the geographic extent of the incident or a collection of different maps with the same extent.

Follow the steps below to create an incident map book.

1. In the tasks panel, expand the **Create map books** task group.
2. Click **Create a field reference map series** and follow the task instructions to create a map series with pages of different extents of the same map.
3. Click **Create an incident map book** and follow the task instructions to create an incident map book with different maps of the same extent.

Emergency Management Maps contains several layouts that will be used to create the incident map book in PDF format so that you can print the map book or send it by email.

Archive an incident

After the incident or event is over and operational features in the map are ready to be archived, the Operations Response app can be used to update the active incident flag and archive incident data quickly and efficiently. When you archive an incident, the features are no longer visible in the app but will continue to be stored in the associated feature layers. This allows you to manage multiple incidents from a single app and allows you to access your archived data from the associated feature layers for after-action analysis or reporting.

Follow the steps below to archive incident data and prepare for the next event.

1. In a browser, from the Emergency Management Operations solution, view the Operations Response app.
2. Click the **Archive Incidents** widget to view the operational layers available to be archived.
3. Check the check boxes next to the layers to be archived.
4. Click one of the **Drawing** tools, and then select the features on the map.
5. From the **Active Incident** drop-down list, choose **No**, and then click **Save**.
6. Close the Operations Response app.

Environmental Analysis

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Environmental Analysis

Environmental Analysis can be used to evaluate and understand environmental impacts of proposed development projects and solicit feedback from stakeholders.

It provides ready-made analysis and reporting tools that help streamline environmental review, solicit feedback from stakeholders, and generate reports for proposed development projects. This improved process decreases the time required for project review and increases communication between all stakeholders involved. Environmental Analysis is typically implemented by government agencies and conservation organizations that want to take a data-driven approach to environmental review of proposed development projects.

The Environmental Analysis solution delivers a set of capabilities that help you evaluate proposed development projects and solicit feedback from stakeholders.

Requirements

Environmental Analysis requires the following:

- ArcGIS Enterprise
- ArcGIS Pro 2.6 or later (Basic, Standard, or Advanced)

Information products

Environmental Analysis includes the following information products:

Item	Description	Minimum user type
Environmental Analysis	An ArcGIS Pro project used by natural resource staff to conduct and report on an environmental impact analysis	GIS Professional Basic
Environmental Screening	An ArcGIS Web AppBuilder app used by natural resource staff to conduct an initial environmental impact assessment and share the impact with interested parties	Viewer
Environmental Impact Public Comment	A Crowdsourcing Polling app used by the general public to review projects and comment on the impact to the natural environment	Not required

Release notes

The following are the release notes:

Version	Description
1.0	<ul style="list-style-type: none">First release of Environmental Analysis

[Back to top](#)

Configure Environmental Analysis

Learn how to configure the Environmental Analysis solution to meet specific needs in your organization.

Load data

Environmental Analysis can be used to evaluate and understand environmental impacts of proposed development projects and solicit feedback from stakeholders.

Review the layers provided with the solution and determine what source data you want to load. Then, load your existing data into the layers provided with the solution before sharing the maps or applications.

Once you have determined what source data must be loaded, complete the data loading workflows below.

Load data from a shapefile

You can load data for EnvironmentalScreening and EnvironmentalPublicComment from a shapefile by following the steps below:

1. Create a .zip file of your shapefile.
2. In your ArcGIS organization, browse to the feature layer you want to populate.
3. On the feature layer item details page, click **Update Data** and select **Append Data to Layer**.
4. Under **Filename**, click **Choose File**.
5. Browse to your .zip file and click **Open**.
6. Under **Contents**, select **Shapefile**.
7. Click **Upload and Continue**.
8. Choose the layer that you want to load data into and the layer that contains the updated data.
9. Uncheck **Update existing features**.
10. Click **Show field matching** and map the fields between the two layers.
11. Click **Apply Updates**.

Tip:

To make additional updates to a hosted feature layer, see [Append data to layers](#).

Use Environmental Analysis

The Environmental Analysis solution delivers a set of capabilities that help you evaluate proposed development projects and solicit feedback from stakeholders.

In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

Note:

Use your organization's data or configured apps to follow these workflows.

Conduct initial environmental assessment

You will start by assuming the role of a project manager responsible for reviewing proposed development project scenarios. You are asked to use the Environmental Screening app to review several proposed development project scenarios.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Environmental Analysis solution.
2. View the Environmental Screening app.
In the app, the **Environmental Screening** widget is open on the right. The widget includes various tools that can be used to define an area of interest.
3. Define an area of interest with one of the provided tools.
4. Adjust the **Buffer** distance.
5. Click **Report** to view results.
6. In the **Environmental Screening** widget, expand the layer that you are interested in to view its details.
7. Optionally, at the top of the widget, click the **Choose units for analysis** button to adjust the search units.
8. Click the **Download** or **Print** button to export the report.

Conduct detailed environmental assessment

Now you will assume the role of a project review analyst responsible for reviewing proposed development projects. You are asked to use the Environmental Analysis ArcGIS Pro project to review a proposed development project. Follow the defined tasks to create analyses, format layouts, and create reports of your findings.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Environmental Analysis solution.
2. Download the Environmental Analysis desktop application template and unzip the folder.
3. From the unzipped folder, browse to the **MapsandGeodatabase** folder and open the Environmental Analysis.ppkx file in ArcGIS Pro.

Note:

The Environmental Analysis ArcGIS Pro project comes preloaded with sample data, geoprocessing tools, models, and layout templates for common analyses.

4. In ArcGIS Pro, in the **Catalog** pane, expand **Tasks**, if necessary, and then double-click the Environmental Analysis Workflows task.

Note:

If you do not see the **Catalog** pane, from the **View** tab, in the **Windows** group, click **Catalog Pane**.

5. In the **Tasks** pane, follow the steps of each task to begin your project review.

Provide stakeholder feedback

As an engaged resident in a community, you want to provide your feedback on several proposed development project scenarios. You will use the Environmental Impact Public Comment app to submit comments on each scenario.

1. In a browser, from the Environmental Analysis solution, view the Environmental Impact Public Comment app.
2. From the list on the right, select the project that you want to comment on.
3. Review the project details and comments.
 - Click the **Vote for this project** button to vote for the project.
 - Click the **Add a comment** button to leave a comment.

Equitable Property Value

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Equitable Property Value

Equitable Property Value can be used to share authoritative property information, educate taxpayers and collect feedback from taxpayers when they are concerned about the equity of their property value.

It provides 24/7 access to answer common property and tax distribution questions in order to increase public trust and streamline the assessment appeals process. This approach helps stakeholders make well-informed property and development decisions. Equitable Property Value is typically implemented by property appraisal departments, assessors, fiscal offices, and other local government organizations that want to engage taxpayers in the property valuation process.

The Equitable Property Value solution delivers a set of capabilities that help you communicate parcel, property sales, and floodplain information as well as solicit assessment appeals from property owners in order to improve customer service and promote fair and equitable property values.

Requirements

Equitable Property Value requires the following:

- ArcGIS Enterprise
- Survey123 Connect

Information products

Equitable Property Value includes the following information products:

Item	Description	Minimum user type
Equitable Property Value	An ArcGIS Hub site used by the general public to access tax parcel and related property information, find comparable sales, file assessment appeals, and identify properties impacted by FEMA floodplain boundaries	Not Required
Floodplain Inquiry	An ArcGIS Web AppBuilder app used by the general public, land development companies, and real estate professionals to locate parcels impacted by FEMA floodplain boundaries	Not Required
Residential Comp Finder	An ArcGIS Web AppBuilder app used by the general public, real estate agents, and appraisers to find comparable sales and related property information	Community Account
Tax Parcel Viewer	An ArcGIS Web AppBuilder app used by the general public to access tax parcel, tax distribution, and related property information on smartphones, tablets, and desktop computers	Not Required
Property Tax Assessment Appeal	An ArcGIS Survey123 form used by the general public to file a formal request for the review of their property assessment	Community Account
Tax Liability Calculator	An ArcGIS Survey123 form used by the general public to compute their estimated tax liability	Not Required

Release notes

The following are the release notes:

Version	Description
1.0	<ul style="list-style-type: none">First release of Equitable Property Value

Configure Equitable Property Value

Learn how to configure the Equitable Property Value solution to meet specific needs in your organization.

Load data

Equitable Property Value can be used to share parcel, property sales, floodplain, and tax distribution information. In some cases, you may have this information in ArcGIS or another business system already.

Review the layers provided with the solution and determine what source data you want to load. Then, load your existing data into the hosted feature layers provided with the solution before sharing the maps or applications.

Once you have determined what source data must be loaded, complete one or more of the data loading workflows below.

Load data from a shapefile

You can load data for TaxParcels, SiteAddresses, SchoolDistricts, FloodZones, and TaxParcelSales from a shapefile by following the steps below:

1. Create a .zip file of your shapefile.
2. In your ArcGIS organization, browse to the feature layer you want to populate.
3. On the feature layer item details page, click **Update Data** and select **Append Data to Layer**.
4. Under **Filename**, click **Choose File**.
5. Browse to your .zip file and click **Open**.
6. Under **Contents**, select **Shapefile**.
7. Click **Upload and Continue**.
8. Choose the layer that you want to load data into and the layer that contains the updated data.
9. Uncheck **Update existing features**.
10. Click **Show field matching** and map the fields between the two layers.
11. Click **Apply Updates**.

Tip:

To make additional updates to a hosted feature layer, see [Append data to layers](#).

Tip:

[Back to top](#)

You can use the Data Assistant add-in, which is part of the Community Data Aggregation solution, to load your data into the TaxParcels hosted feature layer. The Data Assistant add-in allows you to [update and load data](#) manually or on a schedule.

Load tax distribution information

To configure the Tax Distribution table in the TaxParcels hosted feature layer in ArcGIS, you may use the sample .csv file included with the solution (TaxDistributionSources.csv).

To load tax distribution from a spreadsheet, complete the steps below:

1. Sign in to your ArcGIS organization and browse to the **TaxDistributionSources** item.
2. On the item details page, click **Download**.
3. Once downloaded, open the **TaxDistributionSources.csv** and populate Parcel ID, Total Tax, and Tax District distribution totals (in dollars).

Note:

After these tax values are populated, you can compute the percent of total tax dollars for each Tax District and populate its corresponding Tax District % attribute—for example, $(TXDIST1/TOTTX)*100 = TXDIST1PER$ or $(\$1500/\$5000)*100 = 30\%$.

4. Alternatively, you can use ArcGIS Pro to populate these values based on their spatial relationship with tax districts.
5. Once TaxDistributionSources.csv is populated with all the necessary data.
6. In your ArcGIS organization, browse to the **TaxParcels** hosted feature layer.
7. On the feature layer item details page, click **Update Data** and select **Append Data to Layer**.
8. Under **Filename**, click **Choose File**.
9. Browse to your .csv file and click **Open**.
10. Click **Upload and Continue**.
11. From **Choose the layer that you wish to append data into**, select the **Tax Distribution** table to load into.
12. Uncheck **Update existing features**.
13. Click **Show field matching** and map the fields between the two layers.
14. Click **Apply Updates**.

Tip:

To make additional updates to a hosted feature layer, see [Append data to layers](#).

Configure the Equitable Property Value site

The Equitable Property Value solution includes the Equitable Property Value Hub site that your organization can configure with your branding and use to share property value information with the public.

Share Equitable Property Value items

When you deploy the Equitable Property Value solution, it will create an Equitable Property Value site, and two Groups (Core Team and Followers) in your ArcGIS organization. Several maps and apps included in the Equitable Property Value solution must be shared with taxpayers before reviewing comparable sales and filing a property tax assessment appeal. Sharing the appropriate maps and apps with the Followers group created with the initiative will allow business owners to access them after creating a community identity.

1. Verify that you are signed in to your ArcGIS organization and browse to the Equitable Property Value folder.
2. Check the check box next to each of the items below:

Item	Name
Web Mapping Application	Residential Comp Finder
Form	Property Tax Assessment Appeal
Web Map	Residential Comp Finder
Feature Layer (hosted, view)	PropertyTaxAssessmentAppeal_fieldworker
Feature Layer (hosted, view)	SchoolDistricts_public
Feature Layer (hosted, view)	TaxParcelSales_public

3. Click **Share**.
4. In the **Share** window, click **Edit Group Sharing**.
5. Click **Equitable Property Value Followers** and click **OK**.
6. Click **Save**.
7. Next, you'll share items with Everyone (public).
8. Check the check box next to each of the items below:

Item	Name
Feature Layer (hosted, view)	FloodZones_public
Feature Layer (hosted, view)	SiteAddresses_public
Feature Layer (hosted, view)	TaxLiabilityCalculator_public
Feature Layer (hosted, view)	TaxParcels_public
Web Map	Floodplain Inquiry
Web Map	Tax Parcel Viewer

[Back to top](#)

Web Mapping Application	Floodplain Inquiry
Form	Tax Liability Calculator
Web Mapping Application	Tax Parcel Viewer
Site Application	Equitable Property Value

9. Click **Share**.
10. In the **Share** window, click **Everyone (public)** and click **Save**.
The **Warning: Sharing editable layers publicly** message appears notifying you that you are sharing editable layers publicly.
11. Click **Update**.

Modify surveys

The Equitable Property Value solution includes two surveys (Tax Liability Calculator and Property Tax Assessment Appeal) that can be used to estimate tax liability for a given property and appeal property tax.

Review the preconfigured questions and adjust as necessary to fit your needs.

Add additional fields

Both surveys leverage hosted feature layer views created from the TaxLiabilityCalculator and PropertyTaxAssessmentAppeal hosted feature layers. Organizations may want to modify the Tax Liability Calculator and Property Tax Assessment Appeal surveys by first adding new fields to the hosted feature layers and configuring the surveys to use the newly created fields. When doing so, the new fields must be exposed in the appropriate views.

To add one or more fields to a hosted feature layer and update the views, complete the following steps:

1. Add a new field to a layer in the TaxLiabilityCalculator or PropertyTaxAssessmentAppeal hosted feature layer.
2. Browse to the view in your contents.
3. Click **Open in Map Viewer Classic**.
4. Click the **More Options** button on the appropriate hosted feature layer or table, and click **Set View Definition**. Click **Define Fields**.
5. Scroll to the newly created field and check the box. Click **Apply**.
The new field is added to the view's definition.

Modify equation for tax liability

To modify a Equitable Property Value survey, complete the following steps:

1. Install Survey123 Connect.

[Back to top](#)

2. Start Survey123 Connect and sign in to your ArcGIS organization.
3. Click **Tax Liability Calculator** and download the survey.
4. Click **Tax Liability Calculator** again to open the survey.
5. On the left pane, click the **Open XLSForm** spreadsheet.
6. Revise the survey logic to reflect the calculation for tax liability in your community.
7. Save the Microsoft Excel spreadsheet and preview your changes in Survey123 Connect.
8. In Survey123 Connect, click **Publish** in the left pane to publish your changes.

Use Equitable Property Value

In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

Note:

Use your organization's data or configured apps to follow these workflows.

Locate parcels impacted by a floodplain

When the public and real estate professionals search for properties, floodplain boundaries come into consideration. Knowledge of floodplain boundaries helps ensure that informed decisions can be made during the land development and home buying processes.

In this workflow, you will learn how to locate and view authoritative floodplain boundary information (DFIRM panels) provided by the Federal Emergency Management Agency (FEMA) using Floodplain Inquiry.

You will assume the role of a resident in a local community. You want to see whether a property that you are interested in purchasing sits within a floodplain boundary.

1. In a browser, from the Equitable Property Value solution, view the Equitable Property Value ArcGIS Hub site.
2. Scroll to the **Property Applications** section, and then click **Locate Floodplain**.
3. The Floodplain Inquiry app opens.
4. On the right, in the **Search Parcels** widget, search for a parcel number or address, or click the location directly on the map.
5. Review the property's details, such as its parcel number or address, and whether the property is impacted by a flood zone.

Locate comparable sales

To determine fair market value of a subject or prospective property, the public and real estate professionals can use the Residential Comp Finder to look for properties with similar characteristics.

You will assume the role of a local homeowner. You want to find recently sold properties with similar characteristics to determine the value of your home.

1. In a browser, from the Equitable Property Value solution, view the Equitable Property Value ArcGIS Hub site.
2. Create a community identity or sign in with an existing user account.
3. Scroll to the **Get Involved** section and click **Get Involved** to follow the initiative.
Following the initiative gives you access to the Residential Comp Finder app.

[Back to top](#)

4. Scroll to the **How does my property compare** section, and then click **Find Comps**.
The Residential Comp Finder app opens.
5. In the **Locate Sale** widget, search for a parcel number, address, or school district, or click the location directly on the map.
6. Optionally, adjust the buffer slider to see a larger list of potential properties.
7. Review the property's details, such as its address, parcel number, year built, floor area, assessed value, sale price, sales date, and sales ratio.
8. Optionally, use filters to refine the results; for example, use the **Sale Amount is between** filter to find homes with sale prices between \$250,000 and \$350,000.

Discover parcel and tax distribution information

Providing up-to-date and accurate information on taxes can help taxpayers know where their dollars go and allow local governments to operate with transparency. Using the Tax Parcel Viewer, the public can access property tax information and see where property tax dollars are being distributed, along with the amount of each distribution.

You will assume the role of a local homeowner. You want to find your property to see how your property taxes have been distributed.

1. In a browser, from the Equitable Property Value solution, view the Equitable Property Value ArcGIS Hub site.
2. Scroll to the **Property Applications** section, and then click **View Parcels**.
The Tax Parcel Viewer app opens.
3. On the right, in the **Search Parcels** widget, search for a parcel number, owner, or address, or click the location directly on the map.
4. Review the property's details, such as its address, parcel number, owner name, subdivision, structure types, and assessed and land values.
5. Review the tax distribution information to see how property tax from this parcel has been locally allocated.

Estimate tax liability and appeal assessment

To determine tax liability and review assessment of a property, property owners depend on the assessor's office to accurately determine and assess their property's value.

In this workflow, you will learn how to estimate tax liability and file a formal appeal of a property assessment.

Calculate estimated tax liability

Property owners can use the Tax Liability Calculator to compute their estimated tax liability.

1. In a browser, from the Equitable Property Value solution, view the Equitable Property Value ArcGIS Hub site.
2. Scroll to the embedded Tax Liability Calculator.
3. Complete the **Sale Price** field to see a property's estimated tax liability.

File a Property Tax Assessment Appeal

Property owners can use the Property Tax Assessment Appeal form to file a formal request for the review of their property assessment.

1. In a browser, from the Equitable Property Value solution, view the Equitable Property Value ArcGIS Hub site.
2. Create a community identity or sign in with an existing user account.
3. Scroll to the **Get Involved** section and click **Get Involved** to follow the initiative.
Following the initiative gives you access to the Property Tax Assessment Appeal app.
4. Scroll to the **How does my property compare** section, and then under **Start the Appeal Process**, click **Apply**.
5. Complete the Property Tax Assessment Appeal form, and then click **Submit**.

Fire Accreditation Analysis

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Fire Accreditation Analysis

Fire Accreditation Analysis can be used to complete spatial analysis workflows and generate maps based on the Commission on Fire Accreditation International (CFAI) Accreditation Model Information Technology Specifications.

The CFAI and the [Center for Public Safety Excellence](#) works with fire agencies around the world to encourage continuous improvement and promote standards of excellence. This accreditation process demonstrates that a fire agency is committed to continuous improvement, serving the community efficiently, and providing a fair and safe work environment for all personnel. Accredited fire agencies submit an annual compliance report that documents self-improvement efforts. After accreditation has been granted, fire agencies are required to submit annual performance appraisals and risk assessments. Fire Accreditation Analysis is typically implemented by fire departments, agencies, and districts that want to enhance hazard risk analysis and measure service delivery over time.

The Fire Accreditation Analysis solution delivers a set of capabilities that help fire agencies complete a standard set of spatial analysis workflows and generate a series of maps that conform with the spatial requirements included in the CFAI Accreditation Model Information Technology Specifications.

Requirements

Fire Accreditation Analysis requires the following:

- ArcGIS Enterprise
- ArcGIS Pro 3.0 or later (Basic, Standard, or Advanced)

Note:

To use this ArcGIS Solution an ArcGIS Online organizational account is required to configure the [GeoEnrichment Service](#) to work with ArcGIS Enterprise.

This solution optionally uses infographics in ArcGIS Pro when connected to an ArcGIS Enterprise portal. Follow the [instructions to enable infographics](#).

[Back to top](#)

Information products

Fire Accreditation Analysis includes the following information products:

Item	Description	Minimum user type
Fire Accreditation Analysis	An ArcGIS Pro project used by fire analysts to conduct relevant spatial analysis workflows and generate a standard set of maps so you can reduce the time it takes to produce Fire Accreditation, Standards of Cover, and Annual reports.	GIS Professional (Basic, Standard, or Advanced)
Fire Accreditation Viewer	A Portfolio app used by internal stakeholders to understand if continuous improvement objectives are being met.	Viewer

Release notes

The following are the release notes:

Version	Description
1.0	<ul style="list-style-type: none">First release of Fire Accreditation Analysis

Configure Fire Accreditation Analysis

In this topic, you'll learn how to configure the Fire Accreditation Analysis solution to meet the specific needs in your organization.

Organize your data

Fire Accreditation Analysis uses your data to generate maps based on the Commission on Fire Accreditation International (CFAI) Accreditation Model Information Technology Specifications. Before you open the Fire Accreditation Analysis project, take some time to organize your source data.

Two foundational data sets (geographic planning zones and incidents) are required to complete the analysis workflows in the Fire Accreditation Analysis project.

Geographic planning zones

Geographic planning zones are required to complete analysis workflows in each criterion. They can be fire station response areas, neighborhoods, census tracts, or any other polygonal area. Geographic planning zones must have a unique name to be used in the analysis workflows.

Incidents

The accreditation process requires three to five years of incident data that is typically sourced from your records management system. This historical data can be exported from your records management system in a comma-delimited text file (CSV file) or spreadsheet and imported into ArcGIS. Incident data must have the following fields to be used in the analysis workflows:

- Incident identifier
- NFIRS code
- NFIRS property use code
- Call date
- Total time
- Address or Longitude, Latitude (x,y)

Additional source data

As you identify the accreditation maps you wish to generate, you may need to organize other source data. In total, the following data is required to complete every analysis workflow in the Fire Accreditation Analysis project:

- Agency service area boundary

[Back to top](#)

- Other service area boundaries (mutual aid, contract areas)
- Fire protection and detection systems
- Occupancy inspections
- Public education programs
- Fire stations
- Fire hydrants
- Critical infrastructure

Much of this data is typically sourced from shapefiles, file geodatabases, or other spatial data your organization manages. If this data is not currently managed in ArcGIS, it can be imported from a comma-delimited text file (CSV file) or spreadsheet. The source data must have the following fields to be used in the analysis workflows:

- Unique identifier
- Date
- Address or Longitude, Latitude (x,y)

Other data

The following data is sourced from ArcGIS Living Atlas of the World and used in analysis workflows when you sign in to your ArcGIS organization:

- Population density and growth
- Transportation systems
- Topography, geology, physiology, and climate
- Area land use
- Hazards (natural, environmental, industrial, social and domestic)
- Demographic and socio-economic

Adjust risk score

Section 2B.4 of the CFAI Accreditation Model Information Technology Specifications defines a methodology that can be used to understand risk in your community. This risk score has a default risk range of 1 through 3 (low, medium, high) and summarizes the probability (frequency of past occurrence) and consequence (property use codes to determine the severity). Using the default values, your risk map will have a range of 2 through 6. In some cases, you may alter your risk range and use a wider range, for example 1 through 10. If you do modify the risk ranges, ensure that the probability and consequence scores have the same risk range.

Note:

This workflow is optional and doesn't need to be completed in order to work with the solution.

Modify consequence and probability range

Follow the steps below to modify the consequence and probability range values for non-EMS incidents.

1. Open the Fire Accreditation Analysis project in ArcGIS Pro.
2. Open the **2B - Hazard Risk Assessment** map.
3. Click the **Contents** tab, and then scroll down and open the **Property Use Lookup** table.
4. In the **ConsequenceScore** adjust the values field to your new range
5. Click the **Edit** tab.
6. Click **Save**.
7. Open the **Apply risk methodology for all non-EMS incidents (2B.4)** task.
8. Run the **Select NFIRS Codes** and **Determine frequency of incidents** steps.
9. In the **Number of Classes** parameter, use the same number as the highest value that you used for the consequence score. (For example, if using a 1-10 range you would enter 10).
10. Click **Run** to calculate the probability score based on the new range.

Configure Fire Accreditation Viewer

When you open the Fire Accreditation Viewer for the first time, it will include a single section for the Area Characteristics map. Follow the steps below to add additional accreditation map to the Fire Accreditation Viewer.

1. In a browser, sign in to your ArcGIS organization and then browse to the Fire Accreditation Viewer app.
2. From the item page, click **Configure App**.
Close the **Welcome to the App Setup Page** splash page, if necessary.
3. Click **Portfolio**, and then click **Add a New Section**.
4. Click **Browse for content**, and then browse to the web map you created in the Share with your organization task in the Fire Accreditation Analysis ArcGIS Pro project.
5. Click **Select Section** to add the web map to the portfolio app.
6. Click the **Section Description** from the drop-down list and then add a description about that map that you can share with your stakeholders.
7. Click **Publish**.
8. Click **Launch**.

[Back to top](#)

Use Fire Accreditation Analysis

The Fire Accreditation Analysis solution delivers a set of capabilities that help fire agencies complete a standard set of spatial analysis workflows and generate a series of maps that conform with the spatial requirements included in the CFAI Accreditation Model Information Technology Specifications.

In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

Review the Fire Accreditation Analysis project

Follow the steps below to download and review the Fire Accreditation Analysis project.

1. Sign in to your ArcGIS organization and browse to the Fire Accreditation Analysis Desktop Application Template.
2. From the item page, click **Download**.
3. Unzip and open the Fire Accreditation Analysis ArcGIS Pro project.
4. In the **Catalog** pane, expand the **Tasks** folder, and double-click the **Fire Accreditation Analysis** task.

Note:

If you do not see the Catalog pane, from the View tab, in the Window group, click, Catalog Pane.

5. In the **Tasks** pane, expand the **Getting to know Fire Accreditation Analysis** task group to see the collection of tasks.
6. Double-click **Fire Accreditation Analysis project structure** to review the organizational structure and task workflow.
7. Double-click **Organize your data** to review the standard data layers used in the project and learn about potential sources for the data you will need.
8. Double-click **Sign in to your ArcGIS organization** to use content available in the ArcGIS Living Atlas.

Create fire accreditation maps

The 10th Edition of Commission on Fire Accreditation International (CFAI) Model contains eleven unique criterion and over forty different core competencies or performance indicators. Although all these criteria must be documented, not all of them can be mapped. As a result, the [\(CFAI\) Model Information Technology Specifications](#) provides a list of spatial data required for the accreditation process. For each spatial data element in the list, there is a reference to the core competency or performance indicator used in a map that supports the criteria.

Preparing for accreditation, community risk reduction or standard of cover is time consuming and data intensive. The structured set of tasks included in the Fire Accreditation Analysis

[Back to top](#)

project reduces the time it takes to conduct the required analysis, and increase the quality of the fire accreditation maps.

In this workflow, you will assume the role of a fire analyst or GIS analyst who wants to create one, or more, fire accreditation maps.

Area characteristics (Criterion 2A)

The first criterion in the accreditation model is to document the area characteristics—or distinct natural, human, and development characteristics—for a defined service area. In task 2A.3, a planning zone layer is created and will be used in subsequent tasks to create maps of area characteristics such as population density, transportation, land use, socio-economic and demographic information, critical infrastructure, and other local characteristics.

1. Identify the area characteristics maps you would like to generate.
2. To create area characteristics maps, open the **Area characteristics (Criterion 2A)** task group and follow the steps in each task.

Hazard risk assessment (Criterion 2B)

Hazard risk assessment maps identify, assess, classify, and categorize hazard risks. Historical incident data is used to define the risk using the two-axis methodology of probability and consequence. The frequency of each type of fire incident determines the probability. Property-use codes are used to classify higher-risk properties and determine the consequence. Total response time is used to determine the consequence for emergency medical services (EMS) incidents.

1. Identify the hazard risk assessment maps you would like to generate.
2. To create hazard risk assessment maps, open the **Hazard Risk Assessment (Criterion 2B)** task group and follow the steps in each task.

Note:

The 2B.2: Data Preparation tasks must be completed before any other task in this group.

Current deployment and performance (Criterion 2C)

Deployment and performance maps illustrate how well current deployment and performance meet identified service demands. They leverage National Fire Protection Association (NFPA) 1710 and use standard response times for first due (4 minutes) and effective response force (8 minutes) for low, and medium, hazards.

1. Identify the deployment and performance maps you would like to generate.
2. To create deployment and performance maps, open the **Current deployment and performance (Criterion 2C)** task group and follow the steps in each task.

Response capabilities (Criterion 2D)

Response capabilities maps evaluate current deployments and future service demands. They highlight risks associated with development in a community and illustrate a plan in place to maintain, and improve response capabilities if growth, or development, were to occur.

1. Identify the response capabilities maps you would like to generate.
2. To create response capabilities maps, open the **Response capabilities (Criterion 2D)** task group and follow the steps in each task.

Community risk prevention program (Criterion 5A)

A community risk prevention program documents the frequency of occupancy inspections and uses inspection data to identify where occupancy risks can be mitigated by increasing the frequency of fire code inspections.

1. To create risk prevention maps, open the **Community risk prevention program (Criterion 5A)** task group and follow the steps in each task.

Public education program (Criterion 5B)

Community risk prevention programs use public education campaigns to mitigate risks identified during an assessment. Public education maps evaluate risks (for example, cooking fires or household hazards) and identify gaps in public education programs.

1. To create public education program maps, open the **Public education program (Criterion 5B)** task group and follow the steps in each task.

Fixed facilities (Criterion 6B)

Fixed facility maps identify the location of fire stations, administrative offices, training facilities, communications centers, logistics, and supply centers.

1. To create fixed facilities maps, open the **Fixed facilities (Criterion 6B)** task group and follow the steps in each task.

Water supply (Criterion 9A)

Water supply maps identify water distribution assets (for example, hydrants) in a community. They also identify coverage gaps or locations where reliable and adequate water pressure is not present.

1. To create water supply maps, open the **Water supply (Criterion 9A)** task group and follow the steps in each task.

Share fire accreditation maps

Fire accreditation maps and geospatial content created with the Fire Accreditation Analysis project can be shared with others in your organization. Sharing maps can be especially valuable during the accreditation process to ensure that the correct information is included in accreditation documents.

To share fire accreditation maps, open the **Share fire accreditation maps** task group and follow the steps in the task.

Review fire accreditation maps

You will assume the role of an accreditation manager in a fire department. You have been asked to review maps created for your fire accreditation document.

Follow the steps below to review fire accreditation maps created by your fire analyst, or GIS analyst.

1. In a browser, sign in to your ArcGIS organization and then browse to the Fire Accreditation Analysis solution.
2. Open the Fire Accreditation Viewer app item page, and then click **View**.
3. Read the Welcome information on the splash screen and then click **Explore**.
4. At the top of the map, click each tab to view the contents for each map.

Note:

Review the [Configure Fire Accreditation Analysis](#) for more information on adding content to the app to meet the needs of your organization. If you have not completed this step, the app will choose default maps for display purposes.

Fire Hydrant Inspection

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Fire Hydrant Inspection

Fire Hydrant Inspection can be used to perform routine fire hydrant inspections and monitor fire department hydrant inspection programs that ensure every hydrant performs reliably when an emergency occurs.

Every year, firefighters and civilians are injured or killed in structure fires. When a structure fire occurs, every second counts, and proper water supply can mean the difference between life and death. The National Fire Protection Association (NFPA) 291 Standard guides fire and water departments through best practices for water flow testing and fire hydrant marking. Per NFPA 291, hydrants should be flushed and inspected annually, and flow tests should be completed every five years. While hydrant inspections may seem like a given today, they are often neglected for other duties, and especially time consuming if still done on paper. Forward thinking fire departments have implemented procedures that streamline hydrant inspections and simplify access to information during an incident.

The Fire Hydrant Inspection solution delivers a set of capabilities that help you inventory fire hydrants, routinely conduct inspections, monitor hydrant inspection programs, and share operating status with firefighters.

Note:

If you are a Water Utility and looking to conduct routine hydrant inspections that help you understand asset conditions, you may be interested in the Water Utility Hydrant Inspections solution instead.

Requirements

Fire Hydrant Inspection requires the following:

- ArcGIS Enterprise
- ArcGIS Field Maps

Information products

Fire Hydrant Inspection includes the following information products:

Item	Description	Minimum user type
Fire Hydrant Inspection Dashboard	An ArcGIS Dashboards app used by fire personnel to monitor fire hydrant inspections occurring in a community	Viewer
Fire Hydrant Inspection	An ArcGIS Field Maps map used by fire personnel to inspect fire hydrants and ensure that every hydrant in a district performs properly and reliably when an emergency occurs	Mobile Worker

Release notes

The following are the release notes:

Version	Description
1.1	<ul style="list-style-type: none">• A new Fire Hydrant Inspection map that can be used with ArcGIS Field Maps.• A new Fire Hydrant Inspection Dashboard.• A new FireHydrants_public feature layer view that can be used to share the location of fire hydrants and their operating status with internal stakeholders.• A series of enhancements to the FireHydrants layer and related feature layer views.
1.0	<ul style="list-style-type: none">• First release of Fire Hydrant Inspection

[Back to top](#)

Configure Fire Hydrant Inspection

Fire Hydrant Inspection can be used to inventory fire hydrants, update operational status on a regular schedule, and monitor the progress of fire personnel performing routine hydrant inspections.

In this topic, you'll learn how to configure the Fire Hydrant Inspection solution to meet specific needs in your organization.

Load data

In some cases, you may already have this information in ArcGIS or another mapping system. Review the layers provided with the solution and determine what source data you want to load. Then, load your existing data into the layers provided with the solution before sharing the maps or apps.

Once you have determined what source data must be loaded, complete one or more of the data loading workflows below.

Load data from a shapefile

Load data into the FireHydrants layer from a shapefile by completing the following steps:

1. Create a .zip file of your shapefile.
2. Sign in to your ArcGIS organization and browse to the feature layer you want to populate.
3. Open the item page and click **Update Data > Append Data to Layer**.
4. Click **Choose File** and browse to your .zip file, and click **Open**.
5. Click **Upload and Continue**.
6. Click **Choose the layer to update** drop-down arrow and choose the layer that contains the updated data.
7. Uncheck **Update existing features**.
8. Click **Show field matching** and map the fields between the two layers.
9. Click **Apply Updates**.

Tip:

To make additional updates to a hosted feature layer, see [Append data to layers](#).

Use Fire Hydrant Inspection

The Fire Hydrant Inspection solution delivers a set of capabilities that helps you inventory fire hydrants, update operational status on a regular schedule, and monitor the progress of fire personnel performing routine hydrant inspections.

In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

Note:

Use your organization's data or configured apps to follow these workflows.

Develop fire hydrant inventory

A field assessment of fire hydrants is the most efficient way to develop a hydrant inventory for a fire department. In some cases, fire departments may be able to access hydrant data maintained by the local water utility and use that data to start the collection of operational status. In other cases, hydrant data may not exist and the field assessment used to capture the location of hydrants and their operational status.

You will assume the role of a fire fighter in a fire department. In this workflow, you are asked to use the ArcGIS Field Maps mobile app to access your Fire Hydrant Inspection and inventory hydrants in your community.

Collect new hydrant

To collect a new fire hydrant in the field, complete the following steps:

1. Download ArcGIS Field Maps onto your mobile device.
2. Open the app on your mobile device, and sign in to your ArcGIS organization.
3. Tap **Fire Hydrant Inspection** to open it.
4. Tap the search box and type a local address, and then tap the suggested address in the search result list to zoom to that location on the map.
5. Tap **Collect Here** and tap **Operable**.
6. Swipe up on the form and tap **Fire Hydrant ID** and enter the identifier.
7. Tap **Station** to enter the station response area.
8. Tap **Location** to enter a more detailed description of the location.
9. Swipe up and tap **Inspected On** to choose today's date.
10. Tap **Pumped** and choose a value.
11. Tap **Defects**, then tap **Hard to Open** and choose a value. Add other key characteristics in the form.
12. Swipe up and tap **Notes** to enter any other observations noted in the field.

[Back to top](#)

13. When you're done, tap **Submit**.
14. Repeat steps 5 through 13 for each fire hydrant.

Update operational status

To update the operational status of an existing fire hydrant in the field, complete the following steps:

1. Download ArcGIS Field Maps onto your mobile device if you haven't already.
2. Open the app on your mobile device, and sign in to your ArcGIS organization.
3. Tap **Fire Hydrant Inspection** to open it.
4. Tap search, type your hydrant identifier and tap hydrant identifier in the search results.
5. Tap **Edit** and swipe up on the form.
6. Swipe up and tap **Inspected On** to choose today's date.
7. Tap **Operable** and choose **No**.
8. Tap **Pumped** and choose a value.
9. When you're done, tap **Submit**.
10. Repeat steps 4 through 9 for each fire hydrant.

Monitor fire hydrant inspection program

You will now assume the role of fire command staff and will use the Fire Hydrant Dashboard to monitor the progress of fire hydrant inspections.

To monitor the progress of your fire hydrant inspection program, complete the following steps:

1. In a browser, go to the Fire Hydrant Dashboard app.
2. Click the **Station** drop-down in the left panel and choose a station.
You can now see all fire hydrants in your district on the map. On the bottom of the dashboard, you can see the total number of hydrants in the station area along with the number of operable and inoperable hydrants in the same area.
3. Click the **Inoperable** bar in the chart to see inoperable fire hydrants.
4. Click the **Inspection Date** drop-down and choose **Last 30 Days** in the left panel.
5. You can now see how many hydrants have been inspected in the last 30 days.
6. Adjust the **Pressure** slider to identify hydrants with low pressure.
7. Close the app.

Fire Hydrant Inspection

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Fire Incident Dashboard

Fire Incident Dashboard can be used to visualize fire and emergency medical service (EMS) incidents sourced from computer-aided dispatch or records management systems and monitor associated response times.

It improves operational visibility for supervisors in a fire service agency and allows them to rapidly identify emerging incident patterns and diagnose response problems. This increased operational awareness ensures accreditation standards are being met and community safety standards are satisfied. Fire Incident Dashboard is typically implemented by fire service agencies that want to proactively monitor response times and detect incident patterns quickly.

The Fire Incident Dashboard solution delivers a set of capabilities that help you source incident records from computer-aided dispatch or records management systems, visualize fire and EMS incidents, and monitor trends or patterns.

Requirements

Fire Incident Dashboard requires the following:

- ArcGIS Enterprise
- ArcGIS Pro 2.9 or later (Basic, Standard, or Advanced) (Optional)

Information products

Fire Incident Dashboard includes the following information products:

Name	Description	Minimum user type
Fire Incident Dashboard	An ArcGIS Dashboards application used by fire command staff to monitor fire and EMS incidents sourced from computer aided dispatch or records management data	Viewer

[Back to top](#)

Release notes

The following are the release notes:

Version	Description
2.1	<ul style="list-style-type: none">• A new Fire Incident Dashboard map and app.• A new FireServiceDistricts layer that resolves an issue where data could not loaded into the layer (BUG-000124358).
2.0	<ul style="list-style-type: none">• A new Fire Incident Dashboard that includes the calculation of calls for service response times based on the 90th percentile.• A series of enhancements to the FireIncident layer, related feature layer views, and Fire Incident Dashboard map.• The Records Import Toolbox is no longer included in the solution and the capabilities have been replaced with the Update Feature with Incident Records toolbox in ArcGIS Pro.
1.0	<ul style="list-style-type: none">• First release of Fire Incident Dashboard.

Configure Fire Incident Dashboard

The Fire Incident Dashboard solution can be configured to meet specific needs in your organization. In this topic, you will learn how to use the **Update Features with Incident Records** tool to automatically load data from records management systems (RMS) and computer-aided dispatch (CAD) systems into the layers in your Fire Incident Dashboard. You will also learn how to modify or remove dashboard elements unsupported by your data schema.

Load data

The layers can be loaded with your data using ArcGIS Pro. Optionally, you can automate data updates with current RMS or CAD incident data. These data updates can be scheduled to run a regular basis to ensure you are reviewing the most up-to-date information while using the dashboard.

Load data using ArcGIS Pro

In some cases, you may already have this information in ArcGIS or another mapping system. Review the layers provided with the solution and determine what source data you want to load. Then, load your existing data into the layers provided with the solution before sharing the maps or apps.

Follow the steps below to load your data into the layers used in the Fire Incident Dashboard.

1. Open ArcGIS Pro, and ensure you are signed into your ArcGIS organization where the Fire Incident Dashboard solution is deployed.
2. Click **View**, and then click **Catalog Pane**.
3. In the **Catalog Pane**, click **Portal**, click **My Content** and choose the folder containing the solution.
4. Add the FireServiceDistricts layer and FireIncidents layer to the map.
5. Click **Analysis**, then navigate to the **Append** tool, open the tool, use the tool to load the districts layer of the FireServiceDistricts layer.
6. Navigate to the [Update Features With Incident Records](#) tool, open the tool and use it to load your data to the FireIncidents layer.

Tip:

The incident type field is based on the codes defined in the [National Fire Incident Reporting System](#) guide. Values for response time fields are expected to be in seconds and each record must have a unique identifier which refers to the first responding company.

Automate incident data updates

You can use the [Update Features With Incident Records](#) with Microsoft Windows Task Scheduler to update incident layers on a regular interval. These scheduled updates ensure users have access to current information to support dynamic decision making.

To update fire incident data on a schedule, use the [Update Features With Incident Records](#) tool with the **Update Existing Target Features** parameter enabled. Once the tool is configured to use your incident data and follow the instructions in the [schedule geoprocessing tools](#) documentation to learn how to run the tool on a schedule.

Configure dashboard elements

When loading data from your RMS or CAD system into the layers of the Fire Incident Dashboard, you may find that your source data does not contain specific fields used in the filters or charts. You can configure the Fire Incident Dashboard to point to different fields or delete it entirely as the schema of your data necessitates.

The Fire Incident Dashboard utilizes the [National Fire Protection Association \(NFPA\) 1710](#) standard benchmark which defines key performance objectives to be met for fire suppression and emergency medical operation responses times. The measured response objectives include the alarm handling time, turnout time, travel time and total response time. The Fire Incident Dashboard utilizes these NFPA standards to help fire command staff monitor and manage responses within their jurisdictions. If your organization uses response times that do not follow the NFPA response standards, the dashboard can be configured to use your standard.

See [Configure an element](#) in ArcGIS Dashboards for more information.

Configure 90th percentile performance gauges

The 90th percentile performance gauges communicate the key metrics on how quickly your agency is responding to emergency calls and shows where 90% of the responses are in relation to the set response time performance thresholds.

To update the response times in the gauges, complete the following steps:

1. In your browser, sign in to your ArcGIS organization and browse to **Fire Incident Dashboard** item details page.
2. Click **Edit** Dashboard.
3. On the right under 90th Percentile Performance, configure the **Total response time** gauge.
4. In the **Data** tab, modify the maximum value as needed.
5. In the **Gauge** tab, scroll to the bottom to the **Guides** section and update the **From** and **To** values as needed.
6. In the **General** tab, click the **Edit** button for **Description** to reveal a text editor and change the text as needed.

[Back to top](#)

7. Click **Done** and **Save** your changes to the dashboard.

Repeat the steps for the Alarm handling time, Turnout time and Travel time gauges.

Configure performance outliers list

The Performance Outliers by Incidents lists the incidents that are above each of the specified response time thresholds.

To update the thresholds in the lists, complete the following steps:

1. Click on the tab **Performance Outliers** tab to reveal the lists.
2. Under Performance Outliers by Incidents, configure the **Total response time list**.
3. In the **Data** tab, modify the **Total Time** filter value as needed.
4. Click **Done** and **Save** your changes to the dashboard.

Repeat the steps for the Alarm handling time, Turnout time and Travel time outlier lists.

Configure response by date charts

The Response by Date charts show the response times for each of the incidents and where they fall in relation to the specified response time thresholds.

To update the thresholds in the charts, complete the following steps:

1. Click the **Response by Date** tab to reveal the charts.
2. Configure the **Total response time** chart
3. In the **Guides** tab, modify the **Value** and **To value** parameters as needed.
4. In the **General** tab, edit the **Title** to change the text as needed.
5. Click **Done** and **Save** your changes to the dashboard.

Repeat the steps for the Alarm handling time, Turnout time and Travel time charts.

Use Fire Incident Dashboard

The Fire Incident Dashboard solution delivers a set of capabilities that help you source incident records from computer-aided dispatch or records management systems, visualize fire and EMS incidents, and monitor trends or patterns.

The [National Fire Protection Association \(NFPA\) standard 1710](#) provides a benchmark that defines the key performance objectives to be met for responses times to fire suppression and emergency medical service calls. The performance objectives include the alarm handling or dispatch time, turnout time, travel time and total response time. The Fire Incident Dashboard utilizes these NFPA standards to help fire command staff monitor and manage responses within their jurisdictions.

Note:

Use your organization's data or configured apps to follow these workflows.

Understand recent trends

The Fire Incident Dashboard includes the ability to measure 90th percentile responses using gauges for each of the NFPA performance objectives. These gauges can be used to understand recent performance trends for each station, response zone, company and shift. The 90th percentile standard is a way to objectively measure response times for each category within 90 percent of all responses.

In this topic, you'll assume the role of a fire chief who will use the Fire Incident Dashboard to explore recent trends in response times for fire and emergency medical service (EMS) calls.

Explore response time to incidents

Follow these steps to explore the fire department's overall response-time performance.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Fire Incident Dashboard solution.
2. View the Fire Incident Dashboard app.
3. On the left, in the filter panel, click the **Call Date** drop-down list and choose **Last 30 days**.

The map filters to display all responses from the past 30 days in the entire service area.

4. On the right, review each gauge to explore the 90th percentile performance for alarm handling or dispatch time, turnout time, travel time, and total response time.

Note:

Values in the green range are within or below the acceptable range for that metric. Values in the red range are outside of the acceptable range for that metric. The National Fire Protection Association (NFPA) standard is shown below each

[Back to top](#)

corresponding gauge. For example, the NFPA standard turnout time for EMS response is 60 seconds, and it is 80 seconds for fire suppression.

5. At the bottom of the dashboard, click **Responding Company** to review the number of responses by each company or unit.
You can see which responding companies had the highest number of responses in the last 30 days.
6. Click any column in the chart to see the location of responses for the responding company on the map and review the 90th percentile performance in each gauge.

Tip:

Click the same company again to clear the chart or click another company to compare responses.

7. At the bottom of the dashboard, click the **Response Zone** tab to see a bar chart of each fire station's response zone or first due zone.
8. In the chart, hover over the bar for a fire station to see the number of responses by each station within the response zone.
Hovering over one fire station's bar allows you to determine if companies from different stations responded to calls in the selected fire station's response zone.
9. At the bottom of the dashboard, click the **Response by Date** tab to see any dates when responses were above the NFPA standard for each performance objective.
The red line indicates the NFPA performance objective and allows you to visualize the date and time of any responses that exceeded the standard.
10. In the **Total response time** chart, click a point above the red line to see the date and time of that response.

Compare fire response times by fire station

Response-time performance may vary depending on the station or unit responding. You can compare response time using the station and call type filters.

Follow these steps to examine the response-time performance for each station.

1. From the **Station** drop-down list, choose a fire station.
The map and gauge elements filter to reflect only the incidents occurring by that fire station. This filter allows you to see where companies from that station responded and compare the response times to the performance objectives.
2. Click the **Call Type** drop-down list and choose each call type one by one, noticing the differences in response-type performance for each call type.
3. After you finish, reset all filters.
4. Repeat this process with the incidents in other fire stations to make a data-driven decision on each station's performance.

[Back to top](#)

Examine performance by response zone

Response-time performance varies depending on where the call is located. Many times a company may be dispatched to call in another station's response zone. This can happen either because they are closer or the first due response company is responding to another call. You can filter responses to see which companies responded to calls in each response zone. This filter can help you identify performance issues caused by travel delays to another response zone.

Follow these steps to examine response-time performance by response zone.

1. From the **Response zone** drop-down list, choose a response zone.
2. Click the **Call Date** drop-down list and select **Year to date**.

The map updates, showing year-to-date responses for the selected zone only, and the 90th Percentile Performance gauges update to reflect the selected responses.

3. At the bottom of the dashboard, click the **Responding Company** tab.

Note:

The chart shows the number of responses for each company within the selected response zone. Any responses by companies from other stations are indicated by the name of the responding company.

4. Click the column for one of the responding companies from another fire station to see how the 90th Percentile Performance gauges change.
5. Click the same responding company to remove the filter.
6. At the bottom of the dashboard, click the **Response Zone** tab to compare the number of responses for each company within the selected response zone.
7. At the bottom of the dashboard, click the **Response by Date** tab to examine the dates when the response times exceeded the standard with the selected response zone.
8. Reset all filters when you are done examining response-time performance by response zone.

Examine performance outliers

The Fire Incident Dashboard includes the ability to examine performance outliers and get details for those outliers. This information can be used to address any performance issues with the responding companies.

In this topic, you'll assume the role of a fire chief who will use the Fire Incident Dashboard to examine responses that exceed the performance standards for fire and emergency medical service (EMS) calls.

Identify performance outliers

To address performance outliers, it is necessary to identify them. This process starts by reviewing performance for each station and then investigating which responses exceeded the standards.

1. On the left, in the filter panel, click the **Call Date** drop-down list and choose **Year to Date**.
The map now displays all responses in the current year for the entire service area.
2. From the **Station** drop-down list, choose a fire station.
3. At the bottom of the dashboard, in the **Responding Company** chart, select a responding company to review the 90th Percentile Performance gauges.
4. Click another responding company to compare response performance, and then continue until you find a company that has exceeded the performance standard for the selected station and call date.
5. Click the **Response by Date** tab to see the dates when the selected company exceeded the performance standard.
6. In the **Total response time** chart, click a point above the red line to get the date and time for that response.

Inspect performance outliers

After you have identified the performance outliers you can inspect each one to determine the cause and response information.

1. Near the bottom right corner of the dashboard, click the **Performance Outliers** tab.
The performance outliers for the selected company will be listed for each performance objective. Each outlier is listed with the call date and time, company, and shift. The response time displayed in seconds.
2. Under the **Total response time** list, click the response for the date identified previously.
A pop-up opens for the selected performance outlier.
3. Review the response information in the pop-up for the selected performance outlier.

Tip:

The NFIRS code in the pop-up's banner refers to the [National Fire Incident Reporting System \(NFIRS\)](#) code. This code is used to identify the type of incident.

4. Notice the fire station, company and shift information for the selected response.
5. Review the address and cause for the incident.
6. In the pop-up, scroll to review the response details including the response phases and incident time.

This information can be used to discuss the performance issue with the responding company.

[Back to top](#)

Fire Safety Survey

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Fire Safety Survey

Fire Safety Survey can be used to conduct residential dwelling fire safety surveys that are part of a community's risk reduction program.

It provides fire service agencies with a comprehensive inventory of dwellings that have been surveyed and any fire safety issues discovered during an inspection. Fire service agencies can use the inventory to prioritize inspection activities. This approach reduces staff time necessary to perform safety inspections and ultimately increases the effectiveness of risk reduction programs. Fire Safety Survey is typically implemented by fire service agencies that want to take a data-driven approach to risk reduction and safety programming.

The Fire Safety Survey solution delivers a set of capabilities that help you perform fire safety surveys and monitor the progress of firefighters performing routine fire safety surveys.

Requirements

Fire Safety Survey requires the following:

- ArcGIS Enterprise
- ArcGIS Field Maps

Information products

Fire Safety Survey includes the following information products.

Item	Description	Minimum user type
Fire Safety Survey Dashboard	An ArcGIS Dashboards app used by fire personnel to monitor fire safety surveys occurring in a community	Viewer
Fire Safety Survey	An ArcGIS Field Maps web map used by fire personnel to conduct dwelling fire safety surveys that are part of a community's risk reduction program	Mobile Worker

[Back to top](#)

Release notes

The following are the release notes:

Version	Description
1.1	<ul style="list-style-type: none">• A new Fire Safety Survey Dashboard.• A new Fire Safety Survey.
1.0	<ul style="list-style-type: none">• First release of Fire Safety Survey

Configure Fire Safety Survey

The Fire Safety Survey can be used by fire personnel to conduct and monitor dwelling fire safety surveys that are part of a community's risk reduction program. Some agencies may want to perform additional configuration of the solution to meet their organizational needs. In this topic, you will learn how to modify questions in the Fire Safety Survey and how to incorporate additional filters to the Fire Safety Survey Dashboard.

Modify Fire Safety Survey

The Fire Safety Survey map for ArcGIS Field Maps is used by firefighters to perform fire safety surveys while inspecting a dwelling. To adjust the survey to the needs of your risk reduction program, add or delete fields from the FireSafetySurveys layer. Fire Safety Survey dashboard leverages a feature layer view that you must also update to reflect field changes.

Add new survey question

To add one or more fields to the FireSafetySurveys layer, complete the following steps:

1. Sign in to your ArcGIS Online organization and click **Content**, if necessary.
2. On the **My Content** tab, type **firesafety** in the search box.
3. Click the Feature Layer item titled **FireSafetySurveys**.
4. Click the **Data** tab.
5. Click the **Fields** toggle button.
6. Click the **Add** button to create a field.
7. Define the Field Name, Display Name, Field Type, and Length, and click **Add New Field**.
8. Follow the Update feature layer view section below to update your feature layer view to reflect the changes made to the layer.

Delete survey question

To delete one or more fields from the FireSafetySurveys layer, complete the following steps:

1. Sign in to your ArcGIS Online organization and click **Content**, if necessary.
2. On the **My Content** tab, type **firesafety** in the search box.
3. Click the **FireSafetySurveys** feature layer item and click the **Data** tab.
4. Click the check box next to the display name of the fields to delete.
5. Click the **Delete** button above and to the right of the field list.
6. Follow the Update feature layer view section below to update your feature layer view to reflect the changes made to the layer.

Update feature layer view

To update the feature layer view to reflect field changes you have made by adding or deleting a field, complete the following steps:

1. Browse to the **FireSafetySurveys_dashboard** feature layer view item.
2. Click **Visualization**
3. Click the **More Options** button on the layer, click **Set View Definition**, and select the **Define Fields** option.
4. Scroll to the newly created fields and check the boxes.
5. Click **Apply**.

The new fields are now added to the view's definition and are visible in the Fire Safety Survey Dashboard.

Use Fire Safety Survey

The Fire Safety Survey solution delivers a set of capabilities that help you perform fire safety surveys and monitor the progress of firefighters performing routine fire safety surveys.

In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

Note:

Use your organization's data or configured apps to follow these workflows.

Conduct Fire Safety Survey

Fire Safety Survey allows firefighters in the field to conduct fire safety surveys of dwellings using a smartphone or tablet.

In this workflow, you'll learn how to use the Fire Safety Survey map in ArcGIS Field Maps to document a fire safety survey during a dwelling inspection. You will assume the role of a firefighter. You are asked to use the ArcGIS Field Maps mobile app to access your Fire Safety Survey map and document fire safety inspections you perform in the field.

1. If necessary, download ArcGIS Field Maps onto your mobile device.
2. On your mobile device, open the app, and then sign in to your ArcGIS organization.
3. Tap Fire Safety Survey to open the map.
4. Search for an address, and then, in the results list, tap the address to zoom to that location on the map.
5. Tap the plus sign or **Collect Here** to open the survey form.

Note:

Your interface will vary depending on the type of mobile device that you use.

6. Tap **Yes** to collect survey information.
7. Complete the form with as much information as possible.
8. At the upper right, tap the check mark or **Submit** to submit the form.
If necessary, a submitted form can be edited.
9. On the map, tap the point to open the form.
10. At the lower left, tap **Edit**, and then make any necessary changes to the form.
11. Tap the check mark or **Submit** to resubmit the form.
12. At the lower right, tap **More Options** to see additional options.
13. At the lower middle, tap **Copy** to complete another survey and add it to the map.

[Back to top](#)

Monitor Fire Safety Survey inspections

The Fire Safety Survey Dashboard can be used by fire department personnel to monitor the progress of the fire safety program. It allows the viewer to see the locations where surveys were completed. You can also use it to find areas at risk in the community.

You will now assume the role of fire command staff to monitor how many safety inspections have been completed and review the results of those surveys.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Fire Safety Survey solution.
2. View the Fire Safety Survey Dashboard app.
On the right, in the **Surveys** panel, all submitted inspections are listed. At the top of the panel, the total number of surveys appears.
3. On the left, use filters to refine the results by occupant type, survey status, or date.
When you filter results, the bar chart and number of surveys in the **Surveys** panel update.
4. On the right, click an inspection address to zoom to that location on the map.
5. Click the point on the map to open a pop-up with information collected for that location.
This information can be useful in preparing for any necessary follow-up visits.
6. Below the map, review the chart to see the number of smoke detectors installed and batteries provided.
This information helps you to understand how many smoke detectors may be installed but not working correctly.
7. On the map, close the pop-up, and then in the **Surveys** panel, click the inspection address again to reset the map.
8. On the left, for **Survey Completed**, choose **No**.
No data appears in the chart area. The locations listed in the **Surveys** panel require follow-up visits to complete the surveys.
9. On the left, in the filter panel, uncheck any **Occupant Type** check boxes and for **Survey Completed**, click **All**.
10. For **Surveyed On**, click the drop-down arrow and choose **Between the dates**.
11. Set start and end dates to filter for all surveys completed within that time frame.
12. Close the app.

Fire Service Maps

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Fire Service Maps

Fire Service Maps can be used to produce wall maps and run books that are placed in a fire station or apparatus to assist with response activities.

Fire personnel must understand their communities and quickly respond to calls for service. Delayed response times could result in the loss of life and property. While maps have made their way on to public safety mobile data computers (MDC), two primary hardcopy maps are still produced for reference in the fire service. Station wall maps are generally small scale maps hung on the wall of each fire station to help new personnel become more familiar with the service area. Run Books, on the other hand, are large scale maps that include a series of map pages along with a street index. They are combined in to a single map book and are placed in each apparatus to supplement maps provided on the MDC. Having an efficient way to produce station wall maps or run books ensure each hardcopy map product reflects changes that may occur in a community. Fire Service Maps is typically implemented by fire departments that want to quickly produce a standard set of hardcopy maps for their community.

The Fire Service Maps solution delivers a set of capabilities that help you produce station wall maps and run books for each fire response district and combine them in single map book when necessary.

Requirements

Fire Service Maps requires the following:

- ArcGIS Enterprise
- ArcGIS Pro 2.9 or later
- ReportLab 3.4.0 or later

[Back to top](#)

Information products

Fire Service Maps includes the following information products:

Fire Service Maps	Description	Minimum user type
Fire Service Maps	An ArcGIS Pro project used by fire fighters to produce wall maps and run books that are placed in a fire station or apparatus to assist with response activities.	GIS Professional Basic

Release notes

The following are the release notes:

Version	Description
1.3	<ul style="list-style-type: none">An update to the Fire Service Maps ArcGIS Pro project to resolve an issue with the replace layer tool.
1.0	<ul style="list-style-type: none">First release of Fire Service Maps.

Configure Fire Service Maps

In this workflow, you will learn how to configure the Fire Service Maps solution to meet specific needs in your organization.

Configure Fire Service Maps project

The Fire Service Maps solution includes an ArcGIS Pro project and sample data you can use to explore the sample data schema and a set of tools. When you are ready to configure the project, a series of tasks are included to help you review the data, make modifications to the maps and layers, load your data, and set the data sources to your data.

1. Start ArcGIS Pro and open the Fire Service Maps project.
2. On the **View** tab, in the **Windows** group, click **Catalog**, and click **Catalog Pane**.
3. In the **Catalog** pane, expand the **Tasks** folder, and double-click the Fire Service Maps task item.
4. In the **Task Pane**, click the **Configure Fire Service Maps** task group to expand the collection of tasks.

Review schema

The Fire Service Maps project contains two geodatabases.

2. Fire Service Maps Sample.gdb contains sample data for learning how to use the tools.
3. Fire Service Maps.gdb contains empty layers fields that can be used to create Fire Run Books and Fire Station Wall Maps with your data.

Use this task to review the geodatabase schema, layers, and fields to determine what changes you will need to make to use your data. See [Fields, domains, and subtypes](#) to learn more about how to edit the feature layer schema.

Define spatial reference

The Fire Service Maps.gdb is an empty geodatabase with the same schema and a spatial reference set to Web Mercator. This geodatabase can be used to define your spatial reference and load your data.

Use this task to define the spatial reference for your data. See [Specify a coordinate system](#) to learn more about coordinate systems for your data.

Load data

After you have completed any necessary schema modifications, you can add your data layers to the map and load them into the empty Fire Service Maps geodatabase by following the steps in the **Load data** task. This task contains steps to load your data into the following layers:

[Back to top](#)

Layer name	Description
Site Addresses	Used to label building addresses in the fire service maps
Roads	Used to label road names and address ranges along a road. It is also used to create the street index report.
Fire Response Restrictions	Used to display the location of access restrictions such as gates, narrow roads, and blocked roads that would delay or preclude a fire truck in response to an incident
Fire Map Index	Used to create individual pages in Fire Run Books
Response Areas	Used to display administrative and response districts

As you load your data into each layer, you will be given the option to use the field map capabilities to map your data fields to the predefined fields in the empty feature layers.

Set data sources

Use this task to replace the sample data with your data for each layer in the Fire Service Maps project.

Use Fire Service Maps

The Fire Service Maps solution delivers a set of capabilities that help you produce station wall maps and run books for each fire response district and combine them in single map book when necessary. Fire Station Wall Maps can be produced for individual fire stations or combined into a single station wall map. Run books can also be produced for individual fire stations or combined into a single run book for the entire fire department.

In this topic, you'll learn how to use the Fire Service Maps solution by assuming the role of the user and performing these workflows.

Understand Fire Service Maps

While maps have made their way on to public safety mobile data computers (MDC), two primary hardcopy maps are still produced for reference in the fire service. Station wall maps are generally small scale maps hung on the wall of each fire station to help new personnel become more familiar with the service area. Run Books, on the other hand, are large scale maps that include a series of map pages along with a street index. They are combined in to a single map book and are placed in each apparatus to supplement maps provided on the MDC.

To learn more about the elements contained in each fire service map, follow these steps:

1. Sign in to your ArcGIS organization and browse to the Fire Service Maps Desktop Application Template.
2. Open the item page and click **Download**.
3. Unzip and open the Fire Service Maps ArcGIS Pro project.
4. On the **View** tab, in the **Windows** group, click **Catalog**, and click **Catalog Pane**.
5. In the **Catalog** pane, expand the **Tasks** folder, and double-click the Fire Service Maps task item.
6. In the **Task Pane**, click the **Getting to know Fire Service Maps** task group to expand the collection of tasks.
7. Click on the **Understand Fire Service Maps** task and follow the steps provided.

Install ReportLab

ReportLab is a third-party Python library that can be used to create a street index in PDF format. The street index makes it easy to look up an address or street name and find the correct map page in a Fire Run Book. To install ReportLab, follow these steps:

1. Open the Fire Service Maps ArcGIS Pro project.
2. On the **View** tab, in the **Windows** group, click **Catalog**, and click **Catalog Pane**.
3. In the **Catalog** pane, expand the **Tasks** folder, and double-click the Fire Service Maps task item.
4. In the **Task Pane**, click the **Getting to know Fire Service Maps** task group to expand the collection of tasks.

[Back to top](#)

5. Click on the **Install Report Lab** task and follow the steps provided.

Create fire run book

Fire Run Books include a cover page, several map pages, and a street index for each fire response district. They can be printed, placed in each apparatus, and used en-route to a call.

You will assume the role of a fire fighter responsible for producing a fire run book for your response district or fire department. The Fire Service Maps ArcGIS Pro project includes a series of tasks to help guide you through this workflow.

1. Open the Fire Service Maps ArcGIS Pro project.
2. On the **View** tab, in the **Windows** group, click **Catalog**, and click **Catalog Pane**.
3. In the **Catalog** pane, expand the **Tasks** folder, and double-click the Fire Service Maps task item.
4. In the **Task Pane**, click the **Create fire run book** task group to expand the collection of tasks.
5. Click on the **Create cover page** task. Follow the steps provided in this task and all subsequent ones.

Create station wall map

Station Wall Map are large-format wall maps that can be printed for each fire response area and hung near an engine or apparatus. The printed wall maps are used by fire personnel for route navigation before leaving the station.

You will assume the role of a fire fighter responsible for producing a station wall map for your response district. The Fire Service Maps ArcGIS Pro project includes a series of tasks to help guide you through this workflow.

1. Open the Fire Service Maps ArcGIS Pro project.
2. On the **View** tab, in the **Windows** group, click **Catalog**, and click **Catalog Pane**.
3. In the **Catalog** pane, expand the **Tasks** folder, and double-click the Fire Service Maps task item.
4. In the **Task Pane**, click the **Create station wall map** task group to expand the collection of tasks.
5. Click on the **Create station wall map** task. Follow the steps provided in this task and all subsequent ones.

Flood Impact Analysis

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Flood Impact Analysis

Flood Impact Analysis can be used to develop localized flooding scenarios and visualize the impact of flooding on public infrastructure, critical facilities, and vulnerable populations.

The solution allows you to understand and visualize the impact of flooding on the community by using flood depth and elevation data to analyze the impact of river flooding, storm surge, tidal surge, and sea level rise scenarios. The results of the analysis can be used to plan road closures, prioritize evacuation areas, and develop mitigation strategies. Flood Impact Analysis is typically implemented by emergency management, public works, and planning organizations that want to prepare for future flooding to protect their communities.

The Flood Impact Analysis solution allows you to prepare flood depth and elevation data, define flood impact areas, visualize the flood in 3D, and share the information with the public or other organizations.

Requirements

The Flood Impact Analysis solution requires the following:

- ArcGIS Enterprise
- ArcGIS Pro 2.9 or later (Advanced)
 - ArcGIS 3D Analyst extension
 - ArcGIS Spatial Analyst extension

Information products

Flood Impact Analysis includes the following information products:

Item	Description	Minimum User Type
FloodImpactAnalysis.ppkx	An ArcGIS Pro project package used by mapping technicians to create flood impact maps	GIS Professional Advanced

[Back to top](#)

Release notes

The following are the release notes:

Version	Description
1.2	<ul style="list-style-type: none">• A new Flood Impact Analysis project to support ArcGIS Pro 3.0.• Resolved an issue with the Create 3D Flood tool that would cause it to fail on larger data sets.
1.1	<ul style="list-style-type: none">• Resolved an issue when a meter-based coordinate system is used with the Windows language set to other than English.
1.0	<ul style="list-style-type: none">• First release of Flood Impact Analysis.

[Back to top](#)

Use Flood Impact Analysis

The Flood Impact Analysis solution delivers a set of capabilities that help you to prepare flood depth and elevation data, define flood impact areas, visualize the flood in 3D, and share the information with the public or other organizations.

In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

Get to know Flood Impact Analysis

You will assume the role of a mapping technician responsible for analyzing the potential flood impact for your community. The Flood Impact Analysis ArcGIS Pro project includes a series of tasks to help guide you through these workflows. The first set of tasks will help you get to know Flood Impact Analysis.

Get to know Flood Impact Analysis by completing the following steps:

1. Start ArcGIS Pro and open the Flood Impact Analysis project.
2. On the **View** tab, in the **Windows** group, click **Catalog**, and click **Catalog Pane**.
3. In the **Catalog** pane, expand the **Tasks** folder, and double-click the **Getting to know Flood Impact Analysis** task and go through each subtask.

Understand the Flood Impact Analysis solution

Flood Impact Analysis supports a series of workflows that streamline the process of developing flooding scenarios to help plan for a flood event. These workflows include preparing the data for analysis, defining the flood impact area and the impact on infrastructure, facilities and buildings, sharing the flood impact information, visualizing the flood impact in 3D, and sharing the impact in 3D.

This task will introduce you to the capabilities, data requirements to analyze flood impact, and visualization in 3D.

Download sample data

Sample data is provided to help you learn how to use the Flood Impact Analysis solution. A link is provided to download sample data for Baltimore. Using the sample data the first time will help you learn how to use the tasks and how to organize your data.

Start using Flood Impact Analysis

The Flood Impact Analysis project includes a task workflow that provides a structured sequence using tasks and steps. Follow the steps in this task to learn how to use the Flood Impact Analysis solution.

How to use Flood Impact Analysis

You will assume the role of a mapping technician responsible for creating the flood impact analysis and sharing the results with emergency management, public works, and planning agencies. The Flood Impact Analysis ArcGIS Pro project includes a series of tasks to help guide you through the workflows below.

To conduct the flood impact analysis, complete the following steps:

1. Start ArcGIS Pro and open the Flood Impact Analysis project.
2. On the **View** tab, in the **Windows** group, click **Catalog**, and click **Catalog Pane**.
3. In the **Catalog** pane, expand the **Tasks** folder, and double-click the **How to use Flood Impact Analysis** task.
4. In the **Task Pane**, click the **How to use Flood Impact Analysis** task group to expand the collection of tasks.
5. Follow the steps in each task.

Prepare flood depth and elevation data

Accurate analysis and visualization of the flood impact analysis will depend on several factors such as: availability of flood depth data in the form of raster, ground elevation data such as Digital Terrain Model (DTM) or lidar, and features describing the assets to be analyzed such as roads, bridges, and buildings. The data preparation workflow includes a series of tasks to help prepare the data for analysis. A description for each task in this group is listed below.

Prepare flood depth rasters

Flood depth data is necessary to determine flood impact to the community at each flood stage. Flood depth grids or raster files contain a flood depth value within each cell in the raster. Flood depth at a given point can help determine the impact to buildings, roads, or bridges.

The risk value for each raster is read from the riskTypeTable for the chosen risk type. You can find the riskTypeTable in the FloodImpactAnalysis.gdb. You can use the existing risk types, modify them, or you can add another entry.

To remove negative values, extract flooded areas, and create the flood depth geodatabase, follow the steps in the **Prepare flood depth rasters** task.

Prepare a water surface elevation raster

Water surface elevation (WSE) includes a value within each raster grid cell. However, the value describes the elevation of the water surface within each grid cell and is a measurement from a fixed zero elevation such as provided in the NAVD88 vertical datum. Water surface elevation data can be used to calculate bridge heights above flood stages and to visualize the flood stages as 3D surfaces.

[Back to top](#)

To create a water surface elevation raster, extract flooded areas, and create the water surface elevation input geodatabase, follow the steps in the **Prepare water surface elevation raster** task.

Define flood impact

Effective flood response planning begins with a better understanding of the potential flood impact. This task is designed to step through a standardized process to create and analyze the impact of each flood scenario on your community. A flood scenario can be defined in the risk type table as a percent chance of flooding, historical average such as 100 year, or number of feet above normal. A description for each task in this group is listed below.

Create flood impact areas

The flood impact area defines the geographic extent for each flood depth scenario. The flood depth data prepared in the **Prepare flood depth and elevation data** task group will be used to create the flood impact area. These flood impact areas will be the foundation for analyzing impact to buildings, roads, or bridges in each of the subsequent tasks.

To create flood impact areas and add them to the map, follow the steps in the **Create flood impact areas** task.

Analyze roads

This task allows you to analyze impacted roads by calculating depth of flooding for each road segment for any number of flood levels. The flooded roads can be an impediment to successful evacuations for first responders and community members when it is unknown which roads will be impacted. You can also symbolize the impacted roads for each flood impact area. The result will be a new feature class representing road segments with a depth attribute for each flood scenario.

To analyze impacted roads and symbolize the impact, follow the steps in the **Analyze roads** task.

Analyze low water crossings

This task allows you to calculate depth of flooding for each low-level crossing for each flood scenario. The result can be used to identify watch points for observers to report flood depth during the flooding event. The parameters for this step are similar to the road flood depth except for the buffer distance. If this distance is specified to be greater than zero, the analysis will run against the buffered input features. This parameter helps you find points within the buffer distance that have been misplaced. You can then symbolize the low-level crossings by flood depth.

To identify low water crossings and symbolize the impact, follow the steps in the **Analyze low water crossings** task.

[Back to top](#)

Analyze bridges

Use this task to calculate the bridge height above flood water surface for each flood scenario. Some bridges may have one side that is lower than the other. The bridge geometry is needed to calculate the height above the water surface instead of a single point along the bridge. Therefore, the bridge needs to be a 3D polygon feature instead of a 2D feature. This task will extract bridge surfaces from a lidar point cloud as 3D polygons, so they can be used in the next task to determine the height above flood level.

Note:

This task requires lidar point data stored in a [LAS dataset](#) . The bridge surfaces must have a separate class code in the LAS dataset.

Note:

This task requires that you have a water surface elevation (WSE) geodatabase as described in the **Prepare flood depth and elevation data** task.

Tip:

The result of this task is a new point feature with the minimum height above water surface for each water level in the WSE geodatabase. You can label the point with the minimum height attribute value to show how much clearance there will be below the bridge or how deep the water will be over the bridge if the height above water has a negative value.

To analyze impacted bridges and symbolize the impact, follow the steps in the **Analyze bridges** task.

Analyze buildings

Understanding building exposure to flooding can help response personnel prioritize evacuations and stage equipment where it can be used effectively. It can also help mitigation planners understand buildings that are good candidates for purchase and removal. Use this task to calculate flood exposure on building polygons or 3D building multipatch feature layers. The tool will use your water depth geodatabase and the specified risk type to calculate the flood depth exposure to each building within the flood impact area. You can then symbolize the features according to the calculated flood exposure attribute such as the flood depth. Using a graduated color ramp will allow you to illustrate the severity of the building exposure.

To analyze impacted buildings and symbolize the impact, follow the steps in the **Analyze buildings** task.

Share flood impact information (optional)

Once the analysis is completed, share the results with community stakeholders who can use the information to begin flood response or mitigation planning. Use this task to choose which flood impact layers to share, such as the flood impact area, impacted roads, bridges, and buildings for each flood scenario. Share the results for each flood scenario.

Note:

These tasks require ArcGIS Online or ArcGIS Enterprise 10.5 or later.

To allow others to see the results of the analysis, follow the steps in the **Share flood impact information** task.

Visualize flood scenarios in 3D (optional)

The best way to communicate the impact of a flood scenario is to show how it will impact homes, streets, bridges, and neighborhoods. Visualizing the flood scenario in a 3D scene is a compelling way to communicate the potential flood impact in your community.

Note:

These tasks require ArcGIS Online or ArcGIS Enterprise 10.5 or later.

Show flood impact map in 3D

This task allows you to convert the map containing the results of the flood impact analysis to a 3D scene using 3D symbology and scene elevation. A digital terrain model (DTM) raster can be added to the 3D scene to provide a realistic scene for illustrating the impact of the flood.

Create 3D flood levels from raster

This task allows you to create 3D flood levels from raster input data. The result is a 3D version of the 2D raster data. For example, you may want to show a flood impact area at 5 feet against a building to illustrate the depth of flood on the building.

Source 3D basemap data (optional)

Visualization of 3D flood levels is more powerful when shown together with other 3D layers such as 3D buildings, 3D trees, and detailed elevation. Use your organization's 3D basemap to complement your flood impact map. If your organization does not have a 3D basemap, use 3D Basemaps to create your own 3D buildings, trees, and elevation surface.

Create a depth elevation raster

A depth elevation raster can improve the visualization of flood impact in 3D scenes, particularly in flood scenarios with very shallow flooding. Use the **Create depth elevation raster** task to create the depth elevation raster. You can repeat this task for every water surface elevation (WSE) raster.

To convert the map to a 3D scene and add the depth elevation raster, follow the tasks in the **Visualize flood scenarios in 3D** task group.

Publish a 3D flood impact scene (optional)

Once the task to visualize 3D flood scenarios is completed, you can publish a 3D web scene for your flood impact scenarios. The 3D web scene can be shared with stakeholders who are responsible for flood response planning and flood mitigation planning.

Note:

These tasks require ArcGIS Online or ArcGIS Enterprise 10.5 or later.

Publish a 3D flood impact scene

Use this task to set the coordinate system and publish the new 3D scene to ArcGIS Online or your organization.

Share the depth elevation raster

Use this task to share the depth elevation raster that was created previously to help improve the visualization of the 3D scene.

To share the flood impact in 3D, follow the tasks in the **Share 3D flood impact scene** task group.

After you have shared the 3D scene and depth elevation raster, you can view the results of the Flood Impact Analysis in a Scene Viewer in ArcGIS Online or ArcGIS Enterprise. Share the scene with your colleagues to help them understand the impact of local flooding on your community.

Homelessness Risk Reduction

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Homelessness Risk Reduction

Homelessness Risk Reduction can be used to identify where regular reports of homelessness activity may originate and address regular reports of homelessness activity in a community.

It provides the ability to leverage continual reports of individuals experiencing homelessness and encampments in the community and identify which areas are at risk for generating homelessness. This collaborative approach between the public and local government agencies help determine where resources can be deployed to assess the situation, offer services to persons experiencing homelessness, and determine if additional steps are required. Homelessness Risk Reduction is typically implemented by health and human services agencies that want to proactively address homelessness and connect individuals experiencing homelessness with available resources.

The Homelessness Risk Reduction solution delivers a set of capabilities that help you understand where homelessness may originate in your community and actively monitor regular reports of homelessness so assistance can be offered to individuals in need.

Requirements

Homelessness Risk Reduction requires the following:

- ArcGIS Enterprise
- ArcGIS Pro 2.9 or later (Advanced)
 - ArcGIS Geostatistical Analyst extension

Information products

Homelessness Risk Reduction includes the following information products:

Item	Description	Minimum user type
Homelessness Activity Reporter	An ArcGIS Survey123 form used by public safety staff, or the public, to report the locations of individuals experiencing homelessness and encampments in the community	Mobile Worker
Homelessness Activity Manager	A Crowdsourcing Manager app used by homelessness program leads to manage reports of individuals experiencing homelessness and encampments in the community	Editor
Homelessness Activity Dashboard	An ArcGIS Dashboards app used by health and human service agency and CoC directors to monitor reports of individuals experiencing homelessness and encampments in the community	Viewer
Homelessness Risk Reduction	An ArcGIS Pro project used by GIS analysts to learn which areas in their community are at risk for generating homelessness and how to prioritize and site intervention programs	GIS Professional Basic

Release notes

The following are the release notes:

Version	Description
1.2	<ul style="list-style-type: none">Name changed from Homeless Risk Reduction to Homelessness Risk Reduction.All layers, map, apps, and projects have been updated to use the term homelessness instead of homeless.A new version of the Homelessness Risk Reduction ArcGIS Pro project that leverages an updated Create Risk Surface tool.
1.1	<ul style="list-style-type: none">A new version of the Homeless risk Reduction ArcGIS Pro project that leverages the Enrich geoprocessing tool.
1.0	<ul style="list-style-type: none">First release of Homeless Risk Reduction

[Back to top](#)

Use Homelessness Risk Reduction

The Homelessness Risk Reduction solution delivers a set of capabilities that help you understand where regular reports of homelessness activity may originate in your community and actively monitor regular reports of homelessness so assistance can be offered to individuals in need.

In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

Note:

Use your organization's data or configured apps to follow these workflows.

Report homelessness activity

You will assume the role of public safety staff, or a member of the public, that wants to report homelessness activity observed in a community.

Follow these steps to report homelessness activity.

1. In a browser, go to the **Homelessness Activity Reporter** survey.
2. In the Homelessness Activity Reporter, provide the following information:

Parameter	Value
Activity Observed	Individual
Details	Type Observed new individual in the park with a tent and dog.
Observed On	Select a date
Photo	Add a photo
Would you like to be contacted for more information?	Select Yes
Your Name	Type your name
Phone Number	Type your phone number
Email	Type your email address
Observed at	Type location information of where you observed the activity.

3. Click **Submit**.

Note:

While using the app in the field, you can use ArcGIS Survey123 mobile app to use your current location from your mobile device GPS.

[Back to top](#)

Manage homelessness reports

Health and human services personnel, public safety, and nonprofit organizations can use Homelessness Activity Manager and Homelessness Activity Dashboard to monitor, verify, and assign homelessness reports to agencies responsible for resolving health and safety concerns or providing aid to individuals and families experiencing homelessness.

You'll assume the role of a homelessness program lead that wants to manage reports of homelessness in the community.

1. In a browser, go to the **Homelessness Activity Manager**.
The Homelessness Activity Manager shows a list of all reports that were made.
2. In the table, highlight the first record in the table. Verify this is the record you just submitted via the Homelessness Activity Reporter .
3. On the dialog box, in the lower left, click the **Edit** record button.
4. Change the **Status** to Submitted, if necessary.
5. In the Assigned To field, select **Health and Human Services**.

Note:

In many cases, individual follow up may be needed to further document and add to ensure you are capturing an accurate representation of homelessness in your community.

6. Scroll down, if necessary, and click **Save**.

Note:

If you want to automate this process more, you can automatically send emails to individuals that are assigned. Refer to the [Survey 123 Webhooks](#) document to learn more.

Visualize homelessness

You'll assume the role of a health and human service agency, or CoC, director that wants to view the current state of homelessness activity in your community.

1. In a browser, go to the **Homelessness Activity Dashboard** app.
2. On the left under Type, check **Individual**. Explore the various filtering capabilities.
3. On the left under Date Observed, choose **Last 7 days**.

Note:

You see the report you submitted in the first workflow.

[Back to top](#)

4. Close the dashboard when you are done exploring the Homelessness Reports.

Identify risk of homelessness

Data analysts can use the Homelessness Risk Reduction ArcGIS Pro project to learn which areas in their community are at risk for generating homelessness and how to prioritize site intervention programs. It leverages authoritative data and uses indicators such as unemployment rate, rental prices, public assistance, health insurance coverage, minority population, and number of veterans to compute a vulnerability to homelessness layer. The resulting risk surface is then used to prioritize intervention program siting. The results of this tool can be used as a foundation for public education and awareness campaigns, operational improvements, and policy discussions across an entire community.

Identify areas at risk

You'll assume the role of a GIS analyst in a health and human service agency that wants to evaluate where homelessness may originate in a community and use the results to guide policy discussions.

1. Open the Homelessness Risk Reduction ArcGIS Pro project and sign in to your ArcGIS organization.
2. On the **View** tab, in the **Windows** group, click **Catalog**, and click **Catalog Pane**.
3. In the **Catalog** pane, expand **Tasks** and double-click the **Homelessness Risk Reduction** task.
4. Open the **Identify areas at risk of generating homelessness** task.
This task contains steps to help you define the homelessness risk criteria.
5. In the **Add risk factor point data** step, select the following information.
 - In the **Target Features** parameter, select **Census Naperville**.
 - In the **Join Features** parameter, select **Assault**.
 - In the **Output Feature Class** parameter, browse to **Databases** to open the HomelessnessRiskReduction.gdb and type JoinedAssaults for the feature class in the **Name** text box.
6. Click **Run**
7. Click **Next Step**.
8. Click the **Contents** tab.
9. Right-click the output layer from the Spatial Join tool and choose **Attribute Table**.
10. Right-click Join_Count and choose **Fields**.
11. Change Join_Count field name and field alias to AssaultCount.
12. Delete the TARGET_FID field the tool created.
13. On the **Fields** tab, in the **Changes** group, click **Save**.

[Back to top](#)

14. Close the attribute table and fields table.
15. Click the **Tasks** tab.
16. Click **Next Step** to continue.
17. In the **Add key demographic data** step, fill out the information below.
 - In the **Input Features** parameter, click the drop-down menu and choose `JoinedAssaults`.
 - In the **Output Feature Class** parameter, browse to **Databases** to open the `HomelessRiskReduction.gdb` and type `EnrichedDemographicData` for the feature class in the **Name** text box.
18. Click **Save**.
19. To add additional variables, click the **Add** button and browse to your variable of interest.
20. Click **OK**. Repeat this step to add the remaining variables.
21. Click the **Remove variables** button.
22. Click **Run**.
23. Click **Next Step**.
24. In the **Create homelessness risk surface** step, fill out the information below.
 - In the **Input Features** parameter, click the drop-down menu and select `EnrichedDemographicData` or your own data set.
 - In the **Output Feature Class** parameter, browse to **Databases** to open `HomelessnessRiskReduction.gdb` and type `HomelessnessRiskSurface` for the feature class in the **Name** text box.
25. Click **Save**.
26. In **Risk Factors (High Value)**, click the drop-down menu and choose all your high to low ranking variables.
27. In **Risk Factors (Low Value)**, click the drop-down menu and choose all your low to high ranking variables.
28. Click **Run**.

Note:

The `AssaultCount` field was created in a previous step after performing the join.

Based upon the factors you specified, you will see a new Risk layer appear that ranks the polygons from high to low. You can run the previous task multiple times ranking values differently. In many cases you may want to provide more inputs for data you are tracking in addition to assaults, such as known individuals that your organization has perhaps been assisting, or areas of renting issues.

29. Click the **Prioritize prevention program locations task**.
30. In **Program Design** step, fill out the information below.

- In the **Input Features** parameter, click the drop-down menu and choose HomelessnessRiskSurface.
- In the **Output Feature Class** parameter, browse to **Databases** to open HomelessRiskReduction.gdb and type VulnerableSurvivorsPrograms for the feature class in the **Name** text box.

31. Click **Save**.

32. In the **Contributing factors** parameter, click the drop-down menu and choose **AssaultCount** and **ACS HHs w/Public Assist Income:Percent**.

33. Type Assist Vulnerable Survivors in the **Program Name** text box.

34. Type a value in the **Number of Results** text box.

35. Click **Run**.

Repeat the above for any other programs. Use the output from your previous run as the Input Features.

36. Click **Next Step**.

The result is prioritized locations where a new program can be placed, such as a woman's shelter.

Note:

The next step allows you to finalize the program rankings. You may have many specific programs you want to act upon. Prioritizing helps you better focus your efforts.

37. Share the map as a web layer.

This allows others in your organization to see the prioritized risk factors.

Invasive Pest Inspections

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Invasive Pest Inspections

Invasive Pest Inspections can be used to establish and inspect invasive pest monitoring sites.

It streamlines the inspection of invasive pest monitoring sites that help detect and track the spread of invasive pests. This accelerated approach increases the likelihood of detecting harmful plant pests and diseases before they have an opportunity to cause significant damage to agriculture commodities. Invasive Pest Inspections is typically implemented by agriculture agencies that want to take a data-driven approach to monitoring invasive pests and diseases.

The Invasive Pest Inspections solution delivers a set of capabilities that help you establish invasive pest monitoring sites, conduct invasive pest inspections, and monitor invasive pest programs.

Requirements

Invasive Pest Inspections requires the following:

- ArcGIS Enterprise
- ArcGIS Pro 2.6 or later (Basic, Standard, or Advanced)
- ArcGIS Survey123
- Survey123 Connect

[Back to top](#)

Information products

Invasive Pest Inspections includes the following information products:

Item	Description	Minimum user type
Invasive Pest Survey: New Site	An ArcGIS Survey123 form used by mobile workers to establish a new agricultural pest monitoring site	Mobile Worker
Invasive Pest Survey: Site Visit	An ArcGIS Survey123 form used by mobile workers to conduct field inspections at an existing monitoring site	Mobile Worker
Invasive Pest Survey: New Site Map	A map used by agriculture staff to create multiple agricultural pest monitoring sites at a single location	Editor
Invasive Pest Viewer	An ArcGIS Web AppBuilder app used by agriculture program managers to identify the impact of a suspected pest infestation on agricultural commodities and human populations	Editor
Invasive Pest Status	An ArcGIS Dashboards app used by agriculture program managers to monitor pest inspections and ensure monitoring sites are meeting federal and state goals	Viewer
Invasive Pest Reports	An ArcGIS Pro project used by mapping technicians to create invasive pest inspection reports	GIS Professional Basic

Release notes

The following are the release notes:

Version	Description
1.0	<ul style="list-style-type: none">First release of Invasive Pest Inspections

[Back to top](#)

Configure Invasive Pest Inspections

In this topic, you will learn how to configure the Invasive Pest Inspections solution to meet specific needs in your organization.

Load data

Invasive Pest Inspections can be used to establish and inspect invasive pest monitoring sites. In some cases, you may have this information in ArcGIS or another business system already.

Review the layers provided with the solution and determine what source data you want to load. Then, load your existing data into the layers provided with the solution before sharing the maps or applications.

Once you have determined what source data must be loaded, complete one of the data loading workflows below.

Load data from a shapefile

You can load data for InvasivePestSurveys, AgricultureLayers, PublicSafetyLocations, and TreatmentExemptions from a shapefile by following the steps below:

1. Create a .zip file of your shapefile.
2. In your ArcGIS organization, browse to the feature layer that you want to populate.
3. On the feature layer item page, click **Update Data** and choose **Append Data to Layer**.
4. Under **Filename**, click **Choose File**.
5. Browse to your .zip file and click **Open**.
6. Under **Contents**, select **Shapefile**.
7. Click **Upload and Continue**.
8. Choose the layer that you want to load data into and the layer that contains the updated data.
9. Uncheck **Update existing features**.
10. Click **Show field matching** and map the fields between the two layers.
11. Click **Apply Updates**.

Tip:

To make additional updates to a hosted feature layer, see [Append data to layers](#).

Create a monitoring site without existing information

Optionally, you can create a monitoring site using the site form in ArcGIS Survey123. Before using this method, you must complete the subsequent Update Survey123 Connect forms configuration workflow.

To create a monitoring site without using existing information, complete the following steps:

1. Open ArcGIS Survey123.
2. If the Invasive Pest Survey: New Site survey has not yet been downloaded, browse to **Download Surveys** on the main menu.
3. Search for the Invasive Pest Survey: New Site survey that you published and click to download it. After it downloads, return to **My Surveys**.
4. Select the Invasive Pest Survey: New Site survey to open it.
5. Click the **Collect** button to create a monitoring site.
6. Complete the survey by answering all the questions, including information about the program this site will support, the monitoring site and site contacts, the species being targeted, and the type of inspections that will take place at this monitoring site.

Note:

The form exposes more questions depending on your answers; for example, trap information is required if the inspection type includes trapping.

7. Click the check mark to submit the survey.

Create a monitoring site at an existing location

You may want to create many monitoring sites at one site. To do this, you can use information in an existing monitoring site to prepopulate the ArcGIS Survey123 form. Before using this method, you must complete the subsequent Update Survey123 Connect forms configuration workflow.

1. Open the Invasive Pest Survey: New Site Map.
2. Search for an existing site using its site ID in the search bar.
3. With the pop-up open for the existing site, click the link to launch the Invasive Pest Survey: New Site.
4. When prompted, click to open ArcGIS Survey123.

The form opens with the site information prepopulated.

5. Complete the rest of the information in the form, including information about the program this site will support, the species being targeted, and the type of inspections that will take place at this site.
6. Click the check mark to submit the survey.

Update Survey123 Connect forms

Though the Invasive Pest Survey: New Site and Invasive Pest Survey: Site Visit forms have been configured to gather comprehensive information on an invasive pest inspection, you must make two updates to ensure local accuracy.

Update surveyor names in the New Site and Site Visit survey forms

To update the surveyor names visible in each form, complete the following steps:

1. Download and install Survey123 Connect.
2. Start Survey123 Connect and sign in to your ArcGIS organization.
3. Click Invasive Pest Survey: New Site to download the form, if necessary.
4. Click Invasive Pest Survey: New Site again to open the form.
5. In the left panel, click **XLSForm**.
The XLSForm spreadsheet opens in Microsoft Excel.
6. In the spreadsheet, click the **Choices** tab.
This tab comprises all the selectable options for survey questions.
7. In the **list_name** column, scroll to **surveyors**, and then add or remove names and labels as needed.
8. Click **Save** to save the spreadsheet.
9. In Survey123 Connect, on the **Form** tab, preview your changes.
10. If necessary, return to the Microsoft Excel spreadsheet and make additional edits, and then click **Save**.
11. In Survey123 Connect, on the left, click **Publish**, and then click **Publish survey** to publish your changes.
12. Repeat these steps to update surveyor names in the Invasive Pest Survey: Site Visit form.

Update the species target list in the New Site and Site Visit survey

To update the species target list visible in each form, complete the following steps:

1. Download and install Survey123 Connect.
2. Start Survey123 Connect and sign in to your ArcGIS organization.
3. Click Invasive Pest Survey: New Site to download the form, if necessary.
4. Click Invasive Pest Survey: New Site again to open the form.
5. In the left panel, click **XLSForm**.
The XLSForm spreadsheet opens in Microsoft Excel.
6. In the spreadsheet, click the **Choices** tab.
This tab comprises all the selectable options for survey questions.

[Back to top](#)

7. In the **list_name** column, scroll to **target_species**, and then add or remove names and labels as needed.
8. Click **Save** to save the spreadsheet.
9. In Survey123 Connect, on the **Form** tab, preview your changes.
10. If necessary, return to the Microsoft Excel spreadsheet and make additional edits, and then click **Save**.
11. In Survey123 Connect, on the left, click **Publish**, and then click **Publish survey** to publish your changes.
12. Repeat these steps to update the species target list names in the Invasive Pest Survey: Site Visit form.

Use Invasive Pest Inspections

The Invasive Pest Inspections solution delivers a set of capabilities that help you establish invasive pest monitoring sites, conduct invasive pest inspections, and monitor invasive pest programs.

In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

Note:

Use your organization's data or configured apps to follow these workflows.

Conduct invasive pest inspections

The Invasive Pest Survey forms support capturing information about existing or new monitoring sites and keeping a record of site visits throughout a season. The survey forms were designed to capture information required for the Cooperative Agricultural Pest Survey (CAPS) or Farm Bill programs and in a format to report details from site visits to the National Agricultural Pest Information System (NAPIS).

After monitoring sites have been established, an abbreviated version of the Invasive Pest Survey form can be used to streamline the process for field inspectors. In this workflow, you will assume the role of an inspector who will use the ArcGIS Survey123 inbox to load your planned visits into the application, and then you will complete the streamlined form for each monitoring site from the field.

1. On a mobile device, in ArcGIS Survey123 open the Invasive Pest Survey: Site Visit form.

Tip:

If the Invasive Pest Survey: Site Visit survey has not yet been downloaded, browse to **Download Surveys** on the main menu. Search for the Invasive Pest Survey: Site Visit form that you published and click to download it. After it downloads, return to **My Surveys** and tap the form to open it.

2. Tap **Inbox** and, if no surveys appear, click **Refresh**.
3. Find your site in the list or tap **Map** to find sites near you.
4. After you find your site, tap it to open the form.
The form opens with the site information prepopulated.
5. Complete the rest of the information in the form.
6. Click the check mark to submit the survey.
7. Repeat these steps to conduct additional inspections as necessary.

[Back to top](#)

Monitor invasive pest status

Now, you will assume the role of an agriculture program manager who will use the Invasive Pest Status dashboard to monitor pest inspections.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Invasive Pest Inspections solution.
2. View the Invasive Pest Status dashboard.

On the right, in the **Monitoring Sites** panel, all of the monitoring sites are listed. At the top of the panel, the total number of sites appears.

3. On the left, use filters to refine the results for site status, pest status, species, and survey type.

The results on the map and in the **Monitoring Sites** panel update.

4. At the bottom right, click the **Inspections** tab and review the inspection details.
5. At the bottom middle, click the **Monthly Comparison** tab and review the metrics.

View invasive pest impact

Next, you will continue the role of an agriculture program manager who will now use the Invasive Pest Viewer app to identify the impact of a suspected pest infestation on agricultural commodities and human populations.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Invasive Pest Inspections solution.
2. View the Invasive Pest Viewer app.
3. Use the provided drawing tools to select an area of interest.
4. View the results to understand the potential impact of invasive pests for the selected area.

Export surveys for NAPIS reporting

Invasive Pest Reports allows you to export information captured during field inspections for the CAPS or Farm Bill programs into a format that can be used to report monitoring activities to the NAPIS database.

This workflow will guide you through exporting field surveys and transforming the data structure for use in reporting to the NAPIS database.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Invasive Pest Inspections solution.
2. Download the Invasive Pest Reports desktop application template, and then unzip the folder.
3. From the unzipped folder, open the `InvasivePestReports.aprx` file in ArcGIS Pro.

[Back to top](#)

4. In the **Catalog** pane, expand the **Tasks** folder, and then double-click the **Invasive Pest Monitoring** task.

Note:

If you do not see the **Catalog** pane, from the **View** tab, in the **Windows** group, click **Catalog Pane**.

5. In the **Tasks** pane, expand **How to Use Invasive Pest Reports**, if necessary, and then double-click the **Export Surveys for NAPIS Reporting** task to begin.
6. Follow the instructions in the task to export survey responses to a NAPIS report.

Know Your Zone

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Know Your Zone

Know Your Zone can be used to share multitiered evacuation zones established to help residents evacuate when a hurricane or storm occurs.

The solution provides round-the-clock access to an organization, and the location-enabled search helps residents quickly find evacuation zone information. This transparent approach improves communication with the public and promotes efficient use of transportation and public safety resources. Know Your Zone is typically implemented by emergency management agencies that want to avoid unnecessary evacuation travel, reduce congestion on traveled ways, and ease overcrowding at storm shelters.

The Know Your Zone solution delivers a set of capabilities that help you to share evacuation zones and promote current evacuation instructions when an order is issued.

Requirements

Know Your Zone requires the following:

- ArcGIS Enterprise

Information products

Know Your Zone includes the following information products:

Item	Description	Minimum user type
Know Your Zone	An ArcGIS Web AppBuilder app used by the public so residents can determine which evacuation zone they reside in and obtain evacuation notices when issued	Not required

Release notes

The following are the release notes:

Version	Description
1.0	<ul style="list-style-type: none">• First release of Know Your Zone

[Back to top](#)

Configure Know Your Zone

In this topic, you will learn how to configure the solution to meet specific needs in your organization and load your data if needed.

Load evacuation zones

You may have evacuation zones that you would like to use in the Know Your Zone solution. To do so, you will need to load your data into the evacuation layer schema provided with the app.

Note:

To append your data, it must be in a shapefile format.

To load your facilities information from another data source, complete the following steps:

1. If necessary, sign in to your ArcGIS organization.
2. At the top of the site, click **Content**.
3. On the **My Content** tab, type Know Your Zone in the search box.
4. Under **Item Type**, click **Layers**, then click **Feature Layers**.

Note:

Some of the feature layers have a suffix such as **public**. These are layer views of the original source feature layer. These layer views are used to share information with the public without showing all the details or allowing the public to edit the layers. The original source layers do not have a suffix.

5. Click the title of the original source layer into which you want to load data to view the item details.
6. Click **Update Data**, then click **Append Data to Layer**.
7. Under **Filename**, choose your shapefile.
8. Click **Upload**, then click **Continue**.
9. Click **Show field matching** to match the fields from the spreadsheet to the fields in the selected feature layer.
10. After you have matched the fields, click **Apply Updates**.
11. Click the **Data** tab on the banner of the item page to confirm your data has loaded successfully.

Tip:

If you plan on using the Know Your Zone app to communicate active evacuation notices, you will need to set the **Active Incident** field in the Evacuation feature layer to **Yes** to ensure it is visible on the map.

Note:

When you deploy the Emergency Management Operations solution and the Know Your Zone solution and both solutions are owned by the same user, the Evacuations layer is shared between both solutions. This allows the emergency evacuation status to be updated using the Operations Response app. The updates are visible in Know Your Zone and other apps that are part of the Emergency Operations solution.

Enable evacuation status

When a storm is approaching, emergency managers can configure Know Your Zone to identify zones that are most at risk. Evacuation status can be enabled on each high-risk zone. This information can be shared with the media and residents so they will know what zone they are in and when to evacuate.

To enable evacuation status, complete the following steps:

1. If necessary, sign in to your ArcGIS organization.
2. At the top of the site, click **Content**.
3. On the **My Content** tab, type Know Your Zone in the search box.
4. **Open in Map Viewer** the Know Your Zone web map.
5. Turn on the **Active Evacuation Notices** layer.
6. Turn off the **Your Evacuation Zone** layer.
7. Click **Save** to save the map.
8. Open the **Know Your Zone web application** item page and click **Edit Application**.
9. On the banner at the top of the left panel, click the **Widget** button.
10. Click **Set the widgets in this controller**.
11. Click the edit button to edit the **Find Your Zone widget**.
12. On the **Search Settings** tab, click **Set**, and check the box to add the **Active Evacuations Notices** layer to the search layers and uncheck the box to remove the **Your Evacuation Zones** layer.
13. Click **OK** to save the Select search layers changes.
14. Click **OK** to save the changes to the **Configure Find Your Zone** window.
15. Click **Save** to save the changes to the Know Your Zone web app.

Note:

To test your changes, you will need to load some evacuation zones into both the multitiered evacuation zones and evacuations layers. You will need to populate the **Evacuation Zone**, **Evacuations Type**, and **Starts** fields to see the results.

16. After you load data into the evacuations layer, open the web app to test the configuration changes.
17. Enter an address or click a location within the orange evacuation areas.

The result of the search will indicate the evacuation zone and status of the specified address. In this case, the address is in Evacuation Zone B and the status is Voluntary Evacuation Notice.
18. Click one of the **red** evacuation areas (Evacuation Zone A).

Use Know Your Zone

The Know Your Zone solution delivers a set of capabilities that help you to share evacuation zones and promote current evacuation instructions when an order is issued.

In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

Note:

Use your organization's data or configured apps to follow these workflows.

Find your zone

Know Your Zone can be used by the public to locate an address or place and obtain information about the evacuation zone and current evacuation status of that location. Search for an address in the search bar or click a location directly on the map to define the location to be searched.

In this workflow, you will assume the role of a resident in Baltimore who wants to know in which evacuation zone you're located.

1. In a browser, from the Know Your Zone solution, view the Know Your Zone app.
2. On the right, in the **Find Your Zone** panel, type the address.
The map zooms to the location, and the result that displays in the panel indicates in which evacuation zone, if any, the address is located.
You can also find evacuation zone information by clicking a point on the map.
3. On the map, click a point.
On the right, the results indicate in which evacuation zone, if any, the point that you clicked resides.
4. Close the Know Your Zone app.

Note:

When a storm is approaching and evacuation orders are implemented, Know Your Zone can be configured to inform users of the current evacuation status of each zone. See [Configure Know Your Zone](#) to learn more.

Land Use Outreach

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Land Use Outreach

Land Use Outreach can be used to share development regulations, construction activity, and solicit feedback on current land cases from the public.

It provides 24/7 access to an organization and streamlines the development process. The inclusive approach increases public trust reduces the need to attend meetings in person, and helps government agencies harness feedback from the public to make better decisions about development in the community. Land Use Outreach is typically implemented by planning departments, public work agencies and other local government agencies that want to increase transparency and encourage public participation.

The Land Use Outreach solution delivers a set of capabilities that help you share land use, zoning and other (for example, floodplain) regulations, generate awareness about permitted construction activity and engage the public when new developments are proposed.

Requirements

Land Use Outreach requires the following:

- ArcGIS Enterprise

Information products

Land Use Outreach includes the following information products:

Item	Description	Minimum user type
Land Use Inquiry	An ArcGIS Web AppBuilder app used by the general public, developers, and real estate professionals to identify land use and zoning designations that impact the use of land	Not required
Floodplain Inquiry	An ArcGIS Web AppBuilder app used by the general public, land development companies, and real estate professionals to locate parcels impacted by FEMA floodplain boundaries	Not required
Construction Activity Tracker	An ArcGIS Web AppBuilder app used by the general public to track individual building permits and general construction activity	Not required
Public Comment	A Crowdsourcing Polling app used by the general public and other interested parties to review land use cases or capital projects and submit feedback on a given case or project	Not required

Release notes

The following are the release notes:

Version	Description
1.0	<ul style="list-style-type: none">First release of Land Use Outreach

[Back to top](#)

Configure Land Use Outreach

Learn how to configure the Land Use Outreach solution to meet specific needs in your organization.

Load data

Land Use Outreach can be used to share development regulations, construction activity, and solicit feedback on current land cases from the public. In some cases, you may have this information in ArcGIS or another business system already.

Review the layers provided with the solution and determine what source data you want to load. Then load your existing data into the layers provided with the solution before sharing the maps or applications.

Once you have determined what source data must be loaded, complete the data loading workflow below.

Load data from a shapefile

Data for TaxParcels, SiteAddresses, ConstructionActivity, LandUse, Zoning, OverlayDistricts, and Floodzones can be loaded from a shapefile by following the steps below:

1. Create a .zip file of your shapefile.
2. In your ArcGIS organization, browse to the feature layer to populate.
3. On the feature layer item details page, click **Update Data** and select **Append Data to Layer**.
4. Under **Filename**, click **Choose File**.
5. Browse to your .zip file and click **Open**.
6. Under **Contents**, select **Shapefile**.
7. Click **Upload and Continue**.
8. Choose the layer that you want to load data into and the layer that contains the updated data.
9. Uncheck **Update existing features**.
10. Click **Show field matching** and map the fields between the two layers.
11. Click **Apply Updates**.

Tip:

To make additional updates to a hosted feature layer, see [Append data to layers](#).

Use Land Use Outreach

The Land Use Outreach solution delivers a set of capabilities that help you share land use, zoning and other (for example, floodplain) regulations, generate awareness about permitted construction activity and engage the public when new developments are proposed.

In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

Note:

Use your organization's data or configured apps to follow these workflows.

Locate a parcel impacted by a floodplain

As the general public and real estate professionals search for properties, floodplain boundaries come into consideration so that informed decisions can be made during the land development and home buying processes.

In this workflow, you will learn how to locate and view authoritative floodplain boundary information (DFIRM panels) provided by the Federal Emergency Management Agency (FEMA) using Floodplain Inquiry. You will assume the role of a resident in a local community. You want to see if a property you are interested in purchasing sits in a floodplain boundary.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Land Use Outreach solution.
2. View the Floodplain Inquiry app.
3. Search for a parcel number or address or click the location directly on the map.
4. Review the property's details, such as the parcel number, address, and if the selected property is impacted by a flood zone.

Identify land use impact

As development occurs in a community, the general public, developers, and real estate professionals must identify land use and zoning designations that affect land use.

In this workflow, you will learn how to locate and view current land use, future land use, and zoning designations using Land Use Inquiry. You will assume the role of a resident in a local community. You want to see what the current and proposed land use is for a particular property.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Land Use Outreach solution.
2. View the Land Use Inquiry app.
3. On the right, in the **Locate Regulations** widget, search for a parcel number or address or click the location directly on the map.

[Back to top](#)

4. Review current land use, future land use, and current zoning designations.

Review construction activity

As development occurs in a community, the general public, developers, and real estate professionals must locate open, under review, approved, and closed building permits.

In this workflow, you will learn how to track individual building permits and general construction activity. You will assume the role of a resident in a local community. You want to check the status of a recently submitted construction permit.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Land Use Outreach solution.
2. View the Construction Activity Tracker app.
3. On the right, in the **Locate Permit** widget, search for an address, applicant name, or permit number or click the location directly on the map.
4. Review the details and current status of the construction permit.

Submit feedback in the Public Comment app

As land use cases and capital projects are reviewed in a community, the general public and other interested parties can submit feedback on a given case or project.

In this workflow, you will learn how to submit feedback and help make better development decisions in the community. You will assume the role of a resident in a local community. You want to submit feedback on a current land use case.

1. In a browser, from the Land Use Outreach solution, view the Public Comment app.
2. On the right, select a current case up for public comment; alternatively, click a case directly on the map.
3. Review the details and current status of the case.
4. Click the **Add a comment** button, complete the comment form, and click **Submit**.

Lead Service Line Inventory

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Lead Service Line Inventory

Lead Service Line Inventory can be used to develop a lead service line inventory and monitor the replacement of service lines required to comply with the Environmental Protection Agency's (EPA) Lead and Copper Rule Revisions.

Replacing lead service lines is the best way to reduce the risk of exposure to lead in drinking water across a community. Water utilities are required to create and maintain a lead service line inventory under the Lead and Copper Rule Revisions. Having authoritative information about the number and location of lead service lines is the first step in creating a lead service line removal program to safeguard the health of the community. Lead service line inventory is typically implemented by water utilities that want to quickly begin mapping lead service lines and monitoring compliance with federal regulations.

The Lead Service Line Inventory solution delivers a set of capabilities that help you inventory lead service lines, validate service line materials in the field, monitor replacement activities and regulatory compliance, and share information with the public.

Requirements

Lead Service Line Inventory requires the following:

- ArcGIS Enterprise
- ArcGIS Pro 3.0 or later (Basic, Standard, or Advanced)
- ArcGIS Field Maps
- ArcGIS Survey123 Connect

[Back to top](#)

Information products

Lead Service Line Inventory includes the following information products:

Item	Description	Minimum user type
LeadServiceLineInventory	An ArcGIS Pro project used by an editor to perform advanced service line editing.	GIS Professional (Basic, Standard, Advanced)
Lead Service Line Viewer	An ArcGIS Web AppBuilder app used by office staff to view lead service line information.	Viewer
Lead Service Line Replacement Manager	An ArcGIS Web AppBuilder app used by a manager to view the status of lead service mitigation activities.	Editor
Lead Service Line Editor	An ArcGIS Web AppBuilder app used by an editor to update lead service line data.	Editor
Lead Service Line Public Viewer	A map embedded in the ArcGIS Hub site used by the public to view lead service line information in the community.	Viewer
Lead Service Line Field Map	An ArcGIS Field Maps map used by a mobile worker to add lead service line data.	Mobile Worker
Lead-Safe Community	An ArcGIS Hub site used by the general public to view lead service line information.	Not required
Lead Service Line Dashboard	An ArcGIS Dashboards app used by office staff to view and report lead service line status information.	Viewer
Service Line Self-Assessment Manager	A Crowdscore Manager app used by a manager to review incoming water service line material surveys.	Editor
Service Line Self-Assessment Dashboard	An ArcGIS Dashboards app used by a manager to view water service line survey results.	Viewer
Water Service Line Material Survey	An ArcGIS Survey123 form used by the public to report their water service line material.	Not required

[Back to top](#)

Release notes

The following are the release notes:

Version	Description
3.0	<ul style="list-style-type: none">• Updated the ServiceLine schema to align with EPA's August 4th, 2022 Guidance for Developing and Maintaining a Service Line Inventory Template.• Updated Lead Service Line Dashboard.• Added a Lead Service Line Field Map and configured a form for field data collection.
2.2	<ul style="list-style-type: none">• The Minimal Gallery app has been removed from the solution item.
2.1	<ul style="list-style-type: none">• An update was made to the Lead-Safe Community site to include a link to the Water Service Line Material Survey.• Added a Service Line Self-Assessment Manager app, Service Line Self-Assessment Dashboard app, and Water Service Line Material Survey.
2.0	<ul style="list-style-type: none">• Enabled attachments on all Service Line layers and views.• Updated the style file in the ArcGIS Pro project.
1.0	<ul style="list-style-type: none">• First release of Lead Service Line Inventory.

[Back to top](#)

Configure Lead Service Line Inventory

Lead Service Line Inventory can be used to develop a lead service line inventory and monitor the replacement of service lines required to comply with the Environmental Protection Agency's (EPA) Lead and Copper Rule Revisions.

The Lead Service Line Inventory solution can be configured to meet specific needs in your organization. The sections below outline some administrative tasks to update and manage the solution to fit your organization's needs.

Provision users

Included with Lead Service Line Inventory are four groups designed to help managers organize their members based on their privileges and their work.

To add members to the groups, complete the following steps:

1. In a browser, sign in to your ArcGIS organization.
Verify that you have privileges to manage member groups before continuing.
2. Click **Groups** at the top of the site.
3. Click the name of the group to open the group details pages.
4. On the **Settings** tab, edit and update the properties of the group, including access, sharing properties, and group ownership.
5. Click the **Overview** tab and click **Invite users**.
6. Select the members you want to add and click **Add to group**.
7. Repeat steps 3 through 6 for each group you need to add members to.

The provided groups are intended to be utilized by members with a minimum of the following user types in order to fully use the provided maps and apps:

Group name	User type
Lead Service Line Editors	<ul style="list-style-type: none">• Editor• Mobile Worker• GIS Professional Basic with ArcGIS Pro (minimum of one license recommended)
Lead Service Line Viewers	<ul style="list-style-type: none">• Viewer
Lead Service Line Public Viewers	<ul style="list-style-type: none">• Viewer
Lead Service Line Survey	<ul style="list-style-type: none">• Not required



[Back to top](#)

Configure Lead Service Line Inventory site

The Lead Service Line Inventory solution includes the Lead-Safe Community ArcGIS Hub site that your organization can configure with your branding and can use to share information about lead service information with the public.

Update with organizational information


After deploying the Lead Service Line Inventory solution, the Lead-Safe Community site layout only requires a few updates to fit your local context. Consider what information you already have and what you can most easily find. Update the information by completing the following steps:

1. Verify that you are signed in to your ArcGIS organization and browse to the Lead-Safe Community site.
2. Open the item page and click **Configure App**.
3. Click the edit button  to open the site editor.
4. Scroll to the **Statistics** section under the title of the website.
5. Update each card by hovering over the card and clicking the edit button . A pane appears where you can make changes to the colors, images, text, and more.
6. Click **Layout** to add additional cards to the site and select from the list of options.
7. Click **Customize** to access **Settings**, **Theme**, **Header**, **Layout**, and **Footer** options.
8. Make the necessary changes and click **Apply**.
9. Click **Save**.

To learn more about sites, review [What is a site?](#)

Configure Lead Service Line project

The Lead Service Line ArcGIS Pro project includes a Lead Service Line Editor map which is ready to be connected to your published service.

1. In ArcGIS Pro, sign in to your [ArcGIS organization](#).
2. To open the **LeadServiceLineInventory** project, click **Open another project**, click **My Content** under **Portal**, double-click the **Lead Service Line Inventory** folder, click **LeadServiceLineInventory**, and click **OK**.
3. In the **Contents** pane, click the error notification button  next to the **Service Line** layer. The **Change Data Source** dialog box appears.
4. Click **My Content** under **Portal**, double-click the **Lead Service Line Inventory** folder, double-click the **LeadService_editing** feature service, and double-click the **Service Line** layer.

[Back to top](#)

- In the **Contents** pane, right-click the **Lead Service Line Editing** map and click **Properties**.
- Click the **Coordinate Systems** tab. In the **XY Coordinate Systems Available** section, select the coordinate system that matches the layers in the map.

Note:

Ensure the coordinate system of the map matches that of the feature layers deployed in the solution. If they do not match, there may be discrepancies in what units are displayed in the map.

- Click **Save** to save the project.

Share items with public

Several layer views, maps and apps included in the Lead Service Line Inventory solution must be shared with everyone so they can be accessed by the public on the Lead-Safe Community site. To share your lead service line items with everyone, use the guide below and complete the following steps:

- Verify that you are signed in to your ArcGIS organization and browse to the Lead Service Line Inventory folder.
- Check the check box next to each of the items below:

Item	Name
Feature Layer (hosted, view)	ServiceLine_viewing
Feature Layer (hosted, view)	Service Line Self-Assessment_customer
Web Map	Lead Service Line Public Viewer
Web Mapping Application	Lead Service Line Public Viewer
Site Application	Lead-Safe Community
Form	Water Service Line Material Survey

- Click **Share**.
- In the **Share** window, click **Everyone (public)** and click **Save**.

Note:

Warning: Sharing editable layers publicly appears notifying that you are sharing editable layers publicly.

- Click **Update**.

Add utility map layers (optional)

The Lead Service Line Inventory solution is configured with what you need to manage your lead inventory. Adding your organizations water asset layers to the maps can enhance the solution by providing additional awareness of existing assets. The steps below provide information about adding your organizations water feature layers to the following maps.

1. Open the **Lead Service Line Viewer** map by clicking **Open in Map Viewer Classic**.
2. Add your organizations water asset data to the [map](#).

Note:

Consider configuring layer names and pop-ups to meet your organizations needs.

3. Click **Save > Save** to save the map.
4. Repeat as needed with the following maps: **Lead Service Line Editor** and **Lead Service Line Replacement Manager**.

Use Lead Service Line Inventory

The Lead Service Line Inventory solution delivers a set of capabilities that help you inventory lead service lines, validate service line materials in the field, monitor replacement activities and regulatory compliance, and share information with the public.

Understand service line symbology

Lead Service Line Inventory has been created with multiattribute symbology to display both utility-owned and customer-owned service line information. The left side of the symbol always represents a utility-owned service line and the right side represents a customer-owned service line. This symbology cannot be easily changed once the solution is deployed and is best left as designed. The symbology is broken down into four color categories that represent the lead service line status.

The lead status categories are as follows:

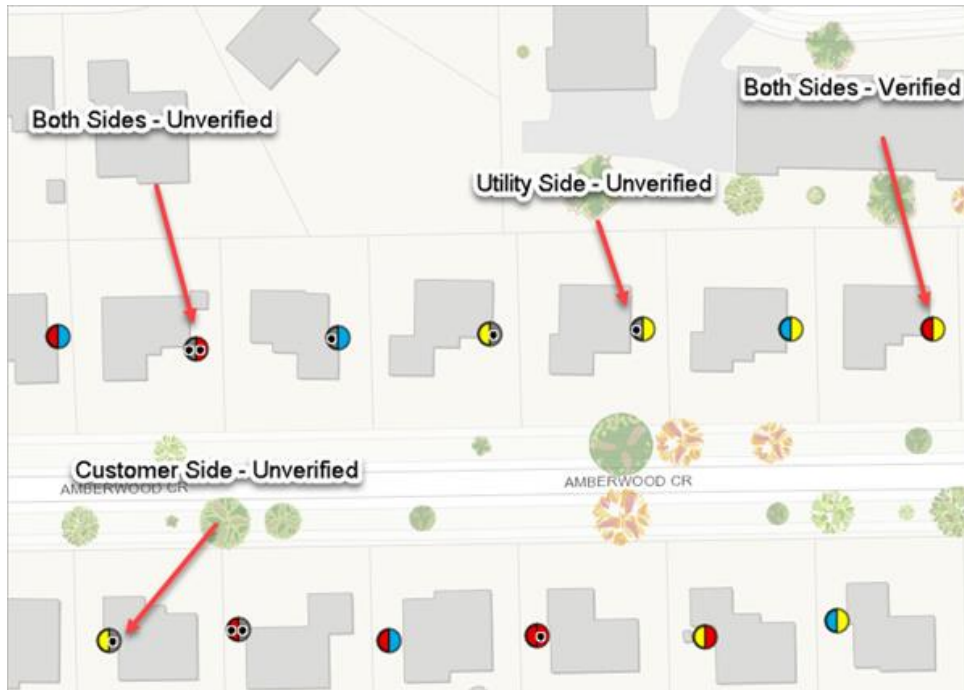
- Red—Lead
- Yellow—Galvanized Requiring Replacement
- Blue—Non-Lead
- Gray—Unknown

The legend includes the combinations of all of these options as shown in the image below.

Utility Side	Customer Side
Lead	Lead
Lead	Galvanized Requiring Replacement
Lead	Non-Lead
Lead	Unknown
Galvanized Requiring Replacement	Lead
Galvanized Requiring Replacement	Galvanized Requiring Replacement
Galvanized Requiring Replacement	Non-Lead
Galvanized Requiring Replacement	Unknown
Non-Lead	Lead
Non-Lead	Galvanized Requiring Replacement
Non-Lead	Non-Lead
Non-Lead	Unknown
Unknown	Lead
Unknown	Galvanized Requiring Replacement
Unknown	Non-Lead
Unknown	Unknown

[Back to top](#)

In addition to the multiattribute symbology, the lead service line point includes a label that identifies unverified lead service lines with a dot. The dot will be located on either the utility side, the customer side, or both sides of the symbol depending on whether the service lines have been verified in the field. The image below shows the various configurations of unverified lead service line points.



Develop service line inventory

Water utilities are tasked with completing an inventory of their water systems to ensure there are no lead pipes present in their systems. These workflows provide various ways to collect and document the lead service line information.

Add lead service line points

Lead information can be stored in various forms, such as tap cards, paper maps, or other digital assets. These sources of information should be added to a single repository to ensure a complete inventory of lead service lines can be maintained.

As an editor, you want to use a web app to add lead service line status information to the map.

1. In a browser, sign in to your [ArcGIS organization](#).
2. At the top of the site, click **Groups**.
3. Browse to the **Lead Service Line Editors** group and locate the **Lead Service Line Editor** app. Click **View Application** to launch the app.

[Back to top](#)

In the Lead Service Line Editor app, the **Smart Editor** widget is open by default on the left side of the window.

4. In the editing pane, click a template from the list of options to select it.
5. With a point selected, click to add the point to the map.
6. You are prompted to update attributes and click **Save**.
7. Continue adding **Service Line** points, as needed.

In the workflow below, you will be taking the role of an editor adding data in ArcGIS Pro. The workflow below can be completed in either the web or desktop environments, but if additional editing tasks need to be completed, such as loading data or conducting advanced analyses, ArcGIS Pro provides a more powerful environment to do this work.

Note:


The first time you open the **Lead Service Line Editor** map in ArcGIS Pro, the layers will show as broken. Follow the steps to [Configure the Lead Service Line Editor_ArcGIS Pro project](#) to fix your layers.

1. Open the **Lead Service Line Inventory** ArcGIS Pro project and sign in to your [ArcGIS organization](#).
2. In the **Catalog** pane, expand **Maps** and double-click **Lead Service Line Editor** to open the map.
3. On the **Edit** tab, in the **Features** group, click **Create**.
The **Create Features** pane appears.
4. Click a template to select it and add it to the correct location on the map.
5. On the **Map** tab, in the **Selection** group, click **Attributes** and fill in the remaining attributes.
6. Repeat the steps above to add new lead service line points to the map.
7. On the **Edit** tab, in the **Manage Edits** group, click **Save** to save your edits.

Conduct field inventory

In many cases, a field assessment of existing service line assets may be the most efficient way to develop a lead service line inventory. The information collected in the field can then be used to inform service line replacement and maintenance programs.

You will assume the role of a mobile worker in a water utility. In this workflow, you will use ArcGIS Field Maps to collect lead service line information.

1. Open the ArcGIS Field Maps app and sign in to your ArcGIS organization.
2. Open the **Lead Service Line Field Map**.
3. Browse to the collection location.
4. Tap **Add** .

[Back to top](#)

5. From the list of features, add a feature from the template list of **Service Line** values.
If the point is added to the wrong location, or you want to move the point manually, move the crosshairs to the correct location by panning the map and tapping **Update Point**. This moves the added point to the specified location.
6. Fill in any attributes and tap **Submit**.
Ensure the following attributes are filled out, as they drive some of the dashboard indicators.
 - Entire Service Line Status
 - Utility Side Verified, Customer Side Verified
 - Replacement Status

Manage service line replacement

Water utilities need an inventory of their assets in order to proceed with lead mitigation efforts. Managers need to have a clear understanding of what service lines are at risk for lead, whether lines have been inspected by field technicians, or if they have been replaced due to lead.

You will assume the role of a manager in a water utility. In this workflow, you want to use a web app to update common replacement fields such as Replacement Status, Scheduled Replacement Date, and Reason for Replacement.

1. In a browser, sign in to your [ArcGIS organization](#).
2. At the top of the site, click **Groups**.
3. Browse to the **Lead Service Line Editors** group and locate the **Lead Service Line Replacement Manager** app. Click **View Application** to launch the app.

In the upper right of the app, there are a number of widgets that can be used to view the legend, update the basemap, or print the map. The panel on the left side of the app includes a set of options to filter the lead service line points by replacement status and lead categories.

4. Review the list of included widgets to learn how to use them to update and review lead service replacement status:
 - **Filter**—Use the **Replacement Status** and **Lead Categories** filters to view properties where service lines need replacement or by material category. Select an option from the drop-down menu and turn on a filter to view the selection in the map.
 - **Batch Attribute Editor**—Select a group of lead service line points using one of the selection tools and update values for all the selected features at once.
 - **Legend**—View the included layer in the map. The legend displays what is visible on the map, so zooming in or out can expand or reduce the list if scale suppression is set on the layers.
 - **Layer List**—View a list of included layers with some additional capabilities to manipulate the layers.

[Back to top](#)

- **Basemap Gallery**—Choose to update the basemap for the app.
- **Print**—Use the print widget to save an image or PDF of the map.

Monitor inventory and replacement

Understanding how many lead service lines there are and progress on replacing identified lead service lines is important information that needs to be readily accessible. It may also be necessary to provide to regulators, so it is helpful to have a quick view of important metrics. Having a quick view of all of the key metrics related to lead service lines allows executives and managers to gain an understanding of their water system and lead mitigation efforts.

As a member of the utility, you want to have a comprehensive view of lead service lines in the water system. The dashboard includes a mix of charts, gauges, and elements to report on the presence of lead in the water system.

1. Browse to the **Lead Service Line Office Viewers** group and locate the **Lead Service Line Dashboard** app. Click **View Dashboard** to launch the dashboard.
2. Review the brief descriptions of the included indicators to learn more about them.
 - **Lead**—The indicator represents the total number of lead service lines.
 - **Galvanized**—The indicator represents the total number of galvanized service lines requiring replacement.
 - **Non-Lead**—The indicator represents the total number of non-lead service lines.
 - **Unknown**—The indicator represents the total number of unknown service lines.
 - **Verified Service Lines**—The gauge represents the total number of verified service lines. The number in the middle of the gauge represents the number of verified service line and the number at the end of the gauge represents the total number of service lines in the system.
 - **Replaced**—The indicator represents the total number of replaced lead service lines.
 - **Lead Service Line Inventory Table**—The table contains all of the fields from the EPA's template for reporting a lead service line inventory.
 - **Lead Service Line Inventory Map**—The map contains the service lines represented as a point. The list on the right contains lead service lines. Clicking a lead service line in the list will pan the map to its location.

The following table shows which fields are being used to drive the results of this element. These must be fully filled in to accurately show the lead service line information.

Element name	Fields used
Lead	Entire Service Line Status
Galvanized	Entire Service Line Status
Non-Lead	Entire Service Line Status
Unknown	Entire Service Line Status
Verified Service Lines	Utility Side Verified, Customer Side Verified
Replaced	Replacement Status

[Back to top](#)

Export service line data

As the lead compliance manager, I need to report the water system's service line inventory to comply with regulations.

1. Verify that you are signed in to your ArcGIS organization and browse to the **ServiceLine_reporting** service.
2. Click the **Export Data** drop-down and select **Export to CSV file**.
3. Update the **Title** and click **Export**. It may take a few seconds to complete the export.
4. Click **Download**.

The csv with the service line data downloads to a .CSV file.

5. Optionally, after exporting to the CSV copy and paste the data into the EPA's Inventory Template. The fields, field order, and values are identical to those found in the template. Ignore the last 4 fields of the export (globalid, objectid, x, y)

Engage the public

Communicating lead service line information helps residents locate their properties and allows them to learn if their property may be affected by lead. The Lead-Safe Community site can be used to communicate lead service line information to residents in the community. It also includes a link to the Water Service Line Material Survey which allows residents to report the material of their water service lines, allowing water utilities to better understand their water systems and make improvements to eliminate lead pipes within their water systems.

Locate service line information

You will assume the role of a resident or member of the public. In this workflow, you are interested in locating an address to find more information about lead service lines.

1. In a browser, go to the Lead-Safe Community site.
2. Scroll to the **Lead Service Line Map** section.
3. In the app, use the **Search** text box to enter an address and click **Enter**.
4. Suggestions are presented as you type and you are able to choose the address from the search results.
5. If a **Lead Service Line** point exists at the property, click the point to view a pop-up with more information.

Submit a water service line material survey

You will assume the role of a resident who is interested in submitting water line material information for their property.

1. In a browser, go to the Lead-Safe Community site.


[Back to top](#)

2. Click the **Water Service Line Material Survey** link to open the survey.
3. In the **Water Service Line Material Survey** form, enter your personal information, water service line information and a photo of your water line service.
4. Click **Submit**, to submit your survey.

Manage water service line surveys

As water utilities work to eliminate all lead in their water lines, they need the help of the public to report their water line service material to aid in this effort. Water utilities need to complete a full inventory of their system and public surveys can ensure that utilities are capturing possible lead service line locations. This information can help water utilities organize lead replacement campaigns and plan service line replacement.

You will assume the role of a manager tasked with managing and reviewing water service line surveys.

1. In a browser, go to the Service Line Self-Assessment Manager app.
The app opens and shows a list of surveys as well as a map and a panel to view additional survey details.
2. Scroll to the right and click the **Status** column filter.
3. Click the **Status is** drop-down arrow and choose **Submitted** to view surveys which have not been reviewed.
4. Click one of the surveys to view its details.
5. On the **Details** tab, click the **Edit** button .
6. Click the **Status** drop-down arrow and choose **Received**.
7. Click **Save**.
8. In a browser, go to the Service Line Self-Assessment Dashboard app.
9. Use the filters in the dashboard header to explore the survey information and as well as the indicators on the map to view a specific survey details.

Dashboard charts are linked. As you click and select a category in one chart, related details are filtered and updated in other charts.

Market Development

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Market Development

Market Development can be used to understand market characteristics and performance.

Executives and retail analysts need to understand the performance of the market landscape based on location. Organizations strive to increase profits by using market indicators to drive the decisions on where to close locations and open new locations. Understanding market performance based on regional and market breakdown is critical in enhancing the business strategy for decision makers. Market Development is typically implemented by organizations that want to take a data-driven approach to understand market characteristics and the performance of their business.

The Market Development solution delivers a set of capabilities that helps you visualize the overall market landscape and communicate key business metrics with decision makers.

Requirements

Market Development requires the following:

- ArcGIS Enterprise

Information products

Market Development includes the following information products:

Item	Description	Minimum user type
Market Explorer Dashboard	An ArcGIS Dashboards app used by analysts to understand the overall performance of retail stores in an organization from various geographies	Viewer
Sales Performance Dashboard	An ArcGIS Dashboards app used by analysts to understand the overall performance of each retail store in an organization	Viewer
AssetSource	An Excel document that can be used to load and validate an authoritative list of assets into ArcGIS	Not required
SalesdataSource	A .csv file that can be used to load an authoritative dataset of sales data into ArcGIS	Not required

Release notes

The following are the release notes:

Version	Description
1.2	<ul style="list-style-type: none">General schema update to the joined layer view.
1.0	<ul style="list-style-type: none">First release of Market Development

Configure Market Development

In this topic, you will learn how to configure the Market Development solution to meet specific needs in your organization.

Prevent duplicate records

To support the updating of data using the Append Data to Layer and to ensure accurate statistics within the information products of the solution. You'll need to add an attribute index which applies a [unique constraint](#) to facility_id field in the facilities layer.

To add an unique constraint, complete the steps below:

1. Sign in to your ArcGIS Enterprise portal.
2. At the top of the site, click **Content**.
3. On the **My Content** tab, type Assets in the search box.
4. On the left under **Folders**, click the folder Market Development was deployed to.
5. On the right side of the page, click **Assets** to view it details.
6. Under the **Layers** section, click **Assets**.
7. In the URL section , click **View**.

A new tab opens into the ArcGIS REST Service Directory for this item.

8. In the URL bar of the browser, edit the URL with the following changes:
 - a. Add the word admin between /rest/ and /services/. (For example: ArcGIS/rest/admin/services/assets.)
 - b. Scroll to the bottom of the page and click on **Add to Definition**.
 - c. A window appears where you will be entering JSON to add an index to the layer.
 - d. In the text box, copy the following:

```
{
  "indexes" : [{
    "name" : "asset_id_Index",
    "fields" : "asset_id",
    "isAscending" : false,
    "isUnique" : true,
    "description" : ""
  }]
}
```

- e. Click **Add To Layer Definition** to commit update.

The following message will appear if add was successful. {"success": true}

[Back to top](#)

9. In the browser, return to the Assets layer tab and click on the **Data** tab.
10. Click the **Fields** and click on Asset.

This page reveals the properties for the asset_id field. Under **Settings**, the **Unique** field is set to Yes.

Load data

Information must be loaded before using the Market Explorer Dashboard and Sales Performance Dashboard. The AssetSource and SalesdataSource can be used to organize your business information before loading into ArcGIS the accompanying sales data in your organization.

Note:

Ensure you populate the Asset_ID column in the AssetSource with unique values.

You may need to load existing assets or sales data from a spreadsheet. Review the maps or applications provided with the solution and determine what, if any, source data you would like to load.

If you do not have an inventory of assets and sales data in ArcGIS, you may have them in a spreadsheet or another system you can export to a spreadsheet. If you don't have a spreadsheet already, you can use the sample .csv files included with the solution (AssetSource, SalesdataSource) to inventory your assets and sales data.

To load your assets or sales data from a spreadsheet, complete the following steps:

1. Sign in to your ArcGIS organization and browse to the AssetSource item.
2. Open the items details page.
3. Click **Download**.
4. Edit the CSV file and populate your facility information in the document.

Note:

At a minimum, you must provide a unique Asset_ID and the latitude and longitude for each facility in the FacilitySource. If you don't have a unique ID, you can edit the CSV file in Excel and copy this formula into the first row of the facilityid column: `=CONCATENATE("Asset-", TEXT(ROW(A1),"00000"))`. You can then drag the right corner of the cell to fill the formula down for all facilities, giving each a unique ID.

5. In your ArcGIS organization at the top of the site, click **Content**.
6. Browse to the **Assets** feature layer.
7. On the item details page, click **Update Data** and select **Append Data to Layer**.
8. Under **Filename**, choose your .csv file.
9. Click **Upload and Continue**.

[Back to top](#)

10. Uncheck **Update existing features**.
11. Click **Show field matching** to map the fields.
12. Click **Apply Updates**.
13. Repeat steps 1 through 12 by downloading the SalesdataSource CSV file and updating the **Asset Sales Data** table.

To load your data for Region Overlay, Subregion Overlay, and Competitors from a shapefile or file geodatabase, complete the following steps:

1. Create a .zip file of your shapefile.
2. In your ArcGIS organization, browse to the feature layer you want to populate.
3. On the feature layer item details page, click **Update Data** and select **Append Data to Layer**.
4. Under **Filename**, click **Choose File**.
5. Browse to your .zip file and click **Open**.
6. Under **Contents**, select **Shapefile**.
7. Click **Upload and Continue**.
8. Choose the layer that you want to load data into and the layer that contains the updated data.
9. Uncheck **Update existing features**.
10. Click **Show field matching** and map the fields between the two layers.
11. Click **Apply Updates**.

Use Market Development

The Market Development solution delivers a set of capabilities that helps you visualize the overall market landscape and communicate key business metrics with decision makers.

In this topic, you will learn how to use the Market Development solution and the set of capabilities and features that it provides.

Note:

Use your organization's data or configured apps to follow these workflows.

Investigate market characteristics

The Market Explorer Dashboard application includes your organization's assets overlaid with demographic information such as median disposable income, retail goods spending, and population growth. The application allows you to conduct a series of key exploratory functions that support the visualization of markets in and around your business by region, market, or store.

Note:

Assets may represent your retail establishments, businesses you sell into, or distributors.

Visualize market characteristics

In this workflow, you'll assume the role of a business analyst who is assigned the task of exploring a particular market. You will assume that this is a market that your organization is considering extending operations within and examine the potential likelihood of growth, and communicate this with key leadership.

1. In a browser, go to the Market Explorer Dashboard application.

Along the top are a set of global filters for focusing your view based on your organization's regional and subregional strategies as well as a specific store location. The filters are an essential part of focusing and exploring data within your view.

2. In the **Select a Region** drop-down list, select a region.

Filtering will zoom in to that specific region and automatically updates the set of metrics along the bottom of the application and the locations in the list on the right side.

Note:

The competitor indicator panel represents the number of features within the map view.

3. In the **Select a Sub-Region** drop-down list, select a sub-region.

[Back to top](#)

4. In the upper right corner of the map are a set of [map settings](#). Click the layer visibility button to reveal operational layers that can be switched on or off.
5. Switch on the layer labeled USA Population growth.
6. Zoom in to a particular market to start exploring in more detail.

Notice as you zoom in or pan around, the metrics along the bottom as well as the list on the right side update. This map-driven capability provides context into what is within your view, in and around areas of interest. Also note how the USA population growth layer dynamically updates to more granular level of detail depending on the scale.

Note:

Holding the Shift key on your keyboard enables the area selection tool in the map. This will zoom in to the extent of the selected area.

Explore the performance of your business

The Sales Performance Dashboard contains your organization's assets, with panels that represent your business sales data broken down by category and sales for each store. The application is designed to digest key information about the financial performance of your organization's assets. The functionality of the Sales Performance Dashboard is used to explore and visualize retail stores and sales information for each retail store and overall financial performance of your business by region, market, or store. The map-driven metrics provide an overview of key financial business metrics that provide insight into the market potential.

Note:

Assets may represent your retail establishments, businesses you sell into, or distributors.

Understand store performance

In this workflow, you'll assume the role of a business analyst who is assigned the task of understanding the sales performance in a particular market. You will assume that this is a market that your organization is considering extending operations within and examine the potential likelihood of growth, and communicate this with key leadership.

1. In a browser, go to the Sales Performance Dashboard.

Along the top are a set of global filters for focusing your view based on your organization's regional and subregional strategies as well as a specific store location. The category selector filters the sales metrics along the left. The filters are an essential part of focusing and exploring data within your view.

2. In the **Select a Region** drop-down list, select a region.

Filtering to the Middle Atlantic will zoom in to that specific region and automatically updates the set of metrics and locations in the list along the left side of the application.

[Back to top](#)

3. In the **Select a Sub-Region** drop-down list, select a sub-region.
4. Zoom in to a specific market to start exploring in more detail.

Notice as you zoom in or pan around, the metrics and the list along the left update. This map-driven capability provides context into what is within your view, in and around areas of interest.

Note:

Holding the Shift key on your keyboard enables the area selection tool in the map. This will zoom in to the extent of the selected area.

5. In the **Select a Category** drop-down list, select a category.
Notice the metrics along the left are now only showing overall sales for that specific category, based on the assets within the map view.
6. Select an asset from the list. This will zoom to the selected feature and open the pop-up for additional sales. The metrics will also reflect the currently selected feature.
7. Optionally, to filter the assets in the list to a specific area of interest, click the button in the upper left corner of the map to enable the layer selection mode.
8. To change the selection method, click the drop-down arrow and click the lasso tool.
9. Hold the left mouse button and dynamically draw around an area of features to be selected.

Notice that the metrics and the list along the left update based on the selected features. This selection-driven capability provides an additional level of focusing based on an area of interest.

Add premium content

Esri Demographics provides ArcGIS access to global demographics and business listings and is used for mapping and analysis. Esri Demographics data supports commercial market analytics and noncommercial usages, such as economic development, planning, and at-risk population assessment. The data is accessible as dynamic web maps, data enrichment, reports, and infographics.

Market Development is configured by default with a set of information-rich demographic layers that can be used to visually explore key market characteristics.

In this workflow, you will assume the role of a business analyst who is tasked with adding new demographic content to help enhance the ability to make decisions with new context.

1. In a browser, sign in to your ArcGIS organization and click the **Content** tab.
2. On the left side, under **Folders**, click **Market Development**.
3. Click **Market Explorer (map)** to open into the item description page, then click **Open in Map Viewer**.
4. Above the contents pane, click the **Add** button, then click **Browse Living Atlas Layers**.

[Back to top](#)

5. Under **Search for Layers** are a set of buttons to filter and sort layers by relevance. Click the filter button to show additional options.
6. Under the **Categories** group are a set of themes that can be selected to filter from over 4,500 layers of ArcGIS Living Atlas content. Select a theme to explore layers and select a layer to view more details.
7. Once a layer has been identified, click **Add to Map**.
8. Click the **Save** button along the upper middle of the map and click **Save**.
9. If necessary, repeat steps 1 through 8 for **Sales Performance (map)**.

Mosquito Service Requests

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Mosquito Service Requests

Mosquito Service Requests can be used to solicit reports of mosquito activity and locations of potential breeding sites from the general public.

Mosquitoes are a serious threat to public health, beyond nuisance swarms and annoying bites. During peak times, the risk for the spread of diseases such as encephalitis, yellow fever, dengue, Zika, and malaria drastically increase. 24/7 access to responsible agencies ensures mosquito activity is reported sooner and responsible agencies address problem areas faster. This accelerated approach improves the quality of life in a community and reduces risks associated with large infestations of mosquitoes. Mosquito Service Requests is typically implemented by public works and mosquito control agencies that want to take a data-driven approach to the control of mosquito populations.

The Mosquito Service Requests solution delivers a set of capabilities that help you solicit mosquito activity reports from the public, triage reports to staff and field crews for resolution and monitor the resolution of reports in a community.

Requirements

Mosquito Service Requests requires the following:

- ArcGIS Enterprise
- ArcGIS Field Maps

Information products

Mosquito Service Requests includes the following information products:

Item	Description	Minimum user type
Mosquito Control	An ArcGIS Hub site used by public works and mosquito control agencies to share how they are controlling mosquito populations and the spread of vector-borne disease	Not required
Mosquito Service Request	A Crowdsource Reporter app template used by the general public to submit mosquito activity reports in their community	Editor (required for public works or mosquito control personnel only)
Mosquito Service Request Manager	A Crowdsource Manager app used by public works and mosquito control personnel to triage submitted mosquito activity reports and update the status of each report as needed	Editor
Mosquito Service Request Dashboard	An ArcGIS Dashboards app used by public works and mosquito control personnel to monitor mosquito activity reports submitted by the general public	Viewer
Mosquito Field Operations	An ArcGIS Field Maps map used by public works and mosquito control personnel to address mosquito activity reports submitted by the general public	Mobile Worker

Release notes

The following are the release notes:

Version	Description
1.0	<ul style="list-style-type: none">First release of Mosquito Service Requests

[Back to top](#)

Configure Mosquito Service Requests

Learn how to configure the Mosquito Service Requests solution to meet specific needs in your organization.


Configure the Mosquito Control site

The Mosquito Service Requests solution includes an Mosquito Control ArcGIS Hub site. This site can be configured with your organization's branding and used to share important mosquito control information and abatement activities information with the public.

Update with organizational information

After deploying the Mosquito Service Requests solution, the Mosquito Control Hub site layout requires a few updates to fit your local context.

To update the site with your organizational information, complete the following steps:

1. Sign in to your ArcGIS organization and browse to the Mosquito Control site.
2. From the item page, click **Configure**.
3. Scroll to any additional sections that you want to update, hover over the card, and click the edit pencil  that appears in the horizontal toolbar, and then edit the content with information specific to your organization.
4. Click **Footer**.
A custom footer is already provided, and in most cases, it needs to be updated with your organization's branding, contact information, and social media references.
5. Click the **HTML** text box.
The **HTML** window appears.
6. Make the necessary changes and click **Apply**.
7. Click **Save**.
8. Click the **Save** drop-down arrow and click **Publish Draft**.

Share items with the public

Several layer views, maps and apps included in the Mosquito Service Requests solution must be shared with everyone so they can be accessed by the public on the Mosquito Control site.

To share items with the public, complete the following steps:

1. Verify that you are signed in to your ArcGIS organization and browse to the Mosquito Service Requests folder.
2. Next to each of the following items, check the check box:

Name	Item type
MosquitoObservations_public	Feature layer (hosted, view)
Mosquito Service Request	Web Map
Mosquito Service Request	Web Mapping Application
Mosquito Control	Site Application

3. Click **Share**.
4. In the **Share** window, click **Everyone (public)** and click **Save**.
The **Warning: Sharing editable layers publicly** message appears notifying you that you are sharing editable layers publicly.
5. Click **Update**.
6. At the top of the site, click **Groups**.
7. Open the Mosquito Service Request group page and click **Settings**.
8. Under **Who can view this group**, click **Everyone (public)**.

Use Mosquito Service Requests

The Mosquito Service Requests solution delivers a set of capabilities that help you solicit mosquito activity reports from the public, triage reports to staff and field crews for resolution and monitor the resolution of reports in a community.

In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

Note:

Use your organization's data or configured apps to follow these workflows.

Report mosquito activity

You will first assume the role of a member of the community seeking information about mosquito control services. You will use the Mosquito Control site to learn about mosquito abatement services in your community and how you can report mosquito activity and potential breeding sites. Reports you submit using the Mosquito Service Request app will be immediately available to the local Mosquito Control Agency.

1. In a browser, from the Mosquito Service Requests solution, view the Mosquito Control site.
2. Scroll to the **Report a Problem** section, and then click **Submit a Request** to open the Mosquito Service Request app.

Tip:

You can jump directly to the **Report a Problem** section by clicking the **Outreach** button in the **What are we doing to help** section.


3. On the Mosquito Service Request splash page, click **Proceed as Guest**.
4. At the lower right, in the **Mosquito Reports** panel, click **Submit a Report**.
5. For **Type of Problem**, click the drop-down arrow and choose the problem type.
6. Complete the form with as much information as possible.
7. At the bottom of the form, for **Location**, type the address to set the report location; alternatively, click the location on the map.
8. Click **Report It** to submit the report.
9. At the top of the **Mosquito Reports** form, click the **Back** button.
10. At the top of the **Mosquito Reports** panel, click your problem report submission.

Your problem report appears. You will be able to monitor changes to the report here as the report moves through its life cycle (Submitted, Received, In Progress, and Completed).

[Back to top](#)

Respond to mosquito reports

Next, you will assume the role of an operations manager responsible for handling submitted mosquito activity reports. You will use the Mosquito Service Request Manager app to triage submitted reports and assign reports to the field inspectors responsible for resolution.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Mosquito Service Requests solution.
2. View the Mosquito Service Request Manager app.
All submitted reports are listed in the table at the top. The table can be sorted and filtered in various ways.
3. In the table, use the column header filters and arrows to filter results.
4. In the table, select a report with a status of **Submitted**.
The report details open at the lower left.
5. In the report details, click the **Edit Record** button .
6. Change the status to **Received**, and then click **Save**.
Field inspectors are ready to address the problem. You'll change the status to **In Progress** and assign the report to the specific mosquito abatement district.
7. Click the **Edit Record** button again.
8. Change the status to **In Progress**.
9. Click the **Assigned To** drop-down arrow and choose the appropriate district.
10. Click **Save**.

Update reports from the field

Now, you will assume the role of a field inspector responsible for addressing mosquito activity reports submitted by the public.

In addition to verifying and updating the status of public reports, field inspectors can also record the type of mosquitoes found on site, recommend treatments, and record any adulticide or larvicide treatments applied while on site. Status updates that are provided in the Mosquito Field Operations app will be immediately viewable to the public in the Mosquito Service Request app, and detailed information will be immediately available to operations managers in the Mosquito Service Request Dashboard app.

1. Download ArcGIS Field Maps onto your mobile device.
2. Open ArcGIS Field Maps and sign in to your ArcGIS organization.
3. Tap **Mosquito Field Operations** to open the map.
4. On the map, locate a reported problem, and then tap it to see details and additional options.
5. At the lower left, tap **Edit**.

[Back to top](#)

6. Swipe up on the form and tap **Status**, and then tap **Completed**.
7. Complete the rest of the form with information from your field inspection, such as information related to the people contacted at the location; the date; observations about the mosquitoes or larvae found on site; and what type of treatments, if any, were used.
8. If applicable, tap **Take Photo** to take and attach a photo to document any standing water or water-retaining receptacles found during the inspection.
9. When you're finished, at the top right, tap the check mark or **Submit**.

Note:

Your interface may vary depending on the type of mobile device that you use.

Monitor activity reports

Finally, you will assume the role of an operations manager responsible for overseeing mosquito abatement activity and reports submitted by the public. You will use the Mosquito Service Request Dashboard app to monitor incoming reports submitted by the public. Relevant metrics can be viewed at a glance or examined in more detail if time permits.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Mosquito Service Requests solution.
2. View the Mosquito Service Request Dashboard app.
3. Review the metrics.
4. On the left, use the filters to refine the results by request type, status, or date.
When you filter results, the bar charts and number of reports in the **Mosquito Reports** panel update.
5. On the right, in the **Mosquito Reports** panel, click a report to view the location.
6. Click the point on the map to get detailed report information.

Mosquito Surveillance

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Mosquito Surveillance

Mosquito Surveillance can be used to monitor mosquito populations and track the location of positive vector-borne disease test results.

Routine monitoring of larval and adult mosquito populations is critical to a successful mosquito control program. When data is tracked and compared over time, agencies can use this knowledge to predict recurring problem areas, times of year, and the potential for increased risk of vector-borne diseases. When vector-borne disease cases do arise, health and human services agencies must communicate information in a timely and effective manner with the public and mosquito control agencies. Mosquito control agencies can then use this information to plan adulticide spray operations that prevent the spread of vector-borne diseases. Mosquito Surveillance is typically implemented by public works, health and human services, and mosquito control agencies that want to use data to proactively plan spray areas and reduce the risk of vector-borne diseases.

The Mosquito Surveillance solution delivers a set of capabilities that help you record mosquito counts by species at surveillance sites; visualize trends over time; track where mosquitoes, chickens, birds, or humans have tested positive for vector-borne diseases; and share this information with internal and external stakeholders.

Requirements

Mosquito Surveillance requires the following:

- ArcGIS Enterprise

Information products

Mosquito Surveillance includes the following information products:

Item	Description	Minimum user type
Mosquito Health Concerns	An ArcGIS Web AppBuilder app used by mosquito control and public health staff to track locations where mosquitoes, chickens, birds, or humans have tested positive for a vector-borne disease	Editor
Mosquito Health Concerns Summary	An ArcGIS Web AppBuilder app used by mosquito control and public health staff to communicate positive vector-borne disease test results to the general public	Not required
Mosquito Population Surveillance	A Crowdsourcing app used by biologists and field inspectors to record mosquito counts by species at surveillance sites	Editor
Mosquito Population Surveillance Charts	An ArcGIS Web AppBuilder app used by mosquito control agencies to visualize population changes over time through informative charts	Viewer (required for internal stakeholders)

Release notes

The following are the release notes:

Version	Description
1.0	<ul style="list-style-type: none">• First release of Mosquito Surveillance

Use Mosquito Surveillance

The Mosquito Surveillance solution delivers a set of capabilities that help you record mosquito counts by species at surveillance sites; visualize trends over time; track where mosquitoes, chickens, birds, or humans have tested positive for vector-borne diseases; and share this information with internal and external stakeholders.

In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

Note:

Use your organization's data or configured apps to follow these workflows.

Monitor mosquito populations

You will first assume the role of a biologist with the mosquito control agency responsible for processing the samples collected at the trap sites across the community. You will use the samples to identify the species of mosquitoes and the size of the population and record the counts for each surveillance site.

You can then visualize trends and share current and historical mosquito population data with internal stakeholders. This information can also be used to educate the public about the types of mosquitoes prevalent in the area, the diseases they can carry, when they are most active, and how to best protect themselves from the spread of vector-borne diseases.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Mosquito Surveillance solution.
2. View the Mosquito Population Surveillance app.
3. From the list or the map, select one of the surveillance sites.

You see the details on the site and a history of counts by species recorded in past observations.

4. Click the **Add a comment** button.
5. Fill in the counts for each species found at the surveillance site.
6. Click **Submit**.
7. Repeat these steps for each surveillance site.

You can now visualize the trends of the various species of mosquitoes at each surveillance site over time.

8. From your ArcGIS organization, view the Mosquito Population Surveillance Charts app.
9. In the **Population Charts** widget, search for a location; alternatively, click a point on the map.
10. In the widget, click a mosquito species to see the population trend for the surveillance site.

[Back to top](#)

Track vector-borne diseases

You will continue your role as a biologist with the mosquito control agency. You typically send a small sampling of mosquitoes collected at each surveillance site to the lab to be tested for vector-borne disease. Dead birds are often reported or found in the community and sent for testing as well. Health departments may share with mosquito control agencies the general locations (so that personal health information is protected) where a vector-borne disease has been transmitted to a human.

You will track where mosquitoes, chickens, birds, or humans have tested positive for vector-borne diseases. This information can be used to plan adulticide spray operations that prevent the spread of a disease. It can also be used to educate the public about the types of vector-borne diseases found in the community and how they can help prevent the spread of disease.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Mosquito Surveillance solution.
2. View the Mosquito Health Concerns app.
3. In the **Edit** widget, click a template.
4. Click the map to place the location at which the disease was found.
5. Complete the **Public Health Reports** form with the details of the agent carrying the disease, when it was reported, and any additional comments.
6. Click **Save**.
7. At the top of the **Edit** widget, click the **All** drop-down arrow and choose **Public Health Concerns**.

The **Public Health Concerns** template can be used to generalize the location of positive tests in a human to avoid revealing personal health information.

8. Click the **Public Health Concerns** template.
9. On the map, draw the boundary of the generalized location of the positive human case.
10. Complete the **Public Health Concerns** form with the details of the type of disease, when it was reported, and any additional comments.
11. Click **Save**.

You can now visualize locations and counts of vector-borne cases across the community.

12. From your ArcGIS organization, view the Mosquito Health Concerns Summary app.
13. In the **Health Concerns** widget, expand **Mosquito and Bird Cases** and **Human Cases** to view the counts by each disease.
14. Pan and zoom around the map to see how the counts change for different areas in the community and find areas of concentration.

Mosquito Treatments

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Mosquito Treatments

Mosquito Treatments can be used to manage adulticiding and larviciding activities and share treatment plans with the general public.

Protecting public health is at the center of all mosquito control programs, and effective treatment strategies are critical to controlling mosquito populations. Public works and mosquito control agencies use adulticides to kill adult mosquitoes and larvicides to target mosquito larvae in breeding habitats. When adulticides are applied to control mosquito populations, agencies must proactively share this information with the public and give residents an opportunity to request an exclusion or be notified prior to treatment. This ensures that individuals who have concerns about chemical treatments can avoid having their home sprayed or seek temporary shelter when spraying does occur. Mosquito Treatments is typically implemented by public works and mosquito control agencies that want to increase transparency, grow public trust, and improve relationships with the communities they serve.

The Mosquito Treatments solution delivers a set of capabilities that help you plan adulticide spraying operations, solicit requests for spray notifications and exclusions, maintain spray exclusion areas, record larvicide treatments in the field, and share spray areas with internal and external stakeholders.

Requirements

Mosquito Treatments requires the following:

- ArcGIS Enterprise
- ArcGIS Field Maps
- ArcGIS Survey123 Connect

[Back to top](#)

Information products

Mosquito Treatments includes the following information products:

Item	Description	Minimum user type
Mosquito Larvicide Reporting	An ArcGIS Field Maps map used by public works and mosquito control personnel to test larvicide sites and record any treatments applied at those sites	Mobile Worker
Mosquito Adulticide Planning	An ArcGIS Web AppBuilder app used by public works and mosquito control personnel to plan adulticide spraying operations and maintain spray exclusion areas	Editor
Mosquito Spray Areas	An ArcGIS Web AppBuilder app used by the general public to locate recent and planned adulticide spraying areas near their home or business	Not required
Mosquito Spray Notifications	An ArcGIS Survey123 form used by the general public to request a notification of adulticiding or larviciding near their home or business	Not required
Mosquito Spray Exclusions	An ArcGIS Survey123 form used by the general public to request an exclusion from adulticiding or larviciding near their home or business	Not required
Mosquito Spray Exclusions Manager	A Crowdsourcing Manager app used by public works and mosquito control personnel to manage adulticide and larvicide exclusion requests from the general public	Editor

Release notes

The following are the release notes:

Version	Description
1.0	<ul style="list-style-type: none">• First release of Mosquito Treatments

Use Mosquito Treatments

The Mosquito Treatments solution delivers a set of capabilities that help you plan adulticide spraying operations, solicit requests for spray notifications and exclusions, maintain spray exclusion areas, record larvicide treatments in the field, and share spray areas with internal and external stakeholders.

In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

Note:

Use your organization's data or configured apps to follow these workflows.

Plan spray operations

First, you will assume the role of a mosquito control agency staff member responsible for managing adulticide operations. You will use the Mosquito Adulticide Planning app to plan adulticide spray operations, update the status of spray areas to indicate whether treatments were completed, and maintain exclusion areas in the community.

Updates to adulticide treatment areas will be immediately available to the public and viewable in the Mosquito Spray Areas app.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Mosquito Treatments solution.
2. View the Mosquito Adulticide Planning app.
The **Edit** widget enables you to create new and update existing adulticide treatment or treatment exemption areas.
3. To create an adulticide treatment area, click the **Adulticide Treatment Areas** template.
4. Click the map to draw the adulticide treatment area and double-click to finish drawing the polygon.
After you finish drawing the area, the **Planned Adulticide Areas** form opens in the **Edit** widget.
5. Complete the form with as much information as possible, and then click **Save**.
Existing adulticide treatment areas and treatment exemption areas can also be edited and deleted.
6. On the map, select an existing planned adulticide area.
The area's **Planned Adulticide Areas** form opens in the **Edit** widget. Here, you can correct errors, update information, or modify the area's geometry.
7. Make necessary updates to the form:
 - a. Correct errors directly in the form.
 - b. To edit the area's geometry, check the **Edit Geometry** check box, and then modify the area's vertices.

[Back to top](#)

- c. After the spray occurs, add the **Actual Spray Date** parameter.
- d. Alternatively, to delete the area, click the **Delete** button.

Updating the planned adulticide area with an actual spray date changes the symbology to show the area as an actual adulticide area.

8. Click **Save**.

You can also choose which layers are visible on the map.

9. On the right, at the top of the panel, click the **Layer List** button to open the widget.
10. To view the layer of recently treated areas, check the **Actual Adulticide Area** check box.

Locate mosquito spray areas

Now, you will assume the role of a resident in the community who is interested in learning about mosquito spraying near your home or business. You will use the Mosquito Spray Areas app to locate recent and planned adulticide spraying areas near your home.

1. In a browser, from the Mosquito Treatments solution, view the Mosquito Spray Areas app.
2. In the **Find Spray Areas** widget, search for an address; alternatively, click the location on the map.
3. In the widget, review the **Recent Spray Area** details.

The app provides details on when the spray occurred or is planned to occur, along with the method and any comments from the agency.

Request spray notifications

After reviewing recent and planned adulticide spraying in the community, you have determined that you want to be notified of future spraying. You will use the Mosquito Spray Notifications app to submit your contact information to the mosquito control agency so you can be notified of future operations.

1. In a browser, from the Mosquito Treatments solution, view the Mosquito Spray Notifications app.
2. Complete the **Mosquito Spray Notifications** form with as much information as possible.
Required fields are marked with a red asterisk. The **Request Date** field is automatically populated with the current date.
3. Click **Submit**.

Request a spray exclusion

You will now assume the role of a resident in the community with strong allergies to pesticides. You want to have your home excluded from adulticide spraying. You will use the Mosquito Spray Exclusion app to submit your exclusion request to the mosquito control

agency. The agency will review your request and may follow up for more information, and if approved, it will include your exclusion into its adulticide operation planning for future spraying.

1. In a browser, from the Mosquito Treatments solution, view the Mosquito Spray Exclusion app.
2. Complete the **Application for Pesticide Exclusion** form with as much information as possible.

Required fields are marked with a red asterisk. The **Request Date** field is automatically populated with the current date.

3. Sign the form and click **Submit** to complete the exclusion request.

Manage exclusion requests

As an operations manager, you will use the Mosquito Spray Exclusions Manager to manage adulticide and larvicide exclusion requests from the public. Approved exclusion requests will be immediately available to biologists and other staff planning adulticide operations.


1. In a browser, sign in to your ArcGIS organization, and then browse to the Mosquito Treatments solution.
2. View the Mosquito Spray Exclusions Manager app.

All exclusion requests are listed at the top of the table. The table can be sorted and filtered in various ways.

A **Submitted** status indicates requests that have not yet been reviewed by staff.

3. In the table, in the **Status** column, click the filter, and then for **Status is**, choose **Submitted**.
4. Click an exclusion request.

The request details open at the lower left. After a request has been received, staff members review it for completeness, including forms, signatures, and justification.

5. On the **Application Info** tab, click the **Edit** button , and then for **Status**, choose **Staff Review**.
6. Click an exclusion request to open its details.
7. Click **Edit**, and then for **Status**, choose **Approved**.
8. Click **Save**.

Approving the exclusion request removes the request from the Mosquito Spray Exclusions Manager app and promotes it to the Mosquito Adulticide Planning app, where you can use it to plan mosquito spray areas and known exemption areas.

Control juvenile mosquitoes

As a field biologist for a mosquito control agency, you are responsible for inventorying larvicide sites, recording inspection results at each site, and documenting larvicides applied. Using the Mosquito Larvicide Reporting map, you will also be able to add new inspection sites as well as update the status of each site.

Add a new inspection site

On occasion, new inspection sites will be added. You will use the Mosquito Larvicide Reporting map to make these changes.

1. Download ArcGIS Field Maps onto your mobile device.
2. Open ArcGIS Field Maps and sign in to your ArcGIS organization.
3. Tap the **Mosquito Larvicide Reporting** map to open it.
4. Tap **Add** to add a new inspection site.
By default, ArcGIS Field Maps uses your current location.
5. Pan or zoom to the site location, and then tap **Add Point**.
6. Swipe up on the form, if necessary, and then for **Location**, type a location name or description.
7. Tap **Status** and choose **Active**.
8. When you're finished, at the top right, tap the check mark or **Submit**.

Note:

Your interface may vary depending on the type of mobile device that you use.

Complete a site inspection

After an inspection at each site is complete, a history of larviciding in a community can be reported.

1. On the **Mosquito Larvicide Reporting** map, tap an existing larvicide site.
2. In the form, under **Related**, tap **Larvicide Inspections**.
3. Tap **Add** to begin documenting your larvicide inspection results.
4. Swipe up, if necessary, and then complete the inspection form.
5. When you're finished, at the top right, tap the check mark or **Submit**.

Note:

Your interface may vary depending on the type of mobile device that you use.

Retire an inspection site

On occasion, inspection sites will need to be retired. You will use the Mosquito Larvicide Reporting map to make these changes.

1. On the **Mosquito Larvicide Reporting** map, tap the existing larvicide site that you want to retire.
2. Tap **Edit**.
3. Tap **Status** and choose **Retired**.
4. When you're finished, at the top right, tap the check mark or **Submit**.

Note:

Your interface may vary depending on the type of mobile device that you use.

Only active status larvicide inspection sites are visible on the map. The recently retired inspection site is no longer displayed on the Mosquito Larvicide Reporting map.

Neighborhood Services

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to My Neighborhood Services

My Neighborhood Services can be used to share information about available facilities and services in a community.

It provides 24/7 access to amenities and services to residents, businesses and visitors to help them determine if they would like to live, work, or locate a business in the community. This approach allows government agencies to communicate available facilities and services timely and flexible manner and improves overall quality of life. My Neighborhood Services is typically implemented by economic development departments, planning departments, chambers of commerce, and other local government agencies that want to promote government services to the public.

The My Neighborhood Services solution delivers a set of capabilities that help you promote government facilities and services to the public.

Requirements

My Neighborhood Services requires the following:

- ArcGIS Enterprise

Information products

My Neighborhood Services includes the following information products:

Item	Description	Minimum user type
My Neighborhood Services	An ArcGIS Web AppBuilder app used by the general public to locate government facilities and available services that increase the quality of life in a community	Not required

[Back to top](#)

Release notes

The following are the release notes:

Version	Description
1.0	<ul style="list-style-type: none">• First release of My Neighborhood Services

Configure My Neighborhood Services

In this topic, you will learn how to configure the My Neighborhood Services solution to meet specific needs in your organization.

Load data

My Neighborhood Services can be used to share information about available facilities and services in a community. In some cases, you may have this information in ArcGIS or another business system already.

Review the layers provided with the solution and determine what source data you would like to load. Then, load your existing data into the layers provided with the ArcGIS Solution before sharing the maps or applications.

Once you have determined what source data must be loaded, complete the data-loading workflows below.

Load data from a shapefile

Data for EmergencyResponseFacilities, GovernmentFacilities, LandmarkFacilities, MailShippingFacilities, MedicalFacilities, ParkRecreationFacilities, and TransportationFacilities can be loaded from a shapefile by following the steps below:

1. Create a .zip file of your shapefile.
2. In your ArcGIS organization, browse to the feature layer you want to populate.
3. On the feature layer item details page, click **Update Data** and select **Append Data to Layer**.
4. Under **Filename**, click **Choose File**.
5. Browse to your .zip file and click **Open**.
6. Under **Contents**, select **Shapefile**.
7. Click **Upload and Continue**.
8. Choose the layer into which you want to load data and the layer that contains the updated data.
9. Uncheck **Update existing features**.
10. Click **Show field matching** and map the fields between the two layers.
11. Click **Apply Updates**.

Tip:

To make additional updates to a hosted feature layer, see [Append data to layers](#).

Configure directions

Follow the steps below to connect to a routing service and configure the widget to enable directions in the app.

Configure widget

To configure an app to use routes and provide directions, complete the following steps:

1. Sign in to your ArcGIS organization and browse to the ArcGIS Web AppBuilder app.
2. Open the item page and click **Edit Application**.
3. Click the **Widget** tab and click **Set the widget in this controller** to open the page for an in-panel widget.
4. Hover over the **Near Me** widget and click the **Configure this widget** button to open the widget configuration window.
5. Check the **Enable Directions** check box if it is not checked.
6. Click the **Direction Settings** tab, click **Set**, and choose a routing service.
7. Click **Next** and choose one or more route layers, click **OK**, and click **OK** again.
8. Save the app and share it with everyone.
9. Open the app.

Esri premium content

The app draws routes and provides directions using the ArcGIS Online World Route Service. This service requires subscriber access because it consumes credits. See [Configure Living Atlas content](#) to enable access to premium content.

[Learn more about credit usage when creating simple routes](#)

Use My Neighborhood Services

The My Neighborhood Services solution delivers a set of capabilities that help you promote government facilities and services to the public.

In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

Note:

Use your organization's data or configured apps to follow these workflows.

Find services

My Neighborhood Services is an application for the public to find services near them. Members of the public can search for an address or click the corresponding map to find information about services near them.

In this workflow, you are a member of the public and want to learn what services are in your area.

1. In a browser, from the My Neighborhood Services solution, view the My Neighborhood Services app.
2. In the **Locate Services** widget, search for an address; alternatively, click a location directly on the map.

In the widget, an expandable list of available services near your defined location appears.

3. Optionally, adjust the slider to increase or decrease the search area.
4. In the widget, click a service.
The map zooms to and highlights the service's location, and details about the service appear in the widget.
5. Review the information provided.
6. In the widget, click the **Directions** tab to view driving directions from your defined location.

My Trash Services

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to My Trash Services

My Trash Services can be used to share waste pickup schedules and recycling information with the general public.

It provides 24/7 access to an organization, and the location-enabled search helps residents quickly find waste pickup schedules and recycling centers and learn what materials are accepted. This transparent approach improves communication with the public and addresses one of the most frequently asked questions in a community. My Trash Services is typically implemented by public works agencies and other local government organizations that want to educate the public and promote waste and recycling services available in their community.

The My Trash Services solution delivers a set of capabilities that help you share typical waste pickup schedules with the public, highlight schedule changes, and promote nearby recycling centers and the materials accepted.

Requirements

My Trash Services requires the following:

- ArcGIS Enterprise
- ArcGIS Hub Premium (optional)
- ArcGIS Survey123 Connect

Information products

My Trash Services includes the following information products:

Item	Description	Minimum user type
Curbside Service Areas	A Zone Lookup app used by the general public to learn what curbside services are available	Not Required
Self Service Facilities	A Nearby app used by the general public to find self service facilities	Not Required
Trash Service Data Management	An ArcGIS Pro project used by mapping technicians to maintain curbside services areas and trash service information	GIS Professional Basic
Trash Request Manager	A Crowdsourcing Manager app used by operations managers to manage trash service requests	Editor
Trash Requests	An ArcGIS Survey123 form used by the general public to request trash services	Not Required

Release notes

The following are the release notes:

Version	Description
2.0	<ul style="list-style-type: none">• A new ArcGIS Hub site used by the general public to learn about and request trash services.• A new Zone Lookup app used by the general public to learn what curbside services are available.• A new Nearby app used by the general public to find self service facilities.• A new ArcGIS Pro project used by mapping technicians to maintain curbside services areas and trash service information.• A new ArcGIS Survey123 form used by the general public to request trash services.• A new Crowdsourcing Manager app used by operations managers to manage trash service requests.
1.0	<ul style="list-style-type: none">• First release of My Trash Services

[Back to top](#)

Configure My Trash Services

My Trash Services can be used to inventory curbside services and collection facilities, communicate holiday closures, and provide the public with a way to request additional services.

In this topic, you'll learn how to configure the My Trash Services solution to meet specific needs in your organization.

Load data

The Trash Service Data Management ArcGIS Pro project includes a series of tasks that can be used to load your existing trash service data, and manage key characteristics, in the layers provided with the solution.

1. Sign in to your ArcGIS organization and browse to the Trash Service Data Management Desktop Application Template.
2. From the item page, click **Download**.
3. Unzip and open the Trash Service Data Management project.
4. On the **View** tab, in the **Window** group, click **Catalog Pane**.
5. In the **Catalog** pane, expand the **Tasks** folder, and double-click the **Trash Data Management** task.
6. In the **Tasks** pane, click the **Getting Started** task group to expand the collection of tasks.

Trash Service Data Management is used to load and create foundational data used in the My Trash Services solution such as Curbside Service Areas and Self Service Facilities apps. The solution uses three foundational datasets:

10. Self Service Facilities
11. Curbside Service Areas
12. Pickup Events Areas

Self Service Facilities contains locations of facilities where the public can bring trash, recycling, or other waste.

Curbside Service Areas contains geographies that define service areas for routine pickups.

Pickup Events Areas contains geographies that define areas for seasonal or one time pickups.

Before proceeding to subsequent tasks, follow the instructions in the **Add trash service geography layer** task to add the Trash Services feature layer deployed with the solution.

Load existing trash services data

You may have existing service areas, facilities, and pickup events areas, which can be loaded into the Trash Services feature layer.

Self Service Facilities use a standard for operational days and hours in the Self Service Facilities app included with the My Trash Services solution. To load existing facility data, designate the type, format the operational days and hours, and edit attributes follow the instructions in the **Self Service Facilities** task.

The Curbside Services Areas use a standard for scheduled pick ups in the Curbside Service Areas app included with the My Trash Services solution. To load existing curbside service area data, designate the pickup type, format the pickup days and edit attributes, follow the instructions in the **Curbside Service Areas** task.

The Pickup Events are used in the Curbside Service Areas app included with the My Trash Services solution. To load existing pickup event data and provide information regarding the event, follow the instructions in the **Pickup Events** task.

Create new trash services data


You may need to create new trash services data if existing data is not available. Follow the instructions in the **Create new trash services data** task group to create new facilities, curbside service areas, or pick up events.

Note:

Map layers must be visible to create new data.

Configure My Trash Services site

The My Trash Services solution includes the My Trash Services ArcGIS Hub site that your organization can configure with your branding and use to share trash service information with the public.

1. Verify that you are signed in to your ArcGIS organization and browse to the My Trash Services site.
2. From the item page, click **Configure**.
3. If necessary, click the **Edit** button  to open the site editor.
4. Scroll to the **Frequently Asked Questions** section, hover over the card, click the edit pencil, and update the questions and answers.
5. In the side panel, click **Footer**.
A custom footer is provided. In most cases, you will need to update it with your organization's branding, contact information, and social media references.
6. Click the **HTML** box.
The **HTML** window appears.
7. Make the necessary changes and click **Apply**.

[Back to top](#)

Share items with public

Several layer views, maps and apps included in the My Trash Services solution must be shared with everyone so they can be accessed by the public on the My Trash Services site. To share your trash services locator items with everyone, use the guide below and complete the following steps:

1. Verify that you are signed in to your ArcGIS organization and browse to the My Trash Services folder.
2. Check the check box next to each of the items below:

Item	Name
Feature Layer (hosted, view)	TrashServices_public
Feature Layer (hosted, view)	Requests_submit
Web Map	Self Service Facilities
Web Map	Curbside Service Areas
Web Mapping Application	Self Service Facilities
Web Mapping Application	Curbside Service Areas
Form	Trash Requests
Site Application	My Trash Services

3. Click **Share**.
4. In the **Share** window, click **Everyone (public)** and click **Save**.

The **Warning: Sharing editable layers publicly** message appears notifying you that you are sharing editable layers publicly.

5. Click **Update**.

Modify service request types

The Trash Requests solution can be used to solicit requests for trash service from the general public. Service request types appear in the Trash Requests ArcGIS Survey123 form.

The My Trash Services solution includes several service request types. In some cases, you may want to modify service request types to meet your organization's needs. For example, you may want different request types available that are not included in the Trash Requests form.

1. Start ArcGIS Survey123 Connect and sign in to your ArcGIS organization.
2. Click **Trash Request** to download the survey.
3. In the **Download** window, click **Download** and click **OK**.
4. Click Trash Requests to open the survey.
5. On the left, from the side toolbar, click the **XLSForm** button.
6. At the bottom of the Microsoft Excel spreadsheet, click the **choices** tab.

[Back to top](#)

This tab comprises all the selectable options for survey questions.

7. In the **list_name** column type reqtype.
8. Type the new service request type into the **name** and **label** columns.
9. Repeat steps 7 and 8 for each new service request type.
10. Save and close the Microsoft Excel spreadsheet and preview your changes in ArcGIS Survey123 Connect.
11. In ArcGIS Survey123 Connect, in the left toolbar, click **Publish** to publish your changes.
12. Click **Publish survey** to publish your changes, and then click **OK**.

Configure directions

Note:

This workflow is optional and doesn't need to be completed in order to work with the solution

The Self Service Facilities app can be used by the general public to locate facilities where they can bring trash, recycling, or other waste. Directions to the nearest facility can be enabled so users can quickly find the facility they are looking for.

Follow the steps below to enable directions.

1. Verify that you are signed in to your ArcGIS organization and browse to the Self Service Facilities app.
2. From the item page, click **Configure App**.
Close the **Welcome to the App Setup Page** splash page, if necessary.
3. Click **Nearby > Options** and turn on the **Show directions** toggle button.
4. Check the check box next to the **Self Service Facilities** layer.
5. Click **Publish**.
6. Click **Confirm**.
The **Authorize premium content** window appears with information related to authorization.
7. Click **Authorize**.
8. Click **Launch**.

Populate operational hours

[Back to top](#)

Note:

This workflow is optional and doesn't need to be completed in order to work with the solution.

This solution leverages the [Opening Hours Specification](#) to display operating hours for a place or service. When you populate the data fully, Arcade expressions interpret the data and display the operating hours in a human-readable format in the map pop-up. Understanding the data specification and options in the expressions will help you populate your data and display it in the maps and apps provided with the ArcGIS Solution.

Operating Hours specification

The Operating Hours Specification allows you to store a combination of operating hours in a single field but relies on a series of data standards to render the information correctly. To ensure operating hours are displayed correctly, follow the standards below:

- Enter all times using a 24-hour clock without a leading 0—for example, Tu (7:00-19:00).
- Use a two-letter abbreviation for each day, with the first letter capitalized—for example, Mo, Tu, We, Th, Fr, Sa, Su.
- When a location is open 24 hours a day, use 24 Hours—for example, Mo (24 Hours).
- When a location is closed on a specific day, use Closed—for example, Sa-Sun (Closed).
- Enclose all times and closed statuses in parentheses—for example, Tu (7:00-19:00); We-Mo (Closed).
- Separate days and ranges with a semicolon to denote the two (or more) groups—for example, Th-Fr (7:00-19:00); Sa (24 Hours).

Using the standards above, a diverse set of operating hours can be populated for your places and services. Some common examples include the following:

- To specify the place is open from 9:00 a.m. to 5:00 p.m. seven days a week, populate the operating hours field with the following: Mo-Su (9:00-17:00).
- To specify the place is open from 9:00 a.m. to 5:00 p.m. during the week and closed on weekends, populate the operating hours field with the following: Mo-Fr (9:00-17:00); Sa-Su (Closed).
- To specify the place is open one day (Tuesday) a week, populate the operating hours field with the following: Tu (7:00-19:00); We-Mo (Closed).
- To specify the place has operating hours that vary by day, populate the operating hours field with the following: Mo-Tu (9:00-17:00); We (Closed); Th-Fr (7:00-19:00); Sa (24 Hours); Su (Closed).

Operating hours data can be populated all at once for many places and services using [Calculate field values](#) or uniquely entered for each place or service using an application provided with the solution.

[Back to top](#)

Populate calendar

This solution leverages Arcade to populate and display a calendar showing when the next curbside services will occur. When you populate the data fully, the Arcade expression interprets the data and displays the curbside services on a calendar.

Note:

This workflow is optional and doesn't need to be completed in order to work with the solution.

Pickup schedule

Pickup schedules are stored as unique schedules for areas in your community. The information below outlines how the information should be structured:

- Use the Schedule field to indicate how often curbside pickups will occur.
- Use the Pick Up Day field to indicate which day of the week curbside pickups will occur.
- Use the Pick Up Week field to indicate which week a monthly pickup will occur.

Pickup Schedules can be populated all at once for many areas using [Calculate field values](#) or uniquely entered for each place or service using an application provided with the solution.

Arcade expressions

The Arcade expression includes several settings that allow you to configure the look and feel of what is displayed in the web map pop-up. The expression works with the pickup data and web map pop-up configurations to display calendar information in your map and app.

This solution includes Arcade expressions. To modify one of these expressions, complete the following steps:

1. Verify that you are signed in to your ArcGIS organization and browse to the Curbside Service Areas map.
2. Open the item page and click **Open in Map Viewer**.
3. Click **More** and click **Configure Pop-ups** on the Trash layer.
4. Click **Manage**, double-click the Arcade expression you want to modify.

Each Arcade expression has a set of variables that can be configured according to your organization's needs. Review the expression notes and modify the variables as needed. Do not change anything else in the expressions.

5. Click **OK**.

Use My Trash Services

The My Trash Services solution delivers a set of capabilities that help you share typical waste pickup schedules with the public, highlight schedule changes, and promote nearby recycling centers and the materials accepted.

In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

Discover trash service information

Trash services have a huge impact on everyday life but often run behind the scenes in a community. To provide cleaner and healthier communities, mapping technologies can help inform the public about curbside services, self service facilities, and provide a way for non emergency requests to be made.

In these workflows, you will assume the role of a resident, or member of the public, who wants to understand what curbside services are available and where to bring trash, recyclables, or other waste. Finally, you will request a large item pick up at your residence by notifying the city of your need.

View curbside pickup schedule

1. In a browser, go the My Trash Services site.
2. Scroll down to the **When is My Trash Pick up?** section and review the Curbside Service Areas app.

Use the Curbside Service Areas app to learn about curbside services offered for your address.

3. Type an address in the search text box and press the Enter key, or click the suggested address.
4. Review the list of services offered for the entered address.

You can see the schedule for Trash, Recycle, and Yard Waste pick up and get information regarding special pick up events.

Find self service facilities

1. In a browser, go the My Trash Services site.
2. Scroll to the **Where Can I bring Trash or Recycling** section and launch the Self Service Facilities app.
3. Type an address in the search text box and press the enter key, or click **Search this area**.
4. Click **Filter** and check the **Electronics** check box to filter the map.
5. Click **Close**.

[Back to top](#)

6. In the search results, click the first search result.
The map pans to the corresponding facility.


Request trash service

1. In a browser, go the My Trash Services site.
2. Scroll down to the **Request Service** section and click the **Submit Request** button to launch the Trash Requests form.
3. Click the **Select Request Type** drop-down and choose **Large Item Pickup**.
4. Click the map to set the location of the service request, use the device's location, or type an address in the map search box.
5. Use the form to provide optional information such as additional details, photos, and contact information.
6. To complete your service request, click **Submit**.

Triage service requests

Staff can use the Trash Request Manager app to triage trash service requests from the community. This allows staff to monitor and address small issues before they become too big, costly, or unsafe for your community.

You will assume the role of an operations manager responsible for providing status updates on service requests. You will use the Trash Request Manager app to triage submitted reports and update the status of reports as they move through the queue.

1. Sign in to your ArcGIS organization and browse to the Trash Request Manager form.
2. From the item page, click **View**.
3. Click the **Request Type** drop-down arrow and choose **Large Item Pickup**.
4. In the **Trash Requests** table, identify and click the service request you reported.
5. Review the details of the service request in the lower left corner of the app.
6. In the app, click the **Edit record** button .
7. Click the **Status** drop-down arrow and change the status to **Received**

As new service requests are submitted by the community, update the status to Received to acknowledge receipt of the new request. Continue to update the status of the request as you further investigate, prepare to address, and complete or cancel the service request.

8. Click **Save**.

Neighborhood Early Warning

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Neighborhood Early Warning

Neighborhood Early Warning can be used to identify neighborhoods trending in a positive or negative direction and ultimately measure the fragility of neighborhoods over time.

It leverages authoritative data and key indicators (for example, blight violations, demolitions, crime, utility shutoffs, sales, rental units) to identify tipping neighborhoods. The resulting maps are a foundation for public education and awareness campaigns, operational improvements, and community-based policy discussions. Neighborhood Early Warning is typically implemented by planning departments, building officials, health and human services agencies, blight task forces, and other local government agencies that monitor neighborhood change over time, investing in stabilization programs and need to evaluate whether their investments are effective.

The Neighborhood Early Warning solution delivers a set of capabilities that help you create a neighborhood change index, measure the fragility of neighborhoods over time and share the results with key stakeholders.

Requirements

Neighborhood Early Warning requires the following:

- ArcGIS Enterprise
- ArcGIS Pro 2.6 -2.9 (Basic, Standard, or Advanced)

Information products

Neighborhood Early Warning includes the following information products:

Item	Description	Minimum user type
Neighborhood Early Warning	An ArcGIS Pro project used by data analysts to identify neighborhoods trending in a positive or negative direction and ultimately measure the fragility of neighborhoods over time	GIS Professional Basic

[Back to top](#)

Release notes

The following are the release notes:

Version	Description
1.0	<ul style="list-style-type: none">• First release of Neighborhood Early Warning

Use Neighborhood Early Warning

The Neighborhood Early Warning solution delivers a set of capabilities that help you create a neighborhood change index, measure the fragility of neighborhoods over time and share the results with key stakeholders.

In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

Identify neighborhood change

The Neighborhood Early Warning project can be used to understand neighborhoods trending in a positive or negative direction and ultimately measure the fragility of neighborhoods over time.

You will start by assuming the role of a data analyst in a neighborhood revitalization task force responsible for organizing key neighborhood indicators. You are asked to use the Neighborhood Stabilization project to identify neighborhoods trending in a positive or negative direction.

1. From the Neighborhood Stabilization solution, click the Neighborhood Stabilization item under Solution Contents to open the item details of the desktop application template.
2. Click **Download** and place the contents on your computer.
3. Using Explorer, browse to the NeighborhoodEarlyWarning.zip folder and extract it.
4. Open the Neighborhood Stabilization ArcGIS Pro project.
5. On the **View** tab, in the **Windows** group, click **Catalog**, and click **Catalog Pane**.
6. In the **Catalog** pane, expand **Maps** and review the maps provided.

Note:

The map provided in this project is used by data analysts to identify neighborhoods trending in a positive or negative direction and ultimately measure their fragility over time.

7. In the **Catalog** pane, expand the **Tasks** folder, and double-click the Neighborhood Early Warning task.
8. In the **Tasks** pane, click the **How to Use Neighborhood Early Warning** task group to expand the collection of tasks.
9. Follow the steps in each task.

Neighborhood Stabilization

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Neighborhood Stabilization

Neighborhood Stabilization can be used to understand current property conditions, return blighted properties to productive use, and engage the public in neighborhood stabilization conversations.

It provides neighborhood stabilization program managers the ability to develop strategies that assist in the rehabilitation of properties that might otherwise become sources of abandonment and blight. The result can be used to rehabilitate, resell, or redevelop properties in order to stabilize neighborhoods and help to curtail the decline of property values in neighborhoods. Neighborhood Stabilization is typically implemented by planning departments, building officials, health and human services agencies, and other local government agencies that want to develop a location-driven approach to neighborhood stabilization.

The Neighborhood Stabilization solution delivers a set of capabilities that help you conduct property surveys, measure the fragility of neighborhoods, track blight, demolition activity, and publish a focused set of information products for citizens in your community.

Requirements

Neighborhood Stabilization requires the following:

- ArcGIS Enterprise
- ArcGIS Pro 2.6 -2.9 (Standard or Advanced)

Information products

Neighborhood Stabilization includes the following information products:

Item	Description	Minimum user type
Neighborhood Stabilization	An ArcGIS Hub site used by the general public to access blight complaints, track demolition activity, locate mortgage or housing counselors, and conduct property surveys	Not required
Blight Status Dashboard	An ArcGIS Dashboards app used by local government leaders to proactively monitor the status of blight complaints and efforts made to reduce blighted properties	Viewer
Demolition Tracker	An ArcGIS Web AppBuilder app used by the general public to track building demolitions and the financial cost to a community	Not required
Mortgage Counseling Locator	An ArcGIS Web AppBuilder app used by the general public to locate mortgage or housing counselors in a community	Not required
Tax Liability Calculator	An ArcGIS Survey123 form used by citizens to compute their estimated tax liability	Not required
Property Condition Survey	A Photo Survey app used by local governments to publish street-level photo collections, conduct property surveys, and automate the classification of property condition using ML/AI	GIS Professional Standard
Neighborhood Early Warning	An ArcGIS Pro project used by data analysts to identify neighborhoods trending in a positive, or negative, direction and ultimately measure the fragility of neighborhoods over time	GIS Professional Standard

Release notes

The following are the release notes:

Version	Description
1.0	<ul style="list-style-type: none">First release of Neighborhood Stabilization

[Back to top](#)

Configure Neighborhood Stabilization

Learn how to configure the Neighborhood Stabilization solution to meet specific needs in your organization.

Load data

Neighborhood Stabilization can be used to understand current property conditions, return blighted properties to productive use, and engage the public in neighborhood stabilization conversations.

Review the layers provided with the solution and determine what source data you want to load. Then, load your existing data into the layers provided with the solution before sharing the maps or applications.

Once you have determined what source data must be loaded, complete the data loading workflow below.

Note:

Prior to loading data, ensure you populate the Status field in DemolitionSites with values represented in the layer: Planned Demolition, Contracted Demolition, or Completed Demolition.

Load data from a shapefile

Data for DemolitionSites or MortgageCounselingFacilities can be loaded from a shapefile by following the steps below:

1. Create a .zip file of your shapefile.
2. In your ArcGIS organization, browse to the feature layer you wish to populate.
3. On the feature layer item details page, Click **Update Data** and select **Append Data to Layer**.
4. Under **Filename**, click **Choose File**.
5. Browse to your .zip file and click **Open**.
6. Under **Contents**, select **Shapefile**.
7. Click **Upload and Continue**.
8. Choose the layer that you want to load data into and the layer that contains the updated data.
9. Uncheck **Update existing features**.
10. Click **Show field matching** and map the fields between the two layers.
11. Click **Apply Updates**.

[Back to top](#)

Tip:

To make additional updates to a hosted feature layer, see [Append data to layers](#).

Configure property surveys

Blighted and vacant structures can have a significant impact on property value and may have substantial remediation costs associated with them. Property Condition Survey can be used by local governments to publish street-level photo collections, conduct property surveys, and automate the classification of property condition using ML/AI.

Publish a property survey app

The Property Condition Survey app consumes the map you authored during the publish map step in the ArcGIS Pro project.

To configure the Photo Survey app, complete the following steps:

1. Using Windows Explorer, browse to the `\Documents\ArcGIS\Packages\PropertyConditionSurvey\commondata\userdata\PhotoSurvey` folder and unzip it.
2. Open the `configuration.json` file in Microsoft Notepad or another text editor.
3. Enter the web map ID for your photo survey map, for example, "webmap" : `daa3eeae86954f4cba87c044466c4c2f`.

Note:

The web map ID can be found at the end of the map URL in ArcGIS Online. For example, in `http://myorganization.maps.arcgis.com/home/item.html?id=2ef11dad8ff04178b2b236e867e9c952`, the web map ID is `2ef11dad8ff04178b2b236e867e9c952`.

4. Save and close the file.
5. Copy the PhotoSurvey folder to your web server so it can be accessed as a website or virtual directory. In IIS, the default web server directory is `<your directory>\Inetpub\wwwroot\`.
6. Browse to **Start > Control Panel > Administrative Tools > Internet Information Services (IIS) Manage**.
7. Click **<your server> > Sites > Default Web Sites**.
8. Right-click the web server directory folder for the app and choose **Convert to Application**.
9. Choose the **DefaultAppPool** application pool.
10. Click **OK**.

[Back to top](#)

11. Begin using Property Condition Survey by browsing to `http://<your server>/PhotoSurvey/default.htm`.

Configure the property survey app

Use the `configuration.json` file to configure the Photo Survey app to your organization's needs. Photo randomization, guest access, thumbnail image display, and Twitter credentials can all be configured by modifying the following parameters:

Parameter	Description
<code>randomizeSelection</code>	Controls how the Photo Survey app will display photos. <ul style="list-style-type: none">• True for random photo display (default)• False for ordered photo display
<code>allowGuestSubmissions</code>	Specifies if the Photo Survey app will allow guest or anonymous survey submissions. <ul style="list-style-type: none">• True to allow guests (anonymous) to submit survey submissions• False to disallow guests (anonymous) to submit survey submissions
<code>showGuest</code>	Specifies if the Photo Survey app will allow guest or anonymous access. <ul style="list-style-type: none">• True to allow guest (anonymous) access• False to disallow guest (anonymous) access
<code>thumbnailLimit</code>	Sets the maximum number of thumbnails displayed in the Photo Survey carousel. If the number of photos for a given property exceeds this number, the photo carousel will not be displayed in the app.
<code>includeOverviewMap</code>	Specifies if the Photo Survey app will include an overview map. <ul style="list-style-type: none">• True to show overview map• False to remove overview map
<code>showSkip</code>	Specifies if the Photo Survey app will include a skip button. This requires all surveys to be submitted. <ul style="list-style-type: none">• True to show skip button• False to remove skip button

Configure survey questions

There are several options available regarding the types of survey responses that can be displayed in the survey panel. Choose from the options below based on the structure of your data as well as the desired user experience.

Once you have determined which response type to use, choose the appropriate options in the Survey Questions table.

[Back to top](#)

Field	Description	Required information
Field name in Photo Points	Field name in the Photo Points layer that the survey response will be stored in.	Field name
Question Type	Survey question type. Choose from the drop-down list.	Parent, Child
Parent OBJECTID	If the question should be dependent on the response to a parent question, add the parent ObjectID of this question.	ObjectID
Display Condition(s)	Value required to display this question.	Value
Question Text	Text displayed for each survey question.	Text
Question UI Type	Available question types. Choose from the drop-down list.	Button, List, Drop-down list, Text, Number
Image URL	To display images on the survey panel, add the image URL.	URL
Image Position	Position of image in the survey panel. Choose from the drop-down list.	Before, After
Required?	If the question is required for the survey, choose from the drop-down list.	Yes, No
Question Order	Order of the questions as they appear in the survey form.	Numeric value

Use Neighborhood Stabilization

The Neighborhood Stabilization solution delivers a set of capabilities that help you conduct property surveys, measure the fragility of neighborhoods, track blight, demolition activity, and publish a focused set of information products for citizens in your community.

In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

Note:

Use your organization's data or configured apps to follow these workflows.

Identify neighborhood change

The Neighborhood Early Warning project can be used to understand neighborhoods trending in a positive or negative direction and ultimately measure the fragility of neighborhoods over time.

You will start by assuming the role of a data analyst on a neighborhood revitalization task force responsible for organizing key neighborhood indicators. You are asked to use the Neighborhood Stabilization project to identify neighborhoods trending in a positive or negative direction.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Neighborhood Stabilization solution.
2. Download the Neighborhood Early Warning desktop application template, and then unzip the folder.
3. From the unzipped folder, open the Neighborhood Early Warning.aprx file in ArcGIS Pro.
4. In the **Catalog** pane, expand **Maps** and review the maps provided.

Note:

If you do not see the **Catalog** pane, from the **View** tab, in the **Windows** group, click **Catalog Pane**.

The map provided in this project is used by data analysts to identify neighborhoods trending in a positive or negative direction and ultimately measure their fragility over time.

5. In the **Catalog** pane, expand the **Tasks** folder, and then double-click the Neighborhood Early Warning task.
6. In the **Tasks** pane, expand the **How to Use Neighborhood Early Warning** task group to see the collection of tasks.
7. Follow the steps in each task.

[Back to top](#)

Perform property condition surveys

Property Condition Survey uses location-enabled photos produced by many commercially available cameras and simplifies data processing so street-level photo collections can be gathered on a regular basis. Photo collections can then be used in the Property Condition Survey app or be classified using the Microsoft Custom Vision service to identify property where overgrowth, graffiti, and boarded windows may exist.

Perform street-level photo acquisition

To start, you'll assume the role of a data analyst who needs to decide what type of camera will be used to acquire street-level photos. The Photo Survey toolbox has been designed to work with standard EXIF data captured by commercially available cameras, and there are several on the market that can be used to collect photos.

When selecting cameras and planning photo collection for your community, consider the following questions:

1. Is the camera well suited for diverse weather conditions, and can it be mounted on the side of a vehicle or on a window of a vehicle?
2. Does the camera take photos at predefined intervals (for example, every two seconds) and acquire GPS coordinate values for each photo taken?
3. Does the camera write photo data in a standard EXIF format?
4. How many photos can be stored on a given camera, and how will you get photos off the device?
5. How many vehicles will you use to acquire photos for your entire community? You will need two cameras for each vehicle used to acquire photos.
6. What is the speed you will travel to acquire the photos? The slower you can drive, the more photos you will acquire for each property.
7. What are the routes used to acquire photos? Will those routes cover every property in your community?
8. Can you use vehicles (for example, trash trucks and street cleaners) or employees (for example, code enforcement officers and assessors) who already canvass the community to acquire photos?
9. Would volunteer organizations working in your community partner with you to acquire photos?

Review the Property Condition Survey project

Now you will assume role of a data analyst on a neighborhood revitalization task force responsible for configuring the property condition survey. You are asked to configure the Property Condition Survey app using the map authored during the publish map step in the ArcGIS Pro project.

1. Start ArcGIS Pro and open the Property Condition Survey project package from the active portal.

2. In the **Catalog** pane, expand **Databases** and review the sample survey questions provided with the Property Condition Survey project.

Note:

If you do not see the **Catalog** pane, from the **View** tab, in the **Windows** group, click **Catalog Pane**.

3. In the **Catalog** pane, expand the **Tasks** folder, if necessary, and then double-click the Property Condition Survey task.
4. In the **Tasks** pane, follow the steps in the Property Condition Survey task to set up the Property Condition Survey app.

Calculate blight probability

Now you will assume role of a data scientist on a neighborhood revitalization task force responsible for configuring the Property Condition Survey. You are asked to calculate the blight probability in the images taken at street level to augment manual surveys.

1. In a browser, go to [Microsoft Custom Vision](#), and then sign in or create an account.

Note:

If you created an account, after your account has been created, be sure to accept the terms and conditions.

2. If necessary, in the Azure Portal, create a resource group for Custom Vision.
3. On the Custom Vision landing page, in the upper right, click the **settings** button.
4. Copy the training key, prediction key, prediction resource ID, and prediction endpoint for your account.
5. In the Property Condition Survey project, for the **Detect Blight** task, use the copied values.
6. After you have run the Detect Blight task, review your results in the Photo Points layer published in the Publish Map task in the Property Condition Survey project.

Survey the property condition

Now you will assume the role of a community volunteer. You are concerned with neighborhoods in your community and want to contribute by completing the Property Condition Survey.

1. In a browser, from the Neighborhood Stabilization solution, view the Neighborhood Stabilization ArcGIS Hub site.
2. Scroll to the **Understanding Neighborhood Conditions** section, and then under **Survey Property Conditions**, click **Learn More**.

The Property Condition Survey sign-in page appears.

[Back to top](#)

3. Sign in with your Twitter credentials, if applicable, or click **Guest** to complete the survey anonymously.

Tip:

If you choose to sign in with your Twitter credentials, you can keep track of the total number of surveys that you've completed and your overall ranking.

4. Answer the survey questions based on the photo that is displayed in the main panel.

Tip:

You can use the thumbnail images in the lower area of the screen to cycle through all the photos available for the property, if available. To select the photo that best shows the property, click the favorite button in the upper-left corner of the photo.

5. Click **Submit survey** to complete the report.

Track demolition activity

Demolition activity can have a significant impact on property value and the financial cost to a community. Demolition Tracker can be used by the public to locate planned, contracted, and completed building demolition.

Now, you will assume the role of a resident in a local community. You are concerned with where demolitions have occurred, where they are contracted and planned, and what the total cost is to the community.

1. In a browser, from the Neighborhood Stabilization solution, view the Neighborhood Stabilization ArcGIS Hub site.
2. Scroll to the **Understanding Neighborhood Conditions** section, and then under **Track Demolition Activity**, click **Learn More**.

The Demolition Tracker opens. On the right, the **Demolition Tracker** widget lists the number of planned, contracted, and completed demolitions visible in the map extent.

3. On the map, in the search field, type your address or zoom to a location directly on the map.

The demolition information in the **Demolition Tracker** widget updates to the new map extent.

4. In the **Demolition Tracker** widget, click **Planned Demolitions** to view specific addresses of buildings planned for demolition.

5. Click a specific planned demolition address.

On the map, a pop-up shows the demolition's neighborhood, use description, comments, planned date, and estimated cost.

6. In the **Demolition Tracker** widget, click **Contracted Demolitions** to view specific addresses of buildings contracted for demolition.

7. Click a specific contracted demolition address.

[Back to top](#)

On the map, a pop-up shows the demolition's neighborhood, use description, comments, contractor, scheduled date, and quoted cost.

8. In the **Demolition Tracker** widget, click **Completed Demolitions** to view specific addresses of buildings that have been demolished.
9. Click a specific completed demolition address.

On the map, a pop-up shows the demolition's neighborhood, use description, comments, contractor, completed date, and actual cost.

Monitor blight status

Blight complaints can have a significant impact on property value and may have substantial remediation costs associated with them. Blight Status Dashboard can be used by local government leaders to proactively monitor the status of blight complaints and efforts made to reduce blighted properties.

Now you will assume the role of a local government leader. You are concerned with where blight reports have been submitted and the resolution status.

1. In a browser, from the Neighborhood Stabilization solution, view the Blight Status Dashboard app.

The Blight Status Dashboard opens with an overview of the current blight-related reports.

Note:

The overview displays key metrics. This information gives management a quick overview of the number of blight reports in their community.

2. At the lower left, click the **Blight Dashboard** tab and explore the blight reports.
3. On the left side of the app, click the arrow to display the filter panel.

Tip:

You can pin the filter panel to the dashboard by clicking the pin in the upper-right corner.

4. Use filters to refine the results by status or submission date.
5. Below the map, in the **Report Type** panel, review the charts to see a breakdown of the report types.

Network Path Planner

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Network Path Planner

Network Path Planner can be used to plan fronthaul routes to wireless equipment such as 5G sites, backhaul routes from wireless towers, and plan routes to residential neighborhoods or business locations.

In a connected world, access to reliable broadband communications service is essential. To close existing coverage gaps and increase overall broadband speeds, public and private funding is pouring into the communications market and driving expansion of existing communications networks. Every day, communication organizations are building out broadband infrastructure to reach new customers and businesses. Before construction begins, communication organizations must design effective networks that balance capital costs with customer service. Simple tools that provide an efficient route to a proposed site reduce costs and increase revenue opportunities. Network Path Planner is typically implemented by telecommunications organizations that want to quickly develop cost effective, high-level network designs from their existing network to proposed sites.

The Network Path Planner solution delivers a set of capabilities that help you optimize fiber routes and estimate investment costs.

Requirements

Network Path Planner requires the following:

- ArcGIS Pro 2.9 or later (Advanced)
 - ArcGIS Network Analyst extension
 - SteetMap premium Extension or Network Dataset

Information products

Network Path Planner includes the following information products:

Item	Description	Minimum user type
Network Path Planner	An ArcGIS Pro project used by network planners to create a network route to help develop proposed network routes and quickly estimate the cost.	GIS Professional Advanced

Release notes

The following are the release notes:

Version	Description
2.0	<ul style="list-style-type: none">• Updated and added ArcGIS Pro tasks to walk through new functionality.• Added new charts and cost estimating functionality to route results.• Updated Path Planner toolbox and fixed minor issues.
1.0	<ul style="list-style-type: none">• First release of Network Path Planner

Use Network Path Planner

The Network Path Planner project can be used to plan fronthaul routes to wireless equipment such as 5G sites, backhaul routes from wireless towers, and plan routes to residential neighborhoods or business locations.

Get started with the solution

You will start by assuming the role of a network planner or wireless provider responsible for generating a proposed route for a series of 5G sites. You are asked to use the Network Path Planner project to identify the optimal network path for your organization.

1. From the Network Path Planner solution, click the Network Path Planner V2 item under Solution Contents to open the item details of the desktop application template.
2. Click **Download** and place the contents on your computer.
3. Using **File Explorer**, browse to the **NetworkPathPlannerV2.zip** folder and extract it.
4. Open the Network Path Planner ArcGIS Pro project.
5. On the **View** tab, in the **Windows** group, click **Catalog**, and click **Catalog Pane**.
6. In the **Catalog** pane, expand **Maps** and review the maps provided.

Note:

The map provided in this project is provided with sample dataset to exercise the tools.

7. In the **Catalog** pane, expand the **Tasks** folder, and double-click the Network Path Planner task.
8. In the **Tasks** pane, click the **How to Use Network Path Planner** task group to expand the collection of tasks.

This task group provides high level information about the solution.

Getting to know Network Path Planner

This solution is designed for telecommunication organizations that want to generate optimized route planning for backhaul routes, fronthaul routes and routes to service business and residential customers. Learn about how to use the solution and requirements to get started by using the task-based workflows provide key information.

This task group includes the following task

- Understanding Network Path Planner

Create a network dataset (optional)

A network dataset is required to generate optimized network path. The following tasks provide steps on how to creating network datasets using sample data. If your organization utilizes StreetMap Premium skip to the **How to use Network Path** planner task group.

This task group includes the following tasks:

- Create a basic network dataset
- Create a network dataset with element evaluator

How to use Network Path Planner

The network path planner solution is key to planning network expansion project. These tasks are a guide to help you prepare key data, generate optimized network paths, and review route results.

This task group includes the following tasks:

- Prepare data
- Route Modifiers
- Generate paths
- Explore the results
- Add costing to results
- Share results

Operations Management

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Operations Management

Operations Management can be used to respond to an event and manage resulting missions.

It empowers military organizations with the ability to capture real-time data related to the event and mission development. Leadership is able to review reports submitted by operations personnel from any connected device. The solution enables immediate interaction between the technology and military personnel allowing for rapid information dissemination and intelligent decision making. Operations Management is typically implemented by organizations, such as the Army National Guard, that want to take a data-driven approach to plan, manage, and understand current missions associated with events.

The Operations Management solution delivers a set of capabilities that help you to capture and update event and mission details, allocate resources, and gain situational awareness of resources and tasks against designated missions.

Requirements

Operations Management requires the following:

- ArcGIS Enterprise
- ArcGIS Survey123

Information products

Operations Management includes the following information products:

Item	Description	Minimum user type
Operations Dashboard	An ArcGIS Dashboards app with embedded ArcGIS Survey123 used by operations staff to enter events, missions, status reports, and field reports.	Editor
Operations Management Dashboard	An ArcGIS Dashboards app used by leadership to monitor events, missions, status reports, and field reports.	Viewer

Release notes

The following are the release notes:

Version	Description
1.1	<ul style="list-style-type: none">• A new Operations Dashboard that allows operations staff to manage the life cycle of an event and associated missions.• A new Operations Management Dashboard that allows operations staff to view status reports and field reports.• Multiple layers are shared with the Civil Support solution and can be utilized for tasking workflows during mission coordination.
1.0	<ul style="list-style-type: none">• First release of Operations Management

[Back to top](#)

Configure Operations Management

In this topic, you will learn how to configure the Operations Management solution to meet specific needs in your organization. The apps included with the Operations Management solution come with Survey123 reports. Follow the steps below to configure the solution.

Configure solution

Once Operations Management has been deployed, you can make optional configurations to the solution. Follow the steps below to configure the Operations Dashboard and the associated surveys.

Add data sources

The Operations Management solution allows operations management personnel to enter details about events and missions supporting events. It can be helpful to add additional data to provide context for feature entry and management.

The layers listed below can be added to the map to provide further context when entering new events, missions, status reports, and field reports.

Learn more about how to [add layers to a map](#).

- State and county layers
 - [States map service](#)
 - [Counties map service](#)
 - [COVID-19 cases data feed](#)
- ArcGIS Living Atlas layers
 - [National Weather Service Severe Events](#)
 - [National Weather Service Extreme Events](#)
- NOAA Web Services
 - [NOAA Base Reflectivity Radar](#)


Extend the Operations Management Dashboard

The Operations Management Dashboard is preconfigured to display all units under the **Assigned To** section within the Survey123 form. It also displays default mission statuses. You may need to configure the dashboard to align with your organization.

Add a battalion



To add additional battalions or companies to the dashboard, complete the following steps:

[Back to top](#)

1. Browse to the Operations Management Dashboard and click **Edit Dashboard**.
2. In the **Mission Assignment/Stage** serial chart element, click the **Configure** button .
3. Go to the **Data** tab, select the **Filter** window, and under the **Assigned To** window, select **Include**. At this point, you will add only the units of interest and nothing else will be included.
4. Save your application.



Modify mission stage

The dashboards are preconfigured to display various stages. The stages can be modified or removed. If your organization uses a stage that is not included, ensure a new category is added to the Survey123 form before adding it to the Operations Management Dashboard. To modify the mission stages, complete the following steps:

1. Select any Mission Stage element and go to **Editing Features**.
2. Click the **Duplicate** button  to copy the setting of the existing indicator elements to add a new category. Make sure that the new category has been added to the Survey123 form first.
3. Remove the stage element by clicking the delete button .
4. Save your application.

Modify lists

The dashboards included in this solution come with preselected and basic fields within their appropriate lists. Additional fields can be turned on when configuring your solution to better address your organization's needs. To modify lists, complete the following steps:

1. Click the **Configure** button  for any of the list components within the dashboard.
2. Select the **List** tab and click **Insert**  to see the field options available.
3. Select one or multiple fields to be added to the display.
4. Add a label in front of your field item.
5. Click **Done**.
6. Save your application.

Use Operations Management

The Operations Management solution delivers a set of capabilities that help you to capture and update event and mission details, allocate resources, and gain situational awareness of resources and tasks against designated missions.

In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

Manage missions

The Operations Dashboard provides operations staff with a single interface to establish events along with their related missions. In addition, surveys within Operations Dashboard can be used to provide status reports, field reports, and manage the lifecycle of events and missions from start to end. Command leadership can remain aware of current and historical missions in the Operations Management Dashboard. New events and missions can be added as frequently as needed.

Enter a new event

You will start by assuming a role as a member of the operations staff National Guard. The governor has issued a request for assistance to the National Guard, in response to a hurricane that is due to touch down in Miami-Dade County. Your commanding officer has asked you to manage the entry of the event and related missions so that leadership can gain quick understanding as the situation progresses. You will start by using the Event Entry survey to capture the hurricane as a new event.

To capture a new event using the Event Entry survey, complete the following steps:

1. In a browser, go to your Operations Dashboard.
2. Select the **Add Event** tab in the lower right and fill in the following details:

Parameter	Value
Event ID	Type EVENT001.
Include RFA Information	Select No.
Begin Date	Select the date 07/15/2022.
End Date	Select the date 07/22/2022.
Location	Draw a polygon along the Miami-Dade County area.
Event Type	Select Weather.
Event Sub Category	Select Hurricane.
Event Description	Type Hurricane Olga is moving at 15 mph with high winds of 175 mph. Hurricane Olga is approaching the Miami-Dade

[Back to top](#)

	County geographical area and is located approximately 300 miles from the Florida coastline.
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3. Click **Submit**.

Enter a new mission

Maintaining the same role as a member on the operations staff, you have now been asked to start entering the missions related to Hurricane Olga. You will use the Mission Entry survey to enter mission information.

To enter information related to a new mission, complete the following steps:

1. In a browser, go to your Operations Dashboard or refresh your current browser if you have just entered the event.
2. Select EVENT001 from the Event List.
3. Select the **Add Mission** tab in the lower right. Notice that the EVENT001 Event ID is automatically showing as part of the new Mission Entry.
4. In the Mission Entry survey, fill in the following details:

Parameter	Value
Mission ID	Type MISSION001.
Location	Type Lat: 25.79496 Lon: -80.12594.
Start Date	Select the date 07/15/2022 .
End Date	Select the date 07/22/2022 .
Mission Type	Select Personnel Support .
Mission Description	Type 50 personnel are needed to fill sandbags and place them in designated areas.
Mission Stage	Select Pending Approval .
Mission Priority	Select Medium .
Battalion	Select 1st Battalion .
Company	Select B Company .
Personnel Information	Select Yes .
Personnel Details	Select Other .
Enter # of Other Personnel	Type 50. Total Personnel will automatically fill.
Vehicle Information	Select Yes .
Vehicle and Aircraft Details	Select Land Vehicles .
Land Vehicle Type	Select Utility Truck and type 5 for the Quantity .
Estimate Cost	Select Yes .

[Back to top](#)

Estimate Mission Cost/Day	Type 5000.
Submitter POC Details	Enter your name and contact information.
Ground Commander POC Details	Enter commander point of contact details.

5. Click **Submit**.

Enter additional missions

It is likely that there will be several similar missions taking place in a response to an event. In this exercise, you will use the Operations Dashboard to enter several additional sandbagging missions.

To quickly create additional sandbagging missions, complete the following steps:

1. Select MISSION001 from the Mission List.
2. From the pop-up, select Copy Mission. Once the survey loads, notice that it is an exact copy of MISSION001.
3. In the Mission Entry survey, modify the following details:

Parameter	Value
Mission ID	Change MISSION001 to MISSION002 .
Location	Change Lat: 25.79496 Lon: -80.12594 to Lat: 25.80076 Lon: -80.12482.
Mission Description	Change 50 personnel are needed to fill sandbags and place them in designated areas. to 25 personnel are needed to fill sandbags and place them in designated areas.
Battalion	Change 1st Battalion to 2nd Battalion .
Company	Change B Company to E Company .
Enter # of Other Personnel	Change 50 to 25 . Total Personnel will automatically fill.
Land Vehicle Type	Change 5 to 3 for the Quantity .
Estimate Mission Cost/Day	Change 5000 to 2500.

4. Click **Submit**.
5. Return to Operations Dashboard and verify MISSION002 shows in the Mission List and map.

Monitor events and missions

Now, you will assume a leadership role in the National Guard. Your job is to monitor your unit's open events and missions to determine if there are any that require your attention. You will view the stages of all missions and then look more closely at specific missions, including trends like estimated cost and which unit the mission has been tasked to.

To evaluate information related to events and missions, complete the following steps:

1. In a browser, go to your Operations Management Dashboard.
2. Use the filters in the left panel to narrow down the missions.
You can filter by status of event, event name, status of mission, and mission name.
3. Start by reviewing MISSION001. After selecting it from the Select Mission filter, notice that the dashboard updates to reflect information related to that mission.
Information related to the mission stage, allocated personnel, allocated vehicles, cost, and location are updated once an event and/or mission is selected. Notice that there is no information currently visible for the status report and field report section. These can be populated by returning to the Operations Dashboard and using the specific tabs to submit the reports.
4. Change the selection in the Select Mission filter to MISSION002. As the dashboard updates to show details for MISSION002, make note of the mission assignment/stage, number of personnel and vehicles requested, location, and estimated cost. This information can be relayed to the Adjutant General for event status, or a decision made and passed back to the operations staff to approve or deny a proposed mission.

Manage mission stages

You will go back to assuming a role as a member of the operations staff. After leadership used the Operations Management Dashboard dashboard to review ongoing missions, they determined that there were not enough resources to conduct MISSION002. You will use the Operations Dashboard to change the status of MISSION001 and MISSION002. In a browser, go to your Operations Dashboard.

1. Select MISSION002 from the Mission List.
2. Select Edit Mission from the pop-up. The Mission Editor survey loads for MISSION002 .
3. In the Mission Editor survey, modify the following details:

Parameter	Value
Provide Additional Details	Select Yes .
Enter Additional Details	Type Mission declined by Unit Commander. Not enough resources available to conduct mission.
Mission Stage	Change Pending Approval to Declined

4. Click **Submit**.
5. Return to Operations Dashboard and verify the stage label reflects as Declined for MISSION002 in the Mission List and the symbology is updated in the map.

[Back to top](#)

Provide a status report for a mission

During the life cycle of a mission, it is common for leadership to request a status report for ongoing missions. Remaining in an operations staff role, you will assume that leadership has requested a 72 hour outlook for MISSION001.

1. In a browser, go to your Operations Dashboard.
2. Select MISSION001 from the Mission List.
3. Select the **Add Status Report** tab in the lower right. Notice that the EVENT001 Event ID is and MISSION001 Mission ID are automatically showing as part of the new Status Report.
4. In the Status Report survey, fill in the following details:

Parameter	Value
Date and Time:	Select the date 07/16/2022 .
Name:	Enter your name.
Email:	Enter your email.
Phone:	Enter your phone number.
Battalion:	Leave autopopulated value of 1st Battalion unchanged .
Company:	Leave autopopulated value of B Company unchanged .
Personnel Deployed	Leave autopopulated value of 50 unchanged .
Vehicles Deployed	Leave autopopulated value of 5 unchanged .
Equipment Status	Select Amber .
Add Notes	Type 2 Utility trucks will need to be refueled prior to departure.
Logistics Status	Select Green .
Logistics Status	Type On Track.
24 Hour Projection	Type Refuel trucks and load sandbags/shovels.
48 Hour Projection	Type Arrive on site and fill/place 1000 sandbags.
72 Hour Projection	Type Return to armory for more sandbags and refuel.

5. Click **Submit**.
6. In a browser, go to your Operations Management Dashboard.
7. Use the filters in the left panel to narrow down to MISSION001.

[Back to top](#)

- Notice that there is information related to the Status Report now present in the dashboard.

Enter field report

As a member of the operations staff, you will submit a field report on behalf of a guardsman who conducted an unplanned civilian rescue while responding to a mission. Although the guardsman does have the ability to download the survey to their phone to directly submit the report, they have opted to phone it in for you to enter.

- In a browser, go to your Operations Dashboard.
- Select MISSION001 from the Mission List.
- Select the **Add Field Report** tab in the lower right. Notice that the EVENT001 Event ID is and MISSION001 Mission ID are automatically showing as part of the new Field Report.
- In the Field Report survey, fill in the following details:

Parameter	Value
Date and Time:	Select the date 07/18/2022 .
Name:	Enter your name.
Email:	Enter your email.
Phone Number:	Enter your phone number.
Location:	Type Lat: 25.79679 Lon: -80.12552.
Battalion:	Leave autopopulated value of 1st Battalion unchanged .
Company:	Leave autopopulated value of B Company unchanged .
What Happened:	Type while driving back to resupply encountered 4 civilians with flooded car. Assisted in tow and water rescue.
Enter Names of Others Involved:	Enter other names.
Photo(s):	Add 2 photos.

- Click **Submit**.
- In a browser, go to your Operations Management Dashboard .
- Use the filters in the left panel to narrow down to MISSION001.
- Notice that there is information and photos related to the Field Report now present in the dashboard.

Close missions and event

In order to maintain a clear operational picture for leadership, it is necessary to close missions and events which are no longer ongoing. You will assume the role of an operations staff member who was just informed that all missions and events are now over. You will use the

[Back to top](#)

Operations Dashboard with the Mission Closer and Event Closer to close the missions and events.

1. In a browser, go to your Operations Dashboard.
2. Select MISSION001 from the Mission List.
3. Select Close Mission from the pop-up. The Mission Closer survey loads for MISSION001.
4. In the Mission Closer survey, fill in the following details:

Parameter	Value
Mission Stage:	Select Complete .
Closing Comments:	Type Mission has been completed. Over 10,000 sandbags filled and placed.

5. Click **Submit**.

Notice that MISSION001 has now been removed from the Mission List and map in the Operations Dashboard. Closed missions can still be viewed by using the Mission Status filter in the header of the dashboard to select Closed or All.

6. Select MISSION002 from the Mission List.
7. Select Close Mission from the pop-up. The Mission Closer survey loads for MISSION002.
8. In the Mission Closer survey, fill in the following details:

Parameter	Value
Closing Comments:	Type Mission was declined and hurricane response is complete.

9. Click **Submit**

10. Select EVENT001 from the Event List.
11. Select Close Event from the pop-up. The Event Closer survey loads for EVENT001 .
12. In the Event Closer survey, fill in the following details:

Parameter	Value
Event Closing Comments:	Type Hurricane Olga and all mission responses are complete. Closing event.

Outage Damage Assessment

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Outage Damage Assessment

Outage Damage Assessment can be used to perform damage assessments and respond to outages caused by severe weather conditions and emergency incidents.

Electric utilities and communication organizations have technology systems that allow customers to report outages. But after a severe weather event, or emergency incident, they need to gather field intelligence. This field intelligence helps utilities and communication organizations understand the extent of damage and quickly allocate storm restoration crews. Outage Damage Assessment is typically implemented by electric utilities and communication organizations that want to quickly assess the extent of damage, effectively allocate crews, and make informed decisions during storm restoration.

The Outage Damage Assessment solution delivers a set of capabilities that help you collect damage reports, manage field assignments, and monitor the impact of a severe weather, or emergency, incident on electric utility and communication assets.

Requirements

Outage Damage Assessment requires the following:

- ArcGIS Enterprise
- ArcGIS Notebook Server
- ArcGIS Workforce
- ArcGIS Field Maps

[Back to top](#)

Information products

Outage Damage Assessment includes the following information products:

Item	Description	Minimum user type
Damage Assessment Center	An ArcGIS Experience Builder application used by dispatchers and office staff to create, manage, and monitor damage assessments	Creator
Damage Assessment	An ArcGIS Workforce project used by dispatchers and office staff to manage damage assessment assignments. Field assessors access the project using the ArcGIS Workforce mobile app.	Mobile Worker
Damage Assessment Locations - Field Assessor	An ArcGIS Field Maps map used by a field assessor to capture damaged assets	Mobile Worker

Release notes

The following are the release notes:

Version	Description
1.1	<ul style="list-style-type: none">Updated the Download Photo Attachments notebook.
1.0	<ul style="list-style-type: none">First release of Outage Damage Assessment

[Back to top](#)

Configure Outage Damage Assessment

In this topic, you will learn how to configure the Outage Damage Assessment solution to meet specific needs in your organization.

Assign personnel to ArcGIS Workforce

The Outage Damage Assessment solution includes an ArcGIS Workforce project used by a dispatcher to assign damage assessment assignments to the field assessors. Before the solution can be used, the named user accounts of each dispatcher and field assessor must be added to the Workforce project in the dispatcher and mobile worker roles, respectively.

1. Sign into your ArcGIS organization.
2. Go to the App Launcher, then click **Workforce**.
3. Mouse over Damage Assessment, then click **Configure**.
4. Click **Users**.
5. Use the **Organization User** drop-down list to select a user.
6. Use the **Project Role** drop-down list to select the role for that user.
7. Click **Add User**.
8. Repeat this process for each of your dispatchers and field assessors.

Learn more about [assigning personnel to a ArcGIS Workforce project](#)

Add asset map layers (optional)

The Outage Damage Assessment solution is configured with what you need to manage an outage event. Electric utilities and telecommunication organizations can add their asset layers to the maps to enhance the solution and provide situational awareness of existing assets. Follow the steps below to learn how to add your organizations electric or telecommunication data to the following maps.

1. Open the **Damage Assessment Locations - Manage** map by clicking **Open in Map Viewer Classic**.
2. Add your organizations electric or telecommunications asset data to the [map](#).

Note:

Consider configuring layer names and pop-ups to meet your organizations needs.

3. Click **Save > Save** to save the map.
4. Repeat as needed with the following maps: **Damage Assessment Locations - Field Assessor** and **Damage Assessment Dispatcher** map.

[Back to top](#)

Configure Damage Assessment Center (optional)

The Damage Assessment Center app is pre configured as the central location to create, manage, and monitor damage assessments. Complete the following steps if you want to customize the ArcGIS Experience Builder app to fit your organizations needs.

1. Navigate to the item page for the Damage Assessment Center app and click the **Edit** button.
2. Click the **Page** button to open the page panel and select the **Help** page.
3. Use the **Body** node of the page panel to navigate between each section.
4. To update the text or images select the element in the layout and make the necessary changes.
5. Click **Save** on the Experience Builder designer header bar, then click **Publish**.

Use Outage Damage Assessment

Outage Damage Assessment can be used to perform damage assessments and respond to outages caused by severe weather conditions and emergency incidents.

Prepare for an outage

To prepare for an outage event, effective organizations train in advance of an event, using mock exercises to familiarize personnel with the processes and technology they will use in the field during a real outage. The Outage Damage Assessment solution includes mobile apps such as, ArcGIS Workforce and ArcGIS Field Maps, which mobile workers will need to be trained to use in advance of an outage event.

In this workflow, you will assume the role of a manager that needs to educate office staff and field assessors involved in the damage assessment process.

1. Before getting started with the solution, review and follow the [configuration steps](#).
2. Open the Damage Assessment Center app.
3. In the app header, click the **Help** button.
4. This page displays information that can be used in a training briefing to help teach office and mobile workers to use the apps included in the solution. The page is organized by application, with a tab for **Damage Assessment Apps**, **Damage Assessment Manager**, and **Outage Damage Assessment Dashboard**.
5. Use the following sections [assign damage assessments](#), [conduct damage assessment](#), [manage damage assessments](#), [monitor impact](#) and [administer damage assessments](#) to learn how to use the solution.

Assign damage assessments

Once an outage event has occurred the dispatcher identifies the location that needs to be assessed and assigns it to the field assessor.

In this workflow, you will assume the role of a dispatcher who needs to assign damage assessments to field assessors so they can evaluate the impact of an outage.

1. Open the Damage Assessment Center app.
2. Click the **Create** button in the app header to open the Damage Assessment ArcGIS Workforce project.
3. Click a location or asset on the map and then click **Create Assignment**.
4. Select the **Assignment Type** as Damage Assessment.
5. Assign a field assessor by selecting a name from the **Assign** drop-down menu.
6. Optionally, select a **Priority** from the drop-down menu.
7. Enter any comments in the **Description** field and click **Create Assignments**.

[Back to top](#)

Conduct damage assessments

After an outage event, damage assessments can be conducted by field personnel to determine the impact of the event. Using field apps with location-based information helps the organization prioritize repairs to the network.

In the workflows below, you will assume the role of a field assessor who has been assigned to conduct damage assessments at a given location.

Start assignments and collect damage locations

As a field assessor, I need to start an assignment and collect the location of damaged assets in the field.

1. Open the ArcGIS Workforce app and sign into your ArcGIS Organization.
2. Open the Damage Assessment project.
3. Tap on an assignment in the **To do** list to view its' location on the map and details about the assignment.
4. Tap **Start** (iOS) or **START** (Android) to begin working on an assignment.
5. Tap **Open in Field Maps** to begin collecting damage assessment locations.
This will open the Damage Assessment - Field Assessor Map in ArcGIS Field Maps.
6. Tap the **Add** button.
7. Select the appropriate damage assessment type from the list of features to collect.

If the damaged location is added to an inaccurate location, or you want to move the point manually, move the crosshairs to the correct location by panning the map and tapping **Update Point**. This moves the added feature to the specified location.

Complete damage assessments

As a field assessor, I need to complete my damage assessment assignment.

1. Open the Damage Assessment project in the ArcGIS Workforce app.
2. Select the assignment and tap **Finish** to complete the assignment.
This will remove the assignment from your to do list.

Manage damage assessments

During the damage assessment process field assessors may require additional support from dispatchers when they lack connectivity. Using a pre configured app, dispatchers can help update the status of assignments, complete damage assessments, or add damage assessment locations.

In the workflows below, you will assume the role of a dispatcher who needs to manage damage assessments conducted in the field.

Edit assignment status

As a dispatcher, I may need to manage the status of a workforce assignment when field assessors do not have access to the internet.

1. Open the Damage Assessment Center app.
2. Click the **Manage** button in the app header to open the **Assignment Manager** app.
3. Open the **Assignment Editor** widget.
4. Select an assignment on the map.
5. Select the appropriate status from the **Status** drop-down.
6. Fill out the date and time for the status and click **Save**.

Edit damage assessment status

As a dispatcher, I need to manage the status of a damage assessment report.

1. Open the **Update Damage Status** widget.
2. Select the location(s) on the map using the **Select** tools.
3. Select **Completed** from the **Status** drop-down.
4. Select the date and time the damage location was completed and click **Save**.

Add damage assessment location

As a dispatcher, I may need to add a damage assessment location in the office when field assessors do not have access to the internet.

1. Open the **Add/Edit** widget.
2. Select the damage type and click on the map to add the new damage location.
3. Enter **Asset ID** if necessary and any notes about the damage.
4. Select **Close** at the bottom when done.

Monitor impact

Damage assessments can be used by electric utilities and telecommunication organizations to evaluate the severity and magnitude of an outage event. Managers can monitor a high-level view of information about assigned work and damaged assets to determine the impact to their network.

In this workflow you will assume the role of a manager who needs to review key metrics of damaged assets and assigned work.

1. Open the Damage Assessment Center app.
2. Click the **Monitor** button in the app header to open the **Outage Damage Assessment Dashboard** app.

[Back to top](#)

3. Click the **Assignments** tab to view assignment statistics.
4. Click the **Damage Assessments** tab to view damage assessment statistics.

Administer damage assessments

After an outage event is completed an organization may archive damages, download photos, and delete assessments records to prepare for a future event.

Archive damage assessments

When an outage event is over it is important to close out the damage assessments that have been resolved. You can archive all completed damage assessments to the format that works for your organization. The archived data can be used for reviewing past outage events and ensures you are ready to start conducting damage assessments for future events. The archived damage assessments can also be used as a backup in case of data loss.

In this workflow, you will assume the role of a GIS Analyst that needs to archive data after an outage event and download the photos collected in the damage assessments.

1. Open the Damage Assessment Center app.
2. Click the **Manage** button to open the **Damage Assessment Manager** app.
3. Click the **Archive Data** widget and click the **Select** button.
4. Select the features on the map you would like to archive.
5. Click the ellipse button next to each layer you would like archive and pick the format you want to export your data to.

Note:

Images will not be archived as attachments.

As a GIS Analyst, I may want to export data from a hosted feature layer into a local file geodatabase after an outage event.

1. Sign in and open the **DamageAssessmentLocations** item page for the features you want to export.
2. Click the **Export Data** button on the **Overview** tab and click **Export to FGDB**.

To learn more go to the [Export data from hosted feature layers](#) page.

As a GIS Analyst, I may want to delete data after an outage event is finished using a pre configured web app by completing the following steps:

1. Open the Damage Assessment Center app.
2. Click the **Manage** button to open the **Damage Assessment Manager** app.
3. After archiving the data you can using the **Add/Edit** widget to delete the data.
4. Use the **New selection** tool to select the locations on the map that need to be deleted.

[Back to top](#)

5. Click the **Delete** button to remove the selected features.

Download Photos

Organizations may want to view photos captured during an outage event for future. You can use the Download Photo Attachments notebook to export photos into a zip file that can be shared with others.

Note:

You must be assigned a role of Administrator or custom role which includes the privilege to Create and edit notebooks in order to run an ArcGIS Notebooks and complete the following steps.

As a GIS Analyst, I may want to download photo attachments from an outage event.

1. Open the **Download Photos** widget and click the **Download Photo Attachments** button to open the Download Photo Attachments notebook.
2. Click **Cell > Run All** to load the photo extraction form in this notebook

Note:

Do not refresh the page while the notebook is running.

3. Enter a name for the item to be created.

Note:

Please note that assessments with a large number of photos may take several minutes.

4. Click **Generate Attachments Item** to create the item.
5. Click the item to open the attachment page.
6. Click the **Download** button to download the file locally.

Parcel Drafter

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Parcel Drafter

Parcel Drafter can be used to enter metes-and-bounds descriptions and check for closure errors in order to verify survey information prior to submission.

It provides deed examiners up-to-date parcel information and a digital workflow for entering new metes-and-bounds land descriptions. This optimized approach helps organizations reduce the time required to process land description documents and share results between staff. Parcel Drafter is typically implemented by property appraisal departments, assessors, fiscal offices, and other local government agencies that want to improve their overall transaction time when a parcel related document is recorded.

The Parcel Drafter solution delivers a set of capabilities that help you capture parcel boundaries as documents are filed and can be integrated into a larger land records workflow that produces a complete inventory of tax parcels, subdivisions, lots, and related encumbrances.

Requirements

Parcel Drafter requires the following:

- ArcGIS Enterprise

Information products

Parcel Drafter includes the following information products:

Item	Description	Minimum user type
Parcel Drafter	An ArcGIS Web AppBuilder app used by mapping technicians to enter metes-and-bounds descriptions and check for closure errors	Editor

[Back to top](#)

Release notes

The following are the release notes:

Version	Description
1.0	<ul style="list-style-type: none">• First release of Parcel Drafter

Configure Parcel Drafter

Learn how to configure the Parcel Drafter solution to meet specific needs in your organization.

Load data

Parcel Drafter can be used to enter metes-and-bounds descriptions and check for closure errors to verify survey information prior to submission. In some cases, you may already have this information in ArcGIS or another business system.

Review the layers provided with the solution and determine what source data you want to load. Then, load your existing data into the layers provided with the solution before sharing the maps or applications.

Once you have determined what source data must be loaded, complete the data loading workflow below.

Load data from a shapefile

1. Create a .zip file of your shapefile.
2. In your ArcGIS organization, browse to the feature layer you want to populate.
3. On the feature layer item details page, click **Update Data** and select **Append Data to Layer**.
4. Under **Filename**, click **Choose File**.
5. Browse to your .zip file and click **Open**.
6. Under **Contents**, select **Shapefile**.
7. Click **Upload and Continue**.
8. Choose the layer that you want to load data into and the layer that contains the updated data.
9. Uncheck **Update existing features**.
10. Click **Show field matching** and map the fields between the two layers.
11. Click **Apply Updates**.

Tip:

To make additional updates to a hosted feature layer, see [Append data to layers](#).

Use Parcel Drafter

The Parcel Drafter solution delivers a set of capabilities that help you capture parcel boundaries as documents are filed and can be integrated into a larger land records workflow that produces a complete inventory of tax parcels, subdivisions, lots, and related encumbrances.

In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

Note:

Use your organization's data or configured apps to follow these workflows.

Provide parcel descriptions

Parcel Drafter can be used to provide metes-and-bounds descriptions and check for closure errors to verify survey information prior to submission.

Add a parcel

You will start by assuming the role of a mapping technician in a tax assessment office who is responsible for checking a new parcel description. You are asked to use Parcel Drafter to provide a metes-and-bounds description and check for closure errors to verify survey information prior to submission.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Parcel Drafter solution.
2. View the Parcel Drafter app.
3. Use the **Search** widget to find a parent parcel or address.
4. Click the **Enter a property description** button to open the widget.
5. In the widget, click the **Start New Traverse** button, and then either click the map or specify X,Y coordinates to start drafting a parcel.

Before starting a new description, you will choose appropriate units.

6. In the widget, at the top right, click the **Settings** button, and then use the drop-down lists to choose the units that best represent the units of the incoming document.
7. At the top of the pane, click the **Back** arrow to return to the **New Traverse** template.
8. Under **New Traverse**, to the left of **Bearing**, click the red connection line to open a drop-down list.
9. Choose either **Boundary** or **Connection** as the line type of your parcel traverse leg.
10. For **Bearing**, **Length**, and **Radius**, type the dimensions of the parcel traverse, and then click the **Add** button on the right to add a new leg.

[Back to top](#)

As you type the dimensions, the traverse lines are drawn on the map from the starting point. Optionally, you can use the **Digitize** tool below the **New Traverse** grid to manually draw the parcel boundaries.

Tip:

To provide a bearing in degrees/minutes/seconds using quadrant bearing, type the values in one of the following formats: 20-25-25-3 (3 is the shortcut for the southwest quadrant) or S20-25-25W.

When providing a bearing in decimal degrees, type the value in the following format: 20.2525.

11. Optionally, update the angle and scale during the traverse to rotate and scale new lines.

Tip:

After providing the first line of the traverse (and if rotation or scale values have not been specified), you can rotate the line to fit the underlying geometry (for example, section line, parcels, or other survey lines). All subsequent lines will be applied this rotation, but the records, bearings, and distances will be captured as provided.

12. Click **Save**.

Edit parcels

Next, you will assume the role of a mapping technician in a tax assessment office who is responsible for editing parcel descriptions. You are asked to use Parcel Drafter to edit a metes-and-bounds description and check for closure errors.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Parcel Drafter solution.
2. View the Parcel Drafter app.
3. In the **Enter a property description** widget, click **Edit Traverse**.
4. Click an existing parcel, and then edit the traverse or attribute information.
5. Click **Save**.

Parcel Value Analysis

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Parcel Value Analysis

Parcel Value Analysis can be used to find comparable sales and visualize the impact of sales, foreclosures, and assessment appeals on property value in a neighborhood or tax district.

It improves the quality of property valuations and provides property appraisers access to current property characteristics and neighborhood trends, ensuring that property is valued in a fair and equitable way. The result can be shared with property appraisers inside your organization and can be used to defend property valuations. Parcel Value Analysis is typically implemented by property appraisal departments, assessors, fiscal offices, and other local government agencies that want to take a visual, location-driven approach to property valuation.

The Parcel Value Analysis solution delivers a set of capabilities that help you improve the overall quality of property valuations by accessing key operational layers from assessment and tax business systems; narrows a search of property sales by defining a price range, year built, and living area; and provides a high-level view into changes in property assessments and tax revenue within a local government.

Requirements

Parcel Value Analysis requires the following:

- ArcGIS Enterprise

Information products

Parcel Value Analysis includes the following information products:

Item	Description	Minimum user type
Value Analysis Dashboard	An ArcGIS Dashboards app used by assessors to visualize the impact of sales, foreclosures, and assessment appeals on property value in a neighborhood or tax district	Viewer
Residential Comp Finder	An ArcGIS Web AppBuilder app used by the general public, real estate agents, and appraisers to find comparable sales and related property information	Viewer

Release notes

The following are the release notes:

Version	Description
1.0	<ul style="list-style-type: none">• First release of Parcel Value Analysis

Configure Parcel Value Analysis

Learn how to configure the Parcel Value Analysis solution to meet specific needs in your organization.

Load data

Parcel Value Analysis can be used to share parcel, property sales, floodplain, and tax distribution information. In some cases, you may already have this information in ArcGIS or another business system.

Review the layers provided with the solution and determine what source data you want to load. Then, load your existing data into the layers provided with the solution before sharing the maps or applications.

Once you have determined what source data must be loaded, complete one or more of the data loading workflows below.

Load data from a shapefile

Load data for TaxParcels, SiteAddresses, SchoolDistricts, and TaxParcelSales from a shapefile by completing the following steps:

1. Create a .zip file of your shapefile.
2. In your ArcGIS organization, browse to the feature layer you want to populate.
3. On the feature layer item details page, click **Update Data** and select **Append Data to Layer**.
4. Under **Filename**, click **Choose File**.
5. Browse to your .zip file and click **Open**.
6. Under **Contents**, select **Shapefile**.
7. Click **Upload and Continue**.
8. Choose the layer that you want to load data into and the layer that contains the updated data.
9. Uncheck **Update existing features**.
10. Click **Show field matching** and map the fields between the two layers.
11. Click **Apply Updates**.

Tip:

To make additional updates to a hosted feature layer, see [Append data to layers](#).

Load tax distribution information

To configure the Tax Distribution table in the TaxParcels layer in ArcGIS, you can use the sample .csv file included with the solution (TaxDistribution.csv).

To load tax distribution from a spreadsheet, complete the following steps:

1. Sign in to your ArcGIS organization and browse to the **TaxDistribution** item.
2. On the item details page, click **Download**.
3. Once downloaded, open the **TaxDistribution.csv** file and populate the **Parcel ID**, **Total Tax**, and **Tax District** distribution totals (in dollars).

Note:

After these tax values are populated, you can compute the percent of total tax dollars for each tax district and populate its corresponding Tax District % attribute, for example, $(TXDIST1/TOTTX)*100 = TXDIST1PER$ or $(\$1500/\$5000)*100 = 30\%$.

4. Alternatively, you can use ArcGIS Pro to populate these values based on their spatial relationship with tax districts.
5. In your ArcGIS organization, browse to the **TaxParcels** feature layer.
6. On the feature layer item details page, click **Update Data** and select **Append Data to Layer**.
7. Under **Filename**, click **Choose File**.
8. Browse to your .csv file and click **Open**.
9. Click **Upload and Continue**.
10. From **Choose the layer that you wish to append data into**, select the **Tax Distribution** table to load data into.
11. Uncheck **Update existing features**.
12. Click **Show field matching** to map the fields.
13. Map the **Latitude** field to the y-column and the **Longitude** field to the x-column.
14. Click **Apply Updates**.

Tip:

To make additional updates to a hosted feature layer, see [Append data to layers](#).

Use Parcel Value Analysis

The Parcel Value Analysis solution delivers a set of capabilities that help you improve the overall quality of property valuations by accessing key operational layers from assessment and tax business systems; narrows a search of property sales by defining a price range, year built, and living area; and provides a high-level view into changes in property assessments and tax revenue within a local government.

In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

Note:

Use your organization's data or configured apps to follow these workflows.

Analyze property value

Value Analysis Dashboard can be used to visualize the impact of sales, foreclosures, and assessment appeals on property value in a neighborhood or tax district.

Explore assessment neighborhoods

You will start by assuming the role of a residential property appraiser in an assessment organization that is responsible for valuing property. You are asked to use the Value Analysis Dashboard to investigate specific assessment neighborhoods and identify assessed value outliers, analyze recent property sales, and review appeals and foreclosures.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Parcel Value Analysis solution.
2. View the Value Analysis Dashboard.
The Value Analysis Dashboard opens, showing information about sales, appeals, and foreclosures, as well as overall metrics regarding property value and total property tax outstanding.
3. On the left, click the **All Neighborhoods** drop-down arrow and choose an assessment neighborhood to refine the results.
4. Click the **All Sales** drop-down arrow and choose a date range to further refine the results.
5. Explore the neighborhood and notice the range of assessed values.
6. The parcels shaded in blue have higher values than parcels shaded in yellow.
7. On the map, click a sale to see a pop-up with the sale's details and a description of the likelihood that this sale could impact property tax levied against the property.
8. Review the high-level metrics about the neighborhood, including the current assessed value, current taxable value, and the overall taxes owed.

[Back to top](#)

Locate comparable sales

Now, you will assume the role of a residential property appraiser in an assessment organization that is responsible for valuing property. You are asked to use the Residential Comp Finder to investigate property sales by defining a price range, year built, and living area. The resulting list of properties sold can then be used to help determine the fair market value of a subject or prospective property.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Parcel Value Analysis solution.
2. View the Residential Comp Finder app.
3. On the right, in the **Locate Sale** widget, search for a parcel number, address, or school district, or click a location directly on the map.
4. Optionally, adjust the buffer slider to see a larger list of potential businesses.
5. Review the property's details, such as its address, parcel number, year built, floor area, assessed value, sale price, sales date, and sales ratio.
6. Optionally, use filters to refine the results; for example, use the **Sale Amount is between** filter to find homes with sale prices between \$250,000 and \$350,000.

Park Infrastructure Management

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Park Infrastructure Management

Park Infrastructure Management can be used to inventory park assets, understand asset condition, and communicate changing asset conditions that impact park services.

Parks improve quality of life, protect natural resources, and enhance local economies. Unfortunately, park agencies are increasingly burdened with overuse and many times the first agency to receive funding cuts during an economic downturn. As a result, they are continuously balancing park asset maintenance needs with available funding. The first and most critical step park agencies must take to prioritize asset needs is to create a park asset inventory. Park Infrastructure Management is typically implemented by park agencies that want to understand what assets they have, plan improvements, and ensure guest safety.

The Park Infrastructure Management solution delivers a set of capabilities that help you inventory park assets, understand asset condition, and communicate changing asset conditions that impact park services.

Requirements

Park Infrastructure Management requires the following:

- ArcGIS Enterprise
- ArcGIS Workforce
- ArcGIS Field Maps
- ArcGIS Survey123
- ArcGIS Survey123 Connect

[Back to top](#)

Information products

Park Infrastructure Management includes the following information products:

Item	Description	Minimum user type
Park Assignments	An ArcGIS Workforce project used by maintenance supervisors to manage inspection and maintenance assignments.	Editor
Park Field Map	An ArcGIS Field Maps map used by park rangers to inventory, inspect and maintain park assets.	Mobile Worker
Park Request Manager	A Crowdsorce Manager app used by park operations staff to triage submitted problem reports and update the status of each report.	Editor
Park Request Dashboard	An ArcGIS Dashboards app used by park operations staff to monitor park requests submitted by the general public and internal staff	Viewer
Park Asset Inventory	A Sidebar app used by used by mapping technicians to create, edit, and review park assets.	Editor
Recreation Closure Manager	An ArcGIS Web AppBuilder app used by public information staff to create and update recreation closures.	Editor
Create Park Assignment	An ArcGIS Survey123 form used by park operations staff to create park assignments.	Editor
Park Request Internal	An ArcGIS Survey123 form used by park rangers to submit service requests.	Mobile Worker
Park Request	An ArcGIS Survey123form used by park visitors to submit service requests.	Not required

Release notes

The following are the release notes:

Version	Description
1.0	<ul style="list-style-type: none">First release of Park Infrastructure Management

Configure Park Infrastructure Management

In this topic, you'll learn how to configure the Park Infrastructure Management solution to meet specific needs in your organization.

Load data

Park Infrastructure Management can be used to inventory park assets, understand asset condition, and communicate changing asset conditions that impact park services.

Review the layers provided with the solution and determine what source data you want to load. Then, load your existing data into the layers provided with the solution before sharing the maps or applications.

Once you have determined what source data must be loaded, complete the data loading workflow below.

Load data from a shapefile

1. In your ArcGIS organization, browse to the feature layer you wish to populate.
2. On the feature layer item details page, Click **Update Data** and select **Append Data to Layer**.
3. Under **Filename**, click **Choose File**.
4. Browse to your `.zip` file and click **Open**.
5. Click **Upload and Continue**.
6. Choose the layer that you want to load data into and the layer that contains the updated data.
7. Uncheck **Update existing features**.
8. Click **Show field matching** and map the fields between the two layers.
9. Click **Apply Updates**.

Modify inspection and maintenance types

The Park Infrastructure Management solution helps you assess park asset condition and record maintenance activities. Inspection and maintenance types are defined on the ParkAssets feature layer and appear in the Park Field Map when park rangers are recording their work. In some cases, you may want to modify inspection and maintenance types to meet your organization's needs

1. Verify that you are signed in to your ArcGIS organization and browse to the ParkAssets feature layer.
2. Open the item page and click the **Data** tab.
3. Click the **Layer** drop-down and select **Trails Inspection**.

[Back to top](#)


4. Click **Fields**.
5. Click the **Inspection Type** display name.
6. Click **Create List**.
7. Type the new inspection type into the **Displayed Value** and **Stored Value** text boxes.
8. Optionally, click **Add** to create additional inspection types.
9. Optionally, click the **Delete** button to remove an inspection type from the list.
10. Repeat steps 8 and 9 to add the remaining inspection types.
11. Optionally, drag the category to a new location in the list to reorder them.
12. Click **Save**.
13. Click the **Layer** drop-down and select **Trails Maintenance**.
14. Click the **Maintenance Type** display name.
15. In the **List of Values (Domain)** section, repeat steps 6-12 to add maintenance types.
16. Repeat this process for the remaining inspection and maintenance tables (Barriers, Gates, Roads, Structures).

Administer field assignments

The Park Infrastructure Management solution can be used to manage work such as data collection, routine and ad-hoc inspections, and maintenance assigned to park rangers. Types of assignments appear in the Park Assignments app used by park rangers as well, the Park Assignments ArcGIS Workforce project and the Create Park Assignment ArcGIS Survey123 form.

The Park Infrastructure Management solution includes several assignment types. In some cases, you may want to modify inspection and maintenance types to meet your organization's needs. Park rangers and dispatchers also need to be assigned roles in the Park Assignments ArcGIS Workforce project.

Administer park assignments

1. Verify that you are signed in to your ArcGIS organization and click the **Apps** button  in the header of the site.
2. From the app launcher, click **Workforce** to open the app.
3. Under **Projects**, hover over the **Park Assignments** project, and click **Configure**.
4. Click the **Assignment Types** tab.

In the **Assignment Type** section, review existing types and identify ones that are not applicable and ones that are missing.

5. Type a new assignment type in the **Enter a new type** text box then click **+ Type** button.
6. To remove assignment types, click the **X** button.

7. Click the **Users** tab.
8. From the **Project Role** menu, assign the user either the dispatcher role or mobile worker role.
9. Click **+User**.
10. Click the **Advanced** tab.

Each assignment type is integrated to the Park Field Map. This allows park rangers to access the Park Field Map from the ArcGIS Workforce app. As you add new assignment types, you may want to add the Park Field Map integration.

11. In the ArcGIS Field Maps, click **Edit** on any of the existing Park Field Map integrations. Check the box next to the new assignment type. Click the **Next** button.
12. Click the **Done** button.

Update create park assignment form

1. In your ArcGIS organization, browse to the Park Assignments feature layer.
Before populating the new assignment types into the Create Park Assignment form, you will first copy the GlobalID for each new assignment type.
2. Open the item page and click **Open in Map Viewer**.
3. On the **Contents** (dark) toolbar, click **Tables**.
4. Click **Assignment Types** layer.
5. Click **Tools** in the table header and check the **GlobalID** field to show (unhide) in the table. Click Done to close the pop-up window.
6. Expand the **GlobalID** field and copy each new assignment type's ID.
7. Paste the copied GlobalID or GlobalIDs into a text editor for reference.
8. Install [ArcGIS Survey123 Connect](#).
9. Start ArcGIS Survey123 Connect and sign in to your ArcGIS organization.
10. Click **Create Park Assignment** to download the survey.
11. In the **Download** window, click **Download** and click **OK**.
12. Click Create Park Assignment to open the survey.
13. On the left, from the side toolbar, click the **XLSForm** button.
14. At the bottom of the Microsoft Excel spreadsheet, click the **choices** tab.
This tab comprises all the selectable options for survey questions.
15. In the **list_name** column type ASSIGN_TYPE.
16. In the **name** column, copy and paste the GlobalID, before and after the GlobalID add curly braces.
For example, {5b3e80df-aec7-4739-929f-8cb70cdbc62c}.
17. In the **label** column, type the assignment type.

[Back to top](#)

18. Repeat steps 15 through 17 for each new assignment type.
19. Save and close the Microsoft Excel spreadsheet and preview your changes in ArcGIS Survey123 Connect.
20. In ArcGIS Survey123 Connect, in the left toolbar, click **Publish** to publish your changes.
21. Click **Publish survey** to publish your changes, and then click **OK**.

Modify service request types

The Park Infrastructure Management solution can be used to solicit park requests for service from park rangers as well as the general public. Service request types appear in the Park Request Internal and Park Request ArcGIS Survey123 forms.

The Park Infrastructure Management solution includes several service request types. In some cases, you may want to modify service request types to meet your organization's needs, for example you may want some requests to be available to park rangers using the Park Request Internal form that are not available to the general public using the Park Request form.

1. Start ArcGIS Survey123 Connect and sign in to your ArcGIS organization.
2. Click **Park Request** to download the survey.
3. In the **Download** window, click **Download** and click **OK**.
4. Click Park Request to open the survey.
5. On the left, from the side toolbar, click the **XLSForm** button.
6. At the bottom of the Microsoft Excel spreadsheet, click the **choices** tab.
This tab comprises all the selectable options for survey questions.
7. In the **list_name** column type reqtype.
8. Type the new service request type into the **name** and **lable** columns.
9. Repeat steps 7 and 8 for each new service request type.
10. Save and close the Microsoft Excel spreadsheet and preview your changes in ArcGIS Survey123 Connect.
11. In ArcGIS Survey123 Connect, in the left toolbar, click **Publish** to publish your changes.
12. Click **Publish survey** to publish your changes, and then click **OK**.
13. Click **Park Request Internal** to download the survey.
14. Repeat steps 3 through 12 to add new service request types to the **Park Request Internal** form.

Use Park Infrastructure Management

The Park Infrastructure Management solution delivers a set of capabilities that help you inventory park assets, understand asset condition, and communicate changing asset conditions that impact park services.

In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

Inventory and assess park assets in the field

In many cases, a field assessment of existing park assets may be the most efficient way to develop a park asset inventory. The information collected in the field can then be augmented with other descriptive information that helps park staff or the general public view park information easily.

You will assume the role of a park ranger in a park agency. In this workflow, you are asked to use the ArcGIS Field Maps mobile app to access your Park Field Map and inventory park assets.

Collect park assets in the field

1. Download ArcGIS Field Maps onto your mobile device.
2. Open ArcGIS Field Maps and sign in to your ArcGIS organization.
3. Tap the **Park Field Map** to open it.
4. Browse to the collection location.
5. Tap **Add** and tap **Restrooms**.
6. Swipe up on the form and tap **Name** to enter the name of the restroom.
7. Tap **Park** to enter the name of the park.
8. Tap **Amenity Details** to expand the form.
9. Tap **Condition** and choose a value.
10. Tap **Owned By** and choose a value.
11. Tap **Maintained By** and choose a value.
12. Swipe down and tap **Take Photo**, and then take a photo and tap **Use Photo**.
13. When you're finished, at the top right, tap the check mark or **Submit**.

Note:

Your interface may vary depending on the type of mobile device that you use.

14. Repeat steps 6 through 14 for each park asset.

Assess park assets in the field

1. Tap a trail in the Park Field Map.

2. Swipe up on the form to review the trail information.
3. Swipe up on the form to the **Related** section.
4. Tap **Trails Maintenance**.
Previously recorded maintenance activities are displayed. When present, tap the maintenance record and swipe up on the form to review the information.
5. Tap **Add**.
6. Swipe up on the form to expand the form.
7. Tap **Maintenance Type** to enter the type of maintenance activity completed.
8. Tap **Maintenance Status** and choose **Completed**.
9. Tap **Date finished** and choose today's date.
10. Optionally, tap **Notes** to enter maintenance notes.
11. When you're finished, at the top right, tap the check mark or **Submit**.

Note:

Your interface may vary depending on the type of mobile device that you use.

12. Swipe up on the form to review the recorded maintenance information.
13. In the **Related** section, tap **Trails** to return to the Trail feature.
14. Swipe up on the form to the **Related** section.
15. Tap **Trails Inspection**.
Previously recorded inspections are displayed. When present, tap the inspection record and swipe up on the form to review the information.
16. Tap **Add**.
17. Swipe up to expand the form.
18. Tap **Condition** and choose a value.
19. Tap **Inspection Type** and enter a value.
20. Tap **Needs Maintenance** and choose **Yes**.
21. Tap **Inspection Date** and choose today's date.
22. Swipe down and tap **Take Photo**, and then take a photo and tap **Use Photo**.
23. When you're finished, at the top right, tap the check mark or **Submit**.

Note:

Your interface may vary depending on the type of mobile device that you use.

24. Swipe up on the form to review the recorded inspection information.
25. In the **Related** section, tap **Trails** to return to the Trail feature.
26. Swipe up on the form and tap the **Create service request** button.

[Back to top](#)




27. Complete the **Park Request** form to report a request for service.
28. When you're finished, at the top right, tap the check mark or **Submit**.

Note:

Your interface may vary depending on the type of mobile device that you use.

Complete field assignments

Park Rangers will often receive work through assignments that help organize tasks to be completed and communicate the status of work to maintenance supervisors. In this workflow, you are asked to use the ArcGIS Workforce app on your mobile device to track the status of your work in the field.

1. Download ArcGIS Workforce onto your mobile device.
2. Open ArcGIS Workforce and sign in to your ArcGIS organization.
3. Tap the **Park Assignments** map.
4. In the **To do** list, tap an assignment to view its location on the map and see details about the assignment.
5. In the assignment details, tap **Directions** to see a list of installed navigation apps, and then tap the app you want to use and allow ArcGIS Workforce to open it.
The app opens, generating a route to your assignment.
6. In the assignment details, tap **Start** to begin working on an assignment.
7. Optionally, tap **Add Note** to enter information for the maintenance supervisors. Tap **Done**.
8. Optionally, tap **Take Photo** to take and attach a photo.
9. Optionally, tap **Attach** to record video and audio and to attach other photos from your device.
10. Swipe up and tap **Open in Field Maps**.
The Park Field Map opens in ArcGIS Field Maps.
11. After you have finished collecting data or recording work in the Park Field Map return to the ArcGIS Workforce app.
12. To pause, decline, or reset the assignment, tap the **Overflow** button  and tap the appropriate status, or tap **Cancel**.
13. In the assignment details, tap **Finish** when you have completed the assignment.
14. Optionally, tap **To Do** and tap **Completed** to view your completed assignments.
15. Optionally, tap **Sync**  ( if you have edits that aren't synced) and tap **Sync Now** to sync them.

Changes to the status of your assignments automatically syncs with your ArcGIS organization at the default interval of every 15 minutes.

[Back to top](#)

Develop park asset inventory

The Park Asset Inventory app can be used by mapping technicians to create, edit, and review park assets. Existing park assets collected in the field can be reviewed and information added to help park staff and the general public find information about a park. New park assets can also be added to a park asset inventory using imagery and record documents.

You will assume the role of a mapping technician in a park agency. In this workflow, you are asked to review park assets collected by field staff and add new park assets. The steps below provide guidance; however, you can enter information as you see fit and examine the different dependencies in the form.

Review park assets collected in the field

1. Sign in to your ArcGIS organization and browse to the Park Asset Inventory app.
2. Open the item page and click **View Application**.
3. Open the **Filter** panel and click the **Trailheads: Needs Review** filter to display trailheads that need to be reviewed.
4. Open the **Edit** panel and click **Edit feature**.
5. Select a trailhead on the map.
6. In the panel, review the attribute information and enter the remaining details for the trailhead.
7. Set **Status** to **Open**, **Publicly Visible** to **Yes**, and **Reviewed** to **Yes**.
8. When you're finished, click **Update**.

Add a new park asset

1. In the Park Asset Inventory app, open the **Edit** panel, and click **Add feature**.
2. Type Trails into the **Filter types** search box, and click the **Trails** feature template.
3. Add a new trail to the map.
4. Enter the following trail details:

Parameter	Value
Asset ID	Type T1-0004.
Name	Type McDowell Grove Trail.
Park Name	Type McDowell Park.
Trail System	Type McDowell Park.
Status	Choose Open .
Reviewed	Choose Yes .
Seasonal	Choose No .

[Back to top](#)

Hiking	Choose Yes .
Mountain Biking	Choose Yes .
eBikes	Choose No .
Dogs Allowed	Choose Yes .
Surface Type	Choose Native .
Publicly Visible	Choose Yes .
Install Date	Choose today's date.
Owned By	Choose Our Agency .
Managed By	Choose Our Agency .

5. Scroll to the bottom of the form and click **Add**.
6. Repeat all of the steps for each park asset.

Update recreation closure information

Communicating the status of recreation opportunities helps visitors plan trips and reduces congestion and overuse of resources. The Recreation Closure Manager app can be used by public information staff to create and update recreation closures.

Create recreation closure

1. Sign in to your ArcGIS organization and browse to the Recreation Closure Manager app.
2. Open the item page and click **View Application**.

The **Manage Recreation Closures** widget is opened by default, which allows you to create and edit existing recreation closures.

3. In the **Search** widget, type an address.
4. In the **Manage Recreation Closures** widget, click the **Closures** template and add a new recreation closure to the map.
5. Enter the following recreation closure details:

Parameter	Value
Name	Type Trail Maintenance.
Type	Choose Temporary Closure .
Reason	Choose Maintenance .
When	Type Winter 2021 to Spring 2022.
Comment	Type Trail closed Winter 2021 to Spring 2022.

6. Click **Save**.

[Back to top](#)

Update asset status

1. Open the **Update Public Status** widget.
2. Select the **Freehand Polygon** selection tool, and select the assets associated with the recreation closure.
3. For **Status**, choose **Closed**.
4. Click **Save**.


Note:

When you create recreation closures and update asset status information using the Recreation Closure Manager app, the recreation locators deployed with the [Recreation Outreach](#) solution will automatically be updated with the new information.

Manage operations

You will now assume the role of a maintenance supervisor responsible for organizing routine and ad-hoc inspections and maintenance activities. In this workflow, you are asked to monitor field activities and conditions, manage requests for service, and assign work.

Respond to requests for service

1. Verify that you are signed in to your ArcGIS organization and browse to the Park Request Manager app.
2. From the item page, click **View**.
3. Click the **Status** column filter.
4. Click the **Status is** drop-down arrow and choose **Submitted** to view requests for service with a submitted status.
5. Click the **Submitted On** column and choose **Sort in descending order**.
6. Click one of the service request features to view its details.
7. On the **Details** tab, click the **Edit** button .
8. Click the **Status** drop-down arrow and choose **Received**.
9. Click **Save**.

You will create an assignment so the request for service can be addressed by park rangers.

10. Click the service request feature in the table to view its details.
11. On the **Details** tab, click the **Create Park Assignment** button.
The **Create Park Assignment** form opens.
12. Complete the form to create an assignment that you will assign to park rangers.
13. When you're finished, click **Submit**.


[Back to top](#)

Monitor requests for service

1. Verify that you are signed in to your ArcGIS organization and browse to the Park Request Dashboard.
2. From the item page, click **View Dashboard**.
3. Use the graphs to filter and explore active and resolved requests for service.

Dashboard charts are linked. As you click and select a category in one chart, related details are filtered and updated in other charts on the service request to allow a manager to identify issues and areas that need attention.

Manage field assignments

1. Verify that you are signed in to your ArcGIS organization and click the **Apps** button  in the header of the site.
2. From the app launcher, click **Workforce** to open the app.
3. Under **Projects**, hover over the **Park Assignments** project, and click **Open** to open the project.

Tip:

When implementing the Park Infrastructure Management solution in your organization, you must add everyone responsible for verifying park assignments in the field to the Park Assignments ArcGIS Workforce project with a Mobile Worker role. You can add users and assign roles in the configuration settings of the project. To access the configuration settings, hover over the **Park Assignments** project and click **Configure**. Click the **Users** tab. For the purposes of this exercise, ensure that your named user account is assigned as a dispatcher and as a mobile worker. Click the **My Projects** tab to return to your projects.

4. At the bottom of the pane, click the **Assignments** tab.
5. If present, click on an assignment from the list of assignments.
6. Click the **Assign** drop-down and select a mobile worker who will complete the work.
7. Optionally, click the **Edit** button to modify the **Priority**, **Description** or other assignment details. When you're finished, click **Save**.
8. Click the back button.
9. On the map, select a park asset. Review the asset information then click **+ Create Assignment**.
10. You can also use the search box on the map to search by address, place, or park asset ID.
11. Choose an **Assignment Type** and assign a mobile worker.
12. Click **Create Assignment**.

Participatory Budgeting

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Participatory Budgeting

Participatory Budgeting can be used to solicit community feedback to identify, discuss, and prioritize public spending projects.

It provides 24/7 access to an organization, and the location-enabled project ideas drive community engagement and help efficiently triage ideas to the person or department responsible for project scoping. Input gathered in the public application often makes up for gaps in official knowledge and brings the people and their government closer together as a community. It also allows historically disenfranchised groups to participate, leading to new ideas in government. Participatory Budgeting is typically implemented by planning departments, public works agencies, and other local government agencies that want to increase transparency and solicit feedback from the public and ultimately build a community in which everyone's voice can be heard.

The Participatory Budgeting solution delivers a set of capabilities that help you solicit project ideas from the public, triage and monitor these ideas, and incorporate popular ideas in future capital improvement plans.

Requirements

Participatory Budgeting requires the following:

- ArcGIS Enterprise

Information products

Participatory Budgeting includes the following information products:

Item	Description	Minimum user type
Participatory Budgeting	An ArcGIS Hub site used by the general public to learn how they can become involved in the participatory budgeting process	Not required
Participatory Budgeting	A Crowdsource Reporter app used by the general public to identify, discuss, and prioritize project ideas	Not required
Participatory Budgeting Manager	A Crowdsource Manager app used by local government personnel to triage project ideas submitted by the general public	Editor
Participatory Budgeting Dashboard	An ArcGIS Dashboards app used by local government personnel to monitor project ideas reported by the general public	Viewer

Release notes

The following are the release notes:

Version	Description
1.0	<ul style="list-style-type: none">• First release of Participatory Budgeting


Configure Participatory Budgeting

Learn how to configure the Participatory Budgeting solution to meet specific needs in your organization.



Configure the Participatory Budgeting site

The Participatory Budgeting solution includes the Participatory Budgeting ArcGIS Hub site, which your organization can configure with your own branding and use to share important budgeting and planning information with the public.

After deploying the Participatory Budgeting solution, the Participatory Budgeting site layout only requires a few updates to fit your local context. Follow the steps below to update the site with your organization's needs:

1. Sign in to your ArcGIS organization and browse to the Participatory Budgeting site.
2. Open the item page and click **Configure App**.
3. Click the edit button  to open the site editor.
4. Scroll to the **Statistics** section under the title of the website. The **Community Ideas** statistics card is already linked to the Participatory Budgeting solution's PublicProjectIdeas_public feature layer. This statistic automatically updates as you load data into your solution.

The **Available Budget** and **Ideas Funded** statistics are provided in a text card but styled to resemble the **Community Ideas** statistics card; this allows you the option to manually enter a statistic of your choice, independent of data. Update the **Available Budget** and **Ideas Funded** statistics cards using a metric of your choice, or replace the text card with a **Summary Statistics** card and use the PublicProjectIdeas_public feature layer view as its data source, similar to the other statistics cards.

5. Update the **Available Budget** and **Ideas Funded** cards by hovering over one of the cards and clicking the edit pencil  , and then update the text. To add a **Summary Statistics** card to the existing row, see the [Display key metrics](#) section in the Insert charts, tables, and metrics topic. Once the card has been added to the row, hover over the replaced card and click the delete button  .
6. Scroll to the **Meet the Participatory Budgeting Committee** section, hover over the card, and click the edit pencil on the horizontal toolbar.
7. To update the image, click **</> Edit in HTML** and replace the existing URL with the URL of your image, and edit the photo names in the card.
8. Click **Apply**.
9. Scroll to the **Frequently Asked Questions** section, hover over the card and click the edit pencil, and update the questions and answers.
10. Click **Footer**.

[Back to top](#)

A custom footer is already provided, and in most cases, it needs to be updated with your organization's branding, contact information, and social media references.

11. Click the **HTML** text box.
The **HTML** window appears.
12. Make the necessary changes and click **Apply**.
13. Click **Save**.

Share items with the public

Several layer views, maps and apps included in the Participatory Budgeting solution must be shared with everyone so they can be accessed by the public on the Participatory Budgeting site. To share your participatory budgeting items with everyone, use the guide below and complete the following steps:

1. Verify that you are signed in to your ArcGIS organization and browse to the Participatory Budgeting folder.
2. Check the check box next to each of the items below:

Item	Name
Feature Layer (hosted, view)	PublicProjectIdeas_public
Web Map	Participatory Budgeting
Web Mapping Application	Participatory Budgeting
Site Application	Participatory Budgeting

3. Click **Share**.
4. In the **Share** window, click **Everyone (public)** and click **Save**.
The **Warning: Sharing editable layers publicly** message appears notifying you that you are sharing editable layers publicly.
5. Click **Update**.

Use Participatory Budgeting

The Participatory Budgeting solution delivers a set of capabilities that help you solicit project ideas from the public, triage and monitor these ideas, and incorporate popular ideas in future capital improvement plans.

In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

Note:

Use your organization's data or configured apps to follow these workflows.

Submit a project idea

You will first assume the role of an engaged resident in the community. You want to learn more about the project ideas submitted by the community that are being considered for funding. You also have your own project idea that you want to submit for consideration by the community.


1. In a browser, from the Participatory Budgeting solution, view the Participatory Budgeting site.
2. Scroll to the **Do You Have a Project Idea** section and click the **Submit an Idea** button to open the Participatory Budgeting app.
3. Click **Proceed as Guest** or sign in with your ArcGIS Online or ArcGIS Hub community account.
4. In the **Ideas** list, browse ideas created by others in the community.
5. Click an idea.
6. To like an idea, click the **I agree** button to vote for it, or click the **Leave a reply** button to comment.
7. At the upper left, click the arrow to return to the list of submissions.
8. Click **Submit Idea** to add your own idea.
9. In the form, provide details about your idea, your contact information, and the location for the idea.
10. Click the **Report It** button to submit your idea.

Manage project ideas

You will now assume the role of a member of the participatory budgeting committee. One of your responsibilities is to review ideas submitted by the public and determine if they are viable and what the estimated cost would be.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Participatory Budgeting solution.

[Back to top](#)

2. View the Participatory Budgeting Manager app.
3. In the table or on the map, click an idea.
The idea details open at the lower left.
4. In the idea details, click the **Edit Record** button  .
5. Confirm that the idea category is appropriate.
6. For **Vetted**, choose **Yes**.
7. For **Viable**, choose **Yes**, if appropriate.
8. For **Estimated Cost**, type an estimated cost for the project.
9. Click **Save**.

Monitor project ideas

As a member of the participatory budgeting committee, another of your responsibilities is to monitor ideas submitted by the public to ensure the program is running smoothly.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Participatory Budgeting solution.
2. View the Participatory Budgeting Dashboard app.
3. On the left, use filters to refine the results by project category, status, viability, or date.
When you filter the results, the bar chart and number of project ideas update.
4. Click an idea on the map to view its details.

Performance Management

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Performance Management

Performance Management can be used to monitor key performance metrics and communicate progress made on strategic outcomes to the general public and other interested stakeholders.

Historically, government agencies have focused on process and compliance, but this management style has not yielded the expected results. As a result, many agencies are focusing on performance or results that benefit the public and attempting to increase public confidence in the results. Performance Management is typically implemented by government agencies that want to use evidence and results to foster a culture of continuous improvement, spend scarce budget resources wisely, and ensure that the community's needs are being prioritized.

The Performance Management solution delivers a set of capabilities that help you tabulate performance metrics, monitor performance using a series of dashboards and key performance indicators (KPIs), visualize performance for defined geographies, and share performance with the public through a community website.

Requirements

Performance Management requires the following:

- ArcGIS Enterprise

Information products

Performance Management includes the following information products:

Item	Description	Minimum user type
Community Performance	An ArcGIS Hub site used by government agencies to share key performance indicators (KPIs) and communicate progress made on strategic outcomes with the general public and other interested stakeholders	Not required
Performance Management	An ArcGIS Dashboards app used by government agencies to monitor key performance indicators (KPIs) and communicate progress made on strategic outcomes with the general public and other interested stakeholders	Viewer (required if dashboard is used for internal purposes only)
Performance Management Mobile	An ArcGIS Dashboards app, optimized for mobile devices, used by government agencies to monitor key performance indicators (KPIs) and communicate progress made on strategic outcomes with the general public and other interested stakeholders	Viewer (required if dashboard is used for internal purposes only)
Performance Management Survey	An ArcGIS Survey123 form used by the general public to provide feedback on the community's strategic outcomes and key performance indicators (KPIs)	Not required

Release notes

The following are the release notes:

Version	Description
1.1	<ul style="list-style-type: none">A new Performance Management and Performance Management Mobile dashboard that resolves an issue where the location selector fails to load in the new ArcGIS Dashboards app.
1.0	<ul style="list-style-type: none">First release of Performance Management.

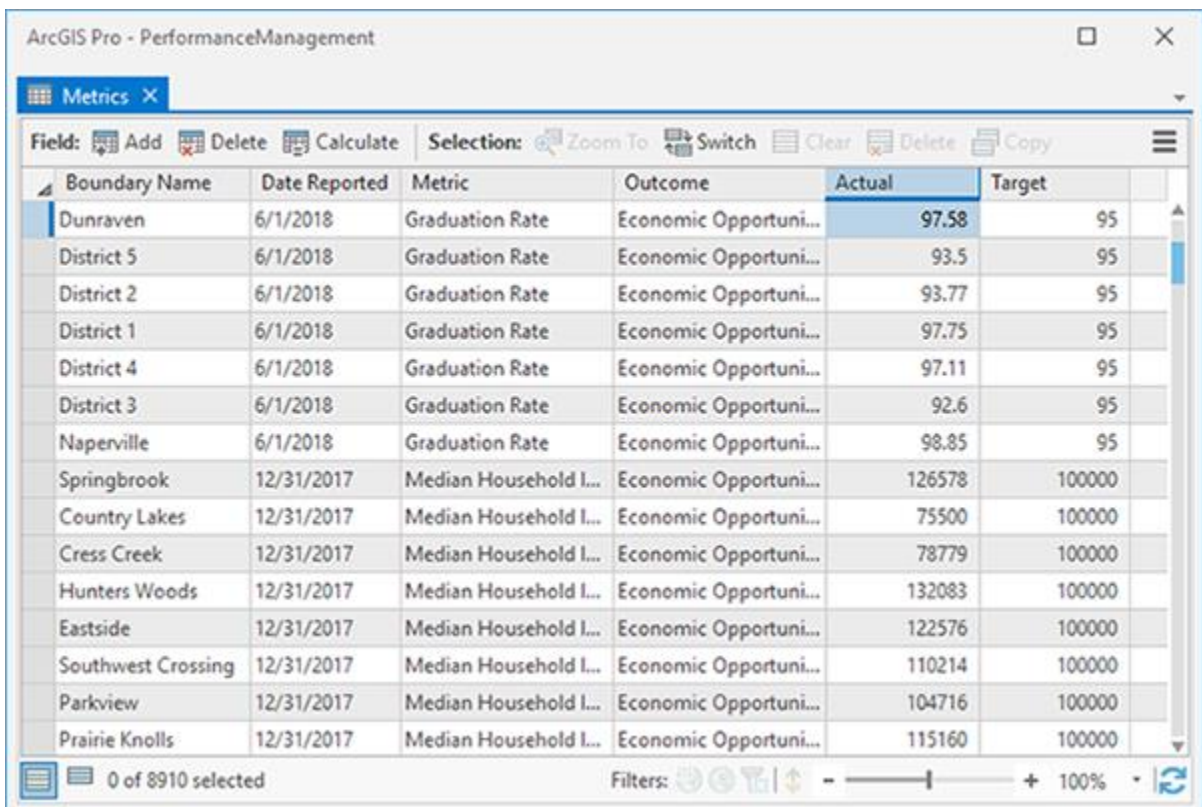
Configure Performance Management

Learn how to configure the Performance Management solution to meet specific needs in your organization.

Load data

The PerformanceManagement feature layer deployed with the solution is designed to be flexible to the different metrics that communities may want to measure as part of their Performance Management initiative. The PerformanceManagement feature layer contains two sublayers:

- A Boundaries layer, which stores the different levels of geography used to measure community performance—for example, the municipality or city, council districts, neighborhoods, and so on.
- A Metrics table, which stores the name of the metric, the strategic outcome it is associated with, the date it was reported, the geography it is measuring, the target or goal associated with the metric, and the actual value recorded. The image below shows an example of two metrics, Graduation Rate and Median Household Income, measured for different geographies and dates.



The screenshot shows the ArcGIS Pro interface with the PerformanceManagement Metrics table. The table has the following columns: Boundary Name, Date Reported, Metric, Outcome, Actual, and Target. The data is filtered to show Graduation Rate for Dunraven and its districts, and Median Household Income for various neighborhoods in Naperville.

Boundary Name	Date Reported	Metric	Outcome	Actual	Target
Dunraven	6/1/2018	Graduation Rate	Economic Opportuni...	97.58	95
District 5	6/1/2018	Graduation Rate	Economic Opportuni...	93.5	95
District 2	6/1/2018	Graduation Rate	Economic Opportuni...	93.77	95
District 1	6/1/2018	Graduation Rate	Economic Opportuni...	97.75	95
District 4	6/1/2018	Graduation Rate	Economic Opportuni...	97.11	95
District 3	6/1/2018	Graduation Rate	Economic Opportuni...	92.6	95
Naperville	6/1/2018	Graduation Rate	Economic Opportuni...	98.85	95
Springbrook	12/31/2017	Median Household I...	Economic Opportuni...	126578	100000
Country Lakes	12/31/2017	Median Household I...	Economic Opportuni...	75500	100000
Cress Creek	12/31/2017	Median Household I...	Economic Opportuni...	78779	100000
Hunters Woods	12/31/2017	Median Household I...	Economic Opportuni...	132083	100000
Eastside	12/31/2017	Median Household I...	Economic Opportuni...	122576	100000
Southwest Crossing	12/31/2017	Median Household I...	Economic Opportuni...	110214	100000
Parkview	12/31/2017	Median Household I...	Economic Opportuni...	104716	100000
Prairie Knolls	12/31/2017	Median Household I...	Economic Opportuni...	115160	100000

The image below shows a filtered view of the table for a single metric, Graduation Rate, for the City of Naperville recorded annually since 2014. In this example, you have also set a new target or goal for 2019 with no actual value recorded yet. This allows you to display future goals in the performance dashboard.

[Back to top](#)

ArcGIS Pro - PerformanceManagement

Metrics X

Field: Add Delete Calculate Selection: Zoom To Switch Clear Delete Copy

Boundary Name	Date Reported	Metric	Outcome	Actual	Target
Naperville	6/1/2014	Graduation Rate	Economic Opportuni...	94.53	95
Naperville	6/1/2015	Graduation Rate	Economic Opportuni...	99.66	95
Naperville	6/1/2016	Graduation Rate	Economic Opportuni...	91.03	95
Naperville	6/1/2017	Graduation Rate	Economic Opportuni...	94.61	95
Naperville	6/1/2018	Graduation Rate	Economic Opportuni...	98.85	95
Naperville	6/1/2019	Graduation Rate	Economic Opportuni...	<Null>	97

0 of 6 selected Filters: 100%

Load performance boundaries

The Boundaries layer is used to define, which geographies the community want to measure performance and controls the options listed in the filter of the performance dashboard. This can be a single location (for example, the city), or multiple locations (for example, the city, its neighborhoods, and council districts).

To load features from a shapefile into the Boundaries layer, complete the steps below:

1. Sign in to your ArcGIS organization and browse to the PerformanceManagement feature layer item.

Note:

When you deploy the solution, two feature layers are created in your ArcGIS organization **My Content** tab, PerformanceManagement and PerformanceManagement_dashboard. PerformanceManagement_dashboard is a noneditable view of the PerformanceManagement feature layer that is used by the dashboards. PerformanceManagement is editable and is intended for users inside the organization to add, modify, and delete records.

2. Open the item page and click **Update Data > Append Data to Layer**.
3. Click **Choose File** and browse to a .zip containing the shapefile with your boundary features, and then click **Open**.
4. Click **Upload and Continue**.
5. Click the **Choose the layer that you wish to append data into** drop-down arrow and choose **Boundaries**.
6. Uncheck **Update existing features**.
7. Click **Show field matching** to map the fields.

[Back to top](#)

Note:

The key required field for the Boundaries layer is the name field, which represents the name of the geography. This field is used in the relationship between the Boundaries layer and Metrics table and is what drives the location filter in the dashboard. If you have a type field on the source layer, it can be mapped as well. If not, it can be edited after you append the data.

8. Click **Apply Updates**.

Load performance metrics

The Metrics table is configured to allow a community to manage all their key performance indicator (KPI) data across different geographies and over time in a single table. Each row in the table corresponds to a single KPI for a specified geography and date and time.

Often the performance data is coming from multiple business systems in the organization and exist in many different formats. Much of the effort in standing up the performance management dashboards is in bringing all these different datasets into a consistent format that can be consumed in ArcGIS. One approach for external tabular data is to use software such as Microsoft Excel to format the data to the model expected by the Metrics table. Once formatted in Microsoft Excel, the spreadsheet can be loaded into Metrics table.

Tip:

[Download](#) a sample Microsoft Excel spreadsheet with a schema matching the schema of the Metrics table to help with loading into the Performance Management solution.


To prototype the dashboard, it may help to focus on one metric for a specific geography in the community. To load records from the spreadsheet into the Metrics table, complete the steps below:

1. Verify that you are signed in to your ArcGIS organization and browse to the PerformanceManagement feature layer item.
2. Open the item page and click **Update Data > Append Data to Layer**.
3. Click **Choose File**, browse to your spreadsheet, and click **Open**.
4. Click **Upload and Continue**.
5. Click the **Choose the layer that you wish to append data into** drop-down arrow and choose **Metrics**.
6. Uncheck **Update existing features**.
7. Click **Show field matching** to map the fields.
8. Click **Apply Updates**.

Configure performance dashboard for an outcome

The Performance Management solution comes with two template dashboards (large display and mobile) that can be reused for different outcomes and configured for KPIs measured in your community.

To configure a dashboard for your strategic outcome and KPIs, complete the steps below:

1. Verify that you are signed in to your ArcGIS organization and browse to the Performance Management or Performance Management Mobile dashboard.
2. Open the item page and click **Edit Dashboard**.
3. Click the arrow next to **Save**, click **Save As**, and specify a title, tags, and a summary.
4. Hover over the upper left corner of the header and click **Configure** .
5. Update the **Title** for your strategic outcome, and then click **Done**.
6. Click the **Save** to save the dashboard.

The large display dashboard has two rows of four panels each and the mobile dashboard has a single column with eight panels. Each panel is composed of three stacked elements:

- The [Current](#) tab is an [indicator](#) element that displays the most recent reported value for a given metric. When applicable, this element also displays if the metric is meeting or not meeting the designated target for that geography.
- The [History](#) tab is a [serial chart](#) element that displays the performance of that metric over time. The actual value is displayed as a bar chart, and when applicable, the target is displayed as a line.
- The [Detail](#) tab is a [rich text](#) element where you can provide additional context for the metric, for example, how it is measured, where the data is coming from, and why it is important.

Each panel is configured for a different key performance indicator associated with the strategic outcome. The steps below describe how you can configure each element in a panel for your metric. Repeat the steps below for each panel in the dashboard.

Note:


The mobile dashboard is intended to be embedded in a website, for example, the Community Performance site included in the solution. When editing or viewing the dashboard in the browser, the panels fill the space available and do not leave enough space for each panel vertically. The Community Performance site provides the mobile dashboard with enough space vertically so that each panel displays well, and the user can scroll the page to view each metric.

Current tab

To configure the **Current** tab, complete the steps below:

1. Click the **Current** tab.

[Back to top](#)

2. Hover over the upper left corner of the element and click **Configure** .
3. Click the **Data** tab.
4. Change the **Filter** settings, by clicking the drop-down arrow and changing the **Value** to correspond to your metric.
5. Click the **Indicator** tab.
6. If your metric has a target, enable **Conditional Formatting**; otherwise, turn off this option.

Note:

When enabled, you can visualize the value differently when the actual value is equal to or above the target value and when the actual value is less than the target. Also, complete the following steps for both representations.

7. Optionally, modify the **Middle Text** for each indicator, to add or remove additional characters to display next to the actual value, for example, a percent sign, dollar sign, and so on.
8. In the **Icon** area, click **Change** and choose an appropriate icon, or click the **Custom** tab to add your own custom Scalable Vector Graphics (SVG) icon.
9. Optionally, in the **Formatting** area, change the value [pattern](#) to format the number.
10. Click the **General** tab.
11. Change the name of the element.
12. Modify the **Title** setting by clicking **Edit** and updating the title for the metric.
13. Modify the **Description** setting by clicking **Edit**.
14. Click **Source** and copy and paste the appropriate HTML snippet below into the editor:

Value is meeting the target:

```
<table style="background-color:#35ac46; color:#ffffff; font-size:16px;
padding:0px; width:100%">
  <tbody>
    <tr>
      <td width="40">
        <svg fill="#ffffff" height="32" id="ember25808"
style="vertical-align: middle; margin-left:auto; margin-right:auto;
display:block;" viewBox="0 0 16 16" width="32"
xmlns="http://www.w3.org/2000/svg"
xmlns:xlink="http://www.w3.org/1999/xlink">
          <path d="M7.5 0C3.366 0 0 3.364 0 7.5S3.365 15 7.5
15c4.136 0 7.5-3.364 7.5-7.5S11.636 0 7.5 0zm.001 14C3.916 14 1 11.084 1
7.5S3.916 1 7.501 1C11.085 1 14 3.916 14 7.5S11.085 14 7.501
14z"></path>
          <path d="M11.634 4.633L6.5 9.767 4.312 7.5791-
.707.707L6.5 11.1815.841-5.84z"></path>
        </svg>
      </td>
```

[Back to top](#)

```

        <td>
            <p><span>Target: </span>{element/reference}</p>
            <p>{reportdt}</p>
        </td>
    </tr>
</tbody>
</table>

```

Value is not meeting the target:

```

<table style="background-color:#de2900; color:#ffffff; font-size:16px;
padding:0px; width:100%">
    <tbody>
        <tr>
            <td width="40">
                <svg fill="#ffffff" height="32" id="ember25808"
style="vertical-align: middle; margin-left:auto; margin-right:auto;
display:block;" viewBox="0 0 16 16" width="32"
xmlns="http://www.w3.org/2000/svg"
xmlns:xlink="http://www.w3.org/1999/xlink">
                    <path d="M7 3h1v7H7zm0 8h1v1H7z" vector-effect="non-
scaling-stroke"></path>
                    <path d="M7.5 0C3.366 0 0 3.364 0 7.5S3.365 15 7.5
15c4.136 0 7.5-3.364 7.5-7.5S11.636 0 7.5 0zm.001 14C3.916 14 1 11.084 1
7.5S3.916 1 7.501 1C11.085 1 14 3.916 14 7.5S11.085 14 7.501 14z"
vector-effect="non-scaling-stroke"></path>
                </svg>
            </td>
            <td>
                <p><span>Target: </span>{element/reference}</p>
                <p>{reportdt}</p>
            </td>
        </tr>
    </tbody>
</table>

```

Metric has no target:

```

<table style="background-color:#0084a8; color:#ffffff; font-size:16px;
padding:0px; width:100%">
    <tbody>
        <tr>
            <td width="40">
                <svg fill="#ffffff" height="32" id="ember25808"
style="vertical-align: middle; margin-left:auto; margin-right:auto;
display:block;" viewBox="0 0 16 16" width="32"
xmlns="http://www.w3.org/2000/svg"
xmlns:xlink="http://www.w3.org/1999/xlink">
                    <path d="M7.5 0C3.366 0 0 3.364 0 7.5S3.365 15 7.5
15c4.136 0 7.5-3.364 7.5-7.5S11.636 0 7.5 0zm.001 14C3.916 14 1 11.084 1
7.5S3.916 1 7.501 1C11.085 1 14 3.916 14 7.5S11.085 14 7.501
14z"></path>
            </td>
            <td>
                <p><span>Target: </span>{element/reference}</p>
                <p>{reportdt}</p>
            </td>
        </tr>
    </tbody>
</table>

```

[Back to top](#)

```


                <path d="M8.164 3.4141-.707.708L10.336 7H3v1h7.3361-
.224.224-2.655 2.655.707.707L12.25 7.5z"></path>
            </svg>
        </td>
        <td>
            <p>Measured</p>
            <p>{reportdt}</p>
        </td>
    </tr>
</tbody>
</table>

```

15. Click **Source**, and click **Done**.
16. Click **Save** to save the dashboard.

History tab


To configure the **History** tab, complete the steps below:

1. Click the **History** tab.
2. Hover over the upper left corner of the element and click **Configure** .
3. Click the **Data** tab.
4. Change the **Filter** settings, by clicking the drop-down arrow and changing the value to correspond to your metric.
5. Update the **Minimum Period** setting frequency at which the metric is updated.
6. If the metric has a target value, configure the chart with two series. Set the **Series 1 Field** setting to **Actual** and set the **Series 2 Field** setting to **Target**. Click the **+ Series** button to add a second series if it isn't already added. If the metric has no target, remove the second series.
7. If you did not add a second series, go to step 12.
8. Click the **Chart** tab.
9. Change the **Legend Placement** setting to **Bottom**.
10. Click the **Series** tab.
11. In the **Target** area, change the **Type** setting to **Line** and the **Color** setting to **#00734c**.
12. Click the **General** tab.
13. Change the name of the element.
14. Modify the **Title** setting by clicking **Edit** and updating the title for the metric.
15. Click **Done**, and click the **Save** button to save the dashboard.

Detail tab

To configure the **Detail** tab, complete the steps below:



[Back to top](#)

1. Click the **Detail** tab.
2. Hover over the upper left corner of the element and click **Configure** .
3. In the rich text editor, update the title for the metric.
4. Add any additional text, hyperlinks, or images to the description that will help explain how the metric is measured, where the data comes from, and why it is important.
5. Click **Done**, and click the **Save** button to save the dashboard.

Add a strategic outcome page to Community Performance site

The Performance Management solution comes with a site that you can use to share key performance metrics and communicate progress made on strategic outcomes to the general public and other interested stakeholders. The site includes a template page that can be reused for each outcome defined for the community.

To add a new outcome page, complete the steps below:

1. Verify that you are signed in to your ArcGIS organization and browse to the Community Performance site.
2. Open the item page and click **View Application**.
3. At the top of the Community Performance site, click the **Outcome** tab.
4. Click the edit button  to open the site editor.
5. In the top right corner of the page, click **More Actions**  and choose **Clone Layout**.


Note:

This creates a copy of the Outcome page and creates a new item in the home folder of your content.

6. In the side panel, click **Page Info** and update **Page Info**, **Page Summary**, and the slug of the page for your outcome.
7. Scroll down the page and you will see the two performance management dashboards included with the solution embedded in the page.

Note:

While editing the page, both dashboards display. When viewing the page, the first dashboard is in a row that only displays when the browser width is greater than 992 pixels. The second dashboard is optimized for mobile display and is in a row that only displays when the browser width is less than 992 pixels.

8. Hover over the first dashboard and click the edit pencil .
9. In the side panel, hover over the **Modify** button and click **Edit**.

[Back to top](#)

10. In the **Select Application** window, search for the Performance Dashboard associated with the outcome and click **Select**.
11. Repeat steps 8 through 10 for the mobile dashboard.
12. Scroll to the **Outcome** section of the page, hover over the image card and click the edit pencil.
13. In the side panel, provide an image for the outcome by either dragging an image or browsing for an image.
14. Hover over the **Outcome** card and click the edit pencil.
15. Edit the text for your outcome to describe what it is and why it is important to the community.
16. Click **Save**.
17. At the top of page, click the **Community Performance** drop-down arrow and choose **Initiative Site**.
18. In the side panel, click **Header**.
19. Expand the **Menu** options, click the **Add Link** drop-down arrow, and choose **to existing content**.
20. In the **Add Content** window, search for the Outcome page you created in the previous steps and click **Select**.
21. Drag the menu link in the side panel to reorder link positions at the top of the site.
22. Click **Save**.

Note:

In the **Discover What Makes Our Community Stand Out** section of the site is a gallery card. This gallery shows any pages shared with the site that have the Outcome tag. The new outcome page you added in the previous steps now display here and provide a link to the page. To update the image and text associated with the gallery card, browse to the page item in your content and update the thumbnail, summary, and description.

Share items with the public

Several layer views, maps and apps included in the Performance Management solution must be shared with everyone so they can be accessed by the public on the Community Performance site. To share your performance management items with everyone, use the guide below and complete the following steps:

1. Verify that you are signed in to your ArcGIS organization and browse to the Performance Management folder.
2. Check the check box next to each of the items below:

Item	Name
Feature Layer (hosted, view)	PerformanceManagement_dashboard

[Back to top](#)

Feature Layer (hosted, view)	PerformanceManagementSurvey_public
Dashboard	Performance Management
Dashboard	Performance Management Mobile
Form	Performance Management Survey
Site Application	Community Performance

3. Click **Share**.
4. In the **Share** window, click **Everyone (public)** and click **Save**.
The **Warning: Sharing editable layers publicly** message appears notifying you that you are sharing editable layers publicly.
5. Click **Update**.

Modify performance survey

To modify the Performance Management Survey, complete the following steps:

1. Verify that you are signed in to your ArcGIS organization and browse to Performance Management Survey.
2. Open the item page and click **Open in Survey123 > Manage in Survey123 website**.
3. Click the **Design** tab.
4. Edit the survey and save the changes.
5. Click **Publish**.

Use Performance Management

The Performance Management solution delivers a set of capabilities that help you tabulate performance metrics, monitor performance using a series of dashboards and key performance indicators (KPIs), visualize performance for defined geographies, and share performance with the public through a community website.

In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

Note:

Use your organization's data or configured apps to follow these workflows.

Monitor community performance

You will assume the role of a resident in the community. You are interested in learning how the community measures success and learn how well the community and your neighborhood is performing in these areas.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Performance Management solution.
2. View the Community Performance site.
3. Scroll down to the **Discover What Makes Our Community Stand Out** section of the page and click one of the strategic outcomes.

At the top of the page is the associated performance dashboard. Each KPI displays the most recent reported value, when it was last measured, and when applicable, if the metric is meeting or not meeting the designated target.

4. For a KPI, click the **History** tab.
This tab displays the performance of that KPI over time. The actual value is displayed as a bar chart and when applicable the target is displayed as a line.
5. For a KPI, click the **Details** tab.
This tab provides additional context for the KPI—for example, how it is measured, where the data is coming from, and why it is important.
6. Click a new geography from the drop-down menu in the upper right corner of the dashboard to visualize for performance at locations in the community—for example, a neighborhood or council district.
7. Click another outcome using the links at the top of the site to view the corresponding performance dashboard and related KPIs.

Provide feedback on performance initiative

After reviewing the community goals and the KPIs used to measure performance, you want to provide feedback on the aspects you liked and thought the community is performing well in and the aspects you feel the community can improve.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Performance Management solution.
2. View the Community Performance site.
3. Scroll down to the **Tell Us How We're Doing** section and click the **Share Feedback** button to open the Performance Management Survey app.
4. Fill out the Performance Management Survey survey to provide your feedback.
5. Click **Submit**.

Plans and Drawings

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Plans and Drawings

Plans and Drawings can be used to index the geographic extent of record plans and drawings and provide access to a catalog of source documents in the office or the field.

Design drawings, construction plans, as-builts, and other source documents contain vital information that is used daily by engineers and field staff to make infrastructure improvements. Many times, these drawings have been automated and are cataloged in a document management system, but some drawings may only exist in hardcopy format and be stored in an office file cabinet. And while each of these record drawings may represent a given geography, understanding the extent of the record drawing and whether it contains the information you are looking for can be quite time consuming. Plans and Drawings is typically implemented by public works agencies and utilities that want to simplify access to record drawings and ensure that engineers and field staff understand what drawings exist at a given location.

The Plans and Drawings solution delivers a set of capabilities that help you index record drawings, associate a geographic extent with each drawing, and provide access to a catalog of plans and drawings in the office or the field.

Requirements

Plans and Drawings requires the following:

- ArcGIS Enterprise

Information products

Plans and Drawings includes the following information products:

Item	Description	Minimum user type
Plan Catalog	An ArcGIS Web AppBuilder app used by public works staff to access a catalog of record drawings, as-builts, and other source documents	Viewer
Plan Index	An ArcGIS Web AppBuilder app used by public works staff to index the geographic extent of record plans and drawings	Editor

Release notes

The following are the release notes:

Version	Description
1.0	<ul style="list-style-type: none">• First release of Plans and Drawings

Use Plans and Drawings

The Plans and Drawings solution delivers a set of capabilities that help you index record drawings, associate a geographic extent with each drawing, and provide access to a catalog of plans and drawings in the office or the field.

In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

Note:

Use your organization's data or configured apps to follow these workflows.

Index plans and drawings

First, you will assume the role of a public works engineer. You need to index a record drawing submitted for a recent project.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Plans and Drawings solution.
2. View the Plan Index app.
The **Index Plan** widget allows you to create a geographic extent for your project.
3. To create a new plan, click the **Plans and Drawings** template.
4. Click the map to draw the geographic extent around the project location, and then double-click to finish drawing the polygon.

Note:

You can use the **Search** widget to quickly update the map extent to desired addresses, place-names, or locations of existing projects.

5. After you draw the geographic extent, you are prompted with a Plans Index form.
6. Complete the form with as much information as possible.

Tip:

In the **Document Path** text box, type a URL or other resolvable file path to your organization's existing document repository solution.

In the **Document Location Description** text box, describe the physical location if documents are not stored in a digital format with a resolvable document path, link, or URL. For example, type Public Works Building, 2nd Floor in the 2022 Projects cabinet.

7. Scroll to the **Attachments** option.

[Back to top](#)

Note:

The **Attachments** option is useful for uploading before-and-after photos related to the project and other relevant project media.

8. Optionally, add attachments.
9. Click **Save** to complete the indexing workflow.

View plans and drawings

After they are indexed, record drawings can be accessed from the office or the field. Now, you will assume the role of an engineer at a local utility who needs to access pertinent plans and drawings while in the field on a site visit to a new infrastructure project.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Plans and Drawings solution.
2. View the Plan Catalog app.

The app opens with the **Filter Plans** widget open on the right. Filters are active by default; filtering by project type or date automatically updates the results in the map.

3. In the **Filter Plans** widget, adjust the filters to refine the results.
4. On the map, click a project extent.

A pop-up with more information about the project appears. In addition to providing project information, the pop-up includes a **Document ID** link, if available.

5. If available, click the **Document ID** link to open the referenced plan or drawing associated with this project.

The link opens in a new browser tab.

Share a record drawing link

A colleague has requested information about the record drawing for a bridge project that you recently indexed. You will use the Plan Catalog to create a direct link to the project details and share with your colleague.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Plans and Drawings solution.
2. View the Plan Catalog app.
3. At the upper right, click the **Share** button to open the widget.

In the **Share** widget, under **Share a link to this app**, there is a pregenerated link. By default, this short link uses your app's current map extent. In the following steps, you will construct a query within the share link so that it opens a specific project detail when opened.

4. Click **Link Options**.
5. Click **Query a feature and zoom to it**.

[Back to top](#)

The drop-down lists that appear must be completed to generate a project-specific app link.

6. Click the first drop-down arrow and choose **Plans and Drawings**.
7. Click the second drop-down arrow and choose **projname**.
8. Click the third drop-down arrow and search for or choose the project that you want to share.
9. At the top of the widget, click the **Back** arrow.

The sharing short link is now updated using your project query information.

10. Below the short link, click the **Email** button to launch a pregenerated email with your custom app link.

A draft email opens in your device's default email handler. Alternatively, you can copy the short link from the **Share a link to this app** text box. If you have accessed the Plan Catalog app from a mobile device, you can use this link to share a record by text message or other messaging app.

Police Transparency

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
-------------------------------------	----------------------------

Introduction to Police Transparency

Police Transparency can be used to share authoritative information and communicate engagement efforts that build trust with the public and community stakeholders.

In some communities, inequitable policing practices have eroded the public's trust and challenged the legitimacy of local law enforcement agencies. As a result, many agencies are seeking new ways to improve their relationship with the communities they serve. The larger reform efforts are helping law enforcement agencies improve transparency and demonstrate accountable police policies. At the same time, agencies are also engaging the community more deeply and using their feedback to drive policing priorities and enforcement policies. Police Transparency is typically implemented by law enforcement agencies that want to increase transparency, grow public trust, and improve relationships with the communities they serve.

The Police Transparency solution delivers a set of capabilities that help you share information openly with the public, promote your agency's work, demonstrate accountability when force is used, illustrate how workforce recruiting reflects the diversity of the community, and engage the public to improve policing services.

Requirements

Police Transparency requires the following:

- ArcGIS Enterprise
- ArcGIS Pro 3.0 or later (Basic, Standard, or Advanced)

Information products

Police Transparency includes the following information products:

Item	Description	Minimum user type
Police Transparency	An Enterprise Sites site used by the public to understand community crime conditions, explore patterns of police use of force, learn about the diversity of their police force, access open data, and discover opportunities for police-community engagement.	Not required
Crime Summary Dashboard	An ArcGIS Dashboards app used by the public to understand historical statistical trends across major crime categories and individual crime types.	Not required
Crime Summary Mobile Dashboard	An ArcGIS Dashboards app used by the public on mobile devices to understand historical statistical trends across major crime categories and individual crime types.	Not required
Crime Trends Dashboard	An ArcGIS Dashboards app used by the public to explore statistical trends and clusters across individual crime types.	Not required
Public Crime Map	An ArcGIS Web AppBuilder app used by the public to explore recent crime conditions in their community and create reports for an area of interest.	Not required
Use of Force by Race and Ethnicity	An ArcGIS Dashboards app used by the public to explore patterns in the race and ethnicity of officers and subjects involved in use of force incidents in relation to the composition of the community.	Not required
Use of Force by Race and Ethnicity Mobile Dashboard	An ArcGIS Dashboards app used by the public on mobile devices to explore patterns in the race and ethnicity of officers and subjects involved in use of force incidents in relation to the composition of the community.	Not required
Use of Force by Neighborhood	An ArcGIS Dashboards app used by the public to explore characteristics of use of force incidents by community policing area.	Not required
Use of Force by Subject	An ArcGIS Dashboards app used by the public to explore characteristics of the subjects of use of force incidents.	Not required
Use of Force by Officer	An ArcGIS Dashboards app used by the public to explore characteristics of the officers involved in use of force incidents.	Not required
Police Interaction Survey	An ArcGIS Survey123 form used by the public to provide feedback about their interactions with police personnel.	Not required

[Back to top](#)

My Community Officer	A Zone Lookup app used by the public to learn about the community policing officer responsible for an area of interest and how to contact them.	Not required
Community Safety and Policing Satisfaction Survey	An ArcGIS Survey123 form used by the public to report their perceptions of community safety and holistic performance of their police agency.	Not required
Law Enforcement Diversity Dashboard	An ArcGIS Dashboards app used by the public to understand the racial, ethnic, and gender diversity of their police force in relation to the composition of the community.	Not required
Law Enforcement Diversity Mobile Dashboard	An ArcGIS Dashboards app used by the public on mobile devices to understand the racial, ethnic, and gender diversity of their police force in relation to the composition of the community.	Not required
Law Enforcement Data Management	An ArcGIS Pro project used by crime analysts to automate data imports from records management or computer-aided dispatch systems, which helps free up time crime analysts typically spend on data preparation.	GIS Professional (Basic, Standard, or Advanced)

Release notes

The following are the release notes:

Version	Description
2.0	<ul style="list-style-type: none"> • A new Police Transparency site. • A new Crime Trends Dashboard, Crime Summary Dashboard, Crime Summary Mobile Dashboard, and Public Crime Map that leverages a new common crimes feature layer. • A new Law Enforcement Diversity Dashboard pro project to help you load and manage your data. • Removed the Community Crime Problem Reporter, Community Crime Problem Manager, Community Crime Problem Editor, and Community Crime Problem Dashboard from the solution.
1.0	<ul style="list-style-type: none"> • First release of Police Transparency

Configure Police Transparency

In this topic, you will learn how to configure the Police Transparency solution to meet specific needs in your organization.

Load your data

Police Transparency can be used by law enforcement agencies to share crime, use of force, police personnel, and community policing boundary information. In some cases, you may already have this information in ArcGIS Enterprise or another business system.

Review the layers provided with the solution and determine what source data you want to load. Then, load your existing data into the layers provided with the ArcGIS Solution before sharing the maps or apps.

Once you have determined what source data must be loaded, complete one, or more, of the data-loading workflows below.

Load police personnel roster

Police Transparency can be used by law enforcement agencies to share data about the diversity of their agency personnel. The Police Transparency solution includes the Law Enforcement Diversity Dashboard that can be used to display this information by race, ethnicity, and gender in relation to community proportions.

To load your agency personnel roster into the Law Enforcement Diversity Dashboard from a spreadsheet, complete the following steps:

1. Sign in to your ArcGIS organization and browse to the Police Personnel Microsoft Excel item.
2. On the item details page, click **Download**.
3. Once downloaded, open the Police_Personnel.csv file and enter your personnel roster information.

Tip:

Many fields have existing domain values that are used for filters and charts in the Law Enforcement Diversity Dashboard. If the values in your data are not identical to the values in each domain, you can either change the values in your data to match the values already in each field's domain list to update the domain list of each field in the Police_Personnel table to reflect the values in your data. Then follow the steps in the Modify apps section to update the Law Enforcement Diversity Dashboard to reflect your values.

4. Ensure the name of the spreadsheet is **Police_Personnel** and do not change any field names.
5. Click **Save** to save your changes.

[Back to top](#)

6. In your ArcGIS organization, browse to the Police_Personnel hosted feature table.
7. On the item details page, click **Update Data**, then click **Append Data to Layer**.
8. Under **Filename**, choose your .csv file.
9. Click **Upload** and **Continue**.
10. Uncheck **Update existing features**.
11. Click **Show field matching**.
12. Confirm that all fields listed in the **Fields** column have a corresponding field listed in the **Match Field** column.
13. If no field is listed in the **Match Field** column, click the drop-down box for that field, and select the field name from the spreadsheet that reflects the value shown in the **Fields** column.
14. Click **Apply Updates**.

In subsequent data loads, you will want to delete the existing data in this table and replace it with updated roster information. To delete data from a hosted feature table, see the Delete data section.

Load community policing areas

To load your data into the CommunityPolicingAreas layer, complete the following steps:

1. In your ArcGIS organization, browse to the feature layer you want to populate.
2. Create a .zip file of a shapefile of your Community Policing Areas.
3. On the item details page, click **Update Data**, then click **Append Data to Layer**.
4. Under **Filename**, choose your .zip file.
5. Click **Upload and Continue**.
6. From **Choose the layer to update**, select the CommunityPolicingAreas layer.
7. Uncheck **Update existing features**.
8. Click **Show field matching** to map the fields.
9. Click **Apply Updates**.

Load use of force data

Police Transparency can be used by law enforcement agencies to share use of force information. The solution includes several charts and dashboards that can be used to display characteristics of use of force incidents by race and ethnicity, neighborhood, subject of the force, and the officer involved.

To load your agency use of force data from a spreadsheet into the UseOfForce feature layer, complete the following steps:

1. Sign in to your ArcGIS organization and browse to the UseOfForce Microsoft Excel item.

[Back to top](#)

2. On the item details page, click **Download**.
3. Once downloaded, open the **UseOfForce** Excel workbook.

Note:

The workbook contains three spreadsheet tabs—one for **Incidents**, one for **Subjects**, and one for **Officers**. Enter your personnel roster information.

4. Ensure the name of the spreadsheet is **UseOfForce** and do not change any field names.

Note:

Review the fields in the UseOfForce feature layer. This layer is comprised of an Incidents layer, an Officers related table, and a Subjects related table—you will need to be familiar with the fields and domain values of all three.

Tip:

Many fields have existing domain values that are used in filters and charts on the ArcGIS Enterprise Sites page and in the use of force dashboard. If the values in your data are not identical to the values in each domain, you can either change the values in your data to match the values already in each field's domain list, or follow the steps in the **Modify data** section to update the domain list of each field in the UseOfForce feature layer to reflect the values in your data. Then follow the steps in the **Modify apps** section to update the ArcGIS Enterprise Sites charts, Use of Force by Race and Ethnicity, Use of Force by Neighborhood, Use of Force by Officer, and Use of Force by Subject dashboards to reflect your values.

5. Click **Save** to save your changes.
6. In your ArcGIS organization, browse to the UseOfForce feature layer.
7. On the item details page, click **Update Data**, then click **Append Data to Layer**.

Note:

Ensure that the data in your Excel workbook already has valid latitude and longitude coordinates. If your data has only addresses and no coordinates, you can geocode it using a local address locator and ArcGIS Pro, or the [Publish an Excel file](#) workflow in your ArcGIS organizational portal. Export the resulting layer as a CSV file or Excel spreadsheet and add the **Latitude** and **Longitude** values to the UseOfForce worksheet in the **Incidents** layer.

8. Under **Filename**, choose your Excel workbook file.
9. Click **Upload** and **Continue**.
10. Select **Incidents** from the drop-down list and choose the layer into which you want to append data.
11. Select **Incidents** from the drop-down list and choose the layer from UseOfForce.xlsx that contains the updated data.

[Back to top](#)

12. Uncheck **Update existing features**.
13. Click **Show field matching**.
14. Confirm that all fields listed in the **Fields** column have a corresponding field listed in the **Match Field** column.

If no field is listed in the **Match Field** column, click the drop-down box for that field, and select the field name from the spreadsheet that reflects the value shown in the **Fields** column.
15. Click **Apply Updates**.
16. Repeat steps 7 through 15 twice, appending the data from the **Officers** and **Subjects** tabs of your spreadsheet into the **Officers** and **Subjects** feature tables.

Note:

If you want to automate the process of appending new Use of Force data from a local Excel workbook into the UseOfForce feature layer, see the Automate data updates section.

Load crime data

Police Transparency can be used by law enforcement agencies to share crime data. The solution includes web mapping apps and dashboards that can be used to display current and historical crime conditions in a community.

To load your agency crime data from a spreadsheet into the Crime feature layer, complete the steps below.

Tip:

Ensure that the data in your Excel workbook already has valid latitude and longitude coordinates. If your data has only addresses and no coordinates, you can geocode it using a local address locator and ArcGIS Pro, or the [Publish an Excel file](#) workflow in your ArcGIS organizational portal. Export the resulting layer as a CSV file or Excel spreadsheet and add the **Latitude** and **Longitude** values to the Crimes worksheet along with the rest of your features.

1. Sign in to your ArcGIS organization and browse to the Crimes feature layer.
2. On the item details page, click **Update Data**, then click **Append Data to Layer**.
3. Under **Filename**, choose your Excel workbook file.
4. Click **Upload** and click **Continue**.

Tip:

You will need to be familiar with the fields and domain values. Many fields have existing domain values that are used for filters and charts in the Crime Summary Dashboard, Crime Trends Dashboard, and Public Crime Map. If the values in your data are not identical to the values in each domain, you can either change the values

[Back to top](#)

in your data to match the values already in each field's domain list, or follow the steps in the Modify data section to update the domain list of each field in the Crime feature layer to reflect the values in your data. When complete, you will update the Crime Summary Dashboard, Crime Trends Dashboard, and Public Crime Map to reflect your data values.

5. Uncheck **Update existing features**.

6. Click **Show field matching**.

The **Field** column contains all of the fields in the Crimes feature layer. The **Match Field** column displays the names of all fields in your source Excel workbook.

If no field is listed in the **Match Field** column, click the drop-down box for that field, and select the field name from your spreadsheet that reflects the value shown in the **Fields** column.

7. Click **Apply Updates**.

Note:

If you want to automate the process of appending new Use of Force data from a local Excel workbook into the Crimes feature layer, see the **Automate record import** section.

Load data for use of force context chart

1. Sign in to your ArcGIS organization and browse to the **ContextOfUseOfForce** CSV item.
2. On the item details page, click **Download**.
3. Click **Edit** on the CSV file and enter a single year's worth of summary totals for the following datasets: Calls For Service, Arrests, Total Use of Force, Serious Injury Force, and Deadly Force. Click **Save** to save the CSV file when complete.
4. In your ArcGIS organization, browse to the **ContextOfUseOfForce** feature table.
5. On the item details page, Click **Update Data**, then click **Append Data to layer**.
6. Under **Filename**, choose your CSV file.
7. Click **Upload and Continue**.
8. Uncheck **Update existing features**.
9. Click **Show field matching**. Confirm that all fields listed in the **Fields** column have a corresponding field listed in the **Match Field** column. If no field is listed in the **Match Field** column, click the drop-down box for that field, and select the field name from the CSV file that reflects the value shown in the **Fields** column.
10. Click **Apply Updates**.

Tip:

To modify the data in this table after the initial load, browse to the data section of the ContextOfUseOfForce item, and double-click a value in the table to change it.

[Back to top](#)

Remove outdated personnel records (optional)

At some point, you may want to delete all data in a feature layer to load new information. For example, your organization may update the personnel roster information used in the Law Enforcement Diversity Dashboard semi-annually. To avoid duplicate or incorrect records, the existing records must first be deleted before a current roster can be appended into the solution's **Police Personnel** table.

Delete features

To delete features from a hosted feature layer or table, complete the following steps:

1. Sign in to your ArcGIS organization.
2. Go to the **Overview** tab of the **Police_Personnel** hosted feature table.
3. In the lower right corner, in the URL category, click **View**.
4. The **ArcGIS REST Services Directory** for this page appears.
5. Click the link of the layer or table from which you want to delete records.
6. In the URL bar of the browser, edit the URL with the following changes.
 - a. Add the word `admin` between `rest/` and `services`. (For example: `ArcGIS/rest/admin/services/Police_Personnel`)
 - b. Add the word `truncate` between `0/` and `?token=`. (For example: `FeatureServer/0/truncate?token=`)
7. In the next window, click **Truncate**.

The hosted feature table will now be emptied and reset for new data to be appended.

Update a layer with a join view

The Police Transparency solution includes a series of feature layer join views that are used to display information in the Use Of Force page and in a series of use of force dashboards. Join views are created using the Join Features analysis tool by joining two sources together based on a matching field. The benefit of the join view is that it remains up to date as the source data changes. However, when new fields are added to the source layers or when field domain values are changed, the join views must be recreated with the same name and URL for the charts and dashboards to continue working properly.

To add a field to a layer and update the join views, complete the following steps:

1. Browse to the join view in your contents.
2. On the item's Overview page, scroll to the URL section. Click the **Copy** button.
3. Paste the copied URL into Microsoft Notepad or another text editor for reference.

Note:

The feature layer's service name will be used below when re-creating the join. The name can be found after services in the URL structure and may also contain a unique GUID, for example, UseOfForce_Incidents_Subjects_joina45f71a48587425c9b90ee5527cd26d1.

4. Delete the existing join view.
5. Add the source hosted feature layer to a new web map (for example, UseOfForce).
6. Click **Analysis, Summarize Data, Join Features**.
7. Configure the join using the table below.

Name of join	Target layer	Layer to join to the target layer	Fields to match	Join operation
UseOfForce_Incidents_Subjects_join	Incidents (UseOfForce)	Subjects (UseOfForce)	agency_case_number = agency_case_number	Join one to many
UseOfForce_Incidents_Officers_join	Incidents (UseOfForce)	Officers (UseOfForce)	agency_case_number = agency_case_number	Join one to many

Tip:

Ensure each new join view uses the names defined in the table above. If you use the same names, the layers in the map and the existing dashboard widgets will not have to be reconfigured. If your join view contained a unique GUID, the new join view must be named with the unique GUID.

8. If necessary, uncheck **Use current map extent**. Check **Create results as hosted feature layer view**.
9. Update the web map and app configurations of Use of Force by Race and Ethnicity, Use of Force by Neighborhood, Use of Force by Subject, and Use of Force by Officer Dashboard to account for the new fields or domain values you added.

Automate record import

Some organizations may want to automate the importing of data from their record systems into the layers in the Police Transparency solution. In particular, users may want to perform daily or weekly updates of their Crimes or Use of Force data to ensure that residents have timely access to information.

The layers in the Police Transparency solution can be updated using the [Record Import Tools](#) toolbox. These tools can be executed from ArcGIS Pro manually or automated on a schedule using Windows Task Scheduler. The Toolbox supports the use of database tables from your

[Back to top](#)

Computer Aided Dispatch (CAD) or Records Management System (RMS) as well as Microsoft Excel spreadsheets (.xls) or comma-separated values (.csv) files.

Modify ArcGIS Enterprise Sites pages

The Police Transparency solution includes an ArcGIS Enterprise Sites site and pages that your organization can configure with your own branding and share your organization's story with the public.

Update with organizational information

After deploying the Police Transparency solution, the site and pages require a few updates to fit your local context. Consider what information you already have and what you can most easily find.

To update the Police Transparency site, complete the following steps:

1. From the Customize window of the Site Home, select **Header** and **Branding**.
2. Update the header to include your organizational icon.
3. Change the name and short name of the site (Police Transparency) to a name that better reflects your specific organization.
4. Browse to the Social Icons group and enter in the URLs for your agency's Facebook, Twitter, and Instagram accounts, or disable if you don't want them displayed.
5. Click **Apply**, then click **Save** to save the page, and click **Publish Draft**.
6. From the Customize window of the Site Home, select **Footer**.
7. Click the expand button in the right corner of the HTML section.
8. Replace the default icon URL, department name, email address, and street address with the correct values for your organization.
9. Enter the URLs for your agency's Facebook, Twitter, LinkedIn, Instagram, and YouTube accounts.
10. Delete any icons from the HTML that are not required, then click **Apply**.
11. Click **Save** to save the page.
12. Click **Publish Draft**.
13. Update the main header image on each page to an image from your organization.
For best results, this image should be 96 dpi and 1920 x 400.
14. Update the other stock images in the site with images from your organization.
For best results, these images should be 600 x 400 and 96 dpi.
15. On the main page, click **Configure** on the Facebook and Twitter Social Media Cards to update the Timeline Link URL to your organization's Facebook and Twitter pages.
16. Review all text on each page for consistency with your organizational messaging.

[Back to top](#)

Tip:

Consider working with your Public Information Officer to refine this content to reflect your organizational needs.

17. Browse to the **Frequently Asked Questions** section of the main page and click **Configure** to update the questions and answers.
18. Browse to the **Recruitment, Employment, and Diversity Resources** section of the Personnel Diversity page and click **Configure** to update the images, text, and buttons to reflect your organizational initiatives.

Remove ArcGIS Hub Premium content

The Police Transparency solution comes with features that require ArcGIS Hub Premium; if you are using ArcGIS Enterprise Sites, you will want to remove the features that require ArcGIS Hub Premium. Organizations using this solution with ArcGIS Enterprise Sites should perform the following steps to remove the ArcGIS Hub Premium content from their site.

To remove ArcGIS Hub premium content, complete the following steps:

1. Browse to your app launcher and click **Hub** and click Police Transparency to begin editing the site.
2. Scroll to the section titled **Get Involved** on the main site page.
3. Click the delete button for the row card containing the section title, not just the section title.
4. Click **Save**, then click **Publish Draft**.
5. Repeat steps 1 through 3 for the **Community Engagement, Workforce Diversity, Crime Stats, and Use of Forces** pages in the site.
6. Go to the **Community Engagement** page and scroll to the **Scheduled Events** section.
7. Click the delete button for the row card containing the event calendar, not just the event calendar itself.
8. Click **Save**, then click **Publish Draft**.

Modify custom use of force charts

Several charts on the Use of Force page of the Police Transparency solution make use of custom queries from solution layers that use preexisting values from domain lists. For your data to display properly in these charts, the values in your data must exactly match the values in the field domain list of the field in the feature layer. If your data contains different values, you must modify the custom JSON of the Hub charts to reflect your field values.

To modify the JSON of the custom use of force charts, complete the following steps:

1. Sign in to your ArcGIS organization.

[Back to top](#)

2. Click your app launcher and select **Sites**.
3. Click the Police Transparency site.
4. On the **Customize** accordion, click the number of associated pages button.
5. Click the **Use of Force** page.
6. Find the chart labeled **Serious Injury Use of Force Incidents** and click the configure button (shaped like a gear).
7. In the JSON Chart Definition section, find the section of the JSON that looks like the following:

```
"where": "forcelevel='Level 3- Serious Injury'"
```
8. Replace the value Level 3- Serious Injury with the value in your data that represents incidents involving serious injury.
9. Click **Apply**.
10. Click **Save** and click the drop-down list and select **Publish Draft**.
11. Repeat steps 6 through 10 with the **Fatal Use Of Force Incidents** chart, replacing the value Deadly Force-Fatality with the value in your data that represents fatal use of force incidents.

Modify apps

The Police Transparency solution includes many apps that are used by law enforcement agencies to help residents and stakeholders explore crime conditions, use of force patterns, and departmental diversity. Apps in the Police Transparency solution can be modified to meet the needs of individual organizations. This section covers several app modification workflows organizations commonly require.

Modify dashboards

The Use of Force by Race and Ethnicity and Law Enforcement Diversity Dashboard require an organization to manually enter your jurisdiction's population percentage values for each race/ethnicity group represented on the dashboards. This information helps to contextualize proportions of force and personnel data relative to the composition of the community.

To update the dashboards with population percentages by race and ethnicity for your jurisdiction, complete the following steps:

1. Obtain information about population percentages by race and ethnicity for your jurisdiction.

Tip:

This data is most typically obtained from the U.S. Census Bureau's Quick Facts [web page](#), where you can type the name of your jurisdiction to get population percentages by race and ethnicity. Consult your planning department for more information.

2. Sign in to your ArcGIS organization.
3. Browse to and click to open the item page of the dashboard you want to edit.
4. Click **Edit Dashboard**.
5. Find the first indicator element where the language Community Makeup: X% appears and click the configure (gear) button.
6. Click the **General** options category, then click **Edit** in the Description section.
7. Switch the default value with the appropriate value for your jurisdiction.
8. Repeat for all indicator elements with the Community Makeup: X% text.
9. Click **Save**.

Update dashboard charts to reflect new field values

Dashboards in the Police Transparency solution have been preconfigured to use layer fields that are powered by default domain values. If your data does not match the preexisting values, your data may not display or may display as a gray other value in dashboard charts.

To update dashboards to reflect new field values, complete the following workflow:

1. Sign in to your ArcGIS organization.
2. Browse to and click to open the item page of the dashboard you want to edit.
3. Click **Edit Dashboard**.
4. Review your dashboard and identify all chart elements that require updating.
5. For each chart element that needs an update, click the configure button.
6. If the chart is a pie chart, click the **Slices** options category, delete the existing values, then click **Load Categories**. Style the categories with colors appropriate for the dashboard.
7. If the chart is a serial chart, click the **Series** options category, delete the existing values, then click **Load Series**. Style the categories with colors appropriate for the dashboard.
8. Click **Save**.

Update dashboard filters to reflect new field values

The Use of Force by Race and Ethnicity and Law Enforcement Diversity Dashboard both use field values (that are preset by a domain) to filter by specific demographic groups. If the values in your data differ from the domains present in the default fields of the Police_Personnel, UseOfForce-Subjects, and UseOfForce-Officers tables, these dashboards may not properly display. For example, if your data contains coded values for race/ethnicity (A, B, W, I, H, and so on) instead of complete values such as the domain for these fields, you will need to modify the element filters of these dashboards to reflect your values.

To update dashboard elements in Law Enforcement Diversity Dashboard or Use of Force by Race and Ethnicity to use your field values, complete the following steps:

1. Sign in to your ArcGIS organization.
2. Browse to and click to open the item page of the dashboard you want to edit.
3. Click **Edit Dashboard**.
4. Review your dashboard and identify all chart elements that require updating.
5. For each indicator element that needs an update, click the configure button.
6. In the **Value** drop-down list of the **Filter** section, replace the default value with the appropriate value from your data that represents the information conveyed by the element.
7. Click **Done**.
8. Repeat for all other indicator elements in the dashboard that require updating.
9. Click the **Save** button.

Change the crime summary dashboard from NIBRS to UCR

Some organizations may want to provide public crime data according to the Federal Bureau of Investigation's old Uniform Crime Reporting Summary Reporting System (SRS) standards rather than the new National Incident-Based Reporting System (NIBRS). The Crime Summary Dashboard is configured using the NIBRS standard, but can be updated to reflect the older UCR SRS standard if required by an organization.

To update the Crime Summary Dashboard from NIBRS reporting standards to UCR SRS standards, complete the following workflow.

Note:

Before you begin this workflow, ensure that you have valid values populated in the **UCR Offense Description** and **UCR Offense Category** fields of the **Crimes** layer.

1. Sign in to your ArcGIS organization.
2. Browse to your content and click the **Crime Summary Dashboard**.
3. Click **Edit Dashboard**.
4. Click the configure button in the upper left corner of the Rich Text element containing the text **Crimes Against Persons**.
5. In the text box, change the text to **Violent Crime**, then click **Done**.
6. In the indicator element immediately below, click the configure button.
7. In the **Value** section and **Filter** subsection, change the drop-down selection from **NIBRS Crime Against Category** to **UCR Category**, then change the value from **Crimes Against Persons** to **Violent Crime** (or the equivalent value in your data).
8. Scroll down to the **Reference** section and **Filter** subsection, change the drop-down selection from **NIBRS Crime Against Category** to **UCR Category**, then change the value from **Crimes Against Persons** to **Violent Crime** (or the equivalent value in your data).

[Back to top](#)

9. Click **Done**.
10. Click the configure button on the **Crimes Against Persons By Year** chart element to the right of the last two elements you modified.
11. In the Filter section, change the drop-down selection from **NIBRS Crime Against Category** to **UCR Category**, then change the value from **Crimes Against Persons to Violent Crime** (or the equivalent value in your data).
12. Click **Done**.
13. Click the configure button on the **Crimes Against Persons By Month** chart element to the right of the last element you modified.
14. In the Filter section, change the drop-down selection from **NIBRS Crime Against Category** to **UCR Category**, then change the value from **Crimes Against Persons to Violent Crime** (or the equivalent value in your data).
15. Click **Done**.
16. Repeat steps 4 through 15 for the remaining two rows of elements, replacing **Crimes Against Property** with **Property Crime** (or the equivalent value in your data), then replacing **Crimes Against Society** with **Part II crimes** (or the equivalent value in your data).
17. Click the **Save** button.

Change the crime trends dashboard from NIBRS to UCR

Some organizations may want to provide public crime data according to the Federal Bureau of Investigation's old Uniform Crime Reporting Summary Reporting System (SRS) standards rather than the new National Incident-Based Reporting System (NIBRS). The Crime Trends Dashboard is configured using the NIBRS standard, but can be updated to reflect the older UCR SRS standard if required by an organization.

To update the Crime Trends Dashboard from NIBRS reporting standards to UCR SRS standards, complete the following workflow.

Note:

Before you begin this workflow, ensure that you have valid values populated in the **UCR Offense Description** and **UCR Offense Category** fields of the **Crimes** layer.

1. Sign in to your ArcGIS organization.
2. Browse to your content and click the **Crime Summary Dashboard**.
3. Click **Edit Dashboard**.
4. Click the configure button along the right side of the **Crime Type** filter.
5. In the **Category Field**, change the drop-down selection from **NIBRS Description** to **UCR Description**.
6. Click the **Actions** options tab.

[Back to top](#)

7. In the **Target Field** drop-down list for the **Crime Hotspots** layer, select **UCR Description**.
8. Click **Done**.
9. Click the **Save** button.

Change the public crime map from NIBRS to UCR SRS

Some organizations may want to provide public crime data according to the Federal Bureau of Investigation's old Uniform Crime Reporting Summary Reporting System (SRS) standards rather than the new National Incident-Based Reporting System (NIBRS). The Public Crime Map app is configured using the NIBRS standard, but can be updated to reflect the older UCR SRS standard if required by an organization.

To update the Public Crime Map app from NIBRS reporting standards to UCR SRS standards, complete the following workflow.

Note:

Before you begin this workflow, ensure that you have valid values populated in the **UCR Offense Description** and **UCR Offense Category** fields of the **Crimes** layer.

1. Sign in to your ArcGIS organization.
2. Browse to your content and click the **Public Crime Map** Web Mapping app.
3. Click **Edit Application**.
4. Click the **Widget** button at the top of the configuration section of Web AppBuilder.
5. Click the **Header Control- Set the widgets in this controller** button.
6. Click the **Configure this widget** edit button on the **Summary** widget.
7. Click the edit button under **Display Options** for the Crimes layer.
8. Click the **Panel** tab.
9. In the **Layer Options** section, change the drop-down selection from **NIBRS Description** to **UCR Description**.
10. In the **Group Options** section, change the drop-down selection from **NIBRS Offense Category** to **UCR Category**.
11. Click **OK** twice to save the reconfigured Summary widget.
12. Click the **Configure this widget** edit button on the **Filter** widget.
13. Click the **NIBRS Offense Category** filter.
14. On the **Info** tab, change the label of the filter from **NIBRS Offense Category** to **UCR Category**.
15. On the **Expressions** tab, change the drop-down selection from **NIBRS Offense Category** to **UCR Category**.
16. Change operator to **is any of**.

[Back to top](#)

17. Check the **Ask for values** check box.
18. Click the **NIBRS Offense Description** filter.
19. On the **Info** tab, change the label of the filter from **NIBRS Offense Description** to **UCR Description**.
20. On the **Expressions** tab, change the drop-down selection from **NIBRS Offense Description** to **UCR Description**.
21. Change operator to **is any of**.
22. Check the **Ask for values** check box.
23. Click **OK** to save the reconfigured Filter widget.
24. Click the **Configure this widget** edit button on the **Report** widget.
25. Click the edit button under **Actions** for the Crimes layer.
26. Change the drop-down selection from **NIBRS Description** to **UCR Description**.
27. Click **OK** twice to save the reconfigured **Report** widget.
28. Click **Save** at the bottom of the configuration window of Web AppBuilder.

Modify Police Transparency surveys

To modify any survey in the Police Transparency solution, including the Police Interaction Survey or the Community Safety and Policing Satisfaction Survey, complete the following steps:

1. Install ArcGIS Survey123 Connect.
2. Start ArcGIS Survey123 Connect and sign in to your ArcGIS organization.
3. Click to download the survey you want to edit.
4. Click again to open the survey.
5. In the left pane, click **Open XLSForm Spreadsheet**.
6. In the Microsoft Excel spreadsheet, click the **choices** tab. This tab comprises all the selectable options for survey questions.
7. Revise the survey to reflect your organizational needs.
8. Save the Microsoft Excel spreadsheet and preview your changes in ArcGIS Survey123 Connect.
9. In ArcGIS Survey123 Connect, click **Publish** in the left pane to publish your changes.

To view your changes in ArcGIS Survey123 Connect, on the **Download Surveys** page, click **Download** to download the updated survey.

Share items with the public

In order to make the Police Transparency solution visible to the public, the sharing level of the site item and its associated apps, maps, and layers must be configured to allow public access.

[Back to top](#)

1. Sign into your ArcGIS Organization and browse to the Police Transparency Hub Site Application.
2. Open the item page and click **Share**.
3. In the **Share** window, click **Everyone (public)** and click **Save**.
4. Repeat steps 1 through 3 to share the following items with everyone:

Item	Name
Feature Layer (hosted)	Community Safety and Police Satisfaction Survey
Feature Layer (hosted, view)	CommunityCrimeProblems_public
Feature Layer (hosted, view)	CommunityPolicingAreas_public
Feature Layer (hosted, view)	Crimes_public
Feature Layer (hosted, view)	Police Interaction Survey_fieldworker
Feature Layer (hosted, view)	UseOfForce
Feature Layer (hosted, view)	UseOfForce_Incidents_Officers_join
Feature Layer (hosted, view)	UseOfForce_Incidents_Subjects_join
Table (hosted)	ContextOfUseOfForce
Table (hosted)	Police_Personnel
Web Map	Community Crime Problem Dashboard
Web Map	Community Crime Problem Manager- Analysis
Web Map	Community Crime Problem Manager- Assessment
Web Map	Community Crime Problem Manager- Community Review
Web Map	Community Crime Problem Manager- New Problems
Web Map	Community Crime Problem Manager- Overview
Web Map	Community Crime Problem Manager- Response
Web Map	Community Crime Problem Reporter
Web Map	Crime Summary and Trends
Web Map	My Community Officer
Web Map	Public Crime Map
Web Map	Use of Force By Neighborhood
Web Map	Use of Force By Officer
Web Map	Use of Force By Subject
Dashboard	Community Crime Problem Dashboard
Dashboard	Community Crime Problem Manager
Dashboard	Crime Summary Dashboard
Dashboard	Crime Summary Mobile Dashboard
Dashboard	Crime Trends Dashboard
Dashboard	Law Enforcement Diversity Dashboard
Dashboard	Law Enforcement Diversity Mobile Dashboard
Dashboard	Use of Force by Neighborhood
Dashboard	Use of Force by Officer
Dashboard	Use of Force by Race and Ethnicity
Dashboard	Use of Force by Race and Ethnicity Mobile Dashboard
Dashboard	Use of Force by Subject
Pages	Community Engagement
Pages	Crime Stats
Pages	Use of Force
Pages	Workforce Diversity
Web Mapping Application	Public Crime Map

[Back to top](#)

Web Mapping Application	Community Crime Problem Reporter
Web Mapping Application	My Community Officer
Form	Community Crime Problem Editor
Form	Community Safety and Police Satisfaction Survey
Form	Police Interaction Survey

Use Police Transparency

The Police Transparency solution delivers a set of capabilities that help you share information openly with the public, promote your agency's work, demonstrate accountability when force is used, illustrate how workforce recruiting reflects the diversity of the community, and engage the public to improve policing services.

In this topic, you will learn how to use the Police Transparency solution by assuming various roles and using the solution to answer questions about policing topics of general interest, including understanding crime conditions in your community, learning about law enforcement use of force, discovering police-community engagement opportunities, and exploring the workforce diversity of the law enforcement agency.

Note:

Use your organization's data or configured apps to follow these workflows.

Understand crime statistics

You will assume the role of a resident in the community. You are interested in learning more about overall trends of crime in your community, and specifically about trends in burglary. You are concerned that burglaries are increasing around your home, so you'd like to be able to learn about recent burglaries in your area and print a report to take to the upcoming neighborhood meeting to ask your community policing officer what is going on and how to address the problem.

Examine statistical crime trends

Complete the following steps to learn more about overall crime trends, specifically burglary, in your community:

1. In a browser, open the [Police Transparency](#) site, and click the **Crime Stats** page.
2. Scroll down the page to view the Crime Summary Dashboard. The dashboard displays the three main categories of crimes according to the National Incident-Based Reporting System (NIBRS). These categories are shown as 365-day percent change statistics, counts by year, and counts by month.

Note:

In January 2021, the Federal Bureau of Investigation (FBI) changed to NIBRS from the previous Uniform Crime Reporting (UCR) Summary Reporting System. Links to additional details about NIBRS can be found in the resources section of the **Crime Stats** page.

3. To understand burglary trends specifically, scroll to the **Crime Mapping Apps** section and click the **Crime Trends Dashboard**.

[Back to top](#)

4. Click the **Crime Type** filter and select **Burglary/Breaking & Entering**, then click the **Filter Results** tab.
You can now view 28-day, year-to-date, and last 365-day percent change statistics, burglary counts by year, by month, and a map of burglary hot spots.
5. To filter for only the current year of burglaries, select **This Year** from the **Report Date** filter.
The **Crime By Year** and **Crime By Month** charts will be updated. Additionally, the burglary hot spots will change to reflect the current year only.
6. Zoom in on the map. As you zoom in, individual burglaries appear. Click the burglary to learn more about the incident.

Explore recent crime activity

The Public Crime Map app can be used to explore recent burglary activity and create a printed report to take to your neighborhood meeting.

Complete the following steps to learn about recent burglaries in your area and print a report to take to the upcoming neighborhood meeting:

1. On the **Crime Stats** page, scroll to the **Crime Mapping Apps** section, and click **Public Crime Map**.

This mapping app displays the last 28 days of crime by default and shows a list of all crimes in the community, grouped by type of crime.

2. To view all burglaries this year, click the **Filter** widget. In the NIBRS Offense Description filter, select **Burglary/Breaking & Entering**, then click the option to activate the filter.
3. In the **Date of Crime** filter, in the first drop-down box, select January 1 of this year.
4. In the second drop-down box, select **today**, then click the option to activate the filter.

You can now view year-to-date burglaries citywide.

5. To view the burglaries near your home, go to the address search bar and enter your address. Click each burglary to learn more about the incident.

You would like to discuss these burglaries with your neighbors and community policing officer at an upcoming community meeting.

6. Click the **Report** widget, then select the **Point** draw mode.
7. Click your home address. In the buffer distance (optional) parameter, enter a buffer distance of .25 miles, then click **Report**.
8. Click the add button to see a list of all burglaries within the 0.25-mile radius around your house.
9. To download these records as a CSV file, click the **Download** button or click the **Print** button to create a printable report.

A report will be generated containing a map of your app's current map extent and a list of the records within the search area. You can change the report title or any header text to meet your needs. You can also choose to enter additional comments in the comments box.

[Back to top](#)

10. To filter for only the current year of burglaries, select **This Year** from the **Date of Crime Report** filter.

The **Crime By Year** and **Crime By Month** charts will be updated. Additionally, the burglary hot spots will change to reflect the current year only.

11. Zoom in on the map to see individual burglaries.
12. Click a burglary to learn more about the incident.

Share your perceptions of community safety and police performance

Complete the following steps to provide feedback on your interactions with law enforcement in your community:

1. In a browser, open the Police Transparency site and click the **Crime Stats** menu tab.
2. Scroll down to the **Tell Us How We're Doing** section and click the **Take the Survey** button.
3. Fill in the Community Safety and Policing Satisfaction Survey to provide your feedback.
4. Click **Submit**.

Learn about use of force

Now you will assume the role of a community leader. You have recently been appointed to a police oversight board responsible for reviewing use of force incidents in the community. To perform this role, you need to first gain a basic understanding of how and why force is used by law enforcement, racial equity implications of its use, and then dig deeper to understand patterns in the use of force by the subjects of force, officers involved, and by neighborhood.

Gain a basic understanding of use of force

Complete the following steps to learn more about use of force in your community:

1. In a browser, open the Police Transparency site, and click the **Use Of Force** page.
2. Scroll down to view the **Key Use of Force Metrics**.

These three charts show total use of force incidents, use of force incidents involving a serious injury requiring medical care or hospitalization, and fatal use of force incidents.

3. Scroll to the **How Often Do We Use Force?** section.

This section displays charts illustrating the infrequency of use of force relative to the total scope of police interactions with citizens, and how few are determined to be inconsistent with policy.

4. Scroll down to the **Why Do Officers Use Force?** section.

This section helps you understand what types of incidents are most likely to result in force, the type of resistance officers are encountering that require use of force, and the type of force applied.

[Back to top](#)

5. Scroll down to the **Racial Equity** section.

This section displays a dashboard that examines the distribution of subject of force and officers involved by race and ethnicity, compared to the racial and ethnic composition of the community overall.

6. Click the **Force Level** or **Date** drop-down filters to further refine these metrics.
7. Click the **Officers Involved** tab to visualize the distribution of officers involved in use of force incidents by race and ethnicity relative to community composition.

Explore characteristics of subjects of force

The Use of Force by Subject dashboard helps the public explore the characteristics of use of force in your neighborhood and compare through the perspectives of demographics, context of the incident, condition of the subjects, and location. Use the filters to set criteria, then click any bar in the charts to refine the results. For example, you may want to know more about the characteristics of subjects of electric force through conducted electrical devices such as Tasers or stun guns.

Complete the following steps to dig deeper into the topic of use of force by exploring the characteristics of the persons subjected to force:

1. In a browser, open the Police Transparency site, and click the **Use Of Force** page.
2. Scroll down to view the **Gain a Deeper Understanding** section.
3. Click **Use of Force by Subject**.
4. In the **Force Type** drop-down filter, select a type of force.
5. Click the **Incident Context** tab to see the proportion of incidents that were found to be inconsistent with policy.
6. Click the **Out of Policy** slice of the **Result of Internal Review** pie chart.
7. Click the **Map** tab to view the selected incidents symbolized by color according to the race and ethnicity of the subject of force.

The colors correspond to another layer in the map, the Predominant Race and Ethnicity by Census Tract, an ArcGIS Living Atlas of the World layer based on data from the U.S. Census Bureau's American Community Survey.

8. Click the **Legend** tool in the map to understand how color corresponds to race and ethnic group.

The presence of both layers on the map allows us to understand the relationship between the race and ethnicity of the residents of an area and who is subjected to force there, and to recognize patterns in which force is being applied to a particular group disproportionately to its community composition.

9. Click a polygon in the **Predominant Race by Tract** layer.

The pop-up displays which race or ethnic group is predominant in that tract as well as the resident counts of all other race and ethnic groups within the tract.

[Back to top](#)

Explore characteristics of officers applying force

The **Use of Force by Officer** dashboard helps the public explore the characteristics of officers applying force through the perspectives of demographics, context of the incident, and location. Use the filters to set criteria, then click any bar in the charts to refine the results. For example, you may want to know more about the characteristics of officers who apply force resulting in serious injury or death.

Complete the following steps to dig deeper into the topic of use of force by exploring the characteristics of the persons subjected to force:

1. In a browser, open the Police Transparency site, and click the **Use Of Force** page.
2. Scroll down to view the **Gain a Deeper Understanding** section.
3. Click **Use of Force by Officer**.
4. In the **Force Level** drop-down filter, select a force level.
5. Click the **Incident Context** tab to view the incident contexts most frequently associated with the level of force you selected.
6. Click a category on the **Call Type** bar chart. This further filters the dashboard, allowing you to explore the characteristics of officers involved specifically in the force level and call type you have selected.
7. Click back on the **Demographics** tab.
8. Follow steps 6 through 8 of the **Explore characteristics of subjects of force** section in this topic to learn about the spatial distribution of race and ethnicity and community composition.

Explore use of force incidents by neighborhood

The Use of Force by Neighborhood dashboard helps the public explore the characteristics of use of force in their neighborhood and to compare it to other neighborhoods and the community overall. Use the filters to set criteria, then click any bar in the charts to refine the results. For example, you may want to know more about the characteristics of use of force incidents in your neighborhood and how they compare to nearby neighborhoods.

Complete the following steps to explore the characteristics of use of force incidents in your neighborhood and compare them to other neighborhoods and the community overall.

1. In a browser, open the Police Transparency site, and click the **Use Of Force** page.
2. Scroll down to view the **Gain a Deeper Understanding** section. Click **Use of Force by Neighborhood**.
3. In the **Neighborhood** drop-down filter, select a neighborhood.

The map zooms to your neighborhood boundaries and filters the content. The charts automatically adjust to your filter selection. You can see from the filtered charts use of force incidents the trend in use of force incidents overall, and the frequency of serious injury or fatal incidents.
4. In the **Neighborhood** drop-down filter, select a different neighborhood.

[Back to top](#)

You can now compare the overall, serious injury, and fatal trends in use of force incidents between the two neighborhoods.

5. Click the **Details** tab to review and contrast demographic characteristics of subjects of use of force, the type of force applied, and the type of calls in which force most frequently occurs.
6. Follow steps 6 through 8 of the Explore characteristics of subjects of force section in this topic to learn about the spatial distribution of race and ethnicity and community composition.

Discover community engagement opportunities

Now you will assume the role of a concerned business owner. Your business has recently been victimized. You believe the crime to be part of a larger problem, and you want to become more active in working with your department to solve this problem and prevent future crimes. To perform this role, you'll need to learn how to get connected to police by finding your community officer, report your crime problem, provide feedback on your experience as a victim, and get information on upcoming police community events in which you can participate.

Find your community officer

Complete the following steps to learn more about the men and women that work with your neighborhood to solve safety concerns:

1. In a browser, open the Police Transparency site, and click the **Community Engagement** page.
2. Scroll down to the **Find Your Community Officer** section.
3. In the **My Community Officer** app, you have the following options: **enter your address** or **click a map location**.

The app will show a name and picture of your community officer, contact information, duty hours, the community policing area the location belongs to, and information about when meetings are held for this area.

Report community crime problems

Complete the following steps to view existing crime problems reported by the public and to submit a new **non-emergency** problem you have observed in the community.

1. In a browser, open the Police Transparency site, and click the **Community Engagement** page.
2. Scroll down to the **Engaging the Community** section and under **Report a Crime Problem**, click **Submit a Problem**.
3. Click **Proceed as Guest**.
4. Click **Submit a Problem**.

[Back to top](#)

5. Complete the form, providing a name for the problem, describing the nature of the problem and where it is occurring, and, optionally, your contact information.
6. Click the map to start drawing a polygon that defines the extent of the problem area. Keep clicking to define the edges of the polygon, then double-click to complete.
7. Click **Report It**.
8. Now you can view your crime problem and others recently submitted by residents. Click another crime problem.
9. Click the like button to like the report.
10. To add your comments, click the **comment** button. When complete, click **Submit Comment**.

Manage community crime problems

Once a crime problem report has been submitted, Community Policing Officers (CPOs) work with community members to validate, prioritize, and solve these concerns. The Community Crime Problem Manager enables CPOs to manage the crime problems through a collaborative, community-oriented problem-solving process based on the [Problem-Oriented Policing SARA model](#) (Scan, Analyze, Respond, Assess). In this section, you will take the role of a CPO. Complete the following steps to learn how to manage citizen-reported crime problems through a problem-solving process:

1. From your content, open the Community Crime Problem Manager.
The overview tab displays a list of all crime problems with charts displaying their project approval status and problem-solving phase.
2. Click a bar in the chart to filter the crime problem list. You may also use the neighborhood filter to select crime problems occurring in a specific neighborhood.
3. Click a problem from the list to zoom to the location of the problem.
4. Click the problem on the map to activate a pop-up to learn more about the problem.
Each tab in the Community Crime Problem Manager displays a step in the problem-solving process, with instructions on the actions to be taken and data to be edited for that step.
5. Click **Create Report**.
This opens the **Data** tab of ArcGIS Survey123, where you can click the **Print** button to create a printable PDF file of the crime problem record.
6. Review the list of crime problems and click the one you want to edit. The map will zoom to the problem, and the left-side ArcGIS Survey123 form will display the record you have selected.
7. Follow the instructions to update the form with the data required for the step. Click the **Submit** button at the bottom of the ArcGIS Survey123 form to submit your edits.
8. As your crime problem proceeds through the problem-solving steps in the real world, follow the instructions on each tab to advance the problem through the process in the app.

[Back to top](#)

Explore community crime problems

As CPOs and community members work together to solve crime problems, the public can exercise oversight on the status of active and completed projects using the Community Crime Problem Dashboard. In this section, you will resume your role of a concerned business owner. Complete the following steps to explore previous crime problem-solving successes and other active problem-solving projects that are underway:

1. In a browser, open the Police Transparency site, and click the **Community Engagement** page.
2. Scroll down to the **Engaging the Community** section and under **Monitor Problem-Solving Projects**, click **Monitor Projects** to open the Community Crime Problem Dashboard.
3. Use the filters to set criteria, then click any chart or list to refine the results.
4. Click a project in the list to review a specific project.
The map will zoom to the location of the problem.
5. Click the **Details** tab to view complete details for that project.

Submit feedback on a police interaction

Complete the following steps to provide feedback to the department on your recent experience as a crime victim:

1. In a browser, open the Police Transparency site and click the **Community Engagement** menu tab.
2. Scroll down to the **Engaging the Community** section and under **How Did We Do?**, click **Complete Survey**.
3. Fill in the Police Interaction Survey to provide your feedback.
4. Click **Submit**.

Explore law enforcement workforce diversity

You will assume the role of a local media reporter. You are writing a story about representation of women and communities of color in policing. You want to learn more about the composition of the workforce of the local law enforcement agency and how that compares to the community overall.

1. In a browser, open the Police Transparency site and click the **Workforce Diversity** menu tab.
2. Scroll down to the Law Enforcement Diversity Dashboard.
The summary tab of the dashboard displays the percentage of employees in each demographic group listed.

Note:

Under each demographic group, a text box indicates the percentage that group represents in the community overall. This information allows you to quickly identify which demographic groups are overrepresented in the police workforce relative to the composition of the community.

3. To view civilian employees only, go to the **Rank** drop-down filter and select **Civilian**.
The demographic percentages will adjust to your selection. This will allow you to compare representation of sworn employees versus civilian employees.
4. To view all sworn employees, deselect **Civilian** in the drop-down filter and select all other ranks.
5. Click the **Details** tab.
The **Details** tab allows you to visualize and interact with various diversity metrics of the workforce.
6. Click the **Black Female** section of the **Race and Gender** bar chart to learn more about representation of Black females in the department.
The charts and metrics automatically adjust based on your selection.
7. Click the **Black Female** section of the **Race and Gender** bar chart to turn off the selection.

Protection Operations

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Protection Operations

Protection Operations can be used to track poaching or illegal activity and monitor the status of protection operations in and around protected areas.

It provides 24/7 access to protection operations information and helps organizations respond to threats in real-time. This accelerated approach improves wildlife safety and reduces risks associated with illegal activities in a protected area. Protection Operations is typically implemented by conservation organizations that want to take a data-driven approach to monitoring illegal activity.

The Protection Operations solution delivers a set of capabilities that help you track poaching and illegal activity, monitor protection operations, and visualize patterns of illegal activity.

Requirements

Protection Operations requires the following:

- ArcGIS Enterprise
- ArcGIS Survey123
- Survey123 Connect

Information products

Protection Operations includes the following information products:

Item	Description	Minimum user type
Protected Area Dashboard	An ArcGIS Dashboards app used by conservation staff to monitor the status of protected area operations	Viewer
Protection Incident Dashboard	An ArcGIS Dashboards app used by conservation staff to monitor the status of protection operations within and around protected areas	Viewer
Protected Area Reports	An ArcGIS Web AppBuilder app used by conservation staff to perform analysis and generate reports	Creator
Protection Incident Manager	A Crowdsorce Manager app used by conservation staff to manage and update protection incident reports	Editor
Protection Incident Reporter	An ArcGIS Survey123 form used by conservation staff to collect protection incident reports	Mobile Worker

Release notes

The following are the release notes:

Version	Description
1.0	<ul style="list-style-type: none">• First release of Protection Operations

[Back to top](#)

Configure Protection Operations

Learn how to configure the Protection Operations solution to meet specific needs in your organization.

Load data

Protection Operations can be used to track poaching or illegal activity and monitor the status of protection operations in and around protected areas. In some cases, you may already have this information in ArcGIS or another business system.

Review the layers provided with the solution and determine what source data you want to load. Then, load your existing data into the layers provided with the solution before sharing the maps or applications.

Once you have determined what source data must be loaded, complete the data loading workflow below.

Load data from a shapefile

Load data for ProtectionIncidents from a shapefile by completing the following steps:

1. Create a .zip file of your shapefile.
2. In your ArcGIS organization, browse to the feature layer you want to populate.
3. On the feature layer item details page, click **Update Data** and select **Append Data to Layer**.
4. Under **Filename**, click **Choose File**.
5. Browse to your .zip file and click **Open**.
6. Under **Contents**, select **Shapefile**.
7. Click **Upload and Continue**.
8. Choose the layer that you want to load data into and the layer that contains the updated data.
9. Uncheck **Update existing features**.
10. Click **Show field matching** and map the fields between the two layers.
11. Click **Apply Updates**.

Tip:

To make additional updates to a hosted feature layer, see [Append data to layers](#).

Use Protection Operations

The Protection Operations solution delivers a set of capabilities that help you track poaching and illegal activity, monitor protection operations, and visualize patterns of illegal activity.

In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

Note:

Use your organization's data or configured apps to follow these workflows.


Collect protection incidents

You will start by assuming the role of a mobile worker in a protected area collecting protection incidents. You are asked to use the Protection Incident Reporter survey to collect protection incidents.

1. On a mobile device, in ArcGIS Survey123, open the Protection Incident Reporter form.
2. Tap the **Collect** button.
3. Complete the survey with as much information as possible.
4. Tap the check mark to submit the form, and then tap **Send now**.

Manage protection incidents

Next, you will assume the role of a conservation staff member. You will review protection incidents.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Protection Operations solution.
2. View the Protection Incident Manager app.
3. In the table, use the **Illegal Incident Type** column header filter to filter for a specific incident type.
4. Select a protection incident from the table.
The report details open at the lower left.
5. In the report details, click the **Edit record** button .
6. Make any necessary updates to the report, and then click **Save**.

Monitor protection incidents

Now, you will assume the role of a protected area manager. You will monitor the status of protection incidents in and around a protected area.

[Back to top](#)

1. In a browser, sign in to your ArcGIS organization, and then browse to the Protection Operations solution.
2. View the Protection Incident Dashboard app.
3. On the left, adjust the filters to refine the results.
4. On the right, select a protection incident from the incidents list.
The map zooms to the incident, and a pop-up with incident information appears.
5. In the pop-up, click **View Incident Details** to open a new browser tab and review the protection incident details.

Monitor protected area operations

For this workflow, you will continue to assume the role of a protected area manager. You will monitor the status of poaching and illegal activity, wildlife observations, and wildlife conflicts in and around protected areas.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Protection Operations solution.
2. View the Protected Area Dashboard app.
3. In the left, adjust the filters to refine the results.

Tip:

If you do not see the filter panel, click the arrow on the left to expand the panel.

4. At the bottom of the page, click the **Protection Incidents**, **Wildlife Observations**, and **Wildlife Conflicts** tabs to view information about each area.
5. On the **Protection Incidents** tab, on the right, select a protection incident from the incidents list.
The map zooms to the incident, and a pop-up with incident information appears.
6. In the pop-up, click **View Incident Details** to open a new browser tab and review the protection incident details.

Generate protected area reports

Finally, you will assume the role of a conservation staff member. You will perform analysis and generate reports on protected area data.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Protection Operations solution.
2. View the Protected Area Reports app.
3. Click the **Filter Protected Area Data** button to open the widget.
4. In the widget, turn on the **Poaching Incident Status** filter, expand the section, and select a status type.

[Back to top](#)

5. Click the **Update Layer Visibility** button to open the widget.
6. In the widget, select the layers that you want to include in your report.
7. Click the **Perform Analysis** button to open the widget.
8. Select an analysis tool, set the analysis parameters, and click **Run Analysis**.
After the tool completes, the analysis output displays on the map.
9. To create a hard copy of the map showing analysis outputs, click the **Print a Map** button.
10. To generate a report, click the **Create Reports** button to open the widget.
11. To create a report, complete the following steps:
 - a. Choose the report type.
 - b. Define the area of interest.
 - c. Optionally, set a buffer distance.
 - d. Click **Report**.An overview of the report information is displayed.
12. Click the **Download** button to download the report data.
13. Click the **Print** button to print a copy of the report.

Public Notification

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Public Notification

Public Notification can be used to identify a collection of properties and create structured mailing lists of owners and occupants.

It streamlines the public notification process and reduces staff resources required to generate public notices required to meet procedural or statutory requirements. Public Notification is typically implemented by planning departments, assessor offices, and other local government agencies that want to increase the reliability of their public notification process.

The Public Notification solution delivers a set of capabilities that help you identify properties, generate a list of owners or occupants, and document which properties were included in the public notice.

Requirements

Public Notification requires the following:

- ArcGIS Enterprise

Information products

Public Notification includes the following information products:

Item	Description	Minimum user type
Public Notification	An ArcGIS Web AppBuilder app used by local government staff to identify a collection of properties and create mailing labels, or a structured text file, of owners and occupants	Viewer

Release notes

The following are the release notes:

Version	Description
1.0	<ul style="list-style-type: none">• First release of Public Notification

[Back to top](#)

Configure Public Notification

Learn how to configure the Public Notification solution to meet specific needs in your organization.

Load data

Public Notification can be used to identify a collection of properties and create structured mailing lists of owners and occupants. In some cases, you may already have this information in ArcGIS or another business system.

Review the layers provided with the solution and determine what source data you want to load. Then, load your existing data into the layers provided with the solution before sharing the maps or applications.

Once you have determined what source data must be loaded, complete the following data loading workflow:

Load data from a shapefile

Load data for TaxParcels or SiteAddresses from a shapefile by completing the following steps:

1. Create a .zip file of your shapefile.
2. In your ArcGIS organization, browse to the feature layer you want to populate.
3. On the feature layer item details page, click **Update Data** and select **Append Data to Layer**.
4. Under **Filename**, click **Choose File**.
5. Browse to your .zip file and click **Open**.
6. Under **Contents**, select **Shapefile**.
7. Click **Upload and Continue**.
8. Choose the layer that you want to load data into and the layer that contains the updated data.
9. Uncheck **Update existing features**.
10. Click **Show field matching** and map the fields between the two layers.
11. Click **Apply Updates**.

Tip:

To make additional updates to a hosted feature layer, see [Append data to layers](#).

Use Public Notification

The Public Notification solution delivers a set of capabilities that help you identify properties, generate a list of owners or occupants, and document which properties were included in the public notice.

In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

Note:

Use your organization's data or configured apps to follow these workflows.

Create mailing list

An update to the land-use plan requires a zoning change for a residential area. As a result, city planners must notify property owners and occupants in and around the proposed change of an upcoming public meeting. In this workflow, you'll learn how to create a structured mailing list using a selected parcel and adding the appropriate buffer to notify property owners and occupants.

You will start by assuming the role of a city and regional planner. You are asked to use Public Notification to notify property owners and occupants of a proposed zoning change.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Public Notification solution.
2. View the Public Notification app.
3. On the right, use the search field to search for a parcel or address, or use the **Select** tool to select a feature directly on the map.

Note:

The search options that you see vary depending on how you configured the app.

Tip:

You can also use the **Select** tool to add features to an existing selection by pressing Shift and drawing the addition on the map. You can use the **Select** tool to remove features by pressing Ctrl and drawing around the area that you want to remove.

4. Optionally, apply a search distance to add a buffer.

Note:

The buffer distance set during the configuration will be used as the default for each layer.

5. For **Addressee Layer**, choose the layer to use for the notification.

[Back to top](#)

6. If applicable, click **Review** to further refine and finalize your selection; use the **Select** tool to add or remove parcels.
7. For **Format**, choose the PDF label format or CSV output for the notification.
8. Click **Download**.

Public Parking

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Public Parking

Public Parking can be used to inventory parking assets and promote public parking (lots, garages, on-street spaces, and pay stations) alternatives in a downtown or neighborhood.

As downtowns and neighborhoods expand and become more vibrant, accessible and reliable parking information allows drivers to choose a convenient parking option. Any challenge locating a parking option or the perception of a parking shortage will frustrate drivers and impact businesses and restaurants in the area. Managing and communicating parking information helps drivers locate desirable spaces and reduces congestion in a downtown or neighborhood. Public Parking is typically implemented by public works and planning departments that want to educate the public and promote parking assets in their community.

The Public Parking solution delivers a set of capabilities that help you inventory parking assets and share nearby surface lots, garages, and on-street spaces with drivers.

Requirements

Public Parking requires the following:

- ArcGIS Enterprise
- ArcGIS Field Maps

Information products

Public Parking includes the following information products:

Name	Description	Minimum user type
Parking Field Map	An ArcGIS Field Maps map used by public works or planning department personnel to inventory public parking and pay stations in the field	Mobile Worker
Parking Inventory	An ArcGIS Web AppBuilder app used by public works or planning department personnel to inventory public parking and pay stations	Editor
Parking Locator	A Nearby app used by the general public to locate public parking alternatives	Not required
Public Parking	An ArcGIS Hub site used by public works and planning departments to communicate public parking alternatives.	Not required
Parking Satisfaction Survey	An ArcGIS Survey123 form used by the general public to share their experience with parking resources in a community.	Not required

Release notes

The following are the release notes:

Version	Description
1.0	<ul style="list-style-type: none">• First release of Public Parking

[Back to top](#)

Configure Public Parking

Public Parking can be used to inventory parking assets and promote public parking (lots, garages, on-street spaces, and pay stations) alternatives in a downtown or neighborhood.

In this topic, you'll learn how to configure the Public Parking solution to meet specific needs in your organization.

Load data

In some cases, you may already have this information in ArcGIS or another mapping system. Review the layers provided with the solution and determine what source data you want to load. Then, load your existing data into the layers provided with the solution before sharing the maps or apps.

Once you have determined what source data must be loaded, complete one or more of the data loading workflows below.

Load data from a shapefile

Load data into the Parking layer from a shapefile by completing the following steps:

1. Create a .zip file of your shapefile.
2. Sign in to your ArcGIS organization and browse to the feature layer you want to populate.
3. Open the item page and click **Update Data > Append Data to Layer**.
4. Click **Choose File** and browse to your .zip file, and click **Open**.
5. Click **Upload and Continue**.
6. Click **Choose the layer that you wish to append data into** drop-down arrow and choose the layer that contains the updated data.
7. Uncheck **Update existing features**.
8. Click **Show field matching** and map the fields between the two layers.
9. Click **Apply Updates**.

Tip:

To make additional updates to a hosted feature layer, see [Append data to layers](#).

Populate operational hours

This solution leverages the [Opening Hours Specification](#) to display operating hours for a place or service. When you populate the data fully, Arcade expressions interpret the data and display the operating hours in a human-readable format in the map pop-up. Understanding the

[Back to top](#)

data specification and options in the Arcade expressions will help you populate your data and display it in the maps and apps provided with the ArcGIS Solution.

Operating Hours Specification

The Operating Hours Specification allows you to store a combination of operating hours in a single field but relies on a series of data standards to render the information correctly. To ensure operating hours are displayed correctly, follow the standards below:

- Enter all times using a 24-hour clock without a leading 0—for example, Tu (7:00-19:00).
- Use a two-letter abbreviation for each day, with the first letter capitalized—for example, Mo, Tu, We, Th, Fr, Sa, Su.
- When a location is open 24 hours a day, use 24 Hours—for example, Mo (24 Hours).
- When a location is closed on a specific day, use Closed—for example, Sa-Sun (Closed).
- Enclose all times and closed statuses in parentheses—for example, Tu (7:00-19:00); We-Mo (Closed).
- Separate days and ranges with a semicolon to denote the two (or more) groups—for example, Th-Fr (7:00-19:00); Sa (24 Hours).

Using the standards above, a diverse set of operating hours can be populated for your places and services. Some common examples include the following:

- To specify the place is open from 9:00 a.m. to 5:00 p.m. seven days a week, populate the operating hours field with the following: Mo-Su (9:00-17:00).
- To specify the place is open from 9:00 a.m. to 5:00 p.m. during the week and closed on weekends, populate the operating hours field with the following: Mo-Fr (9:00-17:00); Sa-Su (Closed).
- To specify the place is open one day (Tuesday) a week, populate the operating hours field with the following: Tu (7:00-19:00); We-Mo (Closed).
- To specify the place has operating hours that vary by day, populate the operating hours field with the following: Mo-Tu (9:00-17:00); We (Closed); Th-Fr (7:00-19:00); Sa (24 Hours); Su (Closed).

Operating hours data can be populated all at once for many places and services using [Calculate field values](#) or uniquely entered for each place or service using an application provided with the solution.

Arcade expressions

The Arcade expressions include several settings that allow you to configure the look and feel of the operating hours when they are displayed in the web map pop-up. The expressions work with the operating hours data and web map pop-up configurations to display current operating hours in your map and app.

This solution uses three Arcade expressions: Hours, Days, and Open/Closed. To modify one of these expressions, complete the following steps:

1. Verify that you are signed in to your ArcGIS organization and browse to the Parking Locator map.
2. Open the item page and click **Open in Map Viewer Classic**.
3. Click **More Options** and click **Configure Pop-up** on the On Street Parking layer.
4. Under **Attribute Expressions**, double-click the Arcade expression you want to modify.
Each Arcade expression has a set of variables that can be configured according to your organization's needs. Review the expression notes and modify the variables as needed. Do not change anything else in the expressions.
5. Click **OK**.
6. Repeat the above steps for the Lots and Garages layer.

Configure parking locator

The Parking Locator app can be used by the general public to locate public parking alternatives. Directions to the nearest parking space can be enabled so users can quickly find the space they are looking for.

Configure directions

Follow the steps below to enable directions.

1. Verify that you are signed in to your ArcGIS organization and browse to the Parking Locator app.
2. From the item page, click **Configure App**.
Close the **Welcome to the App Setup Page** splash page, if necessary.
3. Click **Nearby > Options** and turn on the **Show directions** toggle button.
4. Check the check box next to the **Lots and Garages, On Street Parking** and **Pay Stations** layers.
5. Click **Publish**.
6. Click **Confirm**.
The **Authorize premium content** window appears with information related to authorization.
7. Click **Authorize**.
8. Click **Launch**.

Modify satisfaction survey

The Public Parking solution includes a Parking Satisfaction Survey that can be used to gather public sentiment and feedback on parking facilities. Review the preconfigured questions and align the survey with your organizational policies and desired outcomes.

[Back to top](#)

To modify the Parking Satisfaction Survey, complete the following steps:


1. Verify that you are signed in to your ArcGIS organization and browse to the Parking Satisfaction Survey.
2. Open the item page and click **Open in Survey 123 > Manage in Survey123 website**.
3. Click the **Design** tab.
4. Make your edits to the survey and save the changes.
5. Click **Publish** twice.

Configure parking site


The Public Parking solution includes the Public Parking ArcGIS Hub site that your organization can configure with your branding and use to share parking information with the public.

Update with organizational information

After deploying the Public Parking solution, the Public Parking site layout only requires a few updates to fit your local context. Consider what information you already have and what you can most easily find. To update your site, complete the following steps:

1. Verify that you are signed in to your ArcGIS organization and browse to the Public Parking site.
2. Open the item page and click **Configure App**.
3. Click the edit button  to open the site editor.
4. Scroll to the **Statistics** section listed under the title of the website.

The **Total Number of Spaces**, **EV Charging Stations**, and **Average Hourly Rate (\$)** statistics cards are linked to the Public Parking solution's Parking_public feature layer. These stats automatically update parking assets are added using the Parking Inventory app.

5. Scroll to the **Pay Your Parking Ticket** section, hover over the card and click edit pencil .
6. Click the **Pay Now** button and click **Edit**.
7. Enter the URL to your online payment system, if available, in the **Link Destination** text box and click **Add Link**.
8. Scroll to the **Apply Now** section, hover over the card and click edit pencil.
9. Click the **Apply for Permit** button and click **Edit**.
10. Enter the URL to your residential permit program, if available, in the **Link Destination** text box and click **Add Link**.
11. Scroll to the **Frequently Asked Questions** section, hover over the card and click the edit pencil, and update the questions and answers.

[Back to top](#)

12. Click **Footer**.

A custom footer is already provided, and in most cases, it needs to be updated with your organization's branding, contact information, and social media references.

13. Click the **HTML** text box.

The **HTML** window appears.

14. Make the necessary changes and click **Apply**.

15. Click **Save**.

Share items with public

Several layer views, maps and apps included in the Public Parking solution must be shared with everyone so they can be accessed by the public on the Public Parking site. To share your public parking items with everyone, use the guide below and complete the following steps:

1. Verify that you are signed in to your ArcGIS organization and browse to the Public Parking folder.
2. Check the check box next to each of the items below:

Item	Name
Feature Layer (hosted, view)	Parking_public
Web Map	Parking Locator
Web Mapping Application	Parking Locator
Form	Parking Satisfaction Survey
Feature Layer (hosted)	ParkingSatisfactionSurvey_public
Site Application	Public Parking

3. Click **Share**.
4. In the **Share** window, click **Everyone (public)** and click **Save**.

Warning: Sharing editable layers publicly appears notifying that you are sharing editable layers publicly.

5. Click **Update**.

Use Public Parking

The Public Parking solution delivers a set of capabilities that help you inventory parking assets and share nearby surface lots, garages, and on-street spaces with drivers.

In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

Note:

Use your organization's data or configured apps to follow these workflows.

Collect parking assets in the field

In many cases, a field assessment of existing parking assets may be the most efficient way to develop a parking inventory. The information collected in the field can then be augmented with other descriptive information that helps drivers or the public find parking alternatives.

You will assume the role of a mobile worker in a public works or planning department. In this workflow, you are asked to use the ArcGIS Field Maps mobile app to access your Parking Field Map and inventory parking assets in your community.

1. Download ArcGIS Field Maps onto your mobile device.
2. Tap **Parking Field Map** to open the map.
3. Search for an address, and then in the results list, tap the address to zoom to that location on the map.
4. Tap the plus sign or **Collect Here** to open the survey form.

Note:

Your interface may vary depending on the type of mobile device you use.

5. Tap the type of parking asset that you want to add.
6. Swipe up to view the form, and then complete the survey with as much information as possible, tapping to expand sections as necessary.
7. Swipe down and tap **Add Point**.
8. At the upper right, tap the check mark or **Submit** to submit the survey.
9. Repeat these steps for each parking asset.

Develop parking inventory

The Parking Inventory app can be used by public works or planning department personnel to inventory public parking and pay stations. Existing parking assets collected in the field can be reviewed and information added to help drivers or the public find parking alternatives. New

parking assets can also be added to a parking inventory using imagery and record documents.

You will assume the role of a parking supervisor in a public works or planning department. In this workflow, you are asked to review parking assets collected by field staff and add new parking assets available in record drawings. The steps below provide guidance; however, you can enter information as you see fit and examine the different dependencies in the form.


Review assets collected in the field

To review assets that were collected in the field, complete the following steps:

1. In a browser, sign in to your ArcGIS organization, and then browse to the Public Parking solution.
2. View the Parking Inventory app.
3. At the upper right, click the **Filter** button to open the widget.
4. In the widget, in the **Public Parking** section, click the **Visible to Public** drop-down arrow and choose **No**, and then turn the **Public Parking** filter on.
5. On the map, click a parking asset to open its pop-up.

Tip:

If you do not see any assets, return to and complete the **Collect parking assets in the field** workflow.

6. In the pop-up, at the lower right, click the more options button  and choose **Smart Editor**.

The **Add Parking Assets** widget opens on the right, showing the form that was collected in the field for this parking asset.

7. Update or complete the information in the form.

Tip:

This solution uses the Operating Hours Specification and relies on a series of data standards (for example, Mo-Fr (7:00-19:00)) to render the operating hours correctly. For more information, see [Populate operational hours](#).

8. For **Visible to the public**, choose **Yes**.
9. Scroll to the bottom of the form and click **Save**.
10. Click **Close**.
11. Repeat these steps for each parking asset.

Add a new parking asset

1. In the Parking Inventory app, click the **Add Parking Assets** button to open the widget, if necessary, and then select the type of parking asset that you want to add.

[Back to top](#)

2. On the map, click the location of the asset.
3. Complete the form with as much information as possible.
4. Scroll to the bottom of the form and click **Save**.
5. Click **Close**.
6. Repeat these steps for each parking asset.

Locate parking alternatives

Communicating parking information helps drivers locate desirable spaces and reduces congestion in a downtown or neighborhood. The Public Parking site and Parking Locator app can be used to communicate public parking alternatives and find a parking space.

Find a parking space

You will assume the role of a resident or member of the public. In this workflow, you are interested in locating a parking space near a given location in a downtown or neighborhood.

1. In a browser, from the Public Parking solution, view the Public Parking site.
2. Scroll to the **Find Parking Space** section, and then click the **Locate Parking** button.
The Parking Locator opens, showing parking alternatives in the area.
3. On the left, in the Parking Locator panel, search for an address.
You see suggestions as you type.
4. Press Enter or choose an address from the list.
In the Parking Locator panel, nearby parking alternatives are listed.

Tip:

If your search returned no results, adjust the slider to increase the search distance.

5. In the Parking Locator panel or on the map, click a parking alternative and review the additional details.

Share parking experience

Understanding public perception with parking alternatives helps shape parking studies and plans to deliver affordable and well-located parking. The Parking Satisfaction Survey form is used by the public to share their experience with parking resources in a community.

1. In a browser, from the Public Parking solution, view the Public Parking site.
2. Scroll to the **Parking Satisfaction** section.
3. Click **Share Your Experience**.
4. Complete the survey, and then click **Submit**.

[Back to top](#)

Recreation Outreach

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Recreation Outreach

Recreation Outreach can be used to increase participation in outdoor activities and understand recreation license trends.

For decades there has been a decline in the number of people that are interested in outdoor recreation, prompting the need to understand recreation license trends more deeply and maximize the use of recreation resources. Understanding who has purchased recreation licenses or permits helps organizations target marketing activities and increase retention rates. Providing 24/7 access to recreation opportunities allows you to reach new outdoor license and permit buyers and increase the use of outdoor resources in your community. Recreation Outreach is typically implemented by fish and wildlife agencies, parks departments, and other recreation agencies that want to take a data-driven approach to increasing public participation in outdoor recreation.

The Recreation Outreach solution delivers a set of capabilities that help you understand recreation license trends, engage the public about their recreation experiences, and promote recreation opportunities to the public.

Requirements

Recreation Outreach requires the following:

- ArcGIS Enterprise
- ArcGIS Pro 2.6 or later (Basic, Standard, Advanced)
- ArcGIS Survey123

Information products

Recreation Outreach includes the following information products:

Item	Description	Minimum user type
Outdoor Recreation	An ArcGIS Hub site used by the general public to discover outdoor recreation opportunities	Not required
Angler Catch Survey	An ArcGIS Survey123 form used by anglers to provide feedback related to their fishing experience	Not required
Boating Experience Survey	An ArcGIS Survey123 form used by boaters to provide feedback related to their boating experience	Not required
Hunting Harvest Survey	An ArcGIS Survey123 form used by hunters to provide feedback related to their hunting experience	Not required
Trail Experience Survey	An ArcGIS Survey123 form used by trail users to provide feedback related to their trail experience	Not required
Recreation License Dashboard	An ArcGIS Dashboards app used by Fish and Wildlife Coordinators to determine which communities to target for Reactivation, Retention, and Recruitment (R3) campaigns	Viewer
Recreation License Management	An ArcGIS Pro project package used to manage and analyze license data	GIS Professional Basic
Park Locator	A Nearby app used by the general public to locate a park or recreation facility and obtain information about recreation activities in the area	Not required
Recreation License Locator	A Nearby app used by anglers, boaters, and hunters to locate license or permit retailers and obtain information about rules and regulations	Not required
Water Resource Locator	A Nearby app used by anglers and boaters to locate water access sites and obtain information about amenities at the access site	Not required
Wildlife Resource Locator	A Nearby app used by the general public to locate wildlife conservation or recreation areas and obtain information about area amenities	Not required
Trail Locator	A Nearby app used by the general public to locate a trail and obtain information about trail activities in the region	Not required
Recreation Inventory	A Sidebar app used by used by mapping technicians to create, edit, and review recreation assets.	Editor
Recreation Closure Manager	An ArcGIS Web AppBuilder app used by public information staff to create and update recreation closures.	Editor

[Back to top](#)

Release notes

The following are the release notes:

Version	Description
2.0	<ul style="list-style-type: none">• New recreation locator apps using the Nearby Instant app for a better mobile experience.• A new Recreation Inventory app for park and trail data management.• A new Trails page on the Outdoor Recreation Hub site that can be used to share trail information.• A new Trail Experience Survey to collect trail use information.
1.2	<ul style="list-style-type: none">• A new version of the Recreation License Management ArcGIS Pro project that resolves an issue with the Standardize Licenses tool to work with domains.
1.1	<ul style="list-style-type: none">• Updated the Recreation License Management ArcGIS Pro project to reference correct layers.
1.0	<ul style="list-style-type: none">• First release of Recreation Outreach

[Back to top](#)

Configure Recreation Outreach

Learn how to configure the Recreation Outreach solution to meet specific needs in your organization.

Load data

Recreation Outreach can be used to increase participation in outdoor activities and understand recreation license trends. In some cases, you may already have this information in ArcGIS or another business system.

The Recreation Outreach solution includes five locator apps to share outdoor resources with the public: the Water Resource Locator, the Wildlife Resource Locator, the Trail Locator, the Park Locator, and the Recreation License Locator. Each of these locator apps has a corresponding feature layer that needs to be populated with data for the apps to function.

Review the layers provided with the solution and determine what source data you want to load. Then, load your existing data into the layers provided with the solution before sharing the maps or apps.

Once you have determined what source data must be loaded, complete one or more of the data loading workflows below.

Load data from a shapefile

Load data for LicenseLocations, ParkRecreationFacilities, Trails, WildlifeResources, and WaterResources from a shapefile by completing the following steps:

1. Create a .zip file of your shapefile.
2. In your ArcGIS organization, browse to the feature layer you want to populate.
3. On the feature layer item details page, click **Update Data** and select **Append Data to Layer**.
4. Under **Filename**, click **Choose File**.
5. Browse to your .zip file and click **Open**.
6. Under **Contents**, select **Shapefile**.
7. Click **Upload and Continue**.
8. Choose the layer that you want to load data into and the layer that contains the updated data.
9. Uncheck **Update existing features**.
10. Click **Show field matching** and map the fields between the two layers.
11. Click **Apply Updates**.

[Back to top](#)

Tip:

To make additional updates to a hosted feature layer, see [Append data to layers](#).

Modify satisfaction surveys

The Recreation Outreach solution includes focused surveys to gauge public opinion and gather feedback on outdoor recreation use. These surveys require slight modification to localize them for your use.

To update the list of locations in each survey, complete the following steps:

1. Download and install Survey123 Connect.
2. Start Survey123 Connect and sign in to your ArcGIS organization.
3. Click any of the surveys to download the individual survey forms.
4. Click the survey again to open it.
5. In the left panel, click the **XLSForm** button.
A Microsoft Excel spreadsheet opens.
6. In the Microsoft Excel spreadsheet, click the **choices** tab. This tab comprises all the selectable options for survey questions.
7. In the choice list, find the placeholder choices (Choice 1, Choice 2, and so on) and replace them with your own values.
8. Click **Save** to save the Microsoft Excel spreadsheet and preview your changes on the **Form Preview** tab of Survey123 Connect.
9. In Survey123 Connect, click **Publish** in the left panel to publish your changes.

Create native apps

The Recreation Outreach solution enables organizations to optionally configure native app experiences for the recreation locators, use the guide below and complete the following steps:

1. Download [ArcGIS Appstudio](#).
2. Use the [Nearby](#) template for one or more recreation locators.
3. [Publish](#) your native app.
4. Update the download app buttons on the Outdoor Recreation site to reference your published apps.





Configure Outdoor Recreation site

The Recreation Outreach solution requires small modifications to localize it for your use. The following sections describe how to configure Recreation Outreach for your organization.

[Back to top](#)

Update organizational information

The Recreation Outreach solution includes an Outdoor Recreation site to share information about outdoor recreation with the public. This app requires slight modification to be localized for your use.

1. Sign in to your ArcGIS Online organization and browse to the Outdoor Recreation site.
2. Open the item page and click **Configure App**.
3. Click the edit button  to open the site editor.
4. On the main Outdoor Recreation page, update the following:
 - a. Under the Buy License Online section, hover over the card and click the edit pencil  to update the Learn more link to your online licensing portal.
 - b. Under the Buy License Online section, hover over the card and click the edit pencil to update the Learn more link to your online licensing portal.
 - c. Under the Make a Reservation section, hover over the card and click the edit pencil to update the Learn more link to your online reservation portal.
 - d. To modify the footer on the Outdoor Recreation site, on the side panel, click **Customize Toggle** .
5. Click **Footer**. A custom footer is already provided, and in most cases needs to be updated with just your organization's branding, contact information, and social media references. Click the **HTML** text box, make the necessary changes, and click **Apply**.
6. Click **Settings** and expand **Interactions**. Make sure the **Embedded Apps** setting is toggled off.
7. Click **Save**.
8. On the Fishing page, update the following:
 - a. Under the Fishing Rules and Regulations section, hover over the card and click the edit pencil  to update the Learn more link to your regulation website.
 - b. Under the Buy License Online section, hover over the card and click the edit pencil to update the Learn more link to your online licensing portal.
 - c. Under the Frequently Asked Questions section, hover over the card and click the edit pencil, and update the questions and answers.
9. Click **Save**.
10. On the Hunting page, update the following:
 - a. Under the Learn to Hunt and Hunting Rules and Regulations sections, hover over the card and click the edit pencil to update the Learn more link to your learning and regulations websites.
 - b. Under the Buy License Online section, hover over the card and click the edit pencil to update the Learn more link to your online licensing portal.

[Back to top](#)

- c. Under the Frequently Asked Questions section, hover over the card and click the edit pencil, and update the questions and answers.
11. Click **Save**.
12. On the Boating page, update the following:
 - a. Under the Boating Education and Boating Rules and Regulations sections, hover over the card and click the edit pencil to update the Learn more link to your learning and regulations websites.
 - b. Under the Frequently Asked Questions section, hover over the card and click the edit pencil, and update the questions and answers.
13. Click **Save**.
14. On the Trails page, update the following:
 - a. Under the Trails Rules and Regulations section, hover over the card and click the edit pencil to update the Learn more link to your regulation website.
 - b. Under the Buy Permit Online section, hover over the card and click the edit pencil to update the Learn more link to your online permitting portal.
 - c. Under the Featured Trails section, hover over the gallery cards and click the edit pencil to manually select Featured Trails apps.
 - d. Under the Frequently Asked Questions section, hover over the card and click the edit pencil, and update the questions and answers.
15. Click **Save**.

Create feature trails apps

The Recreation Outreach solution enables organizations to showcase feature trails, use the guide below and complete the following steps:

1. Open the Trail Locator and find the Trail you would like to feature.
2. Click the **Copy Link** button.
3. Navigate to your ArcGIS Online Content.
4. Click the **New Item** button and select Application, choose **Web Mapping**.
5. Paste the URL from Copy Link in the space for URL. Click **Next**.
6. Add a Title, select a folder, assign Categories, add Tags and a Summary. Click **Save**.
7. Repeat steps 1-7 for each trail you would like to feature.
8. On the Trails page, navigate to the Feature Trails gallery section.
9. Click the Settings on the Featured Trails gallery.
10. In the **Settings** panel, select Manual.
11. Click the **Select Content** and find and select the featured trail applications built in steps 1-7.
12. Click the **Save** option, then the dropdown and select **Publish Draft**.

[Back to top](#)

Share items with public

Several layer views, maps and apps included in the Recreation Outreach solution must be shared with everyone so they can be accessed by the public on the Outdoor Recreation site. To share your Outdoor Recreation items with everyone, use the guide below and complete the following steps:

1. Verify that you are signed in to your ArcGIS organization and browse to the Recreation Outreach folder.
2. Check the check box next to each of the items below:

Item	Name
Feature Layer (hosted, view)	AnglerCatchSurvey_public
Feature Layer (hosted, view)	BoatingExperienceSurvey_public
Feature Layer (hosted, view)	HuntingHarvestSurvey_public
Feature Layer (hosted, view)	LicenseLocations_public
Feature Layer (hosted, view)	ParkRecreationFacilities_public
Feature Layer (hosted, view)	ParkAssets_trails
Feature Layer (hosted, view)	WaterResources_public
Feature Layer (hosted, view)	WildlifeResourceAreas_public
Feature Layer (hosted, view)	WildlifeResourceLocations_public
Feature Layer (hosted, view)	TrailExperienceSurvey_public
Web Map	Park Locator
Web Map	Recreation License Locator
Web Map	Trail Locator
Web Map	Water Resource Locator
Web Map	Wildlife Resource Locator
Web Mapping Application	Park Locator
Web Mapping Application	Recreation License Locator
Web Mapping Application	Trail Locator
Web Mapping Application	Water Resource Locator
Web Mapping Application	Wildlife Resource Locator
Form	Angler Catch Survey
Form	Boating Experience Survey
Form	Hunting Harvest Survey
Form	Trail Experience Survey
Hub Site Application	Outdoor Recreation
Hub Initiative	Outdoor Recreation

[Back to top](#)

Hub Page	Boating
Hub Page	Fishing
Hub Page	Hunting
Hub Page	Trails

3. Click **Share**.
4. In the **Share** window, click **Everyone (public)** and click **Save**.
The **Warning: Sharing editable layers publicly** message appears notifying you that you are sharing editable layers publicly.
5. Click **Update**.
6. Click **OK** and click **Save**.

Use Recreation Outreach

The Recreation Outreach solution delivers a set of capabilities that help you understand recreation license trends, engage the public about their recreation experiences, and promote recreation opportunities to the public.

In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

Explore outdoor destinations

Recreation Outreach contains multiple locator apps for the general public to find recreation opportunities and license information. Members of the public can search for an address or click the corresponding map to find information about parks, trails, water resources, wildlife resources, or recreation license locations.

You are a member of the public and want to learn what recreation opportunities are in your area. You will use the locator apps in the Recreation Outreach solution to find outdoor destinations.

Find park opportunities

1. Browse to the Outdoor Recreation site.
2. Find the Park Locator card and click the **Explore** button to launch the Park Locator.
3. Enter your address in the search box or pan and zoom to an area of the map you are interested in.
4. Click the **Filter** button and select characteristics to limit results based on your selected criteria.
5. Select the location of interest from the list and review information provided.
6. Click on the **Directions** tab to view driving directions to the recreation opportunity from your defined location.

Find trail opportunities

1. Browse to the Outdoor Recreation site.
2. Find the Trail Locator card and click the **Explore** button to launch the Trail Locator.
3. Enter your address in the search box or pan and zoom to an area of the map you are interested in.
4. Click the **Filter** button and select characteristics to limit results based on your selected criteria.
5. Select the location of interest from the list and review information provided.
6. Click on the **Directions** tab to view driving directions to the recreation opportunity from your defined location.

[Back to top](#)

Find fishing and boating opportunities

1. Browse to the Outdoor Recreation site.
2. Find the Water Resource Locator card and click the **Explore** button to launch the Water Resource Locator .
3. Enter your address in the search box or pan and zoom to an area of the map you are interested in.
4. Click the **Filter** button and select characteristics to limit results based on your selected criteria.
5. Select the location of interest from the list and review information provided.
6. Click on the **Directions** tab to view driving directions to the recreation opportunity from your defined location.

Find hunting opportunities

1. Browse to the Outdoor Recreation site.
2. Find the Wildlife Resource Locator card and click the **Explore** button to launch the Wildlife Resource Locator .
3. Enter your address in the search box or pan and zoom to an area of the map you are interested in.
4. Click the **Filter** button and select characteristics to limit results based on your selected criteria.
5. Select the location of interest from the list and review information provided.
6. Click on the **Directions** tab to view driving directions to the recreation opportunity from your defined location.

Develop recreation inventory

The Recreation Inventory app can be used by recreation staff to create and update recreation information shared with the public. Existing recreation assets collected in the field can be reviewed and information added to help internal staff and the general public find information about recreation opportunities. New recreation assets can also be added to a recreation inventory using imagery and record documents.

You will assume the role of recreation staff in a local government department. In this workflow, you are asked to review recreation assets and add new recreation assets. The steps below provide guidance; however, you can enter information as you see fit and examine the different dependencies in the form.

Review recreation assets

1. Sign in to your ArcGIS organization and browse to the Recreation Inventory app.

[Back to top](#)

2. Open the item page and click **View Application**.
3. Open the **Edit** panel and click **Edit feature**.
4. Select a trailhead on the map.
5. In the panel, review the attribute information and enter the remaining details for the trailhead.
6. Set **Status** to **Open**, **Publicly Visible** to **Yes**, and **Reviewed** to **Yes**.
7. When you're finished, click **Update**.

Add a new recreation asset

1. In the Recreation Inventory app, open the **Edit** panel, and click **Add feature**.
2. Type Trails into the **Filter types** search box, and click the **Trails** feature template.
3. Add a new trail to the map.
4. Enter the following trail details:

Parameter	Value
Asset ID	Type T1-0004.
Name	Type McDowell Grove Trail.
Park Name	Type McDowell Park.
Trail System	Type McDowell Park.
Status	Choose Open .
Reviewed	Choose Yes .
Seasonal	Choose No .
Hiking	Choose Yes .
Mountain Biking	Choose Yes .
eBikes	Choose No .
Dogs Allowed	Choose Yes .
Surface Type	Choose Native .
Publicly Visible	Choose Yes .
Install Date	Choose today's date.
Owned By	Choose Our Agency .
Managed By	Choose Our Agency .

5. Scroll to the bottom of the form and click **Add**.
6. Repeat all of the steps for each recreation asset.

Update recreation closure information

Communicating the status of recreation opportunities helps visitors plan trips and reduces congestion and overuse of resources. The Recreation Closure Manager app can be used by public information staff to create and update recreation closures.

Create recreation closure

1. Sign in to your ArcGIS organization and browse to the Recreation Closure Manager app.
2. Open the item page and click **View Application**.

The **Manage Recreation Closures** widget is opened by default, which allows you to create and edit existing recreation closures.

3. In the **Search** widget, type an address.
4. In the **Manage Recreation Closures** widget, click the **Closures** template and add a new recreation closure to the map.
5. Enter the following recreation closure details:

Parameter	Value
Name	Type Trail Maintenance.
Type	Choose Temporary Closure .
Reason	Choose Maintenance .
When	Type Winter 2021 to Spring 2022.
Comment	Type Trail closed Winter 2021 to Spring 2022.

6. Click **Save**.

Update asset status

1. Open the **Update Public Status** widget.
2. Select the **Freehand Polygon** selection tool, and select the assets associated with the recreation closure.
3. For **Status**, choose **Closed**.
4. Click **Save**.

Note:

When you create recreation closures and update asset status information using the Recreation Closure Manager app, the recreation locators deployed with the [Recreation Outreach](#) solution will automatically be updated with the new information.

Review and prepare recreation license data

Staff can use the Recreation License Management ArcGIS Pro project and Recreation License Management Dashboard to organize, load, and review recreation license data. This allows staff to review this information spatially, which can provide an enhanced view and understanding of license trends.

You are a data analyst at a conservation agency responsible for analyzing trends in recreation license data. You are asked to use the Recreation License Management ArcGIS Pro project to prepare your data to share in the Recreation License Dashboard.

1. Start ArcGIS Pro and open the Recreation License Management project.
2. On the **View** tab, in the **Windows** group, click **Catalog**, and click **Catalog Pane**.
3. In the **Catalog** pane, expand **Tasks**, and double-click the Recreation License Management task.
4. In the **Tasks** pane, click the **Getting Started** task group to expand the collection of tasks.
5. Click the **Understanding Recreation License Management** task to review the project.
6. Follow the tasks provided in the **Prepare License Data** task group to format recreation license data.
7. Follow the tasks provided in the **Calculate License Information** task group to summarize and load recreation license data.

Road Closures

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Road Closures

Road Closures can be used to maintain an inventory of road closures and communicate closures and detours to travelers.

Public works and public safety departments close roads for construction activities, special events, and public safety incidents, often creating detours for drivers. Proactively managing and communicating closure and detour information helps residents and drivers navigate an altered road landscape and avoid unnecessary congestion. Road Closures is typically implemented by public works and public safety agencies that want to have a single catalog of roads impacted by construction activities, events, and incidents and share this information with the public.

The Road Closures solution delivers a set of capabilities that help you inventory road closures and related detours, communicate closures and detours with the public, and share authoritative closure information with consumer applications, such as Waze.

Requirements

Road Closures requires the following:

- ArcGIS Enterprise

Information products

Road Closures includes the following information products:

Item	Description	Minimum user type
Road Closures	An ArcGIS Web AppBuilder app used by public works and public safety staff to maintain an inventory of road closures and communicate closures, blocks, and detours to travelers	Editor

[Back to top](#)

Release notes

The following are the release notes:

Version	Description
1.0	<ul style="list-style-type: none">• First release of Road Closures

Configure Road Closures

Learn how to configure the Road Closures solution to meet specific needs in your organization.

Create a public road closure map

Focused road closure maps and information can be embedded in your website so they can be accessed by the general public. Maps can be focused on public safety incidents or specific events occurring in a community, or they can be more general road closure maps used during road construction season.

To create a public road closure map, complete the following steps:

1. Sign in to your ArcGIS organization.
2. [Create a map](#) that can be used by the general public to view road closures by doing the following:
 - a. Choose a basemap.
 - b. Add the RoadClosures_public layer to the map and [remove](#) RoadClosures_public from the layer names.
 - c. Save the map as Public Road Closures.
3. Share the map with your organization and everyone.
4. [Embed](#) the Public Road Closures map in your public works website.

Share with Waze

Sharing your road closure information allows consumer navigation and traffic companies, such as Waze, to leverage the information in apps used daily by the general public. Sharing up-to-date information with these apps helps minimize the impact of road closures, ease congestion, and enhance driver safety in your community. The road closures layer complies with the [Common Internet File Structure \(CIFS\)](#) for road closures but must be configured, as shown below, to capture required information.

Share road closure information

To share your road closure information with Waze, complete the following steps:

1. Verify that you are signed in to your ArcGIS organization.
2. When [assigning a Creative Commons License](#) to your RoadClosures layer, choose the following options:
 - For **Allow adaptations of your work to be shared**, choose **Yes**.
 - For **Allow commercial uses of your work**, choose **Yes**.

[Back to top](#)

3. In the **Have a web page** area, copy the HTML that is generated by the Creative Commons site.
4. In your ArcGIS organization, browse to your RoadClosures_public layer.
5. Open the item details page.
6. Click **Edit** to edit the item details.
7. Scroll to the **Terms of Use** section and click **Edit**.
8. Click **View HTML Source**.
9. Paste the HTML copied from the Creative Commons site into the **Terms of Use** text box.
10. Click **Save**.

Note:

You must use a license that allows international commercial use and allows shared adaptations or a license placing your data in the public domain.

11. Enroll in the [Waze for Cities program](#).

When you share your road closure information with Waze for Cities, new road closures added by your community in ArcGIS will be added to Waze every minute.

Add your organization reference

To share your road closures with Waze, you must store your organization reference with every road closure. This field is used by Waze to identify which organization the road closure data is coming from. The reference name must be a maximum of either 10 capital letters or 12 lowercase letters. The reference is your Waze for Cities program ID.


To add your organization reference, complete the steps below:

1. Verify that you are signed in to your ArcGIS organization and browse to the Road Closures map.
2. Open the item page and click **Open in Map Viewer Classic**.
3. Click **Edit**.
4. Click **Manage**.
5. Click the **Layer** drop-down arrow and choose the **Road Closures** layer.
6. Click the drop-down arrow next to the **Both Directions** feature template and choose **Properties**.
7. In the **Properties** window, scroll to **Organization** and enter your organization reference.
8. Click **Done**.
9. Repeat steps 6 through 7 for the One Direction feature template layer properties.
10. Click **Save Changes**.

Set required fields

To share your road closures with Waze, some information is required. You must change the fields indicated below as required so all road closures that are created capture the information needed by Waze.

To set fields transmitted to consumer apps as required, complete the following steps:

1. Verify that you are signed in to your ArcGIS organization and browse to the Road Closures app.
2. Open the item page and click **Edit Application**.
3. Click the **Widget** tab and click **Set the widget in this controller** to open the page for an in-panel widget.
4. Hover over the **Create New Closure** widget and click the **Configure this widget** button  to open the widget configuration window.
5. Click the **Smart Actions** tab.
6. Click **Add New**.
7. In the **Group Name** text box, type Required Fields.
8. Click the **Layer for Expression** drop-down arrow and choose **Road Closures**.
9. Click the **Edit Expression** button.
10. Click **Add expression** and set the expression to OBJECTID is not blank.
11. Click **OK**.
12. Expand the Road Closure layer and check the check box for following fields as required:
 - **Street Name**
 - **Reason**
 - **Description**
 - **Direction**
 - **Start Time**
 - **End Time**
13. Click **OK** twice.
14. Save the app.

Configure the Road Closures layer to share with Waze

One of the partners that your community can share data with is Waze through the Waze for Cities program. To share your data with Waze, follow the steps found in the Waze partners [Overview](#) page. To share your feed, you must create a JSON request from the Public Road Closures feature layer.

To create the request URL required by Waze, follow the steps below:

1. Verify that you are signed in to your ArcGIS organization and browse to the RoadClosures_public item.
2. Open the item page and click the **Road Closures** layer under **Layers**.
3. From the layer URL, click **Copy**.
4. Paste the URL into a text editor.
5. Copy the code below and paste it into the text editor at the end of the URL you pasted in the previous step.

```
/query?where=1%3D1&outFields=OBJECTID,street,subtype,description,direction,starttime,endtime,type,reference&outSR=4326&returnZ=false&f=geojson
```

Tip:

For more information on querying a feature layer, see [Query a feature layer](#).

6. Provide the URL to [Waze](#).

Use Road Closures

The Road Closures solution delivers a set of capabilities that help you inventory road closures and related detours, communicate closures and detours with the public, and share authoritative closure information with consumer applications, such as Waze.

In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

Note:

Use your organization's data or configured apps to follow these workflows.

Create road closures

You will assume the role of an employee in the public works department. You have received plans for streets that will need to be closed. You will draw the closures on the map, place the road blocks, and identify the detour routes.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Road Closures solution.
2. View the Road Closures app.
The Road Closures app opens with the **Create New Closure** widget open on the right.
3. In the **Create New Closure** widget, check the **Use Preset Values (new features only)** check box.
4. Type the contact information for the closure in the appropriate text boxes.
5. In the **Identifier** text box, type a unique ID.

Note:

This information will be added to each closure, road block, and detour you create to associate it with the same event.

6. On the map, use the search field or pan and zoom to the closure location.
7. In the widget, click the **Both Directions** template.
8. Click the map and begin to draw a line at an intersection; click to add a vertex and double-click to finish the closure line.
After you finish drawing the closure on the map, a Road Closures form appears on the right.
9. Complete the form with as much information as possible.
10. Click **Save**.
11. Click the **Road Blocks** template.
12. On the map, click the intersection on one side of the closure.

[Back to top](#)

Note:

The road block is automatically populated with the information from the closure it intersects, so you don't have to reenter it.

13. Click **Save**.
14. Click the **Road Detours** template.
15. On the map, sketch the alternate route around the closure and double-click to finish drawing the line.

Note:

If the detour intersects the closure at the start and end, it automatically pulls the details from the closure.

16. Click **Save**.

Update closure details

You will continue as an employee in the public works department. Dates for a road closure have been extended. You will update the end date of the closure and its associated road blocks and detour.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Road Closures solution.
2. View the Road Closures app.
3. In the upper right of the app, click the **Update Existing Closures** button to open the widget.
4. In the **Update Existing Closures** widget, click the **Extent** tool.
5. On the map, drag a box around the road closure, including the associated road blocks and detour.
6. In the **Update Existing Closures** pop-up, click the **End Time** drop-down arrow and choose a new date.
7. Click **Save**.

Closures that are no longer active, with an end date that is before today, will continue to show on the map but will have a transparency applied. This feature is helpful when you have reoccurring events; for example, past closures can be selected and updated with new dates.

Road Network Data Management

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Road Network Data Management

Road Network Data Management can be used to maintain an authoritative inventory of roads, intersections, and physical road characteristics and track legal agreements executed with a public works agency.

It provides a series of workflows and standard road layers that streamline the maintenance of a public road repository, their physical characteristics, and legal agreements defining maintenance services provided by the organization. Road Network Data Management is typically implemented by public works and transportation departments that want to develop and maintain a public road repository that supports a variety of maintenance functions.

The Road Network Data Management solution delivers a set of capabilities that help you maintain a standard set of public road layers, streamline road data management workflows, track maintenance agreements, and continuously improve the quality of public road information.

Requirements

Road Network Data Management requires the following:

- ArcGIS Enterprise
- ArcGIS Pro 2.5 or later (Standard or Advanced)

Information products

Road Network Data Management includes the following information products:

Item	Description	Minimum user type
Road Network Data Management	An ArcGIS Pro project used by mapping technicians to maintain an authoritative inventory of public roads, road intersections, and physical road characteristics	GIS Professional Standard
Road Maintenance Agreements	An ArcGIS Web AppBuilder app used by engineers and operations staff to track legal agreements executed with a public works agency	Editor

Release notes

The following are the release notes:

Version	Description
1.0	<ul style="list-style-type: none">• First release of Road Network Data Management

[Back to top](#)

Use Road Network Data Management

The Road Network Data Management solution delivers a set of capabilities that help you maintain a standard set of public road layers, streamline road data management workflows, track maintenance agreements, and continuously improve the quality of public road information.

In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

Note:

Use your organization's data or configured apps to follow these workflows.

Manage road network data

You will start by assuming the role of a mapping technician responsible for maintaining an inventory of public roads, road intersections, and physical road characteristics. The Road Network Data Management ArcGIS Pro project includes a series of tasks to help guide you through these workflows.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Road Network Data Management solution.
2. Download the Road Network Data Management desktop application template, and then unzip the folder.
3. From the unzipped folder, open the Road Network Data Management ArcGIS Pro project in ArcGIS Pro.
4. In the **Catalog** pane, expand the **Tasks** folder, and then double-click the Road Network Data Management task item.

Note:

If you do not see the **Catalog** pane, from the **View** tab, in the **Windows** group, click **Catalog Pane**.

5. In the **Tasks** pane, expand the **How to use Road Network Data Management** task group to see the collection of tasks.

Add roads

Roads are line segments representing centerlines of all public roadways or carriageways that support asset management and mapping. Typically, this information is compiled from authoritative road centerlines maintained for addressing purposes.

1. To add new public roads, follow the steps in the **Add roads** task.

Add intersections

When creating new roads, existing roads are split at intersections along the new road. An inventory of road intersections with the names of relevant crossroads is often required by 911 systems and to manage right-of-way assets.

1. To add new road intersections, follow the steps in the **Add intersections** task.

Add road characteristics

A series of map layers is used to track the characteristics (for example, ownership, functional classification, speed limit, physical characteristics, and special routes) of each public road. The feature classification and type schema for the roads is based on a functional classification of roads provided by the Federal Highway Administration (FHWA). Specific attributes and default values vary for each feature type.

1. To add new road characteristics, follow the steps in the **Add road characteristics** task.

Track maintenance agreements

You will now assume the role of an engineer or operations staff at a public works agency. You are responsible for managing the legal agreements defining maintenance services provided by the agency for assets within the public right-of-way.

1. In a browser, from the Road Network Data Management solution, view the Road Maintenance Agreements app.

The app opens with the **Create Maintenance Agreement** open on the right.

2. In the **Create Maintenance Agreement** widget, choose a template.
3. Click the map to start a sketch.
4. Click the map to add additional vertices and double-click to finish the sketch.

After you finish the sketch, the **Road Maintenance Agreements** legal agreement form opens in the **Create Maintenance Agreement** widget.

5. Complete the details of the legal agreement.
6. Click **Save**.
7. At the top right, click the **Filter Maintenance Agreement** button to open the widget.
8. Filter for the asset type that you just added.
9. On the map, select an agreement to view its details.

School Locator

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to School Locator

School Locator can be used to inventory educational facilities and relevant districts, communicate neighborhood schools, and promote educational resources available in a community.

When people search for a home, one important factor is always the school district. Even if the buyer doesn't have children, school districts have an impact on home value and living area. When other factors are constant, a good school district tends to equal a good neighborhood, or location. And a good location can mean safer neighborhoods and amenities like public parks and services. Increasing access to school attendance zones and other educational resources makes it easier for home buyers to invest in your community. School Locator is typically implemented by local governments, or school districts, that want to promote high-quality educational resources available in a community.

The School Locator solution delivers a set of capabilities that help you inventory educational facilities and relevant districts, communicate neighborhood schools, and promote educational resources available in a community.

Requirements

School Locator requires the following:

- ArcGIS Enterprise
- ArcGIS Pro 2.8 or later (Basic, Standard, or Advanced)

Information products

School Locator includes the following information products:

Item	Description	Minimum user type
School Locator	A Nearby app used by the general public to locate and explore all elementary and secondary schools within a district	Not required
My Neighborhood School	A Nearby app used by the general public to find schools within an attendance zone boundary	Not required
School Data Management	An ArcGIS Pro project used to maintain attendance zone boundaries, schools, and bus stop locations	GIS Professional Basic
Find Your School	An ArcGIS Hub site used by the general public to locate your neighborhood school and explore all schools in our district	Not required

Release notes

The following are the release notes:

Version	Description
2.0	<ul style="list-style-type: none">• A new ArcGIS Hub site used by the general public to locate your neighborhood school and explore all schools in our district.• A new Nearby app used by the general public to locate and explore all elementary and secondary schools within a district.• A new Nearby app used by the general public to find schools within an attendance zone boundary.• A new ArcGIS Pro project used to maintain attendance zone boundaries, schools, and bus stop locations.
1.0	<ul style="list-style-type: none">• First release of School Locator

Configure School Locator

School Locator can be used to inventory educational facilities and relevant districts, communicate neighborhood schools, and promote educational resources available in a community.

In this topic, you'll learn how to configure the School Locator solution to meet specific needs in your organization.

Load data

The School Data Management ArcGIS Pro project includes a series of tasks that can be used to load your existing school data, and manage key characteristics, in the layers provided with the solution.

1. Sign in to your ArcGIS organization and browse to the School Data Management Desktop Application Template.
2. From the item page, click **Download**.
3. Unzip and open the School Data Management project.
4. On the **View** tab, in the **Window** group, click **Catalog Pane**.
5. In the **Catalog** pane, expand the **Tasks** folder, and double-click the **School Data Management** task.
6. In the **Tasks** pane, click the **Getting Started** task group to expand the collection of tasks.

School Data Management is used to load and create foundational school data used in the School Locator solution such as My Neighborhood School and School Locator apps. The solution uses three foundational datasets:

- Schools
- Bus Stops
- Attendance Zones

Schools contains locations of educational facilities (elementary and secondary schools).

Bus Stops contains the locations of bus stops. A unique ID is used to relate to schools.

Attendance Zones contains geographies that define where students will attend elementary and secondary schools. A unique ID is used to relate to schools.

Before proceeding to subsequent tasks, follow the instructions in the **Add school geography layer** task to add the Schools feature layer deployed with the solution.

Load existing school data

Your school district may have existing schools, bus stops, and attendance zone data, which can be loaded into the Schools feature layer.

Schools use a standard for operational days and hours in the School Locator app included with the School Locator solution. To load existing school location data, designate the type, assign school ID, format the operation days and hours, and edit attributes follow the instructions in the **Schools** task.

The attendance zones relationship with a schools is defined by populating the School ID field. Establishing this relationship allows the My Neighborhood School app and the School Locator solution to display the appropriate school attendance zone when a user searches by address or defines a location on the map. Follow the instructions in the **Attendance zones** task to load existing data, designate the type, and establish the relationship.

The bus stops relationship with a schools is defined by populating the School ID field. Follow the instructions in the **Bus stop** task to load existing data, establish the relationship, format the operation days and hours, and edit attributes.

Create new school data


You may need to create new school data if existing data is not available. Follow the instructions in the **Create new school data** task group to create new schools, attendance zones, or bus stops.

Note:

Map layers must be visible to create new data.

Configure Find Your School site

The School Locator solution includes the Find Your School ArcGIS Hub site that your organization can configure with your branding and use to share school information with the public.

1. Verify that you are signed in to your ArcGIS organization and browse to the Find Your School site.
2. From the item page, click **Configure**.
3. If necessary, click the **Edit** button  to open the site editor.
4. Scroll to the **Frequently Asked Questions** section, hover over the card, click the edit pencil, and update the questions and answers.
5. In the side panel, click **Footer**.

A custom footer is provided. In most cases, you will need to update it with your organization's branding, contact information, and social media references.

6. Click the **HTML** box.
The **HTML** window appears.
7. Make the necessary changes and click **Apply**.

[Back to top](#)

8. Click **Save**.

Share items with public

Several layer views, maps and apps included in the School Locator solution must be shared with everyone so they can be accessed by the public on the Find Your School site. To share your school locator items with everyone, use the guide below and complete the following steps:

1. Verify that you are signed in to your ArcGIS organization and browse to the School Locator folder.
2. Check the check box next to each of the items below:

Item	Name
Feature Layer (hosted, view)	Schools_public
Feature Layer (hosted, view)	Schools_zones
Feature Layer (hosted, view)	Schools_stops
Web Map	My Neighborhood School
Web Map	School Locator
Web Mapping Application	My Neighborhood School
Web Mapping Application	School Locator
Site Application	Find Your School

3. Click **Share**.
4. In the **Share** window, click **Everyone (public)** and click **Save**.
The **Warning: Sharing editable layers publicly** message appears notifying you that you are sharing editable layers publicly.
5. Click **Update**.

Configure directions

Note:

This workflow is optional and doesn't need to be completed in order to work with the solution.

The School Locator app can be used by the general public to locate elementary and secondary school alternatives. Directions to the nearest school can be enabled so users can quickly find the school they are looking for.

Follow the steps below to enable directions.

1. Verify that you are signed in to your ArcGIS organization and browse to the School Locator app.

[Back to top](#)

2. From the item page, click **Configure App**.
Close the **Welcome to the App Setup Page** splash page, if necessary.
3. Click **Nearby > Options** and turn on the **Show directions** toggle button.
4. Check the check box next to the **Schools** layer.
5. Click **Publish**.
6. Click **Confirm**.
The **Authorize premium content** window appears with information related to authorization.
7. Click **Authorize**.
8. Click **Launch**.

Populate operational hours

Note:

This workflow is optional and doesn't need to be completed in order to work with the solution.

This solution leverages the [Opening Hours Specification](#) to display operating hours for a place or service. When you populate the data fully, Arcade expressions interpret the data and display the operating hours in a human-readable format in the map pop-up. Understanding the data specification and options in the Arcade expressions will help you populate your data and display it in the maps and apps provided with the ArcGIS Solution.

Operating Hours specification

The Operating Hours Specification allows you to store a combination of operating hours in a single field but relies on a series of data standards to render the information correctly. To ensure operating hours are displayed correctly, follow the standards below:

- Enter all times using a 24-hour clock without a leading 0—for example, Tu (7:00-19:00).
- Use a two-letter abbreviation for each day, with the first letter capitalized—for example, Mo, Tu, We, Th, Fr, Sa, Su.
- When a location is open 24 hours a day, use 24 Hours—for example, Mo (24 Hours).
- When a location is closed on a specific day, use Closed—for example, Sa-Sun (Closed).
- Enclose all times and closed statuses in parentheses—for example, Tu (7:00-19:00); We-Mo (Closed).
- Separate days and ranges with a semicolon to denote the two (or more) groups—for example, Th-Fr (7:00-19:00); Sa (24 Hours).

Using the standards above, a diverse set of operating hours can be populated for your places and services. Some common examples include the following:

[Back to top](#)

- To specify the place is open from 9:00 a.m. to 5:00 p.m. seven days a week, populate the operating hours field with the following: Mo-Su (9:00-17:00).
- To specify the place is open from 9:00 a.m. to 5:00 p.m. during the week and closed on weekends, populate the operating hours field with the following: Mo-Fr (9:00-17:00); Sa-Su (Closed).
- To specify the place is open one day (Tuesday) a week, populate the operating hours field with the following: Tu (7:00-19:00); We-Mo (Closed).
- To specify the place has operating hours that vary by day, populate the operating hours field with the following: Mo-Tu (9:00-17:00); We (Closed); Th-Fr (7:00-19:00); Sa (24 Hours); Su (Closed).

Operating hours data can be populated all at once for many places and services using [Calculate field values](#) or uniquely entered for each place or service using an application provided with the solution.

Arcade expressions

Note:

This workflow is optional and doesn't need to be completed in order to work with the solution.

The Arcade expressions include several settings that allow you configure the look and feel of what is displayed in the web map pop-up. The expressions work with the operating hours data and web map pop-up configurations to display current information in your map and app.

This solution includes Arcade expressions. To modify one of these expressions, complete the following steps:

1. Verify that you are signed in to your ArcGIS organization and browse to the School Locator map.
2. Open the item page and click **Open in Map Viewer**.
3. Click **More** and click **Configure Pop-ups** on the Schools layer.
4. Click **Manage**, double-click the Arcade expression you want to modify.

Each Arcade expression has a set of variables that can be configured according to your organization's needs. Review the expression notes and modify the variables as needed. Do not change anything else in the expressions.

5. Click **OK**.

Use School Locator

The School Locator solution delivers a set of capabilities that help you inventory educational facilities and relevant districts, communicate neighborhood schools, and promote educational resources available in a community.

Find schools and attendance zones

You will assume the role of a resident in the community and want to learn more about schools and attendance zone boundaries in your area.

1. Sign in to your ArcGIS organization and browse to the Find Your School site.
2. From the item page, click **View**.
3. Scroll to the **Schools by the Numbers** section and review key metrics.
4. Scroll to the **Find a Neighborhood School** section and review the My Neighborhood School app.

Use the My Neighborhood School app to locate your neighborhood school.

5. Type an address in the search text box and press the Enter key, or click a location on the map.
6. Click **Expand All**.
7. Review the list of school attendance zones.

You can see information related to which school your child will attend, program and services, hours of operation, grades, and enrollment numbers.

8. In the search results, click **Elementary School**.

The map zooms to corresponding school attendance zone boundaries and highlights the associated school your child will attend based on your searched address.

9. Scroll to the **Explore all Schools** section and review the School Locator app.

Use the School Locator app to explore all schools in our district.

10. Type an address in the search text box and press the Enter key, or click **Search this area**.
11. Click **Filter** and check the **Elementary Schools** check box to filter the map.
12. Click **Close**.
13. In the search results, click the first search result.

The map pans to the corresponding school.

Sewer Data Management

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Sewer Data Management

Sewer Data Management can be used to map sewer assets, edit data, view system maps in the field and office, view asset reports, and collaborate with map notes.

It turns ArcGIS into a system for sewer organizations to easily inventory their assets and keep information up to date. It provides simple to use interactive system maps and dashboards for office and field staff, and increases collaboration.

After deploying, organizations with no sewer data can immediately begin mapping their sewer systems using GPS or digitizing data with web or desktop software. Organizations with existing spatial sewer data can load it and begin using the apps.

Requirements

Sewer Data Management requires the following:

- ArcGIS Enterprise
- ArcGIS Pro 2.9 (Basic, Standard, or Advanced)
- ArcGIS Field Maps

Information products

Sewer Data Management for ArcGIS Online includes the following information products:

Item	Description	Minimum user type
Sewer Data Manager	An ArcGIS Pro project package used to manage sewer system data and map notes	GIS Professional (Basic, Standard, or Advanced)
Sewer Editor	An ArcGIS Web AppBuilder application used to edit sewer system data and map notes	Editor
Sewer Viewer	An ArcGIS Web AppBuilder application used to view sewer map and create map notes	Editor
Sewer Dashboard	An ArcGIS Dashboards application used to view sewer asset information	Viewer
Sewer Map Notes Manager	An ArcGIS Web AppBuilder application used to review and manage map notes	Editor
Sewer Mobile Viewer	A map used in ArcGIS Field Maps to view sewer system assets and view or create map notes	Mobile Worker
Sewer Asset Collector	A map used in ArcGIS Field Maps to capture and modify sewer assets and create map notes from the field	Mobile Worker

Release notes

The following are the release notes:

Version	Description
2.1	<ul style="list-style-type: none">The Minimal Gallery app has been removed from the solution item.
2.0	<ul style="list-style-type: none">Name changed from Sewer Data Management for ArcGIS Online to Sewer Data Management.Added a related table for every layer.
1.2	<ul style="list-style-type: none">Added a table for Manhole inspection.Updated the StormwaterSystem feature layer to support the Adopt-A-Catch Basin solution.
1.1	<ul style="list-style-type: none">Updated to use ArcGIS Field Maps instead of ArcGIS Collector.Removed AssetID Management Notebook.Removed cathodic protection and various other features to simplify the data model.
1.0	<ul style="list-style-type: none">First release of Sewer Data Management for ArcGIS Online

[Back to top](#)

Configure Sewer Data Management

The Sewer Data Management solution can be configured to meet specific needs in your organization. The sections below outline some administrative tasks to update and manage the solution to fit your organization's needs.

Load data

In some cases, you may need to load existing data into the solution before sharing the maps or applications. Review the maps or applications provided with the solution and determine what, if any, source data you want to load. Sewer Data Management also includes a data model to store information about typical sewer system assets. To explore the schema, view the [data dictionary](#).

Tip:

If you do have to load data into the solution, you may want to develop a source-target matrix to track how your source data will be loaded into the target layer or layers used in the solution.

Depending on the format of your source data, you may choose to append your source data to the new layers. Once you have determined what source data must be loaded, complete one of the data loading workflows below:

Use the Append tool

In ArcGIS Pro, the [Append](#) tool can be used to append multiple input datasets to an existing target dataset. Input datasets can be point, line, or polygon feature classes.

To append features to the target layer or layers using the Append tool, complete the steps below:



1. In ArcGIS Pro, sign in to your ArcGIS organization.
2. To open the **Sewer Data Manager** project, click **Open another project**, click **My Content** under **Portal**, double-click the **Sewer Data Management** folder, and click **Sewer Data Manager**.
3. Add your existing source layers to a new map. To add the target feature layers from the SewerSystem feature service, click **My Content** under **Portal**, double-click the **Sewer Data Management** folder, and add the SewerSystem feature service to the map.
4. On the **Analysis** tab, in the **Geoprocessing** group, click **Tools** to open the **Geoprocessing** pane.
5. In the search bar, type Append and click to open the **Append** tool.
6. Add your existing sewer data from the map to the **Input Datasets** parameter.
7. For **Target Datasets**, use the **SewerSystem** features in the map.

[Back to top](#)

8. In the **Schema Type** parameter, use the drop-down menu to choose **Use the Field Map to reconcile schema differences** to perform field mapping.
9. Update your field mapping and click **Run**.
10. Repeat this process as needed to load all your existing data into the target sewer schema.

Use the Data Loading Tools

The Data Loading toolbox can be used in ArcGIS Pro to streamline loading data from a source to a target dataset and provide the ability to perform in-process data transformation. Setup the [Data Loading toolbox](#) before getting started with the steps below.

1. Open the **Sewer Data Manager** project.
2. On the **Project** tab, click **Python** to access the Python Package Manager.
3. Under **Project Environment**, click **Manage Environments**.
4. Click **Clone Default**  to clone your default environment.
5. Click the **Active** button for the new environment, and click **OK**.
6. Restart ArcGIS Pro to allow your environment changes to take effect.
7. In the Python Package Manager, click **Add Packages** to see the Python packages available for installation.
8. Click **Refresh**  to update the list of available packages.
9. In the **Search** box, type `dlt solutions` to find the Data Loading Tools toolbox.
10. Select the **dlt solutions** package and click the drop-down arrow to update the version.
11. Click **Install**.

The **Install Package** dialog box appears.

12. Review the terms and conditions and check the box to agree.
13. Click **Install** to install the package.
14. Once the installation is complete, close ArcGIS Pro.

The Data Loading Tools toolbox is now installed. The next time you start ArcGIS Pro, you can access it from the geoprocessing toolboxes.

15. Review [An overview of the Data Loading toolbox](#) to learn more about the tools and how to use them to load data into the SewerSystem layers.

Configure the Sewer Data Manager ArcGIS Pro project

The Sewer Data Manager project includes a Sewer Data Manager map with broken links.

1. In ArcGIS Pro, sign in to your ArcGIS organization.

[Back to top](#)

2. To open the **Sewer Data Manager** project, click **Open another project**, click **My Content** under **Portal**, double-click the **Sewer Data Management** folder, and click **Sewer Data Manager**.
3. In the **Catalog** pane, expand **Maps** and double-click **Sewer Data Manager** to open the map.
4. In the **Contents** pane, click the red exclamation point **!** next to the **Map Notes** layer. The **Change Data Source** dialog box appears.
5. Click **My Content** under **Portal**, double-click the **Sewer Data Management** folder, double-click the **MapNotes_managing** feature service, and double-click the **Map Notes** layer.
6. In the **Contents** pane, click the red exclamation point **!** next to the **Manhole** layer. The **Change Data Source** dialog box appears.
7. Click **My Content** under **Portal**, double-click the **Sewer Data Management** folder, double-click the **SewerSystem_editing** feature service, and double-click the **Manhole** layer. The data source is repaired for the remaining layers.
8. In the **Contents** pane, right click the **Sewer Data Manager** map and click **Properties**.
9. Click the **Coordinate Systems** tab. In the **XY Coordinate Systems Available** section select the coordinate system that matches the layers in the map.

Note:

Ensure the coordinate system of the map matches that of the feature layers deployed in the solution. If these do not match there may be discrepancies in what units are displayed in the map.

10. Click **Save** to save the project.

Add members to groups in your organization

Included with Sewer Data Management are four groups designed to help managers organize their members based on their privileges and their work. The solution includes the following groups: Sewer Editors, Sewer Field Users, Sewer Map Notes Managers, and Sewer Office Users.

To add members to the groups, complete the following steps:

1. In a browser, sign in to your ArcGIS organization. Verify that you have privileges to manage member groups before continuing.
2. Click **Groups** at the top of the site.
3. Click the name of the group to open the group details pages.
4. On the **Settings** tab, edit and update the properties of the group, including access, sharing properties, and group ownership.

[Back to top](#)

5. Click the **Overview** tab and click **Invite users**.
6. Select the members you want to add and click **Add to group**.
7. Repeat steps 3 through 6 for each group you need to add members to.

The provided groups are intended to be utilized by members with a minimum of the following user types in order to fully use the provided maps and apps:

Group name	User type
Sewer Editors	<ul style="list-style-type: none"> • Editor • GIS Professional Basic with ArcGIS Pro (minimum of one license recommended)
Sewer Field Users	<ul style="list-style-type: none"> • Mobile Worker
Sewer Map Notes Managers	<ul style="list-style-type: none"> • Editor
Sewer Office Users	<ul style="list-style-type: none"> • Editor

Set the default map extent to your service territory

When the Sewer Data Management solution is deployed into your organization, it uses the [map default](#) set in your organization. If this property has not been set, you may want to quickly update a few maps and apps to your service territory manually to avoid having to pan and zoom to your area each time you open a map. Follow the steps below to update the initial extent of the maps and apps provided with this solution.



1. In a browser, sign in to your ArcGIS organization.
2. To set the default map extent for the **Sewer Viewer** application, browse to the **Sewer Viewer** item page and click **Edit Application**.
3. On the **Map** tab, zoom the map to the desired extent and click **Use current map view** under **Set initial extent**. Click **Save**.
4. Repeat steps 2 and 3 to set the default map extent for the **Sewer Editor** and **Sewer Map Notes Manager** applications.
5. To set the default map extent for the **Sewer Asset Collector** map, open the **Sewer Asset Collector** map.
6. Zoom the map to the desired extent and save it.
7. Repeat steps 5 and 6 for the **Sewer Mobile Viewer** map.

Configure the dashboard

When you deploy the Sewer Data Management solution to your organization you have the option to change spatial reference. If you selected a spatial reference with a linear unit other than meters, you will need to revise the dashboard by completing the following steps.

1. In a browser, sign in to your ArcGIS organization.

[Back to top](#)

2. To set the default map extent for the **Sewer Dashboard** application, browse to the **Sewer Dashboard** item page and click **Edit Dashboard**.
3. Navigate to the **General** tab and click the configure button  on **Miles of Gravity Main** indicator.
4. On the **Data** tab, change the **Factor** setting to the correct conversion.
The dashboard **Factor** setting is configured to convert meters to miles. Learn more about how to [Convert Values](#).
5. Repeat steps 3 through 4 for the **Miles of Forced Main** indicator.
6. Click the save button .

Use Sewer Data Management


The Sewer Data Management solution can be used by staff to collect and manage sewer system information. This solution allows a sewer utility to obtain information about the current state of their system. These workflows are intended for editors, field technicians, and managers who want to use the maps and apps to manage their utility data. You will learn how to use the Sewer Data Management solution to add new assets from the field, manage sewer data in the web and desktop, and view and interact with a dashboard to find key statistics about your system.

Add data in the field

In these workflows, you will be taking the role of a mobile worker collecting data in the field. If you have a mobile-centric workforce, this may be the best option to collect new data or validate existing data.

Collect manholes and pipes

As a mobile worker, you can add manholes and mains from the field.


1. Open the ArcGIS Field Maps app and sign in to your ArcGIS organization.
2. Open the Sewer Asset Collector map.
3. Navigate to the collection location.
4. Tap **Add** .
5. From the list of features, search for **Manhole** by swiping up or typing `manhole` in the filter search bar.

If the manhole is added to an inaccurate location, or you want to move the point manually, move the crosshairs to the correct location by panning the map and tapping **Update Point**. This moves the added manhole to the specified location.

6. Fill in any attributes and tap **Submit**.

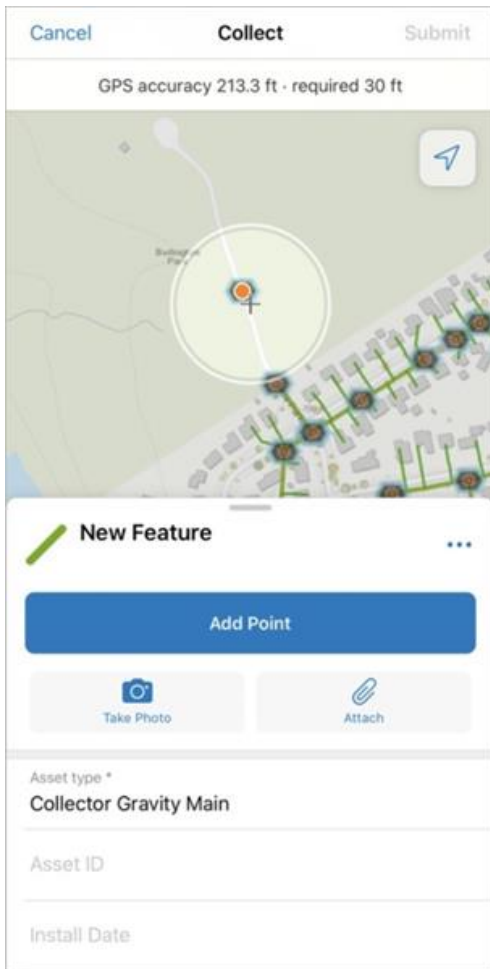
Note:

Move to a safe location to fill in the attributes. The added manhole remains in its original location.

7. Ensure the last collected manhole is selected and browse to the next manhole's location. Tap the **Copy** button at the bottom of the screen to create a copy of the previously added manhole at the location of the new manhole.
8. Adjust any attributes as needed. Next, add the pipes to connect the manholes.
9. Tap **Add** .
10. Search for **Collector Gravity Main** by swiping up or typing `collector gravity main` in the filter search bar.

[Back to top](#)


11. Pan the map until the crosshairs snap to the manhole. An orange point appears when it is within a tolerance to snap.



12. Tap the options button and select **Update Selected Point** to move the start of the **Collector Gravity Main** to the manhole.
13. Snap to the second manhole and tap **Add Point**.
14. Update the attributes and tap **Submit** to complete the sketch.

Collect cleanouts

As a mobile worker, you can collect cleanouts using ArcGIS Field Maps in the field.

1. In ArcGIS Field Maps open the Sewer Asset Collector map.
2. Navigate to the collection location.
3. Tap **Add** .
4. From the list of features, search for **Cleanout** by swiping up or typing cleanout in the filter search bar, and select **Cleanout**.

A point is added to your location.

[Back to top](#)

Note:

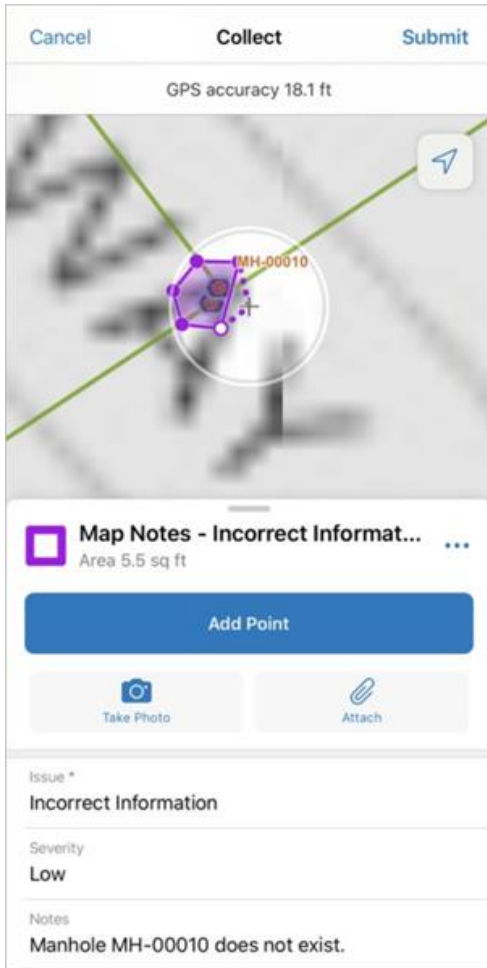
If the cleanout is added to an inaccurate location, or you want to move the point manually, move the crosshairs to the correct location by panning the map and tapping **Update Point**. The added cleanout moves to the specified location.

5. Fill in any attributes and tap **Submit**.
6. Ensure the last collected cleanout is selected and browse to the next cleanout location. Tap the **Copy** button at the bottom of the screen to copy the previously added cleanout to the location of the new cleanout.
7. Adjust the attributes and tap **Submit**.

Add map notes

As a mobile worker, you can add a map note to the system.

1. In ArcGIS Field Maps open the Sewer Asset Collector map.
2. Navigate to the map note location.
3. Tap **Add**.
4. From the list of features, search for the **Map Notes** type by swiping up or typing a description in the filter search bar, select the **Map Notes** type, and add the note to the map by sketching a polygon in the map note location.



5. Fill in the attributes and click **Submit**.

The map note is added to the map and is available to be viewed and reviewed by others in the organization.

Add data in the web

In the workflows below, you will be taking the role of an editor adding data in ArcGIS Online. The workflows explain how to add data in the web, use the provided dashboard, and add and manage map notes.

Add pipes to connect features

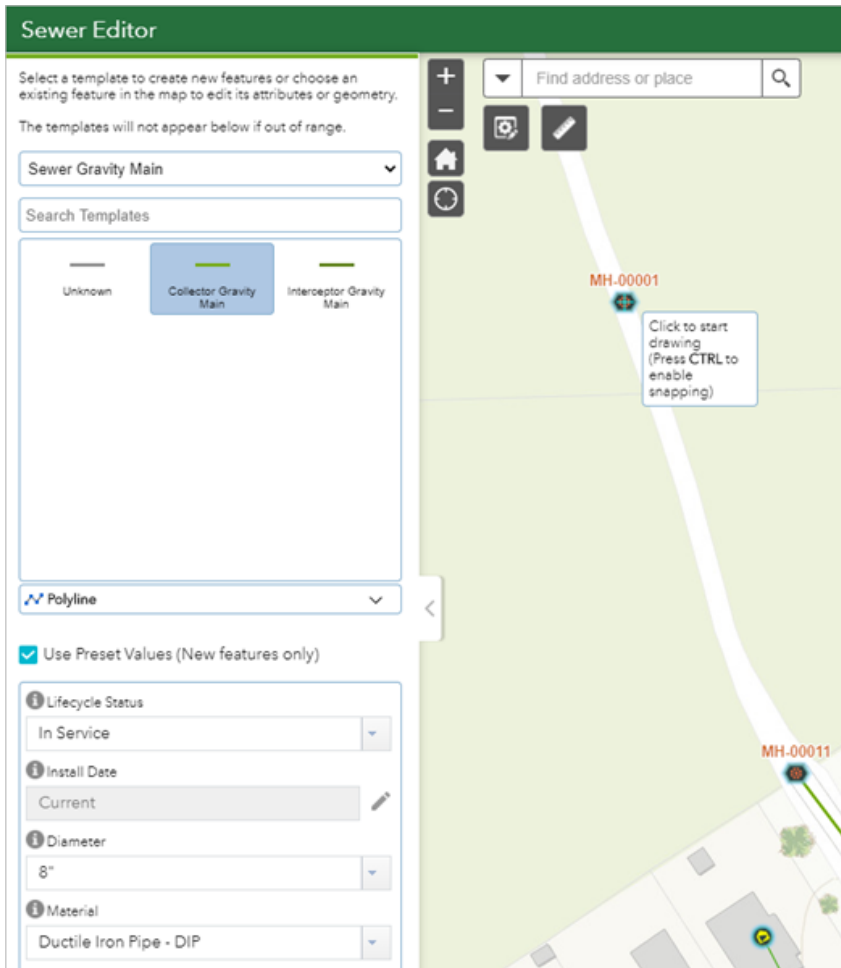
As an editor, you want to use a web app to connect features with pipes.

1. In a browser, sign in to your ArcGIS organization.
2. At the top of the site, click **Groups**.
3. Navigate to the **Sewer Editors** group and locate the **Sewer Editor** app. Click **View Application** to launch the app.

[Back to top](#)

In the Sewer Editor app, the **Asset Editor** widget is open by default on the left side of the window when the app opens.

4. In the **Asset Editor** pane, click the template drop-down menu and select **Sewer Gravity Main**, and select **Collector Gravity Main** from the list of options.
5. Scroll down and fill in the preset values.
6. With **Collector Gravity Main** selected, press Ctrl to snap to a manhole by hovering over the point, and click to start the line.



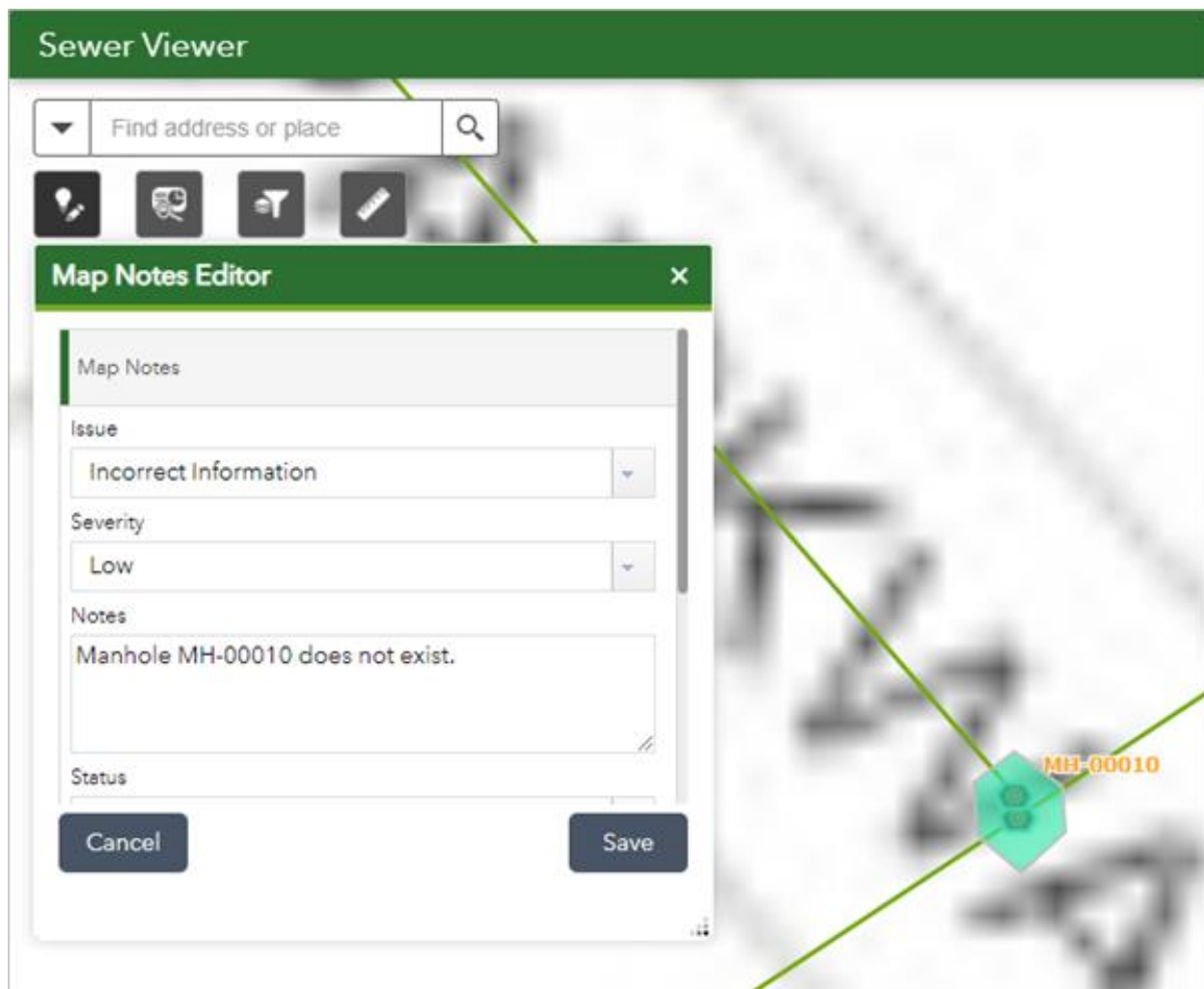
7. Draw a line from the first manhole to the next, press Ctrl to snap, and double-click to finish the sketch.
You are prompted to update attributes and save.
8. Click **Save**.
9. Continue adding mains between the manholes.
The template and preset attributes remain selected so you can continue adding mains.

Add map notes

As a user, you can add a map note to the system.

[Back to top](#)

1. Browse to the **Sewer Office Users** group and locate the **Sewer Viewer** app. Click **View Application** to launch the app.
 - a. In the Sewer Viewer, click the **Map Notes Editor** widget to open it.
 - b. Choose a map note issue type and sketch a polygon in the desired map note location.
 - c. Enter attributes and click **Save**.



Manage map notes

As a GIS manager, you can review and resolve map notes about your system to ensure issues are addressed.

1. Browse to the **Sewer Map Notes Managers** group and locate the **Sewer Map Notes Manager** app. Click **View Application** to launch the app.

In the upper right of the app, there are a number of widgets that have been configured to filter, edit, update, and manage map notes.

2. Review the list of included widgets to learn how to use them to manage map notes:

[Back to top](#)

- **Legend**—View a list of included layers in the map. The legend displays what is visible on the map, so zooming in or out can expand or reduce the list if scale suppression is set on the layers.
- **Filter**—Use the Creation Date, Issue, and Severity filters to view only map notes that fit the entered criteria. Select a date range or an option from the drop-down menu and turn on a filter to view the selection on the map.
- **Batch Edit Map Notes**—Select a group of map notes using one of the selection tools and update values for all the selected features at once.
- **Map Notes Editor**—Add a new map note or edit an existing map note.
- **Map Notes Summary**—View all the map notes by status and expand each section to view the individual notes. Click a note to zoom to it on the map and view its attributes in a pop-up.

These changes are reflected in other apps and maps across the system so others in your organization can view the latest information.

Use the sewer dashboard

As a member of the utility, you want to have a comprehensive view of your sewer system assets.

1. Browse to the **Sewer Office Users** group and locate the **Sewer Dashboard** app. Click **View Dashboard** to launch the dashboard.
2. View the sewer system statistics on the **General** tab, click the **Gravity Main** tab to view the gravity main details, and click the **Force Main** tab to view the force main details.

Add data in ArcGIS Pro

In the workflows below, you will be taking the role of an editor adding data in ArcGIS Pro. If you have known locations of assets or as-built drawings to work from, the following workflows can demonstrate using ArcGIS Pro to add data to your sewer system.

Note:

The first time you open the Sewer Data Manager map in ArcGIS Pro, the layers will show as broken. Follow the steps to [Configure the Sewer Data Manager ArcGIS Pro project](#) to fix your layers.

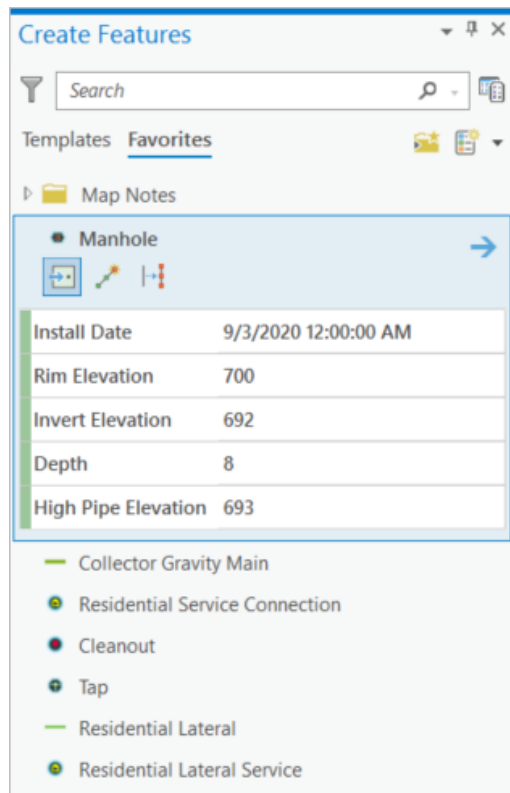
Add manholes and pipes

As an editor, you can add manholes and mains to the map in ArcGIS Pro. If you already have manholes, you can complete steps 8 through 10 to add mains between the manholes.

1. Open the **Sewer Data Manager** ArcGIS Pro project, sign in to your ArcGIS organization.
2. In the **Catalog** pane, expand **Maps** and double-click **Sewer Data Manager** to open the map.

[Back to top](#)

- On the **Edit** tab, in the **Snapping** group, click **Snapping** and turn snapping on.
- On the **Edit** tab, in the **Features** group, click **Create**.
The **Create Features** pane appears.
- Select the **Manholes** template from the **Favorites** list, fill in the attributes, and add the manhole to the map.



- On the **Map** tab, in the **Selection** group, click **Attributes** and fill in the remaining attributes.
- Repeat steps 4 through 6 to add the remaining manholes to the map.
- Select the **Sewer Gravity Main** template from the **Favorites** list and fill in the attributes.
As a best practice, digitize in the direction that wastewater flows.
- Snap and click the start of the line to the first manhole to begin digitizing the pipe. Snap to the next manhole and double-click to complete the sketch.
- Open the **Attributes** pane and fill in the remaining attributes.
- Repeat steps 8 through 10 to draw in the remaining pipes between the rest of the manholes.

Add residential service laterals

As an editor, you can add service laterals to the map in ArcGIS Pro.

- In the **Catalog** pane, expand **Maps** and double-click **Sewer Data Manager** to open the map.

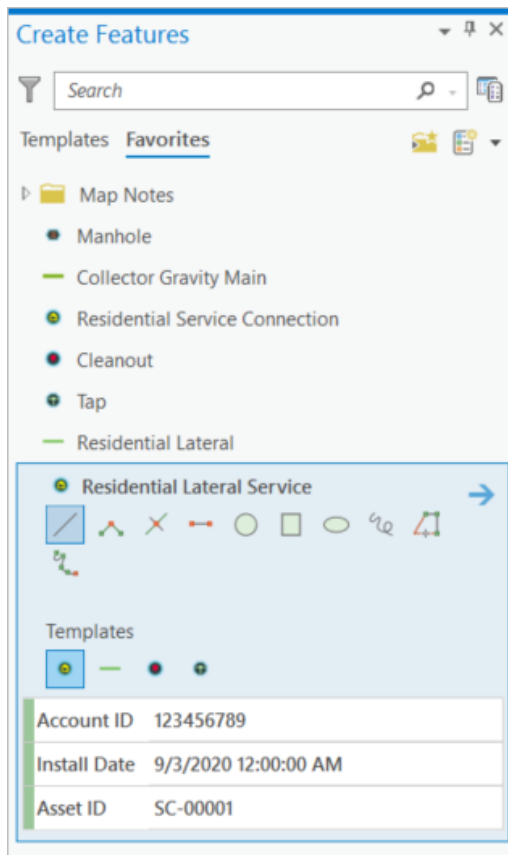
[Back to top](#)

2. On the **Edit** tab, in the **Snapping** group, click **Snapping** and turn snapping on.
3. On the **Edit** tab, in the **Features** group, click **Create**.

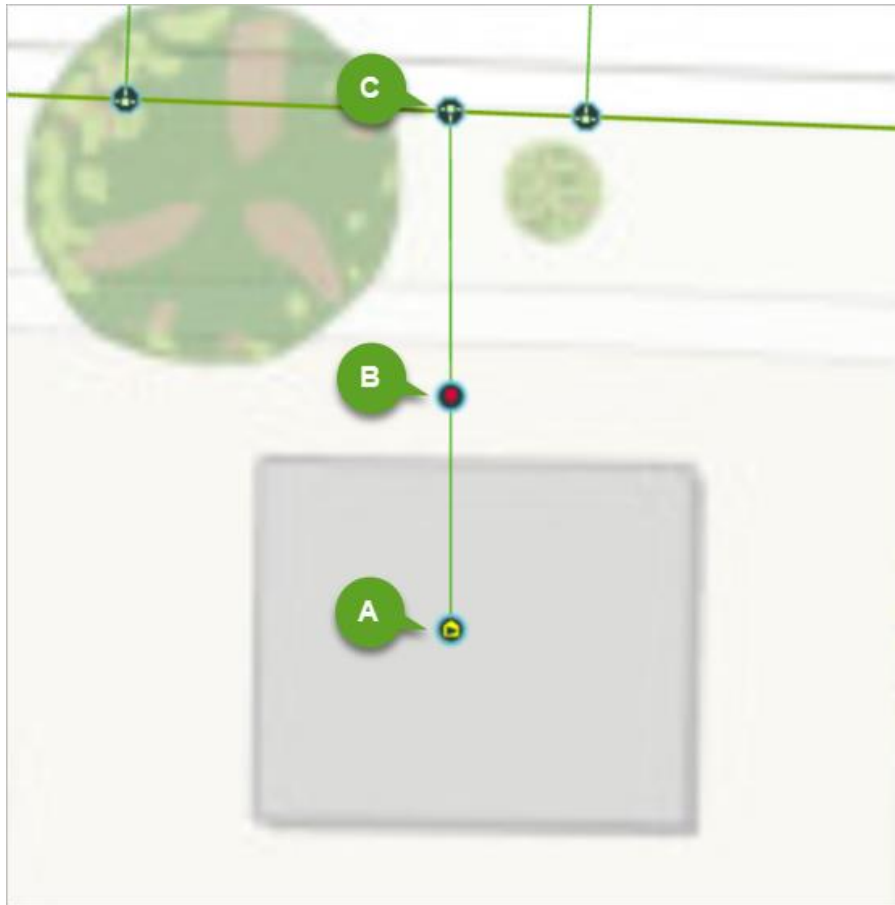
The **Create Features** pane appears.

4. Select the **Residential Lateral Service** group template from the **Favorites** list and click through the included templates to fill in the attributes.

The group template works by adding the service connection, cleanout, and tap with three consecutive clicks, and automatically digitizes the lateral.



5. Add the template to the map by following the steps below:
 - a. Click the location on the map for the service connection.
 - b. Click to add the cleanout to the map.
 - c. Snap to the main and double-click to complete the sketch. This adds the tap to connect the lateral to the main.



6. On the **Map** tab, in the **Selection** group, click **Attributes** and fill in the remaining attributes.
7. Repeat steps 4 through 6 to add the remaining residential lateral services to the map.

Add features from an as-built drawing

As an editor, you can add assets such as manholes to the system from an as-built drawing.

1. In the **Catalog** pane, expand **Maps** and double-click **Sewer Data Manager** to open the map.
2. On the **Map** tab, in the **Layers** group, click **Add Data**. Browse to the location of the as-built drawing, select it, and click **OK** to add it to the map.
3. With the image selected in the **Contents** pane, browse to the **Raster Layer** ribbon. On the **Appearance** tab, in the **Effects** group, change the **Layer Transparency** setting to 50%.
4. On the **Imagery** tab, in the **Alignment** group, select **Georeferencing**.
If you are unfamiliar with georeferencing, see [Overview of georeferencing](#) in the ArcGIS Pro help.
5. On the **Georeferencing** tab, in the **Adjust** group, click **Add Control Points**.

[Back to top](#)

- a. Add a minimum of two control points to connect your image to your known map positions.
 - b. Once you have added all the control points, browse to the **Georeferencing** tab and click **Save**.
6. On the **Edit** tab, in the **Snapping** group, click **Snapping** and turn snapping on.
 7. On the **Edit** tab, in the **Features** group, click **Create**.
The **Create Features** pane appears.
 8. Select an asset from the template list and add the asset to the map where it corresponds to the georeferenced as-built drawing.
 9. On the **Map** tab, in the **Selection** group, click **Attributes** and fill in the attributes.
 10. Remove the image from the **Contents** pane once digitizing is complete.

Add map notes

As an editor, you can add a map note to the system.

1. In the **Catalog** pane, expand **Maps** and double-click **Sewer Data Manager** to open the map.
2. On the **Edit** tab, in the **Features** group, click **Create**.
The **Create Features** pane appears.
3. In the **Favorites** list, expand the **Map Notes** folder and choose a **Map Note** option. Add the map note by digitizing a polygon on the map at the desired location.
4. On the **Map** tab, in the **Selection** group, click **Attributes** and fill in the attributes.
The map note is added to the map and is available to be viewed and reviewed by others in the organization.

Social Equity Analysis

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Social Equity Analysis

Social Equity Analysis can be used to identify and analyze demographics, assets, conditions, and outcomes to optimize plans for community investment.

Governments across the globe struggle to ensure residents have opportunities to continue their education, secure a well-paying job, find healthy foods, access affordable health care, and locate housing options in safe neighborhoods. They recognize many face challenges due in part to systematic and structural barriers that constrain access to opportunity. Social equity aims to understand how systems negatively affect certain groups and level the playing field by making investments aligned with the severity of needs. Many governments are making a commitment to social equity and seeking interventions, or policy changes, that reduce burdens for marginalized communities. Social Equity Analysis is typically implemented by state and local governments that want to understand unique characteristics and conditions that exist in their community and how actions they are taking impact access or needs.

The Social Equity Analysis solution delivers a set of capabilities that help you understand community characteristics, analyze community conditions and actions, and generate an equity analysis index that can be used to educate internal and external stakeholders.

Requirements

Social Equity Analysis requires the following:

- ArcGIS Enterprise
- ArcGIS Pro 3.0 or later (Advanced)
 - ArcGIS Geostatistical Analyst extension

[Back to top](#)

Information products

Social Equity Analysis includes the following information products:

Item	Description	Minimum user type
Social Equity Analysis	An ArcGIS Pro project used by equity analysts to analyze community assets, conditions, or outcomes in relation to community characteristics to create an equity analysis index and locate optimal asset locations to meet community needs.	GIS Professional Advanced
Equity Analysis Index	A Media app used by the internal and external stakeholders to view the resulting Equity Analysis Index produced using the Social Equity Analysis ArcGIS Pro project.	Not required

Release notes

The following are the release notes:

Version	Description
1.1	<ul style="list-style-type: none">An update to the Social Equity Analysis ArcGIS Pro project to resolve a bug in the Create Ranked Surface tool.
1.0	<ul style="list-style-type: none">First release of Social Equity Analysis

[Back to top](#)

Configure Social Equity Analysis

Social Equity Analysis can be used to identify and analyze demographics, assets, conditions, and outcomes to optimize plans for community investment.

In this topic, you'll learn how to configure the Social Equity Analysis solution to meet specific needs in your organization.

Publish equity index

Once the Equity Analysis Index map is shared as a web layer using the Create equity analysis index map task in the Social Equity Analysis ArcGIS Pro project, the resulting map can be shared with internal and external stakeholders.

Add layer into web map

To add one, or more, layers to a web map, complete the following steps:

1. In a browser, sign in to your ArcGIS organization.
2. Browse to the Equity Analysis Index web map.
3. Open the item details and click **Open in Map Viewer**.
4. In the left pane, click **Add**, select **Browse Layers**.
5. Search for the Equity Analysis Index layer or alternative layer that was shared using the Social Equity Analysis tasks.
6. Click the **Add** button.
7. Open the Layer pane, click the Options ellipses on the Equity Analysis Index layer, click **Zoom to**.
8. **Save** the map.
9. Browse to the Equity Analysis Index application, open the item details page and click **View Application**.
10. The Equity Analysis map is now available in the application to be shared with stakeholders.

Use Social Equity Analysis

The Social Equity Analysis solution delivers a set of capabilities that help you understand community characteristics, analyze community conditions and actions, and generate an equity analysis index that can be used to educate internal and external stakeholders.

In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

Evaluate conditions and actions

To load and normalize community asset, condition or outcome data with the Social Equity Analysis project. Use the tasks to summarize and load data into your reporting areas spatially.

You will assume the role of an equity analyst. You are asked to use the Social Equity Analysis project to analyze and normalize community asset, condition or outcome data in relation to your reporting areas.

1. Sign in to your ArcGIS organization and browse to the Social Equity Analysis Desktop Application Template.
2. Open the item page and click **Download**.
3. Unzip and open the Social Equity Analysis ArcGIS Pro project.
4. Open the Social Equity Analysis ArcGIS Pro Project.
5. On the **View** tab, in the **Windows** group, click **Catalog Pane**
6. In the **Catalog** pane, expand the **Tasks** folder, and double-click the **Social Equity Analysis** task.
7. In the **Tasks** pane, click the **Evaluate Conditions and Actions** task group to expand the collection of tasks.
8. In the **Tasks** pane, double-click the **Prepare community asset, condition and outcome data** task and follow the steps provided.

Identify community characteristics

Community characteristics and community asset, condition or outcome rates can be used to identify areas of focus quickly using the Social Equity Analysis project. These tools have been designed to be flexible in order to analyze many different variables and equity scenarios.

You will continue to assume the role of an equity analyst. You are asked to use the Social Equity Analysis project to identify areas of need.

1. On the **View** tab, in the **Windows** group, click **Catalog Pane**.
2. In the **Catalog** pane, expand the **Tasks** folder, and double-click the **Social Equity Analysis** task.
3. In the **Tasks** pane, expand the **Tasks** folder, click the **Identify Community Characteristics** task group to expand the collection of tasks.

[Back to top](#)

4. In the **Tasks** pane, double click the **Prepare community characteristic data** task, and follow the steps provided.

Create equity analysis index

To find the areas of most need with the Social Equity Analysis project. Use the previously generated focus populations and community condition rate data to identify and rank community need for your reporting areas.

You will continue to assume the role of an equity analyst. You are asked to use the Social Equity Analysis project to find reporting areas of highest need.

1. Open the Social Equity Analysis ArcGIS Pro Project.
2. On the **View** tab, in the **Windows** group, click **Catalog Pane**
3. In the **Catalog** pane, expand the **Tasks** folder, and double-click the **Social Equity Analysis** task.
4. In the **Tasks** pane, click the **Create Equity Analysis Index** task group to expand the collection of tasks.
5. In the **Tasks** pane, double-click the **Create equity analysis index map** task and follow the steps provided.

Evaluate asset locations

To find the best potential asset locations with the Social Equity Analysis project. Use the previously generated Equity Analysis Index and a list of potential asset locations to analyze new asset locations in your community by travel time.

You will continue to assume the role of an equity analyst. You are asked to use the Social Equity Analysis project to select the best potential asset locations from a list of candidate sites that meet needs defined in the Evaluate Conditions and Actions task group.

1. Open the Social Equity Analysis ArcGIS Pro Project.
2. On the **View** tab, in the **Windows** group, click **Catalog Pane**
3. In the **Catalog** pane, expand the **Tasks** folder, and double-click the **Social Equity Analysis** task.
4. In the **Tasks** pane, click the **Evaluate Asset Locations** task group to expand the collection of tasks.
5. In the **Tasks** pane, double-click the **Evaluate coverage and existing asset locations by travel time** task and follow the steps provided.
6. Double-click the **Identify candidate asset locations** task and follow the steps provided.
7. Double-click the **Select new asset locations** task and follow the steps provided.

Explore community need

Once the Equity Analysis Index is created, it can be shared with stakeholders via a web mapping application. This app can be used to see how need is distributed across the community.

You will assume the role of an internal or external stakeholder. You are asked to use the Equity Analysis Index app to explore need in the community.

1. Sign in to your ArcGIS organization and browse to the Equity Analysis Index app.
2. Open the item page and click **View Application**.
3. Search for an address or click a reporting area on the map.
A popup will display showing the Equity Rank Score and details for the given area.
4. Review other communities and examine how need is distributed across the region.
5. The **Information** tab displays details regarding the map.
6. Click the **Share** icon to copy a link or share the app on social media.

Special Event Operations

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Special Event Operations

Special Event Operations can be used to develop safety plans and monitor public safety operations during a special event.

It provides a way to collaborate in a geographic context to simplify the safety planning and operations workflows. Event information from the incident action plan can be mapped and monitored along with live event information such as weather, traffic, field reports, and health and safety incidents. Special Event Operations is typically implemented by public safety operations that want to improve event health and safety planning to protect participants and the public.

Special Event Operations delivers a set of capabilities that help you organize special events, create event site maps, develop health and safety plans, manage event incidents and assignments, monitor public health and safety operations, and create after-action reports.

Note:

If you represent a local government that requires permitting capabilities, you may be interested in the Special Event Permitting and Operations solution. It includes permitting capabilities and special events operations capabilities.

Requirements

Special Event Operations requires the following:

- ArcGIS Enterprise
- ArcGIS Data Store - Spatiotemporal big data store
- ArcGIS Notebook Server
- ArcGIS Survey123
- ArcGIS Survey123 Connect
- ArcGIS Workforce

[Back to top](#)

Note:

To use this solution ensure the following content and services are enabled and configured in ArcGIS Enterprise: [Living Atlas content](#) and Living Atlas subscriber content.

Information products

Special Event Operations includes the following information products:

Item	Description	Minimum user type
Special Event Form	An ArcGIS Survey123 form used by public safety event planners to catalog community or special events	Editor
Special Event Manager	A Crowdsource Manager app used by public safety event planners to manage the status of special events during the review process	Editor
Special Event Site Map	An ArcGIS Web AppBuilder app used by event coordinators to create site maps (temporary structures, routes, and so on) that accompany permit apps	Editor
Special Event Operations Map	An ArcGIS Web AppBuilder app used by public safety event planners to create operations maps of public safety resources and conduct a high-level threat analysis	Editor
Special Event Operations Notebook	An ArcGIS Notebooks app used by public safety event planners to create unique public safety operations maps and apps for each event	Creator
Copy Previous Site and Operations Maps	An ArcGIS Notebooks app used by event coordinators and public safety event planners to create a copy of site and operations maps	Creator
Special Event Field Reporter	An ArcGIS Survey123 form used by public safety staff to report lost children, suspicious activity, field observations, and health- and safety-related issues	Mobile Worker
Special Event Field Manager	An ArcGIS Workforce project used by public safety event dispatchers to manage field reports and event assignments. Field users access the project using the ArcGIS Workforce app	Editor
Special Event Command Center	An ArcGIS Experience Builder app used by public safety command staff to monitor operations, weather, traffic, and health and safety issues during a special event	Editor
Special Event After Action	An ArcGIS Web AppBuilder app used by public safety command staff to visualize historical event operations and support event after-action reports	Viewer
Special Event Operations App	A Category Gallery app used to organize the Special Event Operations apps after running ArcGIS Notebooks	Editor

[Back to top](#)

Release notes

The following are the release notes:

Version	Description
2.1	<ul style="list-style-type: none">• A new Special Event Command Center app.• A new Special Event Operations Notebook.• A new Special Event Operations app that uses the Category Gallery.• Removed the Crowd Counter App.• Removed the Field Personnel spreadsheet to improve the management of mobile workers.
2.0	<ul style="list-style-type: none">• A new Special Event Field Reporter that leverages ArcGIS Field Maps.• A new Special Event Field Manager that leverages ArcGIS Workforce.• A new Special Event Permit Manager app.• A new Special Event Operations Map app.• A new Special Event Command Center app that contains the Special Event Field Manager, the Special Event Operations, and dashboards.
1.2	<ul style="list-style-type: none">• A new Special Event Operations Notebook that adds support for ArcGIS Tracker with the Field Worker user type, incorporates schema updates made to the location tracking layer, and a resolution to an issue where Dispatchers needed additional licensing.
1.1	<ul style="list-style-type: none">• A new version of the Crowd Counter App that resolves an issue where the app would not load in the AppStudio Player
1.0	<ul style="list-style-type: none">• First release of Special Event Operations

[Back to top](#)

Configure Special Event Operations

The ArcGIS Solutions app can be used to deploy the Special Event Operations solution in your ArcGIS organization. After deploying the solution to your ArcGIS organization, configure the solution to meet specific needs in your organization and load your data if needed.

Extend event survey

Note:

This workflow is optional and doesn't need to be completed in order to work with the solution.

The Special Event Operations solution includes a Special Event Form, which is a survey that can be used by public safety event planners to catalog community or special events. Review the preconfigured questions and adjust as necessary to remain in compliance with your organizational policies. In addition, ensure that you secure the survey and underlying layers and only share the content with appropriate members of your organization.

Update feature layer views

The Special Event Operations solution includes a series of views created from feature layers provided with the solution. Organizations may want to modify the Special Event Form by first adding new fields to the feature layers and then configuring the surveys to use the newly created fields. When doing so, the new fields must be exposed in the appropriate views. Additionally, some views are created by joining two sources, and these views must be re-created with the same name and URL after a new field is added.

When adding new questions, begin with the steps below. For changes such as removing questions or formatting the survey, proceed to the Modify the event form survey section.

To add one or more fields to a layer and re-create the views, complete the following steps:

1. Sign in to your ArcGIS organization and search for the **Special Events** hosted feature layer.
2. Add a new field to a layer in the Special Events hosted feature layer.
3. Navigate to the Special Event Permit stakeholder layer view in your contents.
4. Note:
5. In some cases, you may have existing permits you want to load into the special event layer. The stakeholder view is designed to provide a read-only view of the event form when accessed from Special Event Manager.
6. Click the **Open in Map View** arrow and click **Add to new map**.
7. Click the **More Options** button on the appropriate layer or table and click **Set View Definition**. Click **Define Fields**.

[Back to top](#)

8. Scroll to the newly created field, check the box, and click **Apply**.

The new field is added to the view's definition.

Modify the event form survey

To modify the Special Event Form survey, complete the following steps:

1. Install ArcGIS Survey123 Connect.
2. Start ArcGIS Survey123 Connect and sign in to your ArcGIS organization.
3. Click **Special Event Form** to download the survey.
4. Click **Special Event Form** again to open the survey.
5. In the left pane, click **Open XLSForm Spreadsheet**.
6. In the Microsoft Excel spreadsheet, click the **choices** tab. This tab comprises all the selectable options for survey questions.
7. Revise the survey to reflect your Special Event Form needs.
8. Save the Microsoft Excel spreadsheet and preview your changes in ArcGIS Survey123 Connect.
9. In ArcGIS Survey123 Connect, click **Publish** in the left pane to publish your changes.

Note:

To view your changes in ArcGIS Survey123, on the **Download Surveys** page, click **Download** to get the updated survey.

Add event assets

Note:

This workflow is optional and doesn't need to be completed in order to work with the solution.

The Special Event Operations solution includes several layers that can be used to locate event assets and develop health and public safety plans. These layers include several domains to help you get started with the event planning process. Each of these domains can be configured to include any additional features you would like to capture.

To add a new event asset and update the symbology, complete the following steps:

1. Sign in to your ArcGIS organization.
2. Click **Content** and browse to the folder you deployed the Special Event Operations solution in.
3. Search for **SpecialEventAssets** and open the item details page.

[Back to top](#)

4. Click **Fields** and click **Event Asset Type**.
5. Next to **List of Values**, click **Edit**.
6. Add your additional asset types and click **Save**.
7. Click the **Visualization** tab.
8. Click **Change Style** and update the style for each new asset you added to the list.
9. Repeat steps 7 and 8 and update the style for SpecialEventAssets_operations.

Note:

The same steps can be used to modify the SafetyPlanning and HealthSafetyPlanning layers and associated views.

Create After Action app

Incident commanders are responsible for the health and safety of participants during an event. The Special Event After Action app provides useful visualization tools to see both how incidents occurred and how field personnel responded. This information can be used to further examine specific incidents and help plan for future events.

Follow the workflow below to create a unique Special Event After Action app for your event.

Follow the steps below create a unique track view of your event.

1. Open a new map project in ArcGIS Pro.
2. Sign in to your ArcGIS organization account within ArcGIS Pro .
3. Search for the **<Event Name Date>_trackview** and add the track view to the map.
4. If you have many field personnel over an extended period of time then, you may have a large number of tracks and want to [change the maximum number of records returned](#).
5. Select the track view you added to the map and [export the data](#) from the track view into a new layer.
6. [Publish the new layer](#) as a service in your ArcGIS organization and name it **<Event Name Date> - Tracks**.

Follow the steps below create a Special Event After Action web map to use in the After Action app.

1. Sign in to ArcGIS organization and navigate to the Special Event After Action web map item.
2. **Open in Map Viewer** the Special Event After Action web map.
3. [Add the layer](#) you published in the previous workflow to the map.
4. Change the style of the layer and symbolize by the Full Name field.
5. Add the layer assignments layer named the **<Event Name Date> - Assignments** to the map.

[Back to top](#)

6. Change the style of the layer and symbolize by the report type field using the public safety category.
7. Remove the **Report Type** layer from the map.
8. Save the Special Event After Action map with a new name for example, **Special Event After Action - Event Name**.

Follow the steps below create a Special Event After Action app for your event.

1. In your ArcGIS organization, navigate to the Special Event After Action app item and **Edit Application**.
2. Choose the triangle button, next to **Save**, and choose **Save As**.
3. Choose a name for the app for example, **Special Event After Action - <Event Name>**.
4. Choose **Map**, **Choose web map**, then choose the map you created in the previous workflow.
5. Choose **Widget**, **Set the widgets in this controller**, **Group Filter** widget, and then choose **OK**.
6. Add each layer of the map to the widget and choose the **Event Identifier** field as the filter.
7. Choose **After Action Report** widget and update the layer to the **<Event Name Date> - Assignments**.
8. Choose **Find Personnel** widget and update the layer to the **<Event Name Date> - Tracks**.
9. **Save** and then **Launch** the application.

The application is a historical archive of the special event and can be used to animate assignments and track locations. Repeat this workflow for each event.

Use Special Event Operations

Special Event Operations can be used to organize special events, create event site maps, develop health and safety plans, manage event incidents and assignments, monitor public health and safety operations, and create after-action reports.

In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

Note:

Use your organization's data or configured apps to follow these workflows.

Manage special events

Special Event Operations offers a comprehensive system to manage all events in one central location. It allows you to manage the entire process through the event approval process, event site planning, operations and after-action review. All information can be kept in preparation for each event to be used next year.

In this workflow, you'll learn how to create and manage events.

Create a special event

You will start by assuming the role of a public safety event planner who needs create a special event and manage it through the planning approval process. You are asked to use the Special Event Form survey to create an event.

1. In a browser, from the Special Event Operations solution, view the Special Event Form survey.
2. In the Special Event Form survey, fill in the following details on the first page:

Parameter	Value
Enter the name of the special event	Type 5K for the Local Animal Shelter.
Select an event type	Type Competition or Race.
Description of Event	Type A great event to be had by everyone benefiting animals in need.
Open to the public	Select Yes.
Estimated Attendance	Type 1000.
Will alcohol be served at the event	Select No.

3. At the bottom of the first page, click **Next**.

[Back to top](#)

4. Complete the remaining event form pages, selecting an event start date one week from today in the morning and ending in the evening of the same day.
5. On page 4 of the event survey, provide the following information:
 - For **Event location**, type a name of a local park.
 - For **Locate the event on a map**, type the name and city of the local park and zoom to the location.
6. At the bottom of the page, click **Submit**.

Manage and review special events

In this workflow, you will assume the role of a public safety event planner who is asked to manage the review process and notify other government departments or agencies when a Special Event Form has been submitted. You will review the event information and update the status.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Special Event Operations solution.
2. View the Special Event Manager app.
3. In the **Special Events** table, click the **Status** column filter and select **Under Review**.
4. From the table, select the event that you created previously.
The event details open in the **Info** panel.
5. In the **Info** panel, scroll down and click **Review Event Info**.
The Special Event Form that was submitted earlier opens.
6. Review the form, and then close the Special Event Form survey.

Prepare site plans

Since many of the assets are temporarily set up before the event, planners need an interactive way to quickly assign the location of each asset. The Special Event Site Map allows coordinators or safety planners to quickly add these assets to the map for an event.

In this workflow, you'll learn how to create and copy site maps as well as notify others when maps are ready to be reviewed.

Create a special event site map

You will start by assuming the role of a public safety event organizer who needs to create an event site map for the special event. You are asked to use the Special Event Manager app to locate a special event and the Special Event Site Map to create a site map.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Special Event Operations solution.
2. View the Special Event Manager app.

[Back to top](#)

3. In the **Special Events** table, click the **Status** column filter and select **Under Review**.
4. In the table, select the event that you created previously.
5. In the **Info** panel, click **Edit Site Map**.
The Special Event Site Map app opens and zooms to the event. It also filters all related information, so you only see temporary features for your event.
6. In the **Create Site Map** pane, click **Food Concessions** and type King Smoothie.
7. Click a location on the map within the park.

Note:

The Event Identifier field is passed automatically from your filter selection in the Select Event widget and cannot be edited.

8. Click **Save**.
9. Repeat these steps for each event asset, route, and area you would like to add to your site map.
10. After completing your site map, click **Save**, and then close the Special Event Site Map.

Copy event maps from the previous year (optional)

In many cases, events are reoccurring and have similar site maps year after year. The Copy Previous Site and Operations Maps allows you to copy a previous site map to a new event. Modifications can then be made and added to the site map for the new event.

In this workflow, you will learn how to copy event maps from a previous year and update the maps when necessary.

Note:

To execute the Copy Previous Site and Operations Maps script, the event organizer must have access to the ArcGIS Notebooks item. In addition, you need at least two events (see the Create a special event section). The first event's status must be set to **Archived** and should have an associated site map. The new event should have the status set to **Under Review**. Do not use the event you have already approved above as it will be used in the subsequent steps.

Note:

You must be assigned a role of Administrator or custom role which includes the privilege to Create and edit notebooks in order to run an ArcGIS Notebooks and complete the following steps.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Special Event Operations solution.
2. View the Special Event Manager app.

[Back to top](#)

3. Click the **Status** column filter and select **Under Review**.
4. Select the event that you created in the Special Event Form survey.
5. In the **Info** panel, scroll down and click **Copy Previous Site and Operations Maps**.
An ArcGIS Notebooks app appears on a separate tab and will prompt you to sign in.
6. Click **Cell** and choose **Run All**.
7. In the **Archived** drop-down menu, choose a previous event that already has a site map.
8. In the **New Event** drop-down menu, choose the new event that does not have an associated site map.
9. Click Copy **Previous Site and Operations Maps**.
10. After the script completes, return to the Special Event Manager app and select the event in the list of events.
11. Click **Edit Site Map** and verify the new site map is complete.

Note:

You may also want to verify the operations map is complete.

12. Make any required modifications to the site map and click **Save**.

Prepare operations plans

The Special Event Operations Map allows safety planners to add all relevant health and safety resources and perform high-level risk assessments. It can be used to locate isolation areas or set up plexiglass barriers at ticket counters or food vending booths. In addition, it can be used to calculate the number of people allowed in each space using Centers for Disease Control and Prevention (CDC) guidelines. Event staff can use the real-time counter at entrances and exits for each venue to maintain a safe environment for everyone.

Public safety staff can add resource assignments, road closures, traffic restrictions, and estimates of crowd sizes to guide field personnel assignments. Optionally, planners can create a reference grid for field staff supporting the event, conduct a visibility assessment for high-risk locations, or identify areas that may be impacted by a potential bomb explosion or chemical spill.

In this workflow, you'll learn how to create operations maps and copy events from previous years.

Coordinate with public safety event planners

You will start by assuming the role of a public safety event planner who needs to coordinate with public safety event planners. You are asked to use the Special Event Manager app to locate a permit app and notify public safety that a health and safety plan is needed for this event.

[Back to top](#)

1. In a browser, sign in to your ArcGIS organization, and then browse to the Special Event Operations solution.
2. View the Special Event Manager app.
3. Click the **Status** column filter and select **Under Review**.
4. Select the event you created in the Special Event Form survey, or another event.
5. On the **Info** tab, click **Edit Operations Map**.

Note:

When you open the Special Event Operations Map from the Special Event Manager, the Event Identifier and Plan Identifier fields are passed automatically to the Select Event widget and should not be edited.

You can use the **Develop a health and safety plan** workflow in the next section to help you edit the operations map.

6. After the Special Event Operations Map is complete, return to the Special Event Manager app, and then in the event's **Info** panel, click the **Edit** button.
7. Locate the **Operations Map Complete** field and click **Yes**.
8. Locate the **Status** field, click **Approved**.
9. Click **Save**.

Develop a health and safety plan

Next, you will assume the role of a public safety event planner who needs to develop a health and safety plan for an event. You are asked to use the Special Event Operations Map to create an operations map of public safety resources and conduct a high-level threat analysis.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Special Event Operations solution.
2. View the Special Event Operations Map app.
3. Click the **Basemap** widget and select **Imagery**.
4. Click the **Create Operations Map** widget and search for PPE Station.
5. Place a PPE station on the map and add details for the health and safety asset.
6. Click **Save**.
7. Search for Handwashing Station., place it on the map, and add details for the event asset.
8. Click **Save**.
9. Repeat these steps for each health and safety asset, route, and area you would like to add to your operations map.
10. Search for Road BLocks, place two on the map, and add details for each of the road blocks.
11. Click **Save**.

[Back to top](#)

- At the top of the **Create Operations Map** widget, select **Social Distancing Crowd Areas** from the drop-down list.
- Draw an area on the map and double-click to complete the sketch.
- For **Area name**, type Vendor Area.

Note:

The **Area name** field must be unique.

- For **Max Capacity**, type 100, and then click **Save**.

Note:

The area on the map is labeled with the number of people that can safely enter an area of this size based on CDC social distancing guidelines. Adjust the maximum capacity or area size if necessary.

- At the top of the **Create Operations Map** widget, select **Crowd Estimates** from the drop-down list.

Note:

Crowd estimation is determined by Jacobs' method; the high, medium, and low values of crowd estimation appear on the map.

- Click the template, draw an area on the map, and double-click to complete the sketch.
- For **Description**, type Crowd Area for Event.
- Click **Save**.
- Search for Medical Tent, place it on the map, and add details for the event asset.
- Finally, search for On Foot, place three public safety resources on the map, and add the following details for each resource:
 - For **Point of Contact**, type an officer name.
 - For **Point of Contact Phone**, type a unique phone number for each officer.
 - For **Comments**, type Public Safety support for Humane Shelter Event.
- After completing your health and safety operations map, click **Save**.

Conduct high-level threat analysis (optional)

The Special Event Operations Map includes a series of tools that can be used to define the impact of an incident (chemical or other threat) on event assets and resources. As you complete the health and safety plan, you may be asked to conduct a high-level threat analysis and identify the impact on your event operations plan.

- In a browser, sign in to your ArcGIS organization, and then browse to the Special Event Operations solution.

[Back to top](#)

2. View the Special Event Operations Map app.
3. Click the **Gridded Reference Graphic** widget to create a reference grid that can be used in large outdoor events.
4. Define the location of the grid from a point or area, and then click **Create GRG**.
5. To identify the impact of a chemical incident and create a potential evacuation area, click the **Emergency Response Guide** widget.
6. Select the location, material, and size of the accident along with the wind direction and time, and then click **Create Zones**.
7. Click the **Threat Analysis** widget to identify the impact of other threats.
8. Select the location, type of threat, and size of the accident, and then click **Create Zones**.
9. Finally, to identify the impact of an incident on event assets and resources, click the **Situational Awareness** widget.
10. Select the location and the distance impacted, and then click the map.
After using the Gridded Reference Graphic, Emergency Response Guide, or Threat Analysis widgets and publishing the derived layers, you can associate the layers with the event so they can be used in other event operations apps.
11. Select a health and safety resource you added earlier and copy the event identifier.
12. Click the **Assign Event Identifier** widget and select the features generated by the previously identified widgets.
13. Type the event identifier, and then click **Save**.

Copy event maps from the previous year

Many times, reoccurring events will use similar site and operations maps from one year to the next. For instance, an annual 5k run will have similar route, food concessions, and public safety support locations. Re-creating the site map every year can be very time consuming. In this workflow, you will learn how to copy event maps from a previous year and update the maps when necessary.

You will continue assuming the role of an event organizer. You are asked to use the Special Event Manager app and the Copy Previous Site and Operations Maps script to create a copy of the previous year site map and operations maps.

Note:

To execute the Copy Previous Site and Operations Maps script, the event organizer must have access to the ArcGIS Notebooks item. In addition, you need at least two events (see the Create a special event section). The first event's status must be set to **Archived** and should have an associated site map. The new event should have the status set to **Under Review**. Do not use the event you have already approved above as it will be used in the subsequent steps.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Special Event Operations solution.

[Back to top](#)

2. View the Special Event Manager app.
3. Click the **Status** column filter and select **Under Review**.
4. Select the event that you created previously.
5. In the **Info** panel, scroll down and click **Copy Previous Site and Operations Maps**.
An ArcGIS Notebooks app appears on a separate tab and will prompt you to sign in.
6. Click **Cell** and choose **Run All**.
7. In the **Archived** drop-down list, choose a previous event that already has a site map.
8. In the **New Event** drop-down list, choose the new event that does not have an associated site map.
9. Click **Copy Previous Site/Operations Maps**.
10. After the script completes, return to the Special Event Manager app and select the event in the table.
11. Click **Edit Site Map** and verify the new site map is complete.

Note:

You may also want to verify the Special Event Operations Map is complete.

12. Make any required modifications to the site map, and then click **Save**.

Conduct health and safety operations

The Special Event Operations solution provides a complete set of capabilities that improve the efficiency and effectiveness of public safety personnel working at special events by enabling public safety personnel with tools to capture information from the field to share with commanders in a synthesized operational picture in real time.

In this workflow, you'll learn how to use a collection of maps and apps to support incident commanders and site staff to visualize, monitor, and communicate real-time status during an event as well as visualize incident response after an event has occurred.

Deploy event operations apps

Public safety event planners and incident commanders need a unique set of maps and apps for each event. The unique maps and apps allow them to manage personnel assignments, activities, and incidents during an event and conduct after-action reviews that help them improve planning for future events. Each event requires the following:

- Unique apps for incident commanders, firefighters and emergency medical technicians, law enforcement officers, event dispatchers, health and safety officers, cleaning staff, and site staff
- The ability to monitor the location field personnel assigned to an event
- An incident tracking and assignment system that can be used onsite at the event

[Back to top](#)

- Maps that show relevant event assets and public safety resources assigned to an event
- You will assume the role of a public safety event planner. You are asked to use the Special Event Operations Notebook to create a copy of the event operations apps for a unique event.

Note:

You must be assigned a role of Administrator or custom role which includes the privilege to Create and edit notebooks in order to run an ArcGIS Notebooks and complete the following steps.


1. In a browser, go to the Special Event Operations Notebook and review the instructions provided with ArcGIS Notebooks.
2. Click the **Cell** menu and click **Run All**.
3. Under **Select a Special Event to deploy Operations applications**, click the **Select an Event** drop-down arrow and choose your event.
4. Click **Deploy Special Event Operations**.

The creation of the event operations apps takes a few minutes to complete.


5. After the progress bar is complete, click **View Deployed Event Operations**.
A collection of new event operations apps opens.

Assign mobile personnel

Public safety staff working at the event can use the mobile apps in the next steps to track their locations and collect field operations. To accomplish this, they will need a named user login and access to the applications utilized later in the workflow. The following steps will grant users access so they can utilize the apps and share their location. Note, before proceeding make sure all users have the [ArcGIS account requirements](#) for location tracking.

1. In a browser, sign in to your ArcGIS organization and click the **Apps** button  in the header of the site.
2. From the app launcher, click Workforce to open the app.
3. Under **Projects**, hover over the {Event Name} Special Event Manager and click the **Configure** button.
4. Click the **Users** tab.
5. Follow the instructions to either manually add mobile workers or to add workers from a file.
6. Optionally, add additional dispatchers to the Workforce project.

Users added to the Workforce project will now be able to open the Workforce app on their mobile device to receive assignments from the dispatcher.

7. After you finish, return to your ArcGIS organization and click the **Apps** button  in the header of the site.
8. From the app launcher, click **Track Viewer** to open the app.

[Back to top](#)

9. Under **Projects**, hover over the {Event Name}_trackview and click the **Configure** button.
10. Click the **Select to add mobile users** drop-down arrow, and then under **Workforce project (import workers)**, select **{Event Name} Special Event Field Manager**.
11. Click **Add**.
12. Optionally, add additional Track Viewers that can view the location of mobile personnel in the Command Center application.

Note:

To add additional support personnel, repeat these steps.

Users added to the track view will now be able to share their location when using the Field Maps app on their mobile device described later.

Report activity and track locations from the field

During an event, public safety staff and site staff collect field observations that are used to protect the health and safety of event attendees. In addition, the ability to quickly identify the location of field personnel is critical during the event. Dispatchers and incident commanders need to see a map with the location of their staff to determine who should respond to specific incidents.

You will assume the role of a firefighter, emergency medical technician, or law enforcement officer who needs to report suspicious activity or a safety concern observed at the event. You are asked to use the Special Event Field Reporter map to report the suspicious activity or safety concern. Your location will also be tracked so dispatch has the ability to see resources as they receive calls.

1. Download ArcGIS Field Maps onto your mobile device.
2. Open the app on your mobile device and sign in to your organization.
3. Tap **{Event Name} Special Event Field Reporter** to open it.
4. Tap **Add** and tap **Suspicious Activity**.
5. Fill in the following details:

Parameter	Value
Description	Select Suspicious Activity .
Notes	Type Backpack left at location with no owner to be seen for 20 minutes.
Enter address, or generic description.	Type Behind bbq vendor tent.

6. Optionally, add an image or picture.
7. Locate the field report on the map.
8. Click **Submit**.

[Back to top](#)

Manage field assignments

It's common for minor incidents such as traffic accidents, medical calls, or disorderly spectators to occur during a special event. Often these incidents are reported by radio or 911 calls to a dispatcher in the event command center.

Now, you will assume the role of an event dispatcher who needs to assign field reports or other incidents to field staff. You are asked to use the Special Event Command Center to assign the suspicious activity or safety concern to a firefighter, emergency medical technician, or law enforcement officer.

Note:

This workflow requires you to be signed in to your ArcGIS organization and have the Special Event Operations solution deployed.

1. In a browser, go to the Special Event Command Center and open it in a browser.
2. Click **Dispatch** to create assignments.
3. Click one of the listings for **Assignment** in the list.
4. Click **Edit**.
5. Validate the assignment type by looking at the Description and change the **Assignment Type** to the correct type (Suspicious Activity).
6. Select **Assign** and choose a mobile worker from the drop-down menu.
7. Click the **Search** bar and type an address or name of a special event asset such as a concession stand.
8. Click **Special Event Assets: 1 Result feature** and click **Create assignment**.
9. In the new assignment, fill in the following details:

Parameter	Value
Assignment Type	Select Medical Response .
Assign	Choose a mobile worker from the drop-down list.
Description	Type Citizen reporting heat exhaustion and has collapsed.
Priority	Choose High from the drop-down list.
Due Date and Time	Select a time on the same day of the event.

10. Click **Create Assignment**.

Field personnel can open the ArcGIS Workforce app on their mobile device and see their assignments.

In many cases field personnel will be too busy to examine their assignments on their phone and communication will be done via radio. In this case, the dispatcher may want to close the assignments to take them off the active list.

11. In the Special Event Command Center click **Dispatch > Update Status**.

[Back to top](#)

12. Click **Freehand Polygon** and draw a polygon to select some Assignments.
13. In the **Update Assignment Status** dialog change the Status to Completed.

This will mark the assignments as Closed and not appear as an active assignment for the field personnel to work. You will see the assignment status in the Dispatch console and dashboards later in the workflow.

Track cleaning and stocking status

You will now assume the role of janitorial staff. You are asked to use the ArcGIS Field Maps mobile app to update the status of locations after you clean, disinfect, or restock them with PPE.

1. Download ArcGIS Field Maps onto your mobile device.
2. Open the app on your mobile device and sign in to your ArcGIS organization.
3. Choose **Cleaning and Restocking Map**.
4. Choose a station for **PPE Station**, choose **Cleaning and Restocking Status** in the pop-up, and tap the **Add** button.

Note:

The space under the **Add** button displays all historical status records for a location, so as a station is restocked with PPE, a user can review this list to see when it was restocked and how much PPE it was restocked with.

5. Choose **status**, choose **Re-stocked**, and add the number of boxes stocked of each PPE type.
6. Choose **Submit**.

Monitor event operations

Incident commanders need real-time information on the location of incidents and staff as well as incoming weather and traffic information to make informed decisions during an event. The Special Event Operations Dashboard can be used in the command center on the day of the event.

1. In a browser, go to the Special Event Operations gallery app.
2. Click the name and date of your event Special Event Command Center.
3. On the **Monitor** tab, **Tracked Units**, **Units on assignment**, and **Last Known Locations** provide up-to-date location information of staff and assignments.
4. Click **Open incidents within the last hour** and choose an incident.
5. Click the **Post Locations** drop-down arrow under Monitor to see post location versus the actual location of staff.
6. Click the **Weather** drop-down arrow under Monitor to see real-time weather radar information.

[Back to top](#)

7. Click the **Traffic** drop-down arrow under Monitor to see real-time traffic and road closure information.
8. Click the **Sanitation** drop-down arrow under Monitor to see real-time cleaning and restocking status for PPE stations, high-touch locations, and other health assets.
9. Close the app.

Special Event Permitting and Operations

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Special Event Permitting and Operations

Special Event Permitting and Operations can be used to manage special event permits, protect event attendees, and promote special events occurring in the community.

It provides a way to collaborate in a geographic context to simplify the permitting and operations workflows. These integrated apps ensure that permits are routed to the correct person for approval, operation and field staff are coordinated, and necessary event information remains current. Special Event Permitting and Operations is typically implemented by planning, public works, public safety, and other organizations that want to improve event permitting workflows and health and safety planning and to protect participants and the public.

Special Event Permitting and Operations delivers a set of capabilities that help you collect and organize permit apps, develop event site maps and health and safety plans, coordinate the permit review process, share event information with the public, monitor public health and safety operations, and create after-action reports.

Note:

If you do not require the permitting capabilities of this solution, you may be interested in the Special Event Operations solution instead.

Requirements

Special Event Permitting and Operations requires the following:

- ArcGIS Enterprise
- ArcGIS Data Store - Spatiotemporal big data store
- ArcGIS Notebook Server
- ArcGIS Survey123
- ArcGIS Survey123 Connect
- ArcGIS Workforce

[Back to top](#)

- ArcGIS Hub

Note:

To use this solution ensure the following content and services are enabled and configured in ArcGIS Enterprise: [Living Atlas content](#) and Living Atlas subscriber content.

Information products

Special Event Permitting and Operations includes the following information products:

Item	Description	Required user type
Special Event Permit	An ArcGIS Survey123 form used by event organizers and sponsors to apply for a community or special event permit	Not required
Special Event Permit Manager	A Crowdsourcing Manager app used by event coordinators to facilitate the special event permit process and manage the status of a permit app	Editor
Special Event Site Map	An ArcGIS Web AppBuilder app used by event coordinators to create site maps (temporary structures, routes, and so on) that accompany permit apps	Editor
Special Event Site Map Viewer	An ArcGIS Web AppBuilder app used by the general public and other interested parties to view event site maps	Not required
Special Event Permit Review	An ArcGIS Web AppBuilder app used by departments or agencies to review permit apps and offer comments during the permit review process	Editor
Special Event Permit Dashboard	An ArcGIS Dashboards app used by government executives to monitor the status of special event permits	Viewer
Special Event Calendar	An ArcGIS Experience Builder app used by the public to discover festivals, shows, concerts, and other events occurring in a community	Not required
Promoting Special Events	An ArcGIS Hub site used by the general public to access special event information and destinations in their community	Not required
Special Event Operations Notebook	An ArcGIS Notebooks app used by public safety event planners to create unique public safety operations maps and apps for each event	Creator
Copy Previous Site and Operations Maps	An ArcGIS Notebooks app used by event coordinators and public safety event planners to create a copy of site and operations maps	Creator
Special Event Operations Map	An ArcGIS Web AppBuilder app used by public safety event planners to create operations maps of public safety resources and conduct a high-level threat analysis	Editor
Special Event Field Reporter	An ArcGIS Field Maps form used by public safety staff to report lost children, suspicious activity, field observations, and health- and safety-related issues	Mobile Worker

[Back to top](#)

Special Event Field Manager	An ArcGIS Workforce project used by public safety event dispatchers to manage field reports and event assignments	Editor
Special Event Command Center	An ArcGIS Experience Builder app used by public safety command staff to monitor operations, weather, traffic, and health and safety issues during a special event	Editor
Special Event After Action	An ArcGIS Web AppBuilder app used by public safety command staff to visualize historical event operations and support event after-action reports	Viewer
Special Event Operations App	A Category Gallery app used to organize the operations apps after running the Special Event Operations Notebook	Editor

Release notes

The following are the release notes:

Version	Description
2.1	<ul style="list-style-type: none"> • A new Special Event Command Center app. • A new Special Event Operations Notebook. • A new Special Event Operations app that uses the Category Gallery. • Removed the Crowd Counter App. • Removed the Field Personnel spreadsheet to improve the management of mobile workers.
2.0	<ul style="list-style-type: none"> • A new Special Event Field Reporter that leverages ArcGIS Field Maps. • A new Special Event Field Manager that leverages ArcGIS Workforce. • A new Special Event Calendar that leverages ArcGIS Experience Builder. • A new Special Event Permit dashboard. • A new Special Event Permit Manager app. • A new Special Event Operations Map app. • A new Special Event Command Center app that contains the Special Event Field Manager, the Special Event Operations, and dashboards.
1.2	<ul style="list-style-type: none"> • A new Special Event Operations Notebook that adds support for ArcGIS Tracker with the Field Worker user type, incorporates schema updates made to the location tracking layer, and a resolution to an issue where Dispatchers needed additional licensing.
1.1	<ul style="list-style-type: none"> • A new version of the Crowd Counter App that resolves an issue where the app would not load in the AppStudio Player
1.0	<ul style="list-style-type: none"> • First release of Special Event Permitting and Operations

[Back to top](#)

Configure Special Event Permitting and Operations

The ArcGIS Solutions app can be used to deploy the Special Event Permitting and Operations solution in your ArcGIS organization. After deploying the solution, configure it to meet specific needs in your organization, and load your data if needed.

Extend an event permit survey

Note:

This workflow is optional and doesn't need to be completed in order to work with the solution.

The Special Event Permitting and Operations solution includes a survey that can be used by event organizers to apply for a special event permit. Review the preconfigured questions and adjust as necessary to remain in compliance with your organizational policies. In addition, ensure that you secure the survey and underlying layers and only share the content with appropriate members of your organization.

Update feature layer views

The Special Event Permitting and Operations solution includes a series of views created from feature layers provided with the solution. You can modify the Special Event Permit survey by first adding new fields to the feature layers and then configuring the surveys to use the newly created fields. The new fields must be exposed in the appropriate views. Additionally, some views are created by joining two sources together, and these views must be re-created with the same name and URL address after a new field is added.

Note:

Complete the workflow below to add new questions to the survey by adding new fields. Refer to the Modify event permit survey section to learn how to remove questions or format a new survey.

To add one or more fields to a layer and re-create the views, complete the following steps:

1. Sign in to your ArcGIS organization and search for the SpecialEvents hosted feature layer.
2. Add a new field to a layer in the SpecialEvents hosted feature layer.
3. Go to the SpecialEvents_approved view in your contents.
4. Click the **Open in Map View** drop-down arrow and click **Add to new map**.
5. Click the more options button on the appropriate layer or table and click **Set View Definition**. Click **Define Fields**.

[Back to top](#)

6. Scroll to the newly created field and check the box. Click **Apply**. The new field is added to the view's definition.

To update a join view, complete the following steps:

1. Go to the join view in your contents (for example, SpecialEventAreas_approved).
2. On the item details page, scroll to the **URL** section. Click the **Copy** button.
3. Paste the copied URL into Microsoft Notepad or another text editor for reference.

Note:

The feature layer name is used below when re-creating the join. The name can be found after services in the URL structure and may also contain a unique GUID, for example, SpecialEventAreas_approved_a45f71a48587425c9b90ee5527cd26d1.

4. Delete the existing join view (for example, SpecialEventAreas_approved).
5. Add the SpecialEvents hosted feature layer to a new web map.
6. Click **Analysis > Summarize Data > Join Features**.
7. Configure the join using the information in the following table:

Name of join	Target layer	Layer to join to the target layer	Fields to match	Join operation	Define which record is kept
SpecialEventAssets_approved	SpecialEventAssets	SpecialEvents	eventidentifier = eventid	Join one to one	Order by Date Reported/Ne west
SpecialEventRoutes_approved	SpecialEventRoutes	SpecialEvents	eventidentifier = eventid	Join one to one	Order by Date Reported/Ne west
SpecialEventAreas_approved	SpecialEventAreas	SpecialEvents	eventidentifier = eventid	Join one to one	Order by Date Reported/Ne west

Note:

Ensure that each new join view uses the names defined in this table. If you use the same names, the layers in the map and the existing dashboard widgets do not have to be reconfigured. If your join view contained a unique GUID, the new join view must be named with the unique GUID.

8. If necessary, uncheck **Use current map extent**. Check **Create results as hosted feature layer view**.

[Back to top](#)

9. Update the Special Event Site Map Viewer and other special event maps and apps to account for the new fields you added to the layers.

Modify event permit survey

To modify the Special Event Permit survey, complete the following steps:

1. Install ArcGIS Survey123 Connect.
2. Start ArcGIS Survey123 Connect and sign in to your ArcGIS organization.
3. Click Special Event Permit to download the survey.
4. Click Special Event Permit again to open the survey.
5. In the left pane, click **Open XLSForm Spreadsheet**.
6. In the Microsoft Excel spreadsheet, click the **choices** tab. This tab comprises all the selectable options for survey questions.
7. Revise the survey to reflect your special event permit needs.
8. Save the Microsoft Excel spreadsheet and preview your changes in ArcGIS Survey123 Connect.
9. In ArcGIS Survey123 Connect, click **Publish** in the left pane to publish your changes.

Note:

On the **Download Surveys** page, click **Download** to view your changes in ArcGIS Survey123 Connect.

Notify reviewers

The Special Event Permit Review app allows departmental reviewers to provide input on each event. The Special Event Permit Manager has a button that opens an email to send to these reviewers. Often these reviewers are the same for every event, so rather than typing the same emails for each departmental reviewer every time an event is ready for review, you can populate the email so it always includes their email addresses.

1. Sign in to your ArcGIS organization.
2. Click **Content** and browse to the folder where you deployed the Special Event Permitting and Operations solution.
3. Search for the Special Event Permit Manager web map and open it.
4. In the layer list, highlight **Special Event Permits**, click the more options button, and click **Configure Pop-up**.
5. Under **Attribute Expressions**, scroll down to **Notify Reviewers Email Link**.
6. Find the following line of code: `var emailRecipient = ""`
7. Enter the email addresses of the reviewers separated by semicolons between the empty quotation marks.

[Back to top](#)

8. Click **OK** to close the **Arcade** window.
9. Click **OK** to close the **Configure Pop-up** window.
10. Click **Save** to save the Special Event Permit Manager.
11. Click **Content** and browse to the folder where you deployed the Special Event Permitting and Operations solution.
12. Search for the Special Event Permit Manager app and open it.
13. Find an event that has the **Status** parameter set to **Approved** and **Site Map Complete** set to **Yes**.
14. Click the **Notify Reviewers** button. Verify that the emails are now populated as part of the email.

Add event assets

Note:

This workflow is optional and doesn't need to be completed in order to work with the solution.

The Special Event Permitting and Operations solution includes several layers that can be used to locate event assets and develop health and public safety plans. These layers include several domains to help you get started with the event permitting and planning process. Each of these domains can be configured to include any additional features you want to capture.

To add a new event asset and update the symbology, complete the following steps:

1. Sign in to your ArcGIS organization.
2. Click **Content** and browse to the folder where you deployed the Special Event Permitting and Operations solution.
3. Search for SpecialEventAssets and open the item details page.
4. Click **Fields** and click **Event Asset Type**.
5. Next to **List of Values**, click **Edit**.
6. Add your additional asset types and click **Save**.
7. Click the **Visualization** tab.
8. Click **Change Style** and update the style for each new asset you added to the list.
9. Repeat steps 7 and 8 and update the style for SpecialEventAssets_approved and SpecialEventAssets_operations.

Tip:

You can use the same steps to modify the SafetyPlanning and HealthSafetyPlanning layers and associated views.

Share event destination

Promoting Special Events is an ArcGIS Hub site that can be used to promote special events in a community. It can also serve as a destination for event organizers that must apply for a special event permit. The ArcGIS Hub site integrates several maps and apps included in the Special Event Permitting and Operations solution. Each of these maps and apps must be shared with the public so they can be accessed at the Promoting Special Events destination.

To share the event maps and apps, complete the following steps:

1. Sign in to your ArcGIS organization.
2. Search for Promoting Special Events and open the item details page.
3. Share the ArcGIS Hub site with everyone (public).
4. Repeat this process for each of the following items:

Item	Name	Sharing
Web mapping app	Special Event Site Map Viewer	Everyone (public)
Dashboard	Special Event Calendar	Everyone (public)
Form	Special Event Permit	Everyone (public)
Web map	Special Event Site Map Viewer	Everyone (public)
Web map	Special Event Calendar	Everyone (public)
Feature layer (hosted)	SpecialEvents	Everyone (public)
Feature layer (hosted, view)	SpecialEvents_approved	Everyone (public)
Feature layer (hosted, view)	SpecialEventsAssets_approved	Everyone (public)
Feature layer (hosted, view)	SpecialEventsRoutes_approved	Everyone (public)
Feature layer (hosted, view)	SpecialEventsAreas_approved	Everyone (public)
Feature layer (hosted, view)	RoadClosures_public	Everyone (public)
Hub Initiative	Promoting Special Events	Everyone (public)

Create After Action app

Incident commanders are responsible for the health and safety of participants during an event. The Special Event After Action app provides useful visualization tools to see both how incidents occurred and how field personnel responded. This information can be used to further examine specific incidents and help plan for future events.

Follow the workflow below to create a unique Special Event After Action app for your event.

Follow the steps below create a unique track view of your event.

1. Open a new map project in ArcGIS Pro.
2. Sign in to your ArcGIS organization account within ArcGIS Pro .
3. Search for the **<Event Name Date>_trackview** and add the track view to the map.

If you have many field personnel over an extended period of time then, you may have a large number of tracks and want to [change the maximum number of records returned](#).

4. Select the track view you added to the map and [export the data](#) from the track view into a new layer.

[Back to top](#)

5. [Publish the new layer](#) as a service in your ArcGIS organization and name it **<Event Name Date> - Tracks**.

Follow the steps below create a Special Event After Action web map to use in the After Action app.

1. Sign in to ArcGIS organization and navigate to the Special Event After Action web map item.
2. **Open in Map Viewer** the Special Event After Action web map.
3. [Add the layer](#) you published in the previous workflow to the map.
4. Change the style of the layer and symbolize by the Full Name field.
5. Add the layer assignments layer named the **<Event Name Date> - Assignments** to the map.
6. Change the style of the layer and symbolize by the report type field using the public safety category.
7. Remove the **Report Type** layer from the map.
8. Save the Special Event After Action map with a new name for example, **Special Event After Action - Event Name**.

Follow the steps below create a Special Event After Action app for your event.

1. In your ArcGIS organization, navigate to the Special Event After Action app item and **Edit Application**.
2. Choose the triangle button, next to **Save**, and choose **Save As**.
3. Choose a name for the app for example, **Special Event After Action - <Event Name>**.
4. Choose **Map**, **Choose web map**, then choose the map you created in the previous workflow.
5. Choose **Widget**, **Set the widgets in this controller**, **Group Filter** widget, and then choose **OK**.
6. Add each layer of the map to the widget and choose the **Event Identifier** field as the filter.
7. Choose **After Action Report** widget and update the layer to the **<Event Name Date> - Assignments**.
8. Choose **Find Personnel** widget and update the layer to the **<Event Name Date> - Tracks**.
9. **Save** and then **Launch** the application.

The application is a historical archive of the special event and can be used to animate assignments and track locations. Repeat this workflow for each event.

Use Special Event Permitting and Operations

Special Event Permitting and Operations can be used by local governments to collect and organize permit apps, develop event site maps and health and safety plans, coordinate the permit review process, share event information with the public, monitor public health and safety operations, and create after-action reports.

In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

Note:

Use your organization's data or configured apps to follow these workflows.

Manage event permits

Special events start with private or nonprofit organizations that request an event permit from the local authorities. Typically, this permit request is submitted in hard copy or a fillable form that is received by a special event coordinator. The coordinator is then often responsible for delegating the review process to stakeholders from many departments. Often this process is further encumbered by paper or email delays.

In this workflow, you'll learn how to create and manage special event permits.

Apply for a special event permit

You will start by assuming the role of an event organizer who needs to submit a permit app to a local government for approval. You are asked to use the Special Event Permit survey to apply for an event permit and submit a site map along with your app.

1. In a browser, go to your Special Event Permit survey.
2. In the Special Event Permit survey, fill in the following details on the first page:

Parameter	Value
Enter the name of the special event	Type 5K for the Local Animal Shelter.
Select an event type	Type Competition or Race.
Description of Event	Type A great event to be had by everyone benefiting animals in need.
Open to the public	Select Yes .
Estimated Attendance	Type 1000.

3. At the bottom of page 1, click **Next**.
4. Complete the remaining event permit pages. Select an event start date one week from today in the morning and ending in the evening of the same day. On page 8 of the event survey, provide the following information:

[Back to top](#)

- For **Event location**, type a name of a local park.
 - For **Locate the event on a map**, type the name and city of the local park and zoom to the location.
 - For **Event Site Map**, Browse to a local file and attach a diagram an event organizer would use to describe the setup of an event.
5. At the bottom of the page, click **Next**.
 6. On page 9, sign the permit app.
 7. Click **Submit**.

Submit an internal event

In some cases, an event may be hosted by your own organization, so there is no need to fill out the full permit. In that case, you can use a shortened version of the permit that represents the internal submission.

1. In a browser, go to your Special Event Permit survey.
2. At the end of the URL, add `&field:submittype=Internal`.

Your URL parameter should look like the following:

```
https://survey123.arcgis.com/share{YourItemID}?portalUrl={YourPortalURL}&field:submit  
type=Internal
```

The internal event permit will not contain as much detail as a sponsored event.

3. Fill out the survey with a new event and submit it.

Coordinate a permit review

Now, you will assume the role of an event organizer in the same local government. You are asked to coordinate the review process and notify other government departments when a special event permit has been submitted. You will review the permit app and update the status of the permit.

1. In a browser, go to the Special Event Permit Manager app.
2. Click the **Permit Status** column filter and select **Submitted**.
3. Select the event you created in the Special Event Permit survey.
4. In the **Info** panel, scroll down and click **Review Permit Application**.

The permit app that was submitted by the organizer opens, which allows further review of the app, permit updates, and email communication with the organizer.

5. Close the **Special Event Permit** survey.
6. On the **Info** tab, click the edit button and click **Edit** to edit the event status.

Note:

As a special event coordinator, you can track the permit status throughout the review life cycle and identify when site and operations maps have been created.

7. For **Permit Status**, choose **Under Review**, and click **Save**.

Prepare site plans

The event site map is the foundation of the event. It provides a common reference for planning, operating, and promoting each event. It can also include the event location, event assets, designated areas, and routes required to conduct the event. The Special Event Site Map allows coordinators or safety planners to quickly add these assets to the map for an event.

In many cases, events are reoccurring and have similar setups year after year. The Copy Previous Site and Operations Maps notebook allows you to create a new event using a previous site map as a starting point. Modifications can then be made and added to the site map for the new event.

In this workflow, you'll learn how to create and copy site maps as well as notify others when maps are ready to be reviewed.

Create a site map

You will start by assuming the role of an event organizer who needs to create an event site map for a permit app. You are asked to use the Special Event Permit Manager to locate a permit app and the Special Event Site Map to create a site map.

1. In a browser, go to the Special Event Permit Manager app.
2. Click the **Permit Status** column filter and select **Under Review**.
3. Select the event you created in the Special Event Permit survey.
4. In the **Info** panel, scroll down and click **Edit Site Map**.

This opens the Special Event Site Map app and zooms to the event permit app. It also filters all related information, so you see temporary features for your event.

5. On the **Create Site Map** dialog box, click **Food Concessions**, and enter the name of a food concession you added earlier.
6. Click a location on the map within the park.

Note:

The Event Identifier field is passed automatically from your filter selection in the **Select Event** widget and cannot be edited.

7. Click **Save**.

- Repeat steps 6 and 7 for each event asset, route, and area you want to add to your site map.
- After completing your site map, click **Save**, and close the Special Event Site Map.

Copy event maps from the previous year (optional)

Many times, reoccurring events will use similar site and operations maps from one year to the next. For instance, an annual 5k run will have a similar route, food concessions, and public safety support locations. Re-creating the site map every year can be time-consuming. In this workflow, you will learn how to copy event maps from a previous year and update the maps when necessary.

You will continue assuming the role of an event organizer. You are asked to use the Special Event Permit Manager and the Copy Previous Site and Operations Maps script to create a copy of the previous year's site map and operations maps.

Note:

To execute the Copy Previous Site and Operations Maps script, the event organizer must have access to the ArcGIS Notebooks item. In addition, you need at least two events (see the Create a special event section). The first event's status must be set to **Archived** and should have an associated site map. The new event should have the status set to **Under Review**. Do not use the event you have already approved above as it will be used in the subsequent steps..

- In a browser, go to the Special Event Permit Manager app.
- Click the **Permit Status** column filter and select **Under Review**.
- In the Special Event Permits table, select the event you created in the Special Event Permit survey.
- In the **Info** panel, scroll down and click **Copy Previous Site/Operations Maps**.
An ArcGIS Notebooks app appears in a new tab and may prompt you to sign in.
- Click **Cell** and choose **Run All**.
- In the **Archived** drop-down list, choose a previous event that already has a site map.
- In the **New Event** drop-down list, choose the new event that does not have an associated site map.
- Click **Copy Previous Site/Operations Maps**.
- When the script completes, return to the Special Event Permit Manager and select the event in the Special Event Permits table.
- Click **Edit Site Map** and verify the new site map is complete.

Note:

You may also want to verify the Special Event Operations Map is complete.

- Make any required modifications to the site map and click **Save**.

[Back to top](#)

Notify permit reviewers

You will continue assuming the role of an event organizer. You are asked to use the Special Event Permit Manager to update the permit app and notify internal stakeholders that the proposed event is ready for review.

1. In a browser, go to the Special Event Permit Manager app if you do not have it open already.
2. Click the **Permit Status** column filter and select **Under Review**.
3. In the Special Event Permit table, select the event you created in the Special Event Permit survey.
4. In the **Info** panel, scroll down and click **Edit**.
5. Locate the **Site Map Complete** field, choose **Yes**, and click **Save**.
6. On the **Info** tab, click **Notify Reviewers**.
7. Copy the hyperlink from the email and paste it in a new tab in your browser.

Note:

You will send this email to the permit review staff members who participate in your permit review process.

8. Close your email client.

Note:

If your email client does not open when you click the **Notify Reviewer** button, ensure that your default email client is configured.

Inform stakeholders

As the number and size of local special events increase, so does the impact on public infrastructure and resources. Executives from a local government need to see a comprehensive impact to the community. Key indicators, such as events serving alcohol or fireworks or requiring road closures, can show the impact on public safety or public works resources. The Special Event Permitting and Operations solution provides a Special Event Permit Dashboard to allow executives to see a historical context of all events and where they are in the approval process, and filter by event type.

Public attendance to an event can be dependent on how well it is promoted. The Promoting Special Events ArcGIS Hub site allows your community to have a branded destination to promote events as well as other places to visit, such as museums or popular restaurants. A member of the general public can view the Special Event Calendar to find a specific event of interest to them, with an associated detailed site map of the event.

In this workflow, you'll learn how to update and monitor special event permits as well as view the special events in your community.

[Back to top](#)

Gather feedback from internal stakeholders

Event permits are typically reviewed by several different government departments or agencies. Incorporating feedback from the internal stakeholders before the permit is approved is critical. In this workflow, you will learn how to review a permit app and offer comments. You will also learn how to review a summary of all comments provided during the review process.

You will start by assuming the role of a permit review staff member (for example, public works director, planning director, or incident commander). You are asked to use the Special Event Permit Review app to review an event permit app and the site map and offer any comments.

1. In a browser, go to the Special Event Permit Review app.
2. In the list of special events, select the event you created in the Special Event Permit survey, or select another special event.

The Special Event Permit Review app should specify the event from the email in the Notify permit reviewers section in the Prepare site plans workflow. If you are using the try-it-live example app, you can provide feedback for any event listed.

3. Click **View Permit Application** to review details found in the permit app. Close the Special Event Permit survey after you have finished reviewing the app.
4. Click the **Add a comment** button and fill in the following details:

Parameter	Value
Organization	Select Public Works .
Comments	Type Concerned that additional roads need to be blocked at the cross-streets of Gartner Road.
Any Instructions	Type Approved contingent on additional road blocks.
Action	Select Approved .

5. Click **Submit** and close the Special Event Permit Review app.

Now you will assume the role of an event coordinator. You are asked to use the Special Event Permit Manager app to review comments provided by the permit review staff to approve or deny the permit app.

1. In a browser, go to the Special Event Permit Manager app if you do not have it open already.
2. Click the **Permit Status** column filter and select **Under Review**.
3. Select the event you created in the Special Event Permit survey, or select another event.
4. In the **Info** panel, click the **Comments** tab.

Comments may be provided by the permit review staff. In some cases, the comments may require you to update the site and operations maps or contact the event organizer to alter their plans for the event.

5. Click **Edit** in the **Info** panel and scroll down to **Permit Status**.
6. Select **Approved** and click **Save**.

[Back to top](#)

7. On the **Info** tab, click **Notify Organizer**.

The email is directed to the person who originally applied for the permit and the event organizer. The email includes a link to the original permit app and the site map that can be viewed for reference.

8. Close your email client.

Monitor event permit applications

Many organizations are seeing a growing number of events in their community. As a result, event executives need to monitor the status of the event permit process and understand which events are occurring throughout the community.

In this workflow, you will assume the role of an event executive. You are asked to use the Special Event Permit Dashboard to monitor the special event permit program, review key indicators, and get an understanding of the type of events scheduled in the community.

1. In a browser, go to the Special Event Permit Dashboard.
2. In the left panel, click the **Status** filter and select **Under Review**.
3. Review the list of permits and indicators.
4. Select an event from the list and review additional event information.
5. Click the graph to filter events by month.

This filter can be useful to review a list of events planned for a given month (for example, October).

Share events with the public

Special events have become an important factor in local economies by attracting participants and spectators from outside the community to events such as 5k fun runs, marathons, outdoor concerts, and arts and crafts festivals. In some cases, local governments hosting similar special events are competing with each other for event participants that help support the local economy. Therefore, promoting and marketing local events is important.

Finally, you will assume the role of a resident or member of the public. You are interested in events happening in your community and will use an ArcGIS Hub destination on your community's website along with the Special Event Calendar app to discover upcoming events.

1. In a browser, go to the Promoting Special Events ArcGIS Hub site. In the **Things to Do** section, click **Learn more** to open the Special Event Calendar app.
2. If you know the name of the event you are interested in, you can search for it by name in the left panel. Otherwise, click the **Date** filter and enter the date range you are interested in.

Select a date range that aligns with the event you entered in the Special Event Permit survey.

3. Click an event type to further refine the results.
4. Review the list of events occurring in the community.

[Back to top](#)

5. Select an event from the list and review additional event information.
6. Click the **View Event Map** link and review assets (for example, entrances, road blocks, and vendors) placed for the event.

Note:

For larger events, it may be useful to search for an event asset.

7. After reviewing the Special Event Site Map Viewer, close it and return to the Special Event Calendar.

Prepare operations plans

The Special Event Operations Map allows safety planners to add all relevant health and safety resources and perform high-level risk assessments. It can be used to locate isolation areas or set up plexiglass barriers at ticket counters or food vending booths. In addition, it can be used to calculate the number of people allowed in each space using Centers for Disease Control and Prevention (CDC) guidelines. Event staff can use a real-time counter at entrances and exits for each venue to maintain a safe environment for everyone.

In addition, public safety staff can add resource assignments, road closures, traffic restrictions, and estimates of crowd sizes to guide field personnel assignments. Optionally, planners can create a reference grid for field staff supporting the event, conduct a visibility assessment for high-risk locations, or identify areas impacted by a potential bomb explosion or chemical spill.

In this workflow, you'll learn how to create operations maps and copy events from previous years.

Coordinate with public safety event planners

You will start by assuming the role of an event organizer who needs to coordinate with public safety event planners. You are asked to use the Special Event Permit Manager to locate a permit application and notify the public safety event planners that a health and safety plan is needed for this event.

1. In a browser, go to the Special Event Permit Manager app.
2. Click the **Permit Status** column filter and select **Under Review**.
3. Select the event you created in the Special Event Permit survey, or select another event.
4. On the **Info** tab, click **Edit Operations Map**.
A new email message opens with the link to the event operations map.
5. Copy the link from the email and paste it in a new tab in your browser.

Note:

For larger events, it may be useful to search for an event asset. You will send this email to public safety event planners who participate in your permit review process.

6. Close your email client.
7. Once the Special Event Operations Map is complete, scroll down and click **Edit**.
8. Locate the Special Event Operations Map **Complete** field and choose **Yes**.

Develop a health and safety plan

Next, you will assume the role of a public safety event planner who needs to develop a health and safety plan for an event. You are asked to use the Special Event Operations Map to create an operations map of public safety resources and conduct a high-level threat analysis.

1. In a browser, go to the Special Event Operations Map app.

Note:

When the public safety event planner opens the email sent by the event organizer, the event identifier and the plan identifier fields are passed automatically to the **Select Event** widget and should not be edited.

2. Click the **Basemap** widget and select **Imagery**.
3. Click the **Create Operations Map** widget and search for PPE Station.
4. Place a personal protective equipment (PPE) station on the map and enter details for the health and safety asset.
5. Search for Hand washing Station, place it on the map, and enter details for the event asset.
6. Repeat step 5 for each health and safety asset, route, and area you want to add to your operations map.
7. Search for Road Blocks, place two on the map, and enter details for each of the road blocks.
8. Click **Save**.
9. Select **Social Distancing Crowd Areas** from the drop-down list at the top of the **Create Operations Map** widget.
10. Draw an area on the map and double-click to complete the sketch.
11. For **Area name**, type Vendor Area.
The **Area name** value must be unique.
12. For **Max Capacity**, type 100 and click **Save**.

Note:

The area on the map will be labeled with the number of people who can safely enter an area of this size based on CDC social distancing guidelines. Adjust the maximum capacity or area size, if necessary.

13. Select **Crowd Estimates** from the drop-down list at the top of the **Create Operations Map** widget.

Note:

Crowd estimation is determined by the Jacobs method. The high, medium, and low values of crowd estimation appear on the map.

14. Draw an area on the map and double-click to complete the sketch.
15. For **Description**, type Crowd Area for Concert.
16. Click **Save**.
17. Search for Medical Tent, place it on the map, and enter details for the event asset.
18. Finally, search for On Foot, place three public safety resources on the map, and enter the following details for each resource:

Parameter	Value
Point of Contact	Type an officer's name.
Point of Contact Phone	Provide a unique phone number for each officer.
Comments	Type Public Safety support for Humane Shelter Event.

19. After completing your health and safety operations map, click **Save**.

Conduct high-level threat analysis (optional)

The Special Event Operations Map includes a series of tools that can be used to define the impact of an incident (chemical or other threat) on event assets and resources. As you complete the health and safety plan, you may be asked to conduct a high-level threat analysis and identify the impact on your event operations plan.

1. In a browser, go to the Special Event Operations Map app.
2. Click the **Gridded Reference Graphic** widget to create a reference grid that can be used in large outdoor events. Define the location of the grid from a point or area. Click **Create GRG**.
3. To identify the impact of a chemical incident and create a potential evacuation area, click the **Emergency Response Guide** widget. Select the location, material, and size of the accident along with the wind direction and time. Click **Create Zones**.
4. Click the **Threat Analysis** widget to identify the impact of other threats. Select the location, type of threat, and size of the accident. Click **Create Zones**.

[Back to top](#)

5. Finally, to identify the impact of an incident on event assets and resources, click the **Situational Awareness** widget. Select the location and the distance impacted, and click a location on the map.

After using the **Gridded Reference Graphic**, **Emergency Response Guide**, or **Threat Analysis** widgets and publishing the derived layers, you can associate the layers with the event so they can be used in other event operations apps.

6. Select a health and safety resource you added earlier and copy the event identifier.
7. Click the **Assign Event Identifier** and select the features generated by the previously identified widgets. Enter the event identifier and click **Save**.

Conduct health and safety operations

The Special Event Permitting and Operations solution provides a complete set of capabilities that improve the efficiency and effectiveness of public safety personnel working at special events by enabling public safety personnel with tools to capture information from the field to share with commanders in a synthesized operational picture in real time.

In this workflow, you'll learn how to use a collection of maps and apps to support incident commanders and site staff to visualize, monitor, and communicate real-time status during an event as well as visualize incident response after an event has occurred.

Deploy event operations apps

Public safety event planners and incident commanders need a unique set of maps and apps for each event. The unique maps and apps allow them to manage personnel assignments, activities, and incidents during an event and conduct after-action reviews that help them improve planning for future events. Each event requires the following:

- Unique apps for incident commanders, firefighters and emergency medical technicians, law enforcement officers, event dispatchers, health and safety officers, cleaning staff, and site staff
- The ability to monitor the location field personnel assigned to an event
- An incident tracking and assignment system that can be used onsite at the event
- Maps that show relevant event assets and public safety resources assigned to an event

You will assume the role of a public safety event planner. You are asked to use the Special Event Operations Notebook to create a copy of the event operations apps for a unique event.

Note:

This workflow requires you to sign in to your ArcGIS organization, and the Special Event Permitting and Operations solution must be deployed.

Note:

[Back to top](#)

You must be assigned a role of Administrator or custom role which includes the privilege to Create and edit notebooks in order to run an ArcGIS Notebooks and complete the following steps.

1. In a browser, go to the Special Event Operations Notebook and review the instructions provided with ArcGIS Notebooks.
2. Click the **Cell** menu and click **Run All**.
3. Under **Select a Special Event to deploy Operations applications**, click the **Select an Event** drop-down arrow, and choose your event.
4. Click **Deploy Special Event Operations**.

The creation of the event operations apps takes a few minutes to complete.

5. When the progress bar is complete, click **View Deployed Event Operations**.
A collection of new event operations apps opens.

Report activity and track locations from the field

During an event, public safety staff and site staff collect field observations that are used to protect the health and safety of event attendees. In addition, the ability to quickly identify the location of field personnel is critical during the event. Dispatchers and incident commanders need to see a map with the location of their staff to determine who should respond to specific incidents.

You will assume the role of a firefighter, emergency medical technician, or law enforcement officer who needs to report suspicious activity or a safety concern observed at the event. You are asked to use the Special Event Field Reporter map to report the suspicious activity or safety concern. Your location will also be tracked so dispatch has the ability to see resources as they receive calls.

1. Download ArcGIS Field Maps onto your mobile device.
2. Open the app on your mobile device, and sign in to your organization.
3. Tap **{Event Name} Special Event Field Reporter** to open it.
4. Tap **Add** and tap **Suspicious Activity**.
5. Fill in the following details:

Parameter	Value
Description	Select Suspicious Activity .
Notes	Type Backpack left at location with no owner to be seen for 20 minutes.
Enter address, or generic description.	Type Behind bbq vendor tent..



6. Optionally, add an image or picture.
7. Locate the field report on the map.

[Back to top](#)

8. Click **Submit**.

Assign mobile personnel

Public safety staff working at the event can use the mobile apps in the next steps to track their locations and collect field operations. To accomplish this, they will need a named user login and access to the applications utilized later in the workflow. The following steps will grant users access so they can utilize the apps and share their location. Note, before proceeding make sure all users have the [ArcGIS account requirements](#) for location tracking.

1. In a browser, sign in to your ArcGIS organization and click the **Apps** button  in the header of the site.
2. From the app launcher, click Workforce to open the app.
3. Under **Projects**, hover over the {Event Name} Special Event Manager and click **Configure**.
4. Click the **Users** tab.
5. Follow the instructions to either manually add Mobile Workers or Add workers from a file.
6. Optionally, add additional Dispatchers to the Workforce Project.
Users added to the Workforce Project will now be able to open the Workforce app on their mobile device to receive assignments from the dispatcher as described later.
7. When finished, return to your ArcGIS organization and click the **Apps** button  in the header of the site.
8. From the app launcher, click **Track Viewer** to open the app.
9. Under **Projects**, hover over the {Event Name}_trackview and click **Configure**.
10. Click the **Select to add mobile users dropdown**. Under Workforce project (import workers), select **{Event Name} Special Event Field Manager**.
11. Click **Add**.
12. Optionally, add additional Track Viewers that can view the location of mobile personnel in the Command Center application described later.
Users added to the track view, will now be able to share their location when using the Field Maps app on their mobile device described later. Repeat the above process as you have additional personnel added to support the event.

Manage field assignments

It's common for minor incidents such as traffic accidents, medical calls, or disorderly spectators to occur during a special event. Often these incidents are reported by radio or 911 calls to a dispatcher in the event command center.

Now, you will assume the role of an event dispatcher who needs to assign field reports or other incidents to field staff. You are asked to use the Special Event Command Center to assign the suspicious activity or safety concern to a firefighter, emergency medical technician, or law enforcement officer.

[Back to top](#)

Note:

This workflow requires you to be signed in to your ArcGIS organization and have the Special Event Permitting and Operations solution deployed.

1. In a browser, go to the Special Event Command Center and open it in a browser.
2. Click **Dispatch** to create assignments.
3. Click one of the listings for **Assignment** in the list.
4. Click **Edit**.
5. Validate the assignment type by looking at the Description and change the **Assignment Type** to the correct type (Suspicious Activity).
6. Select **Assign** and choose a mobile worker from the drop-down menu.
7. Click the **Search** bar and type an address or name of a special event asset such as a concession stand.
8. Click **Special Event Assets: 1 Result feature** and click **Create assignment**.
9. In the new assignment, fill in the following details:

Parameter	Value
Assignment Type	Select Medical Response .
Assign	Choose a mobile worker from the drop-down list.
Description	Type Citizen reporting heat exhaustion and has collapsed.
Priority	Choose High from the drop-down list.
Due Date and Time	Select a time on the same day of the event.

10. Click **Create Assignment**.

Field personnel can open the ArcGIS Workforce app on their mobile device and see their assignments.

In many cases field personnel will be too busy to examine their assignments on their phone and communication will be done via radio. In this case, the dispatcher may want to close the assignments to take them off the active list.

11. In the Special Event Command Center click **Dispatch > Update Status**.
12. Click **Freehand Polygon** and draw a polygon to select some Assignments.
13. In the **Update Assignment Status** dialog change the Status to Completed.

This will mark the assignments as Closed and not appear as an active assignment for the field personnel to work. You will see the assignment status in the Dispatch console and dashboards later in the workflow.

[Back to top](#)

Track cleaning and stocking status

You will now assume the role of janitorial staff. You are asked to use the ArcGIS Field Maps mobile app to update the status of locations after you clean, disinfect, or restock them with PPE.

1. Download ArcGIS Field Maps onto your mobile device.
2. Open the app on your mobile device and sign in to your ArcGIS organization.
3. Choose **Cleaning and Restocking Map**.
4. Choose a station for **PPE Station**, choose **Cleaning and Restocking Status** in the pop up, and click the **Add** button.

Note:

The space under the **Add** button displays all historical status records for a location, so as a station is restocked with PPE, a user can review this list to see when it was restocked and how much PPE it was restocked with.

5. Choose **status**, choose **Re-stocked**, and add the number of boxes stocked of each PPE type.
6. Choose **Submit**.

Monitor event operations

Incident commanders need real-time information on the location of incidents and staff as well as incoming weather and traffic information to make informed decisions during an event. The Special Event Operations Dashboard can be used in the command center on the day of the event.

1. In a browser, go to the Special Event Operations gallery app.
2. Click the name and date of your event Special Event Command Center.
3. On the **Monitor** tab, **Tracked Units**, **Units on assignment**, and **Last Known Locations** provide up-to-date location information of staff and assignments.
4. Click **Open incidents within the last hour** and choose an incident.
5. Click the **Post Locations** dropdown under Monitor to see post location versus the actual location of staff.
6. Click the **Weather** dropdown under Monitor to see real-time weather radar information.
7. Click the **Traffic** dropdown under Monitor to see real-time traffic and road closure information.
8. Click the **Sanitation** dropdown under Monitor to see real-time cleaning and restocking status for PPE stations, high-touch locations, and other health assets.
9. Close the app.

Stormwater Data Management

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Stormwater Data Management

Stormwater Data Management can be used to map stormwater assets, edit data, view system maps in the field and office, view asset reports, and collaborate with map notes.

It turns ArcGIS into a system for stormwater organizations to easily inventory their assets and keep information up to date. It provides simple to use interactive system maps and dashboards for office and field staff, and increases collaboration.

After deploying, organizations with no stormwater data can immediately begin mapping their stormwater systems using GPS or digitizing data with web or desktop software. Organizations with existing spatial stormwater data can load it and begin using the apps.

Requirements

Stormwater Data Management requires the following:

- ArcGIS Enterprise
- ArcGIS Pro 3.0 or later (Basic, Standard, or Advanced)
- ArcGIS Field Maps

Information products

Stormwater Data Management includes the following information products:

Item	Description	Minimum user type
Stormwater Data Manager	An ArcGIS Pro project package used to manage stormwater system data and map notes	GIS Professional (Basic, Standard, or Advanced)
Stormwater Editor	An ArcGIS Web AppBuilder application used to edit stormwater system data and map notes	Editor
Stormwater Viewer	An ArcGIS Web AppBuilder application used to view stormwater map and create map notes	Editor
Stormwater Dashboard	An ArcGIS Dashboards application used to view stormwater asset information	Viewer
Stormwater Map Notes Manager	An ArcGIS Web AppBuilder application used to review and manage map notes	Editor
Stormwater Mobile Viewer	A map used in ArcGIS Field Maps view stormwater system assets to view stormwater system assets and view or create map notes	Mobile Worker
Stormwater Asset Collector	A map used in ArcGIS Field Maps to capture and modify stormwater assets and create map notes from the field	Mobile Worker

Release notes

The following are the release notes:

Version	Description
2.0	<ul style="list-style-type: none">An update to the StormwaterSystem feature layer to support the Catch Basin and Outlet Inspections solution.
1.3	<ul style="list-style-type: none">The Minimal Gallery app has been removed from the solution item.
1.2	<ul style="list-style-type: none">An update to the StormwaterSystem feature layer to support the Adopt-A-Catch Basin solution.
1.1	<ul style="list-style-type: none">Name changed from Stormwater Data Management for ArcGIS Online to Stormwater Data Management.
1.0	<ul style="list-style-type: none">First release of Stormwater Data Management for ArcGIS Online

Configure Stormwater Data Management

The Stormwater Data Management solution can be configured to meet specific needs in your organization. The sections below outline some administrative tasks to update and manage the solution to fit your organization's needs.

Load data

In some cases, you may need to load existing data into the solution before sharing the maps or applications. Review the maps or applications provided with the solution and determine what, if any, source data you want to load. Stormwater Data Management also includes a data model to store information about typical storm water system assets. To explore the schema, view the [data dictionary](#).

Tip:

If you have to load data into the solution, you may want to develop a source-target matrix to track how your source data will be loaded into the target layer or layers used in the solution.

Depending on the format of your source data, you may choose to append your source data to the new layers. Once you have determined what source data must be loaded, complete one of the data loading workflows below:

Use the Append tool

In ArcGIS Pro, the [Append](#) tool can be used to append multiple input datasets to an existing target dataset. Input datasets can be tables; rasters; or point, line, polygon, annotations, or dimensions feature classes.

To append features to the target layer or layers using the **Append** tool, complete the steps below:



1. In ArcGIS Pro, sign in to your ArcGIS organization.
2. To open the **Stormwater Data Manager** project, click **Open another project**, click **My Content** under **Portal**, double-click the **Stormwater Data Management** folder, and click **Stormwater Data Manager**.
3. Add your existing source layers to a new map. To add the target feature layers from the **StormwaterSystem** feature service, click **My Content** under **Portal**, double-click the **Stormwater Data Management** folder, and add the **StormwaterSystem** feature service to the map.
4. On the **Analysis** tab, in the **Geoprocessing** group, click **Tools** to open the **Geoprocessing** pane.
5. In the search bar, type **Append** and click to open the **Append** tool.
6. Add your existing storm water data from the map to the **Input Datasets** parameter.

[Back to top](#)

7. For **Target Datasets**, use the **StormwaterSystem** features in the map.
8. In the **Schema Type** parameter, use the drop-down menu to choose **Use the Field Map to reconcile schema differences** to perform field mapping.
9. Update your field mapping and click **Run**.
10. Repeat this process as needed to load all your existing data into the target storm water schema.

Use the Data Loading Tools

The Data Loading toolbox can be used in ArcGIS Pro to streamline loading data from a source to a target dataset and provide the ability to perform in-process data transformation. Setup the [Data Loading toolbox](#) before getting started with the steps below.

1. In ArcGIS Pro, open the **Stormwater Data Manager** project and sign in to your ArcGIS organization.
2. On the **Project** tab, click **Package Manager**.
3. In the upper right corner, click the **Environment Manager** button.
4. Click the **Clone environment** button  on the row representing the environment you want to clone. Alternatively, click the **Clone arcgispro-py3** button  to clone the default environment.

The **Clone Environment** dialog box appears.

5. Select your newly cloned environment and click **OK**.
Cloning an environment may take several minutes. You can close the **Clone Environment** dialog box while you wait. You can monitor progress in the **Tasks** section of the **Package Manager** page.
6. In the Python Package Manager, click **Add Packages** to see the Python packages available for installation.
7. In the **Search** box, type `d1tsolutions` to find the Data Loading toolbox.
8. Select the **d1tsolutions** package and click the drop-down arrow to update the version.
9. Click **Install** to open the **Install Package** dialog box.
10. Review the terms and conditions and check the check box to agree.
11. Click **Install** to install the package.
12. Once complete, close ArcGIS Pro.

The Data Loading toolbox is now installed. The next time you start ArcGIS Pro, you can access it from the list of geoprocessing toolboxes.

13. Review [An overview of the Data Loading toolbox](#) to learn more about the tools and how to use them to load data into the **StormwaterSystem** layers.

Configure the Stormwater Data Manager ArcGIS Pro project

The Stormwater Data Manager project includes a Stormwater Data Manager map with broken links.

1. Sign in to your ArcGIS organization and browse to the **Stormwater Data Manager** item.
2. From the item page, click **Download**.
3. Unzip and open the downloaded **Stormwater Data Manager** ArcGIS Pro project.

1. In ArcGIS Pro, sign in to your ArcGIS organization.
2. Click
3. To open the **Stormwater Data Manager** project, click **Project > Open > Open another project**.
4. Under **Portal**, click **My Content**, double-click the **Stormwater Data Management** folder, and click **Stormwater Data Manager** to open the map.
5. In the **Catalog** pane, expand **Maps** and double-click **Stormwater Data Manager** to open the map.

6. In the **Contents** pane, click the red exclamation point **!** next to the **Map Notes** layer.
The **Change Data Source** dialog box appears.

7. Click **My Content** under **Portal**, double-click the **Stormwater Data Management** folder, double-click the **StormwaterMapNotes_managing** feature service, and double-click the **Map Notes** layer.

8. In the **Contents** pane, click the red exclamation point **!** next to the **Manhole** layer.
The **Change Data Source** dialog box appears.

9. Click **My Content** under **Portal**, double-click the **Stormwater Data Management** folder, double-click the **StormwaterSystem_editing** feature service, and double-click the **Manhole** layer.

Once you have repaired the data layers, you will need to update the coordinate system of the map to match your layers.

10. In the **Contents** pane, right-click the Stormwater Data Manager map and click **Properties**.
11. Click the **Coordinate Systems** tab. In the **XY Coordinate Systems Available** section, select the coordinate system that matches the layers in the map.

Note:

Ensure that the coordinate system of the map matches that of the feature layers deployed in the solution. If these do not match, there may be discrepancies in which units are displayed in the map.

12. Click **Save** to save the project.

[Back to top](#)

Add members to groups in your organization

Included with Stormwater Data Management are four groups designed to help managers organize their members based on their privileges and their work. The solution includes the following groups: Stormwater Editors, Stormwater Field Users, Stormwater Map Notes Managers, and Stormwater Office Users.

To add members to the groups, complete the following steps:

1. In a browser, sign in to your ArcGIS organization.
Confirm that you have privileges to manage member groups before continuing.
2. Click **Groups** at the top of the site.
3. Click the name of the group to open the group details pages.
4. On the **Settings** tab, edit and update the properties of the group, including access, sharing properties, and group ownership.
5. Click the **Overview** tab and click **Invite users**.
6. Select the members you want to add and click **Add to group**.
7. Repeat steps 3 through 6 for each group you need to add members to.

The provided groups are intended to be used by members with a minimum of the following user types to fully use the provided maps and apps:

Group name	User type
Stormwater Editors	<ul style="list-style-type: none">• Editor• GIS Professional Basic with ArcGIS Pro (minimum of one license recommended)
Stormwater Field Users	<ul style="list-style-type: none">• Mobile Worker
Stormwater Map Notes Managers	<ul style="list-style-type: none">• Editor
Stormwater Office Users	<ul style="list-style-type: none">• Editor

Set the default map extent to your service territory

When the Stormwater Data Management solution is deployed to your organization, it uses the [map default](#) set in your organization. If this property has not been set, you may want to quickly update a few maps and apps to your service territory manually to avoid having to pan and zoom to your area each time you open a map. Complete the following steps to update the initial extent of the maps and apps provided with this solution:



1. In a browser, sign in to your ArcGIS organization.
2. To set the default map extent for the **Stormwater Viewer** application, browse to the **Stormwater Viewer** item page and click **Edit Application**.
3. On the **Map** tab, zoom the map to the desired extent and click **Use current map view** under **Set initial extent**. Click **Save**.

[Back to top](#)

4. Repeat steps 2 and 3 to set the default map extent for the **Stormwater Editor** and **Stormwater Map Notes Manager** applications.
5. To set the default map extent for the **Stormwater Asset Collector** map, open the **Stormwater Asset Collector** map.
6. Zoom the map to the desired extent and save it.
7. Repeat steps 5 and 6 for the **Stormwater Mobile Viewer** map.

Configure the dashboard

When you deploy the Stormwater Data Management solution to your organization, you have the option to change the spatial reference. If you selected a spatial reference with a linear unit other than meters, you will need to revise the dashboard by completing the following steps:

1. In a browser, sign in to your ArcGIS organization.
2. To set the default map extent for the **Stormwater Dashboard** application, browse to the **Stormwater Dashboard** item page and click **Edit Dashboard**.
3. Browse to the **General** tab and click the configure button  on the **Miles of Open Channel** indicator.
4. On the **Data** tab, change the **Factor** setting to the correct conversion.
The dashboard **Factor** setting is configured to convert meters to miles. Learn more about how to [Convert Values](#).
5. Update the **Statistic** field to **Sum** and **Field** to **Shape_Length** to display miles of channels.
6. Repeat steps 3 and 4 for the **Miles of Pipe** indicator.
7. Click **Done** and click **Save** .

Use Stormwater Data Management


The Stormwater Data Management solution can be used by staff to collect and manage stormwater system information. This solution allows a stormwater utility to obtain information about the current state of their system. These workflows are intended for editors, mobile workers, and managers who want to use the maps and apps to manage their utility data. You will learn how to use the Stormwater Data Management solution to add new assets from the field, manage stormwater data in the web and desktop, and view and interact with a dashboard to find key statistics about your system.

Add data in the field

In these workflows, you will be taking the role of a mobile worker collecting data in the field. If you have a mobile-centric workforce, this may be the best option to collect new data or validate existing data.

Collect manholes and pipes

As a mobile worker, you can add manholes and gravity pipes using ArcGIS Field Maps in the field.


1. Open the ArcGIS Field Maps app and sign in to your ArcGIS organization.
2. Open the Stormwater Asset Collector map.
3. Browse to the collection location.
4. Tap **Add** .
5. From the list of features, search for **Manhole** by swiping up or typing manhole in the filter search bar.

If the manhole is added to an inaccurate location, or you want to move the point manually, move the cross hairs to the correct location by panning the map and tapping **Update Point**. This moves the added manhole to the specified location.

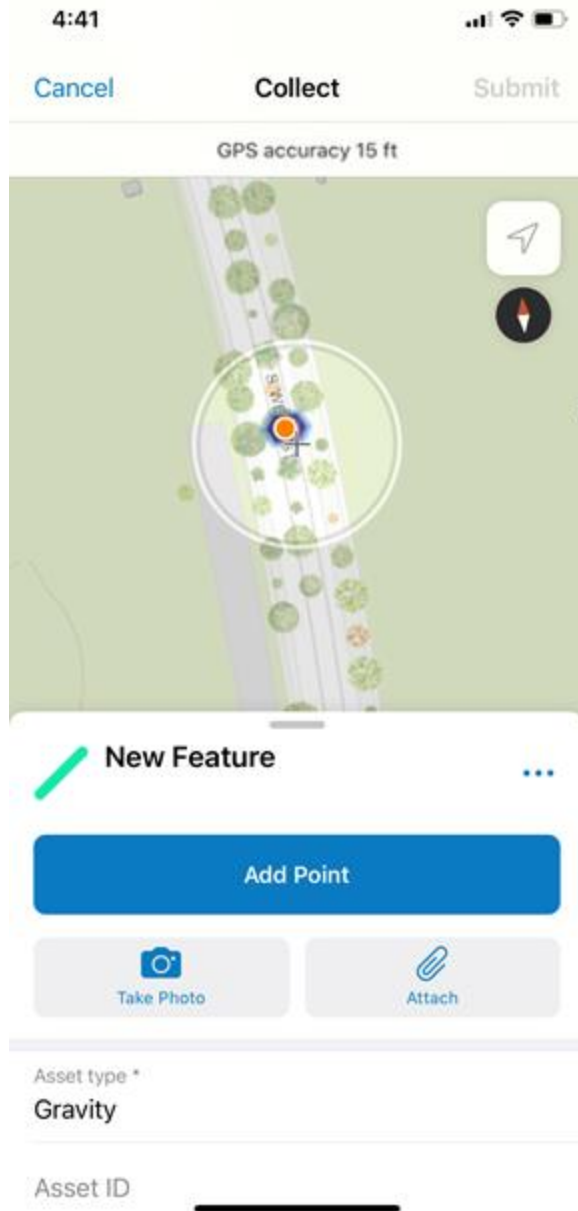
6. Fill in any attributes and tap **Submit**.

Note:

Move to a safe location to fill in the attributes. The added manhole remains in its original location.

7. Ensure the last collected manhole is selected and browse to the next manhole's location. Tap the **Copy** button at the bottom of the screen to create a copy of the previously added manhole at the location of the new manhole.
8. Adjust any attributes as needed. Next, add the pipes to connect the manholes.
9. Tap **Add** .
10. Search for **Gravity** by swiping up or typing gravity in the filter search bar.
11. Pan the map until the crosshairs snap to the manhole. An orange point appears when it is within a tolerance to snap.

[Back to top](#)




12. Tap the **Add Point** button to snap **Gravity** to the manhole.
13. Pan to the second manhole and tap the **Add Point** button.
14. Update the attributes and tap **Submit** to complete the sketch.

Collect a catch basin

As a mobile worker, you can collect catch basins of type sediment trap using ArcGIS Field Maps in the field.

1. Open the ArcGIS Field Maps app and sign in to your ArcGIS organization.
2. Open the Stormwater Asset Collector map.

[Back to top](#)


3. Browse to the collection location.
4. Tap **Add** .
5. From the list of features, search for **Sediment Trap** under **Catch Basin** by swiping up to view all the options or typing Sediment Trap in the filter search bar, and selecting **Sediment Trap**.

If the sediment trap is added to an inaccurate location, or you want to move the point manually, move the crosshairs to the correct location by panning the map and tapping **Update Point**. The added sediment trap moves to the specified location.

6. Fill in any attributes and tap **Submit**.
7. If you want to continue to collect the same type of catch basin, ensure the last collected sediment trap is selected and browse to the next sediment trap location. Tap the **Copy** button at the bottom of the screen to copy the previously added point to the location of the new sediment trap.
8. Adjust the attributes and tap **Submit**.

Collect an outfall

As a mobile worker, you can collect an outfall location in the field using ArcGIS Field Maps.


1. Open the ArcGIS Field Maps app and sign in to your ArcGIS organization.
2. Open the Stormwater Asset Collector map.
3. Browse to the collection location.
4. Tap **Add** .
5. From the list of features, search for **Pipe Outlet** under **Outlet** by swiping up to view all the options or by typing Pipe Outlet in the filter search bar.



If the pipe outlet is added to an inaccurate location, or you want to move the point manually, move the crosshairs to the correct location by panning the map and tapping **Update Point**. The added pipe outlet moves to the specified location.

6. Swipe up to expand the attributes and make sure to set the field Outfall to Yes to designate this outlet as an outfall. Populate the Outfall ID field and any other attributes and tap **Submit**.

4:26 📶 🔋

[Cancel](#) [Collect](#) [Submit](#)

 **New Feature**
41.769995°N 88.163539°W

 Take Photo  Attach

Asset type *
Pipe Outlet

Asset ID
OL-126

Lifecycle Status *
In Service

Install Date
2/10/2021, 4:25 PM

Outfall
Yes

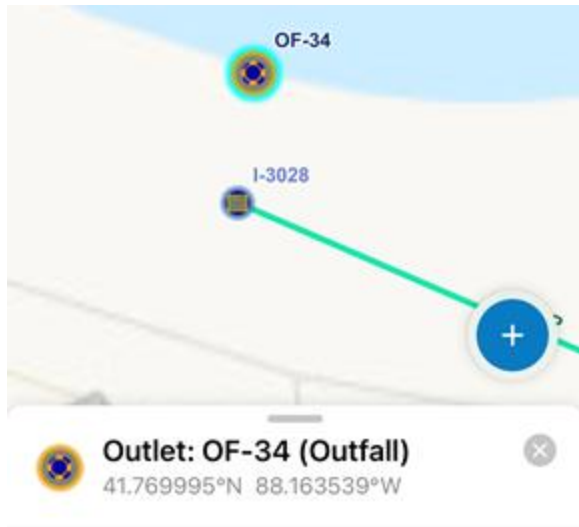
Outfall ID
OF-34

Diameter
10"

Outlet Material
Concrete (Non-Reinforced) - CP

Invert Elevation


When an outlet is designated as an outfall, the symbology will change to include an orange halo around the point and the label will update to use the Outfall ID field instead of the Asset ID. These updates are made using ArcGIS Arcade.



7. If you want to continue to collect the same type of outfall, ensure the last collected outfall is selected and browse to the next location. Tap the **Copy** button at the bottom of the screen to copy the previously added point to the location of the new outfall.
8. Adjust the attributes and tap **Submit**.

Collect a BMP boundary

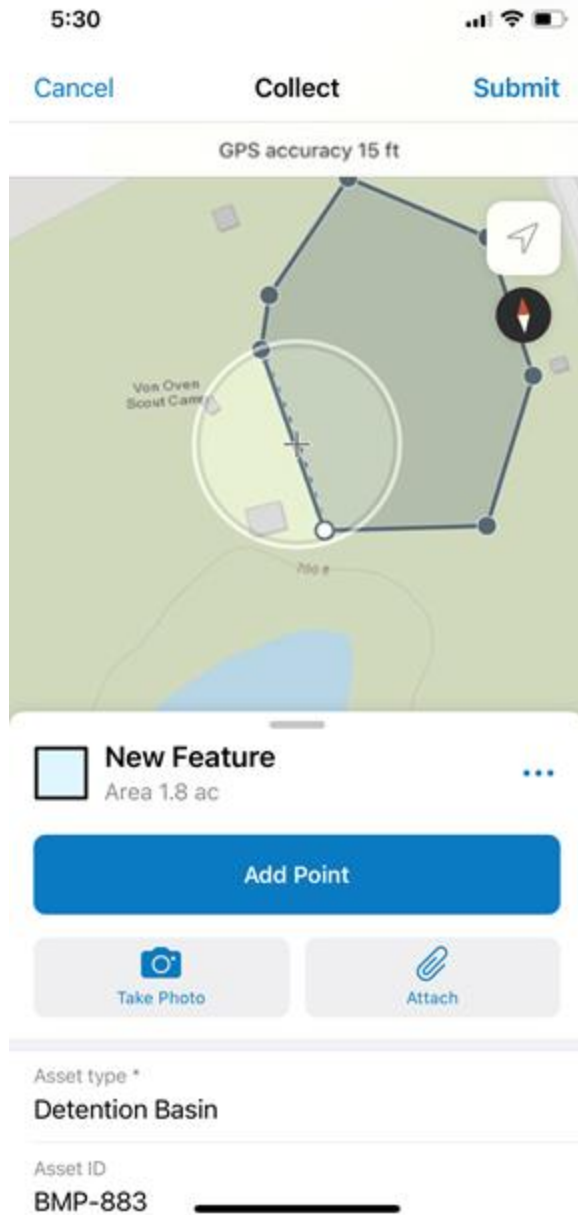
As a mobile worker, you can collect BMP Boundary by collecting points and adjusting the boundary using ArcGIS Field Maps in the field.

1. Open the ArcGIS Field Maps app and verify you are signed in to your ArcGIS organization.
2. Open the Stormwater Asset Collector map.
3. Browse to the collection location.
4. Tap **Add** .
5. From the list of features, search for **BMP Boundary** by swiping up or typing in the search bar.

A point is added to your location.

If the starting point is added to an inaccurate location, or you want to move the point manually, move the crosshairs to the correct location by panning the map and tapping **Update Point**. The added starting point moves to the specified location.


6. Collect or add the necessary points by tapping **Add Point** to outline the boundary.



7. Fill in any attributes and tap **Submit**.

Collect BMP boundary by streaming

As a mobile worker, you can collect boundaries by collecting points and adjusting the boundary using ArcGIS Field Maps in the field.

1. Open the ArcGIS Field Maps app and sign in to your ArcGIS organization.
2. Open the Stormwater Asset Collector map.
3. Browse to the collection location.
4. Tap **Add** .

[Back to top](#)

5. From the list of features, search for **BMP Boundary** by swiping up or typing in the search bar.
A point is added to your location.
6. Once the starting point is in the correct location, tap the options button and select **Start Streaming**.
7. Walk the perimeter of the boundary until you get to a desired ending location.
8. Tap **Stop Streaming**.
9. Fill in any attributes and tap **Submit**.

Add map notes

As a mobile worker, you can add a map note to the system.

1. Open the ArcGIS Field Maps app and sign in to your ArcGIS organization.
2. Open the Stormwater Asset Collector map.
3. Browse to the map note location.
4. Tap **Add**.
5. From the list of features, search for the **Map Notes** type by swiping or typing a description in the filter search bar, select the **Map Notes** type, and add the note to the map by sketching a polygon in the map note location.
6. Fill in the attributes and click **Submit**.

The map note is added to the map and is available to be viewed and reviewed by others in the organization.

Add data in the web

In the workflows below, you will be taking the role of an editor adding data in ArcGIS Online. The workflows explain how to add data in the web, use the provided dashboard, and add and manage map notes.

Add pipes to connect features

As an editor, you want to use a web app to connect features with pipes.

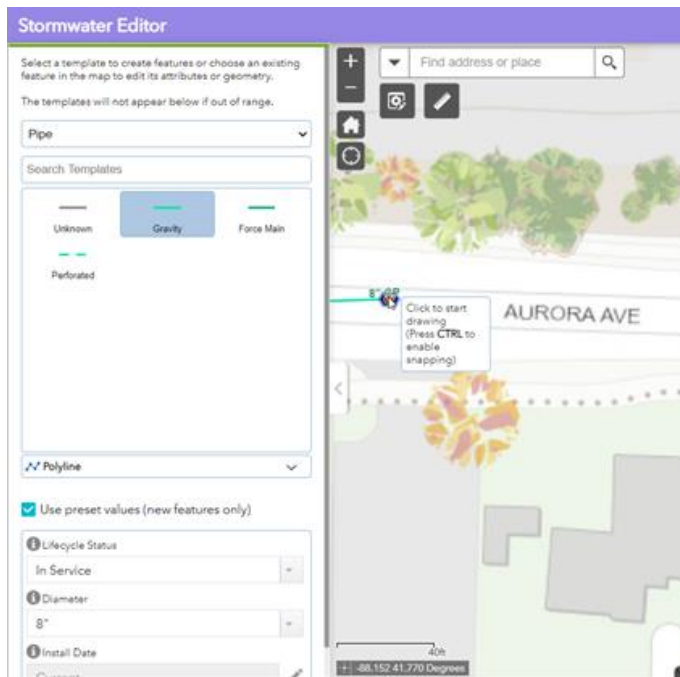
1. In a browser, sign in to your ArcGIS organization.
2. At the top of the site, click **Groups**.
3. Browse to the **Stormwater Editors** group and locate the **Stormwater Editor** app. Click **View Application** to launch the app.

In the Stormwater Editor app, the **Asset Editor** widget is open by default on the left side of the window when the app opens.

4. In the **Asset Editor** pane, click the template drop-down menu and select **Pipe**, and choose **Gravity** from the list of options.

[Back to top](#)

5. Scroll down and fill in the preset values.
6. With **Gravity** selected, press Ctrl to snap to a manhole by hovering over the point and clicking to start drawing.



7. Draw a line from the first manhole to the next, press Ctrl to snap, and double-click to finish the sketch.
You are prompted to update attributes and save.
8. Click **Save**.
9. Continue adding pipes between the manholes.
The template and preset attributes remain selected so you can continue adding pipes.

Add an outfall and gravity pipe

As an editor, you want to use a web app to add a new outfall and gravity pipe.

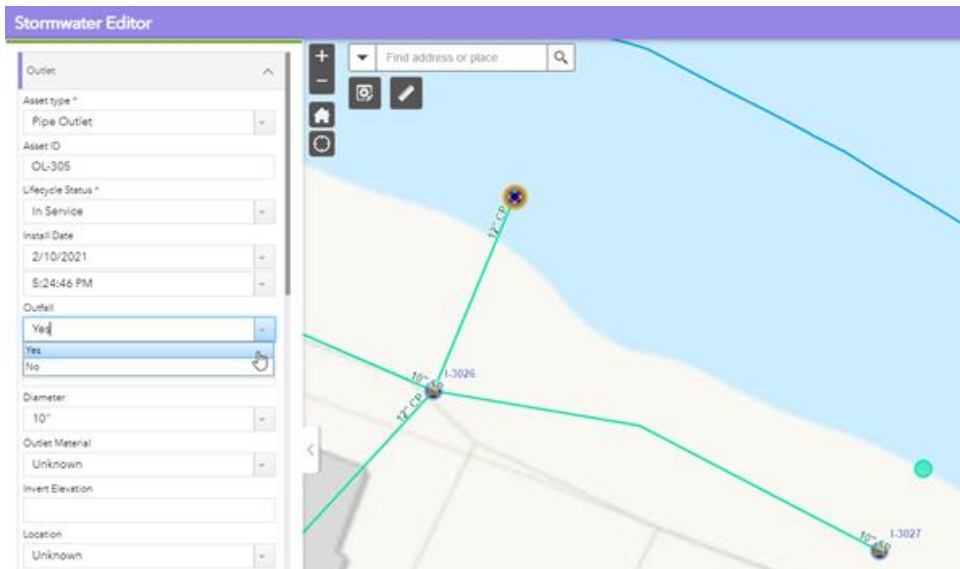
1. Verify you are signed in to your ArcGIS organization.
2. At the top of the site, click **Groups**.
3. Browse to the **Stormwater Editors** group and locate the **Stormwater Editor** app. Click **View Application** to launch the app.

In the Stormwater Editor app, the **Asset Editor** widget is open by default on the left side of the window when the app opens.

4. In the **Asset Editor** pane, click the template drop-down menu and select **Outlet**, and choose **Pipe Outlet** from the list of options.
5. Scroll down and fill in the preset values.
6. With **Pipe Outlet** selected, click to add it to the map.

[Back to top](#)

7. In the attributes panel, set the **Outfall** field to **Yes** to designate this outlet as an outfall. Populate the **Outfall ID** field and any other attributes and click **Save**.



When an outlet is designated as an outfall, the symbology will update to include an orange halo around the point and the label will update to use the Outfall ID field instead of the Asset ID field. These updates are made using ArcGIS Arcade.

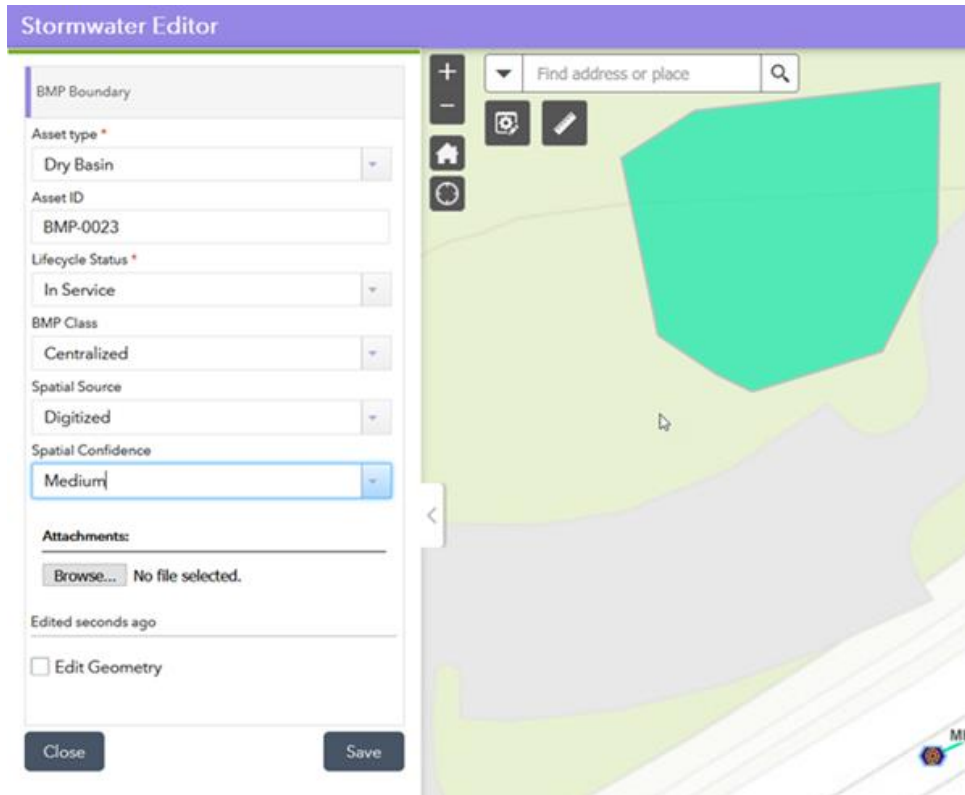
8. In the **Asset Editor** pane, click the template drop-down menu and select **Pipe**, and choose **Gravity** from the list of options.
9. With **Gravity** selected, press **Ctrl** to snap to a the outfall by hovering over the point and clicking to start drawing.
10. Draw a line from the outfall to the drop inlet, press **Ctrl** to snap, and double-click to finish the sketch.
11. Click **Save**.
12. Continue adding outfalls and gravity pipes by repeating steps 4-11.

Add a BMP Boundary

As a user, you can add a BMP Boundary to a system.

1. Verify you are signed in to your ArcGIS organization.
2. At the top of the site, click **Groups**.
3. Browse to the **Stormwater Editors** group and locate the **Stormwater Editor** app.
In the Stormwater Editor app, the **Asset Editor** widget is open by default on the left side of the window when the app opens.
4. In the **Asset Editor** pane, click the template drop-down menu and select **BMP Boundary** from the list, and select **BMP Boundary**.
5. Scroll down and fill in the preset values if applicable.
6. Sketch a polygon in the desired boundary location.

[Back to top](#)

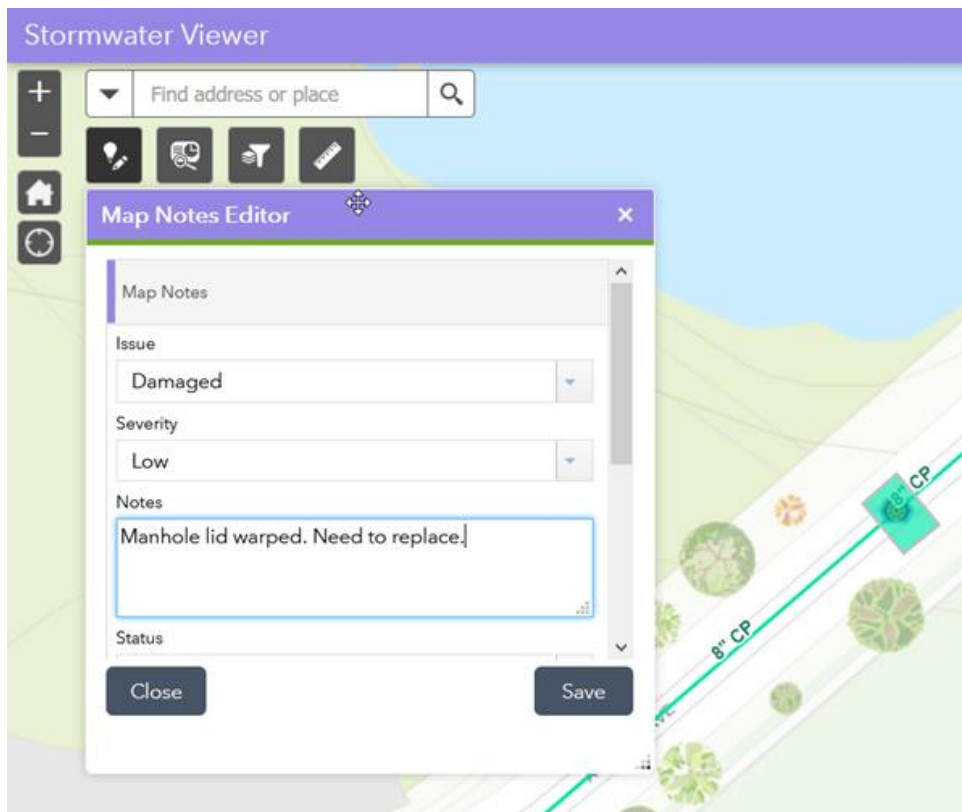


7. Enter the remaining attributes and click **Save**.

Add map notes

As a user, you can add a map note to the system.

1. Verify you are signed in to your ArcGIS organization.
2. At the top of the site, click **Groups**.
3. Browse to the **Stormwater Office Users** group and locate the **Stormwater Viewer** app. Click **View Application** to launch the app.



- a. In the Stormwater Viewer, click the **Map Notes Editor** widget to open.
- b. Choose a map note issue type and sketch a polygon in the desired location.
- c. Enter attributes and click **Save**.

Manage map notes

As a GIS manager, you can review and resolve map notes about your system to ensure issues are being addressed.

1. Verify you are signed in to your ArcGIS organization.
2. At the top of the site, click **Groups**.
3. Browse to the **Stormwater Map Notes Managers** group and locate the **Stormwater Map Notes Manager** app. Click **View Application** to launch the app.

In the upper right of the app, there are a number of widgets that have been configured to filter, edit, update, and manage map notes.

4. Review the list of included widgets to learn how to use them to manage map notes:
 - **Legend**—View a list of included layers in the map. The legend displays what is visible on the map, so zooming in or out can expand or reduce the list if scale suppression is set on the layers.
 - **Filter**—Use the Creation Date, Issue, and Severity filters to view only map notes that fit the entered criteria. Select a date range or an option from the drop-down menu and turn on a filter to view the selection on the map.

[Back to top](#)

- **Batch Edit Map Notes**—Select a group of map notes using one of the selection tools and update values for all the selected features at once.
- **Map Notes Editor**—Add a new map note or edit an existing map note.
- **Map Notes Summary**—View all the map notes by status and expand each section to view the individual notes. Click a note to zoom to it on the map and view its attributes in a pop-up.

These changes are reflected in other apps and maps across the system so others in your organization can view the latest information.

Use the stormwater dashboard

As a member of the utility, you want to have a comprehensive view of your stormwater system assets.

1. Verify you are signed in to your ArcGIS organization.
2. At the top of the site, click **Groups**.
3. Browse to the **Stormwater Office Users** group and locate the **Stormwater Dashboard** app. Click **View Dashboard** to launch the dashboard.
4. View the stormwater system statistics on the **General** tab, click the **Pipe** tab to view the pipe details, and click the **BMP** tab to view the BMP details.

Add data in ArcGIS Pro

In the workflows below, you will be taking the role of an editor adding data in ArcGIS Pro. If you have known locations of assets or as-built drawings to work from, the following workflows can demonstrate using ArcGIS Pro to add data to your stormwater system.

Note:

The first time you open the Stormwater Data Manager map in ArcGIS Pro, the layers will show as broken. Follow the steps to [Configure the Stormwater Data Manager ArcGIS Pro project](#) to fix your layers.

Add manholes and pipes

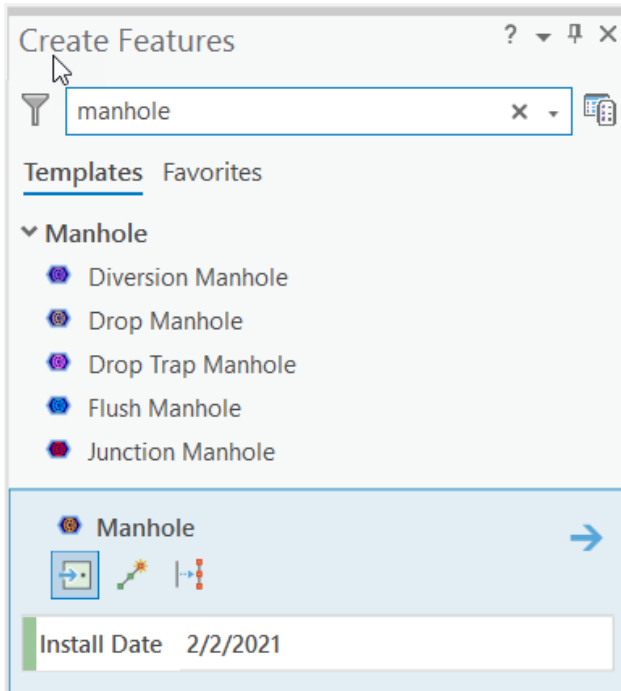
As an editor, you can add manholes and pipes to the map in ArcGIS Pro. If you already have manholes, you can complete steps 8 through 10 to add pipes between the manholes.

1. Open the **Stormwater Data Manager** ArcGIS Pro project and sign in to your ArcGIS organization.
2. In the **Catalog** pane, expand **Maps** and double-click **Stormwater Data Manager** to open the map.
3. On the **Edit** tab, in the **Snapping** group, click **Snapping** and turn snapping on.
4. On the **Edit** tab, in the **Features** group, click **Create**.

[Back to top](#)

The **Create Features** pane appears.

5. Select the **Manhole** template from the **Templates** list, fill in the attributes, and add the manhole to the map.
6. On the **Map** tab, in the **Selection** group, click **Attributes** and fill in the remaining attributes.



7. Repeat steps 4 through 6 to add the remaining manholes to the map.
8. Select the **Pipe: Gravity** template from the **Templates** list and fill in the attributes.
As a best practice, digitize in the direction that wastewater flows.
9. Snap and click the start of the line to the first manhole to begin digitizing the pipe. Snap to the next manhole and double-click to complete the sketch.
10. Open the **Attributes** pane and fill in the remaining attributes.
11. Repeat steps 8 through 10 to draw in the remaining pipes between the rest of the manholes.

Add catch basins

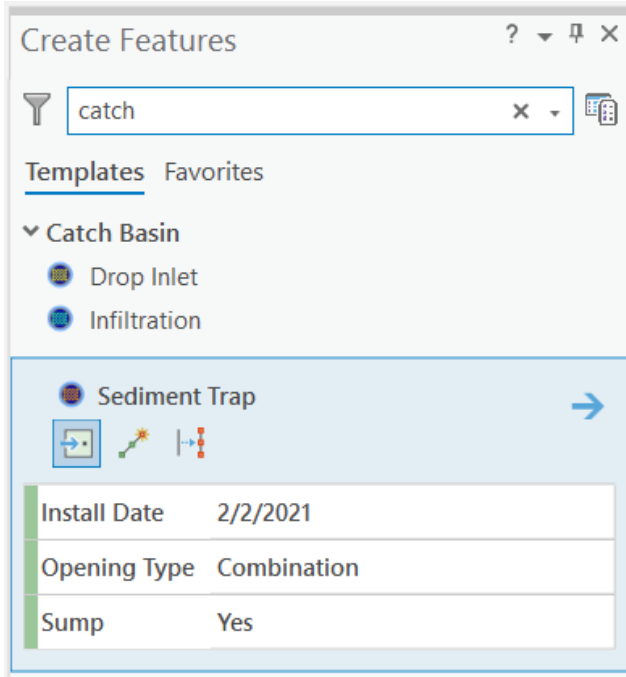
As an editor, you can add gravity pipes to the map in ArcGIS Pro.

1. Open the **Stormwater Data Manager** ArcGIS Pro project and verify that you are signed in to your ArcGIS organization.
2. In the **Catalog** pane, expand **Maps** and double-click **Stormwater Data Manager** to open the map.
3. On the **Edit** tab, in the **Snapping** group, click **Snapping** and turn snapping on.
4. On the **Edit** tab, in the **Features** group, click **Create**.

[Back to top](#)

The **Create Features** pane appears.

5. Select the **Catch Basin: Sediment Trap** group template from the **Templates** list and fill in the attributes.



6. Add **Sediment Trap** to the map.
7. On the **Map** tab, in the **Selection** group, click **Attributes** and fill in the remaining attributes.
8. Select the **Pipes: Gravity** template from the **Templates** list and fill in the attributes.
9. Snap the end of the gravity pipe from the sediment trap to the to the primary gravity pipe.



10. Open the **Attributes** pane and fill in the remaining attributes.

Add a BMP boundary

As an editor, you can add a BMP Boundary to the system.

1. Open the **Stormwater Data Manager** ArcGIS Pro project and verify you are signed in to your ArcGIS organization.

[Back to top](#)

2. In the **Catalog** pane, expand **Maps** and double-click **Stormwater Data Manager** to open the map.
3. On the **Edit** tab, in the **Features** group, click **Create**.
The **Create Features** pane appears.
4. Choose the **BMP Boundary with centroid BMP Point** template and fill in the attributes.
5. Add the boundary by digitizing a polygon on the map at the desired location.
6. On the **Map** tab, in the **Selection** group, click **Attributes** and fill in the attributes for both the polygon and point feature added to the map.
The boundary is added to the map and is available to be viewed and reviewed by others in the organization.

Add features from an as-built drawing

As an editor, you can add assets such as manholes to the system from an as-built drawing.

1. After receiving the **Stormwater Data Manager** editing ArcGIS Pro project, sign in to your ArcGIS organization.
2. In the **Catalog** pane, expand **Maps** and double-click **Stormwater Data Manager** to open the map.
3. On the **Map** tab, in the **Layers** group, click **Add Data**. Browse to the location of the as-built drawing, select it, and click **OK** to add it to the map.
4. With the image selected in the **Contents** pane, browse to the **Raster Layer** ribbon. On the **Appearance** tab, in the **Effects** group, change the **Layer Transparency** setting to 50%.
5. On the **Imagery** tab, in the **Alignment** group, select **Georeferencing**.
If you are unfamiliar with georeferencing, review [Overview of georeferencing](#) in the ArcGIS Pro help.
6. On the **Georeferencing** tab, in the **Adjust** group, click **Add Control Points**.
 - a. Add a minimum of two control points to connect your image to your known map positions.
 - b. Once you have added all the control points, browse to the **Georeferencing** tab and click **Save**.
7. On the **Edit** tab, in the **Snapping** group, click **Snapping** and turn snapping on.
8. On the **Edit** tab, in the **Features** group, click **Create**.
The **Create Features** pane appears.
9. Select an asset from the template list and add the asset to the map where it corresponds to the georeferenced as-built drawing.
10. On the **Map** tab, in the **Selection** group, click **Attributes** and fill in the attributes.
11. Remove the image from the **Contents** pane once digitizing is complete.

Add map notes

As an editor, you can add a map note to the system.

1. Open the **Stormwater Data Manager** ArcGIS Pro project and verify that you are signed in to your ArcGIS organization.
2. In the **Catalog** pane, expand **Maps** and double-click **Stormwater Data Manager** to open the map.
3. On the **Edit** tab, in the **Features** group, click **Create**.

The **Create Features** pane appears.

4. In the **Template** list, expand the **Map Notes** folder and choose a **Map Note** option. Add the map note by digitizing a polygon on the map at the desired location.
5. On the **Map** tab, in the **Selection** group, click **Attributes** and fill in the attributes.

The map note is added to the map and is available to be viewed and reviewed by others in the organization.

Target Hazard Analysis

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Target Hazard Analysis

Target Hazard Analysis can be used to identify properties and buildings that could result in a loss of life, or have a negative impact on the community, if a fire were to occur.

Many fire departments are taking proactive steps to assess risk and mitigate the impact of a fire in their community. The first step in this risk assessment is the identification of buildings or properties that may harm the community if a fire were to occur. Occupancy, size, life safety and economic impact are some of the criteria used to assess the risk of a building or property. Understanding risk can be a time consuming process and reducing the time it takes to conduct an assessment saves fire departments money. It also allows them to evaluate their community on a regular basis and measure the effectiveness of mitigation strategies. Target Hazard Analysis is typically implemented by fire departments that want to understand risk in their community and use the assessment to prioritize preplanning activities, fire inspections and other community risk activities.

The Target Hazard Analysis solution delivers a set of capabilities that help you calculate a hazard score for each building or property and understand where a fire may negatively impact a community.

Requirements

Target Hazard Analysis requires the following:

- ArcGIS Enterprise
- ArcGIS Pro 2.9 or later (Basic, Standard or Advanced)

Information products

Target Hazard Analysis includes the following information products.

Item	Description	Minimum user type
Target Hazard Analysis	An ArcGIS Pro project package used by fire service personnel to identify properties and buildings that could result in a loss of life, or have a negative impact on the community, if a fire were to occur.	GIS Professional Basic

Release notes

The following are the release notes:

Version	Description
1.1	<ul style="list-style-type: none">An update to the Target Hazard Analysis ArcGIS Pro project which simplifies the workflow, includes National Fire Incident Reporting System (NFIRS) occupancy standards, and criteria guidance.
1.0	First release of Target Hazard Analysis

Use Target Hazard Analysis

The Target Hazard Analysis solution delivers a set of capabilities to calculate a hazard score for each building or property and understand where a fire may negatively impact a community.

In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

Getting to know Target Hazard Analysis

Target Hazard Analysis includes a set of tasks to help you get familiar with the project, prepare your data and analyze target hazards. Some of the tasks include steps that use python scripts included in the Target Hazard Analysis toolbox. As you step through each task in the workflow, the scripts will be executed to conduct the analysis.

Target Hazard Analysis is conducted on your building polygons to identify those buildings that could result in a loss of life, or have a negative impact on the community, if a fire were to occur. The building polygons must have certain attributes to conduct the analysis and determine the level of risk for each building. The Getting to Know Target Hazard Analysis task group includes an explanation of the data requirements, target hazard methodology and a review of the data provided in the project

To learn more about the data required and methodology used in Target Hazard Analysis, follow these steps:

1. Sign in to your ArcGIS organization and browse to the Target Hazard Analysis Desktop Application Template.
2. Open the item page and click **Download**.
3. Unzip and open the Target Hazard Analysis ArcGIS Pro project.
4. On the **View** tab, in the **Windows** group, click **Catalog**, and click **Catalog Pane**.
5. In the **Catalog** pane, expand the **Tasks** folder, and double-click the **Target Hazard Analysis** task item.
6. In the **Task Pane**, click the **Getting to know** Target Hazard Analysis task group to expand the collection of tasks.
7. Open each task and follow the step provided.

Prepare your data for analysis

This task workflow allows you to prepare the target hazard layer using your building data before conducting the analysis. It allows you to set the target hazard analysis geodatabase provided in the project to your spatial coordinate system and load your building data into the target hazard layer. This layer has all the pre-defined fields that are necessary for conducting target hazard analysis. Your building layer may contain small buildings such as garages or sheds that you do not want to include in the analysis. An optional task is provided to allow you to remove the small buildings from the target hazard layer. Similarly, you may not want to include single-family homes in the target hazard analysis. Removing those buildings would

[Back to top](#)

allow you to focus on the high-occupancy buildings to determine risk areas in your community and greatly reduce the size of the target hazard layer. An optional task is provided to remove the single-family homes from the target hazard layer.

You will assume the role of a fire data analyst responsible for preparing your target hazard layer for analysis. The Target Hazard Analysis ArcGIS Pro project includes a series of tasks to help guide you through this workflow.

1. Open the Target Hazard Analysis ArcGIS Pro project.
2. On the **View** tab, in the **Windows** group, click **Catalog**, and click **Catalog Pane**.
3. In the **Catalog** pane, expand the **Tasks** folder, and double-click the **Target Hazard Analysis** task item.
4. In the **Task Pane**, click the **Prepare data for analysis** task group to expand the collection of tasks.
5. Click on each task and follow the steps provided.

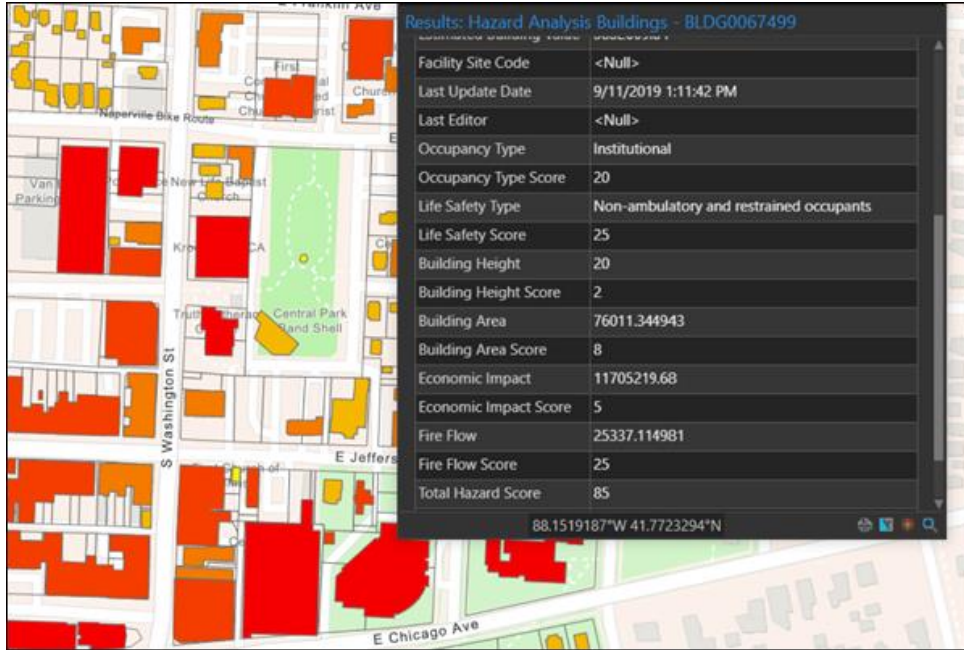
Analyze target hazard data

When the data preparation on the target hazard layer is completed, the analysis can begin. This task group contains tasks with a series of steps to conduct the analysis using the building data that was loaded into the target hazard layer. These steps will allow you to assign the hazard criteria from the occupancy type and life safety type categories, calculate the hazard scores for each building, review the results and symbolize them by the total hazard score.

A task is provided to share the results of the analysis as a web layer to your organization so non-GIS users can view the risks. In addition, a step is provided to export the results to a file geodatabase which can be incorporated into other information products such as Pre-Incident Planning or conduct further analysis such as Critical Task Analysis and Community Risk Assessment.

You will assume the role of a fire data analyst responsible for conducting a target hazard analysis on all buildings in your community. The Target Hazard Analysis ArcGIS Pro project includes a series of tasks to help guide you through this workflow.

1. Open the Target Hazard Analysis ArcGIS Pro project.
2. On the **View** tab, in the **Windows** group, click **Catalog**, and click **Catalog Pane**.
3. In the **Catalog** pane, expand the **Tasks** folder, and double-click the **Target Hazard Analysis** task item.
4. In the **Task Pane**, click the **Analyze target hazard data** task group to expand the collection of tasks.
5. Click on each task and follow the steps provided.



[Back to top](#)

Tax Reverted Property

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Tax Reverted Property

Tax Reverted Property can be used to collect delinquent tax property information and market properties available for sale to land development companies, real estate professionals, and the general public.

It provides treasurer staff with a digital process that streamlines property posting and replaces newspaper-based tax sale processes that help in the recovery of back taxes, interest, and penalties. This approach helps government agencies more efficiently document delinquent property and return them to tax-producing ones. Tax Reverted Property is typically implemented by treasurer and tax collection agencies that want to improve the overall process for recovering property tax revenue.

The Tax Reverted Property solution delivers a set of capabilities that help you improve the collection of delinquent property information, document tax-delinquent properties, and market properties during a property tax sale.

Requirements

Tax Reverted Property requires the following:

- ArcGIS Enterprise
- ArcGIS Field Maps

Information products

Tax Reverted Property includes the following information products:

Item	Description	Minimum user type
Tax Reverted Property	A map used by treasurer's office staff to collect delinquent tax property information	Editor
Tax Reverted Property Dashboard	An ArcGIS Dashboards app used by treasurer's office staff to monitor tax-reverted property field work	Viewer
Tax Sale	An ArcGIS Web AppBuilder app used by the general public, land development companies, and real estate professionals to locate tax reverted properties sold at auction	Not Required

Release notes

The following are the release notes:

Version	Description
1.0	<ul style="list-style-type: none">• First release of Tax Reverted Property

[Back to top](#)

Use Tax Reverted Property

The Tax Reverted Property solution delivers a set of capabilities that help you improve the collection of delinquent property information, document tax-delinquent properties, and market properties during a property tax sale.

In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

Note:

Use your organization's data or configured apps to follow these workflows.

Collect and monitor tax-reverted properties

Code Enforcement Operations can be used to collect delinquent property information, document tax-delinquent properties, and market properties during a property tax sale.

Collect tax-reverted property information

You will start by assuming the role of a treasurer staff member responsible for verifying a tax-reverted property. You are asked to use Tax Reverted Property to visit a tax-delinquent property in the field and verify the details.

1. Download ArcGIS Field Maps onto your mobile device.
2. Tap Tax Reverted Property to open the map.
3. Search for an address, and then in the results list, tap the address to zoom to that location on the map.
4. Tap the plus sign or tap **Collect Here** to open the survey form.

Note:

Your interface may vary depending on the type of mobile device that you use.

5. Tap **Not Posted** or **Posted** as needed.
6. Complete the survey with as much information as possible.
7. Optionally, attach a property photograph.
8. At the upper right, tap the check mark or tap **Submit** to submit the survey.

Monitor a tax-reverted property posting

Next, you will assume the role of a tax collection administrator responsible for reviewing the status of the tax-reverted property fieldwork. You are asked to use the Tax Reverted Property Dashboard app to monitor the collection and posting progress.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Tax Reverted Property solution.

[Back to top](#)

2. View the Tax Reverted Property Dashboard app.
On the right, in the **Delinquent Properties** panel, all tax-delinquent properties are listed.
3. Review the number of properties that have been posted.
4. On the left, use filters to refine the results by status or date.
5. Click a specific tax-delinquent property to review the parcel information, property information, and tax information.

Find a property for sale

Finally, you will assume the role of a real estate agent who wants to attend a property tax auction for the purposes of buying land. You use the Tax Sale app to find a property that fits the needs of your client.

1. In a browser, from the Tax Reverted Property solution, view the Tax Sale app.
2. Search for a parcel number or address.
3. Click a specific property to review the property, structure, and tax information.

Traffic Crash Analysis

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Traffic Crash Analysis

Traffic Crash Analysis can be used to analyze crash data and identify streets and intersections where concentrations of serious and fatal crashes occur.

Safety is one of the most important factors to consider when evaluating a road network. Analyzing crashes that occur at intersections and along roadways to determine where a high percentage of serious injury and fatalities occur is a key aspect of the safety evaluation. The result of this analysis is generally referred to as a High Injury Network (HIN). It helps inform engineering, education, and enforcement decisions and also serves as the foundation for Complete Streets or Vision Zero initiatives adopted to reduce fatalities or serious injury on roadways in the community. Traffic Crash Analysis is typically implemented by transportation, public works, and public safety agencies that want to use data-driven strategies to improve safety along the transportation network.

The Traffic Crash Analysis solution delivers a set of capabilities that help you to analyze crash data using methodologies defined by the [United States Road Assessment Program \(usRAP\)](#) and the [Federal Highway Administration \(FHWA\)](#), identify locations where concentrations of serious injury and fatal crashes occur, and share the results with decision makers and the public.

Requirements

Traffic Crash Analysis requires the following:

- ArcGIS Enterprise
- ArcGIS Pro 2.5 or later (Advanced)

[Back to top](#)

Information products

Traffic Crash Analysis includes the following information products:

Item	Description	Minimum user type
Crash Analysis	An ArcGIS Pro project used by transportation, public works, and public safety staff to analyze crash data and identify streets and intersections where concentrations of serious and fatal crashes occur.	GIS Professional Basic
Fatal and Serious Injury Dashboard	An ArcGIS Experience Builder app used by the public and other interested stakeholders to locate traffic crashes that resulted in serious injury or fatality to motorists, cyclists, or pedestrians.	Viewer (required if dashboard is used for internal purposes only)
High Injury Network Locator	A Nearby app used by the public and other interested stakeholders to locate streets and intersections where concentrations of serious and fatal traffic crashes occur.	Viewer (required if app is used for internal purposes only)

Release notes

The following are the release notes:

Version	Description
1.0	<ul style="list-style-type: none">First release of Traffic Crash Analysis

[Back to top](#)

Configure Traffic Crash Analysis

In this topic, you will learn how to configure the Traffic Crash Analysis solution to meet specific needs in your organization.

Load traffic crashes

The Fatal and Serious Injury Dashboard can be used to share locations of traffic crashes that resulted in serious injury or fatality to motorists, cyclists, or pedestrians. The dashboard also provides insights into the times of day, days of week, and months of year when these crashes occur more frequently.

To load your traffic crashes from a spreadsheet, complete the following steps:

1. Sign in to your ArcGIS organization and browse to the `TrafficCrashesSource.csv` item.
2. Open the item page and click **Download**.
3. Edit the `.csv` file and provide your traffic crash information.

Note:

The `crash_date` field should be formatted with times expressed using a 24-hour clock: 12/31/2020 22:30:00.

4. In your ArcGIS organization, browse to the TrafficCrashes feature layer.
5. Open the item page and click **Update Data > Append Data to layer**.
6. Click **Choose File** and browse to your `.csv` file, and click **OK**.
7. Click **Upload and Continue**.
8. Uncheck **Update existing features**.
9. Click **Show field matching** to map the fields.
10. Click **Apply Updates**.

Update crash date, month, day, and hour attributes

When dates are loaded into hosted feature layers, it is assumed the dates are in Coordinated Universal Time (UTC). Those times are then displayed in the local time of the browser, which can cause them to be offset from the original time of the crash. This can be resolved in the attributes by calculating the offset. In addition, the Day, Month, and Hour fields used in the Fatal and Serious Injury Dashboard charts can be calculated from the crash date.

To update the Crash Date, Day, Month, and Hour fields, complete the following steps:

1. Verify that you are signed in to your ArcGIS organization and browse to the TrafficCrashes feature layer.
2. Open the item page and click the **Data** tab.

[Back to top](#)

3. If you need to offset the crash time to account for UTC, complete the steps below; otherwise, skip to step 9.
4. Click the **Date of Crash** column.
5. Click **Calculate**.
6. On the **Calculate Field** dialog box, choose **Arcade**.
7. Enter the following expression: `ToUTC($feature.crash_date)`.
8. Click **OK**.
9. Click the **Day** column.
10. Click **Calculate**.
11. On the **Calculate Field** dialog box, choose **Arcade**.
12. Enter the following expression: `Weekday($feature.crash_date)`.
13. Click **OK**.
14. Click the **Month** column.
15. Click **Calculate**.
16. On the **Calculate Field** dialog box, choose **Arcade**.
17. Enter the following expression: `Month($feature.crash_date) + 1`.

Note:

In Arcade, January is returned as 0 and December is 11. You are adding it to express the months as 1-12.

18. Click **OK**.
19. Click the **Hour** column.
20. Click **Calculate**.
21. On the **Calculate Field** dialog box, choose **Arcade**.
22. Enter the following expression: `Hour($feature.crash_date)`.
23. Click **OK**.

Tip:

For more information, see [Calculate field values](#).

Load high injury network

A high percentage of serious injury and fatal crashes involving motorists, cyclists, and pedestrians often occur on a small percentage of streets and intersections. These streets and intersections are often referred to as the High Injury Network (HIN). The Crash Analysis ArcGIS Pro project can be used to analyze crash data along the transportation network to the streets and intersections that have the highest frequency of crashes. The results of this

[Back to top](#)

analysis can be loaded into the High Injury Network Locator and be shared with the public and other stakeholders.

To load your High Injury Network, complete the following steps:

1. Verify that you are signed in to your ArcGIS organization and browse to the Crash Analysis Desktop Application Template.
2. Open the item page and click **Download**.
3. Unzip and open the Crash Analysis ArcGIS Pro project.
4. On the **View** tab, in the **Windows** group, click **CatalogPane**.
5. In the **Catalog** pane, expand the **Tasks** folder, and double-click the **Crash Analysis** task.
6. In the **Tasks** pane, click the **How to Use Crash Analysis** task group to expand the collection of tasks.
7. Double-click the **Analyze crashes with FHWA network screening** task and follow the steps provided.

usRAP data prerequisites

The [United States Road Assessment Program \(usRAP\)](#) protocol defines how roads should be segmented to analyze risk. Road networks are divided into segments with breakpoints at locations where the following things occur:

- A route begins or ends.
- The county name changes.
- There is discontinuity in the route, such as a gap in mileposts.
- The roadway type changes.
- The annual average daily traffic (AADT) changes by 20 percent or more.
- The speed limit category changes.

The usRAP tools use a series of input feature classes and fields on those feature classes to create basic road segments. Verify your data meets the tools parameter requirements below before using the usRAP tools.

Feature class	Description	Required fields
CrashLocations	Locations of crashes.	crashyear: The 4-digit year the crash occurred, for example, 2020. routename: The name of the route on which the crash occurred.
Routes	Baseline routes.	routename: Name of the route. routetype: Type of the route.

[Back to top](#)

CountyBoundary	County features.	countyname: Name of the county.
AccessControl	Road segments with access control information.	accesscontrol: Type of access control to segment. This field should have a domain applied with the following options: Full Access Control Partial Access Control No Access Control
Medians	Road segments with median information.	mediatype: Type of median of the segment. This field should have a domain applied with the following options: Undivided Roadway Divided Roadway
TravelLanes	Road segments with number of travel lanes.	totallanes: Number of lanes for the segment.
AreaType	Road segments with the type of area.	areatype: Type of area for the segment. This field should have a domain applied with the following options: Urban Rural
SpeedLimit	Road segments with the speed limit.	speedlimit: The speed limit of the segment.
AADT	Road segments with the annual average daily traffic (AADT) values. Each year should be stored as a separate feature class (for example, AADT_2020) and you can include up to five years in the analysis.	aadt: The annual average daily traffic of the segment.

Use Traffic Crash Analysis

The Traffic Crash Analysis solution delivers a set of capabilities that help you to analyze crash data using methodologies defined by the [United States Road Assessment Program \(usRAP\)](#) and the [Federal Highway Administration \(FHWA\)](#), identify locations where concentrations of serious injury and fatal crashes occur, and share the results with decision makers and the public.

In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

Note:

Use your organization's data or configured apps to follow these workflows.

Analyze traffic crashes

The Crash Analysis ArcGIS Pro project helps public works, public safety, and transportation staff analyze crash data along roadways and at intersections. The project provides tasks and tools that allow you to perform this analysis using two methodologies. You will assume the role of transportation analyst responsible for analyzing crash data to identify roadways that have a higher risk of traffic crashes.

United States Road Assessment Program (usRAP) protocol

usRAP uses a risk-mapping protocol to create maps that show variations in the level of crash risk across a road network. These maps can guide the prioritization of highway infrastructure improvements and targeted enforcement strategies. The tasks and tools will guide you through performing the analysis according to the usRAP protocol.

- Create roadway segments.
- Assign crashes.
- Create risk maps.

The advantage of this methodology is that it uses roadway and traffic control feature data to assess risk and can better account for rural areas with lower traffic volumes or limited or unreliable crash data. The usRAP tools use a series of input feature classes and fields on those feature classes to create basic road segments. Confirm that your data meets [the tools parameter requirements](#) below before using the usRAP tools.

To analyze crash data using the usRAP protocol, complete the following steps:

1. In a browser, sign in to your ArcGIS organization, and then browse to the Traffic Crash Analysis solution.
2. Download the Crash Analysis desktop application template and unzip the folder.
3. From the unzipped folder, open **Crash Analysis.aprx** in ArcGIS Pro.

[Back to top](#)

4. In ArcGIS Pro, in the **Catalog** pane, expand **Tasks**, and then double-click the Crash Analysis task.

Note:

If you do not see the **Catalog** pane, from the **View** tab, in the **Windows** group, click **Catalog Pane**.

5. In the **Tasks** pane, expand the **How to Use Crash Analysis** task group to see the collection of tasks.
6. Double-click the **Analyze crashes with usRAP protocol** task and follow the steps provided.

Federal Highway Administration (FHWA) network screening

Network screening is the process of studying safety conditions on an entire road network or a subset of the network. While there are a variety of methods available to conduct network screening, three are included in the Crash Analysis project:

- Crash Frequency
- Crash Rate
- Equivalent Property Damage Only

The advantage of this tool is that it only requires the location of crashes and streets or intersections to calculate a crash frequency. Optionally, traffic volume expressed as an average daily traffic volume or the severity of the crash can be used to calculate the crash rate and equivalent property damage only, respectively.

To analyze crash data using the FHWA network screening, complete the following steps:

1. In a browser, sign in to your ArcGIS organization, and then browse to the Traffic Crash Analysis solution.
2. Download the Crash Analysis desktop application template and unzip the folder.
3. From the unzipped folder, open **Crash Analysis.aprx** in ArcGIS Pro.
4. In ArcGIS Pro, in the **Catalog** pane, expand **Tasks**, and then double-click the Crash Analysis task.

Note:

If you do not see the **Catalog** pane, from the **View** tab, in the **Windows** group, click **Catalog Pane**.

5. In the **Tasks** pane, expand the **How to Use Crash Analysis** task group to see the collection of tasks.
6. Double-click the **Analyze crashes with FHWA network screening** task and follow the steps provided.

Visualize fatal and serious injury crashes

Now you will assume the role of a resident who commutes daily to work by bike. You want to see where fatal and severe injury crashes involving cyclists have occurred in the community and the times of day they most often occur.

1. In a browser, from the Traffic Crash Analysis solution, view the Fatal and Serious Injury Dashboard app.

The dashboard displays traffic crashes by mode, severity, and date. An accident may involve multiple parties and modes of transportation; in those cases, the most vulnerable mode of transportation is used for the mode. For example, if a motorist and bicyclist are involved in an accident, click the **Mode** drop-down arrow and choose **Bicyclist**. Similarly, the highest severity is associated with the accident. For example, if a car accident results in one fatality and three non-incapacitating injuries, click the **Severity** drop-down arrow and choose **Fatality**.

2. In the left panel, use the filters to refine results by **Mode**, **Severity**, and **Date Range**.

The charts below and to the right of the map are linked, so as you click a bar in one chart, related details are filtered and updated in other charts and in the map. This feature can be helpful in looking for trends in crashes, both spatially and by time of day, week, and year.

3. Use the graphs to filter traffic crashes by **Hour of Day**, **Day of Week**, and **Month of Year**.

Locate high-risk streets and intersections

You will continue your role of a resident in the community and want to learn what streets and intersections along your daily commute have a higher risk of traffic crashes.

1. In a browser, from the Traffic Crash Analysis solution, view the High Injury Network Locator app.

The app displays the streets and intersections where concentrations of serious and fatal traffic crashes have occurred.

2. To set a location to be buffered, type an address in the search bar and press Enter or click a location on the map.
3. Optionally, move the slider to increase or decrease the buffer distance.
4. Expand **Intersections** or **Streets** to see details about the number of crashes per mile and per million vehicle miles.

Transit Outreach

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Transit Outreach

Transit Outreach can be used to share information about planned service changes and solicit feedback from riders and the general public on their experience with public transit.

It provides 24/7 access to an organization, and the location-enabled reports help efficiently triage reports to the correct person or department responsible for their resolution. Through effective public engagement, transit agencies identify and understand the needs of the community as a whole and incorporate those needs into transportation plans and programs. Transit Outreach is typically implemented by transit agencies that want to become more transparent and responsive and ultimately provide better transit service.

The Transit Outreach solution delivers a set of capabilities that help you solicit feedback from riders, manage the transit agency's response, share information about upcoming service changes, and allow the public to provide feedback on proposed changes.

Requirements

Transit Outreach requires the following:

- ArcGIS Enterprise
- ArcGIS Pro 2.5 or later (Basic, Standard, or Advanced)

Information products

Transit Outreach includes the following information products:

Item	Description	Minimum user type
Transit Service Change	A Crowdsourcing Polling app used by the general public to obtain information about planned service changes and, optionally, comment on proposed changes	Not required
Transit Rider Reporter	An ArcGIS Survey123 form used by the general public to submit compliments, problems, questions, and suggestions related to their experience on public transit	Not required
Transit Rider Reporter Manager	A Crowdsourcing Manager app used by transit staff to triage rider feedback and update the status of each report	Editor
Transit Rider Reporter Dashboard	An ArcGIS Dashboards app used by transit staff to monitor feedback submitted by the general public	Viewer
Transit Data Management	An ArcGIS Pro project used by transit staff to convert a GTFS public transit dataset to route and stop features and manage service change communication	GIS Professional Basic

Release notes

The following are the release notes:

Version	Description
1.0	<ul style="list-style-type: none">• First release of Transit Outreach

[Back to top](#)

Configure Transit Outreach

In this topic, you will learn how to configure the Transit Outreach solution to meet specific needs in your organization.

Load transit system

The Transit Outreach solution includes an ArcGIS Pro project used to convert your GTFS public transit dataset to route and stop features that are used as base layers in the maps and apps included in the solution.

To load your transit routes and stops in the solution, complete the following steps:

1. Sign in to your ArcGIS organization and browse to the Transit Data Management Project Package.
2. Open the item page and click **Download**.
3. Start the ArcGIS Pro application and open the Transit Data Management project.
4. On the **View** tab, in the **Windows** group, click **Catalog Pane**.
5. In the **Catalog** pane, expand the **Tasks** folder, and double-click the **Transit Data Management** task.
6. In the **Tasks** pane, click the **How to Use Transit Data Management** task group to expand the collection of tasks.
7. Double-click the **Load transit routes and stops** task and follow the steps provided.

Manage service change commenting

Some transit agencies offer riders the ability to provide their feedback on proposed service changes before they are implemented. This information is used by the transit agency to help decide if they should move forward with the change.

The Transit Service Change app allows riders to view upcoming service changes and by default allows riders to add a comment on the change. Transit agencies can also control when the commenting period is open or closed or disable commenting completely.

Close commenting period

To close the commenting period, complete the following steps:

1. Verify that you are signed in to your ArcGIS organization and browse to the Transit Service Change app.
2. Open the item page and click **Configure App**.
3. Click the **Options** tab.
4. Under **Feedback period**, click **Feedback period closed** and provide an appropriate window title and message in the **Feedback period closed window title** text box.

[Back to top](#)

5. Click **Save** to save the app configuration.
6. Click **Close**.

Disable comments

To disable comments, complete the following steps:

1. Verify that you are signed in to your ArcGIS organization and browse to the Transit Service Change app.
2. Open the item page and click **Open in Map Viewer Classic**.
3. Click **Details** and click the **Contents** button.
4. On the Comments layer, click **More Options** and click **Remove**.
5. Click **Yes, remove table**.
6. Click **Save**.

Add route name pick list

The Transit Rider Reporter survey can be used by the public to submit compliments, problems, questions, and suggestions related to their experience on public transit. Adding accurate names to the routes pick list ensures data consistency and ensures that Transit Rider Reporter functions properly with other apps included in the Transit Outreach solution.

To add your list of route names to the pick list, complete the following steps:

1. Install ArcGIS Survey123 Connect.
2. Start ArcGIS Survey123 Connect and sign in to your ArcGIS organization.
3. Click **Transit Rider Reporter** to download the survey.
4. In the **Download** window, click **Download** and click **OK**.
5. Click **Transit Rider Reporter** again to open the survey.
6. In the **XLSForm Modified** window, click **Yes**.
7. On the side toolbar, click the **Open XLSForm Spreadsheet** button.
8. In the Microsoft Excel spreadsheet, click the **choices** tab. This tab comprises all the selectable options for survey questions.
9. Update the name and label for routes with your route names. Add additional route names and rows as needed, and if necessary, delete all placeholder information.

The **choices** tab includes Rail, Streetcar, and Bus route types. This allows the Transit Rider Reporter to present the appropriate pick list based on the rider's category selection.
10. Save and close the Microsoft Excel spreadsheet and preview your changes in ArcGIS Survey123 Connect.
11. In ArcGIS Survey123 Connect, click **Publish** on the side toolbar.
12. Click **Publish survey** to publish your changes and click **OK**.

[Back to top](#)

Use Transit Outreach

The Transit Outreach solution delivers a set of capabilities that help you solicit feedback from riders, manage the transit agency's response, share information about upcoming service changes, and allow the public to provide feedback on proposed changes.

In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

Note:

Use your organization's data or configured apps to follow these workflows.

View service changes

First, you'll assume the role of a transit rider. You use the same transit routes on your daily commute. You will use the Transit Service Change app to learn about upcoming changes to service and how it may impact your commute.

1. In a browser, from the Transit Outreach solution, view the Transit Service Change app. All routes are listed in the panel on the right. They are also marked on the map.
2. Click a route in the list or on the map.
3. Review the details about when the service change is effective, how it will impact riders, and why the change is being made.
The Transit Service Change app can also be used by riders to comment on proposed changes.
4. On the right, at the bottom of the route details, click the **Add a comment** button.
5. Provide your name, address, and comments.
6. Click **Submit**.

Manage service changes

Next, you'll assume the role of a transit mapping technician who manages service change communication. You will use the Transit Data Management project to manage the routes and service change details visible to the public in the Transit Service Change app.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Transit Outreach solution.
2. Download the Transit Data Management project package.
3. Open the Transit Data Management project in ArcGIS Pro.
4. In the **Catalog** pane, expand the **Tasks** folder, and double-click the **Transit Data Management** task.

[Back to top](#)

Note:

If you do not see the **Catalog** pane, from the **View** tab, in the **Windows** group, click **Catalog Pane**.

5. In the **Tasks** pane, expand the **How to Use Transit Data Management** task group to see the collection of tasks.
6. Double-click **Manage transit service changes** task and follow the steps provided.

Submit rider feedback

Now, you'll assume the role of a transit rider. While riding a bus, you noticed a problem and want to report it to the transit agency. You will use Transit Rider Reporter to submit feedback.

1. In a browser, from the Transit Outreach solution, view the Transit Rider Reporter app.
2. For **I would like to**, choose the reason that you are submitting the survey.
3. For **Related to**, choose the response that best describes what your report is about.
Depending on the category selected, additional questions appear. For example, clicking **Bus** adds questions about the route and vehicle number.
4. Answer any additional questions, if necessary.
5. For **Details**, type additional information about the issue.
6. For **When did it occur**, choose the date and time that you made your observation.
7. For **Where did it occur**, search for the address and press Enter.
8. In the **Contact Information** section, choose the type of response that you want.

Tip:

To submit feedback anonymously, choose **No, for your information only**.

9. Click **Submit**.


Manage rider reports

You will now assume the role of a transit agency employee who monitors customer feedback. You will use Transit Rider Reporter Manager to view and manage rider feedback.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Transit Outreach solution.
2. View the Transit Rider Reporter Manager app.
All reports are listed in the table at the top. The table can be sorted and filtered in various ways.
3. In the table, use the column header filters and arrows to filter results.
4. From the table, select a report with a status of **Submitted**.

[Back to top](#)

The report details open at the lower left, and the map zooms to the report's location.

5. After reviewing the details, you decide to assign the report for follow-up.
6. In the report details, click the **Edit Record** button  .
7. Click the **Assigned To** drop-down arrow and choose a group.
8. Change the status to **In Progress**.
9. Optionally, to add comments to the rider report, click the **Comments** tab, and then click **Add Record**.
10. Click **Save**.

In the table, the record's status updates to **In Progress**. On the map, the symbol also changes.

You have received a message from the group that you assigned the report to. The message states that the rider report has been communicated to the appropriate team and the report can be closed.

11. If necessary, in the table, click the report.
12. In the report details, click the **Edit Record** button.
13. Change the status to **Completed**.
14. Click **Resolved On** and choose a date.
15. Optionally, for **Resolution**, type details about how the report was resolved.
16. Click **Save**.

In the table, the record's status updates to **Completed**. On the map, the symbol also changes.

Monitor rider reports

As rider reports are submitted, resolved, and closed, you are interested in noting trends and the overall feedback received. You will continue your role as a transit agency employee, this time looking to gain insight into the feedback received through the Transit Rider Reporter app. You will use Transit Rider Reporter Dashboard to view feedback and key metrics.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Transit Outreach solution.
2. View the Transit Rider Reporter Dashboard app.

The Transit Rider Reporter Dashboard app opens with the **Overview** tab active.

The **Overview** tab displays infographics of categories of reports. This information gives management a quick overview of the number of reports submitted by the public.

3. Click the **Rider Reports** tab.

The **Rider Reports** tab allows a transit manager to monitor their department's progress with responding to reports. The tab displays the top problem types and categories and summarizes reports by month with details.

[Back to top](#)

Charts are linked, so when you click a category in one chart, related charts and lists are filtered and updated to allow a manager to identify issues and areas that need attention.

4. On the left side of the app, click the arrow to display the side panel.

Tip:

To pin the side panel to the dashboard, click the pin in the upper right.

The side panel allows you to apply several survey and feedback filters. You can filter by **Report Type**, **Submission Date**, **Occurrence Date**, and **Route**.

Transit Safety

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Transit Safety

Transit Safety can be used to document safety issues and manage corrective actions or mitigation activities.

Each transit ride must be carefully executed to ensure the safety, security, and timeliness of service. Safety is the highest priority for transit agencies. Even with the best foresight, unexpected events can occur. The Federal Transit Administration (FTA) recently adopted the practice of safety management systems (SMS) to improve transit safety. Implementing an SMS helps transit agencies continuously improve system safety. Rapid data collection and high-quality reporting can lead to process improvements across organizations. Visualizing this data over time allows transit agencies to identify trends and implement changes that address safety issues. Transit Safety is typically implemented by transit agencies that want to adopt an SMS to improve transit services and save lives.

The Transit Safety solution delivers a set of capabilities that help you document events (accidents, incidents, and occurrences), report hazards, create work assignments, dispatch field staff for mitigation activities, and monitor the status of safety events and hazards across the transit system.

Requirements

Transit Safety requires the following:

- ArcGIS Enterprise
- ArcGIS Pro 2.5 or later (Basic, Standard, or Advanced)
- ArcGIS Field Maps
- ArcGIS Workforce

Information products

Transit Safety includes the following information products:

Item	Description	Minimum user type
Transit Event Reporter	An ArcGIS Survey123 form used by transit safety staff to document the initial event report of an accident, incident, or occurrence.	Editor
Transit Hazard Reporter	An ArcGIS Survey123 form used by the general public or transit staff to report a safety hazard issue.	Editor (required for transit staff only)
Transit Safety Manager	A Crowdscore Manager app used by transit safety staff to manage safety event investigations and hazard risk assessments and mitigation.	Editor
Transit Safety Dashboard	An ArcGIS Dashboards app used by transit safety staff to monitor events and hazards across the transit system.	Viewer
Transit Mitigation Assignments	An ArcGIS Workforce project used by transit staff to manage mitigation activities in the field and track the resolution of each. Field users access the Transit Mitigation Assignments project using the ArcGIS Workforce mobile app.	Mobile Worker
Transit Field Mitigations	An ArcGIS Field Maps map used by transit staff to update the status of a mitigation activity while in the field.	Mobile Worker
Transit Data Management	An ArcGIS Pro project used by transit staff to convert a GTFS public transit dataset to route and stop features and manage service change communication.	GIS Professional Basic

Release notes

The following are the release notes:

Version	Description
1.1	<ul style="list-style-type: none">Updated the Transit Mitigation Assignments project from ArcGIS Workforce Classic to ArcGIS Workforce.
1.0	<ul style="list-style-type: none">First release of Transit Safety

Configure Transit Safety

In this topic, you will learn how to configure the Transit Safety solution to meet specific needs in your organization.

Load transit routes and stops

The Transit Safety solution includes an ArcGIS Pro project that is used to convert your GTFS public transit dataset to route and stop features that are used as base layers in the maps and apps included in the solution.

To load your transit routes and stops in the solution, complete the following steps:

1. Sign in to your ArcGIS organization and browse to the Transit Data Management Project Package.
2. Open the item page and click **Download**.
3. Start the ArcGIS Pro application and open the Transit Data Management project.
4. On the **View** tab, in the **Windows** group, click **Catalog Pane**.
5. In the **Catalog** pane, expand the **Tasks** folder, and double-click the **Transit Data Management** task.
6. In the **Tasks** pane, click the **How to Use Transit Data Management** task group to expand the collection of tasks.
7. Double-click **Load transit routes and stops** task and follow the steps provided.

Use Transit Safety

The Transit Safety solution delivers a set of capabilities that help you document events (accidents, incidents, and occurrences), report hazards, create work assignments, dispatch field staff for mitigation activities, and monitor the status of safety events and hazards across the transit system.


In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

Note:

Use your organization's data or configured apps to follow these workflows.

Report safety events

You'll assume the role of safety manager. You just received information about an incident that occurred on one of your rail lines. You will use Transit Event Reporter to add the safety event and send a report to the state oversight committee.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Transit Safety solution.
2. View the Transit Safety Manager app.
3. Click the **Help** button  in the upper right corner of the app.
4. Click the **Input New Event** button.
5. In the Transit Event Reporter survey, fill in the following details:
 - For **Location**, click the map.
 - For **Date of event**, choose a date and time.
 - For **Date of report**, choose a date and time.
 - Click the **Event Type** drop-down arrow and choose **Incident**.
 - Type INCI-587 in the **Event ID** text box.
 - Click the **Mode** drop-down arrow and choose **Tram, Light Rail, Streetcar**.
 - Type 0ID-43 in the **Operator** text box.
 - Type 3001 in the **Vehicle ID** text box.
 - Type 1 in the **Number injured** text box.
 - Type the following in the **Initial summary** text box: An 83-year-old female fell shortly after departure of the transit vehicle. The fall was initiated by the sudden movement of the vehicle after it left the station.
6. Click **Submit**.

[Back to top](#)

Manage safety events

You'll assume the role of safety manager. You have just received a new event report and need to send the report to the state and follow the event throughout the investigation period.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Transit Safety solution.
2. View the Transit Safety Manager app.
3. In the left panel, click the **Events** map.
4. Click the event you reported in the previous section.


The event details appear under the table. You have determined that this event requires sending information to the transit oversight committee.

5. On the **Details** tab, click the **Email Event Report** button.

An email opens with the specific event details. Fill in an email address and any other important details. You can send the email to the necessary recipients.

6. Return to the Transit Safety Manager app.

You will now update the status of the report. After a week, new details about the event become available. You will add these details to the report.

7. On the **Details** tab, click the **Edit** button .

8. Fill in the following details:

- Click the **Status** drop-down arrow and choose **Continued Investigation**.
- Type One light rail car in the **Involved Vehicles** text box.
- Click the **Weather** drop-down arrow and choose **Sunny**.
- Type 58 in the **Temperature** text box.
- Type 0 in the **Damage Estimate** text box.
- Click the **D&A Testing** drop-down arrow and choose **No**.

9. Click **Save**.

After some time, you are now ready to complete the investigation and decide on a probable cause.

10. Click the **Edit** button.

11. Fill in the following details:

- Click the **Status** drop-down arrow and choose **Final Report**.
- Click the **Probable Cause** drop-down arrow and choose **Slips and Falls**.
- Type fall during initial acceleration of light rail in the **Detailed Probable Cause** text box.
- Click the **Preventable** drop-down arrow and choose **No**.

12. Click **Save**.

[Back to top](#)

13. On the **Details** tab, click the **Print Final Report** button to view the sample result.
14. Click the **Edit** button.
15. Fill in the following details:
 - Click the **Status** drop-down arrow and choose **Event Closed**.
 - For **Date Closed**, choose the current date.
16. Click **Save**.

Report safety hazards

You'll assume the role of a transit agency employee. You need to report a hazard that you found at a bus stop. You will use Transit Hazard Reporter to add the safety hazard.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Transit Safety solution.
2. View the Transit Hazard Reporter survey.
3. Fill in the following details:
 - For **Location**, click the map.
 - For **Date of hazard**, select a date and time.
 - Click the **Hazard type** drop-down arrow and choose **Unsafe Conditions**.
 - Type *There is ice at the bus stop* in the **Descriptions** text box.
 - Click **Select image file** to upload a photo.
 - For **Would you like to report anonymously**, click **No**.
 - For **Identity**, click **Contractor**.
 - Type your name in the **Name** text box.
 - Type your email in the **Email** text box.
 - Type your phone number in the **Phone** text box.
4. Click **Submit**.


Manage safety hazards

You will now assume the role of a transit safety manager. You need to mitigate all hazards that relate to your transit system. You will access the risk of the hazard, assign mitigation activities, and submit a final risk assessment for the hazard.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Transit Safety solution.
2. View the Transit Safety Manager app.
3. In the left panel, click the **Hazards** map.

[Back to top](#)

4. Click the hazard you reported in the previous section.
The hazard details appear under the table.

5. On the **Details** tab, click the **Edit** button .

6. Fill in the following details:

- Type HAZ-123 in the **Hazard ID** text box.
- Click the **Risk Score Pre-Mitigation** drop-down arrow and choose **3E**.
- Click the **Risk Value (pre)** drop-down arrow and choose **Medium**.
- Type your name in the **Risk Assessor (pre)** text box.

Note:

The risk values and score are modeled on the Mil Standard 882E. Assign both a score and a value to complete the risk assessment.

7. Click **Save**.

The risk score premitigation is now populated with a visual representation of your risk score. You have determined that mitigation is necessary for this risk. You will now add related mitigation activities to the hazard.

8. Click the **Related Information** tab.

9. Click **Add Record**.

10. Fill in the following details:

- Click the **Mitigation Type** drop-down arrow and choose **Maintenance**.
- Type Facilities - Bus Stops in the **Manager Responsible** text box.
- Type Apply salt to bus stop to remove ice in the **Details** text box.

11. Click **Save**.

Now that you have created mitigation assignments, you will update the status of your hazard.

12. Click the **Details** tab.

13. Click the **Edit** button.

14. Click the **Status** drop-down arrow and choose **Mitigation in progress**.

15. Click **Save**.

16. Assign field staff to complete mitigation activities.

Note:

Use the **Create Work Assignment** button to launch a workforce app where you can assign field activities. Field staff can then use the **Transit Mitigation Assignments** ArcGIS Workforce project to manage their work assignments and the **Transit Field**

Mitigations ArcGIS Field Maps map to update the action taken and close the mitigation activity.

Update the hazard status to reflect that the fieldwork for this mitigation is complete.

17. Click the **Related Information** tab.
18. Click the **Edit** button.
19. Fill in the following details:
 - Click the **Status** drop-down arrow and choose **Closed**.
 - Type Salt applied and ice removed in the **Action Taken** text box.
 - For **Date Complete**, choose the current date.
20. Click **Save**.

You will now close the hazard.

21. Click the **Details** tab.
22. Click the **Edit** button.
23. Fill in the following details:
 - Click the **Status** drop-down menu and choose **Closed**.
 - Click the **Risk Score Post-Mitigation** drop-down arrow and choose **4C**.
 - Click the **Risk Value (post)** drop-down arrow and choose **Low**.
 - Type your name in the **Risk Assessor (Post)** text box.
 - For **Date Closed**, choose the current date.
24. Click **Save**.

Monitor safety performance

You are the Transit Safety manager interested in understanding the performance of your Safety Management Program and searching for areas of improvement. You will view the status of the program and then look in detail at both hazards and events.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Transit Safety solution.
2. View the Transit Safety Dashboard app.

The Transit Safety Dashboard opens with the **Overview** tab active.

The **Overview** tab displays infographics of events and hazards. This information gives management a quick overview of the number of events and hazards in the last 90 days and their performance relative to the previous 90 days.

3. Click the **Events** tab.

The **Events** tab allows a safety manager to monitor how their department is doing when it comes to investigating events.

[Back to top](#)

In the report, charts are linked. As you click and select a category in one chart, related details are filtered and updated in other charts on the report to allow a manager to identify issues and areas that need attention.

4. Click the **Hazards** tab.

The **Hazards** tab allows a safety manager to monitor how their department is doing when it comes to assessing and mitigating hazards.

In the report, charts are linked. As you click and select a category in one chart, related details are filtered and updated in other charts on the report to allow a manager to identify issues and areas that need attention.

5. Click the arrow on the left side of the app to display the side panel. You can pin the side panel to the dashboard by clicking the pin in the upper right corner.

The side panel allows you to apply several event and hazard filters. You can filter by **Occurrence Date**, **Event Type**, **Event Mode**, and **Hazard Type** by clicking the drop-down and choosing a filter.

Transportation 511

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Transportation 511

Transportation 511 can be used to share road conditions and closures that may impact travel throughout a community or state.

Established in July 2000 by the Federal Communications Commission, 511 is the nationally designated, three-digit telephone number for traveler information. 511 provides a simple number travelers can use to access road and traffic information from within the jurisdiction they are traveling. Many 511 systems now include a map-based application that includes real-time incident and weather information. The application provides 24/7 access to critical information, and the location-enabled search allows travelers to quickly find traffic incidents, travel restrictions, road conditions, closures, live traffic camera feeds, and other transportation information. Transportation 511 is typically implemented by public works or transportation agencies that want to provide the public with current road conditions and traffic information.

The Transportation 511 solution delivers a set of capabilities that help you import critical information from your incident management system and share roadway information with the public so they can make informed decisions before they travel.

Requirements

Transportation 511 requires the following:

- ArcGIS Enterprise

Information products

Transportation 511 includes the following information products:

Item	Description	Minimum user type
Transportation 511	An ArcGIS Web AppBuilder for the general public to understand roadway conditions and closures that may impact travel throughout a state.	Not required
Overwrite Features	A Python script and sample file geodatabase that you can schedule to update the Transportation 511 app with real-time traffic and roadway condition information.	Creator

Release notes

The following are the release notes:

Version	Description
1.0	<ul style="list-style-type: none">• First release of Transportation 511

Configure Transportation 511

In this topic, you will learn how to configure the Transportation 511 solution to meet specific needs in your organization.

Add a real-time traffic layer


Add additional context to your Transportation 511 app by including World Traffic Service from ArcGIS Living Atlas. Part of a larger collection of Esri curated content, World Traffic Service presents historical and near real-time traffic information for different regions of the world. This dynamic traffic map service is updated every 5 minutes, includes traffic incidents and provides visualizations for different traffic speeds relative to the free flow of traffic.

Note:

World Traffic Service is licensed under the Esri Master License Agreement and is exclusive content for Esri subscribers. Use of this service requires an ArcGIS Online organization subscription or an ArcGIS developer account. ArcGIS Living Atlas subscriber content does not consume ArcGIS Online credits. See [Configure Living Atlas content](#) to enable access subscriber content.

Configure map

To leverage Esri's World Traffic Service in your Transportation 511 app, you first must add the service to your map.

1. Sign in to your ArcGIS organization and browse to the Transportation 511 map.
2. Open the item page and click **Open in Map Viewer Classic**.
3. Click **Add > Browse Living Atlas Layers**.
4. Type traffic in the search text box.
5. Click the **Add** button  World Traffic Service to add it to the map.

Tip:

You may determine you do not want to display the Traffic Incidents layers from World Traffic Service as this is already a layer you will provide. Before proceeding to the next step, click the **Back** button and in the **Contents** pane, expand the World Traffic Service group layer. Uncheck the North America Traffic Incidents (or your region if outside North America) layer group to ensure these layers are not visible in the Transportation 511 app.

6. Click **Save**.


[Back to top](#)

Configure the app

Once the World Traffic Service layer is added to your map, additional steps are needed to configure the service to properly display in your Transportation 511 app.

Configure World Traffic Service Incidents with the Road Conditions widget

Optionally, you can display traffic incidents from World Traffic Service in the Transportation 511 app the same way as Road Condition layers are displayed from your feature collection.

1. Verify that you are signed in to your ArcGIS organization and browse to the Transportation 511 app.
2. Open the item page and click **Edit Application**.
3. Click the **Widget** tab.
4. Click **Set the widgets in this controller**.
5. Hover over the **Road Conditions** widget and then click the **Configure this widget** button .
6. Click **Add Layer** three times.

Each time you click **Add Layer**, the following layers are added to the Road Conditions widget: Traffic Incidents Overview, Traffic Incidents Intermediate, and Traffic Incidents Detailed.

Note:

The World Traffic Service Traffic Incident layers are scale dependent. If you want your app to display Traffic Incident information and counts at all scales, you must add all three layers to the Road Conditions widget configuration.

7. Provide a label for each of the layers added, for example: World Traffic Service Incidents.
8. Click **OK**.
9. Click **Save**.

Troubleshoot Overwrite Hosted Features script errors

The table below describes common errors that can occur when running the Overwrite Hosted Features script and how to resolve each.

Script error	Resolution
Unable to find feature service with ID: {ID}	Verify the Item ID for your feature service and the baseURL entered for your ArcGIS organization.
Unable to find feature collection with ID: {ID}	Verify the Item ID for your feature collection and the baseURL entered for your ArcGIS organization.
File GDB: {path to zipped file}	Verify the path and file name for your zipped file geodatabase.

[Back to top](#)

geodatabase} could not be found	
Cannot add the item	Verify that the user name used in the configuration does not already own a file geodatabase item with the same name as input to the fgdb parameter.
IOError: [Errno 2] No such file or directory: {Log File Path}	Verify that the script can write to the file path location configured for the log.
Error Processing table data – check file format, supported data types and data license	Verify that each layer in the feature service has an associated feature class in the geodatabase and that the published feature service and zipped file geodatabase contain the same number of layers.
URLOpen Error [Errno11001] getaddrinfo failed URLOpen Error [Errno11004] getaddrinfo failed	Verify that baseURL parameter contains a forward slash at the end of the address, for example, http://myorganization.maps.arcgis.com/ .

Use Transportation 511

The Transportation 511 solution delivers a set of capabilities that help you import critical information from your incident management system and share roadway information with the public so they can make informed decisions before they travel.

In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

Note:

Use your organization's data or configured apps to follow these workflows.

View road conditions

You will assume the role of a motorist planning travel to your next destination in search of information about road conditions prior to driving across state. You will use the Transportation 511 app to discover current roadway conditions, restrictions and closures, and other alerts to help plan a safer trip.

1. In a browser, from the Transportation 511 solution, view the Transportation 511 app.

The **Road Conditions** widget is open by default. Road Conditions categories are presented in a list with corresponding total counts.

Note:

Information shown in the **Road Conditions** list automatically updates as you pan and zoom the map to different extents or when searching for a location by address.

2. Click a category to expand it.

After expanding a category, you may notice that it includes expandable lists that are specific to a particular road or highway.

3. If necessary, in the category, expand a list.

4. Click one of the listed reports.

On the map, a pop-up displays at the location of the incident. The pop-up includes details about the incident, and, for some types of incidents, it provides a link to additional information.

5. In the **Road Conditions** widget, to the left of a category, click the button to turn the layer on and off.

Configure data updates

The Overwrite Hosted Features script is meant to be scheduled as a task to run regularly to keep road condition information current in the app. The script takes a zipped file geodatabase and overwrites the published feature collection with the current road condition information.

[Back to top](#)

The script can run on a machine without ArcGIS installed. You will now assume the role of an employee in the transportation agency responsible for keeping the Transportation 511 app up to date with the latest information on road conditions across the state.

Configure script parameters

To configure the Overwrite Hosted Features script, complete the following steps:

1. Sign in to your ArcGIS organization and browse to the Transportation 511 solution item.
2. Open the item page and click **Overwrite Features**.
3. On the item page, click **Download**.
4. Unzip the OverwriteFeatures folder.
5. Download and install Python [version 2.7 or version 3.4](#) if you do not have it installed on your machine.
6. Browse to and open the `overwrite_hosted_features.cfg` file in a text editor, and update the following inputs:

Parameter	Description
featureService ItemID	The item ID for your Transportation 511 feature service.
featureCollectionItemID	The item ID for your Transportation 511 feature collection. Note: Item IDs are found at the end of the URLs when viewing item details, for example, <code>http://myorganization.maps.arcgis.com/home/item.html?id=d7c57317a0564cafae28cdc464d63ff9</code> .
fgdb	The path to the provided zipped file geodatabase, for example, <code>C:\Transportation511\RoadConditions.zip</code> . Tip: A sample schema geodatabase is provided in the Overwrite Features .zip file.
baseURL	Your organization's URL, for example, <code>https://myorganization.maps.arcgis.com</code> .
username	Your ArcGIS username.
pw	Your ArcGIS password.
maxAllowableOf fset	To optimize performance of the data in the application, it is recommended that you generalize complex line and polygon features. Enter the maximum amount of simplification you want for the features in the feature collection.

[Back to top](#)

	<p>Note: This is defined in the units of the spatial reference of the service, by default, in meters.</p>
nameMapping	<p>To ensure that features in your feature collection are updated with data from the correct feature class in the file geodatabase, enter a layer mapping to match layers in the published feature layer with the file geodatabase feature class in this parameter following this pattern: Feature Service Layer 1, Database Feature Class 1; Feature Service Layer 2, Database Feature Class 2</p> <p>Note: The defaults provided in the configuration file work against the provided sample geodatabase and the deployed feature service.</p>
path (Optional)	The path and file name where you want the log to be written.
isVerbose (Optional)	True or false. To disable logging, leave this parameter blank.

7. Save your edits to the configuration file.
8. Run the Overwrite Hosted Features script, `overwrite_hosted_features.py`, to test your configuration. If necessary, refer to the troubleshooting guide below.

Note:

Optionally, you can pass in a configuration file as a parameter to the script. If no configuration file is passed in as a parameter, the script looks for a configuration file named `overwrite_hosted_features.cfg` in the same directory as the script.

Schedule data updates

You can use the Overwrite Hosted Features script (`overwrite_hosted_features.py`) with Windows Task Scheduler to overwrite feature collections at a regular interval. Scheduled updates ensure that users have access to current information to support more timely decision-making when traveling.

To update the Transportation 511 feature collection on a schedule, complete the following steps:

1. Open Task Scheduler on the computer hosting the scripts.
2. Click **Action > Create Task** and name your task.
3. Click the **Action** tab and click **New**.
4. Set **Action** to **Start a Program**.

[Back to top](#)

5. Click **Browse** and go to the location of your Python installation (for example, <default directory>\Python27\python.exe), and click **Open**.
6. In the **Add Arguments** text box, type the path and name of the script (overwrite_hosted_features.py) and path and name of the configuration file (overwrite_hosted_features.cfg), and click **OK**.
7. Click the **Trigger** tab, click **New**, and set a schedule for your task.
8. Click the **Settings** tab, click the **If the task is already running, then the following rule applies** drop-down arrow, and choose **Do not start a new instance**.
9. Click **OK**.

Tree Management

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Tree Management

Tree Management can be used to inventory publicly owned trees, streamline inspection and maintenance activities, understand conditions, cultivate a volunteer workforce, and inform the public.

Publicly owned trees that line streets and dot parks are important assets and must be maintained like streets and sewers. These natural resources provide demonstrative environmental, economic, and social benefits to a community. They also play an increasingly important role in climate resiliency plans as communities attempt to mitigate the impact of extreme weather. The first, and most critical, step a local government must take to manage its urban forest is to create a tree inventory. A local government cannot effectively manage their urban forest and plan improvements unless they know how many publicly owned trees they have, and where they are. Tree Management is typically implemented by public works departments, parks departments, and road commissions that want to develop a tree inventory, effectively manage their urban forest, and plan improvements.

The Tree Management solution delivers a set of capabilities that help you inventory publicly owned trees, conduct routine inspection and maintenance assignments, understand tree conditions, engage volunteers, and inform the public.

Requirements

Tree Management requires the following:

- ArcGIS Enterprise
- ArcGIS Notebook Server
- ArcGIS Pro 3.0 or later (Basic, Standard, or Advanced)
 - ArcGIS 3D Analyst extension
 - ArcGIS Spatial Analyst extension
- ArcGIS Workforce
- ArcGIS Field Maps
- ArcGIS Survey123 Connect

[Back to top](#)

Information products

Tree Management includes the following information products:

Item	Description	Minimum user type
Tree Data Management	An ArcGIS Pro project used by GIS technicians to develop a tree inventory from record information	GIS Professional Basic
Tree Field Map	An ArcGIS Field Maps map used by field staff to conduct a tree inventory and record inspection and maintenance activities	Mobile Worker
Tree Requests Internal	An ArcGIS Survey123 form used by field staff to report requests for service	Mobile Worker
Tree Assignments	An ArcGIS Workforce project used by operations and maintenance supervisors to organize and manage routine and ad-hoc field assignments	Editor
Tree Management Center	An ArcGIS Experience Builder app used by operations and maintenance supervisors and arborists to monitor tree conditions and manage requests for service	Mobile Worker
Our Urban Forest	An ArcGIS Hub site used by the general public to learn more about the community's urban forest program ArcGIS Hub Premium is required to operate the Tree Stewardship volunteer program	Not required
Tree Viewer	An ArcGIS Experience Builder app used by the general public understand the condition of publicly owned trees in their neighborhood, or around their homes	Not required
Tree Requests	An ArcGIS Survey123 form used by general public to report requests for service	Not required
Tree Stewardship Center	An ArcGIS Experience Builder app used by volunteer coordinators to monitor volunteer activities	Editor
Tree Steward Notebook	An ArcGIS Notebooks app used to grant approved stewards access to the Tree Care Activities form	Editor
Tree Steward Application	An ArcGIS Survey123 form used by volunteers to express interest in the tree stewardship program	Community Identity
Tree Care Activities	An ArcGIS Survey123 form used by volunteers to report stewardship activities	Community Identity

Release notes

The following are the release notes:

Version	Description
1.1	<ul style="list-style-type: none"> A new Tree Data Management project to support ArcGIS Pro 3.0.
1.0	<ul style="list-style-type: none"> First release of Tree Management

[Back to top](#)

Configure Tree Management

Tree Management can be used to inventory publicly owned trees, streamline inspection and maintenance activities, understand conditions, cultivate a volunteer workforce, and inform the public.

In this topic, you'll learn how to configure the Tree Management solution to meet specific needs in your organization.

Modify tree types

The Tree Management solution helps you build an inventory of publicly owned trees. Types of trees are defined by their common name, genus, and species. Types of trees appear in the Tree Field Map when field staff are collecting trees.

The Tree Management solution includes many types of common names, genus, and species values. In some cases, you may want to add additional types of trees to the Tree Management solution to meet your organization's needs. Review the common name, genus, and species fields in the Trees feature layer and identify the tree types your organization may want to add or remove from the Tree Management solution.

1. Sign in to your ArcGIS organization and browse to your Trees feature layer.
2. Open the item page and click the **Data** tab.
3. Click **Fields**.
4. Click the **Common name** display name.
In the **List of Values (Domain)** section, review existing types and identify ones that are not applicable and ones that are missing.
5. Click **Edit** next to **List of Values (Domain)**.
6. Optionally, click the **Delete** button to remove a category from the list.
7. Optionally, click **Add**.
8. Type the new common name into the **Displayed Value** and **Stored Value** text boxes.
9. Repeat steps 7 and 8 to add the remaining missing types.
10. Optionally, drag the category to a new location in the list to reorder them.
11. Click **Save**.
12. Repeat steps 4-11 for the genus and species fields.

Modify inspection and maintenance types

The Tree Management solution helps you assess tree conditions and record maintenance activities. Inspection and maintenance types are defined on the Trees feature layer and appear in the Tree Field Map when field staff are recording their work.

[Back to top](#)

The Tree Management solution includes types of inspection and maintenance. In some cases, you may want to modify inspection and maintenance types to meet your organization's needs.


1. Verify that you are signed in to your ArcGIS organization and browse to the Trees feature layer.
2. Open the item page and click the **Data** tab.
3. Click the **Layer** drop-down and select **Inspections**.
4. Click **Fields**.
5. Click the **Inspection type** display name.
In the **List of Values (Domain)** section, review existing types and identify ones that are not applicable and ones that are missing.
6. Click **Edit** next to **List of Values (Domain)**.
7. Optionally, click the **Delete** button to remove a category from the list.
8. Optionally, click **Add**.
9. Type the new type into the **Displayed Value** and **Stored Value** text boxes.
10. Repeat steps 8 and 9 to add the remaining missing types.
11. Optionally, drag the category to a new location in the list to reorder them.
12. Click **Save**.
13. Click the **Layer** drop-down and select **Maintenance**.
14. Click the **Maintenance type** display name.
In the **List of Values (Domain)** section, review existing categories and identify ones that are not applicable and ones that are missing.
15. Repeat steps 6-12 to add missing maintenance types.

Administer field assignments

The Tree Management solution can be used to manage work such as data collection, routine and ad-hoc inspections and maintenance assigned to field staff. Types of assignments appear in the Tree Assignments ArcGIS Workforce mobile app used by mobile workers as well as the Tree Assignments ArcGIS Workforce project and Create Tree Assignment ArcGIS Survey123 form in the Tree Management Center app.

The Tree Management solution includes several assignment types. In some cases, you may want to modify inspection and maintenance types to meet your organization's needs. Mobile workers and dispatchers also need to be given roles in the Tree Assignments ArcGIS Workforce project.

Administer tree assignments

1. Verify that you are signed in to your ArcGIS organization and click the **Apps** button  in the header of the site.

2. From the app launcher, click **Workforce** to open the app.
3. Under **Projects**, hover over the **Tree Assignments** project, and click **Configure**.
4. Click the **Assignment Types** tab.
In the **Assignment Type** section, review existing types and identify ones that are not applicable and ones that are missing.
5. Type a new assignment type in the **Enter a new type** text box then click **+ Type** button.
6. Click the **Users** tab.
7. From the **Organization User** drop-down menu, select a user to add to the project.
8. From the **Project Role** menu, assign the user either the dispatcher role or mobile worker role.
9. Click **+User**.
10. Click the **Advanced** tab.
Each assignment type is integrated to the Tree Field Map. This allows field staff to access the Tree Field Map from the ArcGIS Workforce app. As you add new assignment types, you may want to add the Tree Field Map integration.
11. In the ArcGIS Field Maps, click **Edit** on any of the existing Tree Field Map integrations.
Check the box next to the new assignment type. Click the **Next** button.
12. Click the **Done** button.
13. Optionally, remove the ArcGIS Field Maps integration for assignment types that are not needed in your organization.
Removing the integration is necessary to remove the assignment type from the Tree Assignments ArcGIS Workforce project.
14. Click the **Assignment Types** tab.
15. To remove assignment types, click the **X** button.

Update create tree assignment form

1. In your ArcGIS organization, browse to the Tree Assignments feature layer.
Before populating the new assignment types into the Create Tree Assignment form, you will first copy the GlobalID for each new assignment type.
2. Open the item page and click **Open in Map Viewer**.
3. On the **Contents** (dark) toolbar, click **Tables**.
4. Click **Assignment Types** layer.
5. Click **Tools** in the table header and check the **GlobalID** field to show (unhide) in the table. Click **Done** to close the pop-up window.
6. Expand the **GlobalID** field and copy each new assignment type's ID.
7. Paste the copied GlobalID or GlobalIDs into Microsoft Notepad or another text editor for reference.

8. Install [ArcGIS Survey123 Connect](#).
9. Start ArcGIS Survey123 Connect and sign in to your ArcGIS organization.
10. Click **Create Tree Assignment** to download the survey.
11. In the **Download** window, click **Download** and click **OK**.
12. Click **Create Tree Assignment** to open the survey.
13. On the left, from the side toolbar, click the **XLSForm** button.
14. At the bottom of the Microsoft Excel spreadsheet, click the **choices** tab.
This tab comprises all the selectable options for survey questions.
15. In the **list_name** column type ASSIGN_TYPE.
16. In the **name** column, copy and paste the GlobalID, before and after the GlobalID add curly braces (for example, {5b3e80df-aec7-4739-929f-8cb70cdbc62c}).
17. In the **label** column, type the assignment type.
18. Repeat steps 15 through 17 for each new assignment type.
19. Save and close the Microsoft Excel spreadsheet and preview your changes in ArcGIS Survey123 Connect.
20. In ArcGIS Survey123 Connect, in the left toolbar, click **Publish** to publish your changes.
21. Click **Publish survey** to publish your changes, and then click **OK**.

Modify service request types

The Tree Management solution can be used to solicit tree requests for service from field staff as well as the general public. Service request types appear in the Tree Requests Internal and Tree Requests ArcGIS Survey123 forms.

The Tree Management solution includes several service request types. In some cases, you may want to modify service request types to meet your organization's needs. For example, you may want certain request types available to field staff using the Tree Requests Internal form that are not available to the general public using the Tree Requests form.


1. Start ArcGIS Survey123 Connect and sign in to your ArcGIS organization.
2. Click **Tree Request** to download the survey.
3. In the **Download** window, click **Download** and click **OK**.
4. Click **Tree Requests** to open the survey.
5. On the left, from the side toolbar, click the **XLSForm** button.
6. At the bottom of the Microsoft Excel spreadsheet, click the **choices** tab.
This tab comprises all the selectable options for survey questions.
7. In the **list_name** column type reqtype.
8. Type the new service request type into the **name** and **label** columns.
9. Repeat steps 7 and 8 for each new service request type.

[Back to top](#)

10. Save and close the Microsoft Excel spreadsheet and preview your changes in ArcGIS Survey123 Connect.
11. In ArcGIS Survey123 Connect, in the left toolbar, click **Publish** to publish your changes.
12. Click **Publish survey** to publish your changes, and then click **OK**.
13. Click **Tree Request Internal** to download the survey.
14. Repeat steps 3 through 12 to add new service request types to the **Tree Request Internal** form.

Configure Our Urban Forest site

The Tree Management solution includes the Our Urban Forest ArcGIS Hub site that your organization can configure with your branding and use to share urban forest information with the public.

1. Verify that you are signed in to your ArcGIS organization and browse to the Our Urban Forest site.
2. From the item page, click **Configure**.
3. If necessary, click the **Edit** button  to open the site editor.
4. Scroll to the **Frequently Asked Questions** section, hover over the card, click the edit pencil, and update the questions and answers.
5. In the side panel, click **Footer**.
A custom footer is provided. In most cases, you will need to update it with your organization's branding, contact information, and social media references.
6. Click the **HTML** box.
The **HTML** window appears.
7. Make the necessary changes and click **Apply**.
8. Click **Save**.
9. When you're finished click the **Save** drop-down then **Publish Draft**.

Share items with the public

Several layer views, maps and apps included in the Tree Management solution must be shared with everyone so they can be accessed by the public on the Our Urban Forest site. To share your Our Urban Forest items with everyone, use the guide below and complete the following steps:

1. Verify that you are signed in to your ArcGIS organization and browse to the Tree Management folder.
2. Check the check box next to each of the items below:

Item	Name
Feature Layer (hosted, view)	Trees_public
Feature Layer (hosted, view)	Requests_submit
Feature Layer (hosted, view)	TreeStewardship_public
Web Map	Tree Viewer
Web Scene	Tree Viewer (3D)
Web Experience	Tree Viewer
Form	Tree Request
Site Application	Our Urban Forest

3. Click **Share**.
4. In the **Share** window, click **Everyone (public)** and click **Save**.
The **Warning: Sharing editable layers publicly** message appears notifying you that you are sharing editable layers publicly.
5. Click **Update**.

Administer tree stewardship program

The Tree Management solution can be used to cultivate a volunteer workforce of tree stewards. Mapping technicians can configure the Approved Tree Stewards group and Tree Steward Notebook to help volunteer coordinators manage the tree stewardship program efficiently.

Manage approved stewards group

1. Verify that you are signed in to your ArcGIS organization and browse to the Approved Tree Stewards group.
2. Open the group and click the **Settings** tab.
3. In the **Group membership section**, select **Partnered collaboration and my organization's members only** for the **Who can be in this group** setting.
4. Click the **Overview** tab.
The group **Description** contains a message sent to newly approved tree stewards.
5. Optionally, click **Edit** in the Description section to modify the message to your organization's needs. When you're finished click **Save**.

Share Tree Steward Application with Hub Community Members group

To apply to the program a user must have a community user account and be signed into the Our Urban Forest site. To grant access to the Tree Steward Application, share the form and the TreeStewardship_submit feature layer to the Hub Community Members group. This group

[Back to top](#)

is automatically created during Hub Premium activation and contains all members of your community organization. As new community members join, they will be automatically added to this group and will have access to the Tree Steward Application form.

1. Verify that you are signed in to your ArcGIS organization and browse to the Tree Management folder.
2. Check the box next to the Tree Steward Application Form and TreeStewardship_submit Feature Layer (hosted, view).
3. Click **Share**.
4. In the Share window, click **Edit group sharing**.
5. Check the box next to the Hub Community Members group.

Note:

The Hub Community Members group will only be available to users who were administrators of the org when Hub Premium was activated. If you don't see this group work with Hub Community organization administrator to get access to this group.

6. Click **OK**.
7. Click **Save**.

Schedule the Tree Stewardship Notebook

When volunteer coordinators use the Tree Stewardship Center app to approve volunteer stewards, the Tree Steward Notebook grants volunteers access to the Tree Care Activities form and sends an e-mail to new volunteers.

Follow the steps below to schedule the Tree Steward Notebook to run as a scheduled task.

Note:

You must be assigned a role of Administrator or custom role which includes the privilege to create, edit and schedule notebooks in order to run and schedule ArcGIS Notebooks and complete the following steps.

1. Verify that you are signed in to your ArcGIS organization and browse to the Tree Steward Notebook item.
2. Open the item page and click **Open Notebook**.
3. Click **Tasks**.
4. Click **Create Task**.
5. For **Title**, type Tree Stewardship Task and click **Next**.
6. The task can be configured to run nightly by selecting **Day** from the **Repeat Type** drop-down then selecting **1 - Every Day** from the **Repeat Interval** drop-down.
7. Select a **Time** for the task to run like 3:00 AM.

8. Click **Create Task** to finish scheduling the notebook

Use Tree Management

The Tree Management solution delivers a set of capabilities that help you inventory publicly owned trees, conduct routine inspection and maintenance assignments, understand tree conditions, engage volunteers, and inform the public.

In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

[Back to top](#)

Note:

Use your organization's data or configured apps to follow these workflows.

Manage tree data

The first, and most critical, step a local government must take to manage its urban forest is to create a tree inventory. A local government cannot effectively manage its urban forest and plan improvements unless officials know how many publicly owned trees they have and where they are located.

You will first assume the role of a mapping technician responsible for maintaining an authoritative tree inventory. The Tree Data Management ArcGIS Pro project includes a series of tasks to help guide you through these workflows.

Get started

First, you will download an ArcGIS Pro project.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Tree Management solution.
2. Download the Tree Data Management desktop application template, and then unzip the folder.
3. From the unzipped folder, open the Tree Data Management project.
4. In the **Catalog** pane, expand the **Tasks** folder, and then double-click the **Tree Data Management** task.

Note:

If you do not see the **Catalog** pane, from the **View** tab, in the **Windows** group, click **Catalog Pane**.

5. In the **Tasks** pane, click the **Getting Started** task group to expand the collection of tasks. Tree Data Management is used to load and create authoritative tree inventory data used in the Tree Management apps such as Tree Field Map and Tree Viewer.
6. Before proceeding to subsequent tasks, follow the instructions in the **Add tree layer** task to add the Trees feature layer deployed with the solution.

Extract and load tree points from Lidar

Tree location, size, and width can be extracted from ground-classified lidar as point features. If trees are classified in the lidar, the quality of the tree extraction will improve.

In the **Task pane**, expand the **Extract and load tree points from Lidar** group task and follow the steps provided. Review the **Required data** task.

[Back to top](#)

Optionally, complete the **Download sample data** task. Sample data is provided to help you learn how to use the **Tree Data Management** task. A link is provided to download sample data for Naperville. Using the sample data the first time will help you learn how to use the tasks and how to organize your data.

Optionally, run the tool in the **Classify trees in lidar using deep learning** task to classify trees in the lidar using a deep learning model. Classified trees will improve the vegetation extraction, but keep in mind that deep learning is computationally very intensive, and a powerful GPU is needed to process large datasets faster. Depending on data size and available hardware, it can take hours to finish. Start with one LAS file to determine processing time on your system.

To work with the deep learning tools in ArcGIS Pro, you must install supported deep learning frameworks packages. See [deep learning frameworks](#) for ArcGIS.

A [tree classification model](#) trained by Esri can be downloaded from ArcGIS Living Atlas of the World or you can create your own model using the Training a Deep Learning model for Point Cloud Classification notebook that can be found in the notebooks folder of the Tree Data Management ArcGIS Pro project.

Extract tree points using surface analysis—Use this tool to extract tree points from the lidar using surface analysis. This type of extraction is faster for large lidar datasets, but the results are less accurate than using cluster analysis for dense lidar (point spacing less than 1.5 feet/0.5 meters).

Extract tree points using cluster analysis—Use this tool to extract tree points from the lidar using cluster analysis. This type of extraction is slower for large lidar datasets, but the results are more accurate than using surface analysis.

Note:

When creating the 3D trees, verify the **Vegetation class code**. The correct class codes for vegetation is typically 5. The tool will verify whether your lidar has this code, but trees might be represented by other codes as well. Visually review your lidar and verify what class code tree points have by clicking a tree lidar point. If the vegetation has not been classified, enter the class code that represents the vegetation, for example, 0 or 1.

Tip:

Use the Extract tree points using surface analysis tool to create an initial vegetation layer. Run the Extract tree points using cluster analysis tool for lidar files for which you need detailed trees and replace the trees from the initial layer with the more detailed trees where needed.

Append extracted trees to layer—Use this task to load tree points extracted in the previous tasks into the Trees feature layer deployed with the solution.

Load, create, and modify tree data

In the **Task pane**, expand the **Load, create, and modify tree data** group task.

Your organization may have existing tree data, which can be loaded into the Trees feature layer. Use the **Load existing tree data** task to load your organizations's existing tree inventory data into the Trees feature layer deployed with the solution.

You may need to create new tree data prior to conducting a field inventory if existing data is not available. Follow the instructions in the **Create new tree data** task to create new trees. Use the **Modify trees** task to modify created data.

Collect and assess trees in the field

In many cases, a field assessment of publicly owned trees may be the most efficient way to develop a tree inventory. Information collected in the field can also enhance and verify trees extracted or loaded using the Tree Data Management ArcGIS Pro project. Recording tree condition through routine and ad hoc inspections provides important information needed to plan improvements.

You will now assume the role of a mobile worker responsible for conducting a tree inventory in the field as well as condition assessments and recording maintenance activities. In this workflow, you are asked to use the ArcGIS Field Maps mobile app to access your Tree Field Map and inventory trees in your community.

Collect trees in the field

To collect trees in the field, complete the following steps:

1. Download ArcGIS Field Maps onto your mobile device.
2. Open ArcGIS Field Maps and sign in to your ArcGIS organization.
3. Tap **Tree Field Map** to open the map.
4. Tap **Add**.
Trees are collected according to their planting space status. A planting space can be **Planted, Available, Retired, Stump, or Other**.
5. Tap **Planted**.
6. Drag the map to the correct location, and then click **Add Point**.
7. Swipe up on the form and tap **Common name** to choose the tree's common name, and then provide all other required information in the **Tree Details** section.
8. Tap **Planting Space** to expand the form, and then provide planting space information as needed.
9. Tap **Ownership Details** to expand the form, and then provide tree ownership information as needed.
10. Tap **Nearest address** to provide the nearest site address.

[Back to top](#)

When you're finished, at the top right, tap the check mark or **Submit**.

Note:

Your interface may vary depending on the type of mobile device that you use.

11. Repeat these steps to collect additional trees.

The fields in the **Tree Field Map** form are configured according to planting space status. When collecting a **Planted** tree, **Available** space, **Retired** space, **Stump**, or **Other** feature, the form will present the appropriate fields.

12. On the Tree Field Map, tap a tree.
13. Tap **Edit**.
14. Optionally, pan the map to update the tree's location, and then tap **Update Point**.
15. Swipe up on the form to modify the tree's information.
16. When you're finished, at the top right, tap the check mark or **Submit**.

Note:

Your interface may vary depending on the type of mobile device that you use.

Assess trees in the field

To assess trees in the field, complete the following steps:

1. On the Tree Field Map, tap a tree.
2. Swipe up on the form to review the tree's information.
3. Swipe up on the form to the **Related** section.
4. Tap **Maintenance**.

Previously recorded maintenance activities are displayed. When present, tap the maintenance record and swipe up on the form to review the information.

5. Tap **Add**.
6. Swipe up on the form to expand the form.
7. Tap **Maintenance Type** to enter the type of maintenance activity completed.
8. Optionally, tap **Start date** to enter the date the maintenance activity was started.
9. Tap **Date finished** to enter the date the maintenance activity was completed.
10. Optionally, tap **Status** to modify the status of the maintenance record.
11. Optionally, tap **Notes** to enter maintenance notes.
12. When you're finished, at the top right, tap the check mark or **Submit**.

Note:

Your interface may vary depending on the type of mobile device that you use.

13. Swipe up on the form to review the recorded maintenance information.
14. In the **Related** section, tap **Trees** to return to the Tree feature.
15. Swipe up on the form to the **Related** section.
16. Tap **Inspections**.
Previously recorded inspections are displayed. When present, tap the inspection record and swipe up on the form to review the information.
17. Tap **Add**.
18. Swipe up on the form to expand the form.
19. Tap **Inspection Type** to enter the type of inspection.
20. Tap **Inspection date** to enter the date the inspection was completed.
21. Optionally, tap **Status** to modify the status of the inspection record.
22. Tap **Tree condition** to record the condition of the inspected tree.
23. Optionally, tap **Evidence of disease** to record evidence of disease.
24. Optionally, tap **Evidence of pests** to record evidence of pests.
25. Optionally, tap **Planting space condition** to record the condition of the planting space.
26. Optionally, tap **Sidewalk condition** to record the condition of an adjacent sidewalk.
27. Optionally, tap **Sidewalk damage** to record the appearance of sidewalk damage.
28. Optionally, tap **Inspection notes** to enter inspection notes.
29. When you're finished, at the top right, tap the check mark or **Submit**.

Note:

Your interface may vary depending on the type of mobile device that you use.

30. Swipe up on the form to review the recorded inspection information.
31. In the **Related** section, tap **Trees** to return to the Tree feature.
32. Swipe up on the form and tap **Request Service**.
33. Complete the **Tree Request** form to report a request for service.
34. When you're finished, tap **Submit**.

Note:




Your interface may vary depending on the type of mobile device you use.

Complete field assignments

Field staff will often receive work through assignments that help organize tasks to be completed and communicate the status of work to operations and maintenance supervisors.

1. Download ArcGIS Workforce onto your mobile device.

[Back to top](#)

2. Open ArcGIS Workforce and sign in to your ArcGIS organization.
3. Tap the **Tree Assignments** map.
4. In the **To do** list, tap an assignment to view its location on the map and see details about the assignment.
5. In the assignment details, tap **Directions** to see a list of installed navigation apps, and then tap the app you want to use and allow ArcGIS Workforce to open it.
The app opens, generating a route to your assignment.
6. In the assignment details, tap **Start** to begin working on an assignment.
7. Optionally, tap **Add Note** to enter information for the operations and maintenance supervisors, and then tap **Done**.
8. Optionally, tap **Take Photo** to take and attach a photo.
9. Optionally, tap **Attach** to record video and audio and to attach other photos from your device.
10. Swipe up and tap **Open Tree Field Map**.
The Tree Field Map opens in ArcGIS Field Maps and defaults to the location of the assignment.
11. After you have finished collecting data or recording work in the Tree Field Map, return to the ArcGIS Workforce app.
12. To pause, decline, or reset the assignment, tap the **Overflow** button  and tap the appropriate status, or tap **Cancel**.
13. In the assignment details, tap **Finish** when you have completed the assignment.
14. Optionally, tap **To Do** and tap **Completed** to view your completed assignments.
15. Optionally, tap **Sync**  ( if you have edits that aren't synced) and tap **Sync Now** to sync them.
Changes to the status of your assignments automatically syncs with your ArcGIS organization at the default interval of every 15 minutes.

Manage operations

You will now assume the role of an operations and maintenance supervisor responsible for organizing routine and ad hoc inspections and maintenance activities as well as an arborist responsible for monitoring tree conditions.

In this workflow, you are asked to use the Tree Management Center app to monitor field activities and conditions, manage requests for service, and assign work.

Monitor conditions

To monitor conditions, complete the following steps:

1. In a browser, sign in to your ArcGIS organization, and then browse to the Tree Management solution.
2. View the Tree Management Center application.

The **Home** page of the Tree Management Center app displays metrics that help you understand your organization's tree inventory as well as requests for service that need to be addressed and work that needs to be assigned to field staff.

3. In the upper right, click **Trees** to open the **Trees** page.
4. Review the high-level metrics, such as **Inspections Completed** and **Tree Condition**.
5. Use the charts to filter and explore inspections and maintenance activities.

Note:

Dashboard charts are linked. If you click a condition in the **Tree Condition** chart or a month on the **By Month** tab in the **Inspection History** charts, related details are filtered and updated in other elements in the dashboard.

6. On the map, use the select tool to select a tree.

Note:

Map selections are linked. If you select a tree in the map, related details are filtered and updated in other elements in the dashboard.

7. In the **Inspection History** table, click an inspection record to view its details in the **Details** panel.
8. In the **Maintenance History** table, click a maintenance record to view its details in the **Details** panel.
9. In the **Tree Inventory** feature details pane, click the **Create Assignment** button.
The **Create Tree Assignment** form opens.
10. Complete the form to create an assignment that you will assign to field staff.
11. When you're finished, click **Submit**, and then return to the Tree Management Center app.
12. On the left, click the arrow to display the filter panel, and then use filters to explore the tree inventory by genus, species, common name, date planted or inspected, or other specification.

Tip:


To pin the filter panel, click the pin in the upper-right corner.

Respond to and monitor requests for service

To respond to and monitor service requests, complete the following steps:

1. In the upper right, click **Requests** and choose **Manage**.

[Back to top](#)

2. In the **Tree Requests** table, click the **Status** column filter, and then for **Status is**, choose **Submitted** to view requests for service with a submitted status.
3. Click the **Submitted On** column header and choose **Sort in descending order**.
4. Click a service request feature.
Its details open at the lower left.
5. In the details, on the **Details** tab, click the **Edit Record** button .
6. For **Status**, choose **Received**.
7. Click **Save**.
8. In the **Tree Requests** table, click the **Status** column filter, and then for **Status is**, choose **Received** to view requests for service with a received status.
You will create an assignment so that the request for service can be addressed by field staff.
9. In the table, click the service request feature to view its details.
10. On the **Details** tab, click **Create Assignment**.
The **Create Tree Assignment** form opens.
11. Complete the form to create an assignment that you will assign to field staff.
12. When you're finished, click **Submit**, and then return to the Tree Management Center app.
13. In the upper right, click **Requests** and choose **Monitor**.
14. Use the charts to filter and explore active and resolved requests for service.
Dashboard charts are linked. As you click and select a category in one chart, related details are filtered and updated in other charts on the service request to allow a manager to identify issues and areas that need attention.

Manage field assignments

To manage field assignments, complete the following steps:

1. In the upper right, click **Assignments**.
2. At the bottom of the pane, click the **Assignments** tab.
3. From the list of assignments, click an assignment, if present.
4. In the upper left, click **Assign** and choose a mobile worker who will complete the work.
5. Optionally, click the **Edit** button to modify the **Priority**, **Description**, or other assignment details.
6. When you're finished, click **Save**.
7. Click the back button.
8. On the map, select a tree and review its information, and then click **+ Assignment**.
You can also use the search box on the map to search by address, place, or tree asset ID.

9. Choose an **Assignment Type** and assign a mobile worker.
10. Click **Create Assignment**.

Learn about the community's urban forest

Trees garner significant interest from community residents that would like to understand their characteristics, benefits, and condition and also report requests for service such as hazards or new plantings.

You will now assume the role of a community resident who is interested in learning about the condition of publicly owned trees in their neighborhood or around their home.

1. In a browser, from the Tree Management solution, view the Our Urban Forest site.
2. Scroll to the **Explore the Trees** section, and then click the **Explore** button to open the Tree Viewer app.

The Tree Viewer app opens in a new tab.

3. In the left panel, on the **Home** tab, review the information.
4. Click the **Details** tab, and then on the map, click a tree.
Details about the tree that you selected appear in the left panel.
5. Review the tree's information, such as its common name, height, and condition.

The **Details** pane displays **Recent Maintenance** recorded by the organization and **Recent Tree Steward Activities** reported by volunteers.

6. On the map, at the lower left, click the globe.
- The Tree Viewer app displays a 3D scene of the trees.
7. In the 3D scene, click a tree to view its information in the **Details** pane.
 8. Close the Tree Viewer app and return to the Our Urban Forest site.

Solicit requests for service

The Our Urban Forest site can be used to solicit service requests from the public so that small problems can be tackled quickly and efficiently before they become large and costly. You will continue to assume the role of a resident, now reporting a request for tree service.

1. Scroll to the **Request Service** section, and then click the **Submit Request** button to open the Tree Viewer app.
The Tree Viewer app opens in a new tab.
2. On the map, click the tree that you want to request service for, and then in the left panel, click the **Details** tab.
3. Click **Request Service**.
The Tree Requests form opens in a new tab.
4. Complete the form, and then click **Submit**.

[Back to top](#)

The request type on the Tree Requests form will be prepopulated when requesting service for an available space or stump.

Volunteer as a steward

Public works and parks organizations cultivate a volunteer workforce to help improve the health of trees. Tree steward programs allow volunteer stewards to help care for trees in the neighborhood or around their house and report their activities to the organization.

You will now assume the role of a community resident who is interested in volunteering in the tree steward program.

1. In a browser, from the Tree Management solution, view the Our Urban Forest site.
2. Scroll to the **Become a Tree Steward** section.

If visitors to the site are not signed in, the Our Urban Forest site displays the buttons to **Create an account** or **Sign In** with an existing account. If a user is signed in to the site, the Our Urban Forest site displays an **Apply** button, which can be used to access the Tree Steward Application form. In the following steps, the user has created an account and is signed in to the Our Urban Forest site.

3. Click the **Apply** button.
4. Complete the Tree Steward Application form to express interest in becoming a volunteer tree steward.

The application will be reviewed by a volunteer coordinator. After the application has been approved, the volunteer can access the Tree Care Activities form to report stewardship activities.

5. Close the Tree Steward Application and return to the Our Urban Forest site.
6. Scroll to the **Care for a Tree!** section.

The **Care for a Tree!** section is displayed when a volunteer's Tree Steward Application has been approved by the volunteer coordinator.

7. Click the **Report Care** button.

The Tree Viewer app opens in a new tab.

8. On the map, click the tree that you have cared for, and then click the **Details** pane.
9. Click the **Report Care** button.

The Tree Care Activities form opens in a new tab.

10. Complete the form recording the activity date, duration, and activities completed to report your volunteer tree care to the organization.
11. Close the Tree Care Activities form and the Tree Viewer app and return to the Our Urban Forest site.

Manage volunteer stewards


You will now assume the role of a volunteer coordinator responsible for managing the tree stewardship program and monitoring volunteer activities.

[Back to top](#)

In this workflow, you are asked to use the Tree Stewardship Center app to review and approve volunteer applications and monitor volunteer activities.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Tree Management solution.
2. View the Tree Stewardship Center app.
The **Home** page of the Tree Stewardship Center app displays metrics that help you understand the tree stewardship program, and it states whether there are pending applications to be reviewed.
3. In the upper right, click **Manage**.
4. In the **Stewards** table, click the **Status** column filter, and then for **Status is**, choose **Pending** to view volunteer applications with a pending status.
5. Click a volunteer application to view its details.

The details open at the lower left.

6. On the **Steward** tab, click the **Edit Record** button .
7. For **Status**, choose **Approved**.
8. Click **Save**.

The Tree Steward Notebook can be used to schedule a process that grants access to the Tree Care Activities form to approved tree stewards.

9. In the table, remove the **Status** column filter.
10. Click an approved volunteer to view details.
11. Click the **Care Activities** tab to view reported tree care activities.
12. Review the tree care information, and then click **View Tree** to open the Tree Viewer app and view the tree's location and information.
13. Return to the Tree Stewardship Center app, and then in the upper right, click **Monitor**.
14. Use the charts to filter and explore stewards and tree care activities.

Dashboard charts are linked. When you click and select a category in one chart, related details are filtered and updated in other charts.

15. From the dashboard header, use the **Activity Date** and **Stewards** filters to explore tree care and steward activities.

Vaccine Coverage Analysis

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Vaccine Coverage Analysis

Vaccine Coverage Analysis can be used to identify underserved populations and optimize plans for disease vaccination sites.

Comprehensive vaccination coverage is one of the most effective ways to stop a pandemic and reopen communities. Communities of color and socioeconomically vulnerable areas are disproportionately burdened when vaccinations are available but underutilized. Identifying areas of low vaccination rates and vulnerable populations can help ensure equitable vaccine distribution. Vaccine Coverage Analysis is typically implemented by health and human services or public safety agencies that want to optimize the location of vaccination sites, maximize limited resources, and ensure communities affected the most have access to vaccines.

The Vaccine Coverage Analysis solution delivers a set of capabilities that help you identify priority and underserved populations, locate optimal vaccination sites, and share vaccine site information with internal and external stakeholders.

Requirements

Vaccine Coverage Analysis requires the following:

- ArcGIS Enterprise
- ArcGIS Pro 2.7–ArcGIS Pro 2.9 (Advanced)
 - ArcGIS Geostatistical Analyst extension

Information products

Vaccine Coverage Analysis includes the following information products:

Item	Description	Minimum user type
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[Back to top](#)

Vaccine Coverage Analysis	An ArcGIS Pro project used by health and human services analysts to identify priority and underserved populations, locate optimal vaccination sites, and share vaccine site information with internal and external stakeholders	GIS Professional Advanced
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Release notes

The following are the release notes:

Version	Description
1.2	<ul style="list-style-type: none"> An update to the Vaccine Coverage Analysis ArcGIS Pro project to resolve a bug in the Create Ranked Surface tool.
1.1	<ul style="list-style-type: none"> Added support for single dose vaccines and revised vaccination rate calculation. Resolved an issue in the Configure Existing Sites model that prevented the Append tool from functioning properly in ArcGIS Pro 2.8.
1.0	<ul style="list-style-type: none"> First release of Vaccine Coverage Analysis

Use Vaccine Coverage Analysis

The Vaccine Coverage Analysis solution delivers a set of capabilities that help you identify priority and underserved populations, locate optimal vaccination sites, and share vaccine site information with internal and external stakeholders.

In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

[Back to top](#)

Identify coverage gaps

Priority populations and vaccine rates can be used to identify underserved populations quickly using the Vaccine Coverage Analysis project. Current vaccination statistics collected from vaccination sites and priority populations will help you identify areas that have low vaccination rates and high-priority populations.

You will start by assuming the role of a health and human services analyst. You are asked to use the Vaccine Coverage Analysis project to identify underserved populations.

1. Sign in to your ArcGIS organization and browse to the Vaccine Coverage Analysis Desktop Application Template.
2. Open the item page and click **Download**.
3. Unzip and open the Vaccine Coverage Analysis ArcGIS Pro project.
4. On the **View** tab, in the **Windows** group, click **Catalog Pane**.
5. In the **Catalog** pane, expand the **Tasks** folder, and double-click the **Vaccine Coverage Analysis** task.
6. In the **Tasks** pane, click the **Identify underserved populations** task group to expand the collection of tasks.
7. In the **Tasks** pane, double-click the **Prepare vaccination and priority population** task and follow the steps provided.
8. Double-click the **Create coverage map** task and follow the steps provided.
9. Double-click the **Evaluate current vaccine distribution by drive time** task and follow the steps provided.

Locate vaccination sites

The best vaccination sites can be quickly located with the Vaccine Coverage Analysis project. Use the previously identified coverage gaps and a list of candidate sites to locate new sites in your community.

You will continue to assume the role of a health and human services analyst. You are asked to use the Vaccine Coverage Analysis project to select the best vaccination sites from a list of candidate sites that meet needs defined in the vaccine gap analysis.

1. Open the Vaccine Coverage Analysis ArcGIS Pro project.
2. On the **View** tab, in the **Windows** group, click **Catalog Pane**.
3. In the **Catalog** pane, expand the **Tasks** folder, and double-click the **Vaccine Coverage Analysis** task.
4. In the **Tasks** pane, click the **Locate vaccination sites** task group to expand the collection of tasks.
5. In the **Tasks** pane, double-click the **Identify potential distribution sites** task and follow the steps provided.
6. Double-click the **Select new points of distribution** task and follow the steps provided.

[Back to top](#)

Vision Zero

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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[Back to top](#)

Introduction to Vision Zero

Vision Zero can be used to solicit transportation hazards and dangerous traffic behaviors on roadways from bikers, drivers, pedestrians, and others using public streets.

Traffic collisions result in thousands of deaths each year and many communities are beginning to tackle this public health problem by adopting Vision Zero programs. Vision Zero programs engage many internal and external stakeholders (for example, the general public, planners, engineers, public health officials, and policymakers) and use data-driven strategies to create safer roadways for travelers. A key aspect of any Vision Zero program is a web destination that helps agencies share key initiatives with the public and solicit feedback from stakeholders. Feedback is then used to understand perceived problems, visualize trends, and inform policies. Vision Zero is typically implemented by public works, transportation, and public safety agencies that want to engage stakeholders and use data to reduce traffic hazards in their community.

The Vision Zero solution delivers a set of capabilities that help you share your Vision Zero strategy with the public, solicit transportation hazards and dangerous traffic behaviors from key stakeholders, manage each reported hazard, and monitor the status of its resolution.

Requirements

Vision Zero requires the following:

- ArcGIS Enterprise

Information products

Vision Zero includes the following information products:

Item	Description	Minimum user type
Vision Zero	An ArcGIS Hub site used by public works, transportation, and public safety agencies to communicate strategies to eliminate traffic deaths of and life-altering injuries to travelers in the community.	Not required
Vision Zero Pledge	An ArcGIS Survey123 form used by the general public to pledge to practice safe driving behaviors and obey all traffic laws.	Not required

[Back to top](#)

Transportation Hazard Reporter	A Crowdscore Reporter app used by the general public to report transportation hazards and dangerous traffic behaviors that could lead to fatalities or serious injuries.	Not required
Transportation Hazard Manager	A Crowdscore Manager app used by public works, transportation, and public safety agencies to triage transportation hazards submitted by the general public.	Editor
Transportation Hazard Dashboard	An ArcGIS Experience Builder app used by public works, transportation, and public safety agencies to monitor transportation hazards and dangerous traffic submitted by the general public.	Viewer (required if the app is used for internal purposes only)

Release notes

The following are the release notes:

Version	Description
1.0	<ul style="list-style-type: none"> First release of Vision Zero

Configure Vision Zero

In this topic, you will learn how to configure the Vision Zero solution to meet specific needs in your organization.

Modify hazard types and responsible agencies

Vision Zero includes problem types and responsible agencies for hazard reports. In some cases, you may want to add a problem type. In addition, you may want to modify the responsible agencies provided to more accurately reflect the name of the agency, department, or team that is responsible for responding to hazard reports.

1. Sign in to your ArcGIS organization and browse to the TransportationHazardReports feature layer.

[Back to top](#)

2. Open the item page and click the **Data** tab.
3. Click **Fields**.
4. Click the **Problem observed** display name.
Review the **List of Values (Domain)**. Identify domains that are missing or need to be removed from the list.
5. Click **Edit** next to **List of Values (Domain)**.
6. Optionally, click **Add**.
7. Type the problem type in the **Displayed Value** and **Stored Value** text boxes.
8. Repeat steps 6 and 7 to add the remaining problem types.
9. Optionally, click **Delete** to remove a problem type.
10. Optionally, click in the **Label** text box with an existing problem type and change the name. Repeat this step to change the **Code** value as well.
11. Optionally, drag the problem type to a new location in the list to reorder them.
12. Click **Save**.

Now, let's review the list of responsible agencies and modify it to meet the needs of your organization.

1. Click the **Assigned To** display name in the left panel.
Review existing agencies and identify missing ones in the **List of Values (Domain)** section.
2. Click **Edit** next to **List of Values (Domain)**.
3. Optionally, click **Add**.
4. Type the new agency name in the **Displayed Value** and **Stored Value** text boxes.
5. Repeat steps 3 and 4 to add the remaining missing agencies.
6. Optionally, click **Delete** to remove an agency.
7. Optionally, click in the **Label** text box with an existing agency labeled and change the agency name. Repeat this step to change the **Code** value as well.
8. Optionally, drag the category to a new location in the list to reorder them.
9. Click **Save**.

Update the pledge survey

The Vision Zero Pledge survey allows you to enlist the general public in practicing safe driving behaviors. Review the preconfigured questions and align the survey with your organizational policies and desired outcomes.

To modify the Vision Zero Pledge survey, complete the following steps:

[Back to top](#)


1. Verify that you are signed in to your ArcGIS organization and browse to the Vision Zero Pledge form.
2. Open the item page and click **Open in Survey123 > Manage in Survey123 website**.
3. Click the **Design** tab.
4. Edit the survey and save the changes.
5. Click **Publish** twice.

Configure the Vision Zero site

The Vision Zero solution includes the Vision Zero ArcGIS Hub site that your organization can configure with your branding and use to share strategies to eliminate traffic deaths of and life-altering injuries to travelers in the community.


Update with organizational information

After deploying the Vision Zero solution, the Vision Zero site layout requires a few updates to fit your local context. Consider what information you already have and what you can most easily find. To update your site, complete the following steps:


1. Verify that you are signed in to your ArcGIS organization and browse to the Vision Zero site.
2. Open the item page and click **Configure App**.
3. Click the edit button  to open the site editor.
4. Scroll to the **By the Numbers** section listed under the title of the website.

The **Taken the Vision Zero Pledge** statistic card is linked to the Vision Zero solution's VisionZeroPledge_opendata feature layer. The stat is automatically updated as pledges are submitted.

The **Fatalities** and **Seriously Injured** cards are text cards but styled to resemble the summary statistics cards; this allows you the option to manually enter a statistic of your choice, independent of the solution data.

5. Hover over the **Fatalities** card and click the edit pencil .
6. Update the number of traffic fatalities.
7. Hover over the **Seriously Injured** card and click the edit pencil.
8. Update the number of traffic-related injuries.
9. Scroll to the **Transportation Hazards** section, hover over the **Other Reporting Methods** card and click the edit pencil.
10. Click the **Edit in HTML** option and update the phone number, and click **Apply**.
11. Scroll to the **Frequently Asked Questions** section, hover over the card and click the edit pencil, and update the questions and answers.

[Back to top](#)

12. Scroll to the **Additional Resources** section, hover over an image card, and click the edit pencil.
13. On the side panel, provide a URL to an image in the text box or click **Upload** to upload an image associated with the resource.
14. Hover over the text card, click the edit pencil, and update the text.
15. Click the **Learn More** button and click **Edit**.
16. Enter a URL in the **Link Destination** text box and click **Add Link**.
17. Scroll to the **Partner** section, hover over an image card, and click the edit pencil.
18. On the side panel, provide a URL to an image in the text box or click **Upload** to upload an image associated with a partner you want to promote on the site.
19. To modify your site's footer, click **Customize Toggle**  on the side panel.
20. Click **Footer**.

A custom footer is already provided, and in most cases, it needs to be updated with your organization's branding, contact information, and social media references.
21. Click the **HTML** text box.

The **HTML** window appears.
22. Make the necessary changes and click **Apply**.
23. Click **Save**.

Share Traffic Crash Analysis apps

You can enhance the Vision Zero site with additional public-facing applications included with the Traffic Crash Analysis solution. The High Injury Network Locator helps the general public locate streets and intersections where concentrations of serious and fatal traffic crashes occur. You can share the Fatal and Serious Injury Dashboard so the general public can locate crashes that resulted in serious injury or fatality. To share the apps on the Vision Zero site, complete the following steps:

1. Verify you are signed in to your ArcGIS organization and browse to the Fatal and Serious Injury Dashboard web experience.
2. Open the item page and click the **Share** button.
3. In the **Share** window, click **Edit group sharing**.
4. Enter Vision Zero Maps in the search text box.
5. Click the check box next to the **Vision Zero Maps** group.
6. Click **OK**.
7. Click **Save**.
8. Repeat steps 2-6 for the High Injury Network Locator app.
9. Click **Update** in the **Update sharing** window.

Share items with the public

Several layer views, maps, and apps included in the Vision Zero solution must be shared with everyone so they can be accessed by the public on the Vision Zero site. To share your items with everyone, use the guide below and complete the following steps:

1. Verify that you are signed in to your ArcGIS organization.
2. Click **Groups** at the top of the site.
3. Open the Transportation Hazard Reporter group page and click the **Settings** tab.
4. Under **Who can view this group**, click **Everyone (public)**, and click **Save**.
5. Click **Content** at the top of the site.
6. On the **My Content** tab, under **Folders**, type Vision Zero in the search box.
7. Click the **Vision Zero** folder.
8. Check the check box next to each of the items below:

Item	Name
Feature Layer (hosted, view)	TransportationHazardReports_public
Web Map	Transportation Hazard Reporter
Web Mapping Application	Transportation Hazard Reporter
Feature Layer (hosted, view)	TransportationHazardReports_dashboard
Web Map	Transportation Hazard Dashboard
Dashboard	Transportation Hazard Desktop Dashboard
Dashboard	Transportation Hazard Mobile Dashboard
Web Experience	Transportation Hazard Dashboard
Form	Vision Zero Pledge
Feature Layer (hosted)	VisionZeroPledge_public
Feature Layer (hosted)	VisionZeroPledge_opendata
Site Application	Vision Zero

9. Click **Share**.
10. In the **Share** window, click **Everyone (public)** and click **Save**.
The **Warning: Sharing editable layers publicly** message appears notifying you that you are sharing editable layers publicly.
11. Click **Update**.

Extend Vision Zero

You can extend the Vision Zero solution with a set of Python tools that can be used to generate report IDs, moderate reports, send email notifications, and enrich reports. These

[Back to top](#)

tools can be executed automatically via Task Scheduler and as new problem reports are submitted, or updated, the corresponding action will occur.

Add the ServiceFunctions toolbox

The ServiceFunctions toolbox contains tools for generating report IDs, moderating reports, sending email notifications, and enriching reports. Download and add the ServiceFunctions toolbox to your ArcGIS Pro project before configuring the appropriate tools.

1. [Download](#) the ServiceFunctions toolbox.
2. Browse to the ServiceSupport.zip file and unzip the file to the location from which you want to the tools to execute.
3. Open ArcGIS Pro and create a new project.
4. Sign in to the ArcGIS organization to which you deployed the Vision Zero solution, if necessary.
5. On the **View** tab, in the **Windows** group, click the **Catalog** pane, if necessary.
6. In the **Catalog** pane, right-click **Toolboxes** and choose **Add Toolbox**.
The **Add Toolbox** dialog box appears.
7. Browse to the ServiceSupport folder.
8. Click the **ServiceSupport.pyt** Python toolbox, and click **OK**.
9. In the **Catalog** pane, expand **Toolboxes** and **ServiceSupport.pyt**.
If you've never used the ServiceSupport toolbox before, run the Define Connection Settings tool to establish a connection between the toolbox and the TransportationHazardReports feature layer.
10. In the **Catalog** pane, in the **ServiceSupport.pyt** Python toolbox, double-click the **Define Connection Settings** tool.
11. In the **ArcGIS Online organization or ArcGIS Enterprise portal URL** parameter, click the drop-down arrow and choose a URL.
12. In the **Username** parameter, type your user name for the organization you chose in step 11.
13. In the **Password** parameter, type your password for the user name provided in the **Username**.
14. Click **Run**.

Generate report IDs

Many workflows require you to generate a unique identifier when a feature or record is created so it can be referenced and tracked in other workflows. You can use the Generate IDs tool to configure custom unique identifiers that will be applied to features at a regularly scheduled interval of your choosing. The tool only generates the configuration; you must run an additional script (provided) to update the features with incrementing identifier values.

[Back to top](#)

1. In the **Catalog** pane, expand **Toolboxes** and **ServiceSupport.pyt**, if necessary.
2. Double-click the **Generate IDs** tool.
3. In the **Layer** parameter, click **Browse**.
The **Layer** dialog box appears.
4. Under **Portal**, click **My Content**.
5. Double-click the **Vision Zero** folder.
6. Double-click the **TransportationHazardReports** feature layer.
7. Click **Transportation Hazard Reports**, and then click **OK**.
Expand **General Identifier Settings**. If the tool has not been run previously, start by specifying at least one identifier sequence.
8. In the **Sequence Name** parameter, type a name for the sequence.
This value appears in the drop-down menu for selecting the sequence to assign to each layer.
9. In the **Pattern** parameter, type a pattern to use for the sequence.
This can be a combination of letters, numbers, and symbols. Mark the location for the incrementing value with a pair of curly braces {}. Python formatting is applied to the pattern text, so string formatting syntax such as {0:03d} pads the incrementing number section with zeros to a length of 3. For example, the expression seq-{0:05d} creates the following pattern of values: seq-00001, seq-00002, seq-00003, and so on.
10. In the **Next Value** parameter, type a value.
When initially creating the sequence, this must be the first value in the identifiers. After this point, this value shows the value to be used for the next identifier generated.
11. In the **Interval** parameter, type a value.
The interval by which the identifier values increase between features. For example, an initial Next Value of 1 and an Interval of 10 creates identifiers with the incrementing values of 1, 11, 21, and so on.
Deleting or changing these sequences impacts all the layers that are configured to use the edited sequences.
12. Optionally, edit the identifier configuration and run the tool to overwrite the existing identifier configuration for the selected layer.

Note:

If an identifier configuration already exists, a check box appears that, when checked, deletes the existing identifier configuration for the selected layer.

13. Choose the moderation list to use to process the features in the selected layer.
14. Choose the sequence to use to generate the identifiers for each feature in the layer.
15. Choose a text field to store the generated identifier.
16. Click **Run** to write out the identifier configuration for the layer and any changes to the identifier sequences.

[Back to top](#)

17. To configure identifiers for another layer, rerun the tool with the settings for the next layer.

General Identifier Settings are not specific to any one layer—they apply to all layers configured using this tool.

Moderate reports

Public comment apps can occasionally generate feedback that should not be made publicly visible. Data entered into specific fields, such as personal information, can be hidden and protected using the pop-up configuration and layer security, but sometimes entire comments need to be hidden to avoid displaying sensitive or explicit content to other users.

You can hide features by updating the value of a field so that it no longer meets the requirements of a filter applied to that layer in the map. You can use the **Moderate Reports** tool to configure which layers and fields to scan for explicit or sensitive words and phrases and how to update the feature so that it can be filtered from the map. You can choose how often to scan features and records. The tool only generates the configuration; an additional script (provided) must be run to scan the features.

1. In the **Catalog** pane, expand **Toolboxes** and **ServiceSupport.pyt**.
2. Double-click the **Moderate Reports** tool.
3. In the **Layer** parameter, click **Browse**.

The **Layer** dialog box appears.

4. Under **Portal**, click **My Content**.
5. Double-click the **Vision Zero** folder.
6. Double-click the **TransportationHazardReports** feature layer.
7. Click **Transportation Hazard Reports**, and then click **OK**.

Expand **General Moderation Settings**. If the tool has not been run previously, start by specifying at least one moderation list.

8. In the **List Name** parameter, type a name.

This value appears in the drop-down menu for selecting the moderation list use when scanning each layer.

9. In the **Filter Type** parameter, click the drop-down arrow and choose to scan feature for words and phrases that exactly match the provided list of words and phrases.

For example, when the filter type is EXACT, if the list contains the word duck, the script updates the specified field when the feature contains the word duck, but not when it contains the word duckling. When the filter type is FUZZY, the script updates the feature when either duck or duckling are found.

10. In the **Words and Phrases** parameter, type a word or phrase. Provide a comma-separated list of words or phrases to scan for.

Keep in mind that deleting or changing these lists will impacts all the layers that are configured to use the edited sequences.

11. If a moderation configuration already exists for the selected layer, choose to edit an existing configuration by selecting the name of the moderation list used in the configuration, or choose the option to add a new moderation configuration.

If you choose to edit an existing configuration, a check box appears that, when checked, deletes the existing moderation configuration for the selected layer. Alternatively, edit the moderation configuration and run the tool to overwrite the existing moderation configuration for the selected layer and moderation list.


To add a new moderation configuration, click the **Add New** button and continue with the following steps.

12. Choose the moderation list to use to process the features in the selected layer.
13. Choose the fields that will be scanned for content that matches the words and phrases in the selected moderation list.
14. Optionally, provide an SQL query to only apply moderation to some features.
If no query is provided, all features are processed.
15. Use the **Field to Update** parameter when a match is found between the value of a field and the content of a moderation list. Use the **Found Value** parameter to specify the value that should be written to this field indicating a match.
16. Click **Run**.

Send email notifications

Many workflows require that an email be sent when a feature or record is created and updated. You can use the **Send Emails** tool to configure emails that can be sent based on attribute values and a schedule of your choosing. The tool only generates the configuration; you must run an additional script (provided) to actually generate and send the emails.

1. In the **Catalog** pane, expand **Toolboxes** and **ServiceSupport.pyt**.
2. Double-click the **Send Emails** tool.
3. In the **Layer** parameter, click **Browse**.
The **Layer** dialog box appears.
4. Under **Portal**, click **My Content**.
5. Double-click the **Vision Zero** folder.
6. Double-click the **TransportationHazardReports** feature layer.
7. Click **Transportation Hazard Reports**, and then click **OK**.

All existing email settings for the layer load and can be edited by updating the parameter values for each configuration. To delete a single email configuration, click the **Remove** button  next to the configuration. To delete all the email configurations for the layer, check the **Delete all existing email configurations for this layer** check box. Run the tool to save your changes.

8. In the **Email Template** parameter, click **Browse** to access the ServiceSupport folder.
9. Click one of the HTML templates for the body of the email, and click **OK**.

[Back to top](#)

To add attributes from the triggering feature to the email, use unique string keys in the places where the values should appear in the HTML and reference these strings in the **Find** parameter of the **Email Substitutions** section of the **General Email Settings** along with the name of the field that contains the value to be substituted for the string key in the **Replace** parameter.

10. Optionally, in the **SQL Query** parameter, provide an SQL query to only trigger an email from specific features.

If no query is provided, all features trigger emails every time the script is run, so you most likely want to use this query along with the **Field to Update** and **Sent Value** parameters to ensure that the same email isn't sent repeatedly for the same feature.

11. In the **Recipient Email Address** parameter, type an email address of the recipient or the name of a field in the layer that contains the address of the recipient.
12. In the **Email Subject** parameter, type the subject for the email.

Similar to the email body provided in the HTML document, this text can contain string keys that will be swapped out for attribute values based on the **Find** and **Replace** values defined in the Email Substitutions list in the General Email Settings section.

13. In the **Field to Update** parameter, type Email. When the email has been sent for each feature, use the **Sent Value** parameter to specify the value that should be written to this field indicating that the email has been sent.

This field and value can be used in the previously described SQL query to prevent duplicate emails from being sent.

14. Configure additional emails to be sent for the currently selected layer by clicking the **Add New** button.

Emails will be sent in the order they are configured. Expand **General Email Settings**. If the tool has not been run previously, start by specifying the connection information for your SMTP server in the tool.

15. In the **SMTP Server** parameter, type the URL of the SMTP server used for sending emails.
16. In the **SMTP Username** parameter, type the user name required to authenticate to the SMTP server. This is not required if authenticating through a port.
17. In the **SMTP Password** parameter, type the password required to authenticate to the SMTP server. This is not required if authenticating through a port.
18. In the **From Address** parameter, type the address from which the emails should be sent.
19. In the **Reply Address** parameter, type the address that should be used for any replies to the email message.
20. Check or uncheck the **Use TLS** check box to turn on or off TLS.
21. In the **Email Substitutions** section, type **Find** and **Replace** values. Swap out one piece of text for another in the outgoing email subject or body.

Anywhere a value in the **Find** parameter is found in the email subject or body, it will be replaced with the corresponding value from the **Replace** parameter. If the value in the **Replace** parameter is a field in the layer, the **Find** value will be replaced with the value in that field in the triggering feature. For example, to add the ID of a feature from the REQUESTID field to the email subject, include a piece of text such as {ID} in the

[Back to top](#)

configured Email Subject, and add {ID} to the **Find** parameter and REQUESTID to the **Replace** parameter. All specified substitutions are applied to all emails configured for all layers so, while the Find values can be any piece of text, it's suggested that you use something that is clearly variable-like and unlikely to appear elsewhere in the messages in a literal form.

Deleting or changing these settings impacts all the emails for all the layers configured with this tool.

22. Click **Run**.

Enrich reports

Reports made in public comment apps can be enriched with information about the report location. You can then use this information to efficiently direct the report to the correct person or agency responsible for its resolution.

You can then use the Enrich Reports tool to configure which attribute values to calculate from a coincident or intersecting set of features at a regularly scheduled interval of your choosing. Note that the tool only generates the configuration; you must run an additional script (provided) to update the features based on intersecting features.

1. In the **Catalog** pane, expand **Toolboxes** and **ServiceSupport.pyt**.
2. Double-click the **Enrich Reports** tool.
3. In the **Layer** parameter, click the browse button.
The **Layer** dialog box appears.
4. Under **Portal**, click **My Content**.
5. Double-click the **Vision Zero** folder.
6. Double-click the **TransportationHazardReports** feature layer.
7. Click **Transportation Hazard Reports**, and then click **OK**.
8. In the **Enrichment** parameter, if an enrichment configuration already exists for the selected layer, choose to either edit an existing configuration by selecting the configuration from the drop-down list, or choose the option to add a new enrichment configuration.

If you choose to edit an existing configuration, a check box appears that, when checked, deletes the existing enrichment configuration for the selected layer. Alternatively, edit the configuration and run the tool to save the changes. To add a new enrichment configuration, click the **Add New** button and continue with the following steps.

9. Choose the polygon feature layer that will provide the enriching attribute values by either choosing a layer from the active map or by browsing to your hosted content and choosing a polygon feature layer.
10. In the **Source Field** parameter, click the drop-down arrow and choose a field from the enrichment layer.
11. In the **Target Field** parameter, click the drop-down arrow and choose a field from the **TransportationHazardReports** feature layer.

[Back to top](#)

The script does not process features that already have a value in the target field.

12. In the **Priority** parameter, type a value. Specify the priority that should be given to this enrichment configuration relative to the other configurations for the TransportationHazardReports feature layer.

Enrichment configurations for a layer that have a lower priority value will override enrichment configurations with a higher value. For example, a layer has two enrichment configurations that use the same target field, but one has a priority value of 1 and the other has a priority of 2. If the configuration with priority 1 does not produce a valid value for the field, the field is populated with the value produced from the configuration with priority 2.

13. Click **Run**.

Set up Task Scheduler

Use Windows Task Scheduler to schedule the script to generate report IDs when a feature or record is created, moderate reports when feedback contains inappropriate language, send email notifications when a feature or record is created or updated, or enrich reports. All the tools in this toolbox share a common configuration file and execution script, so only one scheduled task is required to automate running all the associated processes.

1. Open the Task Scheduler on the computer that is hosting the scripts.
2. Click **Action > Create Task** and name your task.
3. Click the **Action** tab and click **New**.
4. Set **Action** to **Start a Program**.
5. Browse to the location of your Python 3 installation (for example, <default directory>\C:\Program Files\ArcGIS\Pro\bin\Python\envs\arcgispro-py3\python.exe).
6. In the **Add arguments** text box, type the name of the script (`servicefunctions.py`).
7. In the **Start in** text box, type the path to the folder where your script is and click **OK**.
8. Click the **Trigger** tab, click **New**, and set a schedule for your task.
9. Click **OK**.

When the trigger occurs, the scripts begin scanning the configured layers and, for each one, processing (in order) configurations for generating identifiers, enriching reports, moderating reports, and sending emails.

Use Vision Zero

The Vision Zero solution delivers a set of capabilities that help you share your Vision Zero strategy with the public, solicit transportation hazards and dangerous traffic behaviors from key stakeholders, manage each reported hazard, and monitor the status of its resolution.

In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

Note:

Use your organization's data or configured apps to follow these workflows.

Submit a traffic hazard

You will first assume the role of a concerned resident in the community who wants to notify the city of a problem that you observed.


1. In a browser, from the Vision Zero solution, view the Vision Zero site.
2. Scroll to the **Transportation Hazards** section and click **Report Hazard**.
3. In the Transportation Hazard Reporter app, at the lower right, click **Submit a Hazard**.
4. Complete the form with as much information as possible.
5. Click **Report It**.
6. At the top of the **Transportation Hazards** form, click the arrow to return to the list.

[Back to top](#)

7. At the top of the list, click the problem that you just submitted.
Information about the problem that you reported appears. As the report moves through its life cycle (**Submitted**, **Received**, **In Progress**, and **Completed**), the status bar updates.
8. Below the status bar, click **Leave a reply**.
You or others can add comments to update or highlight information related to the initial problem reported to authorities.
9. Optionally, add and submit a comment; otherwise, click **Cancel**.

Respond to hazard reports

You are now a city employee who is responsible for responding to submitted transportation hazard problem reports, assigning them to the appropriate department for resolution, and providing the resolution information when completed.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Vision Zero solution.
2. View the Transportation Hazard Manager app.
All problem reports are listed in the table at the top. The table can be sorted and filtered in various ways.
3. In the table, use the column header filters and arrows to filter results.
4. Select a problem with a status of **Submitted**.
The problem details open at the lower left.
5. In the details, on the **Details** tab, click the **Edit Record** button .
6. For **Visible to the Public**, choose **Yes**.
7. For **Status**, choose **Received**.
8. Click **Save**.
The next step is to investigate the location for Vision Zero improvements. You'll change the status to **In Progress** and assign the problem to the most appropriate department.
9. Click the **Edit Record** button again.
10. For **Status**, choose **In Progress**.
11. For **Assigned To**, choose the appropriate department.
12. Click **Save**.
After the department assigned to the problem informs you that the problem has been investigated and improvements to the intersection have been submitted for review, you'll change the status to **Completed**.
13. Click the **Edit Record** button again.
14. For **Status**, choose **Completed**.

15. In the **Resolution** text box, type Improvements submitted to Vision Zero taskforce for review.
16. Click **Save**.

Because the issue has been completed, the status indicator has changed, and the details now provide information about when and how the issue was resolved.

Monitor reports and measure performance

As a program manager for the city, you want to know how well the Vision Zero program is functioning and monitor the reports coming in.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Vision Zero solution.
2. View the Transportation Hazard Dashboard app.
3. On the left, use filters to refine results by status, transportation mode, problem, or date.
4. Use the graphs to filter and explore active and resolved problem reports.
5. In the **Hazard Reports** list, click a report to zoom to it on the map and open a pop-up with more information.

Take the Vision Zero pledge

As an engaged resident of the community, you want to take the Vision Zero pledge to commit to streets that are safe, accessible, and shared by everyone in the community.

1. In a browser, from the Vision Zero solution, view the Vision Zero site.
2. Scroll to the **Vision Zero Pledge** section and click **Take the Pledge**.
3. Complete the Vision Zero Pledge survey, and then click **Submit**.

Walkout Survey

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Walkout Survey

Walkout Survey can be used to streamline the management of communication walkout surveys and quickly evaluate the feasibility of proposed broadband expansion projects.

In a connected world, access to reliable broadband communications service is essential. Today, the FCC estimates that approximately 35% of Americans do not have reliable access to service (25MB download / 3MB upload). To close this gap and increase overall broadband speeds, public and private funding is pouring into the communications market and driving expansion of existing communications networks. Every day, communication organizations are building out broadband infrastructure to reach new customers and businesses. Before construction begins, detailed field surveys are required to determine the most optimum and cost-effective route. Walkout Survey is typically implemented by communication organizations that want to collect critical asset information needed to plan new communication network projects and validate proposed network routes.

[Back to top](#)

The Walkout Survey delivers a set of capabilities that helps you streamline the management of walkout surveys and quickly evaluate the feasibility of proposed broadband expansion projects.

Requirements

Walkout Survey requires the following:

- ArcGIS Enterprise
- ArcGIS Notebook Server
- ArcGIS Workforce
- ArcGIS Field Maps

Information products

Walkout Survey includes the following information products:

Item	Description	Minimum user type
Walkout Survey Center	An ArcGIS Experience Builder app used operations managers to create, manage, assign, and monitor walkout survey projects	Creator
Walkout Survey Assignments	An ArcGIS Workforce project used by operations managers to assign walkout survey projects to field staff	Mobile Worker
Field Walkout Survey	An ArcGIS Field Maps map used by field staff to collect walkout survey assets along a proposed network expansion route	Mobile Worker

Release notes

The following are the release notes:

Version	Description
1.0	<ul style="list-style-type: none">• First release of Walkout Survey


Configure Walkout Survey

Walkout Survey can be used to streamline the management of communication walkout surveys and quickly evaluate the feasibility of proposed broadband expansion projects.

In this topic you'll learn how to configure the Walkout Survey solution to meet specific needs in your organization.

Configure ArcGIS Workforce project

In this workflow you'll assume the role an operations manager responsible for setting up the ArcGIS Workforce project.

1. Sign in to your ArcGIS organization and click the **Apps** button  in the header of the site.
2. From the app launcher, click **Workforce** to open the app.
3. Under **Projects**, hover over the **Walkout Survey Assignments** project, and click **Configure**.
4. Click the **Overview** tab.
5. Click the **Assignment Types** tab.
6. Click the **Users** tab.
7. Click the **Advanced** tab.
8. From the **Organization User** drop-down menu, select a user to add to the project.
9. From the **Project Role** menu, assign the user either the dispatcher role or mobile worker role.
10. Click **+User**.

[Back to top](#)

11. Repeat the steps above for each dispatcher and mobile worker.

Brand Walkout Survey Center

In this workflow, you'll assume the role of an operations manager who wants to customize and brand the Walkout Survey Center app to fit your organizations needs.

1. Navigate to the item page for the Walkout Survey Center app and click the **Edit** button.
2. Click the **Page** button to open the page panel.
3. Use the **Header** node of the page panel to edit the header.
4. Select the **App Title** section and edit the title to brand the app to your organization.
5. In the **Body** node of the page panel click the **Background** section.
6. On the **Background** settings panel on the right click **Background** under the **Views** section and change the background color or add an image.
7. On the **Page** panel select the **Help** page.
8. To update the text or images select an element in the layout and make the necessary changes.
9. Click **Save** on the Experience Builder designer header bar, then click **Publish**.

Add asset map layers

Note:

This workflow is optional and doesn't need to be completed in order to work with the solution.

The Walkout Survey solution is configured with what you need to manage broadband expansion projects. Communication organizations can add their asset layers to the maps to enhance the solution and provide situational awareness of existing assets.

In this workflow you'll assume the role of an operations manager who wants to add your organizations data to the following maps.

1. Open the **Field Walkout Survey** map by clicking **Open in Map Viewer Classic**.
2. Add your organizations asset data to the [map](#).

Note:

Configure layer names and pop-ups to meet your organizations needs.

3. Click **Save > Save** to save the map.
4. Repeat as needed with the following maps: **Walkout Survey Manager** and **Walkout Survey Reviewer**.

[Back to top](#)

Use Walkout Survey

The Walkout Survey delivers a set of capabilities that helps you streamline the management of walkout surveys and quickly evaluate the feasibility of proposed broadband expansion projects.

In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

Create broadband expansion project

Increasing broadband access to customers is crucial for communication organizations and public entities. Organizations need to be able to efficiently evaluate the feasibility of a new network expansion project. Creating and managing walkout survey projects allows organizations to save time and monitor the progress of projects.

Add a new project

In this workflow, you will assume the role an operations manager who wants to create a new walkout survey project.

1. Sign in to your ArcGIS organization and browse to the Walkout Survey Center web experience.
2. Open the item page and click **View**.
3. Click the **Manage** button in the app header to open Manage page.
The **Edit Project** widget is opened by default, which allows you to create and edit existing walkout survey projects.
4. Use the Search widget to look for your area of interest and choose the appropriate address from the drop-down list.
5. On the **Edit Project** widget, type the name of the project in the **Project Name** field.

[Back to top](#)

Define the project name once and the Project Editor widget will add the project name to all new project features. Additionally, the project name cannot be changed once the project feature is created.

6. To create a Project Area, click the **Proposed** template.

Note:

The Project Area should always be created first.

7. On the map, draw a new Project Area.
You are prompted with a **Project Area** form.
8. Fill in the form with the Project Area information.
9. Click **Save** to complete the Project Area creation workflow.
10. Repeat steps 6-9 to create a new **Initial Route** or follow the steps below to load an existing route into the walkout survey project.
 - a. Open the **Add Data** widget, add an initial route to the map using the **Search, URL** or **File** tab.
 - b. On the **Edit Project** widget, select the **Initial Route** template and from the drop-down below select **Copy by rectangle**.
 - c. On the map select the route that you like to add to the project.
 - d. Click **Create Feature** and update the Initial Route form with the necessary details.
 - e. Click **Save** to complete the loading of the Initial Route workflow.
11. Repeat steps 6-9 to create a new **Target Site**.

Create a project package

In this workflow, you will assume the role of an operations manager who wants to create project package and provide it the field staff team to perform the walkout survey in the field.

Note:

You must be assigned a role of Administrator or custom role which includes the privilege to Create and edit notebooks in order to run an ArcGIS Notebooks and complete the following steps.

1. Verify you have the Walkout Survey Center web experience open.
2. Click the **Manage** button in the app header to open Manage page.
3. Open the **Project Creator** widget to and click the **Project Creator** button to open the Project Creator notebook.
4. Click **Cell > Run All** to load the project packaging form in this notebook.
5. Select the newly create project from the drop-down and click **Create Project Package**.
6. Click the **Open Project Folder** link to see the project items.

[Back to top](#)

7. Check the check box next to each of the items below:

Item	Name
Feature Layer (hosted, view)	<Project Name>
Web Map	Field Walkout Survey - <Project Name>

8. Click **Share**.
9. In the **Share** window, click **Edit group sharing**.
10. Check the box next to the group that you want to share the item with.
11. Click **OK** and click **Save**.

Assign walkout survey

The ability to perform walkout surveys requires field staff to be assigned to perform the assessment by the dispatcher. Assigning and tracking the field staff member performing the work allows the dispatcher to streamline field operations for the network expansion project.

In this workflow, you will assume the role of a dispatcher who wants to assign field staff with to perform a walkout survey.

1. Verify you have the Walkout Survey Center web experience open.
2. Click the **Assign** button in the app header to open Assign page.
3. Click **+ Assignments**.
4. For **Assignment Type**, choose **Field Assessment** for high-level assessment or **Field Survey** for an in-depth walkout survey.
5. Click **Search for an address** and type the project name from the result to view its details and click **+ Create Assignment**.
 - a. Move the blue pin on the map to the desired start location of the walkout survey project.
6. Under **Assigned to**, click **Assign** and select the mobile worker who will complete the work.
7. For **Priority**, choose a priority level for the assignment.
8. Click **Due Date**, and in the date picker, choose the appropriate date as the due date and time for the assignment to be completed.
9. If you use a work order management system, in the **ID** field, type the work order number for this assignment.
10. In the **Description** text box, type all the information the mobile worker needs to know to complete their assignment.
11. Under **Attachments**, add any relevant attachments to the assignment.
12. Click **Create Assignment** to create the assignment and assign it to the mobile worker specified.

[Back to top](#)

The mobile worker receives the notification on their mobile device.

Conduct walkout survey

Performing a walkout survey is critical to determining if a proposed network expansion project is feasible. Field staff conduct walkout surveys to provide accurate and current information to determine the feasibility of network expansion projects.

In this workflow, you will assume the role of a field staff member who has been assigned to perform a walkout survey.






1. Download ArcGIS Workforce onto your mobile device.
2. Open ArcGIS Workforce and sign in to your ArcGIS organization.
3. Tap the **Walkout Survey Assignments** map.
4. Tap **Download**.
5. Tap the **Walkout Survey Assignments** map to open it.
6. In the **To do** list, tap an assignment to view its location on the map and see details about the assignment.
7. In the assignment details, tap **Directions**. A list of navigation apps that are installed on your device appears. Tap the app you want to use and allow Workforce to open it.
The app opens, generating a route to your assignment.
8. In the assignment details, tap **Start** to begin working on an assignment.
9. In the assignment details, tap **Take Photo** to take and attach a photo.
10. Tap **Attach** to record video and audio and to attach other photos from your device.
11. Swipe up and tap **Open in Field Maps**.
12. Search for the **Field Walkout Survey - <Project Name>** map.
13. Tap the **Field Walkout Survey - <Project Name>** map to open it.
14. Browse to the collection location.
15. Tap **Add** and tap **General Assets**.
16. Tap **Edit**.
17. Swipe up on the form and tap **Notes** to provide any important information about the asset.
18. Swipe down and tap **Add Point**.
19. When you're finished, at the top right, tap the check mark or **Submit**.

Note:

Your interface may vary depending on the type of mobile device that you use.

20. Add the asset to the walkout survey project by tapping **Related** button  the tap **Add**.

[Back to top](#)

21. Provide any notes about the specific asset for this project and click **Submit**.
The asset has now been added to the walkout survey project.
22. Tap the Project Area polygon on the map then tap the **Related** button  and select **Walkout Survey Observation, Fielded Route or Target Site**.
23. Add the selected feature to the map.
Learn more about [capturing features](#)
24. Tap the Project Area polygon on the map, tap the **Related** button  the select **Project Table**.
This table provides a list of all the assets collected for this specific walkout survey project.
25. After you have finished collecting data, return to Workforce.
26. To pause, decline, or reset the assignment, tap the **Overflow** button  and tap the appropriate status, or tap **Cancel**.
27. In the assignment details, tap **Finish** when you have completed the assignment.
28. Optionally, tap **Sync**  ( if you have edits that aren't synced) and tap **Sync Now** to sync them.
Changes to the status of your assignments automatically syncs with your ArcGIS organization at the default interval of every 15 minutes.

Monitor project progress

The process of performing walkout surveys is critical to expansion project moving forward. Monitor the progress of the field survey helps the operations manager to quickly evaluate the route expansion feasibility.

In this workflow, you will assume the role of an office staff member who wants to perform a walkout survey.

1. Verify you have the Walkout Survey Center web experience open.
2. Click the **Monitor** button in the app header to open the Monitor page.
3. Use the **Project Status** and **Project Creation Date** filters to filter walkout survey projects.
4. On the **Project Details** tab, review the **Project Information** list and click on a project.
Click a project from the list filters the **Pole Information** tab and the **General Assets** section.
5. On the **Pole Information** tab, review the high-level metrics for poles collected during walkout surveys.
6. Use the **Pole Type** and **Violation** charts to filter the **Pole Information** list.

Note:

Dashboard charts are linked when clicking on charts related details are filtered and updated in other elements in the dashboard.

Update project status

Once the survey has been performed and completed the status of the project can be updated to reflect the progress. The ability to update the status streamlines the workflow and lets all in your organization know the current state of the project.

In this workflow, you'll assume the role of an office staff member who wants to manage walkout survey project projects.

1. Verify you have the Walkout Survey Center web experience open.
2. Click the **Manage** button in the app header to open Manage page.
3. Open the **Filter Project** widget and select **Project Name** or **Status** to filter the map.
4. To update the status of a project open the **Edit Project Status** and click on the project area on the map that you would like to update.
5. To update the status of the walkout survey project, select a new status from the drop-down list.

This updates all related features with a status field. If the status is set to an archived status it will be filtered from the map.

Water Distribution Data Management

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Water Distribution Data Management

Water Distribution Data Management can be used to map water distribution assets, edit data, view system maps in the field and office, view asset reports, and collaborate with map notes.

It turns ArcGIS into a system for water distribution organizations to easily inventory their assets and keep information up to date. It provides simple to use interactive system maps and dashboards for office and field staff, and increases collaboration.

After deploying, organizations with no water distribution data can immediately begin mapping their water distribution systems using GPS or digitizing data with web or desktop software. Organizations with existing spatial water distribution data can load it and begin using the apps.

Requirements

Water Distribution Data Management requires the following:

- ArcGIS Enterprise

[Back to top](#)

- ArcGIS Pro 2.9 (Basic, Standard, or Advanced)
- ArcGIS Field Maps

Information products

Water Distribution Data Management includes the following information products:

Item	Description	Minimum user type
Water Distribution Data Manager	An ArcGIS Pro project package used to manage water distribution system data and map notes	GIS Professional (Basic, Standard, or Advanced)
Water Distribution Editor	An ArcGIS Web AppBuilder application used to edit water distribution system data and map notes	Editor
Water Distribution Viewer	An ArcGIS Web AppBuilder application used to view water distribution map and create map notes	Editor
Water Distribution Dashboard	An ArcGIS Dashboards application used to view water distribution asset information	Viewer
Water Distribution Map Notes Manager	An ArcGIS Web AppBuilder application used to review and manage map notes	Editor
Water Distribution Mobile Viewer	A map used in ArcGIS Field Maps to view water distribution system assets and view or create map notes	Mobile Worker
Water Distribution Asset Collector	A map used in ArcGIS Field Maps to capture and modify water distribution assets and create map notes from the field	Mobile Worker

Release notes

The following are the release notes:

Version	Description
2.0	<ul style="list-style-type: none"> • Manufacturer and Model fields were added to the Hydrant Maintenance Inspection table to support the Water Utility Hydrant Inspections solution.

[Back to top](#)

1.3	<ul style="list-style-type: none"> The Minimal Gallery app has been removed from the solution item.
1.2	<ul style="list-style-type: none"> Name changed from Water Distribution Data Management for ArcGIS Online to Water Distribution Data Management.
1.1	<ul style="list-style-type: none"> Added Backflow device to the feature service. Added tables for Backflow, Hydrant Maintenance, Hydrant, Meter, and System Valve inspections.
1.0	<ul style="list-style-type: none"> First release of Water Distribution Data Management for ArcGIS Online.

Configure Water Distribution Data Management

The Water Distribution Data Management solution can be configured to meet specific needs in your organization. The sections below outline some administrative tasks to update and manage the solution to fit your organization's needs.

Load data

In some cases, you may need to load existing data into the solution before sharing the maps or applications. Review the maps or applications provided with the solution and determine what, if any, source data you want to load. Water Distribution Data Management also includes a data model to store information about typical Water Distribution system assets. To explore the schema, view the [data dictionary](#).

Tip:

If you do have to load data into the solution, you may want to develop a source-target matrix to track how your source data will be loaded into the target layer or layers used in the solution.

Depending on the format of your source data, you may choose to append your source data to the new layers. Once you have determined what source data must be loaded, complete one of the data loading workflows below:

Use the Append tool

In ArcGIS Pro, the [Append](#) can be used to append multiple input datasets to an existing target dataset. Input datasets can be point, line, or polygon feature classes.



To append features to the target layer or layers using the Append tool, complete the steps below:

1. In ArcGIS Pro, sign in to your ArcGIS organization.

2. To open the **Water Distribution Data Manager** project, click **Open another project**, click **My Content** under **Portal**, double-click the **Water Distribution Data Management** folder, and click **Water Distribution Data Manager**.
3. Add your existing source layers to a new map. To add the target feature layers from the WaterDistributionSystem feature service, click **My Content** under **Portal**, double-click the **Water Distribution Data Management** folder, and add the WaterDistributionSystem feature service to the map.
4. On the **Analysis** tab, in the **Geoprocessing** group, click **Tools** to open the **Geoprocessing** pane.
5. In the search bar, type Append and click to open the **Append** tool.
6. Add your existing water distribution data from the map to the **Input Datasets** parameter.
7. For **Target Datasets**, use the **WaterDistributionSystem** features in the map.
8. In the **Schema Type** parameter, use the drop-down menu to choose **Use the Field Map to reconcile schema differences** to perform field mapping.
9. Update your field mapping and click **Run**.
10. Repeat this process as needed to load all your existing data into the target Water Distribution schema.

Use the Data Loading Tools

The Data Loading toolbox can be used in ArcGIS Pro to streamline loading data from a source to a target dataset and provide the ability to perform in-process data transformation. Setup the [Data Loading toolbox](#) before getting started with the steps below.

1. Open the **Water Distribution Data Manager** project.
2. On the **Project** tab, click **Python** to access the Python Package Manager.
3. Under **Project Environment**, click **Manage Environments**.
4. Click **Clone Default**  to clone your default environment.
5. Click the **Active** button for the new environment, and click **OK**.
6. Restart ArcGIS Pro to allow your environment changes to take effect.
7. In the Python Package Manager, click **Add Packages** to see the Python packages available for installation.
8. Click **Refresh**  to update the list of available packages.
9. In the **Search** box, type dltsoolutions to find the Data Loading Tools toolbox.
10. Select the **dltsoolutions** package and click the drop-down arrow to update the version.
11. Click **Install**.
The **Install Package** dialog box appears.
12. Review the terms and conditions and check the box to agree.
13. Click **Install** to install the package.

[Back to top](#)

14. Once the installation is complete, close ArcGIS Pro.

The Data Loading Tools toolbox is now installed. The next time you start ArcGIS Pro, you can access it from the geoprocessing toolboxes.

15. Review [An overview of the Data Loading toolbox](#) to learn more about the tools and how to use them to load data into the WaterDistributionSystem layers.

Configure the Water Distribution Data Manager ArcGIS Pro project

The Water Distribution Data Manager project includes a Water Distribution Data Manager map with broken links.

1. In ArcGIS Pro, sign in to your ArcGIS organization.
2. To open the **Water Distribution Data Manager** project, click **Open another project**, click **My Content** under **Portal**, double-click the **Water Distribution Data Management** folder, and click **Water Distribution Data Manager**.
3. In the **Catalog** pane, expand **Maps** and double-click **Water Distribution Data Manager** to open the map.
4. In the **Contents** pane, click the red exclamation point **!** next to the **Map Notes** layer.
The **Change Data Source** dialog box appears.
5. Click **My Content** under **Portal**, double-click the **Water Distribution Data Management** folder, double-click the **MapNotes_managing** feature service, and double-click the **Map Notes** layer.
6. In the **Contents** pane, click the red exclamation point **!** next to the **Service Connection** layer.
The **Change Data Source** dialog box appears.
7. Click **My Content** under **Portal**, double-click the **Water Distribution Data Management** folder, double-click the **WaterDistributionSystem_editing** feature service, and double-click the **Service Connection** layer.
The data source is repaired for the remaining layers.
8. In the **Contents** pane, right click the **Water Distribution Data Manager** map and click **Properties**.
9. Click the **Coordinate Systems** tab. In the **XY Coordinate Systems Available** section select the coordinate system that matches the layers in the map.

Note:

Ensure the coordinate system of the map matches that of the feature layers deployed in the solution. If these do not match there may be discrepancies in what units are displayed in the map.

10. Click **Save** to save the project.

[Back to top](#)

Add members to groups in your organization

Included with Water Distribution Data Management are four groups designed to help managers organize their members based on their privileges and their work. The solution includes the following groups: Water Distribution Editors, Water Distribution Field Users, Water Distribution Map Notes Managers, and Water Distribution Office Users.

To add members to the groups, complete the following steps:

1. In a browser, sign in to your ArcGIS organization.
Verify that you have privileges to manage member groups before continuing.
2. Click **Groups** at the top of the site.
3. Click the name of the group to open the group details pages.
4. On the **Settings** tab, edit and update the properties of the group, including access, sharing properties, and group ownership.
5. Click the **Overview** tab and click **Invite users**.
6. Select the members you want to add and click **Add to group**.
7. Repeat steps 3 through 6 for each group you need to add members to.

The provided groups are intended to be utilized by members with a minimum of the following user types in order to fully use the provided maps and apps:

Group name	User type
Water Distribution Editors	<ul style="list-style-type: none">• Editor• GIS Professional Basic with ArcGIS Pro (minimum of one license recommended)
Water Distribution Field Users	<ul style="list-style-type: none">• Mobile Worker
Water Distribution Map Notes Managers	<ul style="list-style-type: none">• Editor
Water Distribution Office Users	<ul style="list-style-type: none">• Editor

Set the default map extent to your service territory

When the Water Distribution Data Management solution is deployed into your organization, it uses the [map default](#) set in your organization. If this property has not been set, you may want to quickly update a few maps and apps to your service territory manually to avoid having to pan and zoom to your area each time you open a map. Follow the steps below to update the initial extent of the maps and apps provided with this solution.



1. In a browser, sign in to your ArcGIS organization.
2. To set the default map extent for the **Water Distribution Viewer** application, browse to the **Water Distribution Viewer** item page and click **Edit Application**.

[Back to top](#)

3. On the **Map** tab, zoom the map to the desired extent and click **Use current map view** under **Set initial extent**. Click **Save**.
4. Repeat steps 2 and 3 to set the default map extent for the **Water Distribution Editor** and **Water Distribution Map Notes Manager** applications.
5. To set the default map extent for the **Water Distribution Asset Collector** map, open the **Water Distribution Asset Collector** map.
6. Zoom the map to the desired extent and save it.
7. Repeat steps 5 and 6 for the **Water Distribution Mobile Viewer** map.

Configure the dashboard

When you deploy the Water Distribution Data Management solution to your organization you have the option to change spatial reference. If you selected a spatial reference with a linear unit other than meters, you will need to revise the dashboard by completing the following steps.

1. In a browser, sign in to your ArcGIS organization.
2. To set the default map extent for the **Water Distribution Dashboard** application, browse to the **Water Distribution Dashboard** item page and click **Edit Dashboard**.
3. Navigate to the **General** tab and click the configure button  on **Miles of Main** indicator.
4. On the **Data** tab, change the **Factor** setting to the correct conversion.
The dashboard **Factor** setting is configured to convert meters to miles. Learn more about how to [Convert Values](#).
5. Click the save button .

Use Water Distribution Data Management

After deploying, organizations with no water distribution data can immediately begin mapping their water distribution systems using GPS or digitizing data with web or desktop software. Organizations with existing spatial water distribution data can load it and begin using the apps.


In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

Add data in the field


In these workflows, you will be taking the role of a mobile worker collecting data in the field. If you have a mobile-centric workforce, this may be the best option to collect new data or validate existing data.

Collect hydrants and valves

As a mobile worker, you can add hydrants and associated valves from the field.

1. Open the ArcGIS Field Maps app and sign in to your ArcGIS organization.
2. Open the Water Distribution Asset Collector map.
3. Navigate to the collection location.
4. Tap **Add** .
5. From the list of features, search for **Fire Hydrant** by swiping up or typing `fire hydrant` in the filter search bar.

If the hydrant is added to an inaccurate location, or you want to move the point manually, move the crosshairs to the correct location by panning the map and tapping **Update Point**. This moves the added manhole to the specified location.

6. Fill in any attributes and tap **Submit**.
7. If the fire hydrant has an accompanying valve, you can add it next.
8. Tap **Add** .
9. Search for **Hydrant** by swiping up or typing `hydrant` in the filter search bar and select **Hydrant** under **Service Valve**.

If the hydrant valve is added to an inaccurate location, or you want to move the point manually, move the crosshairs to the correct location by panning the map and tapping **Update Point**. This moves the added hydrant valve to the specified location.

[Back to top](#)


10. Fill in any attributes and tap **Submit**.

Note:


Move to a safe location to fill in the attributes; the added hydrant valve remains in its original location.

Collect service features

As a mobile worker, you can collect service meters and/or valves using ArcGIS Field Maps in the field.

1. In ArcGIS Field Maps open the Water Distribution Asset Collector map.
2. Browse to the collection location.
3. Tap **Add** .
4. From the list of features, search for the type of meter. In this example you are collecting a residential meter. Search for **Residential** by swiping up or typing `residential` in the filter search bar and select **Residential** under **Service Meter**.

A point is added to your location.

5. Fill in any attributes and tap **Submit**.
6. Ensure the last collected service meter is selected and browse to the next meter location. Tap the **Copy** button at the bottom of the screen to copy the previously added meter to the location of the new meter.
7. Adjust the attributes and tap **Submit**.
8. If the meter has an accompanying service valve, you can add it next.
9. Tap **Add** .
10. From the list of features, search for **Service** by swiping up or typing `service` in the filter search bar and select **Service** under **Service Valve**.

A point is added to your location.

11. Fill in any attributes and tap **Submit**.

Add map notes

As a mobile worker, you can add a map note to the system.

1. In ArcGIS Field Maps open the Water Distribution Asset Collector map.
2. Navigate to the map note location.
3. Tap **Add**.
4. From the list of features, search for the **Map Notes** type by swiping up or typing a description in the filter search bar, select the **Map Notes** type, and add the note to the map by sketching a polygon in the map note location.

[Back to top](#)

Cancel Collect Submit

GPS accuracy 15.9 ft

1" COP

New Feature Area 60 sq ft

Add Point

Take Photo Attach

Issue *
Wrong Location

Severity
Low

Notes
Hydrant in grass between sidewalk and street

[Back to top](#)

5. Fill in the attributes and click **Submit**.

The map note is added to the map and is available to be viewed and reviewed by others in the organization.

Add data in the web

In the workflows below, you will be taking the role of an editor adding data in ArcGIS Online. The workflows explain how to add data in the web, use the provided dashboard, and add and manage map notes.

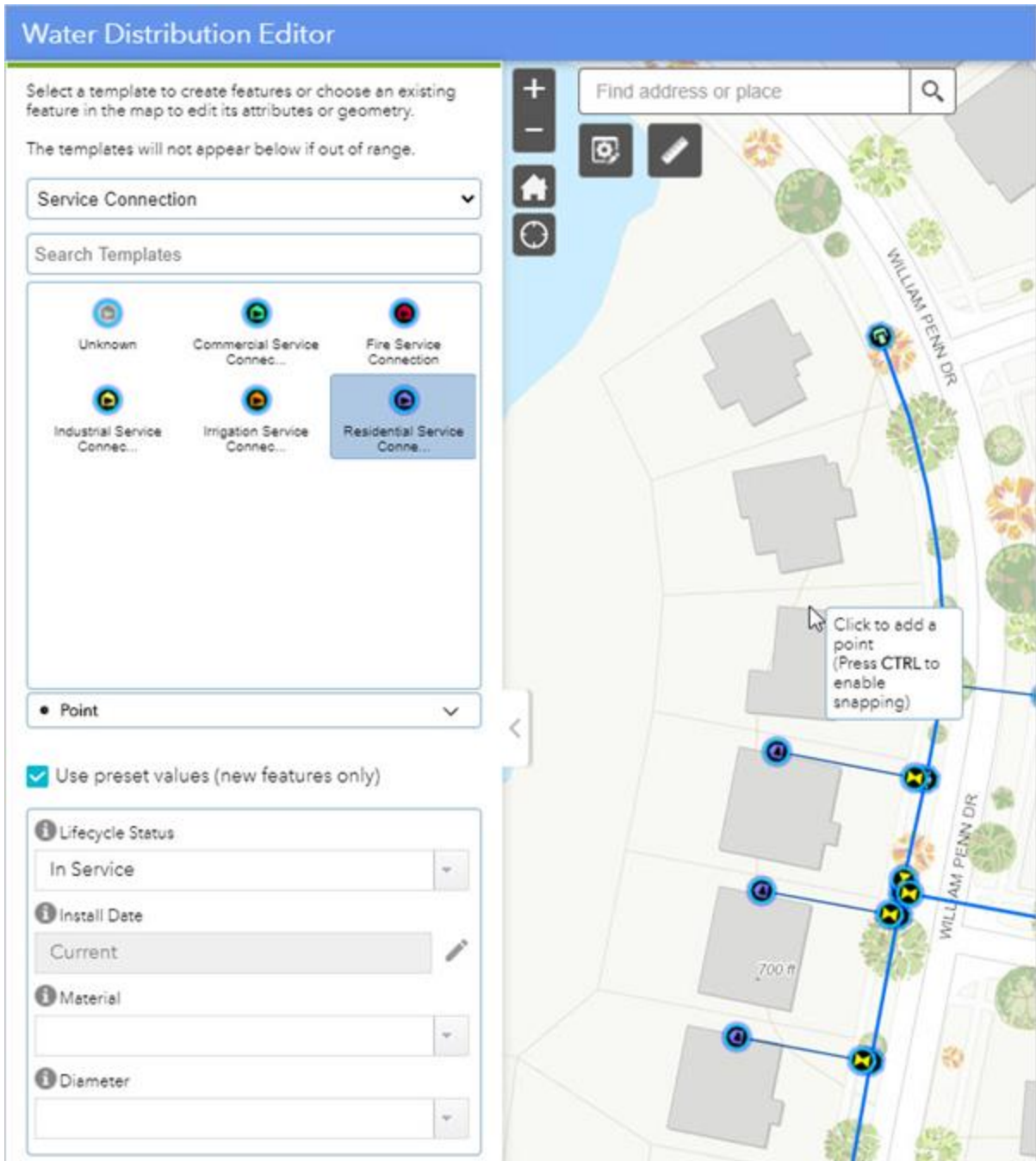
Add service connections

As an editor, you want to use a web app to add service connections to the map.

1. In a browser, sign in to your ArcGIS organization.
2. At the top of the site, click **Groups**.
3. Browse to the **Water Distribution Editors** group and locate the **Water Distribution Editor** app. Click **View Application** to launch the app.

In the Water Distribution Editor app, the **Asset Editor** widget is open by default on the left side of the window when the app opens.

4. In the **Asset Editor** pane, click the template drop-down menu and select **Service Connection**, and select **Service Connection** from the list of options.
5. Scroll down and fill in the preset values.
6. With service connection selected, click to add the service connection to the map.



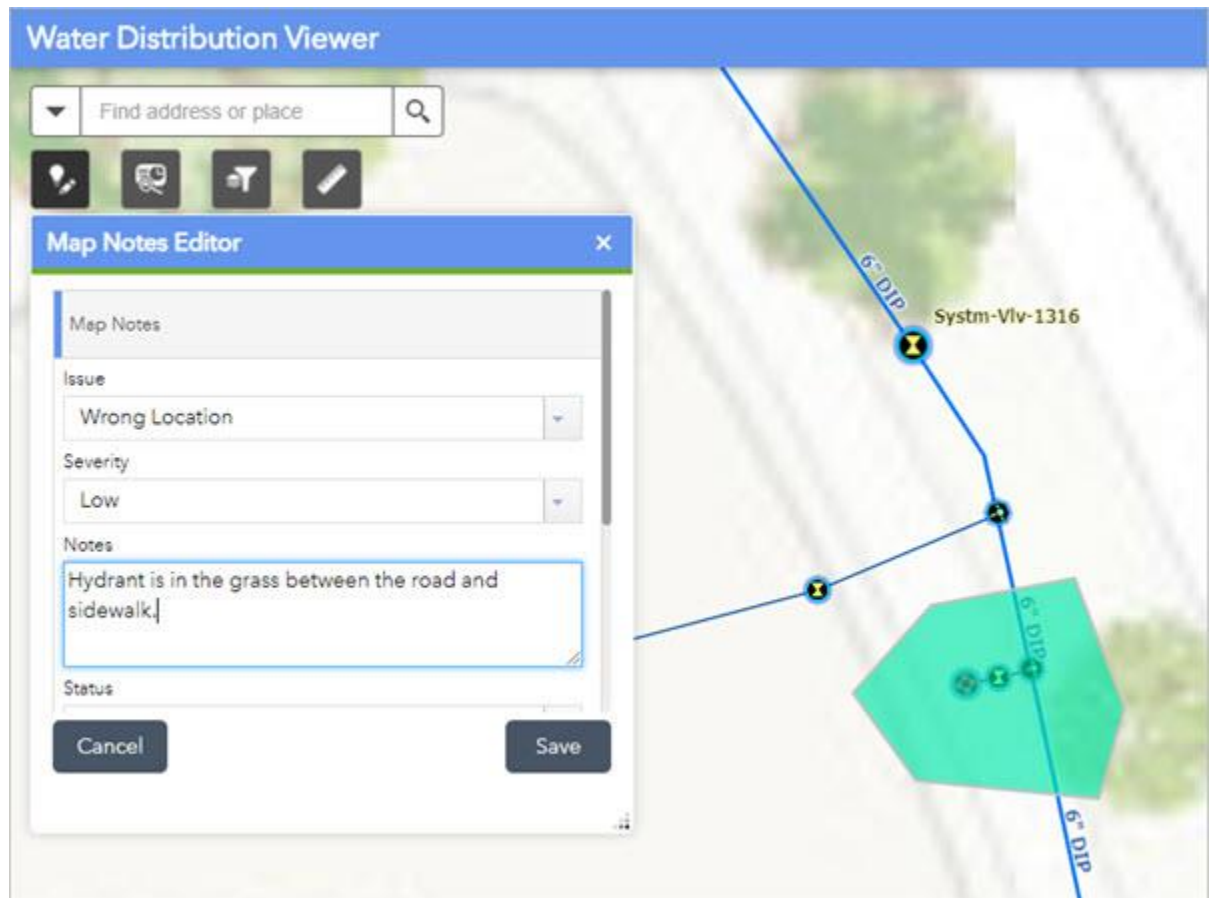
7. You are prompted to update attributes and click **Save**.
8. Continue adding service connections, changing the service connection type as needed. The template and preset attributes remain selected so you can continue adding service connections.

Add map notes

As a user, you can add a map note to the system.

[Back to top](#)

1. Browse to the **Water Distribution Office Users** group and locate the **Water Distribution Viewer** app. Click **View Application** to launch the app.
 - a. In the Water Distribution Viewer, click the **Map Notes Editor** widget to open it.
 - b. Choose a map note issue type and sketch a polygon in the desired map note location.



- c. Enter attributes and click **Save**.

Map note changes are reflected in other apps and maps across the system so others in your organization can view the latest information.

Manage map notes

As a GIS manager, you can review and resolve map notes about your system to ensure issues are addressed.

1. Browse to the **Water Distribution Map Notes Managers** group and locate the **Water Distribution Map Notes Manager** app. Click **View Application** to launch the app.

In the upper right of the app, there are a number of widgets that have been configured to filter, edit, update, and manage map notes.
2. Review the list of included widgets to learn how to use them to manage map notes:

[Back to top](#)

- **Legend**—View a list of included layers in the map. The legend displays what is visible on the map, so zooming in or out can expand or reduce the list if scale suppression is set on the layers.
- **Filter**—Use the Creation Date, Issue, and Severity filters to view only map notes that fit the entered criteria. Select a date range or an option from the drop-down menu and turn on a filter to view the selection on the map.
- **Batch Edit Map Notes**—Select a group of map notes using one of the selection tools and update values for all the selected features at once.
- **Map Notes Editor**—Add a new map note or edit an existing map note.
- **Map Notes Summary**—View all the map notes by status and expand each section to view the individual notes. Click a note to zoom to it on the map and view its attributes in a pop-up.

Use the water distribution dashboard

As a member of the utility, you want to have a comprehensive view of your water distribution system assets.

1. Browse to the **Water Distribution Office Users** group and locate the **Water Distribution Dashboard** app. Click **View Dashboard** to launch the dashboard.
2. View the water distribution system statistics on the **General** tab, click the **Water Main** tab to view the water main details, click the **Service** tab to view details about services and click **Hydrants** to view the hydrant details.

Add data in ArcGIS Pro

In the workflows below, you will be taking the role of an editor adding data in ArcGIS Pro. If you have known locations of assets or as-built drawings, the following workflows demonstrate using ArcGIS Pro to add data to your water distribution system.

Note:

The first time you open the Water Distribution Data Manager map in ArcGIS Pro, the layers will show as broken. Follow the steps to [Configure the Water Distribution Data Manager ArcGIS Pro project](#) to fix your layers.

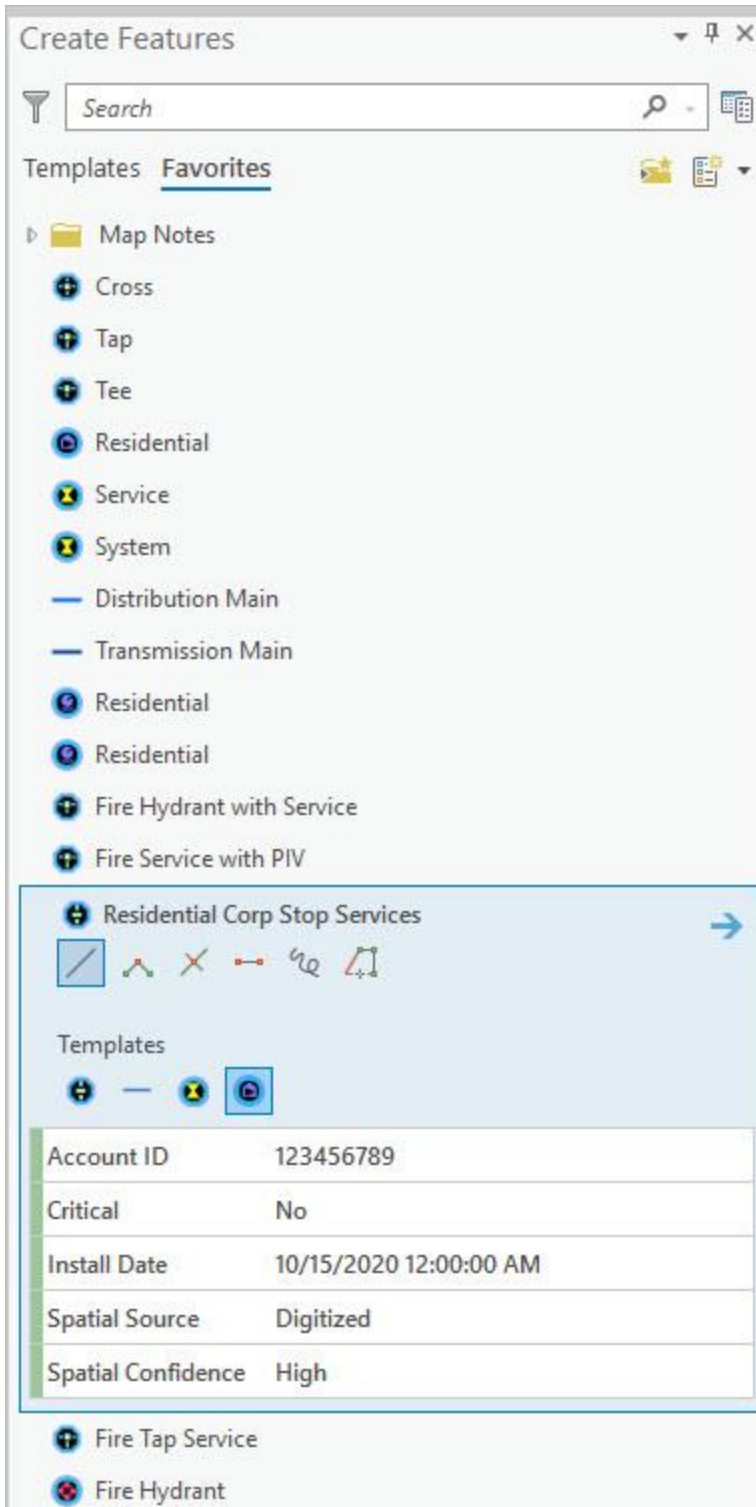
Add residential service laterals

As an editor, you can add a service lateral and service connection to the map in ArcGIS Pro.

1. Open the **Water Distribution Data Manager** ArcGIS Pro project, sign in to your ArcGIS organization.
2. In the **Catalog** pane, expand **Maps** and double-click **Water Distribution Data Manager** to open the map.
3. On the **Edit** tab, in the **Snapping** group, click **Snapping** and turn snapping on.

[Back to top](#)

4. On the **Edit** tab, in the **Features** group, click **Create**.
The **Create Features** pane appears.
5. Select the **3/4" Residential Service** group template from the **Favorites** list and click through the included templates to fill in the attributes. The group template works by adding the tap, service valve, and service connection with three consecutive clicks, and automatically digitizes the lateral.



6. Add the template to the map by following the steps below:
 - a. Snap to the main and click to add the tap.
 - b. Click to add the service valve to the map.

- c. Double-click the location on the map for the service connection. This completes the sketch, adding a residential service lateral, the service valve, and tap at the main.



7. On the **Map** tab, in the **Selection** group, click **Attributes** and fill in the remaining attributes.
8. Repeat steps 5 through 7 to add the remaining residential lateral services to the map.

Add features from an as-built drawing

As an editor, you can add assets such as fittings and mains to the system from an as-built drawing.

1. In the **Catalog** pane, expand **Maps** and double-click **Water Distribution Data Manager** to open the map.
2. On the **Map** tab, in the **Layers** group, click **Add Data**. Browse to the location of the as-built drawing, select it, and click **OK** to add it to the map.
3. With the image selected in the **Contents** pane, browse to the **Raster Layer** ribbon. On the **Appearance** tab, in the **Effects** group, change the **Layer Transparency** setting to 50%.
4. On the **Imagery** tab, in the **Alignment** group, select **Georeferencing**.
If you are unfamiliar with georeferencing, see [Overview of georeferencing](#) in the ArcGIS Pro help.
5. On the **Georeferencing** tab, in the **Adjust** group, click **Add Control Points**.
 - a. Add a minimum of two control points to connect your image to your known map positions.
 - b. Once you have added all the control points, browse to the **Georeferencing** tab and click **Save**.
6. On the **Edit** tab, in the **Snapping** group, click **Snapping** and turn snapping on.
7. On the **Edit** tab, in the **Features** group, click **Create**.

[Back to top](#)

The **Create Features** pane appears.

8. Select an asset from the template list and add the asset to the map where it corresponds to the georeferenced as-built drawing.
9. On the **Map** tab, in the **Selection** group, click **Attributes** and fill in the attributes.
10. Remove the image from the **Contents** pane once digitizing is complete.

Add map notes

As an editor, you can add a map note to the system.

1. In the **Catalog** pane, expand **Maps** and double-click **Water Distribution Data Manager** to open the map.
2. On the **Edit** tab, in the **Features** group, click **Create**.

The **Create Features** pane appears.

3. In the **Favorites** list, expand the **Map Notes** folder and choose a **Map Note** option. Add the map note by digitizing a polygon on the map at the desired location.
4. On the **Map** tab, in the **Selection** group, click **Attributes** and fill in the attributes.

The map note is added to the map and is available to be viewed and reviewed by others in the organization.

Weather Operational Effects

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Weather Operational Effects

Weather Operational Effects can be used to quickly understand the impact of weather on military operations.

Weather Operational Effects applies doctrinal operational thresholds against weather forecast data to determine the weather effects on specific types of operations and equipment. The resulting tactical decision aids—such as charts, dashboards, and overlays—enable planners and leadership to see weather effects over space, maximize operational effectiveness, and reduce operational risk.

The Weather Operational Effects solution delivers a set of capabilities that help you to understand weather conditions within an area of responsibility, analyze potential operational effects of weather, and share information among staff and leadership.

Requirements

Weather Operational Effects requires the following:

- ArcGIS Enterprise
 - ArcGIS Image Server configured for raster analytics
- ArcGIS Pro 3.0 or later (Standard or Advanced)
 - ArcGIS Spatial Analyst extension or
 - ArcGIS Image Analyst

Information products

Weather Operational Effects includes the following information products:

Item	Description	Minimum user type
Weather Operational Effects Project	A zipped file with an ArcGIS Pro project and supporting files used by intelligence staff to compile and analyze weather data.	GIS Professional Standard
Weather Operational Effects Center	An ArcGIS Experience Builder app used by intelligence staff, operations staff, and leadership to review weather data, forecasts, and effects.	Viewer
Climate Station Dashboard	An ArcGIS Dashboards app used by operations staff and leadership to view climate station data.	Viewer
Current Weather Dashboard	An ArcGIS Dashboards app used by operations staff and leadership to view current weather conditions.	Viewer
Forecast Dashboard	An ArcGIS Dashboards app used by operations staff and leadership to view forecasted weather and effects.	Viewer

Release notes

The following are the release notes:

Version	Description
1.1	<ul style="list-style-type: none">• Minor updates to tools in the Weather Operational Effects Project• Minor updates to Arcade in the Forecast Dashboard
1.0	<ul style="list-style-type: none">• First release of Weather Operational Effects

Configure Weather Operational Effects

Weather Operational Effects can be used to quickly understand the impact of weather on military operations.

In this topic, you'll learn how to configure the Weather Operational Effects solution to meet specific needs of your organization.

Configure the Weather Operational Effects project

To get started, follow the steps below to download and review the Weather Operational Effects Project

1. Sign in to your ArcGIS organization and browse to the Weather Operational Effects Project desktop application template.
2. From the item page, click **Download**.
3. In the **Catalog Pane**, expand the **Tasks** folder and then double-click the **Weather Operational Effects** task group.

Set up the Weather Operational Effects project

Weather Operational Effects can leverage either local or hosted data layers. Both sets of data are provided in the solution.

To set up the Weather Operational Effects project, complete the following steps:

1. In the Tasks pane, click the **Set up the Weather Operational Effects project** task group to expand the collection of tasks.
2. If you plan to utilize the Portal applications and hosted feature layers, double-click **Set up for Enterprise**.
3. If you do not plan to utilize Portal content and would prefer to use local data, double-click **Set up for Local Data**.

Configure threshold CSVs (optional)

Note:

This workflow is optional and doesn't need to be completed in order to work with the solution.

After Weather Operational Effects is deployed, downloaded, and unzipped, you can modify the threshold CSVs to best suit the needs and capabilities of your unit. Currently, the thresholds are based on U.S. Army doctrine - ATP 2-01.3 Intelligence Preparation of the Battlefield (March 2019).

[Back to top](#)

There are individual threshold CSVs for each supported operation and weather type. For instance, Tracked Vehicle operations have CSVs for rainfall rate, snow depth, and visibility. Each CSV outlines the favorable, marginal, and unfavorable conditions for this operation and weather type. These values are then used in the Threshold Operations tool.

1. Browse to the downloaded and unzipped **Weather Operational Effects** project folder and open the **thresholdtables** folder.
2. Double-click the CSV file you wish to update.
3. In the open CSV file, modify the numeric **Min** or **Max** values to best meet the needs and capabilities of your unit.

It is critical that these updated values are in the same units as the original values.

Note:

Only modify the numeric values in the **Min** and **Max** columns. Do not modify any of the other columns, rows, or CSV file names because it will result in processing errors.

For example, in AirborneOperationsCeiling.csv, the Unfavorable threshold currently spans a minimum of 0 feet and a maximum of 300 feet. These numeric values need to be updated to reflect 0 to 500 feet instead. For the Unfavorable row, you would replace the Max value of 300 with 500. This change also affects the Marginal threshold. For the Marginal row, you would replace the Min value of 300 with 500.

4. Save the updated CSV file.

Configure raster functions (optional)

Note:

This workflow is optional and doesn't need to be completed in order to work with the solution.

In addition to the threshold CSV files, the raster functions can also be modified to best suit the needs and capabilities of your unit. Like the threshold CSV files, there are individual raster functions for each supported operation and weather type.

To modify the raster functions applied to the forecast mosaic dataset as processing templates, follow these steps.

1. Browse to the downloaded and unzipped Weather Operational Effects project folder.
2. Open the WOE.aprx file.
3. In the **Catalog** pane, navigate to the default file geodatabase (WOE.gdb).
4. Expand the file geodatabase contents.
5. Right click the WOE_Forecast mosaic dataset and select **Manage Processing Templates**.

6. In the Manage Processing Templates pane, scroll to the raster function template that you wish to update.
7. In the template item, click the Edit button to open the **Function Editor**.
8. To modify the thresholds used in the raster function template, double-click the **Remap** item.
The Remap properties open.
9. In the List table, update the minimum and maximum values as needed.

Note:

Ensure that the units are the same as defined in the preceding **Unit Conversion** function. Do not modify the Output values as these correspond to the Favorable, Marginal, and Unfavorable classification defined in the **Attribute Table** raster function.

10. After editing is complete, click **OK**.
11. In the **Function Editor**, click the **Save** button to save your changes.

Configure Forecast Overlay web map and app

After the forecast mosaic dataset has been published as an image service using the Weather Operational Effects project and tasks, it can be configured with a Portal web map and application.

Configure Portal web map

First, the image service must be added to a web map and rendered using the operational effects processing templates.

1. In a browser, sign in to Portal.
2. Browse to the **Forecast Operational Effects Overlays Map** and open the item page.
3. Open the map in **Map Viewer Classic**.
4. Add the published image service to the map.
5. Follow the [Use a predefined template instructions](#) to render the image service with the operational effects processing templates.

Note:

Template load and application may take several minutes, depending on your system resources.

6. Save the map.

Configure Forecast Effects app

After the forecast image service has been configured in the web map, it can be used in an application with a **Time Slider** widget.

1. Browse to the **Forecast Operational Effects Overlays App** and open the item page.
2. Click **Edit Application**.
3. In the side panel, click the **Widget** button and browse to the **Time Slider** widget.
4. Follow the [Configure the Time Slider widget](#) instructions to use the widget to play the time-enabled image service.
5. Save the application.

Use Weather Operational Effects

The Weather Operational Effects solution delivers a set of capabilities that help you to understand weather conditions within an area of responsibility, analyze potential operational effects of weather, and share information among staff and leadership.

In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

Note:

Use your organization's data or configured apps to follow these workflows.

Get started

The Weather Operational Effects solution provides maps, a data structure, step-by-step instructions, and more. The tasks in the Weather Operational Effects project guide you through downloading forecast data, processing the forecast data for operational effects, and creating tactical decision aids.

First, you will download and unzip the Weather Operational Effects Project.

1. Sign in to your ArcGIS organization and browse to the Weather Operational Effects Project item.
2. From the item page, click **Download**.
3. Unzip the downloaded folder, and then from the unzipped folder, open the ArcGIS Pro project.
4. If you do not see the Catalog pane, from the **View** tab, in the **Windows** group, click **Catalog Pane**.
5. Expand the **Tasks** folder and then double-click the **Weather Operational Effects** task group.
6. In the **Tasks** pane, expand the **Explore Weather Operational Effects** task group to see the collection of tasks.

Tip:

Click a group heading or task name to view its description at the bottom of the **Tasks** pane.

7. Double-click **Overview** to review the project.
8. Double-click **What's Included** to review the data, maps, and files included with the project.

Each task group includes a set of steps for using the solution.

Use the Weather Operational Effects project

In this workflow, you will assume the role of an intelligence staff member who wants to use the ArcGIS Pro project to download, process, and review weather data for an Area of Responsibility and Points of Interest.

Create Area of Responsibility and Points of Interest

In order to understand the weather within an operational environment, this environment must first be defined. The first step is to create an Area of Responsibility (AOR) polygon and identify Points of Interest point features within this AOR. Points of Interest could be key and decisive terrain, convoy checkpoints, objectives, or local population centers.

In follow-on steps, the AOR and Points of Interest will be used to download, process, and determine the effects of weather forecast data.

To create and save these features, click the **Use Weather Operational Effects** task group and follow the **Create AOR and Points of Interest** task.

Acquire Forecast Raster Data

Acquiring and processing weather forecast data drives the overall solution. This solution uses Global Forecast System (GFS) data produced by the National Centers for Environmental Prediction (NCEP) and distributed on the NOAA Operational Model Archive and Distribution System (NOMADS).

GFS is multidimensional raster data "posted to a quarter degree equally spaced longitude/latitude grid with a temporal resolution of 1 hour out to 120 hours, then 3 hours for days 5-16, has 57 vertical standard pressure levels, and is cycled 4x/day." ([NOMADS](#)). For more information on GFS, visit the [Documentation Homepage](#).

NCEP utilizes a subscriber list to provide announcements regarding data servers. To receive these announcements, [subscribe to the list](#).

To download the required Global Forecast System (GFS) for your Area of Responsibility (AOR), follow the **Acquire Forecast Raster Data** step. This step downloads and saves GFS data as GRIB2 files and then adds those files to a mosaic dataset.

Process Points of Interest forecast data

Now that the forecast raster data has been downloaded for the Area of Responsibility, this data should be processed for the Points of Interest. Processing results in a standalone data table with a record for each location at every time slice/interval in the weather forecast data. The table contains fields for each forecast weather variable, such as surface temperature and wind gust.

The table also contains individual fields for operational thresholds, such as the effects of temperature on personnel. Using the threshold CSVs and the table weather values, these fields are populated with Favorable, Marginal, or Unfavorable ratings.

[Back to top](#)

To process Points of Interest forecast data and thresholds, follow the **Process Points of Interest Forecast Data** step.

Review forecast data and analysis

With the operational environment defined and weather forecast data processed, the resulting tactical decision aids can be reviewed.

To review the forecast data and analysis for your AOR and Points of Interest, follow the **Review Forecast Data and Analysis** step.

Publish and share the forecast mosaic dataset (optional)

If you intend to review the forecast overlays in the Portal applications, the forecast mosaic dataset must be published as an image service.

To publish and share this overlay content, follow the **Publish and Share Forecast Mosaic Dataset (optional)** step.

Configure the Forecast Overlay web map and app (optional)

After the forecast mosaic dataset has been published as an image service, the forecast overlay web map and app should be configured to use this service. The web map layers can be rendered by the operational effects raster functions and the app time widget can be configured to use the image time extent.

To configure the web map and app, follow the **Configure Forecast Overlay Web Map and App (optional)** step.

Review climate station data

Climate data can provide historical context and a baseline for possible future weather conditions. This solution utilizes [GHCN-D World Monthly Climate Means 1981 - 2010](#) climate station data from the [GIS for Climate Hub](#).

To review this data, follow the **Review Climate Station Data** step.

Use the Weather Operational Effects Center app

In this workflow, you will assume the role of an operations staff member who wants to use the Weather Operational Effects Center application to review historical, current, and forecasted weather.

Follow the steps below to review the content provided with the solution and created by your unit's intelligence staff.

1. In a browser, sign in to your ArcGIS organization and browse to the Weather Operational Effects solution.
2. Open the Weather Operational Effects Center application item page, and then click **View**.
3. The **Climate** page shows historical weather conditions. Select a climate station within your Area of Responsibility from the list to view historical temperature and precipitation data.
4. The **Current** page shows current weather conditions. Current weather station data is provided by ArcGIS Living Atlas of the World. Select a weather station within your Area of Responsibility from the list to view current temperature, humidity, wind, and visibility data.
5. To review the weather forecast analysis produced by your unit's intelligence staff, you will use the **Forecast** page.
6. To review the forecasted effects for Points of Interest, follow these steps:
 - a. In the dashboard header, select a Point of Interest.
 - b. An optional time frame may be selected as well. With a point of interest selected, the dashboard elements will populate with forecasted weather values and operational effects.
 - c. On the left side of the dashboard, click and then scroll through the operational effects list items to view forecasted weather conditions and the corresponding color-coded effects of Favorable, Marginal, and Unfavorable.
 - d. At the bottom of the dashboard, click through the weather conditions charts to view how conditions change over time.
7. To review forecast overlays (if published by your unit's intelligence staff), follow these steps:
 - a. On the dashboard, click the **Forecast Overlays** tab.
An embedded application opens.
 - b. Within the application, click the **Layer List** widget and toggle on the forecast overlay layer you wish to review.
 - c. Click the **Time Slider** widget to play and interact with the time-enabled forecast overlays.

Wildlife Management

This solution documentation has been archived and is no longer updated. Content and links may be outdated.

Mature phase Mar 2024 - Feb 2026	Retired phase Mar, 2026
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Introduction to Wildlife Management

Wildlife Management can be used to capture wildlife observations and monitor the status of wildlife populations in and around protected areas.

It streamlines wildlife field observations and the location-enabled wildlife observations help protected area managers evaluate the effectiveness of current wildlife management strategies. Monitoring wildlife observation information and trends derived from this information informs monitoring and protection plans developed for a protected area. Wildlife Management is typically implemented by conservation agencies that want to take a data-driven approach to managing wildlife populations.

The Wildlife Management solution delivers a set of capabilities that help you capture wildlife observations, monitor wildlife populations, and analyze trends in protected areas.

Requirements

Wildlife Management requires the following:

- ArcGIS Enterprise
- ArcGIS Survey123
- ArcGIS QuickCapture
- Survey123 Connect

Information products

Wildlife Management includes the following information products:

Item	Description	Minimum user type
Wildlife Observation Dashboard	An ArcGIS Dashboards app used by conservation staff to monitor the status of wildlife observations within and around protected areas	Viewer
Wildlife Observation Reporter	An ArcGIS Survey123 form used by conservation staff to collect wildlife observations	Mobile Worker
Rapid Wildlife Reporter	An ArcGIS QuickCapture project used by conservation staff to collect wildlife observations	Mobile Worker

Release Notes

The following are the release notes:

Version	Description
1.0	<ul style="list-style-type: none">• First release of Wildlife Management

[Back to top](#)

Configure Wildlife Management

In this topic, you will learn how to configure the Wildlife Management solution to meet specific needs in your organization.

Load data

Wildlife Management can be used to capture wildlife observations and monitor the status of wildlife populations in and around protected areas. In some cases, you may have this information in ArcGIS or another business system already.

Review the layers provided with the solution and determine what source data you would like to load. Then, load your existing data into the layers provided with the ArcGIS Solution before sharing the maps or applications.

Once you have determined what source data must be loaded, complete the data loading workflow below.

Load data from a shapefile

Data for WildlifeObservations be loaded from a shapefile by following the steps below:

1. Create a .zip file of your shapefile.
2. In your ArcGIS organization, browse to the feature layer you wish to populate.
3. On the feature layer item details page, Click **Update Data** and select **Append Data to Layer**.
4. Under **Filename**, click **Choose File**.
5. Navigate to your .zip file and click **Open**.
6. Under **Contents**, select **Shapefile**.
7. Click **Upload and Continue**.
8. Choose the layer that you wish to load data into and the layer that contains the updated data.
9. Uncheck **Update existing features**.
10. Click **Show field matching** and map the fields between the two layers.
11. Click **Apply Updates**.

Tip:

To make additional updates to a hosted feature layer, see [Append data to layers](#).

Updating the animal list

Species diversity varies between protected areas, so it is critical for protected area staff to be able to configure the animal list within the Wildlife Management solution. In the following sections, we will highlight how protected area staff can configure the Wildlife Management solution to match local animal species.

Update the animal choice list in the Wildlife Observation Reporter

To update the animal choice list, complete the following steps:

1. [Download](#) and install Survey123 Connect.
2. Start Survey123 Connect and sign in to your ArcGIS organization.
3. Click on **Wildlife Observation Reporter** to download the survey.
4. Click on **Wildlife Observation Reporter** again to open the survey.
5. On the left panel, click **Open XLSForm Spreadsheet**. A Microsoft Excel spreadsheet will open.
6. In the Microsoft Excel spreadsheet, click on the **Choices** tab. This tab comprises all the selectable options for survey questions.
7. In the animal choice list, add or remove animal names and labels as needed.
8. **Save** the Microsoft Excel spreadsheet and preview your changes in the Form Preview tab of Survey123 Connect.
9. In Survey123 Connect, click **Publish** in the left panel to publish your changes.

Note:

The default animal list configuration comes with SVG graphics for each animal. If additional animals are added, you will need to add a new graphic for each additional animal to the media folder of the Wildlife Observation Reporter survey and list the file name of the new image in the image column of the XLSForm.

Update the animal attribute list in the WildlifeObservations feature layer

To update the animal attribute list in the WildlifeObservations feature layer, complete the following steps:

1. On the WildlifeObservations feature layer item page, click the **Data** tab and then click the **Fields** button.
2. Click the **Animal** field to open the field settings and click **Edit** under List of Values (Domain).
3. Remove all animals from the list using the **Delete** button and enter the Label and Code for each new animal.
4. When updates are complete, click **Save**.


[Back to top](#)

Note:

The animal list in the WildlifeObservations feature layer must be identical (syntax and order) to the animal choice list you updated in the Wildlife Observation Reporter.

Update the Rapid Wildlife Reporter ArcGIS QuickCapture project

To update the Rapid Wildlife Reporter ArcGIS QuickCapture project, complete the following steps:

1. Click the **Apps** button  and **Open** ArcGIS QuickCapture.
2. Click the **Edit** button on the Rapid Wildlife Reporter project.
3. To add new animal buttons:
 - a. Select an existing animal button, then click the **Copy** button in the button pane.
 - b. In the **Appearance** tab, update the **Label** of the new animal button with the animal name. Then remove the existing animal image and add your new animal image. Select an existing animal button, then click the **Copy** button in the button pane.
 - c. In the **Data** tab, select the new animal name from the **Animal choice list** dropdown. This will reflect the changes made to the WildlifeObservations feature layer.
4. To delete animal buttons, select the **Animal** button then click the **Delete** button in the button page. To delete multiple animal buttons at once, hold down the shift key and select the animal buttons.
5. To reorder animal buttons, simply drag and drop the animal buttons in the desired order.
6. When you are finished making updates, click **Save**.

Note:

After the updates are saved, field users will see an option to update the Rapid Wildlife Reporter project in the ArcGIS QuickCapture application. Selecting update will download the new project updates to their device.

Use Wildlife Management

The Wildlife Management solution delivers a set of capabilities that help you capture wildlife observations, monitor wildlife populations, and analyze trends in protected areas.

In this topic, you'll learn how to use the solution by assuming the role of a user and performing the workflows below.

Note:

Use your organization's data or configured apps to follow these workflows.

Collect wildlife observations

The Rapid Wildlife Reporter app can be used to quickly capture wildlife observations in the field using a simple big button interface. The Wildlife Observation Reporter app can be used to capture detailed wildlife counts, information about the health of observed animals, and photos of the observation. Both can be used on a mobile device in a connected or disconnected environment.

Collect rapid wildlife observations

You will start by assuming the role of a mobile worker in a protected area collecting observations of wildlife. You are asked to use the Rapid Wildlife Reporter app to collect rapid observations.

1. Download ArcGIS QuickCapture onto your mobile device.
2. In ArcGIS QuickCapture, open the Rapid Wildlife Reporter app.
3. Tap the image of the animal that you have observed.
4. For **Total Animals**, type the number of animals, and then click **Done**.
5. Repeat these steps to add additional animal observations.
6. After recording your observations, close the project.

Note:

By default, wildlife observations automatically send when your device is in connected mode. Before sending, you can click the **Map** button and view the wildlife observation locations on a map, and then, if necessary, you can adjust the location.

Collect detailed wildlife observations

You will start by assuming the role of a mobile worker in a protected area collecting observations of wildlife. You are asked to use the Wildlife Observation Reporter to collect detailed observations.

[Back to top](#)

1. On a mobile device, in ArcGIS Survey123, open the Wildlife Observation Reporter form.
2. Tap **Collect**.
3. Complete the survey with as much information as possible.

Note:

Required information is marked with a red asterisk.

4. Tap the check mark to submit the form, and then tap **Send now**.

Monitor wildlife observations

Now you will assume the role of a protected area manager. You will view wildlife observations throughout the protected area.

1. In a browser, sign in to your ArcGIS organization, and then browse to the Wildlife Management solution.
2. View the Wildlife Observation Dashboard app.
The Wildlife Observation Dashboard app opens with an overview of the current program status.
3. On the left, adjust the filters to refine the results.
4. On the right, select an observation from the list.
The map zooms to the location of the observation, and a pop-up with more information appears.
5. Review the observation details.