

Nevada Division of Emergency Management / Homeland Security

Preliminary Damage Assessment Tool User Training

2023



A photograph of a steep, rocky hillside. A large pile of rubble and rocks is visible on the right side, with a significant cloud of dust or sand rising from it, partially obscuring the upper part of the slope. The foreground shows a dirt road or path. The overall scene suggests a landslide or a controlled rockfall event.

Begin Recording

Training Staff



Michael Lippmann
Co-Founder



Andrew Patterson
GIS Analyst



Chris Gabris
Project Manager



Training Agenda

Training Agenda

- Introductions15 mins
- ArcGIS Online Structure, Security, and Sharing15 mins
- Overview of Preliminary Damage Assessment Tool Data30 mins
- Preliminary Damage Assessment Tool Walkthrough30 mins
 - Field Survey Demonstration
 - Damage Assessment Dashboard Demonstration
- Download, sign-in, and access Survey20 mins
- Interactive Training1 hour



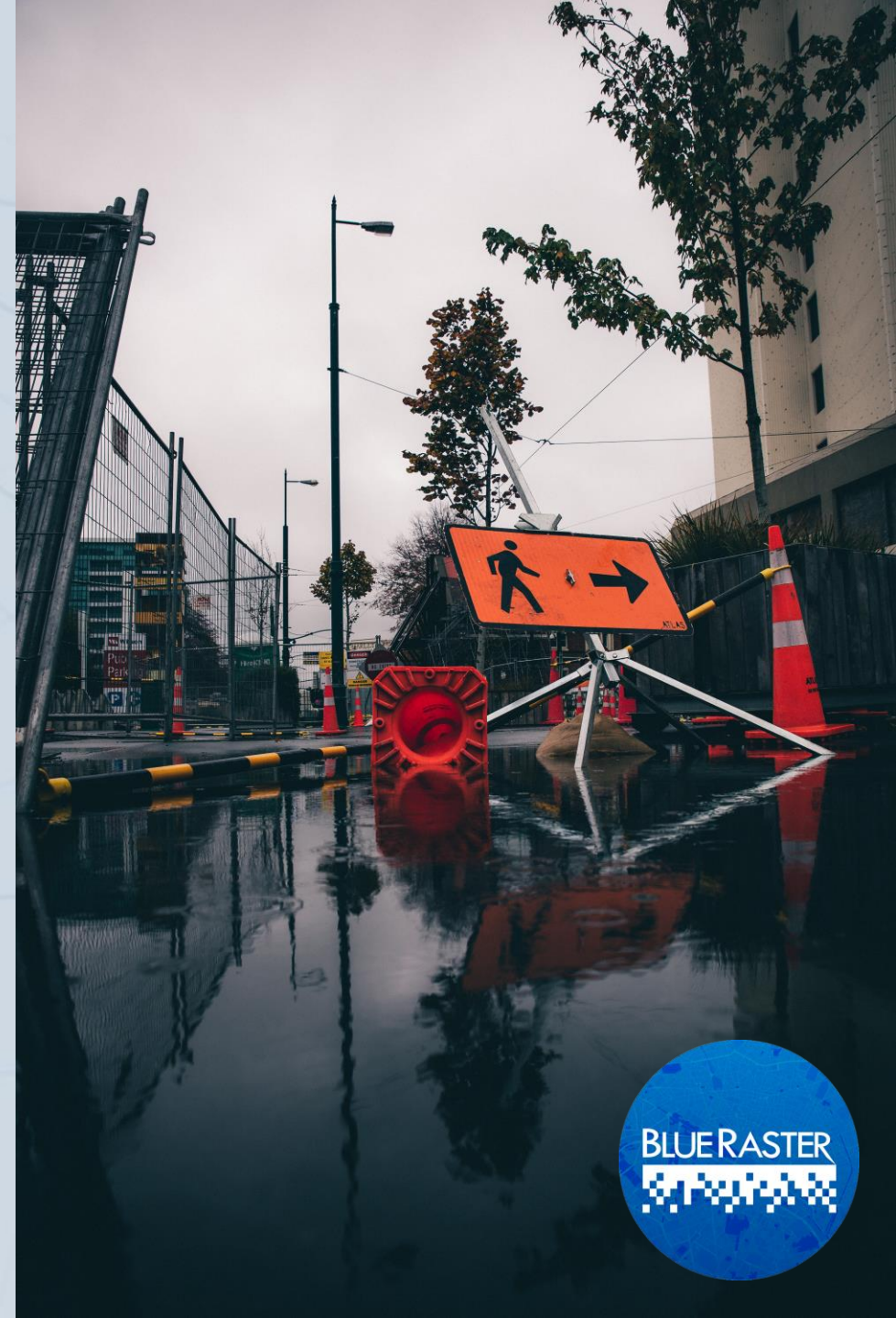
Objectives of PDA Tool

- Conduct initial damage assessments following natural disaster or destructive event
- Captures extent and severity of damage to property
- Streamlines evaluation of need for resources and acquisition of resources

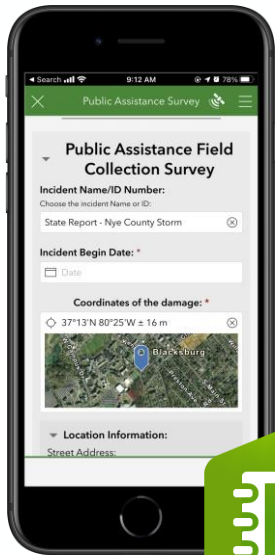


Objectives of PDA Tool

- The tool has a set of capabilities for **aiding** emergency management,
- **Collecting** damage reports,
- **Performing** initial assessment,
- **Monitoring** impact of disaster,
- **Providing** information to stakeholders and public

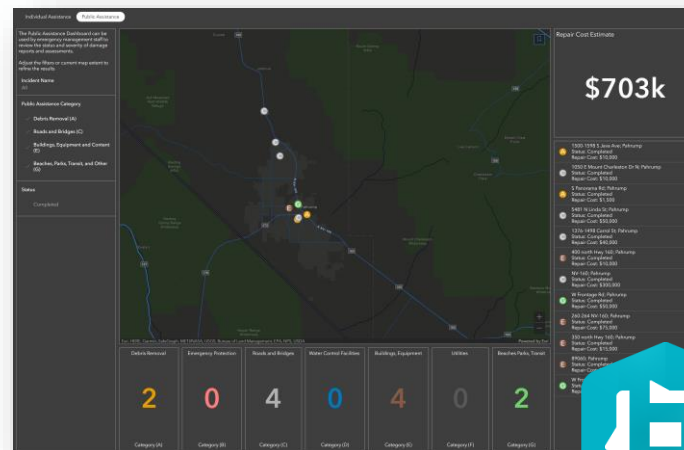
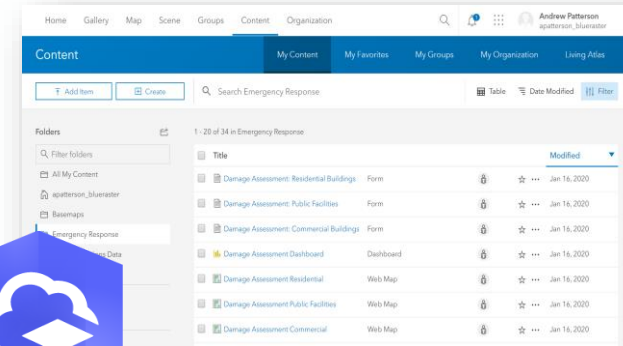


Preliminary Damage Assessment Tool



Survey123 App
Form-based Data
Collection

ArcGIS Online
Hosted Web
Applications



ArcGIS Experience
Builder
Damage Assessment
Application (Dashboard)



Case Study: Nye County Flood Event

August 2021

- Flash flood event causing power loss and property damage
 - 1.87 inches of rainfall
 - 78 mph wind speeds
- Area businesses impacted
- Roadways and infrastructure inaccessible
- NDEM/Blue Raster rapidly configured and deployed PDA tool for emergency response

Home >> News

Wild summer storms whip through Pahrump



Special to the Pahrump Valley Times Provided by Trudy Mazac Hampton, this photo shows a tree that struck an apartment building located at Calvada Boulevard and Pahrump Valley Boulevard following recent storms.



Components



ArcGIS Online

Structure, security, and sharing

- ArcGIS Online is a cloud-based GIS platform that hosts and enables analysis of GIS Data, supports building web maps and applications
- Promotes sharing and collaboration of data and content
 - The Preliminary Damage Assessment Tool will be used by State, County, and Local Jurisdictions
- Access can be enumerated by creating Groups within the Organization



ArcGIS Online

WebGIS mapping, analytics, and collaboration

- An arsenal of geographic data and tools
- Operates as real-time GIS
 - As new assessments come in, they are immediately captured and fed into dashboard
- Scalable
 - AGOL can easily handle an influx of user inputs without delays in performance
- Hosts and serves out content to the applications within the PDA tool:
 - ArcGIS Dashboards
 - Survey123



Survey123

- Simple, user-friendly surveys based on smart forms for ease of operation
- Ask specific questions
- Collect information
- Make decisions and allocate resources



ArcGIS Dashboards

- Comprehensive at-a-glance view of data
- A data-driven approach to monitor trends
- Collect statistics based on filters of your interest
- Dynamically reflects data as it is submitted



ArcGIS Hub

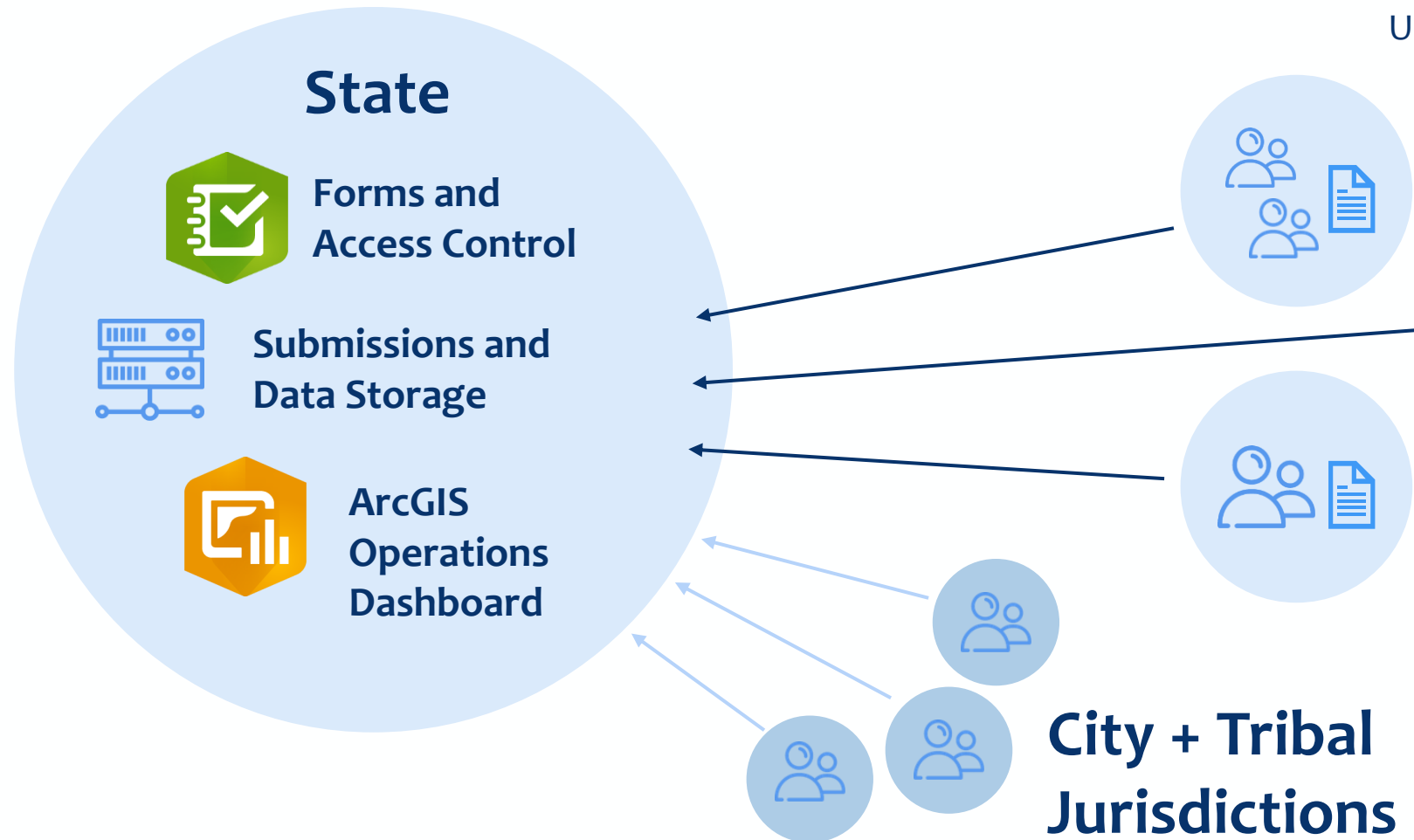
- Platform for connection and engagement between government and residents
- Promote resources and data useful to community
- Capture feedback and responses from community to improve services provided



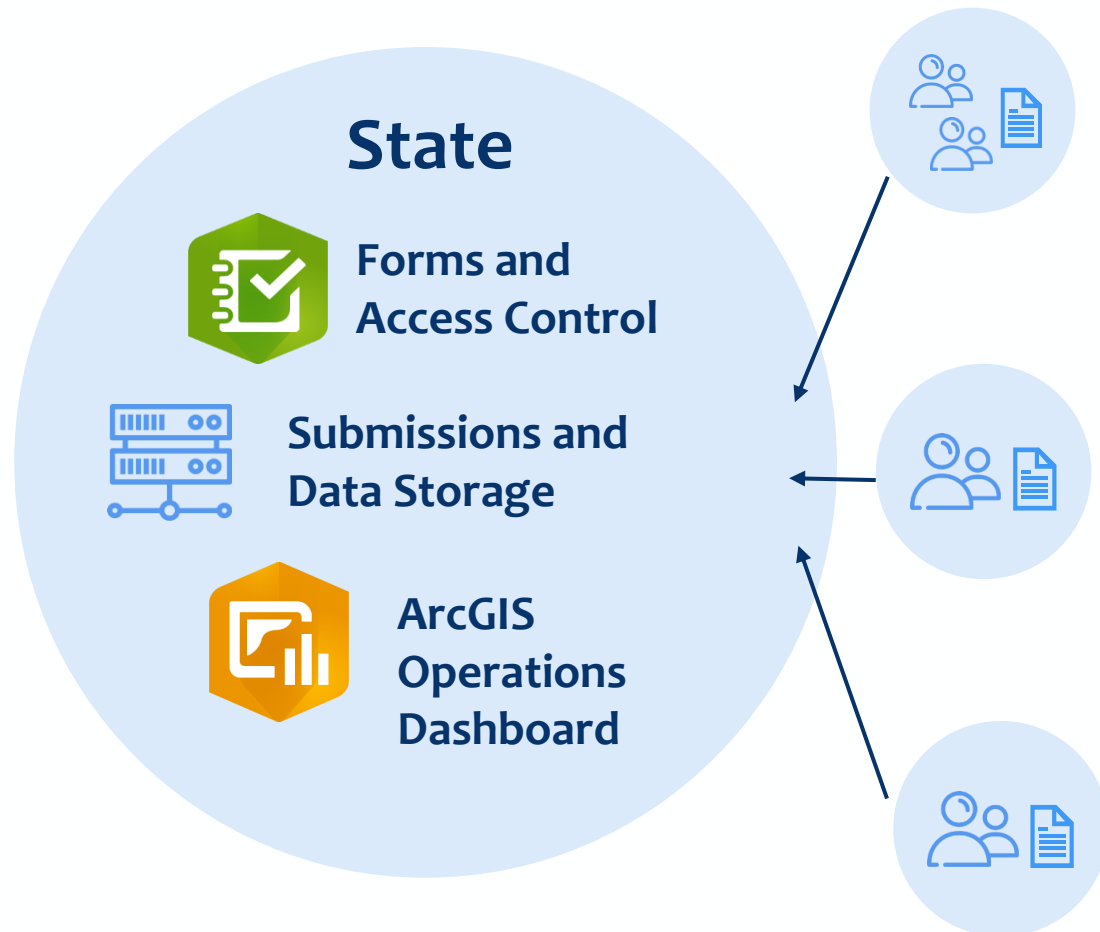
Structure, Security, and Sharing

Counties

Users from outside the organization can share data and submit field surveys directly to State DEM organization



Groups in ArcGIS Online



	Damage Assessment Collaboration Owner: cgabris@blueraster.com Created: Jul 26, 2021 Last updated: Jul 26, 2021 Viewable by: Group members A Group used to share feature layers with partners that need access to damage assessments.	Delete group
	Damage Assessment Content Owner: cgabris@blueraster.com Created: Jul 26, 2021 Last updated: Jul 26, 2021 Viewable by: Everyone (public) Applications, maps, data, etc. shared with this group generates the Damage Assessment content catalog.	Delete group
	Damage Assessment Core Team Owner: cgabris@blueraster.com Created: Jul 26, 2021 Last updated: Jul 26, 2021 Viewable by: Organization Shared Update Members of this group can create, edit, and manage the site, pages, and other content related to Damage Assessment.	Delete group
	Damage Assessment Mobile Users Owner: cgabris@blueraster.com Created: Jul 26, 2021 Last updated: Aug 2, 2021 Viewable by: Organization A group used to grant access to mobile workers collecting windshield damage reports and individual or public assistance assessments.	Delete group



Surge Events

Solutions for Disaster Preparedness and Response



Preparedness



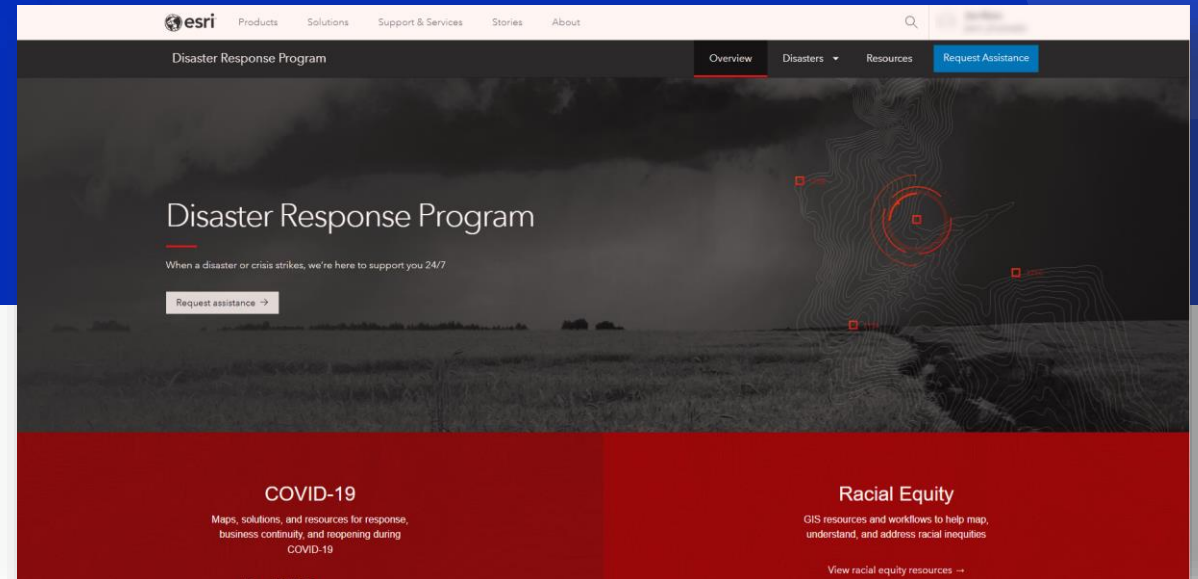
Response



Recovery

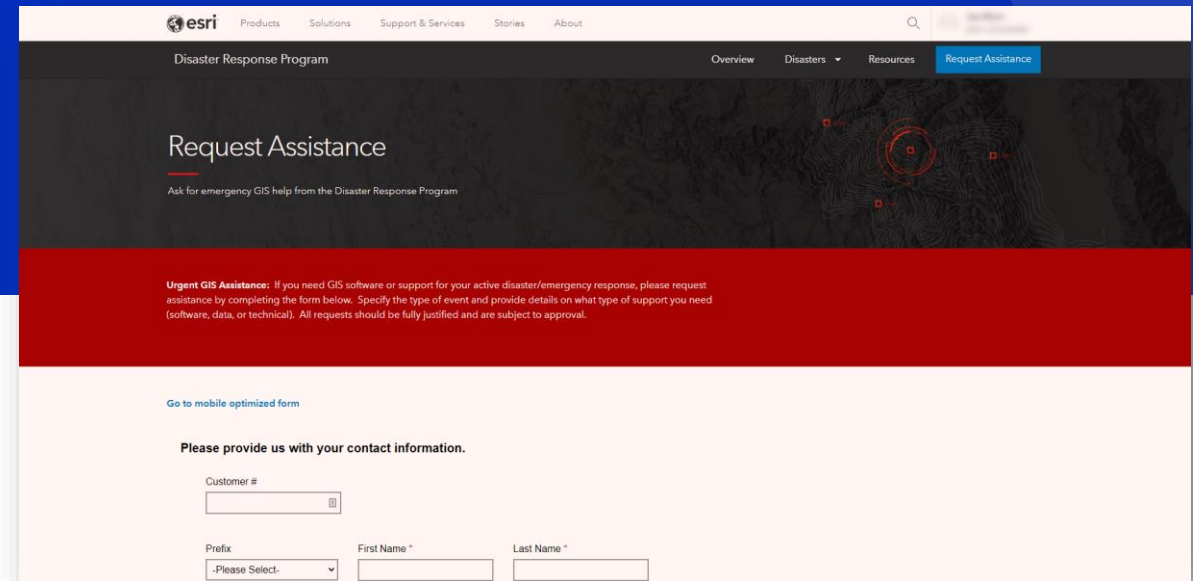
Activating Surge Users

- Surge Licenses are activated through the Esri Disaster Response Program and are **requested through the State**
- Click the Request Assistance button in the top of the page:
 - <https://www.esri.com/en-us/disaster-response/overview>



Activating Surge Users

- Additional Users are added for a given amount of time to support **improved disaster response**
- After the date stated in the Request Assistance Form, Surge users accounts are removed, and the license count is reset
- Extensions of surge licensing can be requested

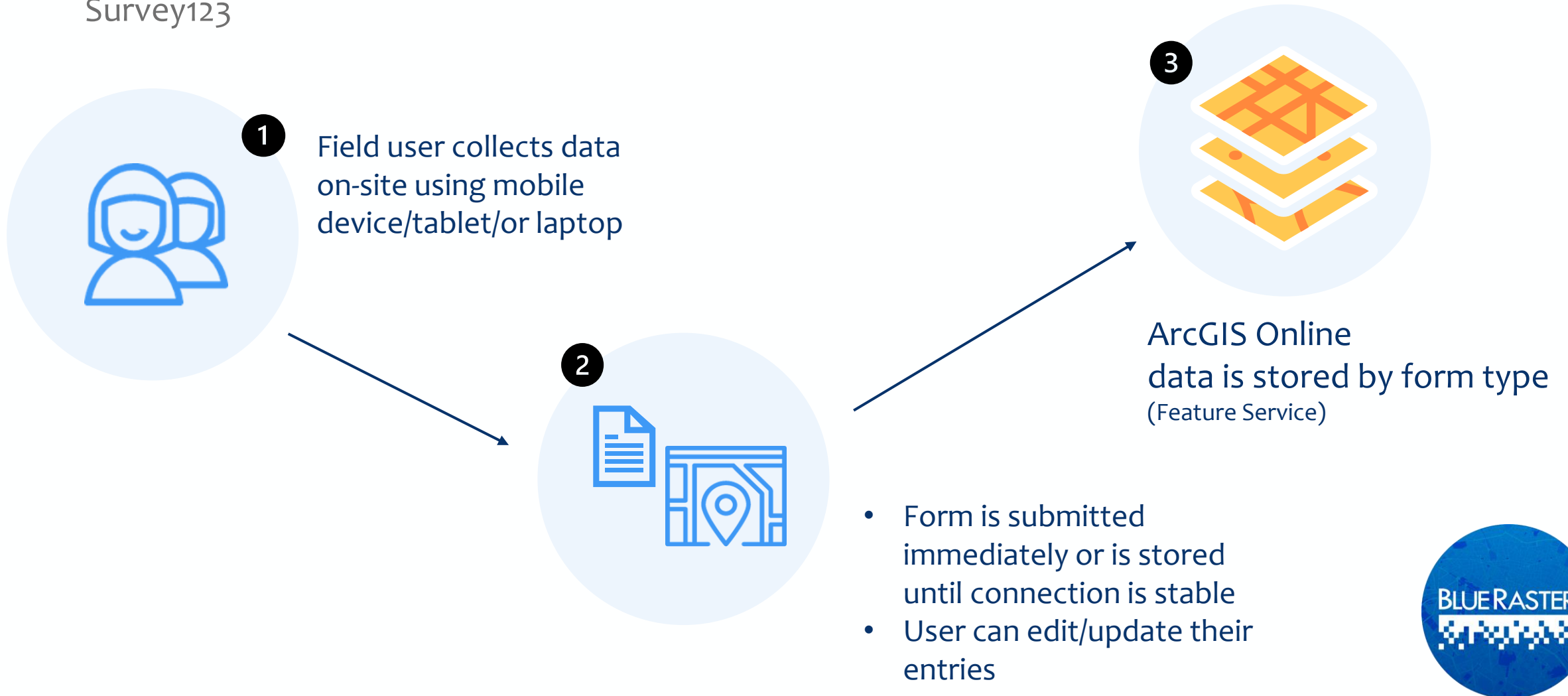


The screenshot shows the Esri Disaster Response Program Request Assistance form. The header includes the Esri logo and navigation links: Products, Solutions, Support & Services, Stories, and About. The main navigation bar has links for Overview, Disasters, Resources, and Request Assistance (highlighted in blue). The form title is "Request Assistance" with the subtitle "Ask for emergency GIS help from the Disaster Response Program". A red banner contains the text: "Urgent GIS Assistance: If you need GIS software or support for your active disaster/emergency response, please request assistance by completing the form below. Specify the type of event and provide details on what type of support you need (software, data, or technical). All requests should be fully justified and are subject to approval." Below the banner, there is a link "Go to mobile optimized form". The form section is titled "Please provide us with your contact information." and includes fields for Customer #, Prefix (a dropdown menu with "-Please Select-" selected), First Name *, and Last Name *.



Data Capture

Survey123

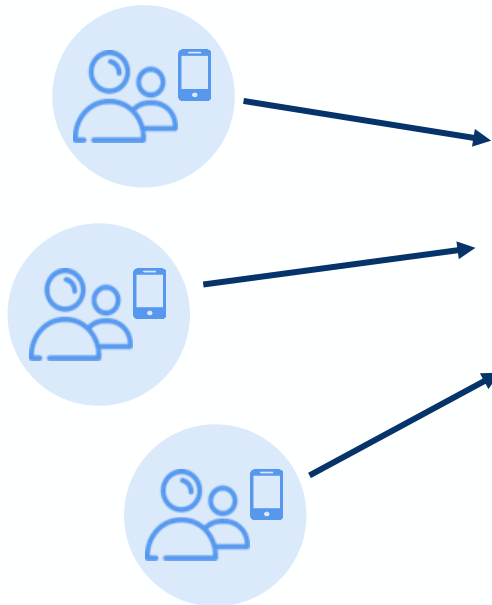


Data Storage and Management

ArcGIS Online Feature Layer

Field Surveys

Forms submitted by users are all stored in a single ArcGIS Online item

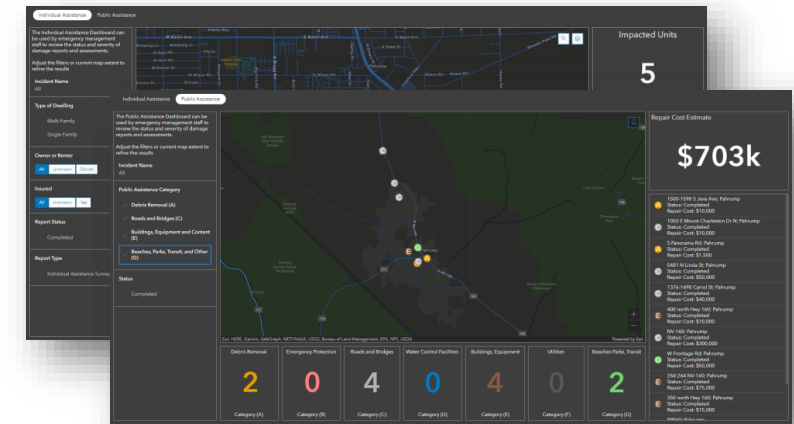


Storage + Management



Dashboards

Data Filters **organize** and **visualize** the submitted data into 2 different dashboard views

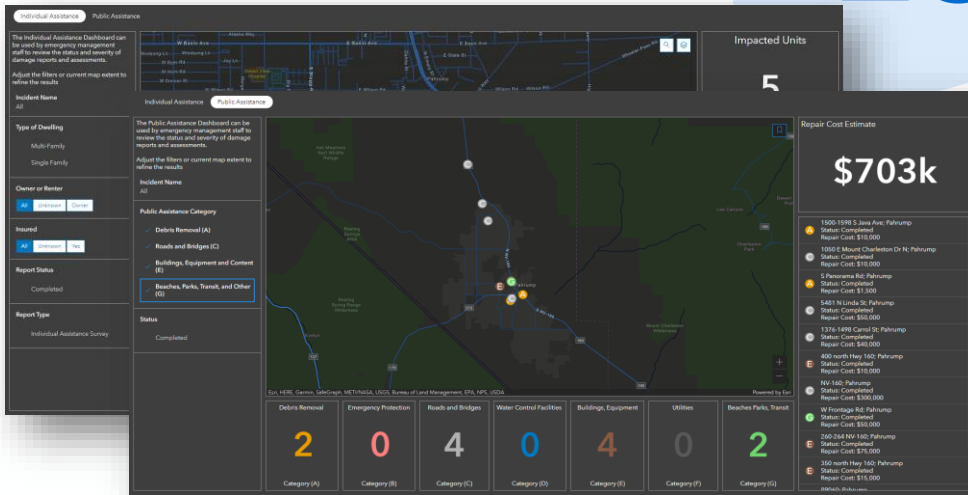


Data Visualization

ArcGIS Experience Builder (Dashboard)

Dashboard

 35



Summary Data

Statistic Cards provide a high-level summary at-a-glance

Archive Data with Filters or Exports

Once an event concludes, data can be archived by adding filters or exporting records

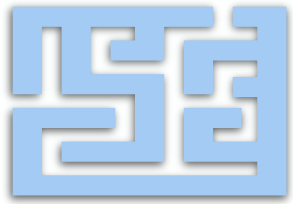


Review Individual Entries

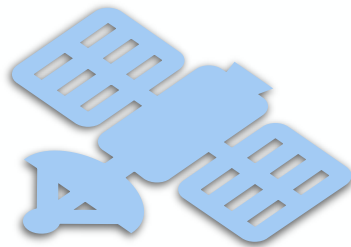
Key information and photos can be viewed directly from the Dashboard



Survey123 for ArcGIS



Simple, intuitive, and thorough set of questions to collect relevant information



Uses GPS, Cell Signal, and Wi-Fi to help collect accurate location data

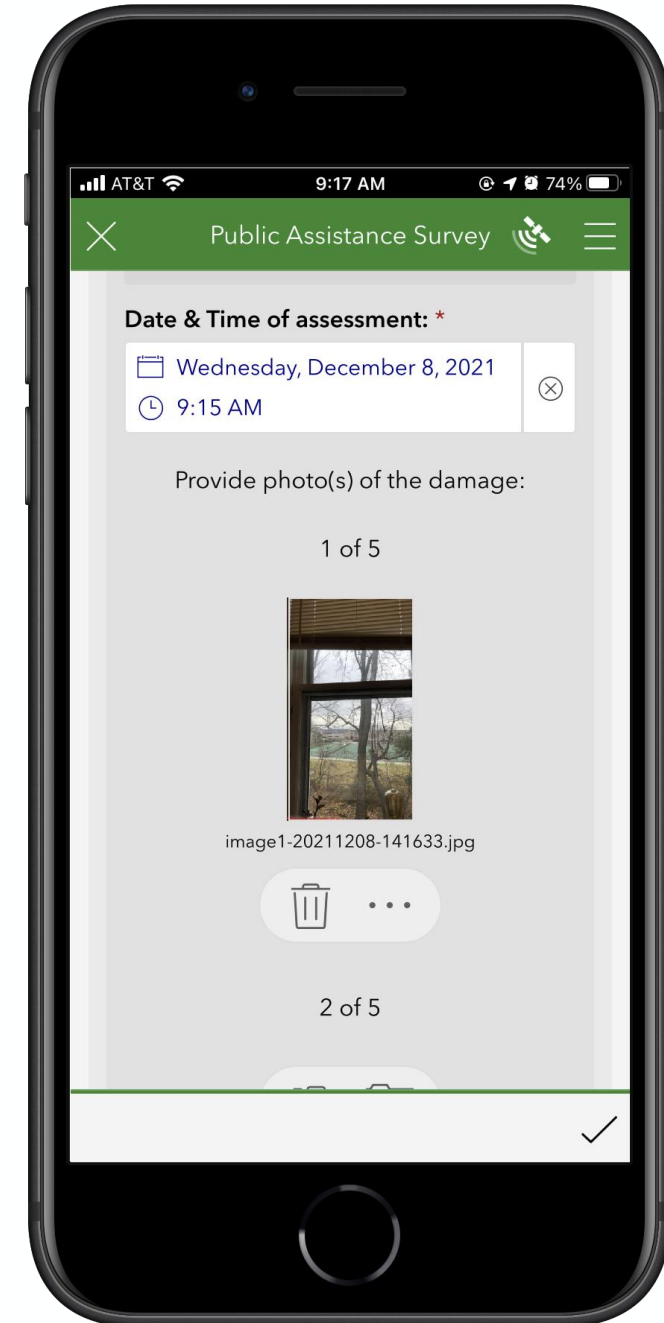
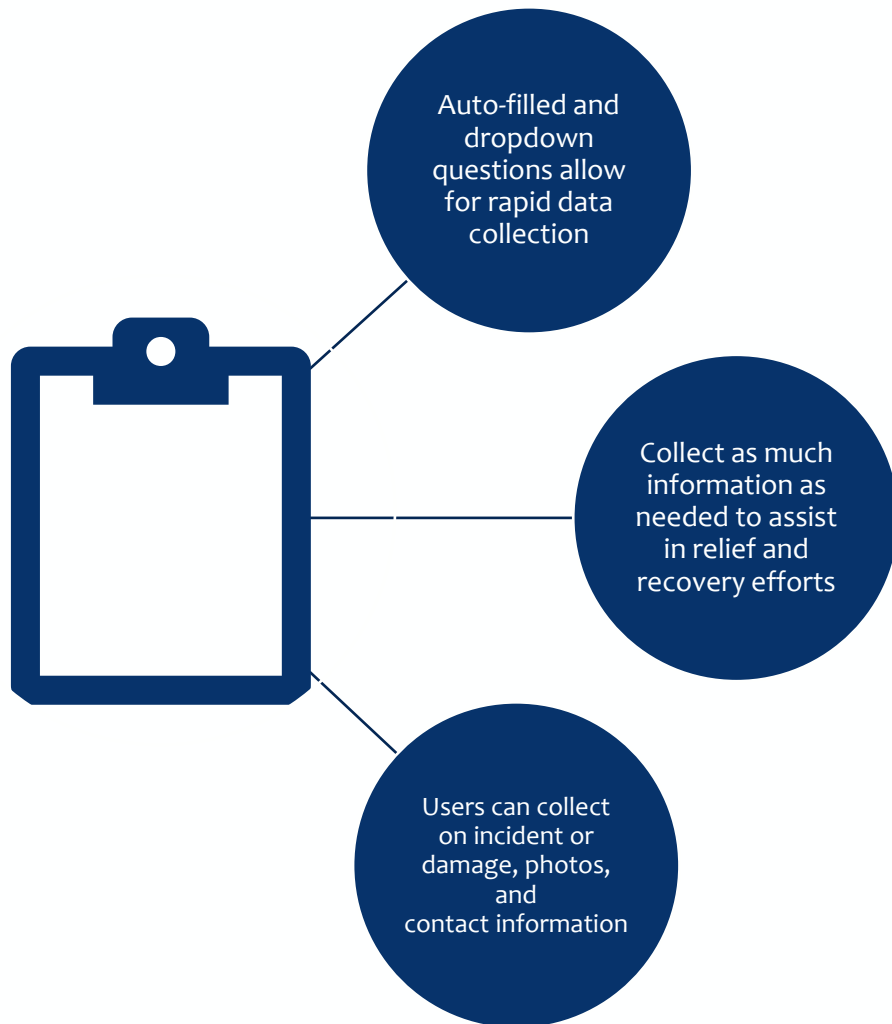


Users can use the location question to drop a point at precise location

Form information can be recorded both online and offline

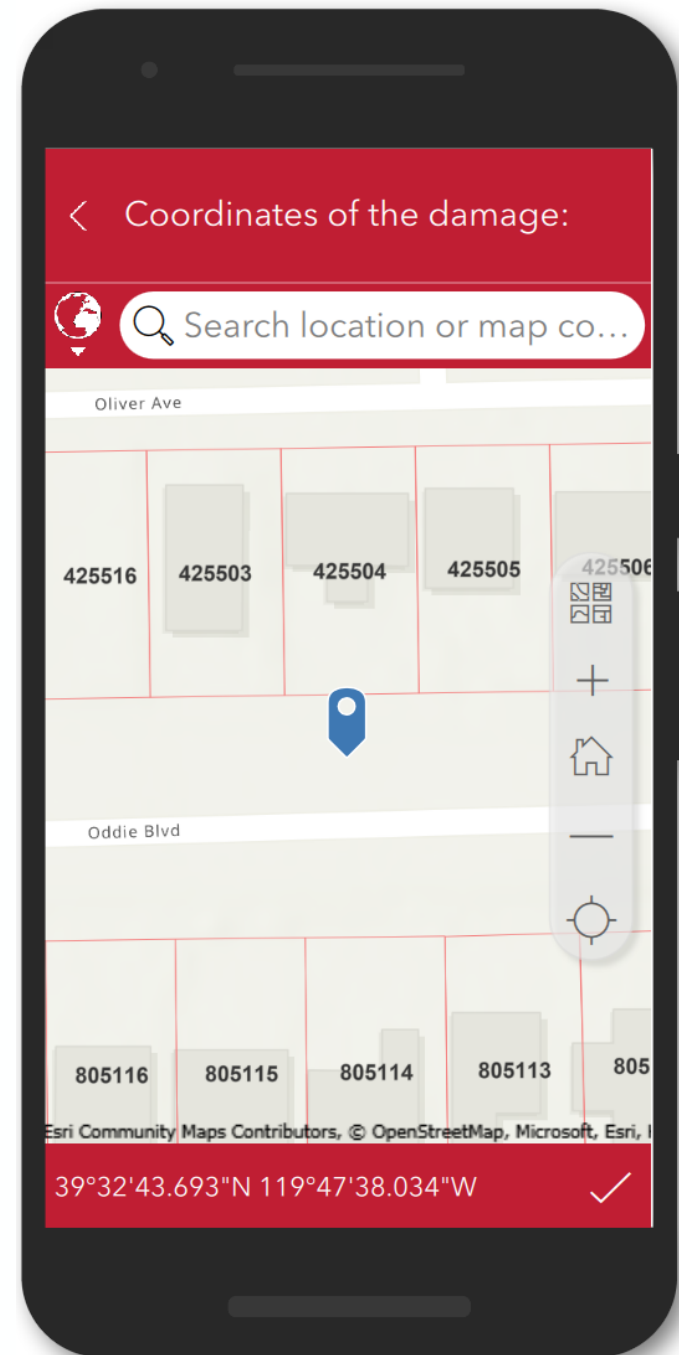
A smartphone screen displaying the Survey123 app interface. The app is titled "Individual Assistance Survey" and "Field Collection Survey". It features a red header bar with a search icon, a close button, and a menu icon. The main form includes fields for "Incident Name/ID Number" (with a dropdown menu showing "State Report - Nye County Storm"), "Incident Begin Date" (with a date picker showing "Wednesday, December 8, 2021"), and "Coordinates of the damage" (with a map view showing a location on "Belmont Rd"). A "Location Information" section is partially visible at the bottom, showing a "Street Address" field. The status bar at the top shows the time as 9:13 AM and battery level at 77%.

Survey123 for ArcGIS



Survey123 for ArcGIS

- Reference data such as Imagery and Parcels can be added to survey, providing field users with added context
- Parcel Data is contained so that accurate information is available for form completion
- 13 of 17 cities/counties are available in the PDA Tool

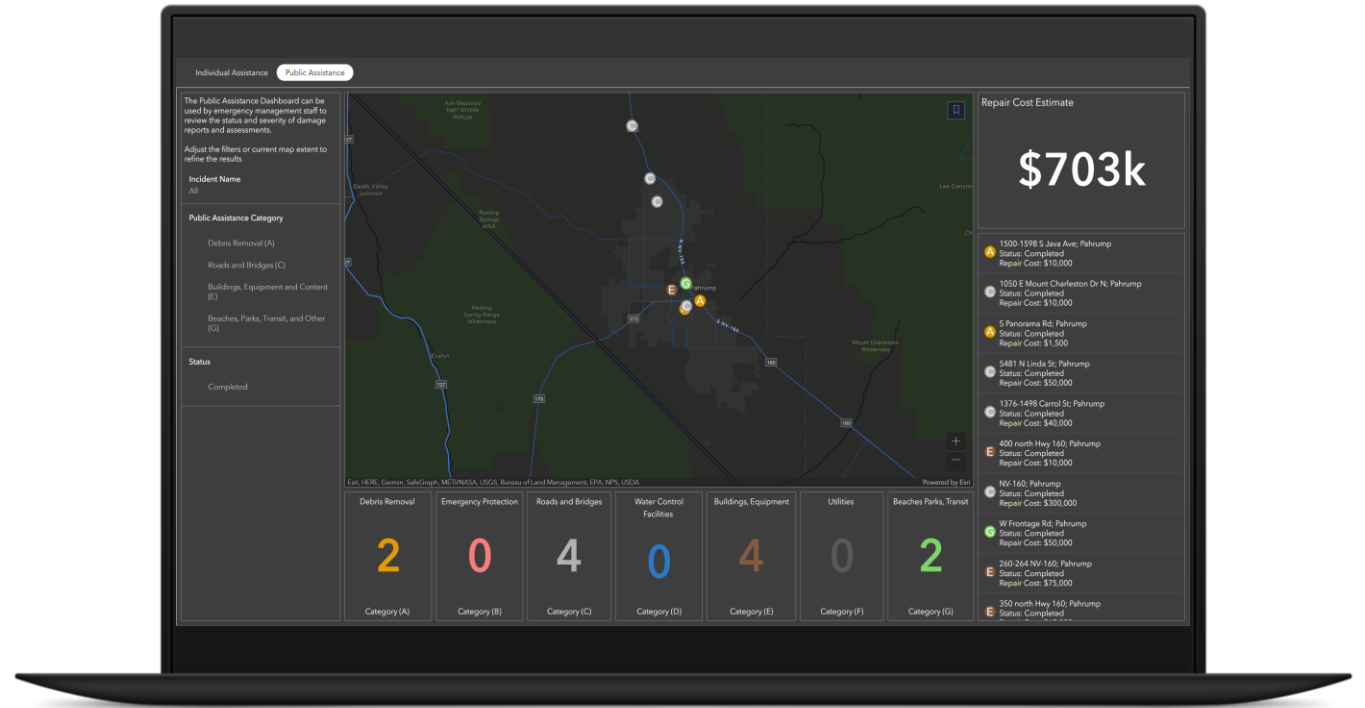




Preliminary Damage Assessment Dashboard

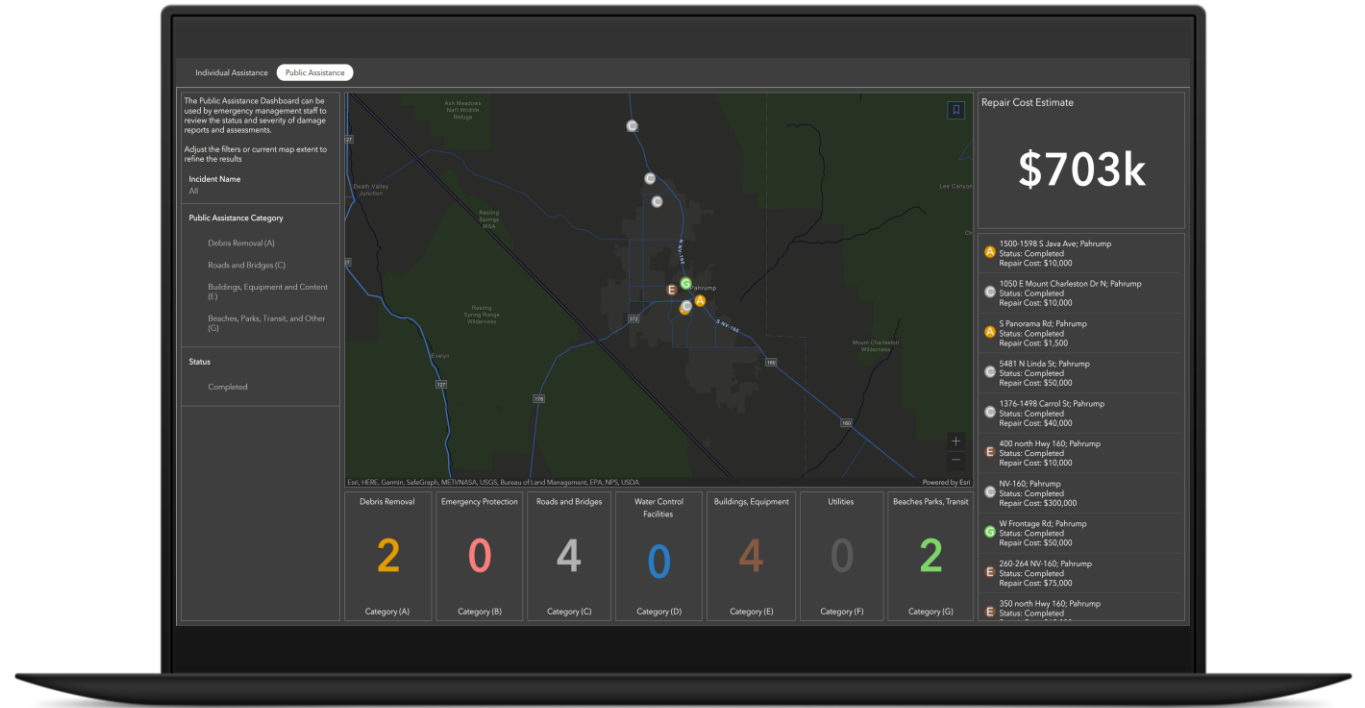
Preliminary Damage Assessment Dashboard

- The PDA Dashboard allows monitoring of field collection
 - Summarizes information as it is submitted
- Dynamic elements support Large and Medium format screens



Preliminary Damage Assessment Dashboard

- Filters produce statistics on the fly for specific categories
 - i.e., how many incidents are classified as major
 - how many incidents occurred at uninsured residences
- View Dashboard
 - <https://bit.ly/NDEM-PDA>

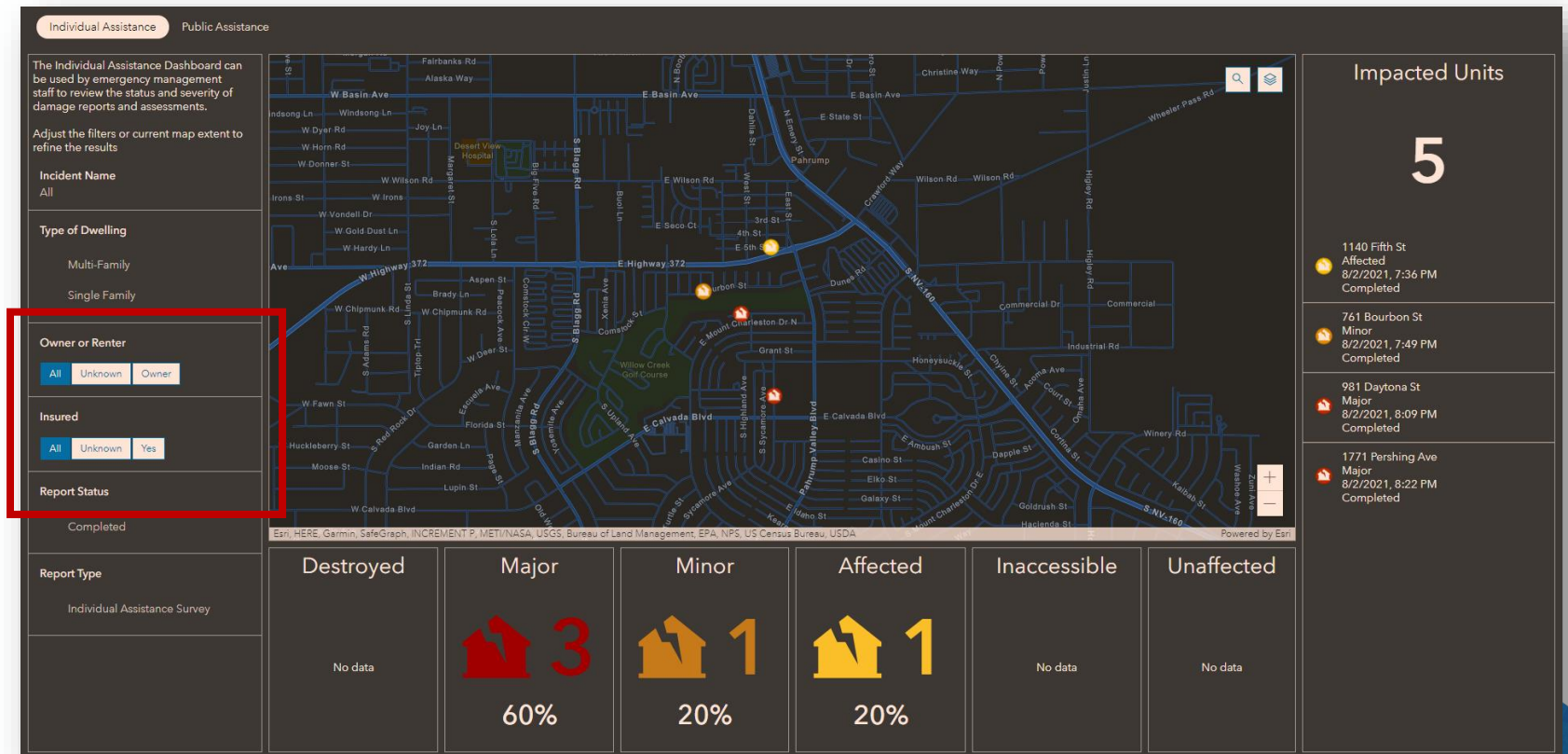


Individual Assistance Dashboard

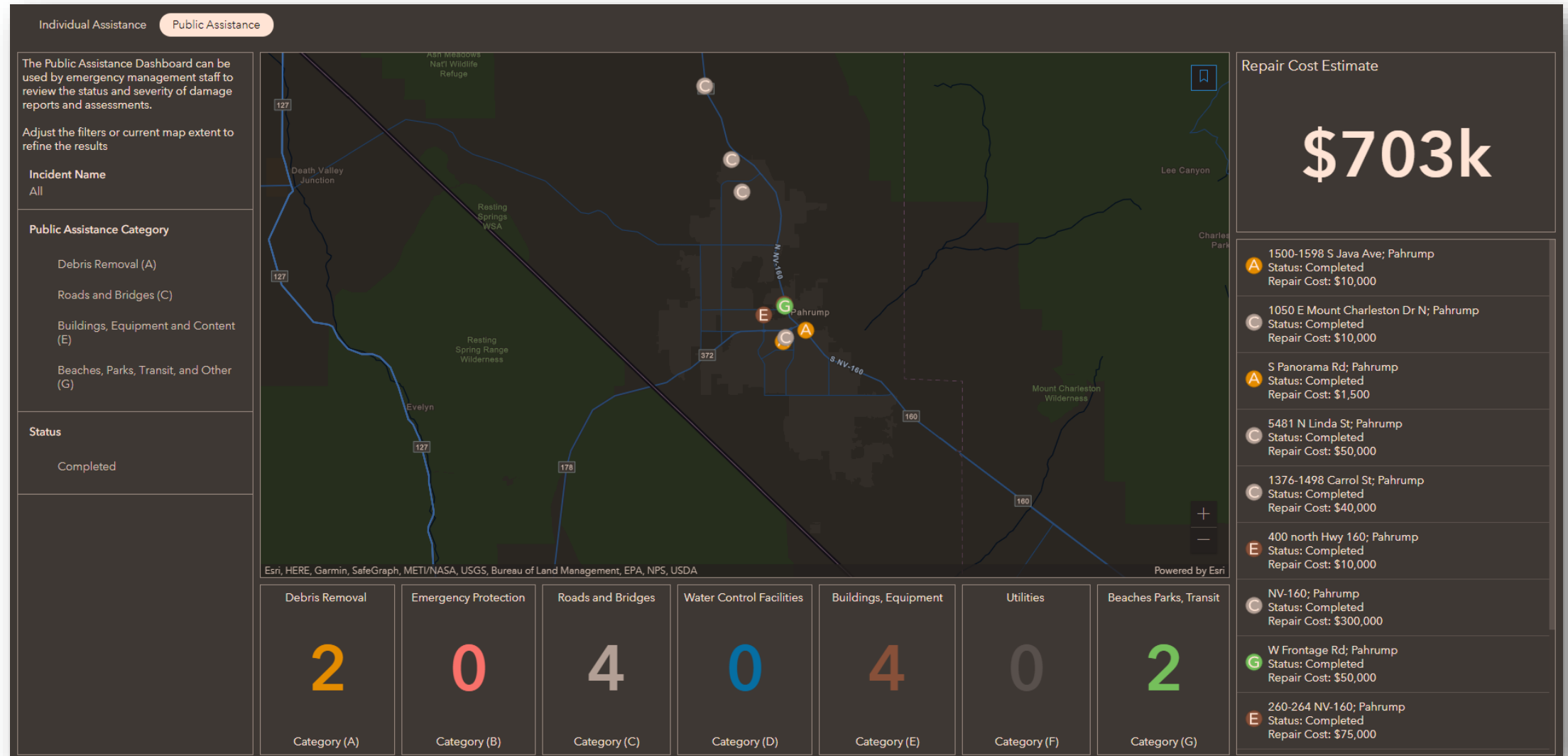


Individual Assistance Dashboard

- Visualize spread of logged incidents
- Identify the nature of the incident (e.g., major, minor)
- Filter by:
 - Owner or renter
 - Insured status

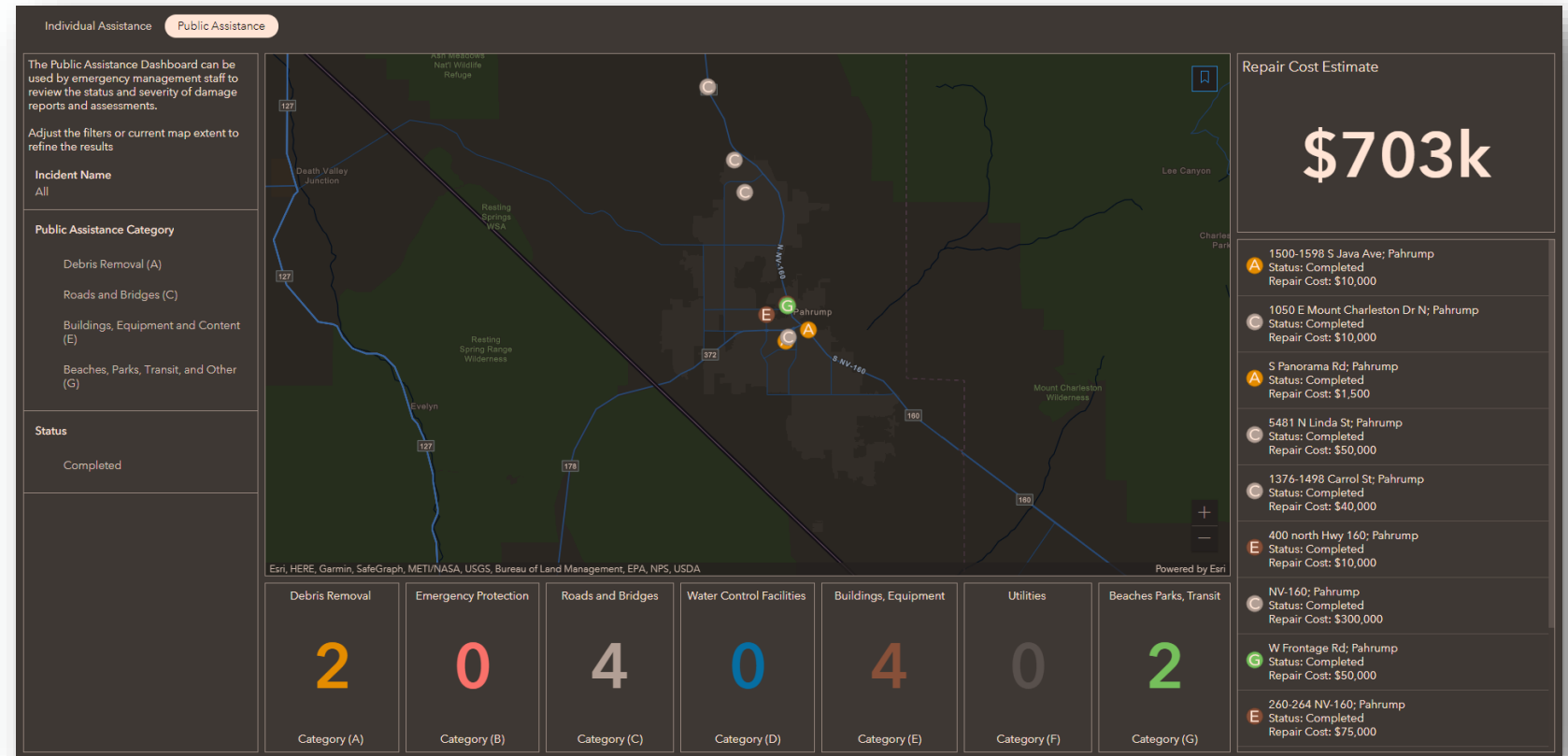


Public Assistance Dashboard



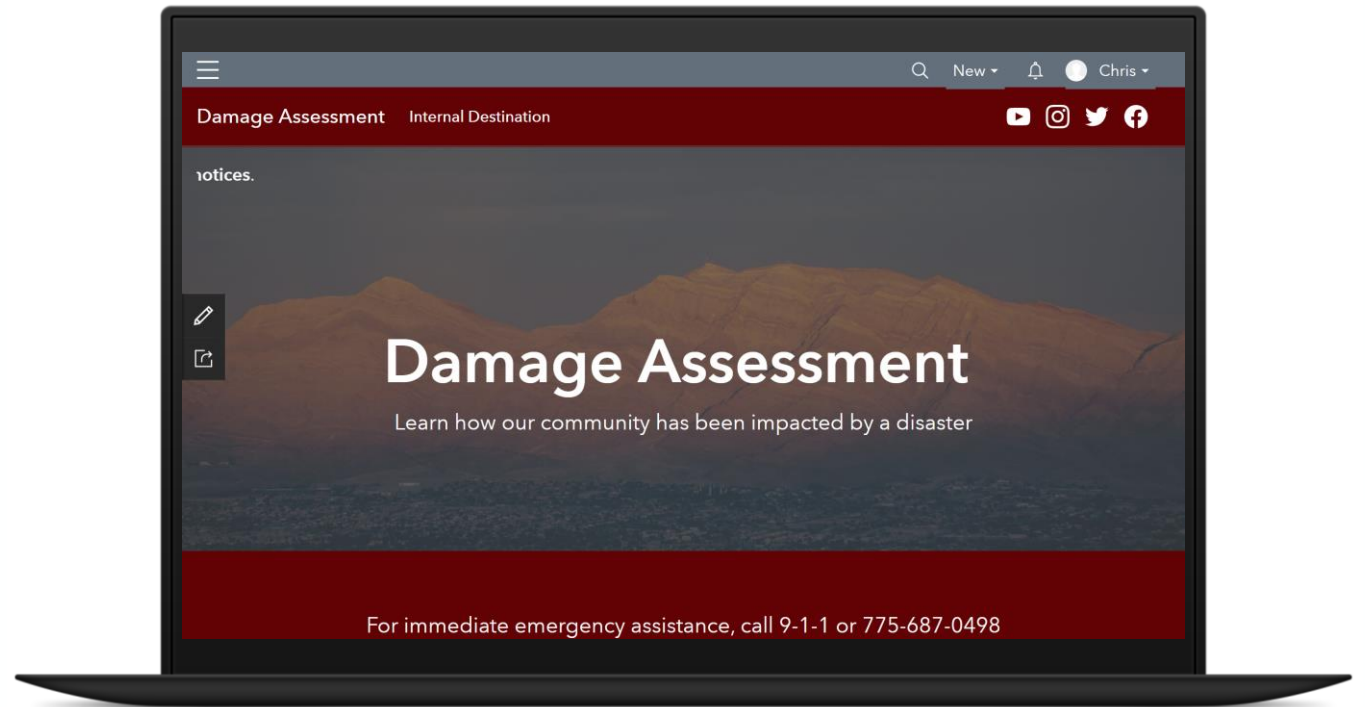
Public Assistance Dashboard

- Visualize spread of logged incidents
- Easily identify public assistance category
- Summary of estimated recovery costs



Preliminary Damage Assessment Hub

- A site containing relevant links and resources for damage assessment
 - Houses surveys and instructions for use
- See key metrics for how disaster is affecting whole state
- View Hub
 - <https://damage-assessment-ndem.hub.arcgis.com/>



Preliminary Damage Assessment Hub

Damage Assessment

Internal Destination

Damage Reports

Review damage after a storm and learn how to report any damage you observe.



Understand Current Conditions

Emergency Management staff conduct windshield surveys immediately after an incident to understand the extent of damage. Review photos captured in the field to better understand the community.

Review conditions



Report Damage

Your assistance will help us understand the extent of damage. Reports must be conducted after an incident and on your property.

Report damage

Damage Assessment

Internal Destination

Advisory issued on Sept 19, 2021 at 8:00AM EST. Watch for severe flooding. Adhere to local evacuation notices.

Damage Assessment

Learn how our community has been impacted by a disaster

For immediate emergency assistance, call 9-1-1 or 775-687-0498

Completed Damage Assessments

Assessments Completed

Properties Destroyed

Properties Damaged (Major)

A photograph of a residential street that has been severely flooded. The water is a murky brown color and has reached the first-floor windows of the houses. On the left, a white building with a blue sign that says 'OW' is partially submerged. Next to it is a stone building. In the background, another stone house is visible. A white car is almost completely underwater, with only its roof and the tops of its windows visible. A yellow umbrella with the word 'BUNNERS' on it is partially submerged on the right. The sky is overcast and grey.

Interactive Training

Field Preparation

- Confirm Survey123 application is most recent update
- Test your login
 - Corin Roth or Suz Coyote can help with ArcGIS Online sign-in and resets
- Go Bag has extra devices if you are still having trouble



Field Preparation

Public Assistance Survey

What event type caused the damage? *
(Select all that apply)

☐ Severe Storm	☐ Flood
☐ Straight-Line Winds/Derecho	☐ Drought
☐ Earthquake	☐ Explosion
☐ Fire	☐ Landslide
☐ Mudslide	☐ Snowstorm
☐ Terrorism	☐ Tornado
☐ Volcanic Eruption	☐ Winter Storm
☐ Other	

Are there any immediate needs?

☐ Yes
☐ No
☐ Unsure

Public Assistance PDA

Potential Applicant Name: *

✓

Coordinates of the damage: *

Search location or map coordinate

Nevada National Security Site

Timbi-Sha Shoshone Reservation

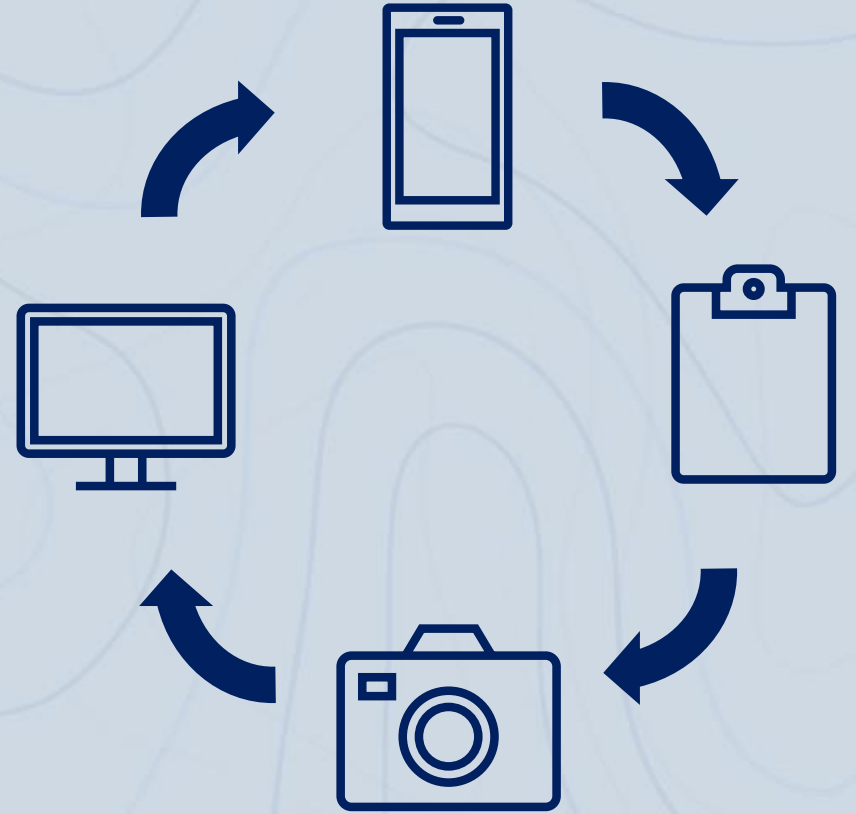
Pahrump

Esri contributors



Interactive Training

1. Access Survey123 on your device
2. Go into the field
3. Fill-in questions
 - Become familiar with different drop-down options and dependent questions
4. Include pictures and any supplemental information you find
5. Submit
6. Monitor dashboard to see submitted surveys



PDA Tool User Training Summary

- WebGIS concepts and overview of ArcGIS Online, Hub, Dashboards, and Survey123
- Structure of ArcGIS Online
- Licensing and usage of the tools
- Field experience with the survey
- Remaining questions



Additional Resources

- Esri documentation:
 - <https://doc.arcgis.com/en/arcgis-solutions/latest/reference/introduction-to-damage-assessment.htm>
- FEMA PDA guidelines:
 - <https://www.fema.gov/disaster/how-declared/preliminary-damage-assessments#conduct>
- Reach out to Corin Roth at croth@dem.nv.gov

