Topics of Discussion

* Overview of CAV Findings Collection project
* Why a GIS Based CAV tool
* What makes this possible
* Tools Used (ArcGIS, Collector iOS App, ArcGIS.com, GeoPlatform, SDE database)
* How is the Region Using Collector
* Other potential applications of the tool
* App Limitations at this time
* Additional Resources
This pilot project started with a team of 3 Mitigation Division members: Mark English, Diana Herrera, and Roberto Ramirez

- Identify all methods people had used at our region to collect findings during CAVs
- Reviewed all the Checklists for CAVs to determine the data needs
- Use FEMA guidance F-776, and the National Tool to develop our Database
- Completed Pilot CAVs in Oklahoma (Midwest City & Piedmont)
National Flood Mitigation Data Collection Tool
Why a GIS based CAV Tool

* Need For a Geospatial Database (National Flood Mitigation Data Collection Tool)
* Data Entry – Decreases Margin of Error (lat/long)
* GIS Based – Ability to do analysis
* Collected Findings to be used with other internal/external datasets
* Mobile Capability
* One Device vs. Multiple Devices & Software (GPS, Laptop, Camera, Paper Maps, USB ports, Batteries, Street and Trips, MS Access)
* Available any where there is Internet Connectivity (but you can work offline)
What Makes this Possible

- ESRI – ArcGIS Desktop Software
- A GIS Analyst to Set up the Database (R6-Mark English)
- ArcGIS online (GeoPlatform)
- Collector Application (iOS)
- Purchase of IPADs (Recommend GSM version)
- NFHL
- Internet Connectivity
- Database Remote Access
FEMA GeoPlatform

Providing geospatial data and analytics in support of emergency management

http://fema.maps.arcgis.com
CAV Tool on GeoPlatform
ArcGIS online & Collector
* Collect and Update Data in the Field

* **Data Requirements:** Must have an ArcGIS organizational account. Your maps can include data from ArcGIS Online, Portal for ArcGIS, and ArcGIS for Server.

* **Device Requirements:**
  * **iOS** - iOS 7 or later/iPhone, iPad, iPod touch.
  * **Android** - Android 4.0 or later/ARMv7 or x86 processor/OpenGL ES 2.0 support. Precise location (GPS and network-based) support.
* Maps
* My Location
* Bookmarks
* Layers
* Address search
* Measurements (Linear Miles, Square Miles)
* Basemap Changes (imagery, streets, topographic, etc.)
## CAV Tool DB (Attributes)

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unique_ID</td>
<td></td>
</tr>
<tr>
<td>Address</td>
<td>3409 sycamore street, Midwest City, OK</td>
</tr>
<tr>
<td>City</td>
<td>Midwest City</td>
</tr>
<tr>
<td>County</td>
<td>Oklahoma</td>
</tr>
<tr>
<td>Development Type</td>
<td>Substantial Improvement or Damage</td>
</tr>
<tr>
<td>Structure Type</td>
<td>Residential</td>
</tr>
<tr>
<td>Foundation Type</td>
<td>Enclosure Crawlspace</td>
</tr>
<tr>
<td>Machine Elevated</td>
<td>Yes</td>
</tr>
<tr>
<td>CID Number</td>
<td>400405</td>
</tr>
<tr>
<td>FEMA Specialist</td>
<td>Roberto Ramirez</td>
</tr>
<tr>
<td>Vented</td>
<td>No</td>
</tr>
<tr>
<td>CID Name</td>
<td>Midwest City</td>
</tr>
<tr>
<td>Purpose</td>
<td>Community Assistance Visit</td>
</tr>
<tr>
<td>Machinery &amp; Equipment Comments</td>
<td>All equipment is on the ground</td>
</tr>
<tr>
<td>Endorse</td>
<td>No</td>
</tr>
<tr>
<td>Endorse Comments</td>
<td>did not see any vents</td>
</tr>
<tr>
<td>Structure Type Comments</td>
<td>None</td>
</tr>
<tr>
<td>Development Type Comment</td>
<td>Question Community about development improvements</td>
</tr>
<tr>
<td>Vented Comments</td>
<td>This home does move vents</td>
</tr>
<tr>
<td>Flood Implications</td>
<td>Other</td>
</tr>
<tr>
<td>Construction Type</td>
<td>Wood Frame and Brick Veneer</td>
</tr>
<tr>
<td>EC Diagram</td>
<td>Crawlspace</td>
</tr>
<tr>
<td>Permit Deficiency</td>
<td>No Permit</td>
</tr>
<tr>
<td>General Comments</td>
<td>Awaiting for community Permit.</td>
</tr>
</tbody>
</table>

* Address
* City
* County
* Development Type
* Structure Type
* Foundation Type
* Machine Elevated (For equipment)
* CID Number
* FEMA Specialist
* Vented
* Purpose
* Structure Type
* Construction Type
* EC Diagram
* Permit Deficiency
* General Comments
ESRI Collector Login Screen
Use of NFHL with Collector
Changes to Layers (NFHL)
Data Collection & Accuracy
Additional Potential Applications in Floodplain Management

- Repetitive Loss/Severe Repetitive Loss Data Collection/Verification
- PA Projects
- Damage Assessments
- Substantial Damage Inspections
- Permitting
- Recording Potential Mitigation Actions
- Collection of Low Water Crossings
Limitations

* The reporting capability is limited
* Distribution of GIS data Limited to communities with GIS capability
* Restrictions on other datasets that could be used publicly
* Images – The way the tool stores images is limited to one image
Suggested changes to ESRI during their user group conference calls:

* Ability to export information about multiple images per point (CAV finding)
* Ability to Save personal basemap (Now available with ArcGIS Ver. 10.3)
* Reporting Capability
* Better options to working offline (without internet connectivity)
* Autofill Attribute by intersection GIS layers
* FEMA region 6 GIS – Working to develop reporting capability
* Using the tool in other related applications
Additional Resources

* FEMA 776 - Guidance for Conducting Community Assistance Contacts and Community Assistance Visits
  (http://www.fema.gov/media-library/assets/documents/23575?id=4917)
* FEMA Geoplatform (http://fema.maps.arcgis.com/home/)
* ESRI Collector (http://www.esri.com/software/arcgis/collector-for-arcgis)
* Instructional Video: (https://www.youtube.com/watch?v=rUL6QCuOyA)
* National Flood Mitigation Data Collection Tool
Questions

* For additional questions contact:

Roberto Ramirez: roberto.ramirez@fema.dhs.gov

Mark English (GIS Analyst): mark.english@fema.dhs.gov