COLLECTOR AND ARCGIS ONLINE - LESSONS FROM PUBLIC SAFETY

City of Laurel,
Prince George's County, MD

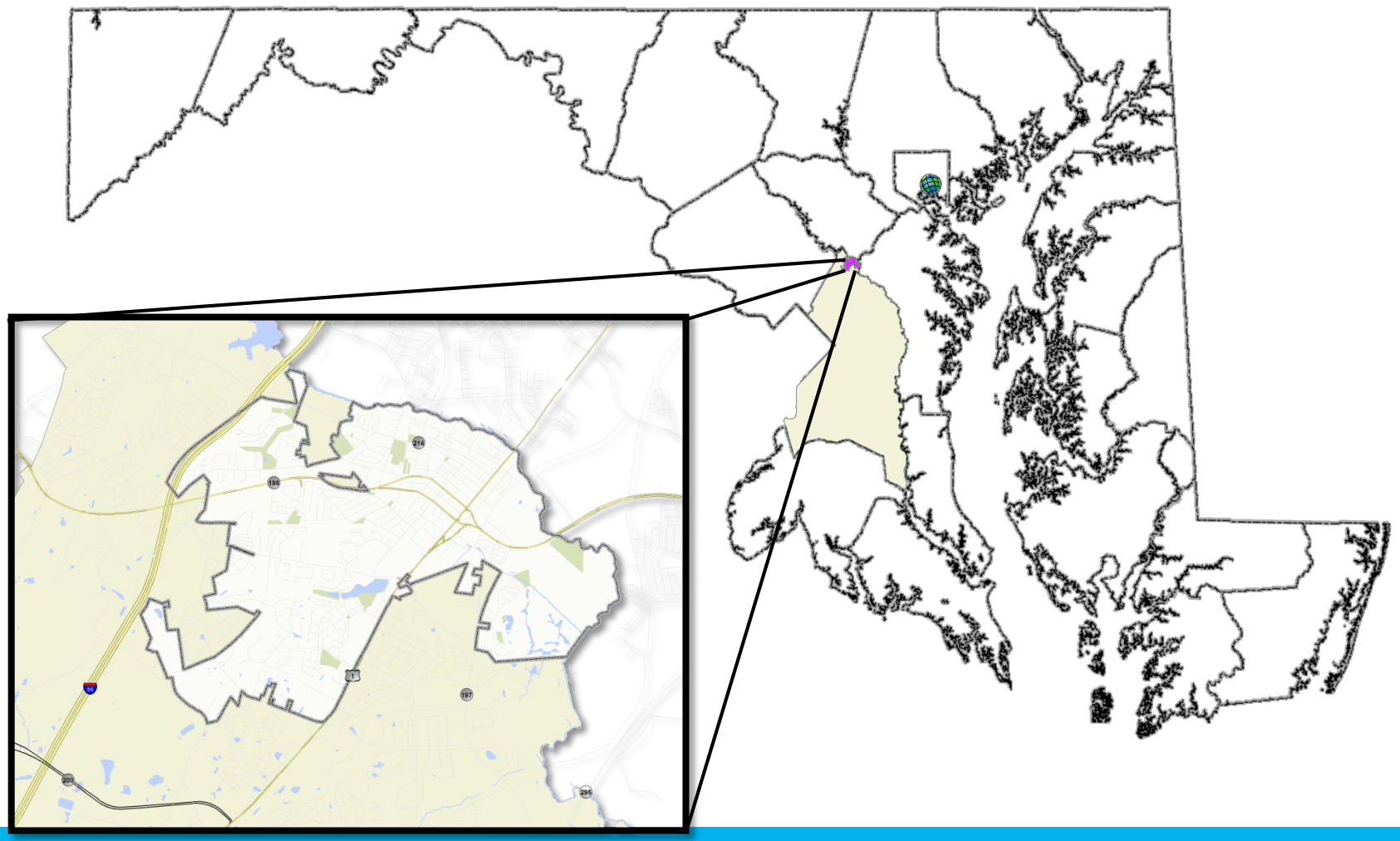
THERESA MARTIN

STEFAN LIVINGSTON

Collector and ArcGIS Online - Lessons from Public Safety

- Background on City of Laurel and GIS
- Implementations of Collector and AGOL
  - In-depth look at Fire Department & data needs
  - Data captured during an emergency
  - Data captured following an emergency
- Lessons Learned and Final Thoughts

Laurel, Maryland



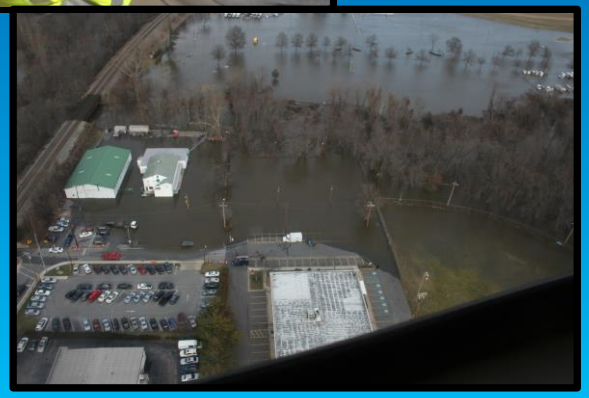
Laurel GIS

- One GIS Analyst within the IT department
- 5 GIS users – Planning and DPW
- ESRI shop w/ELA
- ArcGIS Online for Organizations
  - 47 AGOL accounts (Departments, Individuals and training users)
  - 16 Groups
    - 10 Department Groups (incl. public safety agencies)
    - Special events, Training, Intern, Maps & Apps (for home gallery)

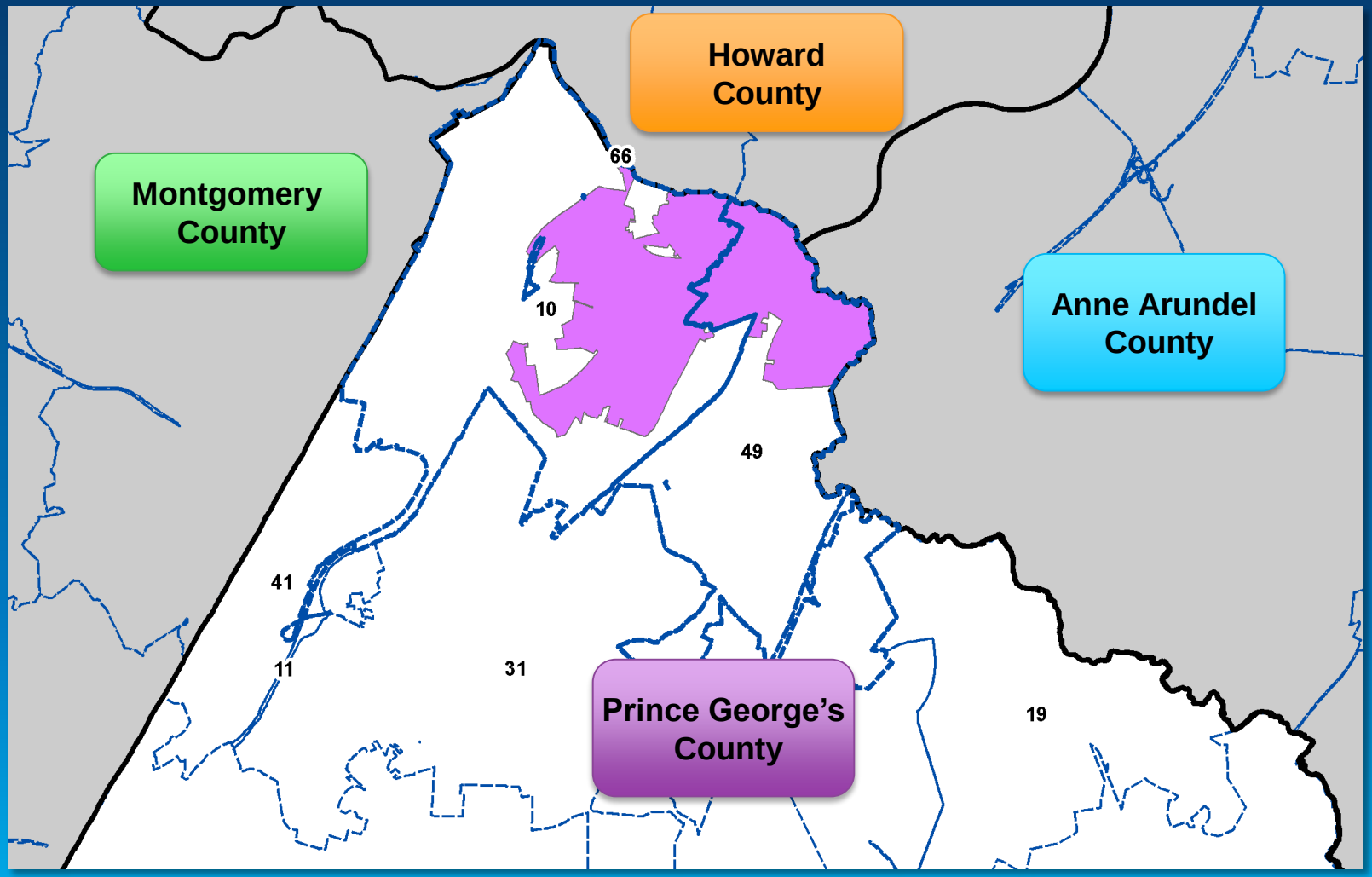
ArcGIS Online

AGOL/Collector use in public safety

- Preplanning
  - Fire – Fire PrePlan Points, hydrants
- Emergency Operations
  - Damage Assessments
  - Incident Management



Fire Company Areas



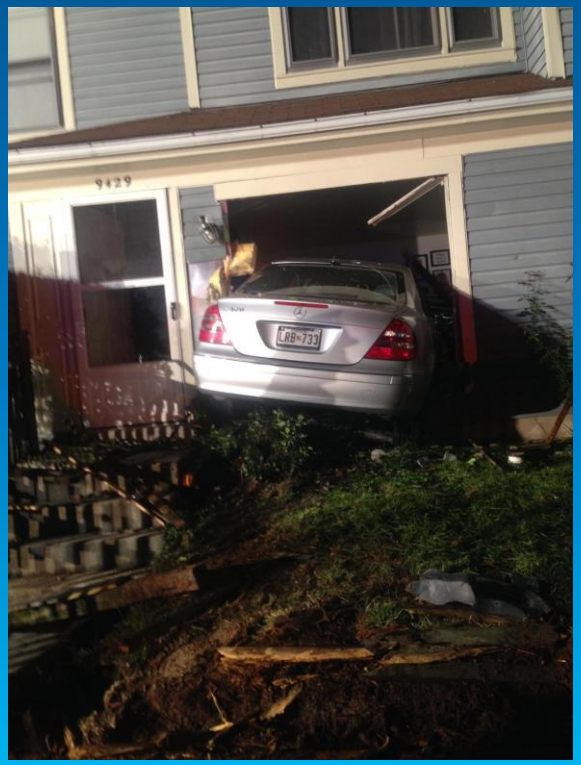
- Station 49 & 10 1st due areas

Laurel Vol. Rescue Squad Company 49

- Serves under Prince George's County Fire/EMS Department (PGFD)
  - 44 fire stations, volunteer and career personnel
  - Population: Approx. 870,000 residents

Laurel Vol. Rescue Squad Company 49

- Provide EMS Services
  - Basic Life Support
  - Advanced Life Support



Laurel Vol. Rescue Squad Company 49 (LVRS)

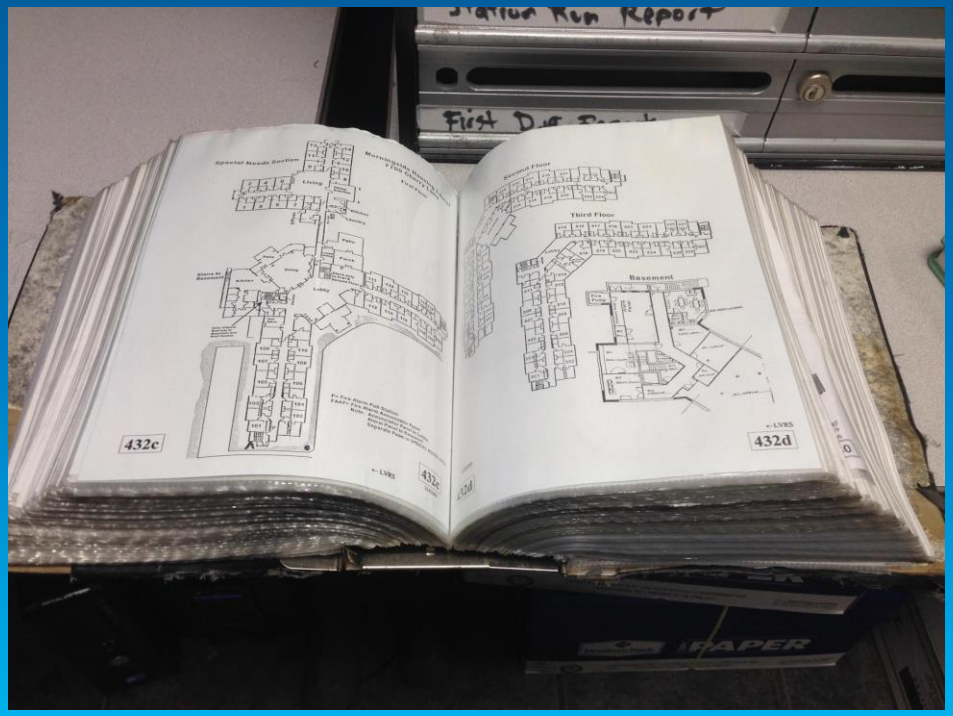
- **Provide Fire and Rescue Services**
  - **Fire Suppression**
  - **Technical Rescue**
  - **Water/Dive rescue services**

Laurel Vol. Rescue Squad Company 49 (LVRS)

- Respond to approx. 6000 9-1-1 calls a year
  - 75% EMS
  - 25% Fire and Rescue

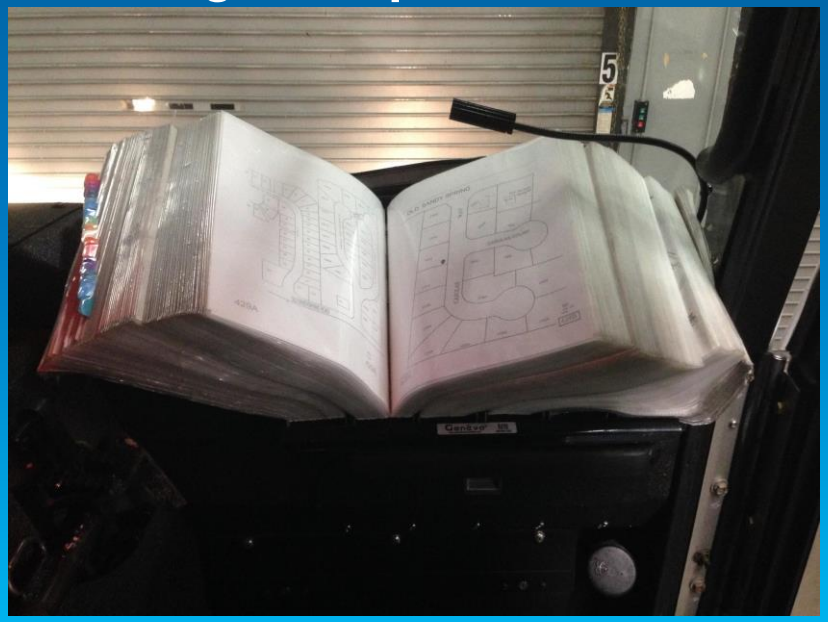
Current State of Maps and the Fire Service

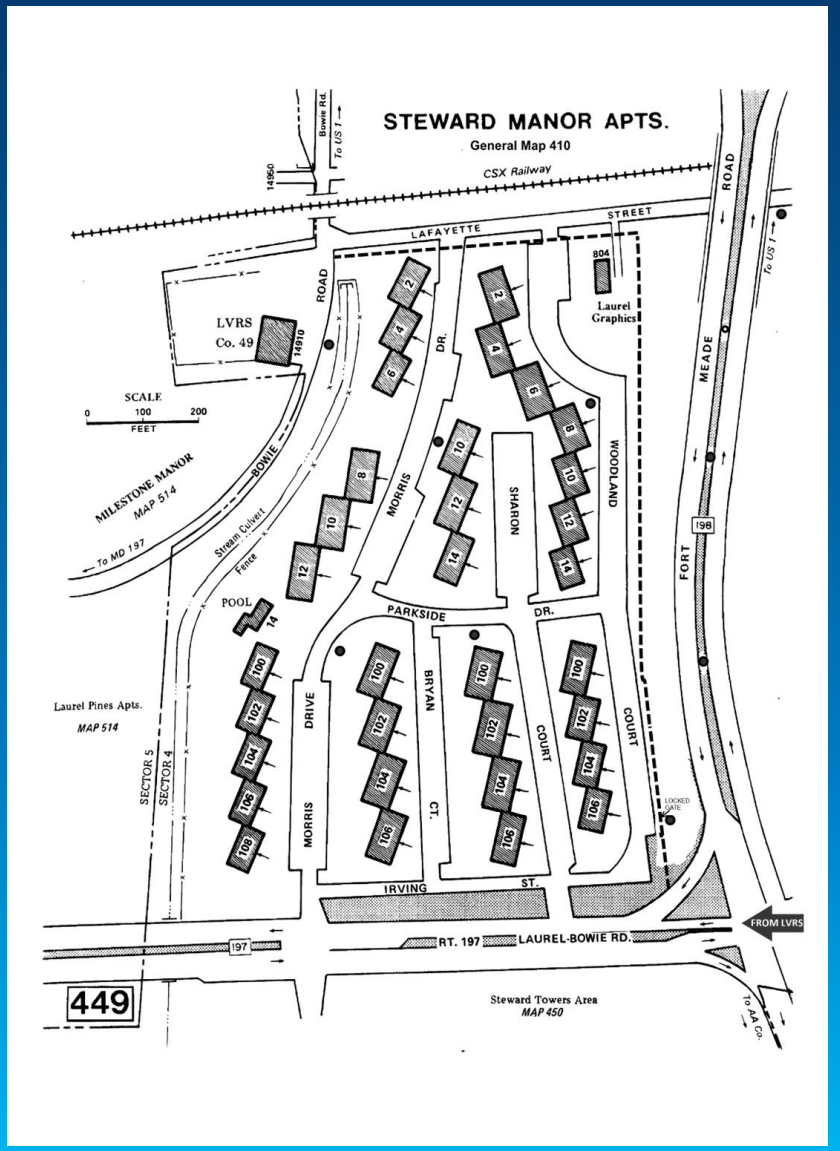
- Hydrant locations
- No GPS technology used in Prince George's County
- Most important part of emergency response



Challenges with current maps

- No Color
- Hand drawn
- No quality assurance on corrections
- No digital copies





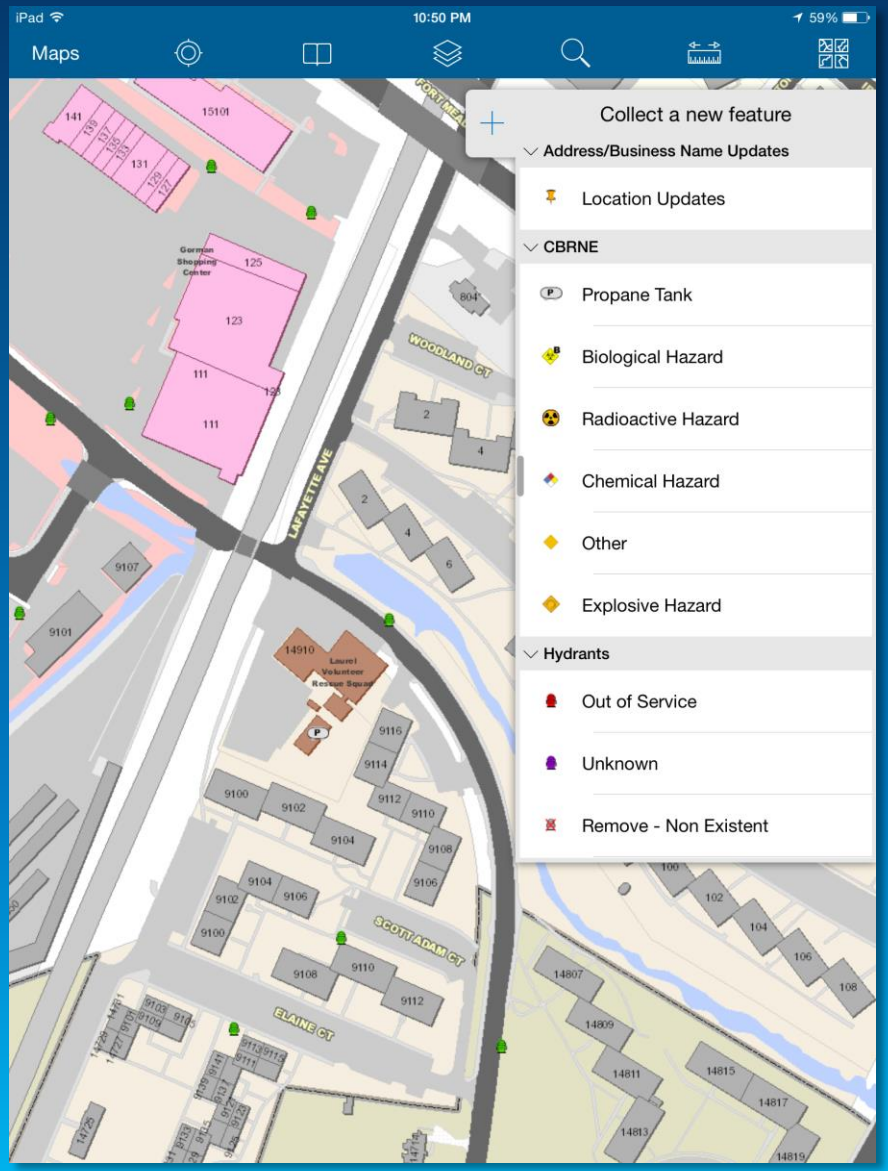
Besides dispatch reports we had no visible indications of a fire while responding. No smoke in the air until reaching the driveway of the complex. This apartment is under 2 minutes away from Station 8.

Reports of people trapped by dispatch, and verbally on scene.

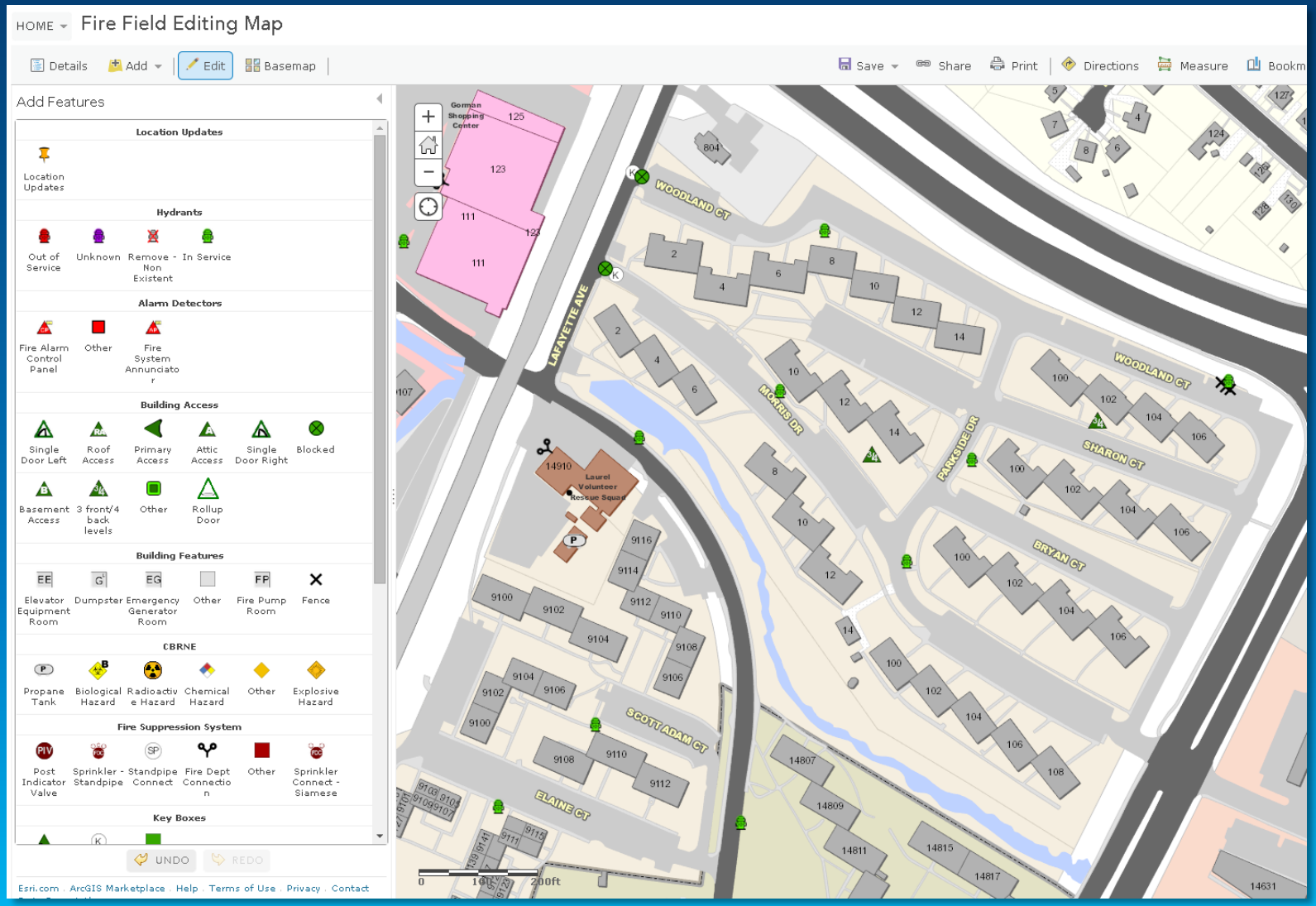
Laurel GIS and LVRS

- Provided an Apple Ipad Air 2 to LVRS
  - Preloaded with custom webmap on Collector for ArcGIS
- Provided basic training on use
- Tasked with validating the map data

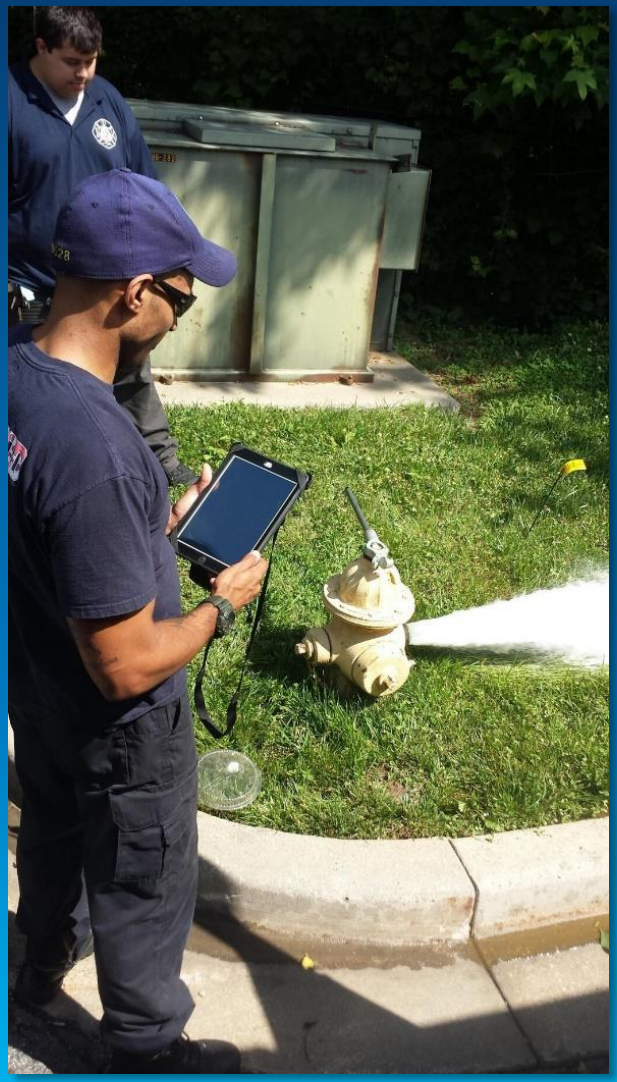
Mobile Collector for ArcGIS



Desktop ArcGIS Online



Hydrant Locations



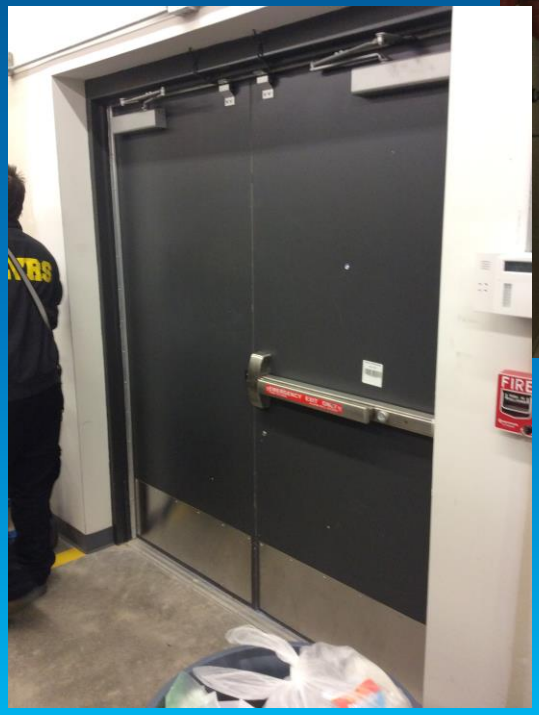
- Validate locations
- Distance from occupancies
- Test flow hydrants
- Determine service status

Hydrants

- In Service
- Out of Service
- Remove - Non Existent
- Unknown

Pre-incident Preplanning

- Benefits
- Challenges



Methodology

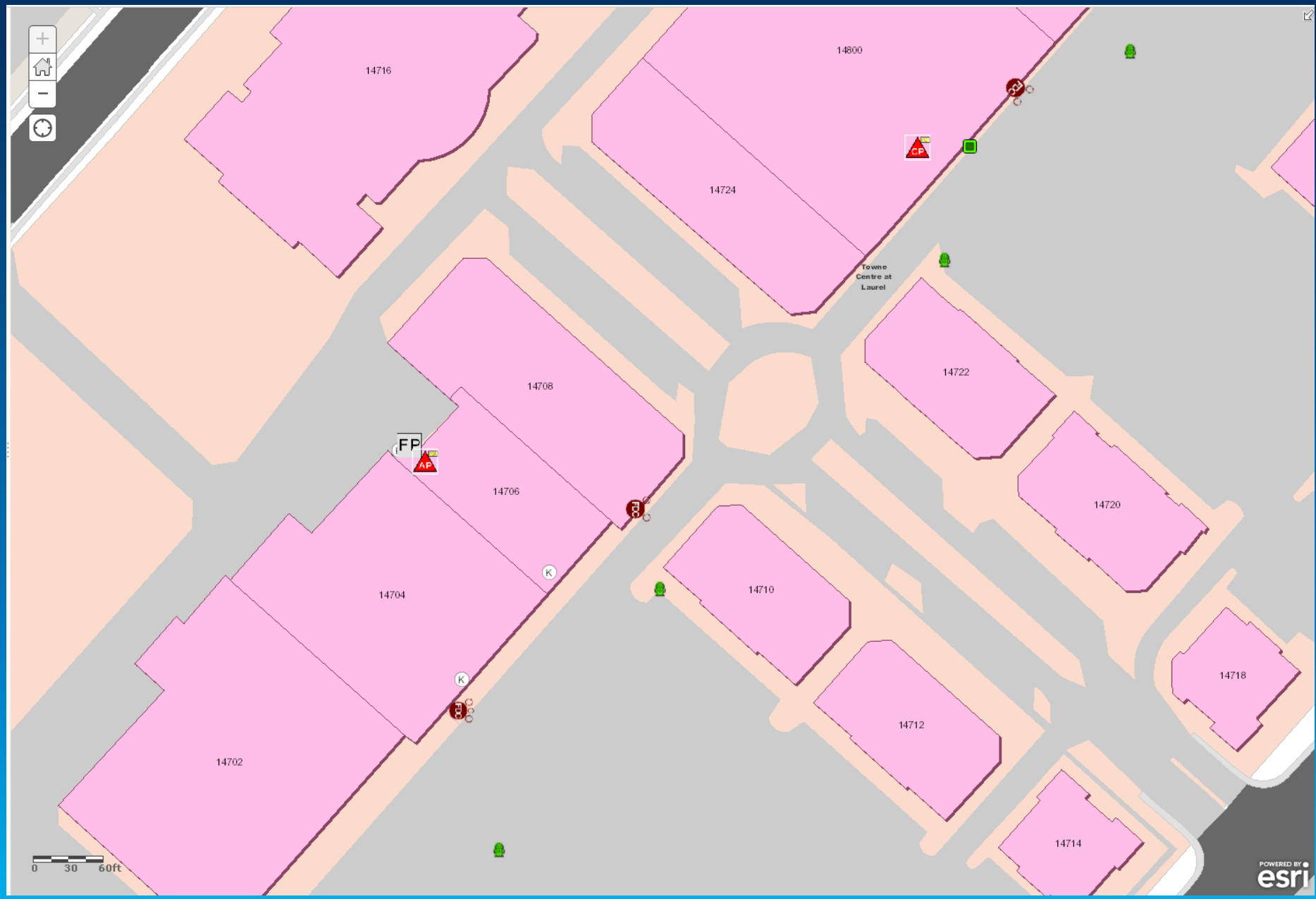
- Identify key Fire Pre Plan Features
- List necessary attributes and domains
- Determine best Symbology
- Collect data & provide feedback
- Update and push out basemaps

PrePlan Features

- **Local Government Data Model**
  - **PreIncident Plan point features:**
    - **12 Subtypes**
    - **241 Domains**
    - **NFPA704 Feature Class**
  - **Laurel PrePlan points modified:**
    - **9 Subtypes**
    - **50 Domains**
    - **CBRNE – 10th PrePlan Subtype**

Symbology

- http://napsg.maps.arcgis.com/home/
- PrePlan features:
  - Access Points
  - Detectors
  - Geographic Building Features
  - Fire Suppression Features
  - Shut off Utilities
  - Ventilation
  - Local Alarm
  - Hazardous materials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14724
Towne Centre at Laurel
14722
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FP
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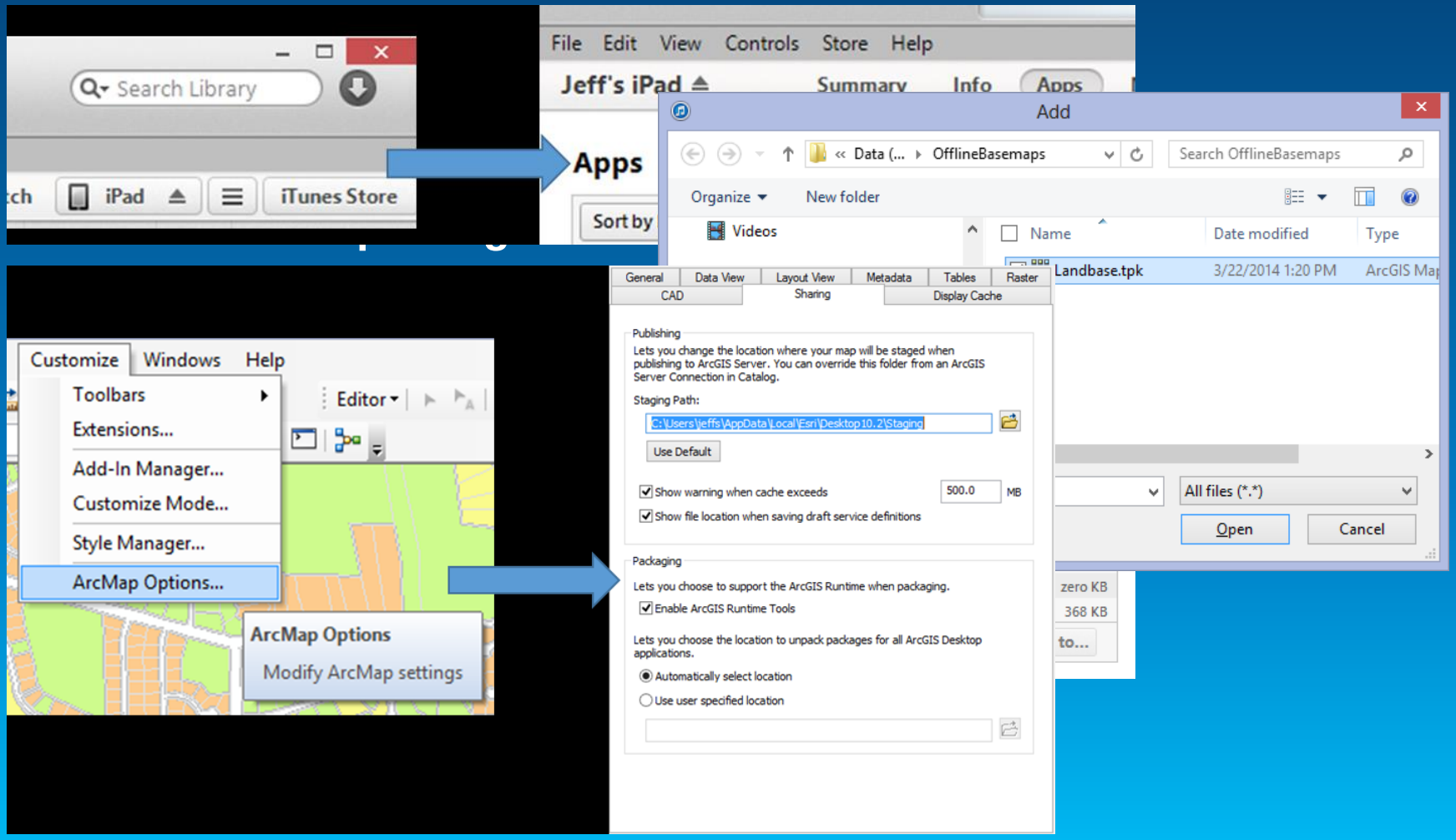
14710
14718
14712
14702
14714
0 30 60ft
POWERED BY esri

Basemaps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Cancel
Customize
Windows
Help
Toolbars
Extensions...
Add-In Manager...
Customize Mode...
Style Manager...
ArcMap Options...
Editor
ArcMap Options
Modify ArcMap settings
General
Data View
Layout View
Metadata
Tables
Raster
CAD
Sharing
Display Cache
Publishing
Lets you change the location where your map will be staged when publishing to ArcGIS Server. You can override this folder from an ArcGIS Server Connection in Catalog.
Staging Path:
C:\Users\jeffs\AppData\Local\Esri\Desktop10.2\Staging
Use Default
Show warning when cache exceeds
500.0
MB
Show file location when saving draft service definitions
Packaging
Lets you choose to support the ArcGIS Runtime when packaging.
Enable ArcGIS Runtime Tools
Lets you choose the location to unpack packages for all ArcGIS Desktop applications.
Automatically select location
Use user specified location
zero KB
368 KB

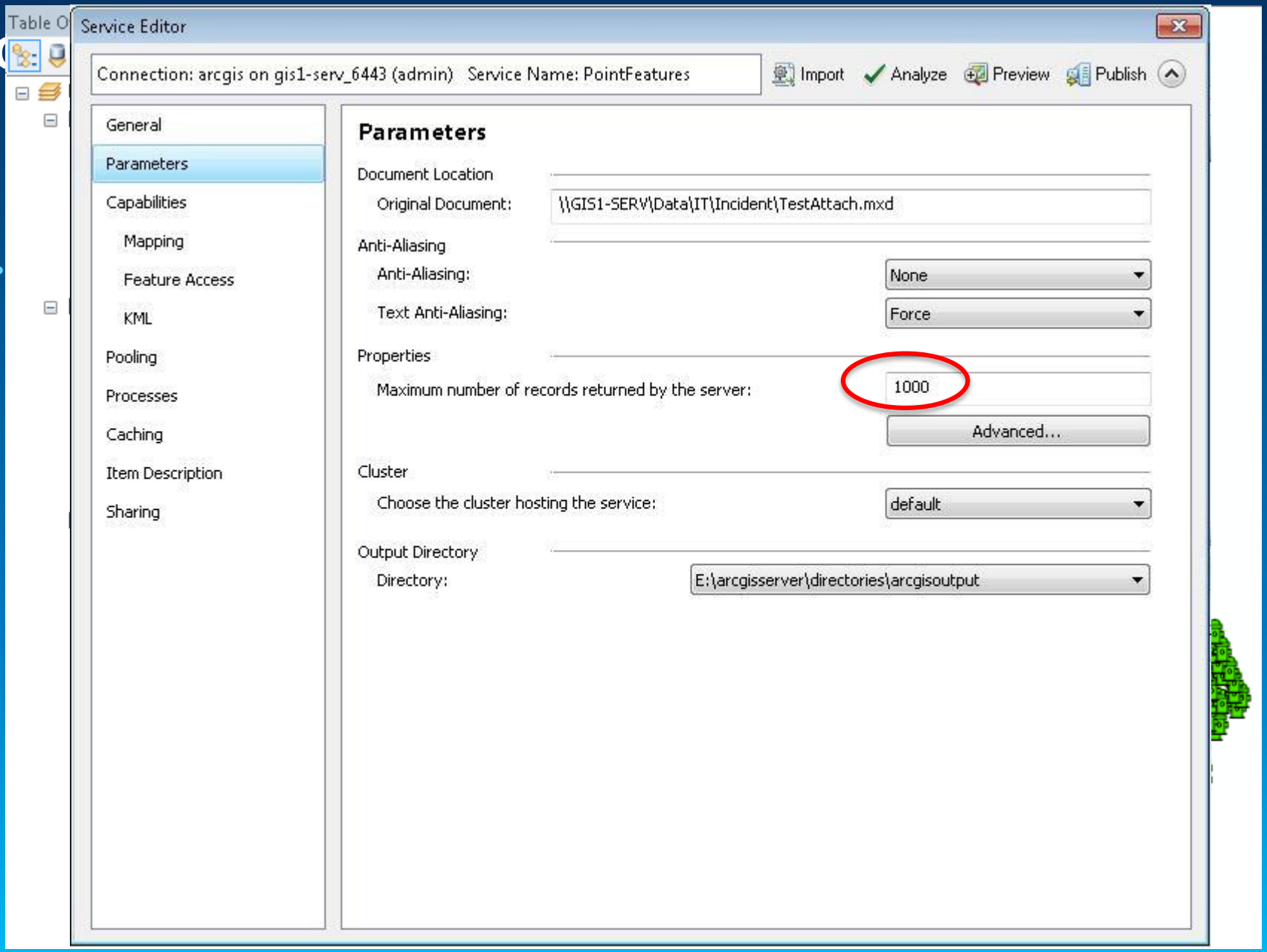
Table O
Service Editor
Connection: arcgis on gis1-serv_6443 (admin) Service Name: PointFeatures
Import
Analyze
Preview
Publish
General
Parameters
Capabilities
Mapping
Feature Access
KML
Pooling
Processes
Caching
Item Description
Sharing
Parameters
Document Location
Original Document:
\\GIS1-SERV\Data\IT\Incident\TestAttach.mxd
Anti-Aliasing
Anti-Aliasing:
None
Text Anti-Aliasing:
Force
Properties
Maximum number of records returned by the server:
1000
Advanced...
Cluster
Choose the cluster hosting the service:
default
Output Directory
Directory:
E:\arcgisserver\directories\arcgisoutput

Hosted Services

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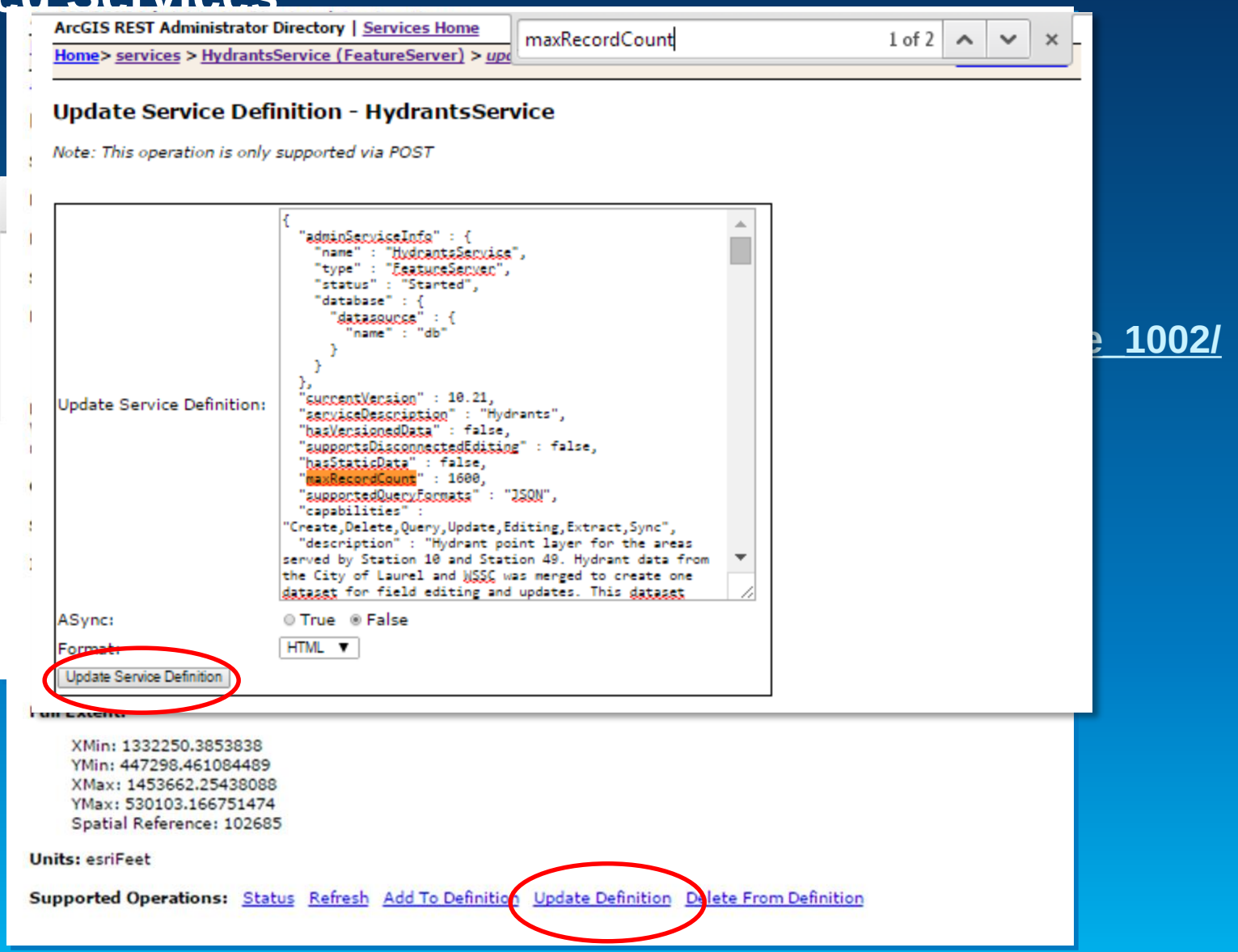

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ArcGIS REST Services Directory

Home > services > FloodObsvMay15_16 (FeatureServer) > *createReplica*

Create Replica : (FloodObsvMay15_16)

Note: This operation is only supported via POST

Replica Name:	FldObsMayReplica
Layers:	0
LayerQueries:	
Geometry:	
Geometry Type:	Point
Input Spatial Reference:	
Replica Spatial Reference:	
Transport Type:	Url
Return Attachments:	True / False
Return Attachments Data By Url:	True / False
Create Replica Asynchronously:	True / False
Sync Model:	none
Replica Options:	
Data Format:	FILEGDB
Format:	HTML

Create Replica

- Incident
  - CodeRed
  - FloodEvent_AprilMay2014
    - CollectorPhotos
    - Helicopter Photos
    - 646d86daea154b8297d8a39dfd07a779.gdb
      - Extent_of_Flooding
      - Extent_of_Flooding__ATTACH
      - Extent_of_Flooding__ATTACHREL

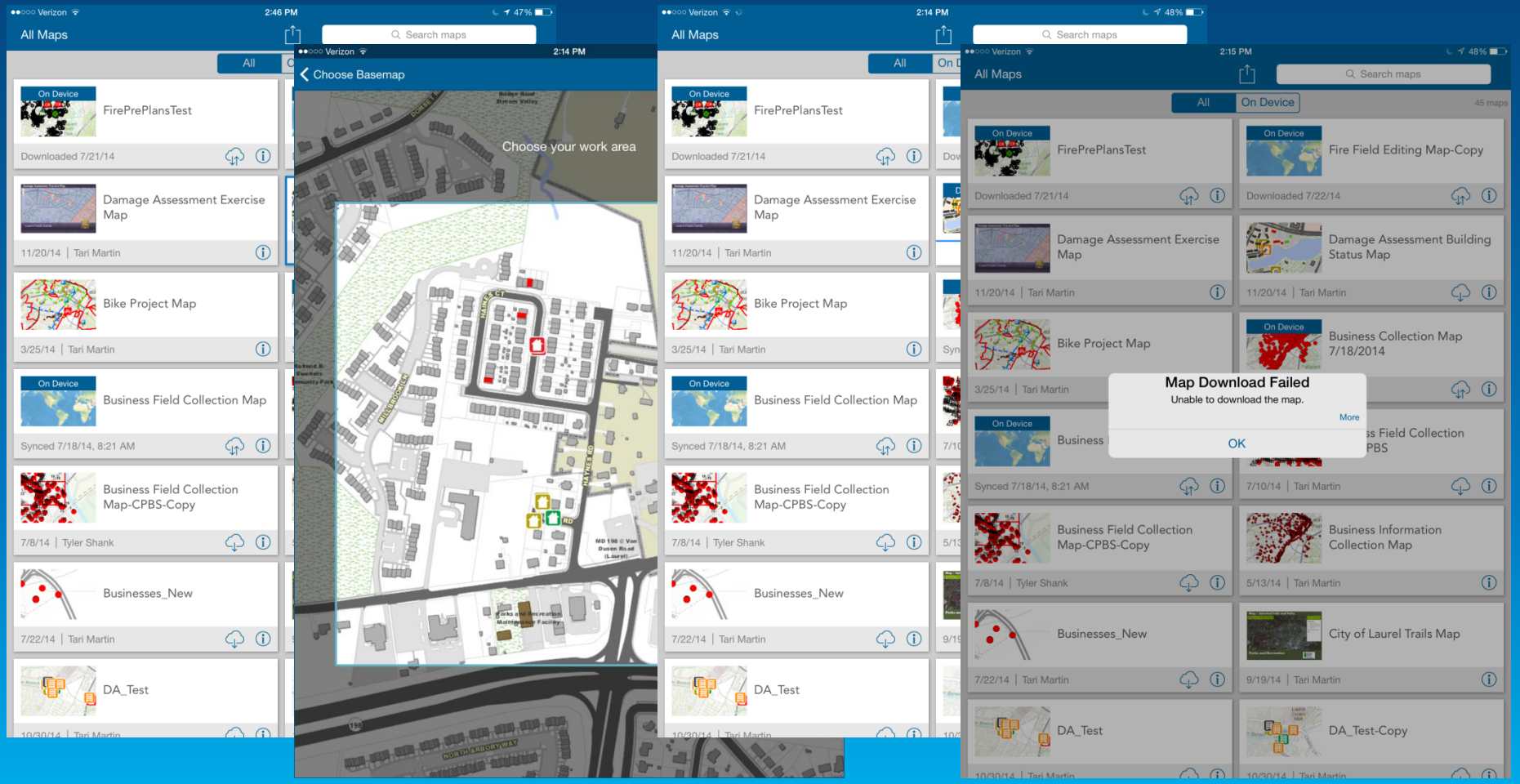
Transport Type: esriTransportTypeUrl

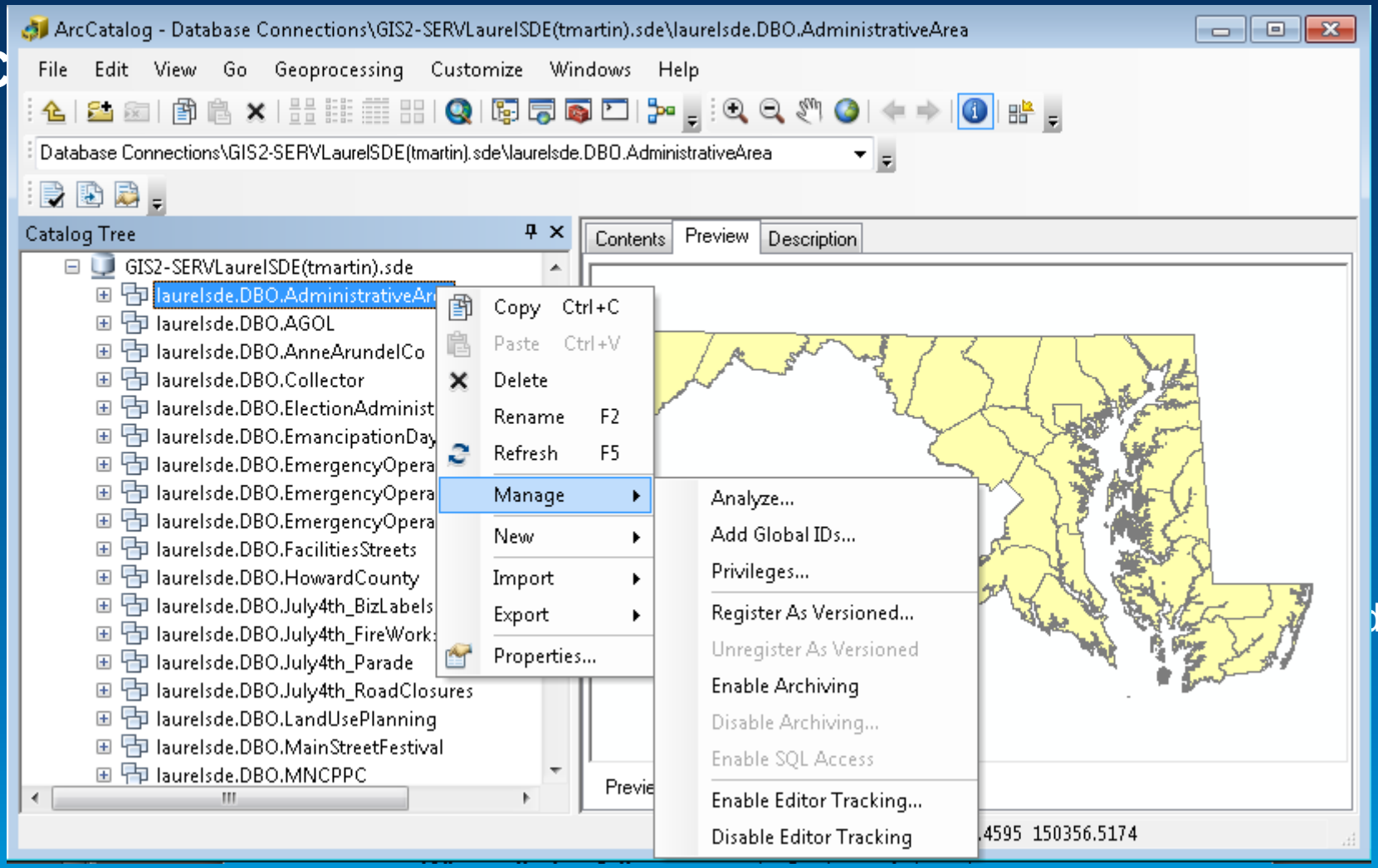
"responseUrl" : https://services1.arcgis.com/AvDuFhOUE9qxjJjX/ArcGIS/rest/services/FloodObsvMay15_16/replicafiles/07eb44faec51487898f6e9f2af8c29e3.zip

re_1002/

**/Feature

Challenges - GIS





When all else fails – recreate feature dataset, import feature classes & redo these steps.

<u>Not</u> awesome - but often works…

Challenges in the field

- Internet connectivity issues to Collector
- Validation of data
- No QA through Collector
- Permissions to change data
- Technology fail rate

Emergency Operations

- **Incident Management**
  - **Road closures, power outages, flooding**
  - **Services now accessible and editable by field crews**
- **Flood history**
  - **Most common and significant hazard**
  - **Flooding extent documented in Collector throughout each event**

HOME

Incident Map

Details | Add | Edit | Basemap | Share | Directions

Contents

- GPS Photos
- No Data
- Estimated Flood Extent
- Road Closures
- Power Outages
  - No Power
  - Restored
- Basemap Public2014

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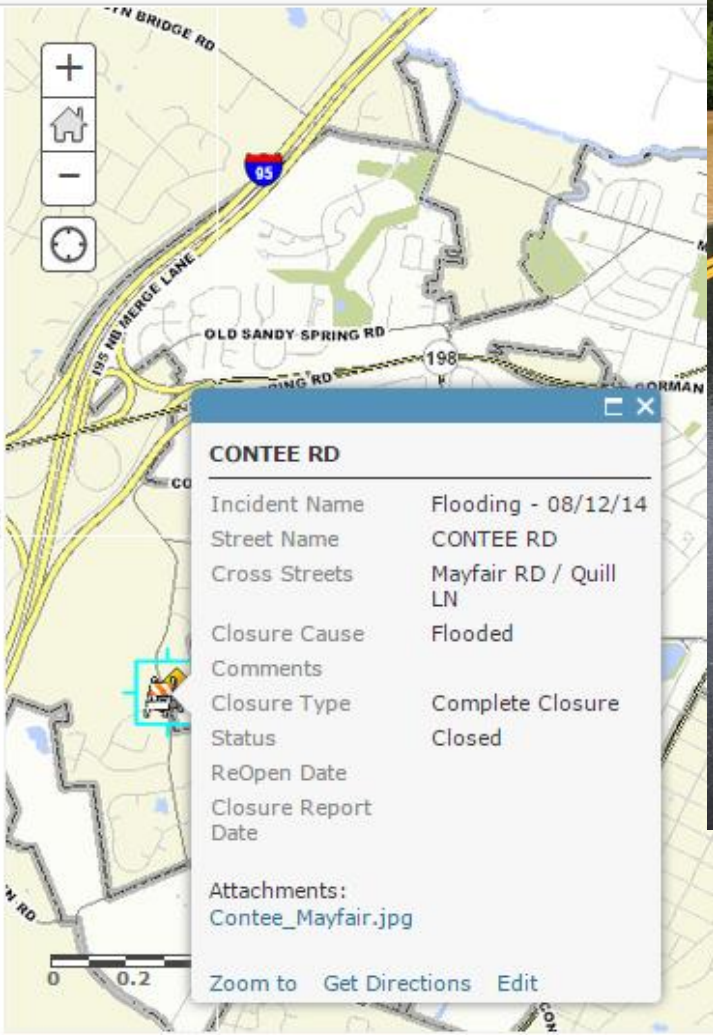

CONTEE RD

Incident Name	Flooding - 08/12/14
Street Name	CONTEE RD
Cross Streets	Mayfair RD / Quill LN
Closure Cause	Flooded
Comments	
Closure Type	Complete Closure
Status	Closed
ReOpen Date	
Closure Report Date	

Attachments:
Contee_Mayfair.jpg

Zoom to | Get Directions | Edit

esri

HOME

Flood Observation Field Map

NEW MAP | CREATE PRESENTATION | Tari

Details | Add | Edit | Basemap | Find Address or Place

Contents

- Flood Observations
- 4/30-5/1 Flood Observations
- Discharge Level - 2,000CFS
- Discharge Level - 4,000CFS
- Discharge Level - 6,000CFS
- Discharge Level - 8,000CFS
- Discharge Level - 16,000CFS
- Discharge Level - 24,000CFS
- Discharge Level - 32,000CFS
- Road Closures
- Building Footprint
- Laurel BaseMap
- Topographic

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(1 of 2)

4/30-5/1 Flood Observations

Time	April 30, 2014
Comments	
created_user	
created_date	
last_edited_user	
last_edited_date	

Attachments:
Video1.mov

Edited by jcornwell-shiel on 5/15/14 at 10:40 AM

Zoom to | Get Directions

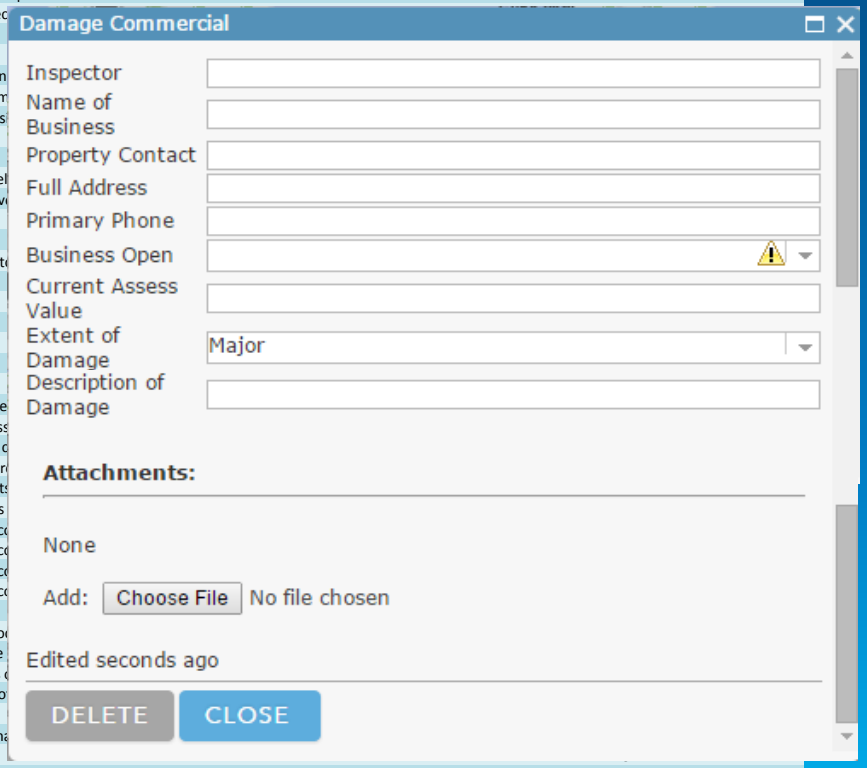
Emergency Operations

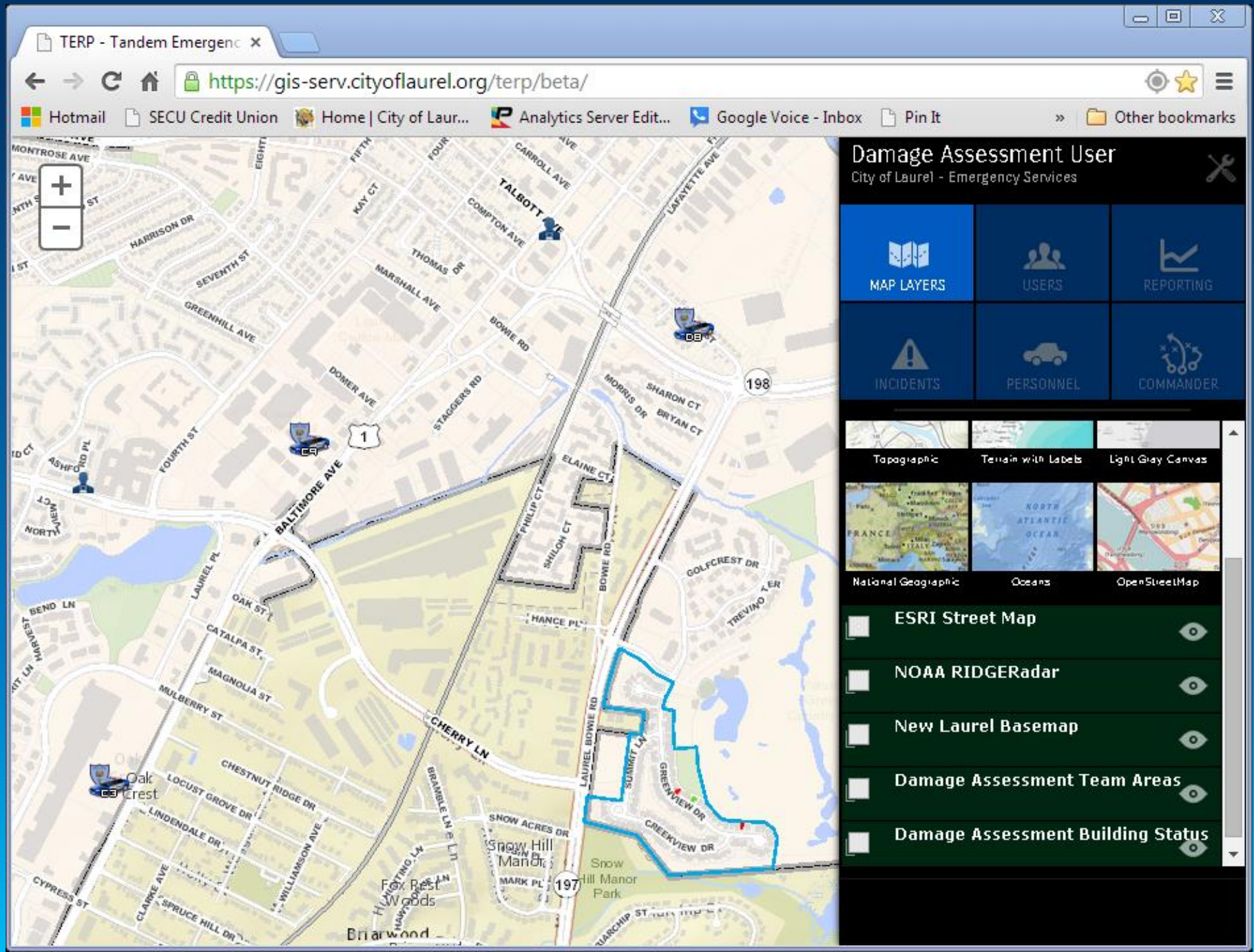
Damage Assessment

- Modified Local Government Data Model
- Hybrid local and hosted feature service
- Real-time critical for COP
- Feeds form on intranet – damage totals, export to excel
- *Dashboard*
- *Public Information Web Application*

Emergency Operations

Field	DataType	Length	AliasName	Description	Domain	DefaultValue	IsNullable	Precision	Scale
INCIDENTID	String	30	Incident Number	The unique ID for the incident			TRUE		
INCIDENTNM	String	255	Incident Name	The name of the incident			TRUE		
INSPECTID	String	10	Inspector ID	The unique ID for the damage assessment inspector			TRUE		
INSPECTOR	String	50	Inspector	The name of the user assigned to the inspec					
INSPEMAIL	String	100	Inspector's Email Address	The inspector's email address					
INSPPHONE	String	12	Inspector's Phone Number	The inspector's phone number					
AFFIL	String	255	Affiliation	The relationship between a person or organ					
INSPDATE	Date	8	Inspection Date Time	The date/time (in UTC) the damage assessm					
PLACENAME	String	250	Name of Business	A common name or vanity address for the s					
FIRSTNAME	String	50	Contact First Name	The contact's first name					
LASTNAME	String	50	Contact Last Name	The contact's last name					
FULLADDR	String	250	Full Address	Address information combined in to one fiel					
PSTLCITY	String	100	Postal City	The name of the city where the mail is deliv					
PSTLZIP5	String	5	Postal Zip 5	The five digit postal zip code					
SITEID	String	30	Site ID	The unique ID for the site inspected					
PARCELID	String	30	Parcel Identification Number	The tax parcel idendification number used t					
USNGCOORD	String	50	USNG Coordinate	The USNG coordinate value					
HOMEPHONE	String	12	Home Phone	The contact home phone number					
WORKPHONE	String	12	Work Phone	The contact work phone number					
CELLPHONE	String	12	Cell Phone	The contact cell phone number					
EMAIL	String	100	Email	The contact email address					
SMS	String	100	SMS or Text	The contact SMS or text message address					
REPRESENT	String	30	Owner / Occupant	A general classification of individual represe					
BUSOPEN	String	5	Business Open	A flag used to indicate whether the business					
DAYSCLOSE	Integer	4	Number of Days Closed	The number of days the business has been c					
STRINSUR	String	5	Structure Insured	A flag used to indicate whether the structur					
CONTINSUR	String	5	Contents Insured	A flag used to indicate whether the contents					
RENTINSUR	String	5	Renter's Insurance	A flag used to indicate whether the renter's					
EARINSUR	String	5	Earthquake Coverage	A flag used to indicate whether additional co					
FLOODINSUR	String	5	Flood Coverage	A flag used to indicate whether additional co					
FIREINSUR	String	5	Wildland Fire Coverage	A flag used to indicate whether additional co					
BUSINSUR	String	5	Business Continuity Coverage	A flag used to indicate whether additional co					
DEDUCT	Double	8	Insurance Deductible	The total insurance deductable					
PREDISVAL	Double	8	Value Before Damage	The value of the structure before damage oc					
STRLOSS	Double	8	Estimated $ Loss Structure	The estimated loss in value to the structure					
CONTLOSS	Double	8	Estimated $ Loss Contents	The estimated loss in value to the contents c					
TYPDAMAGE	String	20	Extent of Damage	A classification used to identify the extent o					
PRIMCAUSE	String	20	Primary Cause of Damage	The primary cause of damage					
DESCDAMAGE	String	255	Description of Damage	A general description of the cause and dama					
IMPACTJUR	String	255	Impact to Jurisdiction	The impact to the jurisdiction					
COMMENTS	String	255	Additional Comments	Any additional comments provided by the inspector			TRUE		
LASTUPDATE	Date	8	Last Update Date	The date the feature was last updated in the maintenance database			TRUE		
LASTEDITOR	String	50	Last Editor	The user who performed the last update			TRUE		

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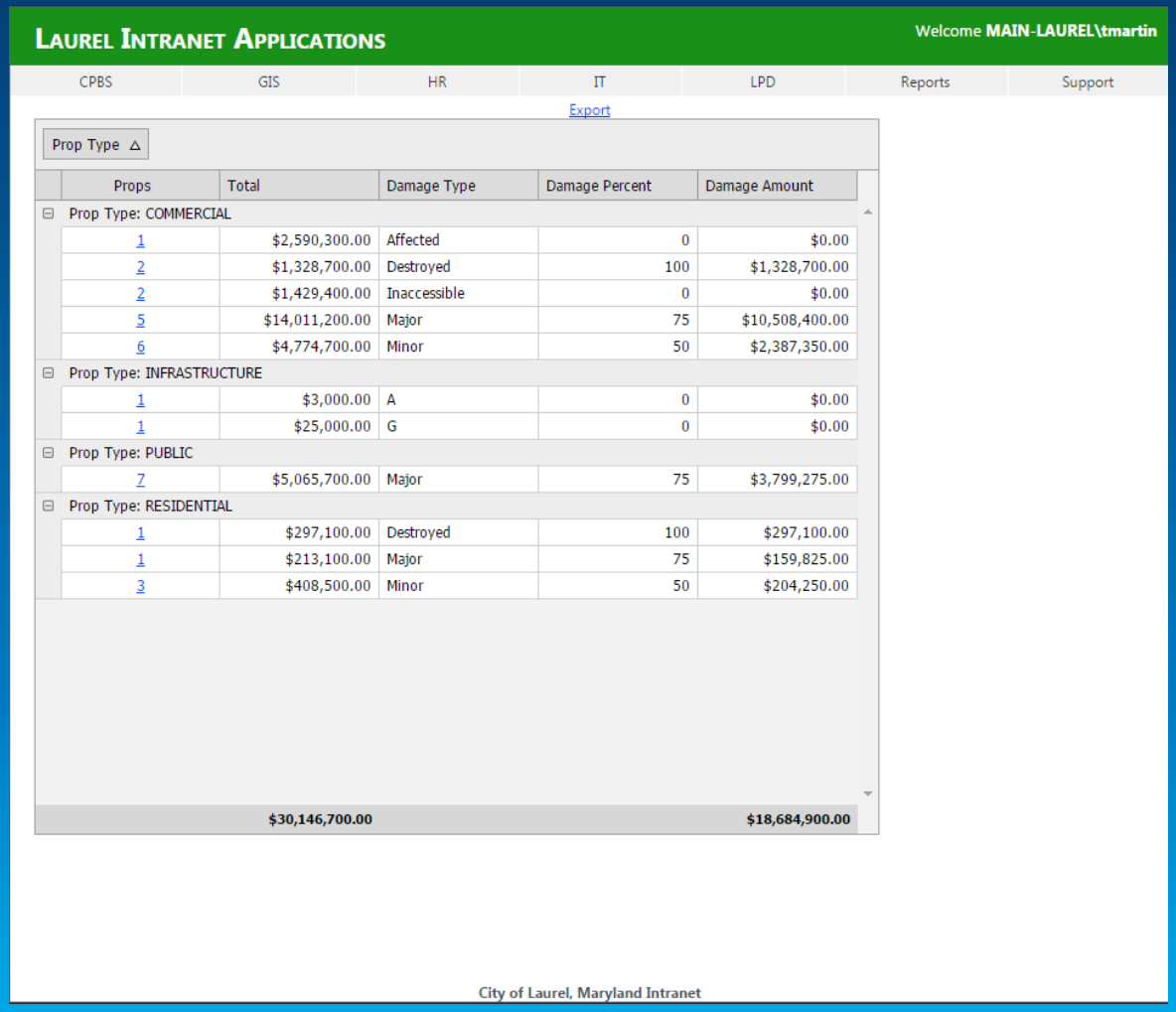
https://gis-serv.cityoflaurel.org/terp/beta/
Hotmail
SECU Credit Union
Home | City of Laur...
Analytics Server Edit...
Google Voice - Inbox
Pin It
Other bookmarks
Damage Assessment User
City of Laurel - Emergency Services
MAP LAYERS
USERS
REPORTING
INCIDENTS
PERSONNEL
COMMANDER
Topographic
Terrain with Labels
Light Gray Canvas
National Geographic
Oceans
OpenStreetMap
ESRI Street Map
NOAA RIDGERadar
New Laurel Basemap
Damage Assessment Team Areas
Damage Assessment Building Status
MONTROSE AVE
HARRISON DR
SEVENTH ST
GREENHILL AVE
KAY CT
COMPTON AVE
TALBOTT AVE
THOMAS DR
MARSHALL AVE
BOWIE RD
LAFAYETTE AVE
CARROLL AVE
DOMER AVE
STAGGERS RD
MORRIS DR
SHARON CT
BRYAN CT
198
FOURTH ST
BALTIMORE AVE
ELAINE CT
PHILIP CT
SHILOH CT
GOLFCREST DR
TREVINO TER
LAUREL PL
OAK ST
CATALPA ST
MAGNOLIA ST
MULBERRY ST
CHERRY LN
LAUREL BOWIE RD
SUMMIT LN
GREENVIEW DR
CREEKVIEW DR
CHESTNUT RIDGE DR
LOCUST GROVE DR
LINDENDALE DR
WILLIAMSON AVE
SNOW ACRES DR
Snow Hill Manor
Snow Hill Manor Park
MARK PL
197
Fox Rest Woods
Briarwood
CYPRESS ST
CLARKE AVE
SPRUCE HILL DR

Emergency Operations



LAUREL INTRANET APPLICATIONS

Welcome MAIN-LAUREL\tmartin

CPBS | GIS | HR | IT | LPD | Reports | Support

Export

Prop Type △

Props	Total	Damage Type	Damage Percent	Damage Amount
Prop Type: COMMERCIAL				
1	$2,590,300.00	Affected	0	$0.00
2	$1,328,700.00	Destroyed	100	$1,328,700.00
2	$1,429,400.00	Inaccessible	0	$0.00
5	$14,011,200.00	Major	75	$10,508,400.00
6	$4,774,700.00	Minor	50	$2,387,350.00
Prop Type: INFRASTRUCTURE				
1	$3,000.00	A	0	$0.00
1	$25,000.00	G	0	$0.00
Prop Type: PUBLIC				
7	$5,065,700.00	Major	75	$3,799,275.00
Prop Type: RESIDENTIAL				
1	$297,100.00	Destroyed	100	$297,100.00
1	$213,100.00	Major	75	$159,825.00
3	$408,500.00	Minor	50	$204,250.00
	$30,146,700.00			**$18,684,900.00**

City of Laurel, Maryland Intranet

Damage Assessment Exercise

Lessons Learned

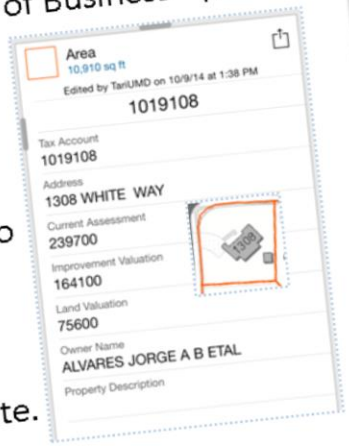
- **Murphy's Law**
- **Just-in-Time**

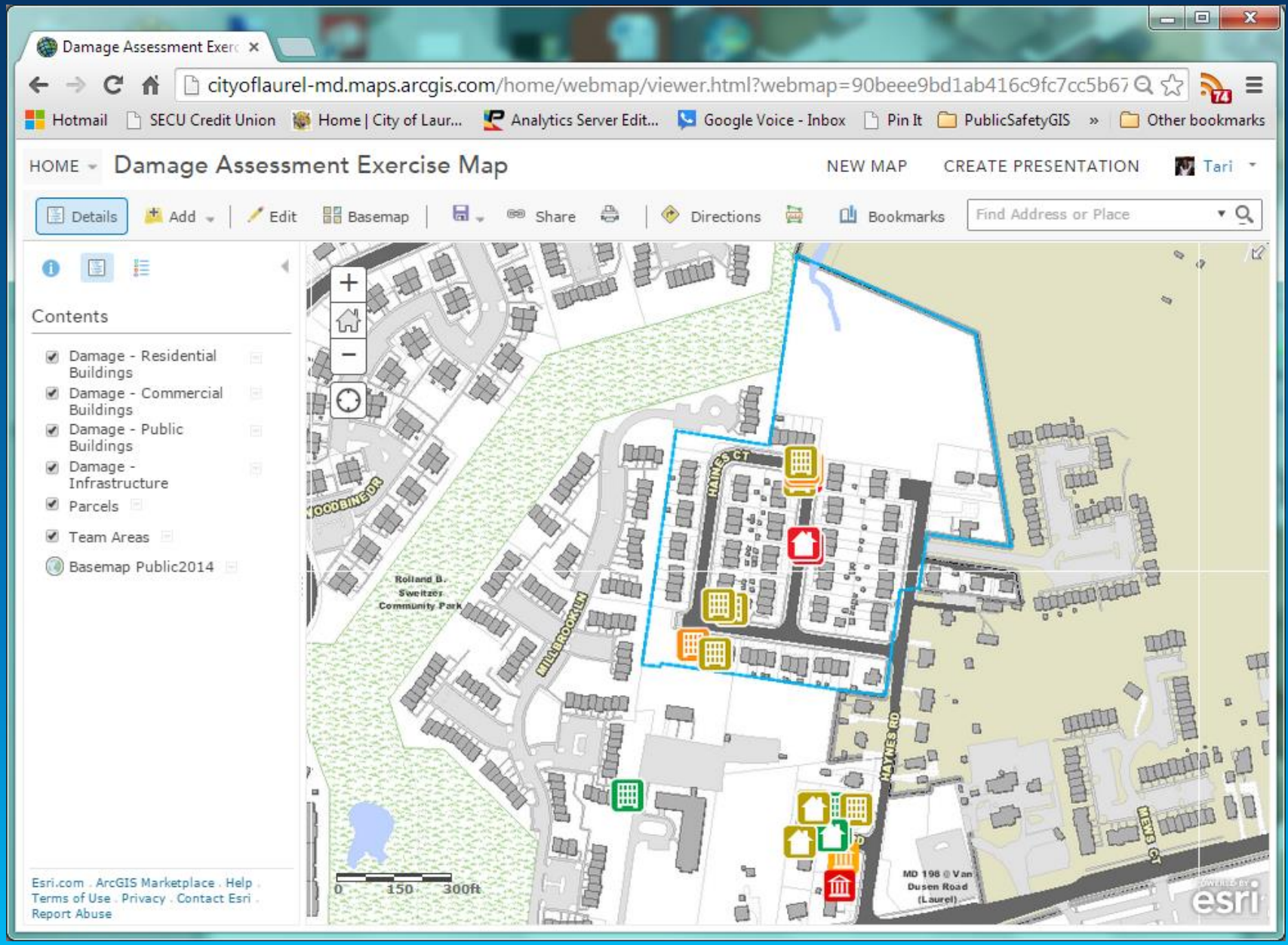
1. Open Collector for ArcGIS
2. Log in: Name_____
   Password _____
3. Open "Damage Assessment Map"

To Add Damage Assessment Site

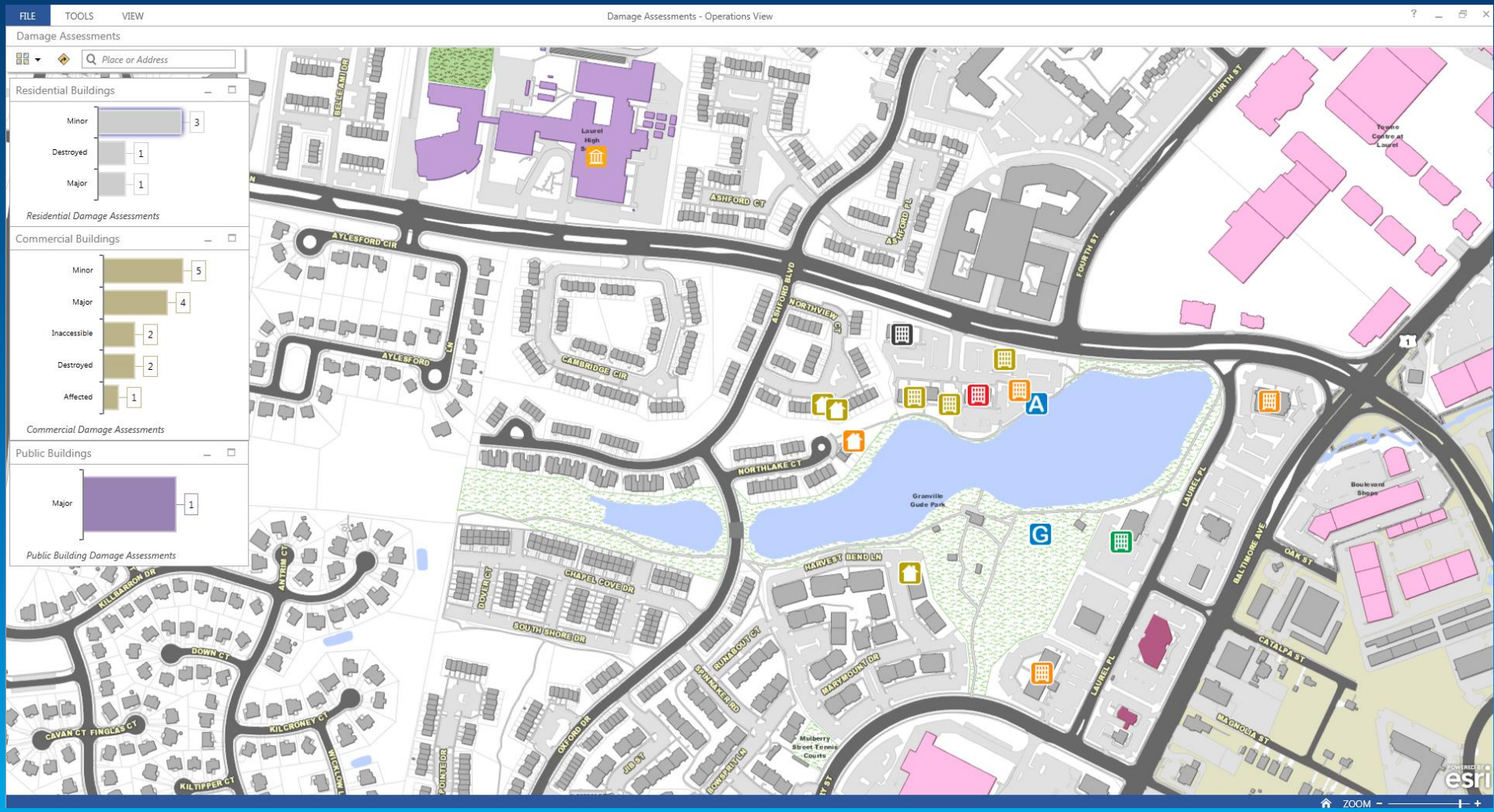
1. Select Site Category: Resident
   Public Facility (City Hall)/ Infras
2. Select Level of Damage: Inacc
   Affected (25%) Minor (50%); Ma
   (100%)
3. Place point on location.
4. Enter assessment details -> (

4. Enter Assessment Details
   a. Enter "Inspector" (your name), "Name of Business" (if applicable), & "Street Address"
   b. 'Submit' (top right corner) Submit
   c. Touch inside parcel of site to view & building value
   d. Press down on "Owner Name" field to copy. Drag blue lines left & right to select entire name.*Make note of assessment value.
   e. Reselect point to continue editing site.
   f. Click to edit.
   g. Press down on "Owner" field to 'Copy.'
   h. Enter Current Assessment noted.
   i. Click camera icon to take a photo
   j. Enter any other details in "Description of Damage"
   k. **Submit** to **Save** when completed.




Damage Assessment Exerc
cityoflaurel-md.maps.arcgis.com/home/webmap/viewer.html?webmap=90beee9bd1ab416c9fc7cc5b67
Hotmail
SECU Credit Union
Home | City of Laur...
Analytics Server Edit...
Google Voice - Inbox
Pin It
PublicSafetyGIS
Other bookmarks
HOME
Damage Assessment Exercise Map
NEW MAP
CREATE PRESENTATION
Tari
Details
Add
Edit
Basemap
Share
Directions
Bookmarks
Find Address or Place
Contents
Damage - Residential Buildings
Damage - Commercial Buildings
Damage - Public Buildings
Damage - Infrastructure
Parcels
Team Areas
Basemap Public2014
HAINES CT
HAINES RD
MILLBROOK LN
Rolland B. Sweitzer Community Park
MD 198 @ Van Dusen Road (Laurel)
0
150
300ft
Esri.com . ArcGIS Marketplace . Help .
Terms of Use . Privacy . Contact Esri .
Report Abuse
esri

Damage Assessment Dashboard



Final suggestions / thoughts…

- Be prepared to be offline
- Have work around in place for attachments
  - Android – reduce mega pixel size in settings
  - iOS – 3rd party camera software
  - PullReplica Github
- Get feedback throughout development from your public safety users & after implementation
- Routing to incident is ideal
- Clickable structures to display pre-plans and photos

THANK YOU !

COLLECTOR AND ARCGIS ONLINE - LESSONS FROM PUBLIC SAFETY

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