

Esri Application Integration Produces Highly Capable Field Operations Solutions

BUILDING PERMITS AND INSPECTIONS



What we will be Covering:

- Integrating Applications

- Benefits
- Easy to do

- Data Collection Applications

- Survey123 for ArcGIS- Form-Centric
- Collector for ArcGIS- Map-Centric

- Leveraging Webhooks

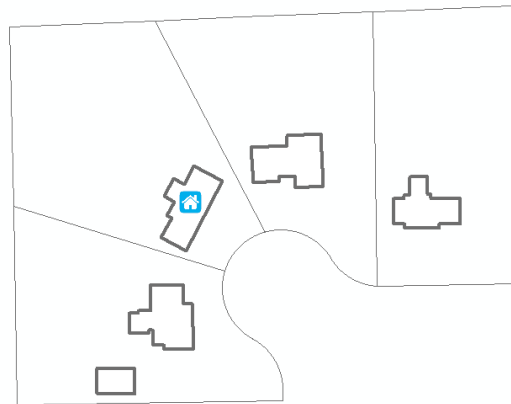
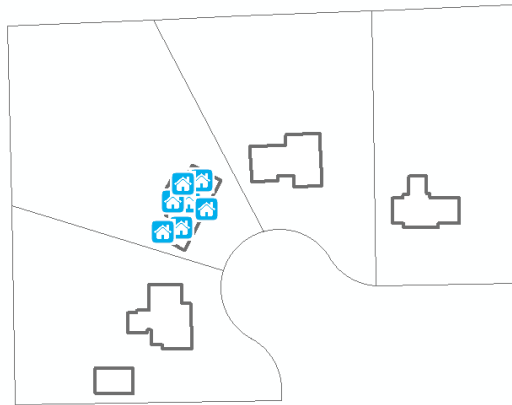
- Automate Back-End Processes
- Create Content
- Adds Fail-Safe

- Smart Layers

- Definition Query Based Services
- View Based Services

A Use Case Scenario:

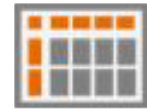
Using GIS to Conduct Building Inspections



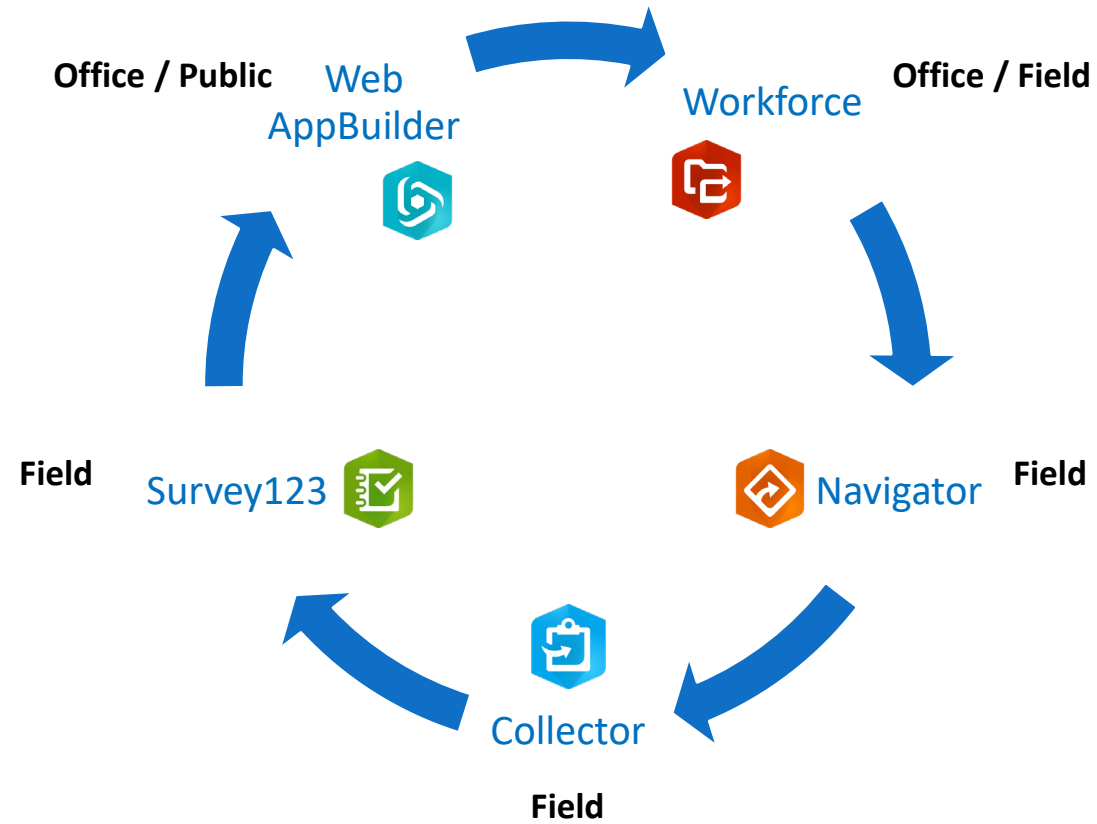
Building Permit



Inspection Surveys



Why Integrate?



Data Collection Applications



Survey123:

- Released in 2016
- Form centric (Surveys)
- Surveys are created via the web or a spreadsheet editor
- Surveys are published as feature services
- Supports editing new and existing data
- Supports smart forms
- Supports disconnected editing
- Supports anonymous access
- iOS, Android, Windows (7, 8, 10), Mac, Linux, Web
- Supported by Esri



Collector:

- Released in 2013
- Map Centric (points, lines, polygons)
- Data collection maps are created using ArcGIS Online
- Data is published as feature services
- Supports editing new and existing data
- Supports disconnected editing
- iOS, Android, Windows 10
- Supported by Esri

What do these terms really mean?

FORM CENTRIC

✓ Data Collection that is more Concerned with Questions

- Attribute data centric
- Best suited for complex attribute collection
- Geo-Capable, but not the focus

MAP CENTRIC

✓ Data Collection that is more Concerned with the Where

- Geospatial data centric
- Best suited for simple attribute collection
- Attribute capable, but not the focus

Why Integrate Collector With Survey123?

When might you want to collect data seamlessly across both applications?

- ✓ When you have a scenario where the data you are collecting is both form centric and map centric
- ✓ When you want to leverage the strengths of each collection method into a single solution
- ✓ When you want your data to remain tightly coupled without producing excess and disparate datasets

Schema Design

Prepare your data in the following manner:

- Create a building permit feature class and building inspection tables
- Add GlobalIDs to your datasets
- Do not version your data
- Create relationship classes to relate feature class to inspection tables, use the GlobalID field from the feature class as the primary key, and a GUID field in the inspection tables as the foreign key
- Add attachments if necessary
- When ready, publish the data with sync enabled

Using Survey123 with Existing Feature Services

The easiest way:

- Publish data as a hosted feature service or to an ArcGIS Server that is federated with Portal for ArcGIS
- Launch Survey123 Connect > choose New Survey > click the radio button “Feature Service” > choose your feature service > Create Survey
- Surveys From Related Tables
 - Delete Questions Not Found in Related Table
 - Fill in the form_id property with name of the related table in the settings tab of your spreadsheet
- <http://doc.arcgis.com/en/survey123/desktop/create-surveys/survey123withexistingfeatureservices.htm>

The harder way:

- Publish data to non-federated ArcGIS Server
- <http://support.esri.com/technical-article/000014793>

URL Scheme

Provides a protocol for launching apps and invoking actions:

- Launching the Survey123 app from Collector
- Opening a specific survey
- Prepopulating survey questions



Leveraging Webhooks

Edit webhook

A POST request will be sent to the payload URL below with selected details of any subscribed events.

Name *

Multipurpose Inspection Form (MS Flow)

Payload URL *

https://prod-110.westus.logic.azure.com:443/workflows/[redacted]/triggers/manual/paths/invoke?api-version=2016-06-01&si

Trigger events



New record submitted



Existing record edited

Event data

Include following information in the payload



Survey info ?



Server response ?



Submitted record ?



User info ?



Portal info ?

Status



On

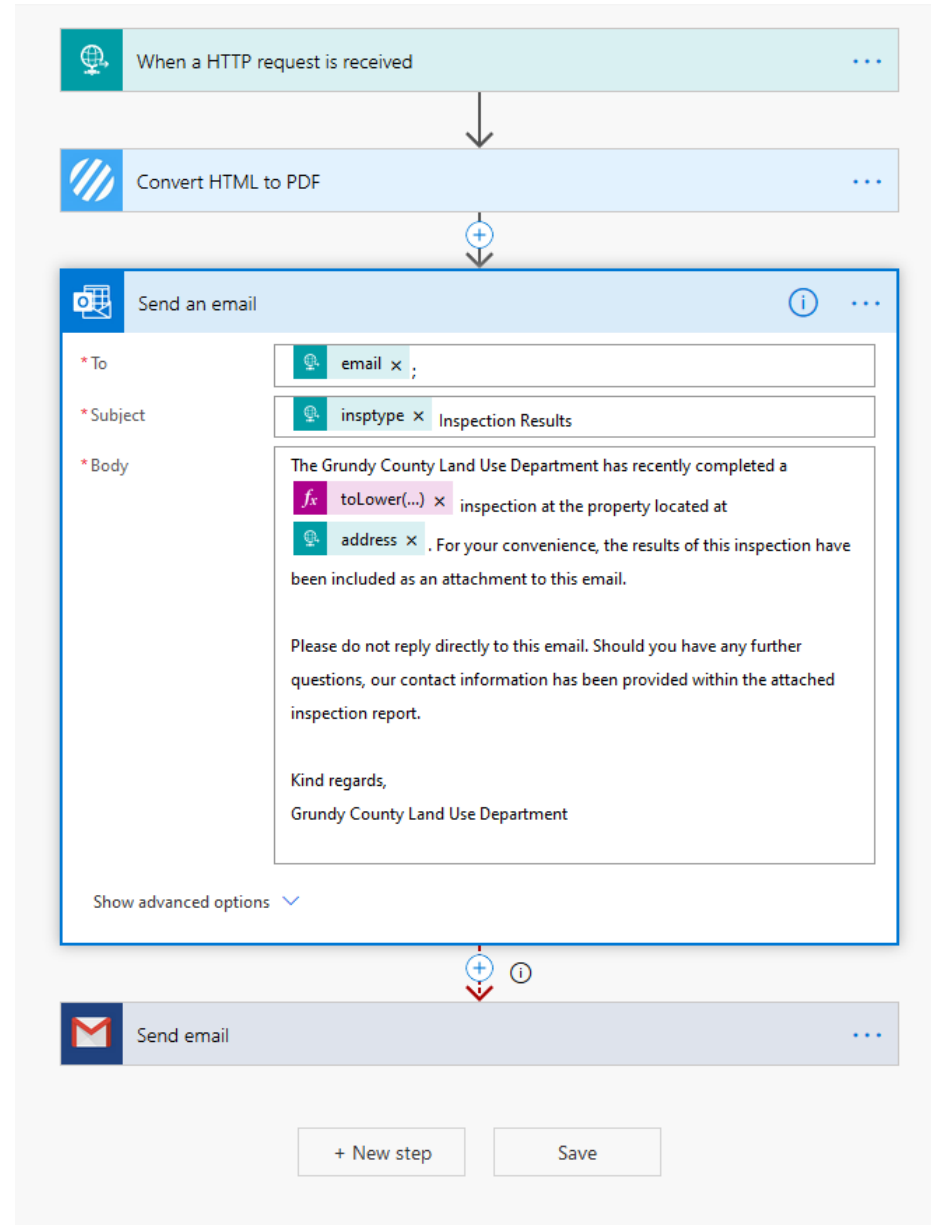
Save

Cancel

Webhook Usage Example:

Use HTML and payload attributes to dynamically create a consistent and polished report that is then converted to PDF format on the fly

If the process fails immediately send email notifying GIS staff of the problem



← Incoming Survey123 payload

← Send boilerplate email making use of the payload attributes and include PDF report from previous step as an attachment

Completed Building Inspection Forms



COUNTY OF GRUNDY
Land Use Department
1320 Union St. Morris, Illinois 60450

Building Inspection Form:

This form documents a recent building inspection that was performed at the property located at 3560 East Grand Ridge, Mazon. Should you have any questions please contact the Grundy County Land Use department by phone at (815) 941-3228, or by email at bpazely@grundycyco.org. Please see below for the details regarding your inspection:

NAME: Jon Stoja
PERMIT: 20-B-07
ADDRESS: 3560 East Grand Ridge, Mazon
INSPECTION: Setbacks
INSPECTOR: Bob Pazely
DATE: 02/14/2020

PASS / FAIL: PASS

PASS WITH COMMENTS: Yes

COMMENTS:
Call for a final inspection when work is completed

Grundy County Land Use Department
1320 Union St.
Morris, Illinois 60450

ROUGH FRAME AND MECHANICAL REPORT

Date: 01/31/2020
Permit #: 19-SFR-010
Name: Tom Jebens
Address: 11996 North OBrien Road, Minooka
Inspection: Rough Frame and Mechanical
Inspector: Bob Pazely

Yes	Pressure treated sill plate	Yes	Roof knee wall (when necessary)
Yes	Sill Sealer	Yes	2nd floor stair headroom (6' 8")
Yes	Sill plate properly anchored	Yes	2nd floor stair width 36" min.
Yes	Corner bracing (type)	Yes	2nd floor stair tread 9" n. to n. 73/4 riser
Yes	Sheathing (condition of)	Yes	Landings not less than 36" x 36"
Yes	Exterior weather and insect barrier (felt paper or Tyvek)	Yes	Halfway width min. 36"
Yes	Spacing of lookouts	NA	Access to whirlpool
Yes	Joist spans in garage	Yes	Tempered glass required less than 60" in bathtub, bottom of window less than 18" above floor, storm doors, patio doors, ingress or egress door or panes greater than 9 sq. ft.
Yes	Roof truss bracing	Yes	Bathroom vent fans to soffit or outside
Yes	Garage scuttle (22x30") joist hangers	No	Range hood vented to outside
Yes	Attic light above scuttle	No	Attic ventilation 1 sq. ft. per 150 sq. ft.
Yes	Bridging at 10' intervals	NA	Crawl space access 18 x 24"
Yes	Wall alignment (bad or bowed studs)	NA	Crawl space venting 1 sq. ft. per 150 sq. ft.
Yes	Notching of floor joist, studs & plates	Yes	Firestopping between floors
Yes	Top plates overlap at corners	Yes	Fire caulk around any penetration between floors and attic
NA	Lintels above windows & doors when masonry is used	Yes	Dryer vent to outside, max. length 25 ft.
Yes	Fire wall between garage & living area with 5/8 type x drywall	Yes	Fireplace safety strip, fire stop in chase, gas valve location, hearth extensions 16" in front and 8" beyond each side, 6' opening - 20" in front and 12" beyond each side
Yes	Windows over 4 ft. 2 (2x4 on the sills)	Yes	Smoke detectors each floor, basement, each bedroom, hall next to bedrooms, 120V with battery backup
Yes	Bedroom sill height not more than 44"	NA	All stair railings returned, guardrails 30" with enclosures on 4" centers
Yes	Bedroom window openings 22H x 20W	NA	Insulation Min. Walls R-13, ceilings R-30
Yes	Floor joist spans min. lap of 3" at girder		
Yes	Double joist under parallel bearing partitions		
Yes	Main support beam post (type)		
Yes	Vertical ridge supports		
Yes	Collar ties		
Yes	Lights in all closets, except linen		
Yes	Gas ledge in garage min. 4"		
Yes	Electric receptacle spacing around walls		
Yes	GFI recept's in all locations as per NEC		

PASS / FAIL: PASS

PASS WITH COMMENTS: Yes

Grundy County Land Use Department
1320 Union St.
Morris, Illinois 60450

FINAL OCCUPANCY INSPECTION FORM

Date: 02/14/2020
Permit #: 18-sfr-021
Name: Marty Steep
Address: 6703 West Dupont Rd. Morris
Inspection: Final Building
Inspector: Bob Pazely

MISCELLANEOUS & OUTSIDE

Yes	Driveway	Yes	Paint & Caulk	Yes	Addresses
Yes	Sidewalks	No	Gutters and Downspouts	Yes	Wall Penetration Closure
Yes	Outside Light Fixtures	Yes	Doors and Weatherstrip	Yes	Foundation Exposed
Yes	Stairs & Entry	No	Masonry/Siding	Yes	Railings/Rails
NA	Landscaping	Yes	Roofing	Yes	Window/Wells
Yes	Chimney	No	Soffit/Facia	Yes	Weep Holes
Yes	Gas Curb Garage	Yes	Vent Dampers	Yes	Garage Firewall

CARPENTRY INSIDE

Yes	Caulk Vanity Tops	Yes	Door & Trim	Yes	Egress Windows
Yes	Door Hardware	Yes	Painting	Yes	Railings
Yes	Floor Covering	Yes	Windows	Yes	Handrails

HVAC & BASEMENT

Yes	Vent Covers	Yes	Rim Joist Insulation	Yes	Beam Bolts
Yes	Dryer Vent	Yes	J-Bolts/Nuts	Yes	Central AC
Yes	Fire/Draft Stop	Yes	Sump Cover Sec.	Yes	Furnace and Ducts
Yes	Bridging	Yes	Solid Block Beam	Yes	Vents and Flue
Yes	Bathroom Exhaust	Yes	Beam Pockets		

ELECTRICAL

Yes	Hallway Receptacles	Yes	Switched Openings	Yes	Sump Circuit
Yes	Smoke Detectors	Yes	Panel Labeling	Yes	Ground Fault: Panel
Yes	Interlocked Battery	Yes	Wire and Breaker Sizing	Yes	Ground Fault: Bath
Yes	Light Fixtures	Yes	Fluorescent/Recessed	Yes	Ground Fault: Kitchen
Yes	Min. (2) Appliance Circuits for Kitchen	Yes	Close/Lights	Yes	Ground Fault: Garage
Yes	Laundry Outlet 20 Amp	Yes	Grounding Waterline	Yes	Ground Fault: Hot Tub
Yes	Dishwasher/Disp. Cir.	Yes	Grounding Tag	Yes	Ground Fault Front
Yes	Micro Circuit	Yes	Grounding Pan. Bond	Yes	Ground Fault Rear
		Yes	Attic/Crawl Lights/Access		

PASS / FAIL: PASS

PASS WITH COMMENTS: Yes

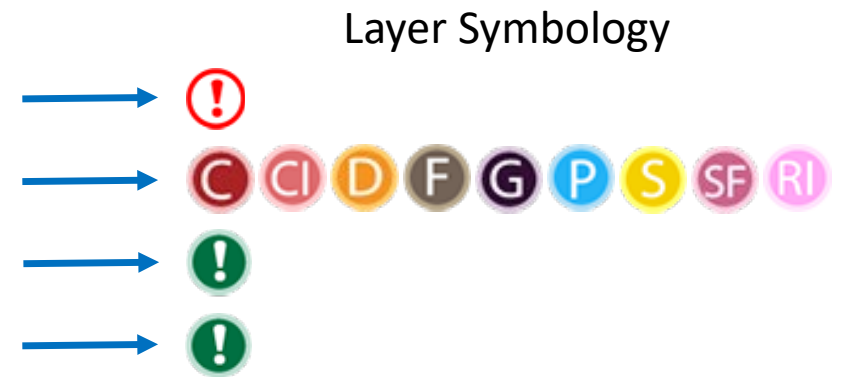
Feature Layers Published with Definition Queries

Search LandUseDepartment

1 - 11 of 11 in LandUseDepartment

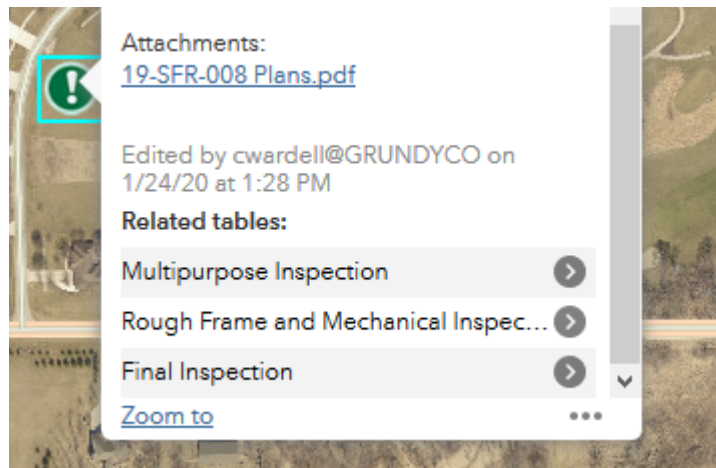
Sort by: Date Modified

<input type="checkbox"/>	Title		Modified
<input type="checkbox"/>	Active Building Permits and Inspections (Past Estimated Completion Date)	Feature Layer	Jan 24, 2020
<input type="checkbox"/>	Closed Building Permits and Inspections	Feature Layer	Jan 24, 2020
<input type="checkbox"/>	All Active Building Permits and Inspections	Feature Layer	Jan 24, 2020
<input type="checkbox"/>	Active Building Permits and Inspections (Not Past Estimated Completion Date)	Feature Layer	Jan 24, 2020
<input type="checkbox"/>	Building Inspections View	Map Image Layer	Oct 4, 2019

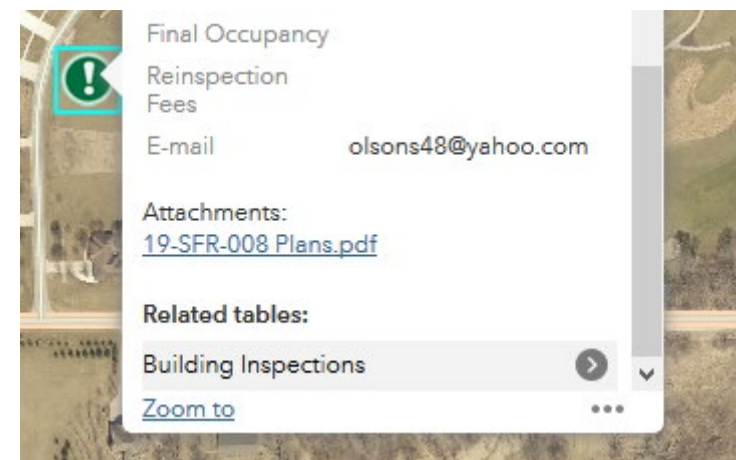


Map Image Layer Published Using a Geodatabase View

Popup Without View

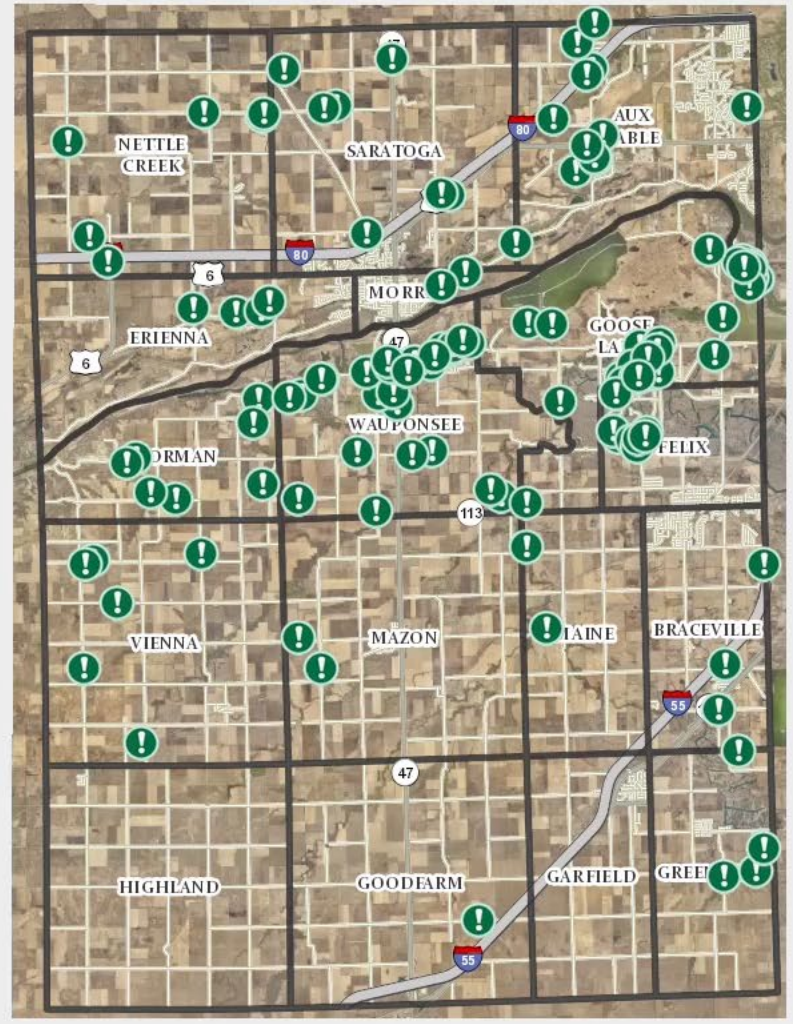


Popup With View



Address, PIN, or Permit

Map navigation controls: zoom in (+), zoom out (-), home, refresh, print, and full screen.





Settings



Property Vie...



FloodHazar...



Maps



The Weather



Calendar



Photos



Camera



Safari



Notes



Nebo



Calculator 2



Thank You!