

Are you SAFR not? A Flood Risk Identification GIS Web Mapping Application

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Illinois State Water Survey
PRAIRIE RESEARCH INSTITUTE

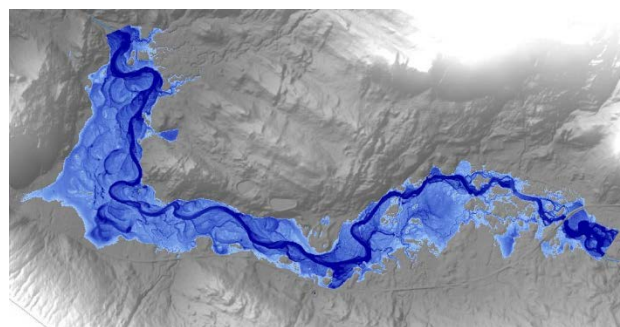
Overview

- Risk Assessment
 - Flood Risk Assessment Components
 - Products Created
 - Database, Depth and Analysis Grids
 - Hazus
 - Projects Hosted
- SAFR Demonstration
 - Description of Features
 - Video Demonstration
- Future Plans

Components of a Flood Risk Assessment

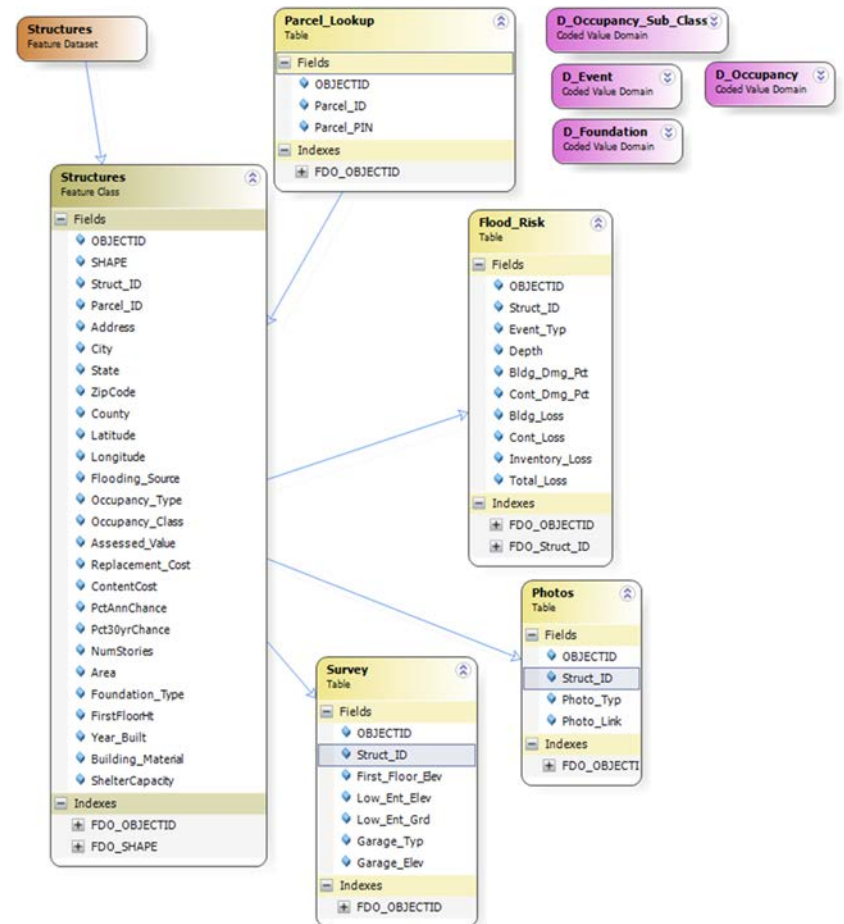
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- Define Hazard
 - Studies
 - LiDAR
 - Depth Grids
- Define Assets
 - Building Inventory
 - Assessor's data
 - Survey data
 - First Floor Height
- Estimate Losses
 - Use Hazus software



Products Created

- Analysis Grids
 - Percent Annual Chance of Flooding
 - Percent Chance of Flooding over a 30-year period
- Flood Depth Grids
 - 10%, 4%, 2%, 1%, and 0.2% Annual Chance Events
- FRA File Geodatabase
 - Structures
 - Flood Risk
 - Survey Data
 - Data Sources



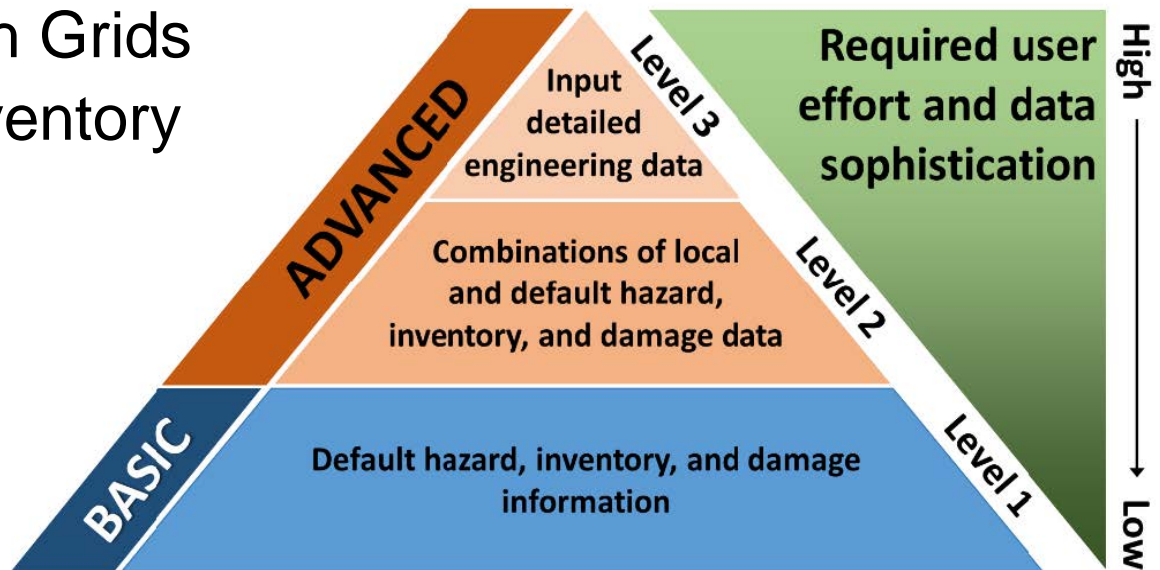
Hazus Loss Estimation Tool

- Loss estimation software designed by FEMA
- Works with ESRI's ArcGIS software
- Purpose is to provide the means to identify and reduce risk from natural hazards



Three levels of Hazus Analysis

- Three Levels
 - Level 2 for Flood
- User Input
 - Flood Depth Grids
 - Building Inventory

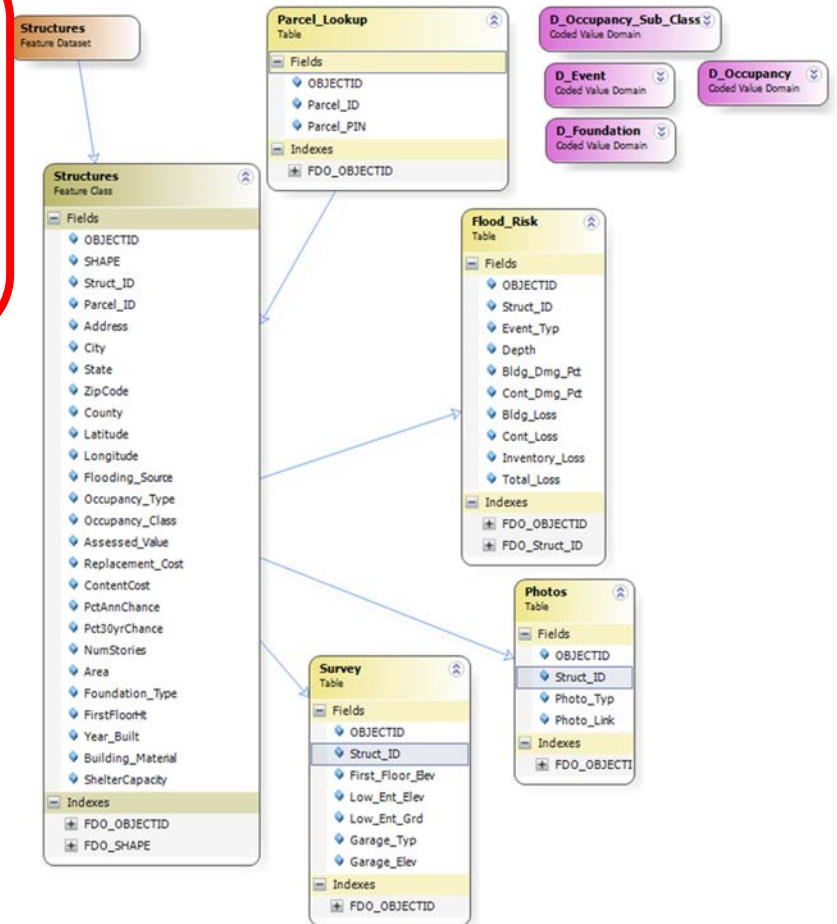


Hazus Output

- Damages
 - Building Loss
 - Content Loss
 - Business Inventory Loss
 - Percent Damaged
- Average Annualized Loss
 - Estimated long-term value of losses averaged on an annual basis

Products Created

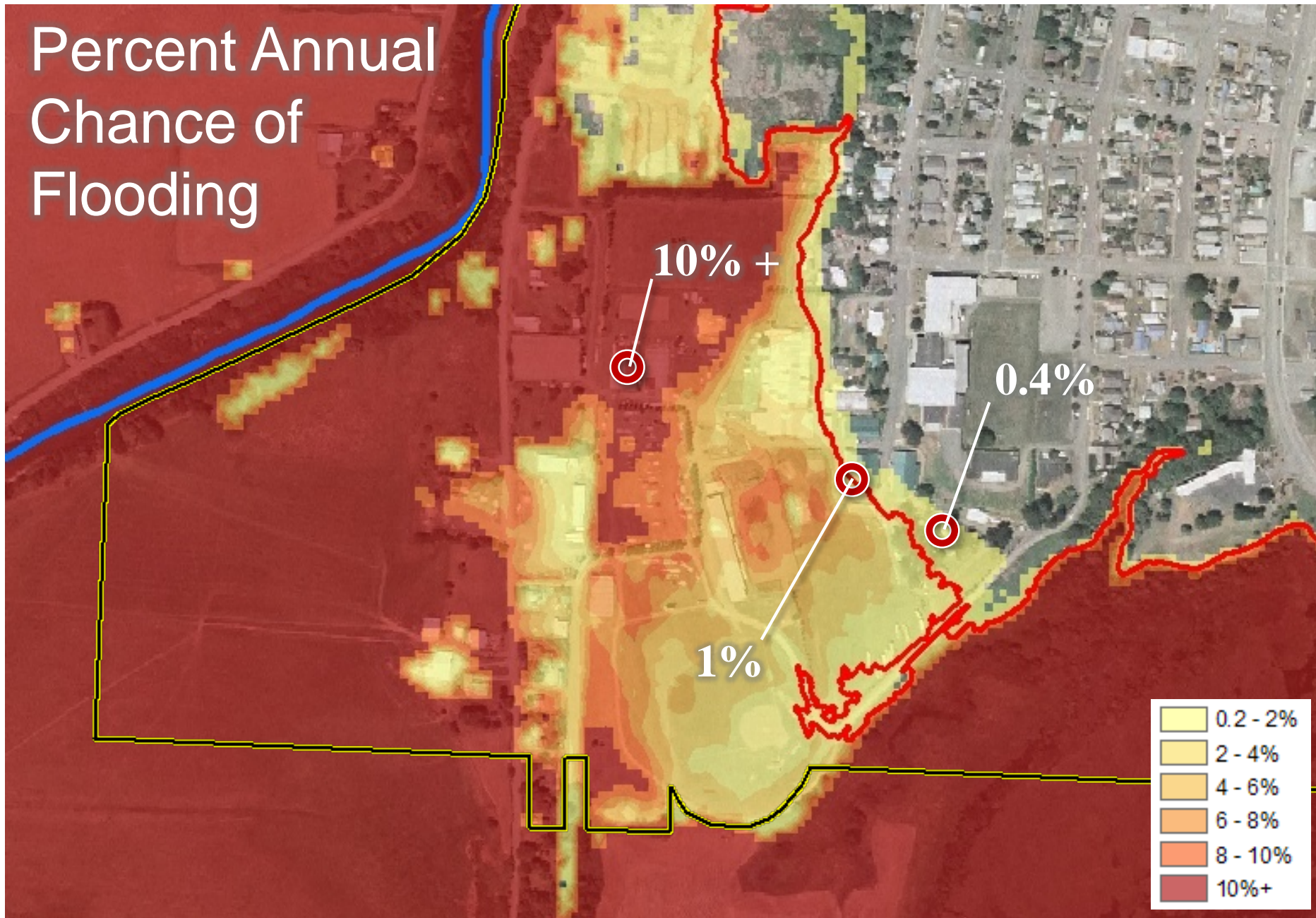
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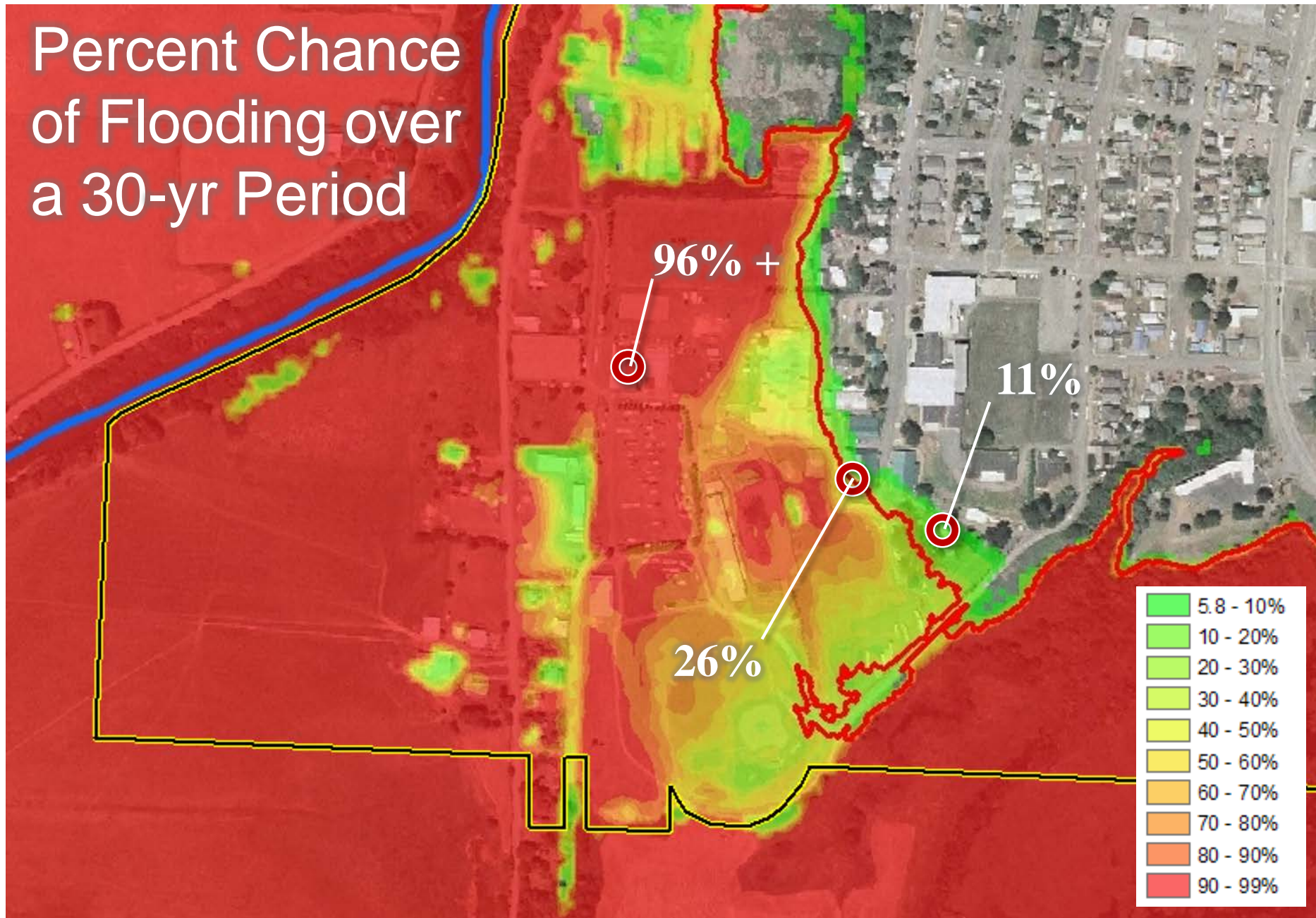
Flood Analysis Grids

- Inputs:
 - Multi-Frequency Water Surface Elevations
 - 10%, 4%, 2%, 1%, and 0.2% annual chance floods
- Outputs:
 - Percent Annual Chance of Flooding
 - Chance of Flooding Over 30 Years
- Delivery:
 - File Geodatabase Raster Dataset

Percent Annual Chance of Flooding

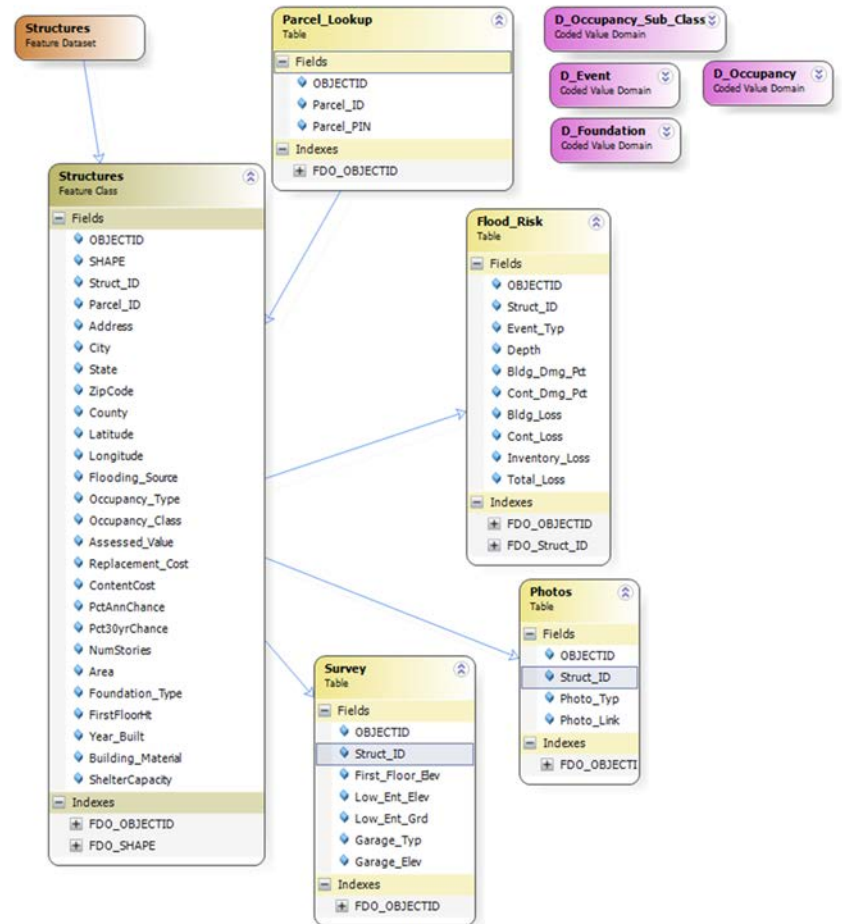


Percent Chance of Flooding over a 30-yr Period



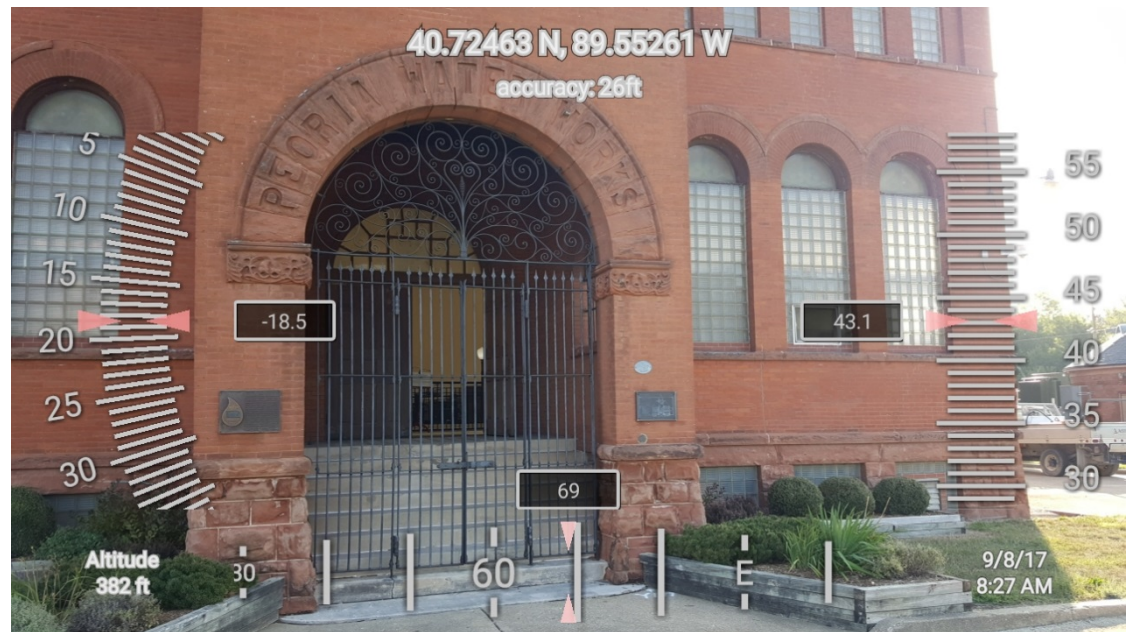
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File Geodatabase - Structures

- Location of Structures
- Occupancy Class
- Building and Content Cost
- Square Footage
- Foundation Type
- First Floor Height
- Year Built
- Analysis Grid Values



File Geodatabase – Flood Risk

- Flood Depth Above First Floor
- Damage Percentages
- Economic Losses
 - Building
 - Contents
 - Inventory



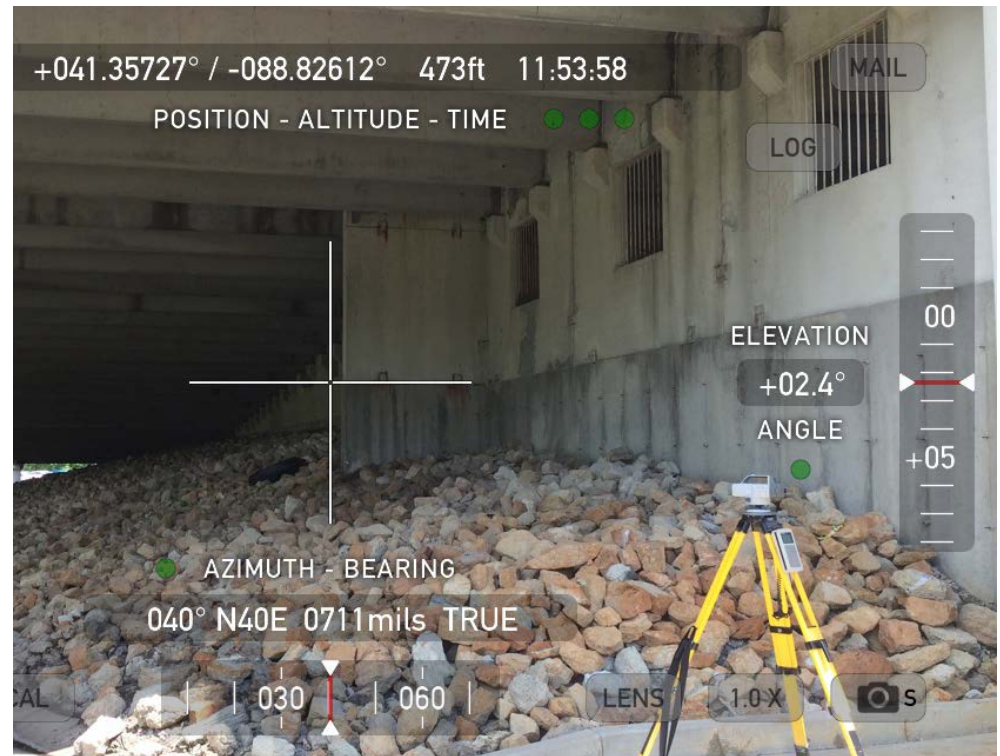
File Geodatabase – Survey

- Surveyed Elevations
 - First Floor Elevation
 - Low Entry Elevation
 - Low Entry Ground
- Other Elevation
 - Detached Garages
 - Flood Wall
- Structure Photos
- Surveyors
 - IDNR/OWR
 - Patrick Engineering, Inc.
 - American Surveying & Engineering, P.C.



File Geodatabase – Data Sources

- Attributes for Each Structure
 - Occupancy
 - Foundation Type
 - First Floor Height
 - Building Cost
 - Square Footage
 - Number of Stories

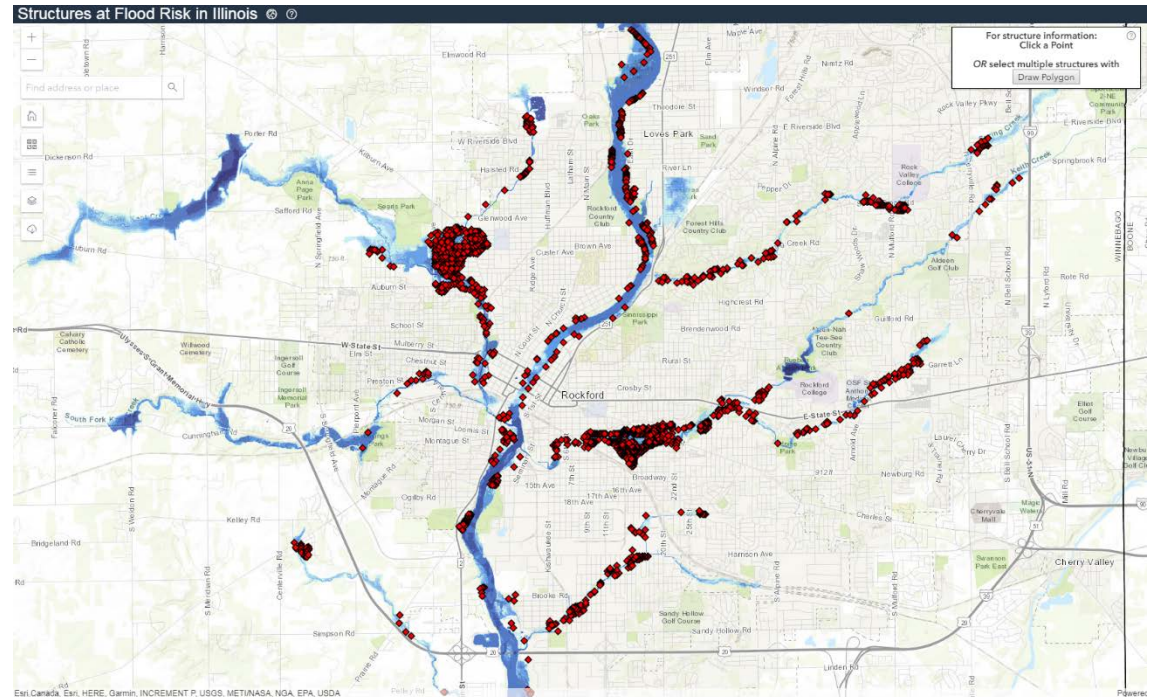


Projects

- Six Risk Assessment Projects
- ISWS
 - Community Engagement and Risk Communications (CERC)
 - City of Rockford
 - City of Joliet
 - Poplar Creek Watershed
 - Illinois Department of Commerce and Economic Opportunity (DCEO)
 - Peoria County
 - City of Ottawa
- U.S. Army Corps. Of Engineers – RI District
 - City of Rock Island

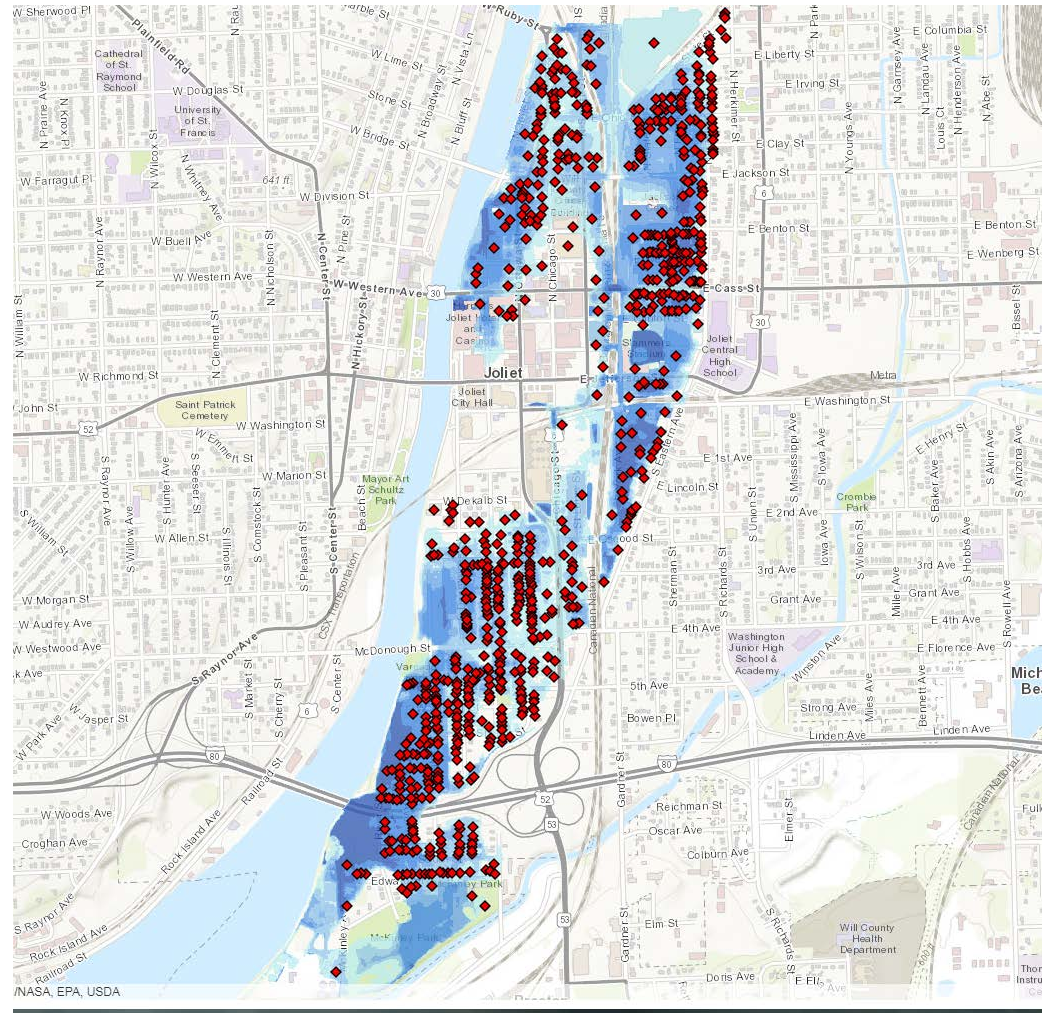
City of Rockford

- Project Completed
 - 2017
- Structures
 - 2,010 Analyzed
 - 1,992 Surveyed
 - 3,311 Photos
- Depth Grids
 - All 5 Events
- Analysis Grids



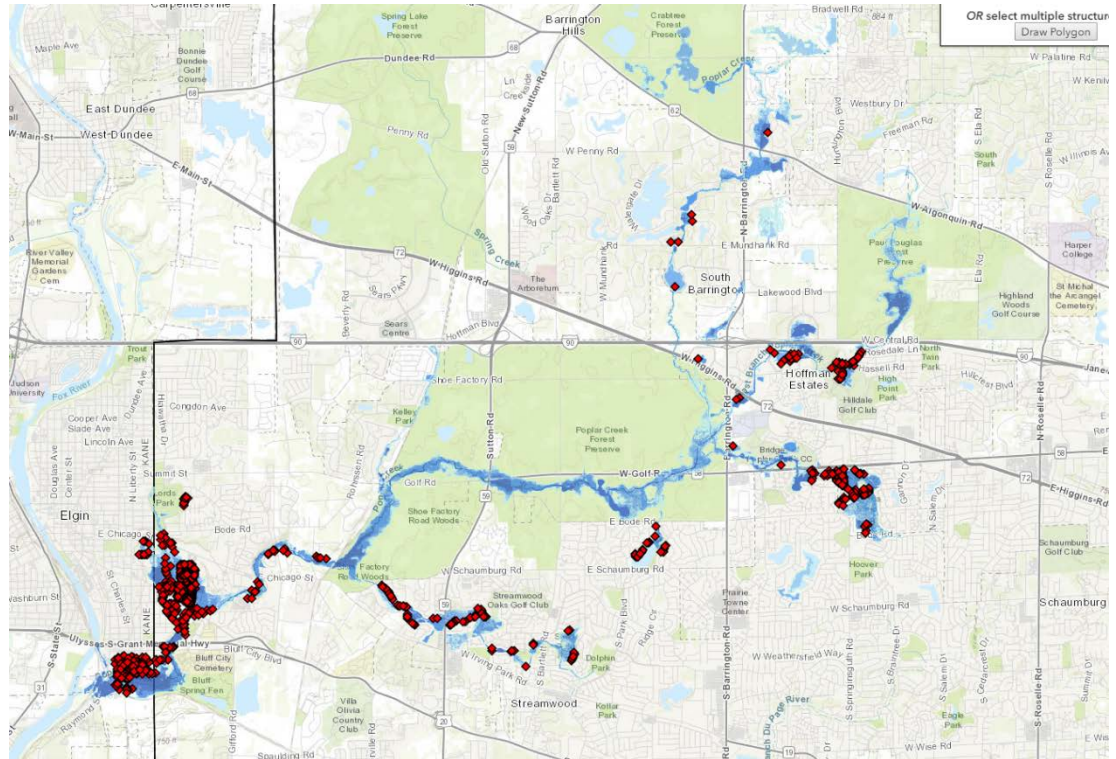
City of Joliet

- Project Completed
 - 2017
- Structures
 - 783 Analyzed
 - No Surveys
- Depth Grids
 - 1% Annual Chance



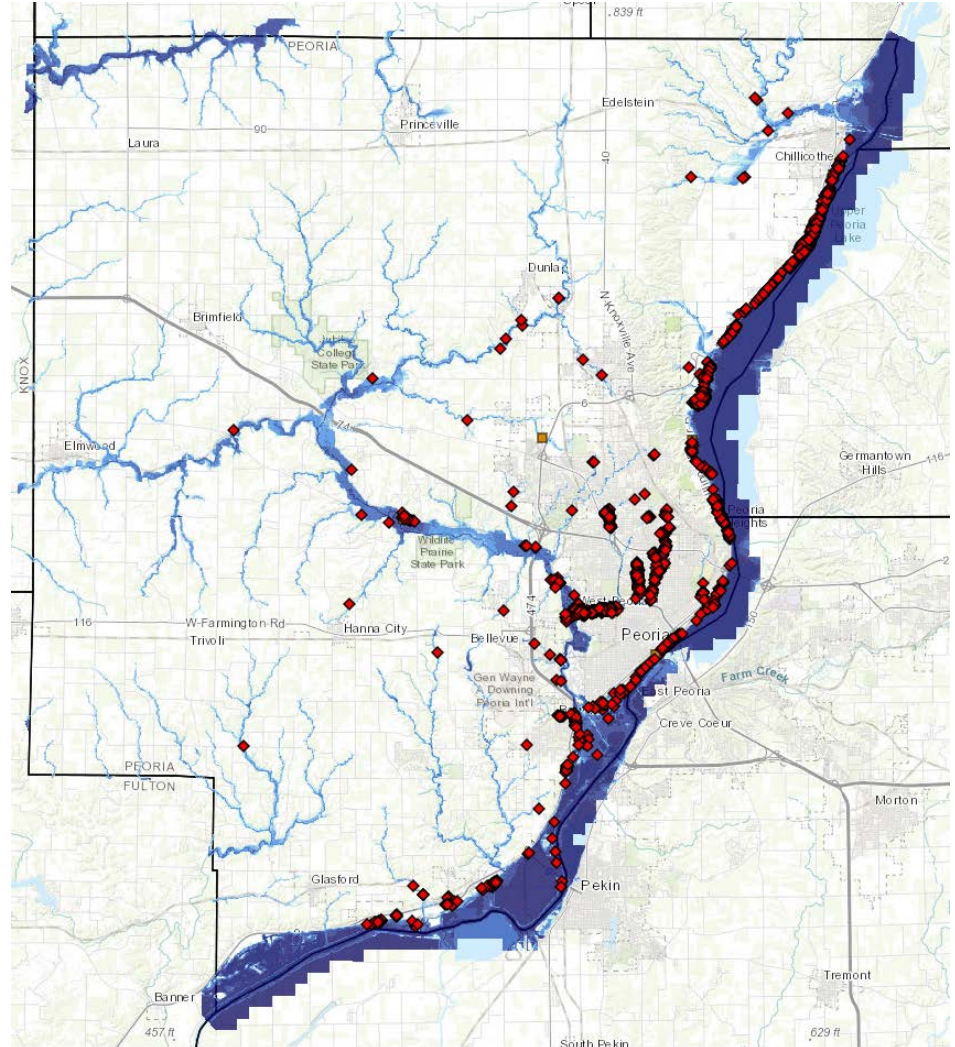
Poplar Creek Watershed

- Project Completed
 - 2019
- Structures
 - 991 Analyzed
 - 870 Surveyed
 - 709 Photos
- Depth Grids
 - All 5 Events
- Analysis Grids



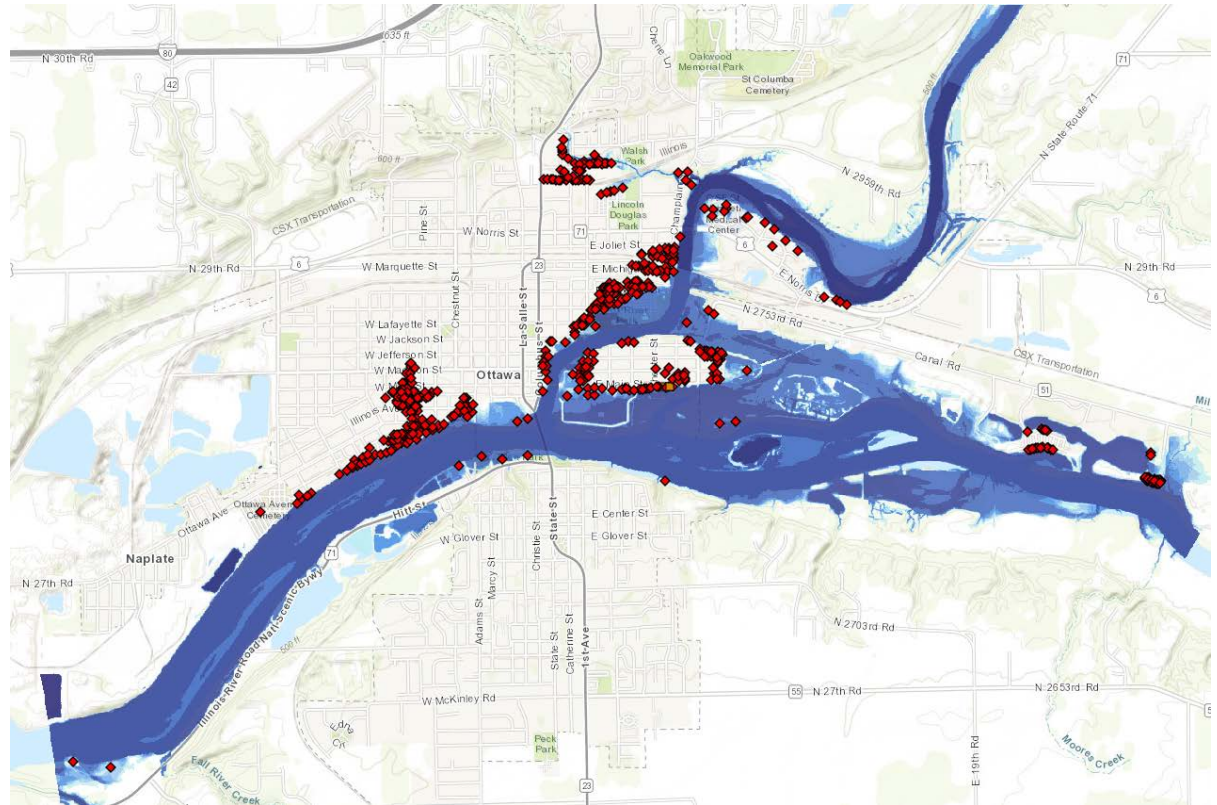
Peoria County

- Project Completed
 - 2019
- Structures
 - 1,636 Analyzed
 - 1,462 Surveyed
 - 2,246 Photos
- Depth Grids
 - All 5 Events
- Analysis Grids



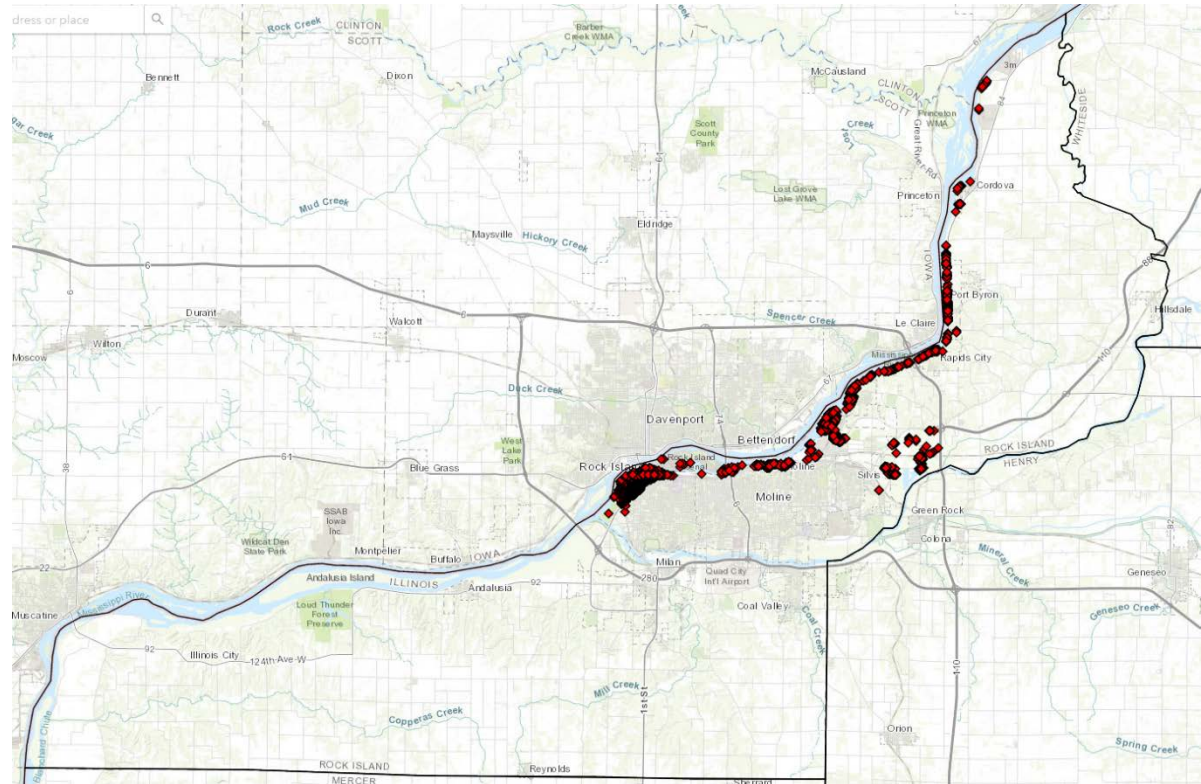
City of Ottawa

- Project Completed
 - 2019
- Structures
 - 492 Analyzed
 - 98 Surveyed
 - 185 Photos
- Depth Grids
 - All 5 Events
- Analysis Grids

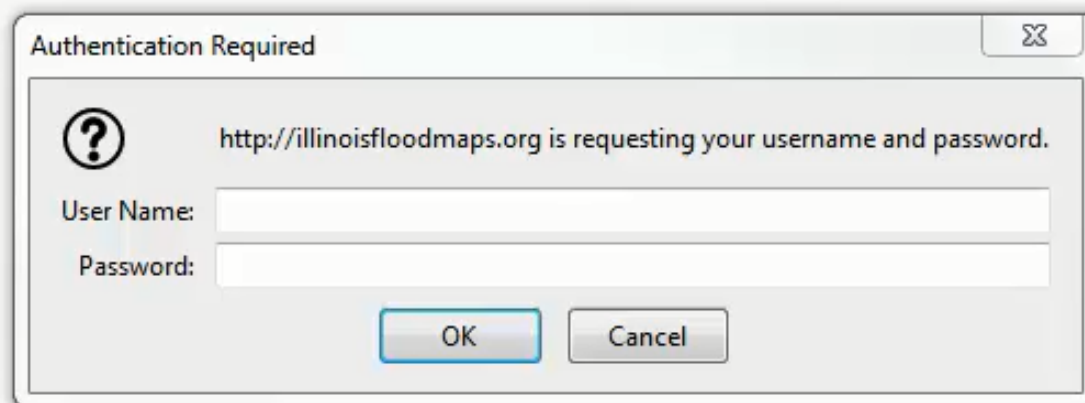


Rock Island County


- Project Completed
 - 2018
- Structures
 - 1,157 Analyzed
 - 4,227 Surveyed
 - 5,553 Photos
- Flood Risk Assessment performed by USACE Rock Island District



SAFR Web Mapping Application



Authentication Required

 <http://illinoisfloodmaps.org> is requesting your username and password.

User Name:

Password:

This is a screenshot of a standard Windows-style authentication dialog box. The title bar reads 'Authentication Required'. The main content area features a question mark icon followed by the text 'http://illinoisfloodmaps.org is requesting your username and password.'. Below this, there are two input fields: 'User Name:' and 'Password:'. At the bottom, there are two buttons: 'OK' and 'Cancel'.

For structure information:
Click a Point

OR select multiple structures with
Draw Polygon

Structures at Flood Risk in Illinois

This web mapping application provides access to digital data about structures in Illinois and their flood risk. It is not intended for use by the general public.

The creators of this web mapping application have made every effort to ensure accuracy of this information. However, this site is under development and is subject to disruptions for updates and revisions. User defined capabilities of the site and access to flood risk data will be limited during development so please check back periodically for availability.

By using this web mapping application, you acknowledge and accept the limitations presented herein, including the fact that the data will be updated on a periodic basis. Please do not quote or cite data.

☐ I agree

Choose Area: Joliet

Continue



S COLLEGE ST

S SPRING ST

S 2ND ST

E JACKSON ST

For structure information:
Click a Point

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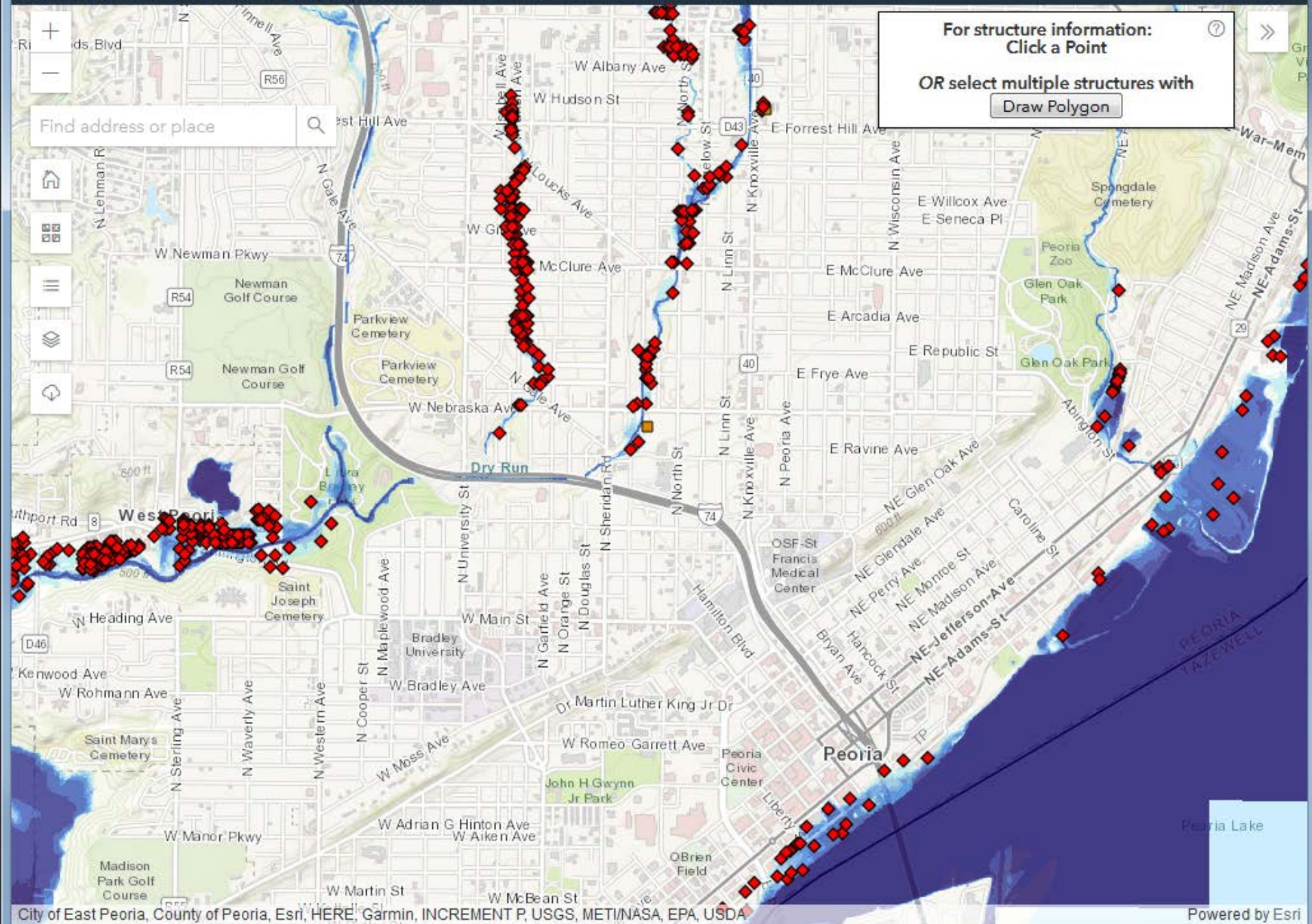
☐ I agree

Choose Area:

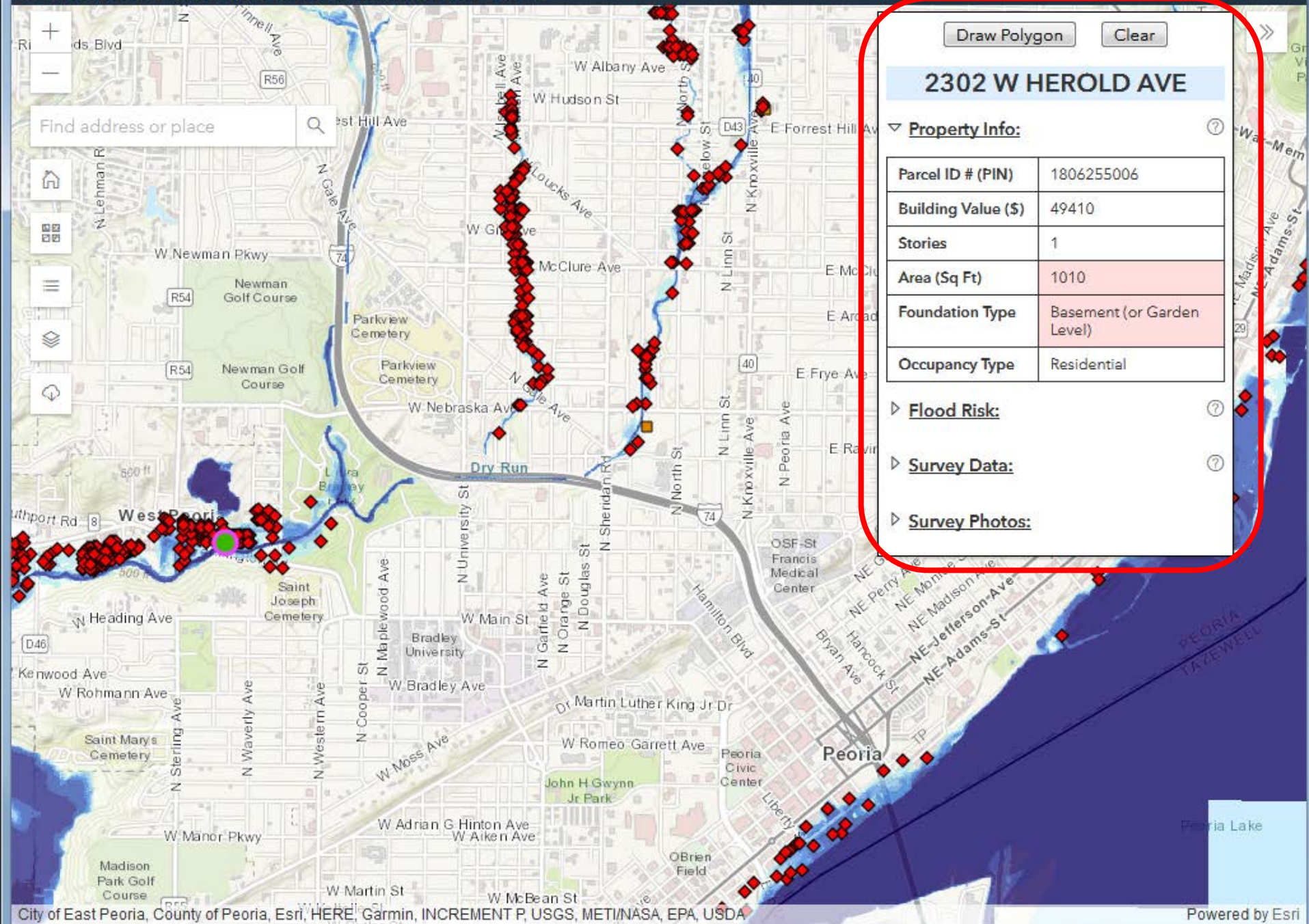
Joliet

Continue

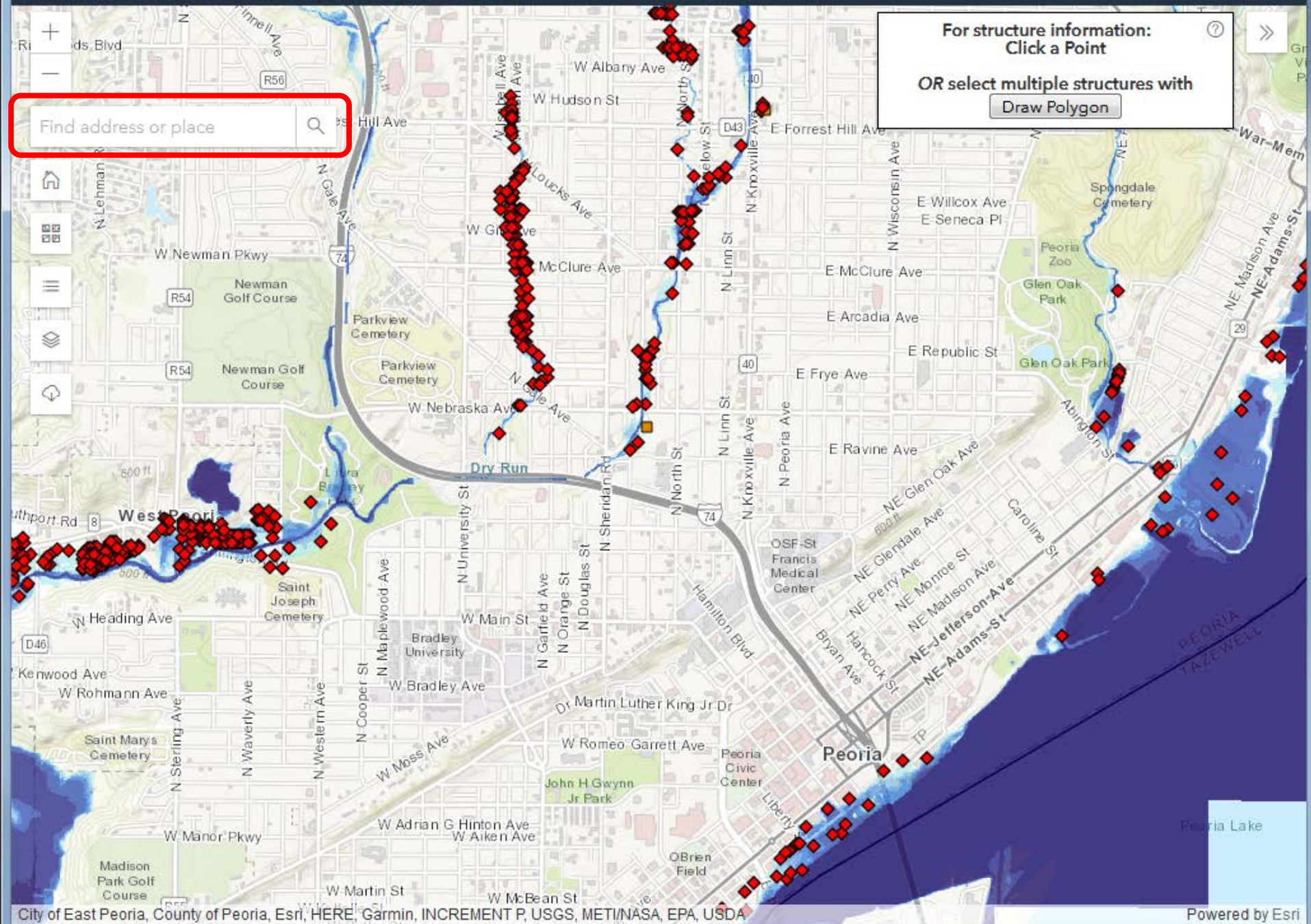
Structures at Flood Risk in Illinois



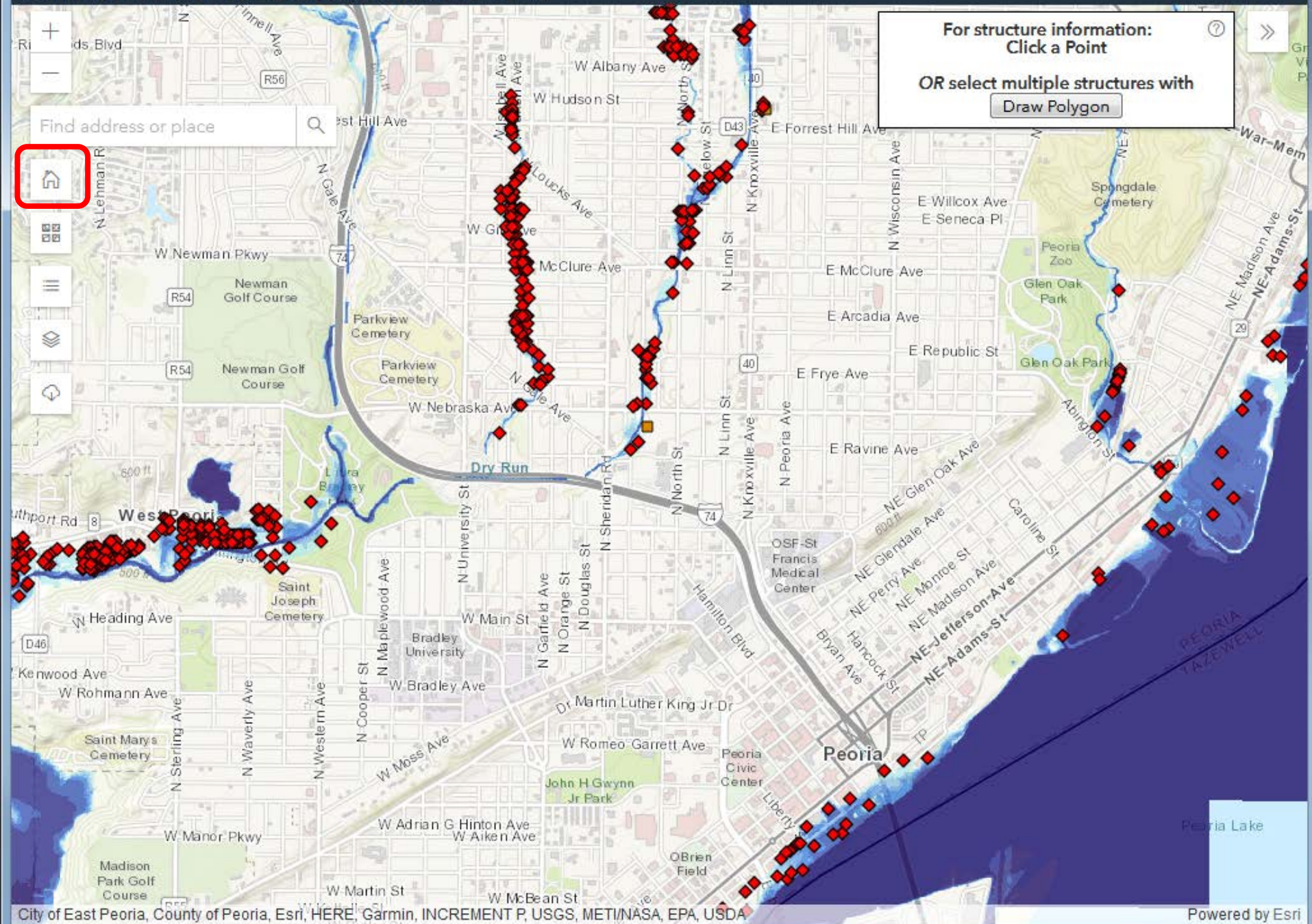
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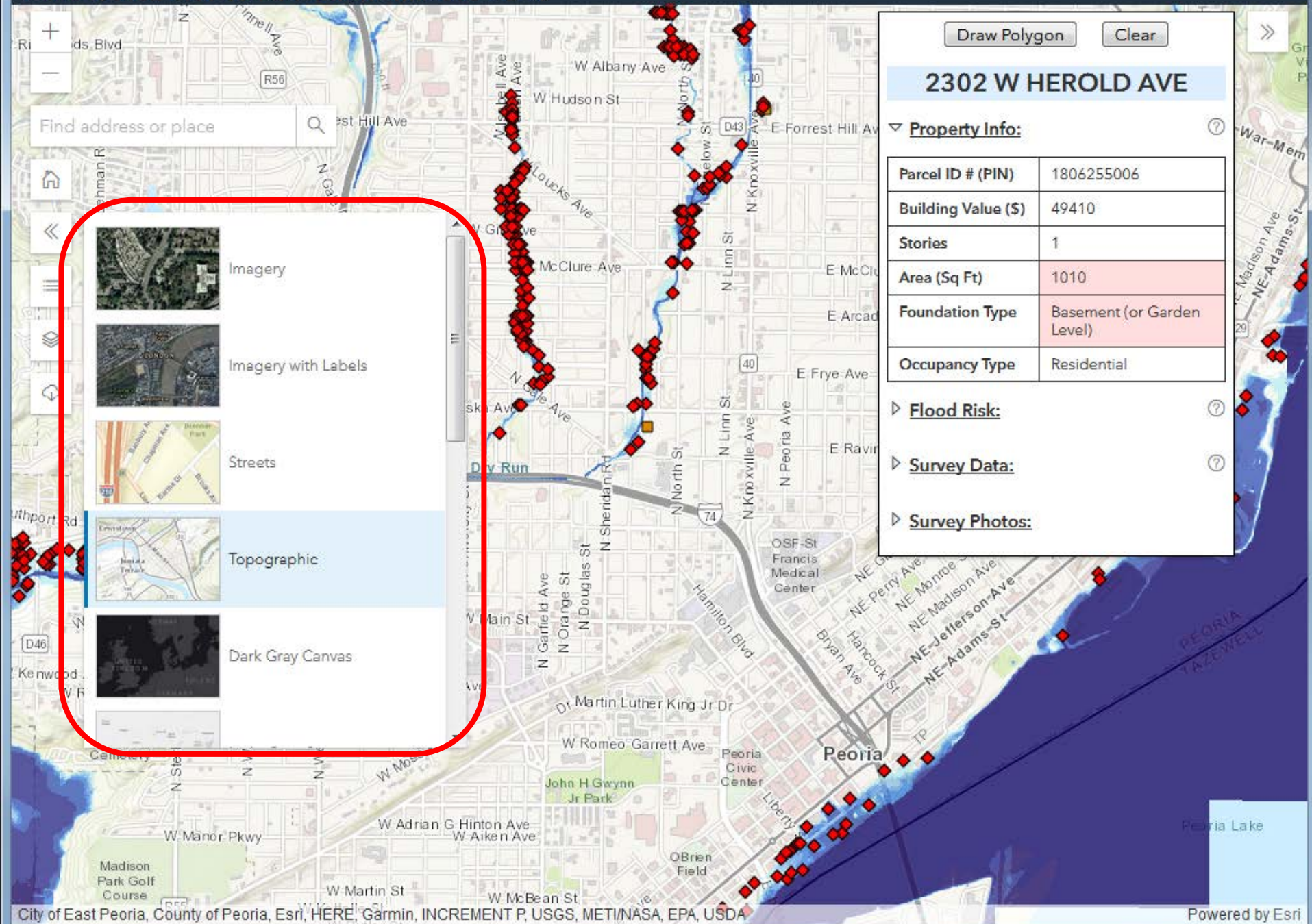
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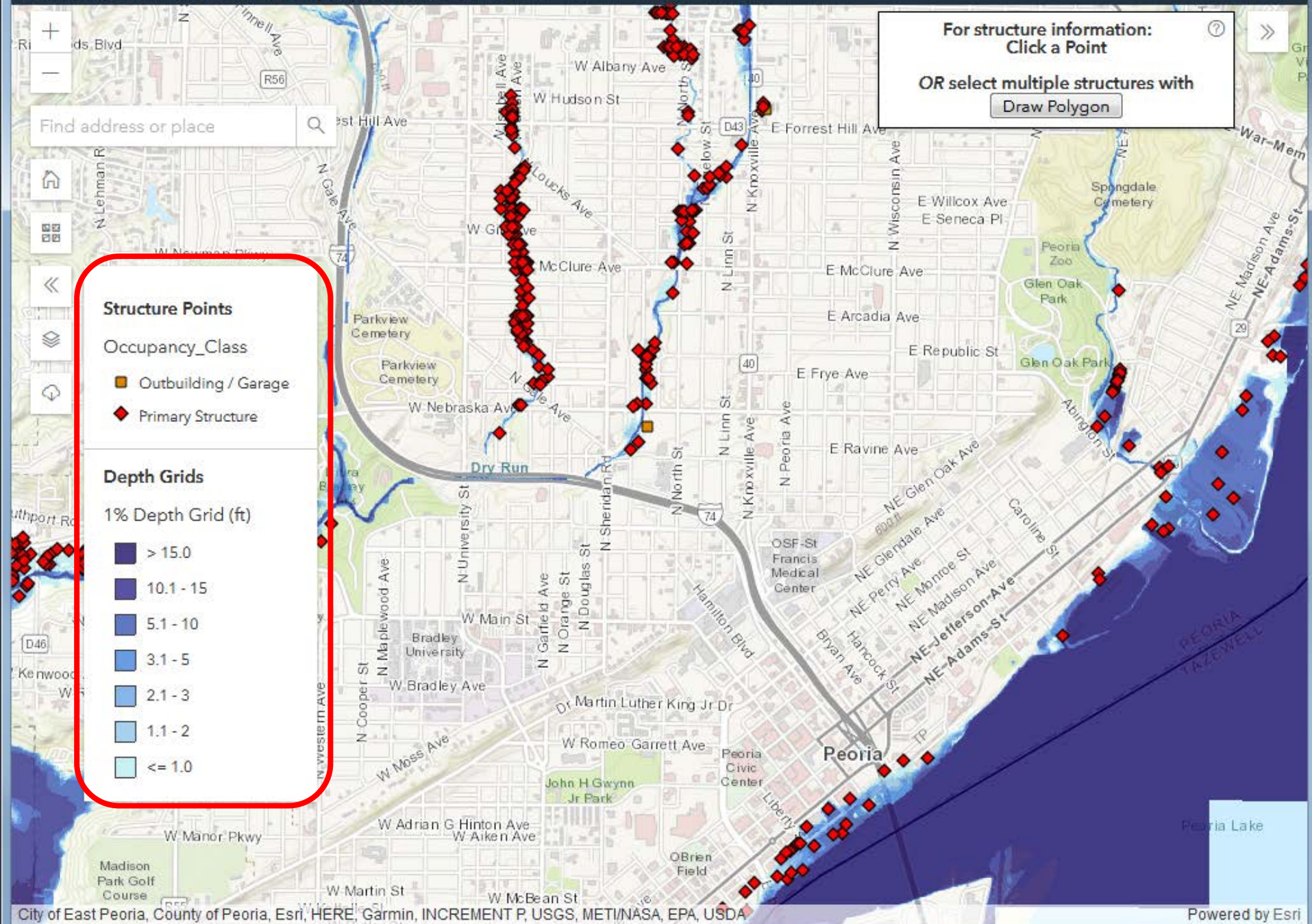
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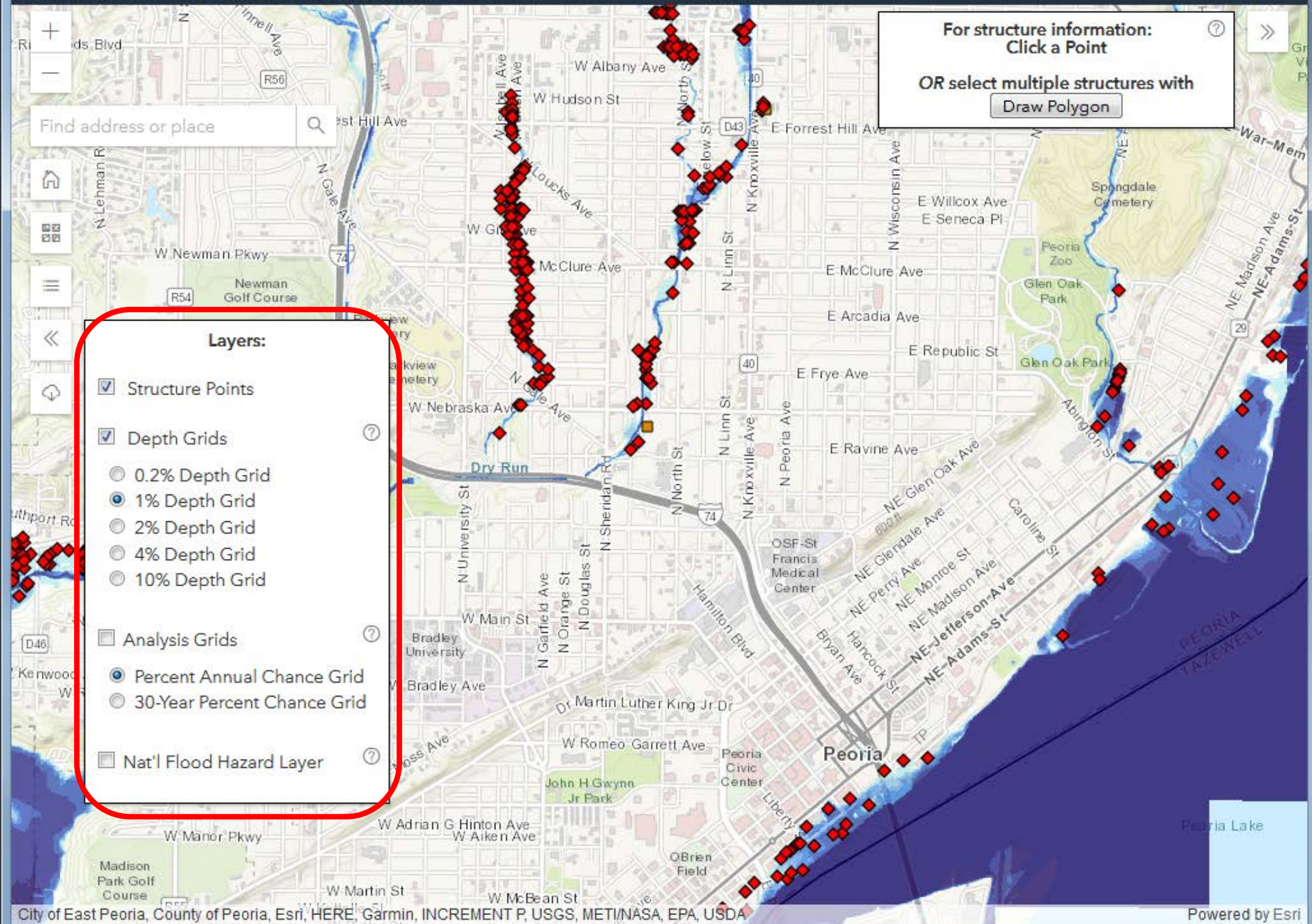
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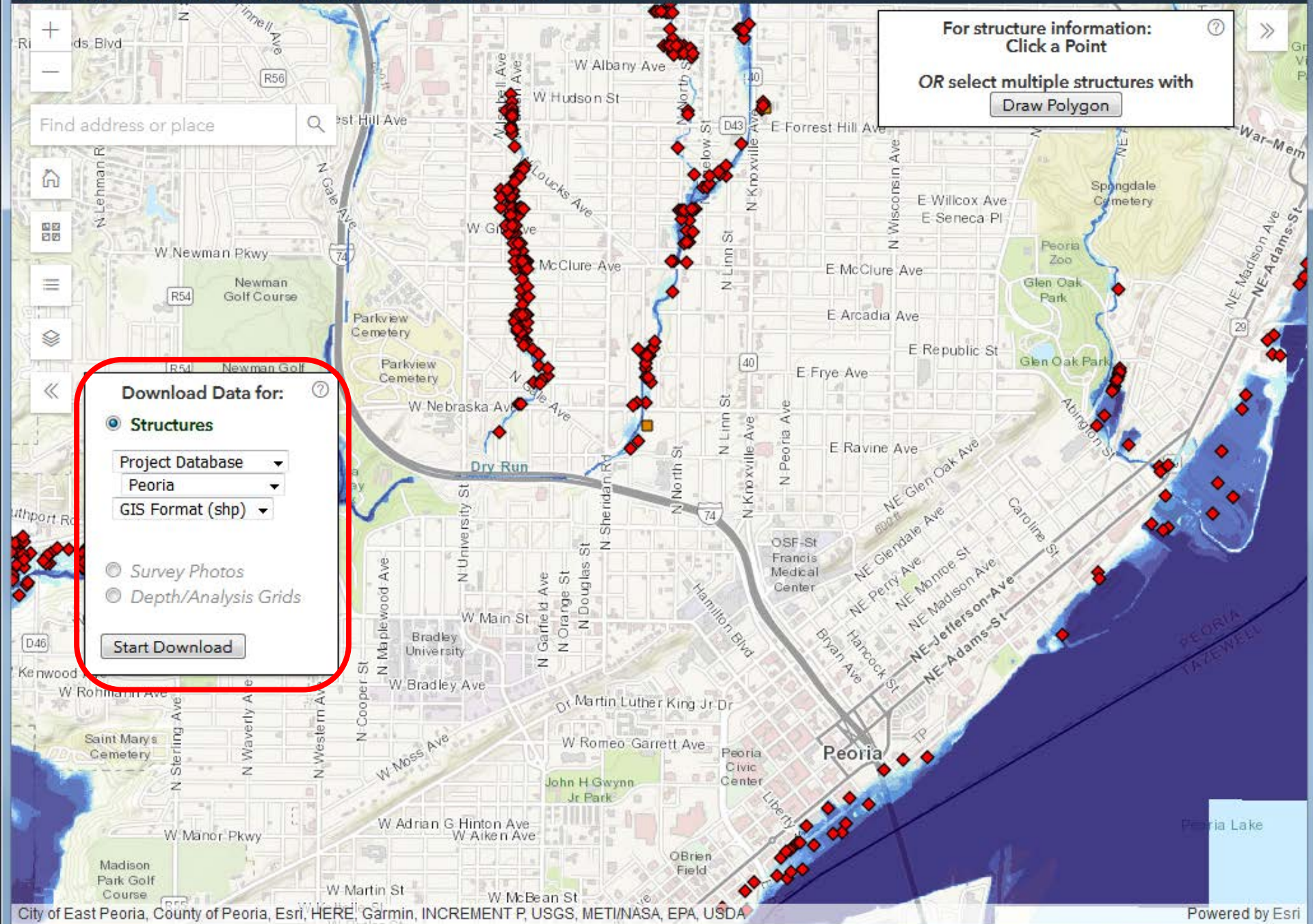
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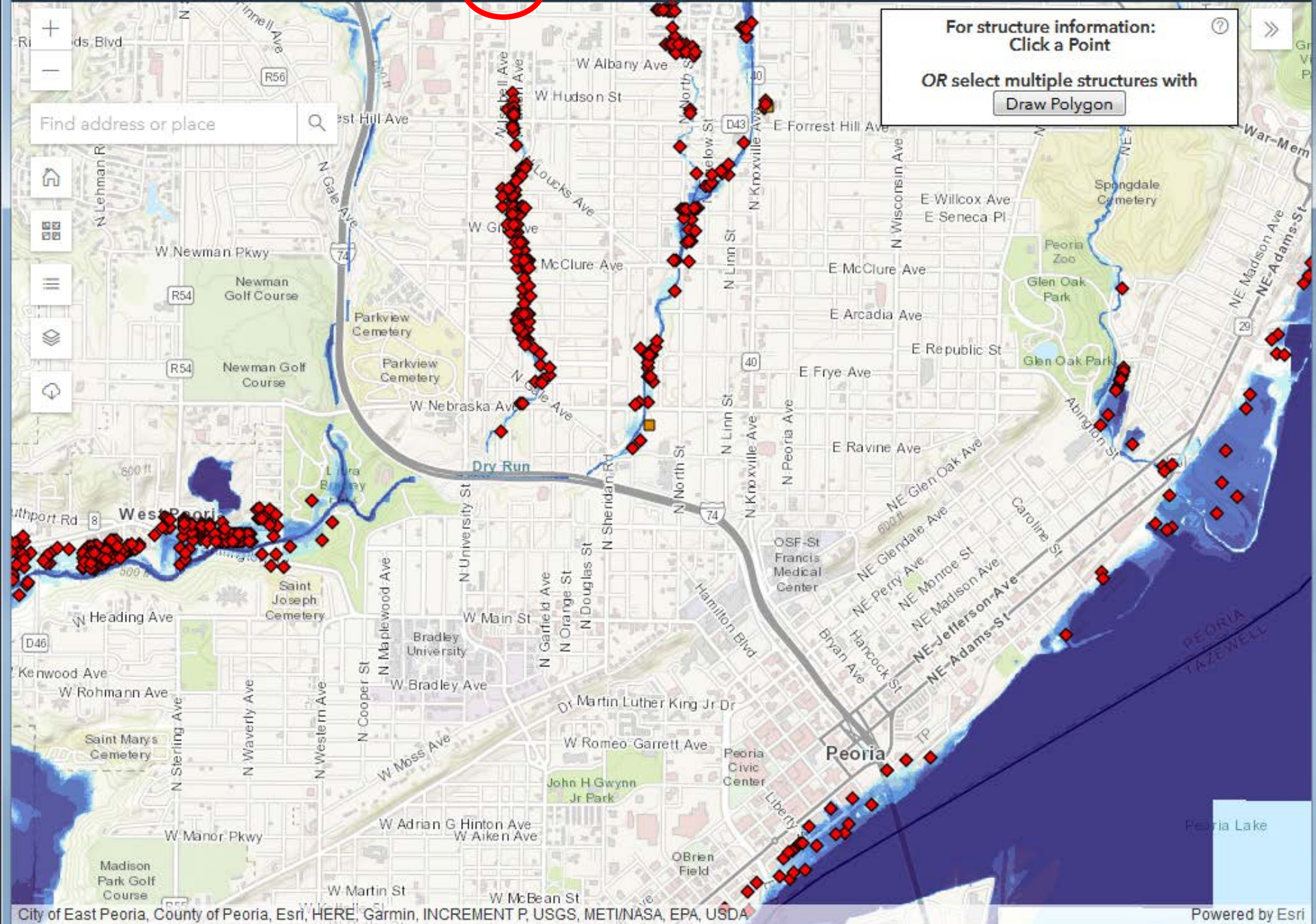
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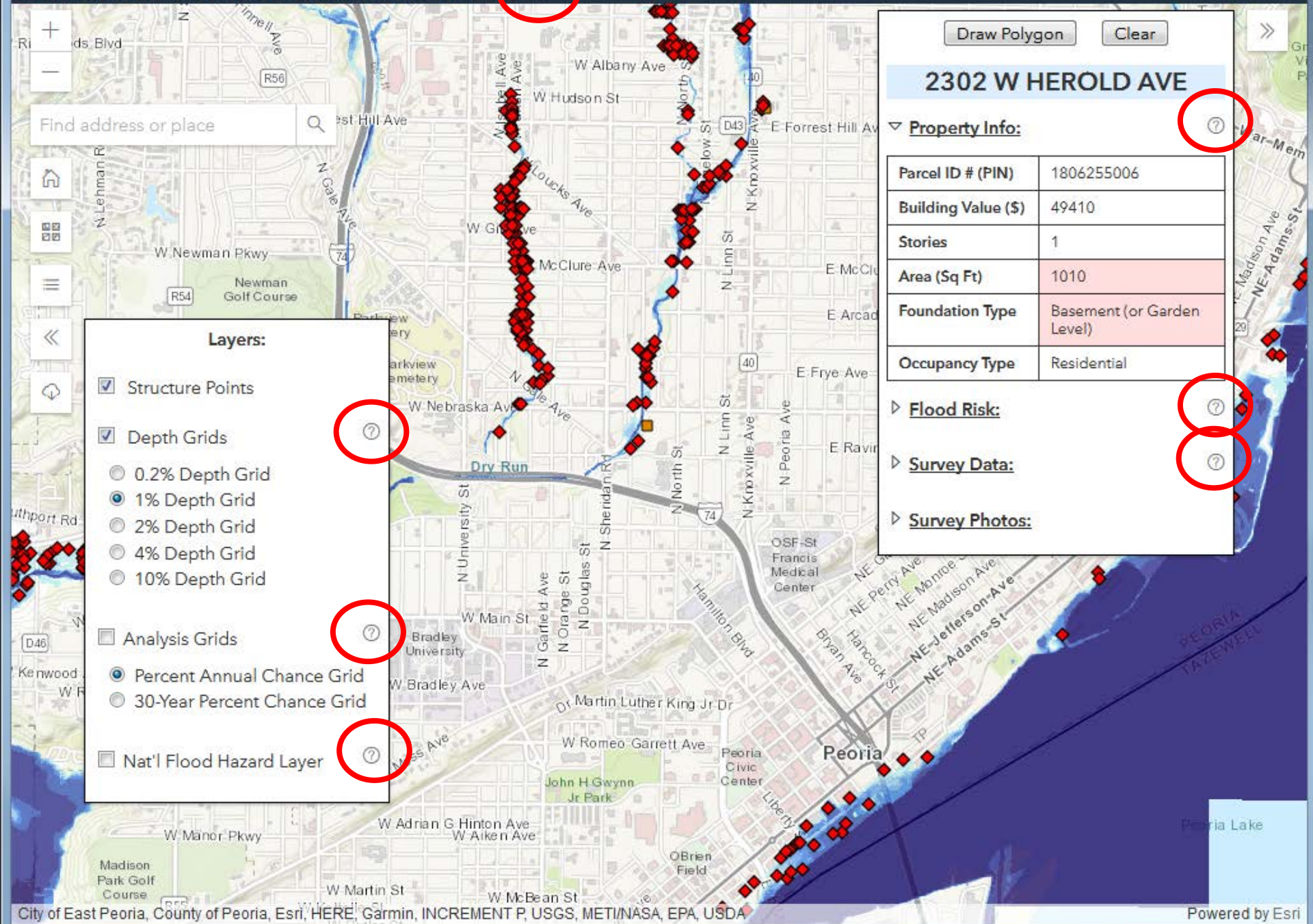
Structures at Flood Risk in Illinois



Structures at Flood Risk in Illinois



Structures at Flood Risk in Illinois



Draw Polygon

Clear

2302 W HEROLD AVE

Property Info:

Parcel ID # (PIN)	1806255006
Building Value (\$)	49410
Stories	1
Area (Sq Ft)	1010
Foundation Type	Basement (or Garden Level)
Occupancy Type	Residential

Flood Risk:

Survey Data:

Survey Photos:

Layers:

☒ Structure Points

☒ Depth Grids

☐ 0.2% Depth Grid

☒ 1% Depth Grid

☐ 2% Depth Grid

☐ 4% Depth Grid

☐ 10% Depth Grid

☐ Analysis Grids

☒ Percent Annual Chance Grid

☐ 30-Year Percent Chance Grid

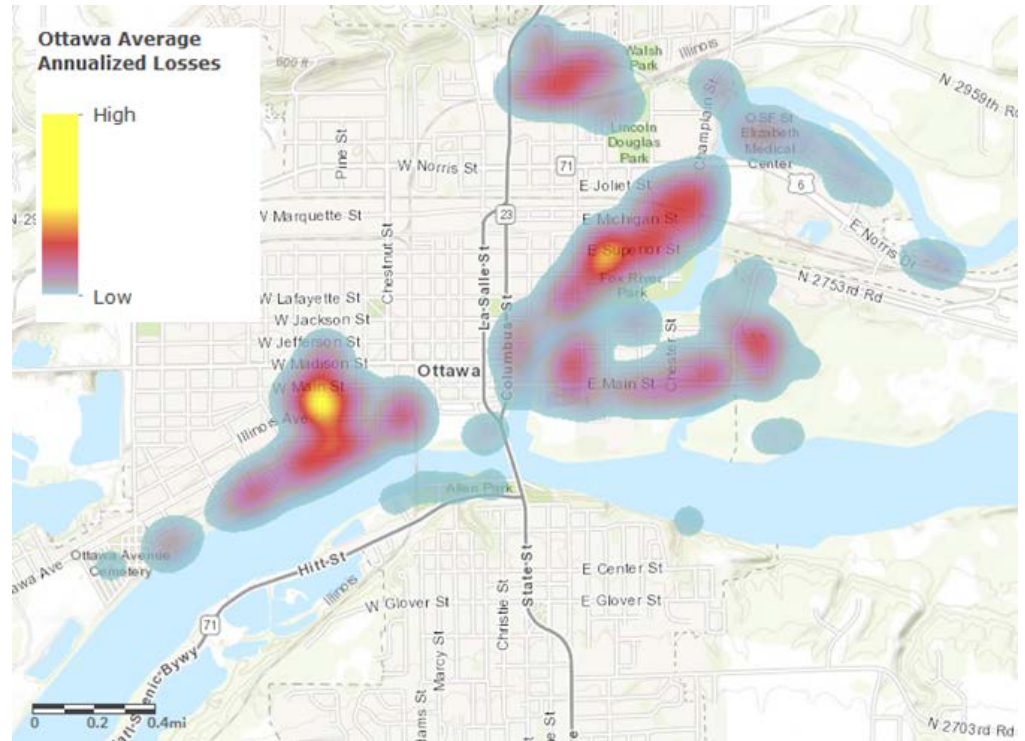
☐ Nat'l Flood Hazard Layer



VIDEO DEMO

Application of Data

- Target Mitigation Efforts
 - Identify and quantify potential losses
 - Hot Spot Analysis
 - Prioritize Buyouts
 - Hazard Mitigation Plans
 - Future Land Use Planning



Vision for the Future

- Moonshot
 - All structures in the 0.2% annual chance floodplain by 2025
- Possible Updates
 - Add new studies
 - Develop standards for inclusion
 - Archiving historical data
 - New study in same area
 - Migrate to new platforms as they become available
 - Continue to explore new methods to expedite studies and reduce costs
 - Establish data sharing protocol
 - Currently only public officials
 - Broader exposure

Questions?

- Brad McVay
 - bmcvay@Illinois.edu
- Zoe Zaloudek
 - zaloudek@Illinois.edu
- SAFR URL
 - <http://illinoisfloodmaps.org/structureriskassessment/FloodRiskDB/>