



Cemetery Mapping The Last Parcel (You'll Ever Own)

ArcGIS Solutions for Local Governments Showcase

September 27th, 2018



A Brief History of Maps



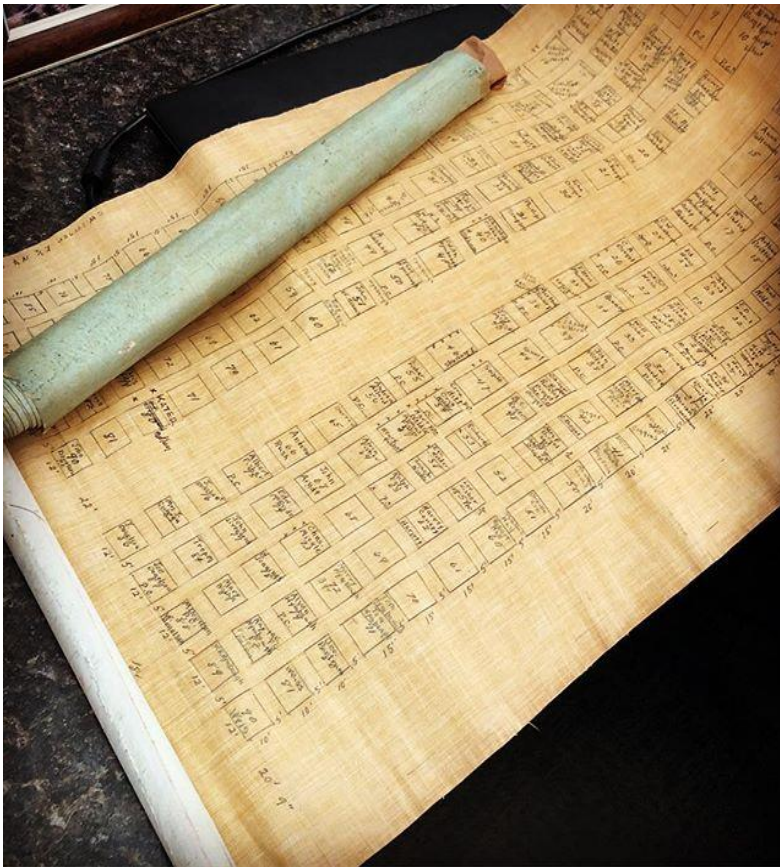
Ptolemy -
First world map
150 AD

A Brief History of Maps



Esri
ArcGIS Earth
2018

What does that have to do with Cemeteries?



5 - Ora Alice McG, 1/13/1869- Married, 1/4/1894 -
 5 - Wm Edwin, 7/22/1871 - " died, 4/2/1
 5 - Katie Pearl, 7/29/1873 # 10/5/1916 -
 5 - Glenn Roscoe, 6/20/1876, # 12/27/1913 -
 # 5/4/1930 -
 4 - Joe W. McG, married Mary ^{Elm.} Cotton, Sept. 1, 1880 .
 5 - Sophie King, 7/31/1882, married, Oct 8, 190
 5 - John Ewing, 11/14/1883, died, 2/27/1900 .
 5 - Jamie & Juliet, " infancy .
 5 - Errett Cotton, 3/6/1887, " 1916.
 #
 5 - Ora A. McG, J. Dolphus Hale .
 6 - Henry Adolphus - 9/22/1895, 3/10/1920, marri
 7 - Wm Maury - 6/12/1921 .
 7 - Edward Campbell - 4/20/1923 .
 7 - Joe Howard - 7/30/1929 . Died, 7/21
 #

2018

So what's the problem?

- No guarantee that plots are actually where they say they are
- Poorly maintained/neglected records
- Inaccurate data
- Inadequate for use
- Inefficient use of time and money



So what's the solution?

Geographic Information Systems

GIS is...

L
A
Y
E
R
S

Addresses

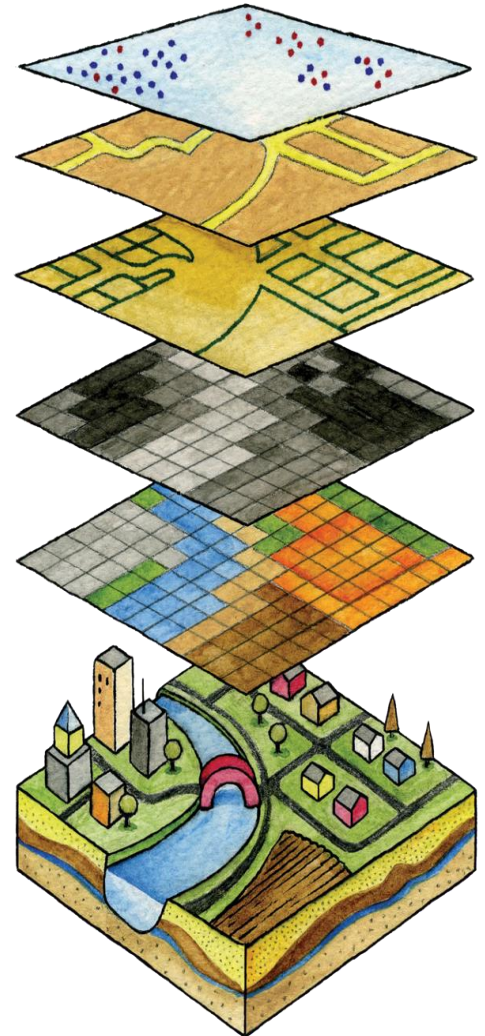
Streets

Parcels

Elevation

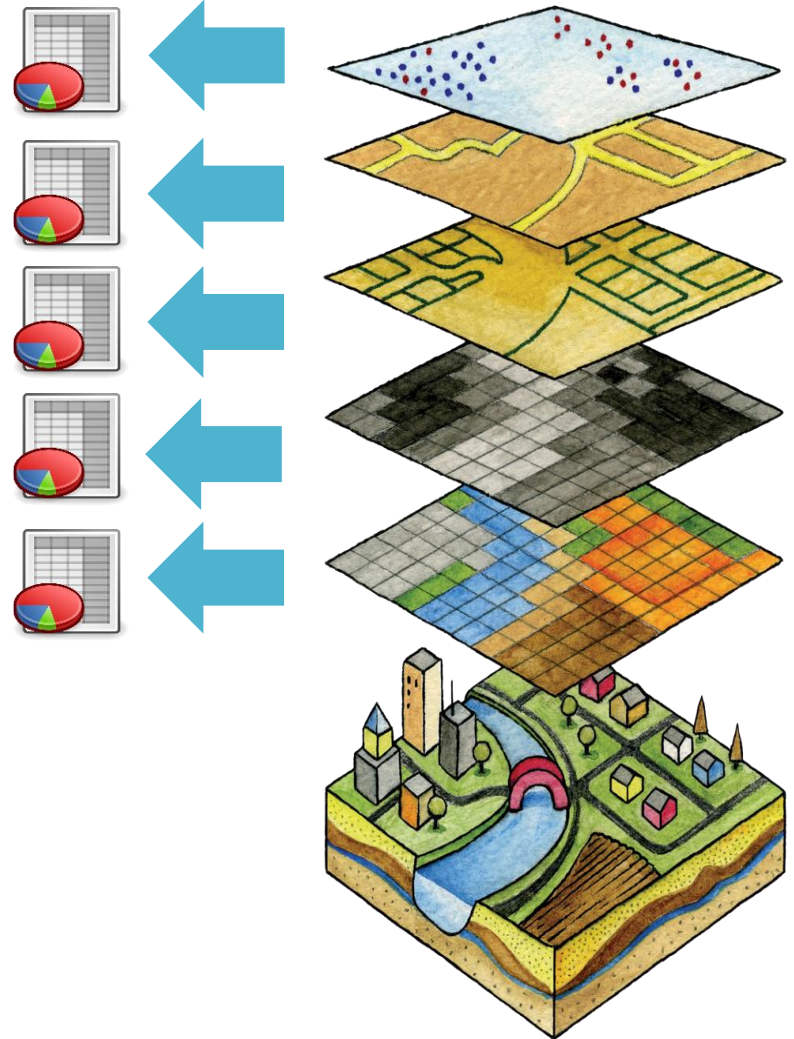
Land Use

Complete Maps



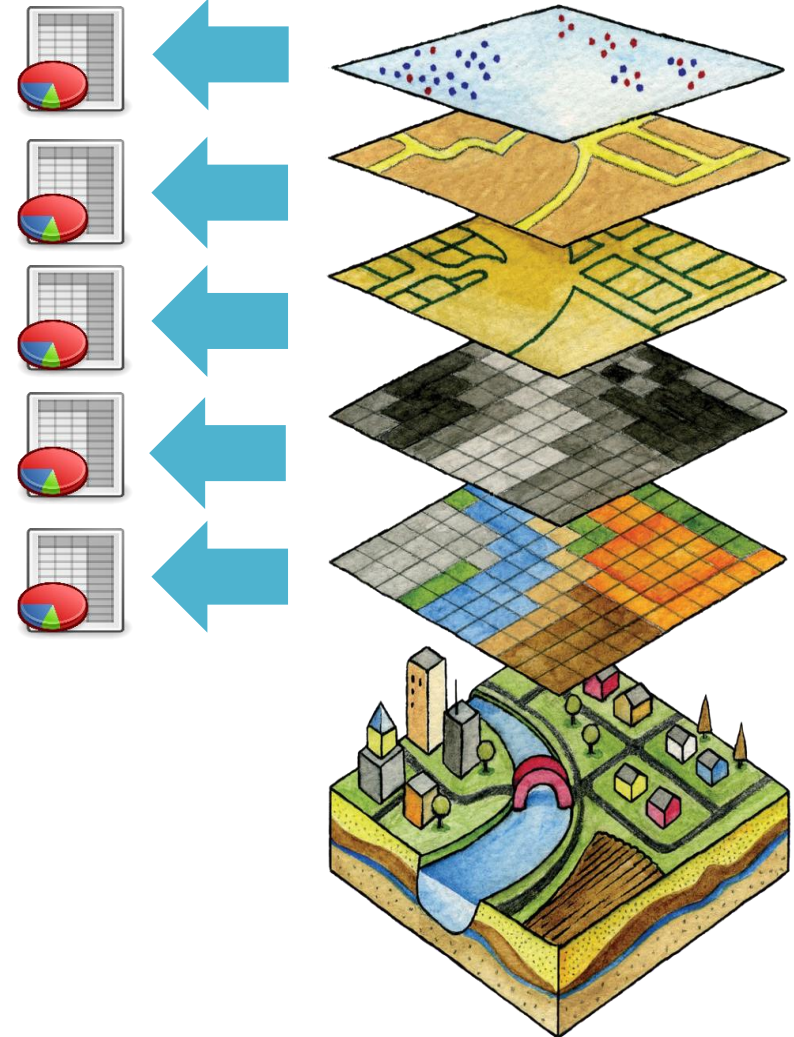
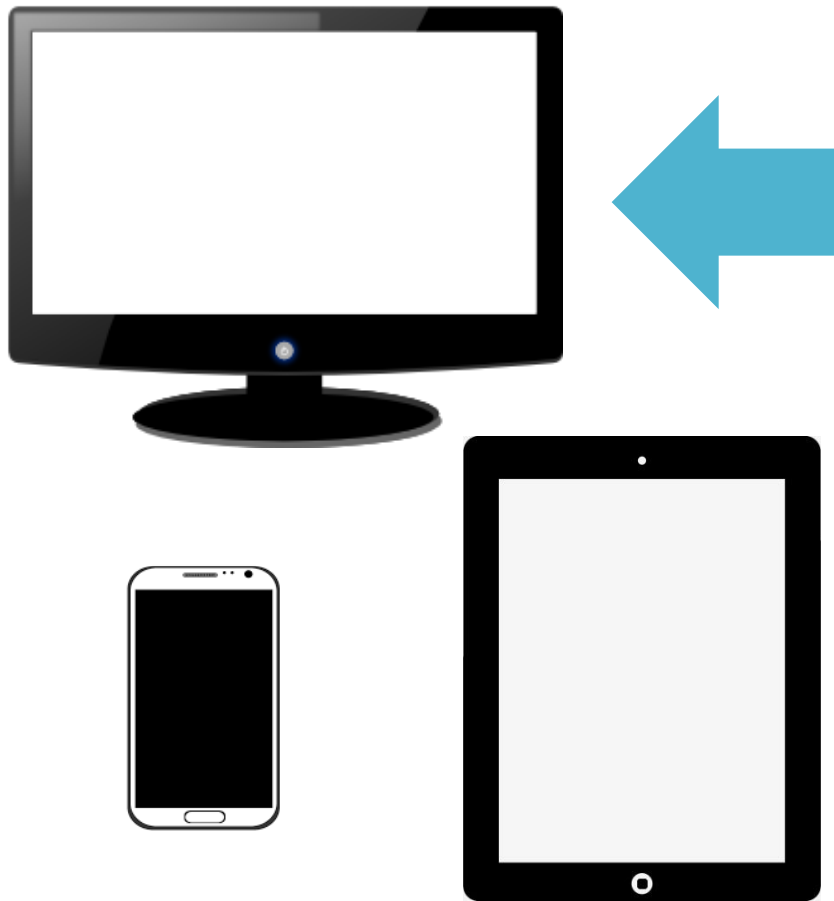
GIS is...

Data



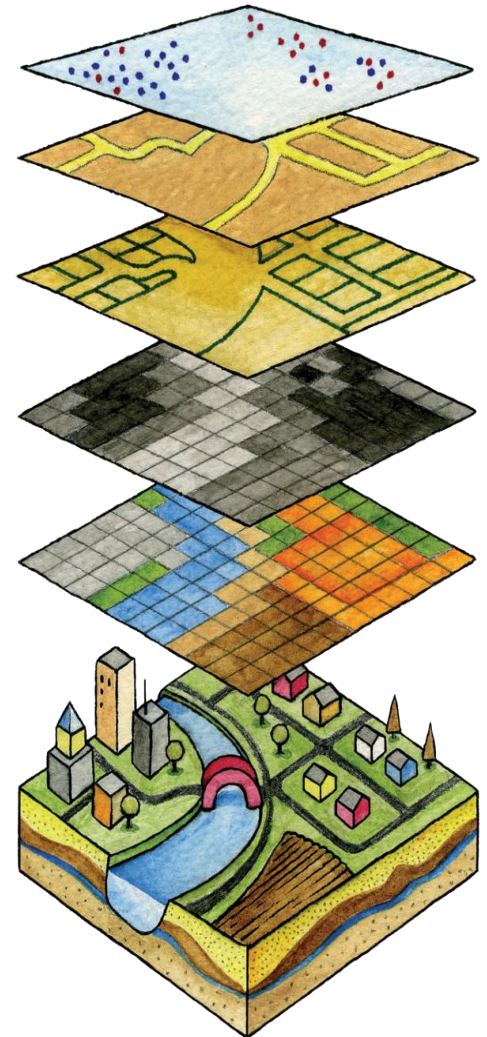
GIS is...

Accessible



GIS for Cemetery Mapping

Burials
Pathways
Plots
Maintenance
Utilities
Complete Maps



GIS for Cemetery Mapping

Name, DOB, DOD,
Obituaries, Photos



Pathway Type, Condition



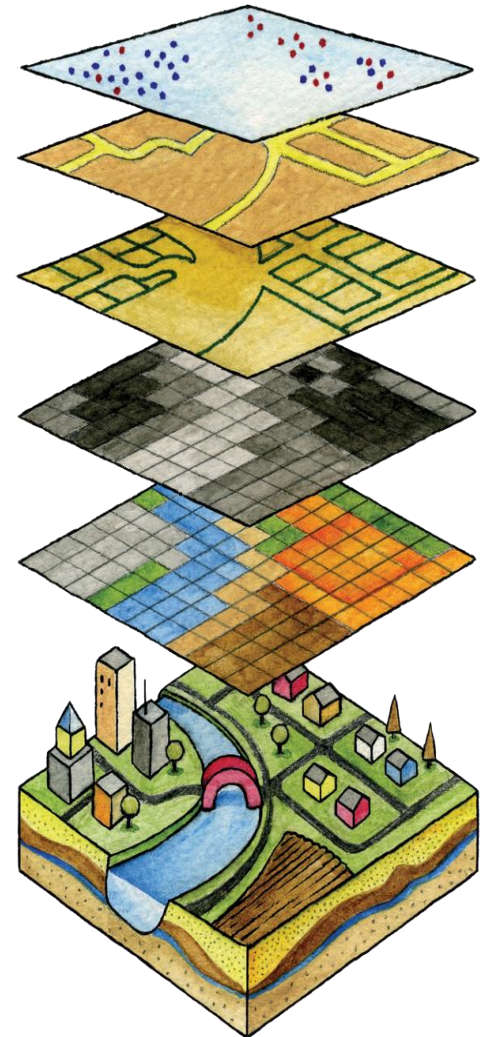
Burial Type, Availability



Headstone Repair, Trees

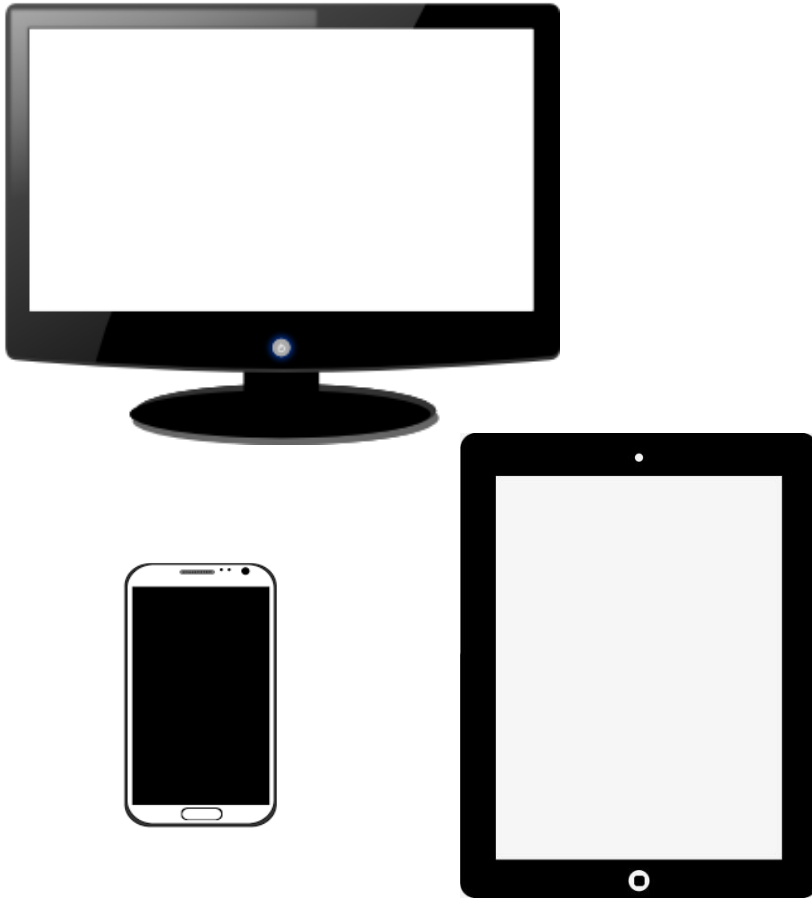


Utility Type, Depth



GIS for Cemetery Mapping

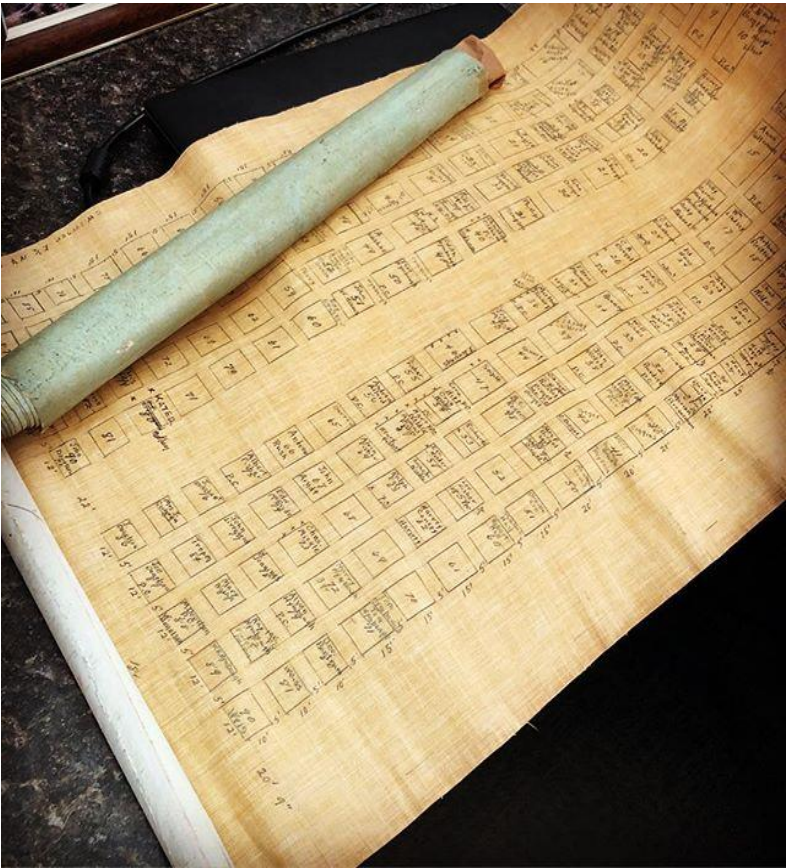
Accessible



- Utilizing ArcGIS Online means your data can be accessible from any device with an internet connection
- Esri's mobile apps make your data available on site
- Maps and apps all configurable to meet your needs

How do we get...

from here



to there?

The Basics

Create Layers

- Aerial Imagery
- Data Collection
- Map Creation

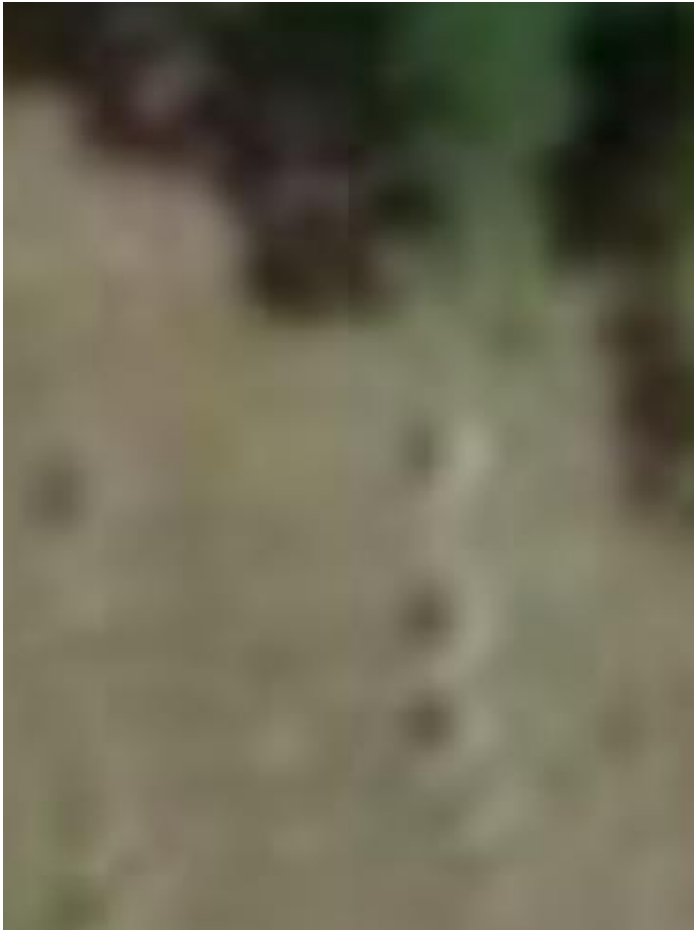
Process Data

- Convert & Clean-up Data
- Make it Spatial
- Verify Data

Make it Accessible

- Staff and Public
- Web Maps & Apps
- Paper Maps & Records

Create Layers: Aerial imagery



Publicly Available Imagery



Cloudpoint Aerial Imagery

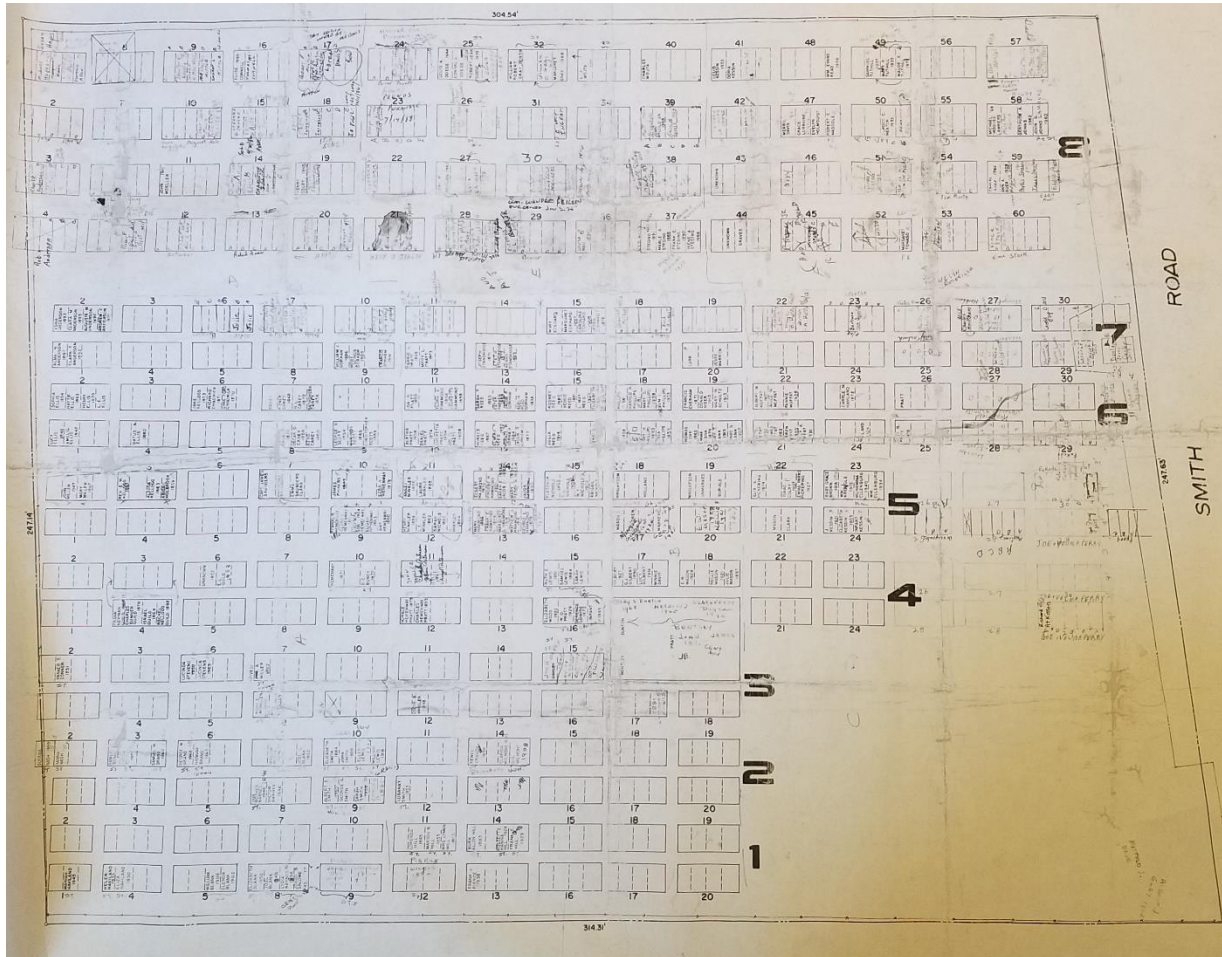
Create Layers: Data Collection

- Headstones for QA/QC
- Plot Markers
- Utilities
- Trees
- Benches



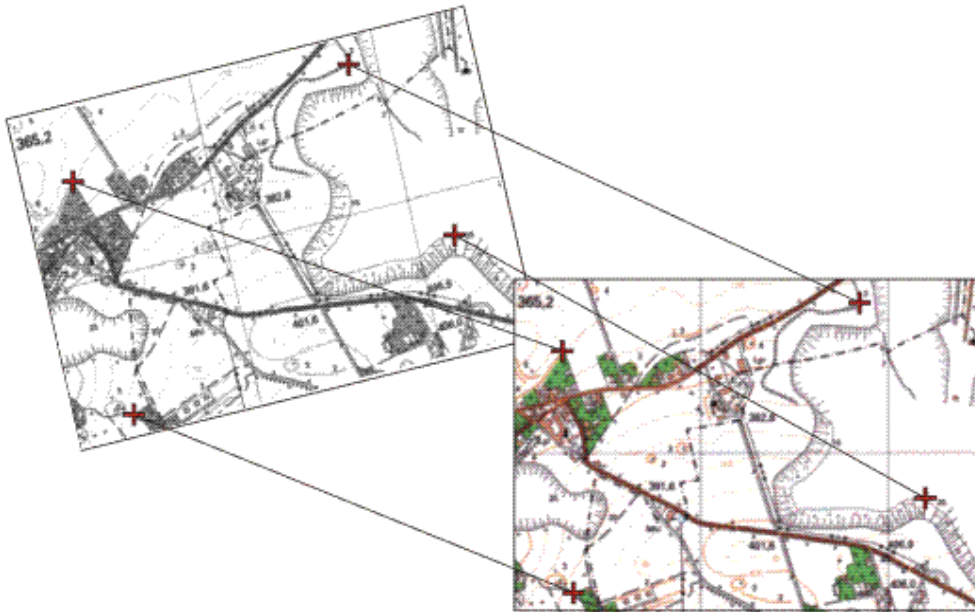
Trimble R2
GPS Unit with Bluetooth
Capability

Create Layers: Map Creation



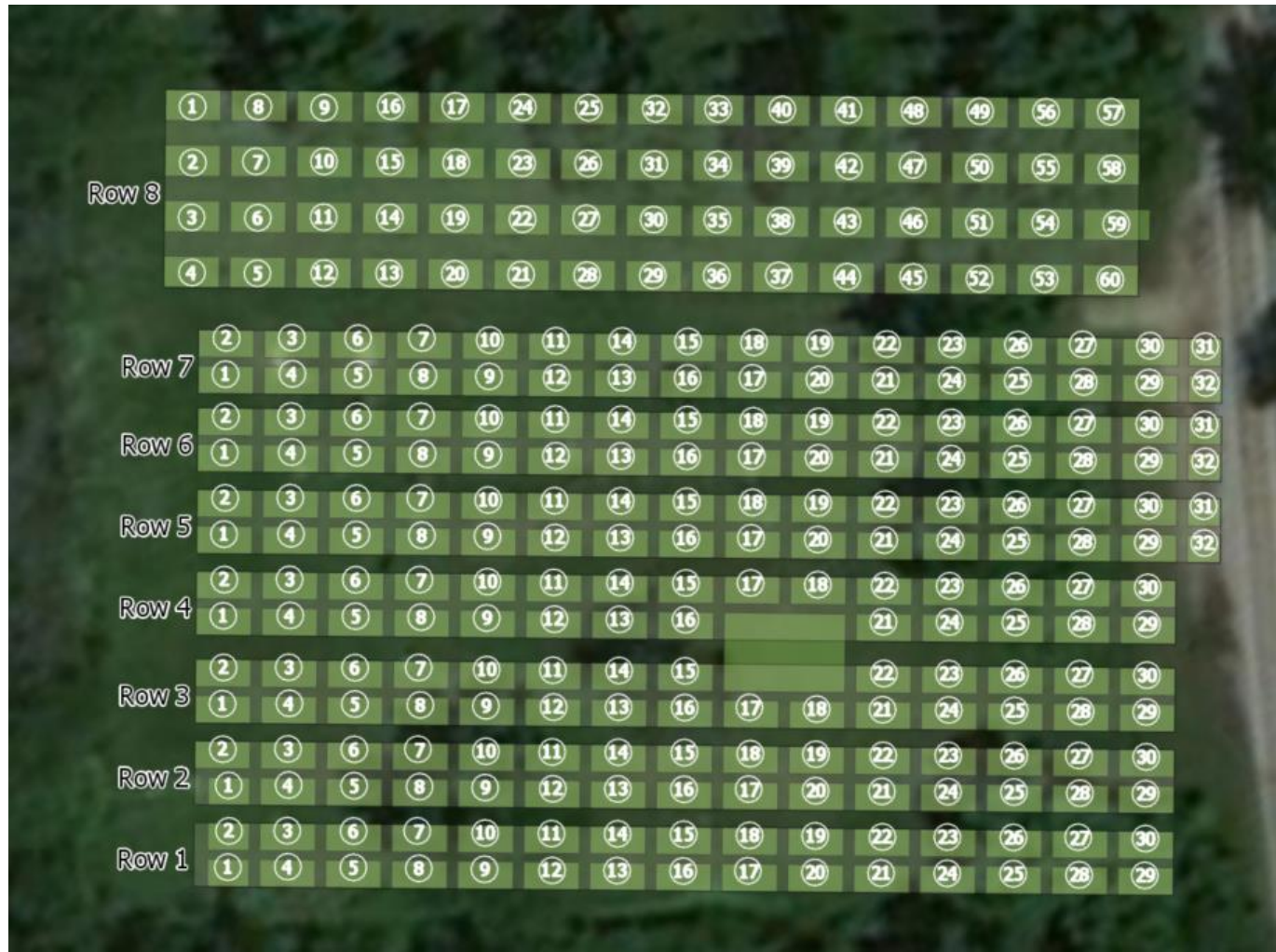
Create Layers: Map Creation

Georeferencing: the process of adding an image with no coordinates into the GIS



- Find identical features that have not moved
- Create tie points in each image

Create Layers: Map Creation



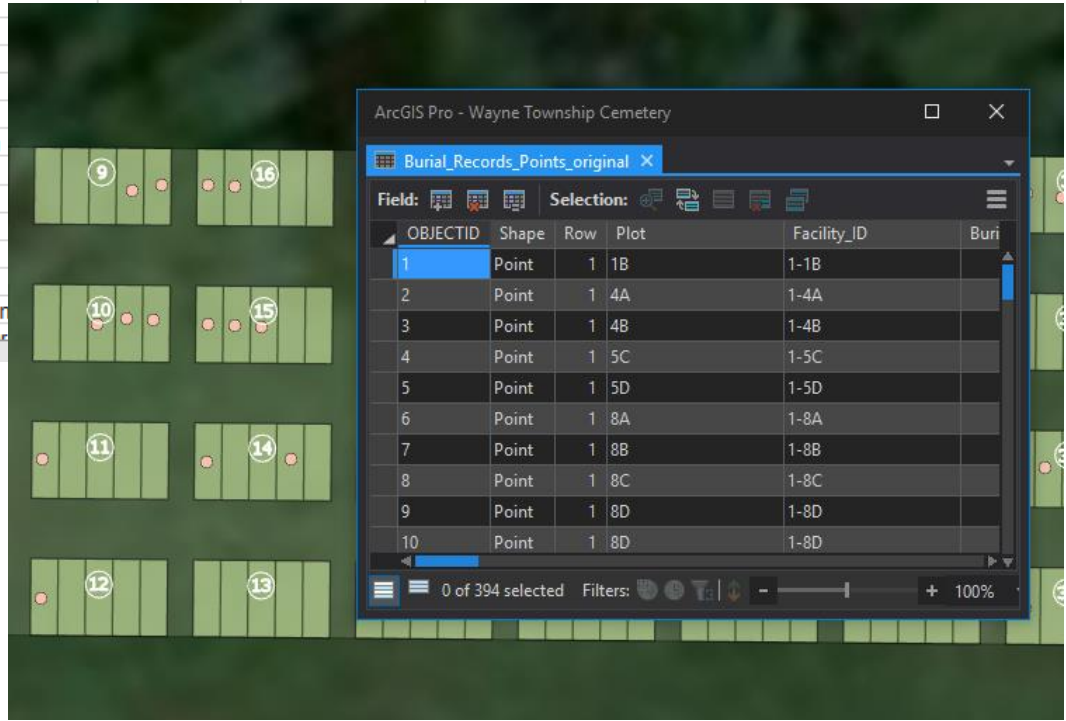
Process Data: Convert & Clean-up

5 - Ora Alice McG, 1/13/1869- Married, 1/4/1894 -
 5 - Wm Edwin, 7/22/1871 - " died, 4/2/1
 5 - Katie Pearl, 7/29/1873 # 10/5/1916 -
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 4 - Joe W. McG, married Mary ^{Etc.} Cotton, Sept. 1, 1880 .
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 5 - John Ewing, 11/14/1883, died, 2/27/1900 .
 5 - Jamie & Juliet, # ir
 5 - Errett Cotton, 3/6/1887, " #
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 6 - Henry Adolphus = 9/22/1895, 3/1
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 #

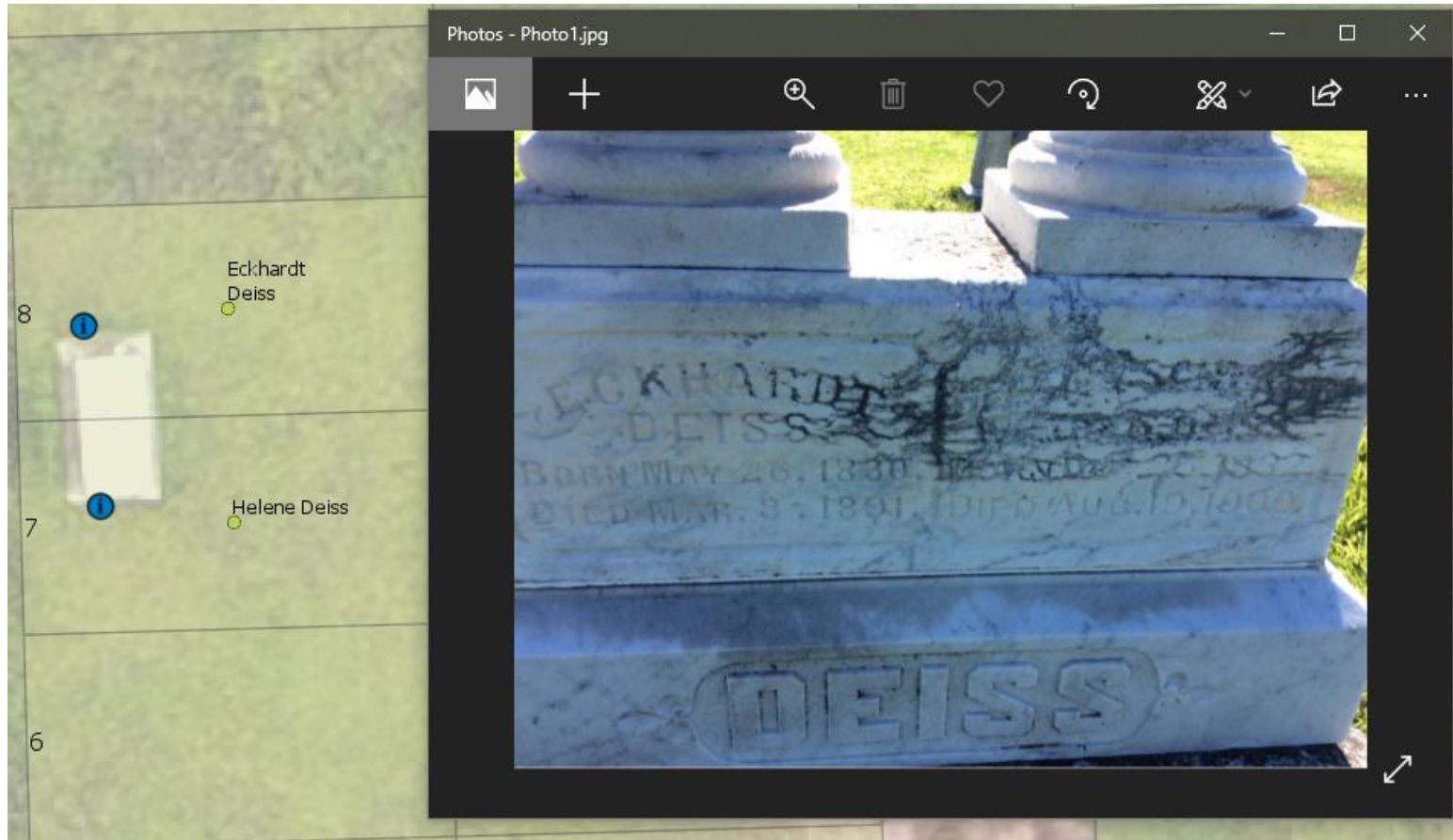
	A	B	C	F	G	H	I	J
1	Ro	Plot	Fac	Name	Last	First	Middle	Year_Deceased
2		1 1A	1-1A					
3		1 1B	1-1B	Haviland, Mariah	Haviland	Mariah		1845
4		1 1C	1-1C					
5		1 2A	1-2A					
6		1 2B	1-2B					
7		1 2C	1-2C					
8		1 3A	1-3A					
9		1 3B	1-3B					
10		1 3C	1-3C					
11		1 3D	1-3D					
12		1 4A	1-4A	Haviland, Helen	Haviland	Helen		1853
13		1 4B	1-4B	Haviland, Eliza	Haviland	Eliza		1850
14		1 4C	1-4C					
15		1 4D	1-4D					
16		1 5A	1-5A					
17		1 5B	1-5B					
18		1 5C	1-5C	Blank, William	Blank	William		1908
19		1 5D	1-5D	Blank, Elmer	Blank	Elmer		1902

Process Data: Make it Spatial

	A	B	C	F	G	H	I	J	
1	Ro	Plot	Fac	Name	Last	First	Middle	Year_Deceased	Y
2		1 1A	1-1A						
3		1 1B	1-1B	Haviland, Mariah	Haviland	Mariah		1845	
4		1 1C	1-1C						
5		1 2A	1-2A						
6		1 2B	1-2B						
7		1 2C	1-2C						
8		1 3A	1-3A						
9		1 3B	1-3B						
10		1 3C	1-3C						
11		1 3D	1-3D						
12		1 4A	1-4A	Haviland, Helen	Haviland	Helen			
13		1 4B	1-4B	Haviland, Eliza	Haviland	Eliza			
14		1 4C	1-4C						
15		1 4D	1-4D						
16		1 5A	1-5A						
17		1 5B	1-5B						
18		1 5C	1-5C	Blank, William	Blank	William			
19		1 5D	1-5D	Blank, Eliza	Blank	Eliza			



Process Data: Verify



And the result is...

Layers + Data



Identify from:

graves_poly
 Elsie

Location:

Field	Value
OBJECTID	1
Shape	Polygon
Shape_Length	24.99999
Shape_Area	31.50012
fname	Elsie
mname	
Iname	White
FuneralNum	0
Section	<null>
Block	<null>
Grave	<null>
DOB	<null>
DOD	<null>
DOI	<null>

= Functioning GIS!

Now what?

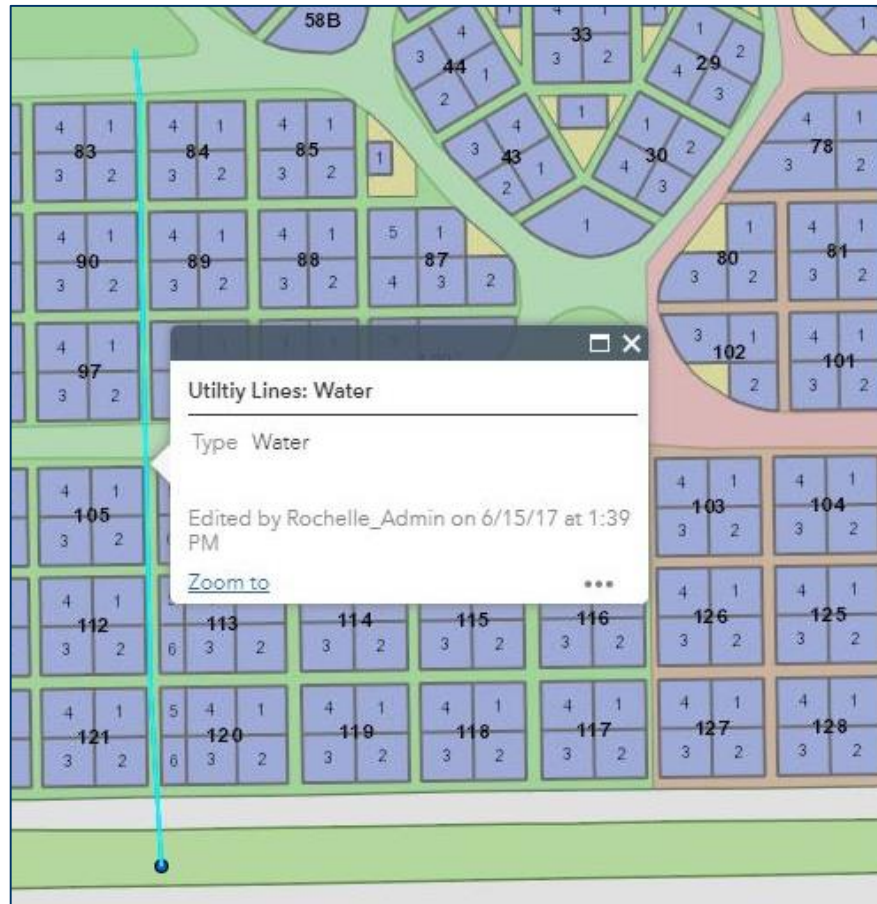


- Layers are uploaded to ArcGIS Online (AGOL)
- Maps are created in AGOL with those layers
- Maps can be accessed directly in AGOL or in a mobile application, like Collector
- Customized Web Apps/Dashboards are “windows” to your data

Now that all of your data has been collected and inventoried into the GIS, how does it get to you?

Utilizing your data

AGOL Web Map – View Utilities



Utilizing your data

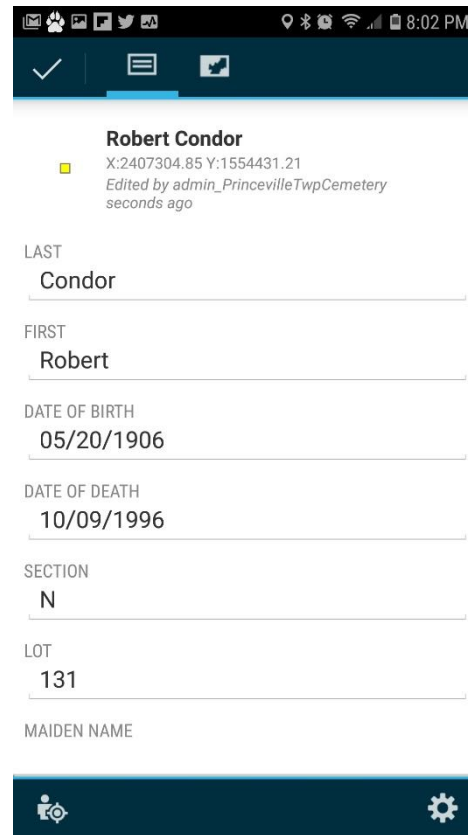
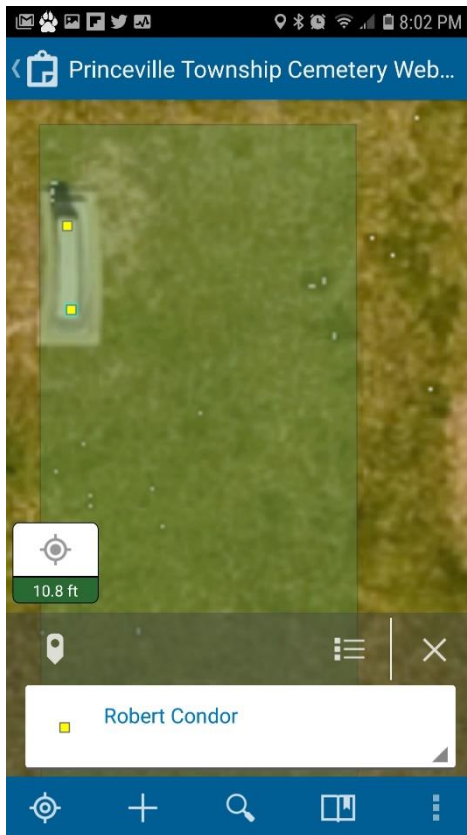
AGOL Web Map – Plan for the future



By using a GIS, an organization can view proposed work such as expansion through a geographic lens.

Utilizing your data

AGOL Web Map & Collector



Esri's Collector App allows users to collect and edit data and take and attach photographs while in the field.

Utilizing your data

ArcGIS Online Web App/Dashboard

The screenshot displays a web application interface for a cemetery map. The title bar reads "Lawnridge Cemetery Map" and includes the text "with Web AppBuilder for ArcGIS" and "created by Cloudpoint Geographics Inc".

A search bar at the top left contains the text "Smith". Below it, a dropdown menu lists several search results:

- Smith, Latoya
- Smith, Bill
- Smith, Kari
- Smith, Claudia
- Smith, Sherman
- Smith, Melinda
- Smith, Ervin
- Smith, Whitney
- Smith, Brenda
- Smith, Rogelio

The main map area shows an aerial view of a cemetery with numerous grave markers. A specific grave is highlighted in orange, and a pop-up window titled "Graves (Availability)" displays the following information:

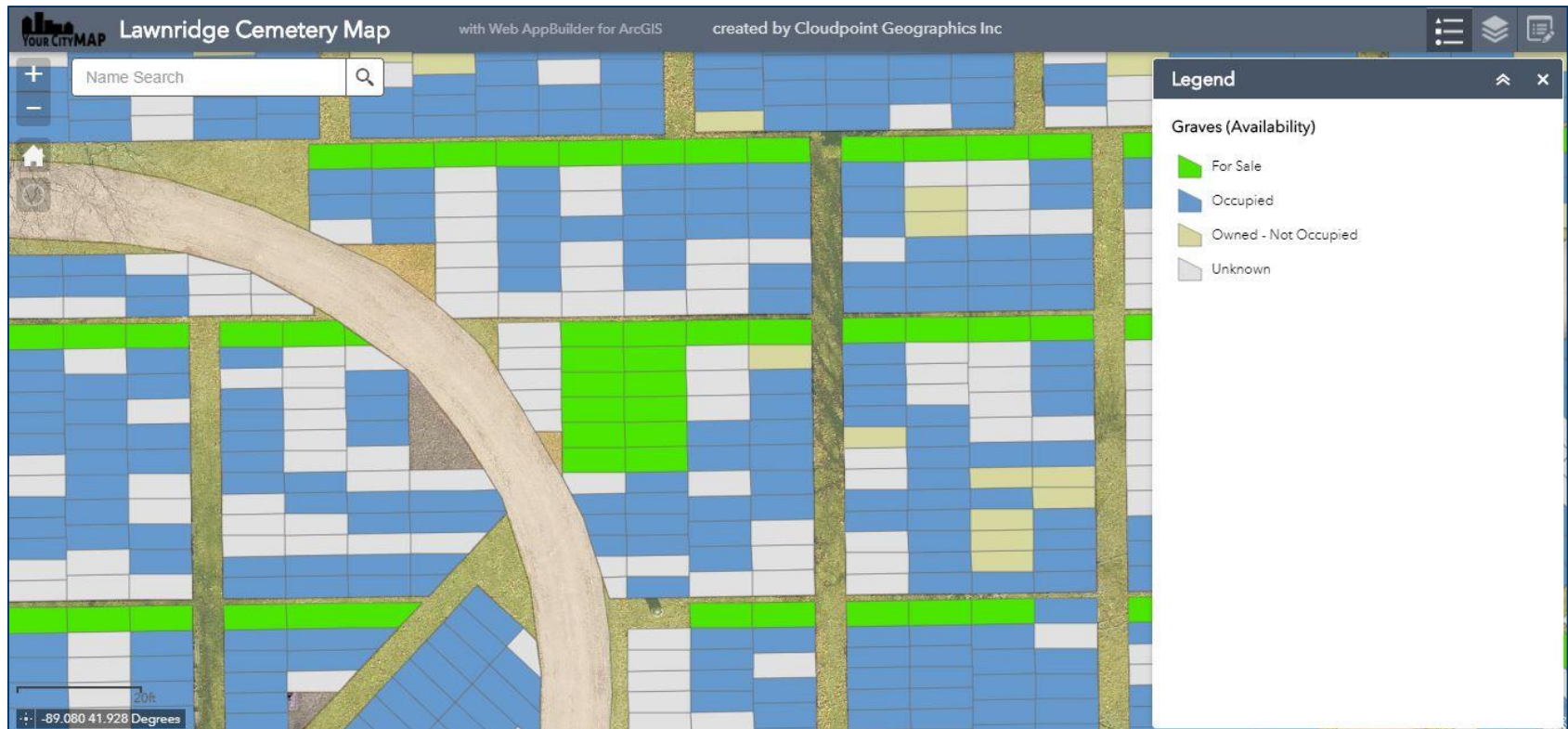
Graves (Availability)	
Title	
First Name	Latoya
Middle Name	C
Last Name	Smith
AKA	
Jr	
Family Number	246
nkey	1,129
nkeyin	1,129
Funeral Home	
Funeral Director	
Place	
Cause	
Zoom to	

The map interface includes standard navigation controls (home, search, zoom) and an Esri logo in the bottom right corner.

Public Search

Utilizing your data

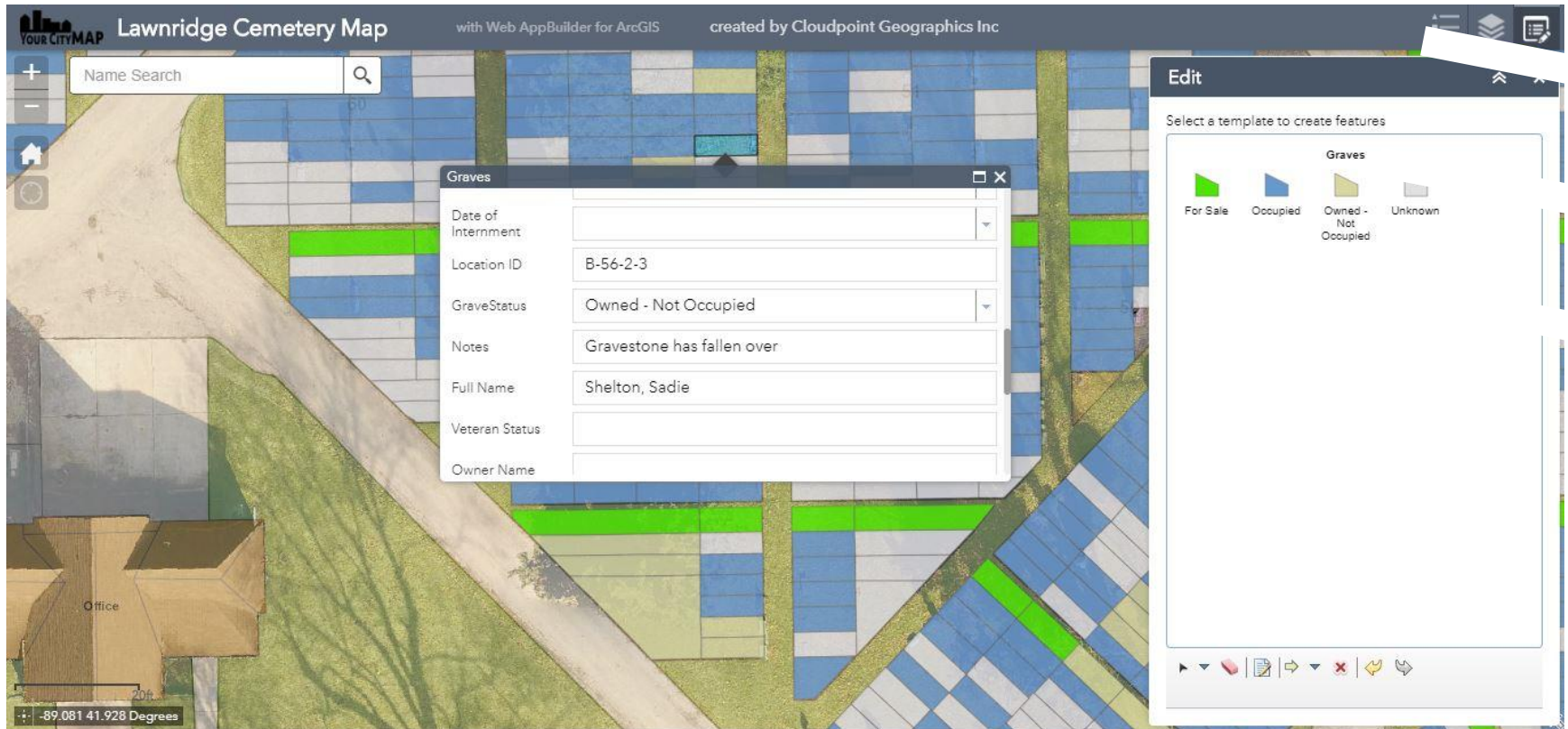
ArcGIS Online Web App/Dashboard



Gravesite Availability

Utilizing your data

ArcGIS Online Web App/Dashboard



Tacking and Logging Repair Work

Utilizing your data - recap

- Cloud-based solution
- Web Apps/Dashboards provide user-friendly and customizable interface
- Have spatial accurate records available at your fingertips
- Allow citizens to search for the gravesite of loved ones online which frees up office staff
- Communicate necessary maintenance activities and record when completed

Project Example



[Cemetery Mapping Examples](#)



Questions?

Erin Strickler

estrickler@cloudpointgeo.com

Cloudpoint Geographics, Inc.

P. O. Box 1017

107 W. Ann St.

Roanoke, IL 61561

(877) 377-8124

www.cloudpointgeo.com



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