



# State of GIS in Roanoke



Where We're At 6 Months In

David Allen, GISP

# Welcome to Roanoke

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David Allen, GISP

GIS Program Administrator - City of Roanoke

Director of State Operations - Texas EGRT

Author - GISGuidebooks.com



... this is my digital twin ...

# GIS Projects

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Making Data

Quick Apps

Special Event Maps

GIS in Public Works

GPS Data Collection

Roanoke GeoHub



# THE GIS SETUP

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## **ArcGIS Online**

Roanoke has a Cloud Enterprise Agreement ... that means everything is in ArcGIS Online. I can pull data into ArcGIS Pro for editing but all the data and all the apps are created in AGOL.

The Cloud EA comes with licenses for everything and a TON of credits. I've added pretty much everyone from every department as a user and still have licenses to spare.

# MAKING DATA

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## **Existing Datasets**

Roanoke wasn't completely without GIS data – a consulting company had been making datasets for a few years. This included mainly zoning data and utility data. However there were no GIS capabilities on-site to check the validity of the data or actually use it in maps or apps.

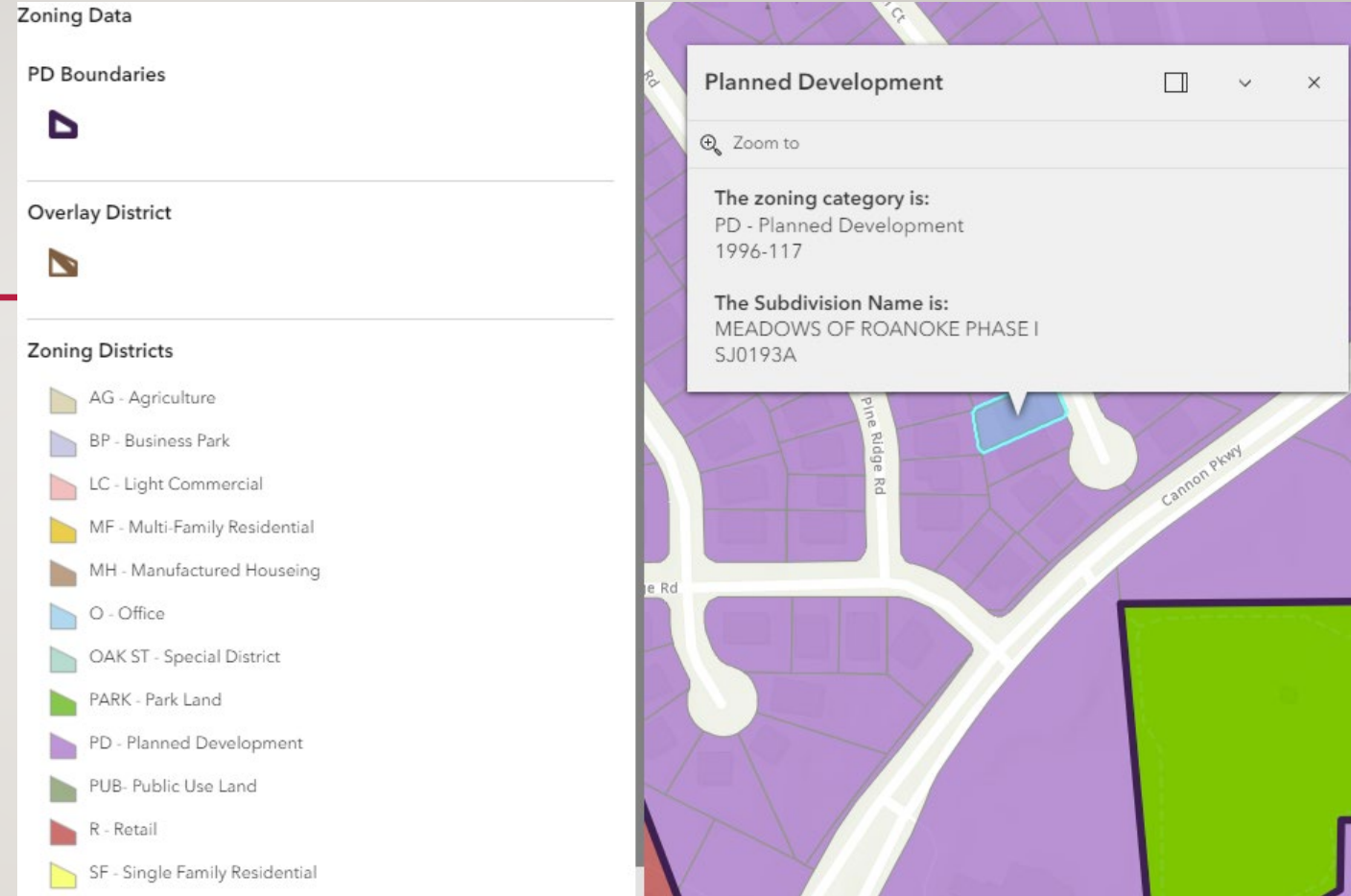
The other problem with the data is that it hadn't been updated since 2017.

# MAKING DATA

## Existing Datasets

The zoning data wasn't really done to my tastes and is drawn parcel by parcel. I prefer polygons showing the boundary of each zoning class – It's easier to maintain and easier to use in analysis.

As I do the updates I'll be changing this into large polygons.



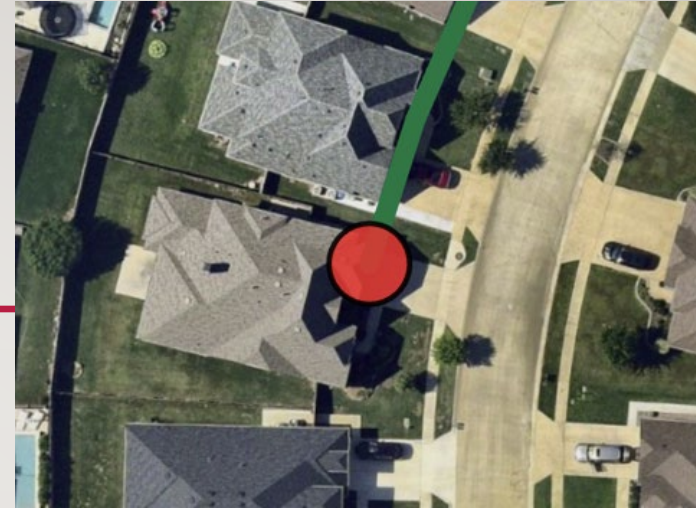
# MAKING DATA

## Existing Datasets

The Sewer data was a bit of a nightmare. The spatial accuracy was poor and the overall completeness was bad. Even on data they did draw in, it doesn't have the attributes populated.

I know this manhole isn't in the garage ...  
And this sewer line doesn't run though the pool ...

I was able to move every manhole into its correct position and re-draw the lines, and I'm populating the attributes from the as-builts.



# MAKING DATA

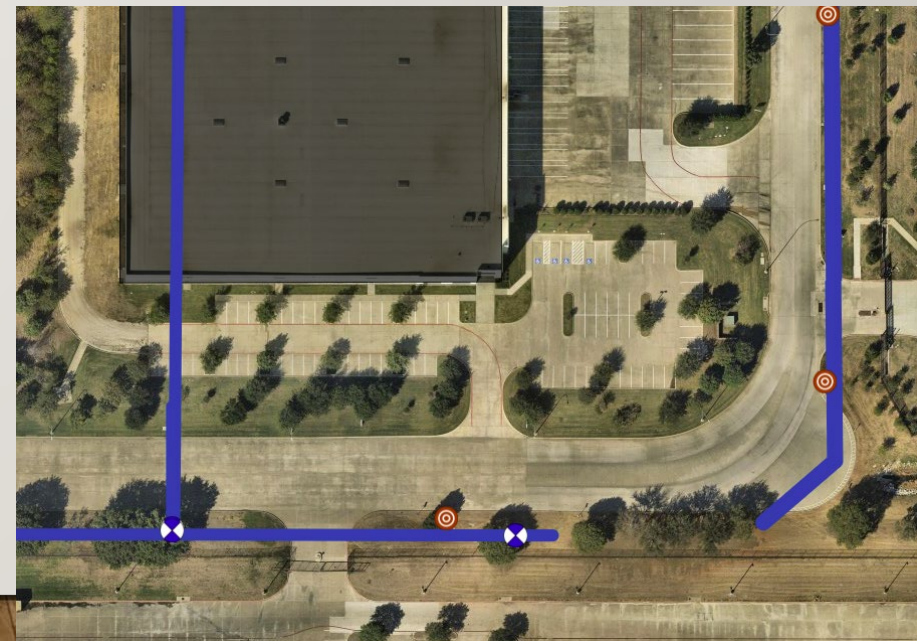
## Existing Datasets

The Water data wasn't much better. The lines weren't drawn on the correct side of the street in many cases, and the completeness of the valve inventory is low. I'm finding places where they mis-read the plans, or if they didn't know they just added extra stuff.

In this example there are three valves in this location, and they showed 7.

Do these lines connect and does that water line really go under the warehouse foundation?

Little by little I'm getting all this corrected.





# MAKING DATA

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## **Existing Datasets**

Storm drain utility.

Moving on ...

# MAKING DATA

## Regional Datasets

The Denton County Central Appraisal District has wonderful data, and was the source for my parcels. I've had to adapt it a little bit because there are attributes unique to Roanoke that they wouldn't care much about.

I am redrawing some of the areas using COGO to tighten up the spatial accuracy. As I put utility data in using GPS I need it to align with the parcels a little better. I'm also linking the plat scans to the parcels, something that's pretty difficult in the old section of town from the late 1800's.



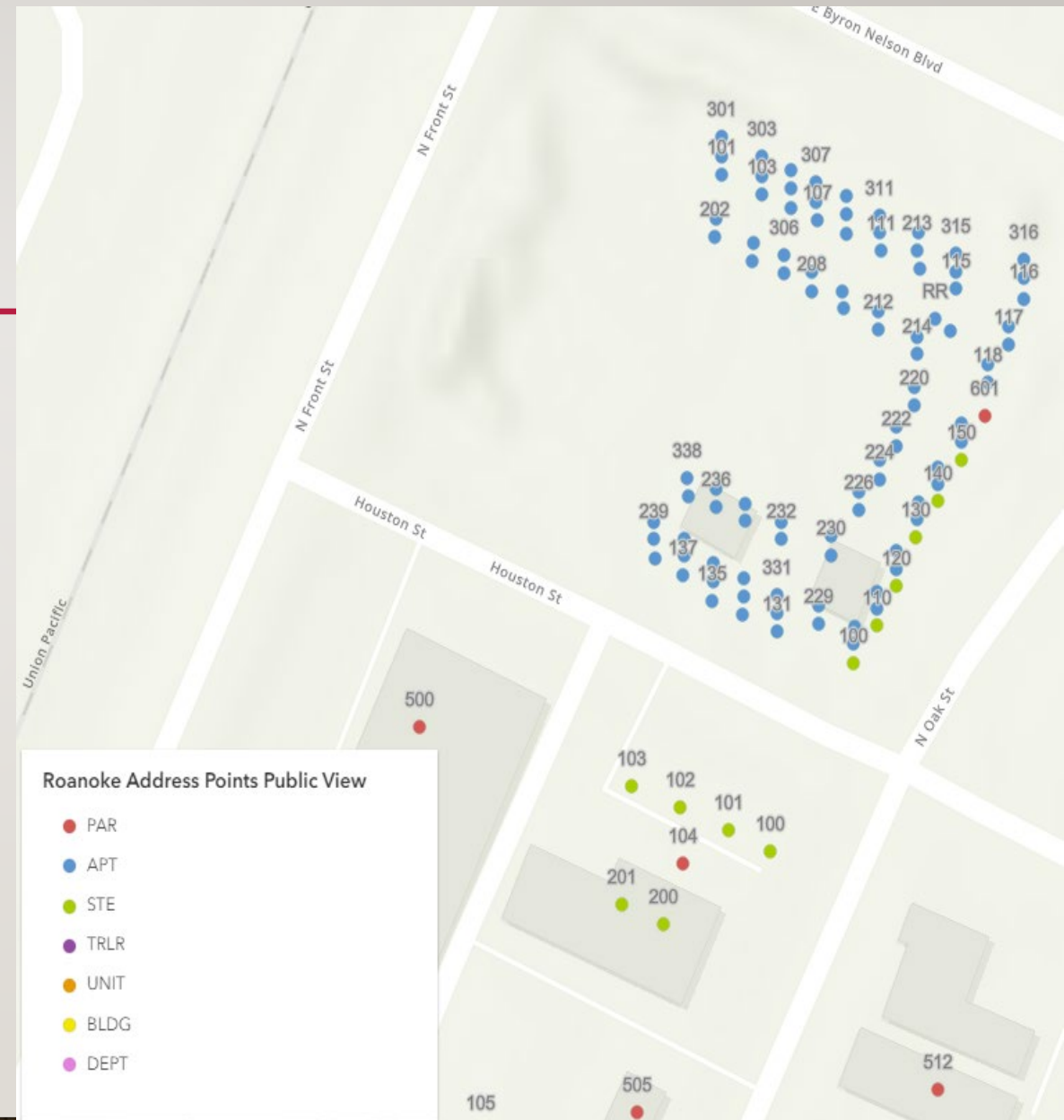
# MAKING DATA

## Regional Datasets

The DENCO 9-1-1 district also provided street centerline data and address point data. This data is critical for 9-1-1 responses and it typically falls to the city to keep DENCO 9-1-1 updated on changes.

This was very good data and I have taken on the city's responsibility of updating and field verifying every location.

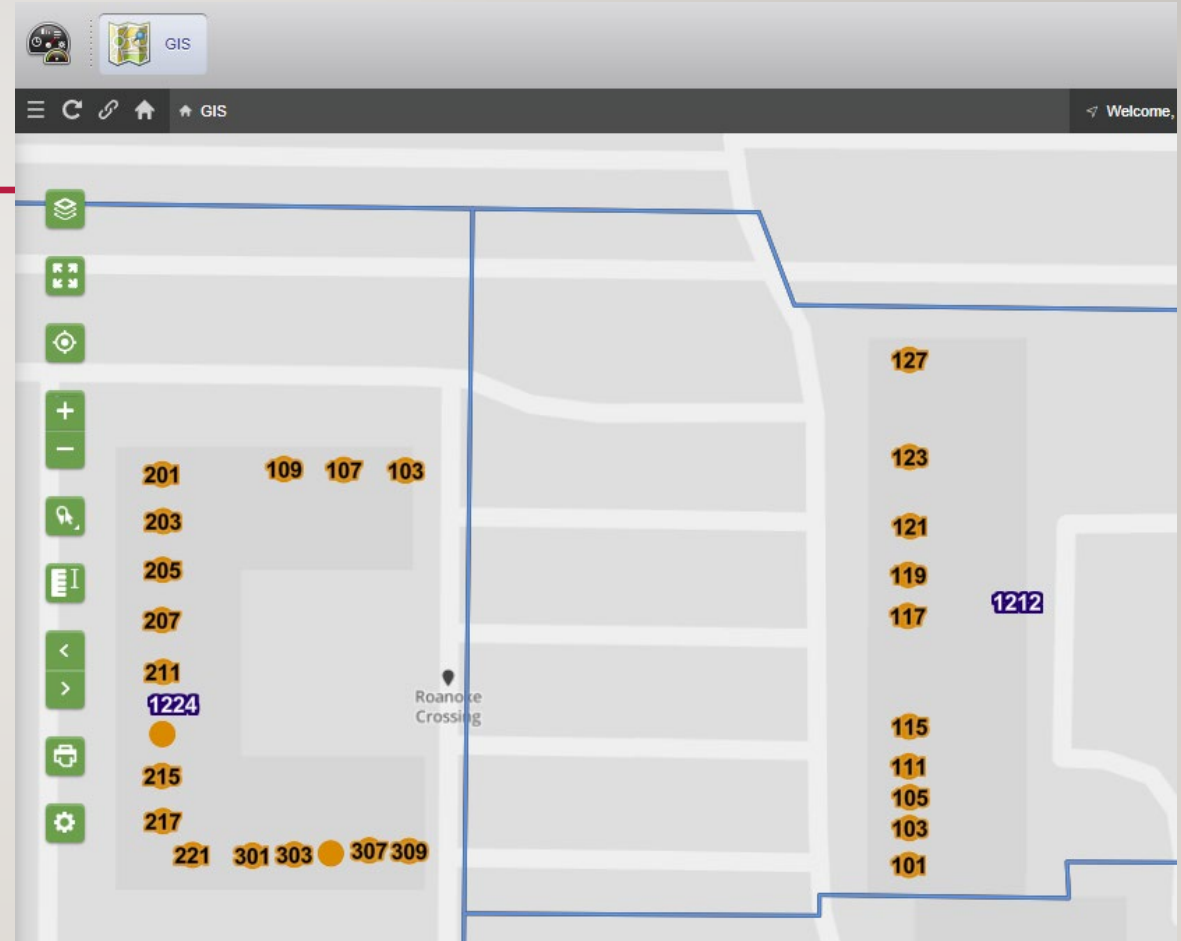
DENCO 9-1-1 also provided street centerline data. Again, very good data and I'm keeping it updated.



# MAKING DATA

## Regional Datasets

I was also able to use this dataset for the address points in the city's permit software. Every permit now starts with selecting a property or suite from this DENCO address point data.



# MAKING DATA

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## **Regional Datasets**


And a quick word about integrating GIS into existing software.

We added the GIS interface to the Permits / Inspections software MyGov and it's working well.

I'm in the process of building the GIS datasets for Police Dispatch, a system called Athena. That's on a pause until the start of the new year.

The Fire Department just purchased a response software called First Arriving and I have provided REST services for all of the data they need, which the system reads live!

The Public Works asset management system is a lost cause and we'll be replacing that in the next budget cycle.



# QUICK APPS

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With good data in place, it's time to start building apps!

# QUICK APPS

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## **Property Owner Notification**

The City Secretary spends a great deal of time looking up property owners to make a mailing list for pending City Council actions. With access to the data through the Denton CAD REST service, GIS can do this much more efficiently.

Esri has a preconfigured app for this, you only have to point it to your own data. Using the app, you select a property, give it a buffer distance, and it will provide a list of owner names. In my case I had to set the output to CSV to interface with the existing label printer.

If you haven't used this, it's a quick set-up and a flashy victory.

# QUICK APPS

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## Property Owner Notification

The trick is that you have to set up a pop-up in the map that contains the fields you want in the Mailing labels, and in my case the CSV output file.

{expression/expr0}

{legal\_desc}

{owner\_name}

{addr\_line2}

{addr\_city}

{addr\_state}

{addr\_zip}

207 E BYRON NELSON BLVD

HOWE LOT 29R

PHARMLIVING LLC

40 CYPRESS CT

TROPHY CLUB

TX

76262-5571

207 E BYRON NELSON BLVD  
ROANOKE, TX 76262

```
1 var testNumber = Find('ROANOKE',$feature.situs)
2 var situsOnly = Left($feature.situs, testNumber)
3
4 return When(testNumber == -1,$feature.situs,situsOnly)
5
```



# QUICK APPS

## Historic Downtown Walking Tour

There was an ongoing project when I got here to do a historic walking tour pamphlet for the Downtown area – up and down Oak Street. The committee doing this had already identified the Historic sites to highlight, compiled photos, and had written the descriptions for all the stops.

I took that and copy/pasted it into an Experience Builder template to create a map based walking tour.



# QUICK APPS

## Historic Downtown Walking Tour

Each stop on the tour has several photos of the historic site from the city's archives as well as a description of the history of the site.




Scan to Learn More  
Roanoke Historic Walking Tour



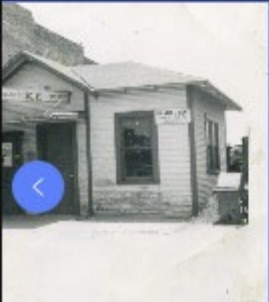
[www.RoanokeTexas.com](http://www.RoanokeTexas.com) 817-491-2411 @CityofRoanokeTX

### Historic Downtown - Stop


4



The building has mostly been one story throughout its history. Here, when it was Texas Energy Services, four iron augers held up the patio cover. Those augers were from Bewley's Flour Mill, and one of those augers



are Store/ Ross Br...



5 - Silver Spur Saloon, 1886

# QUICK APPS

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## Historic Downtown Walking Tour

And a first for me ... have you ever had cookies made promoting your app?

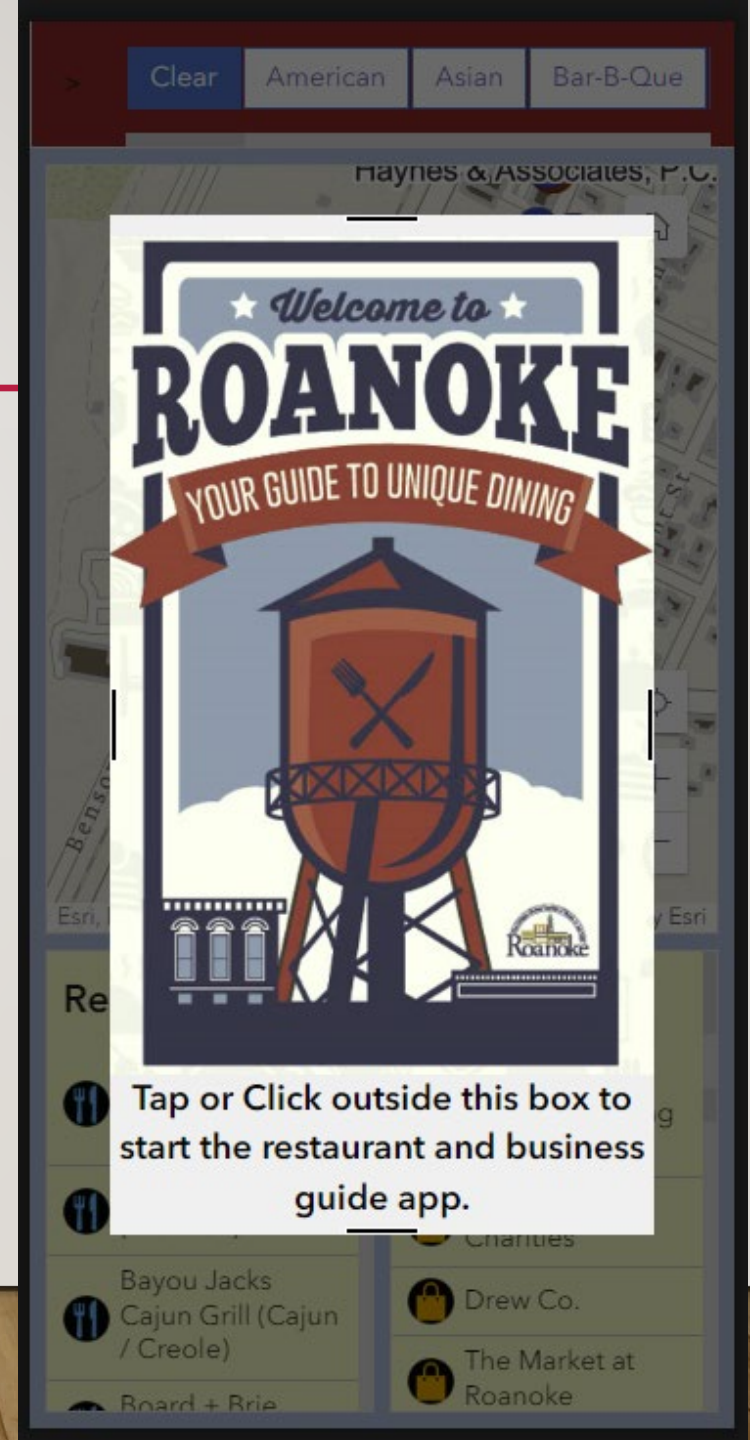


# QUICK APPS

## Downtown Restaurant Guide

If you haven't noticed, the downtown area has been rebuilt as a shopping and dining destination, earning the city the designation "Unique Dining Capital of Texas".

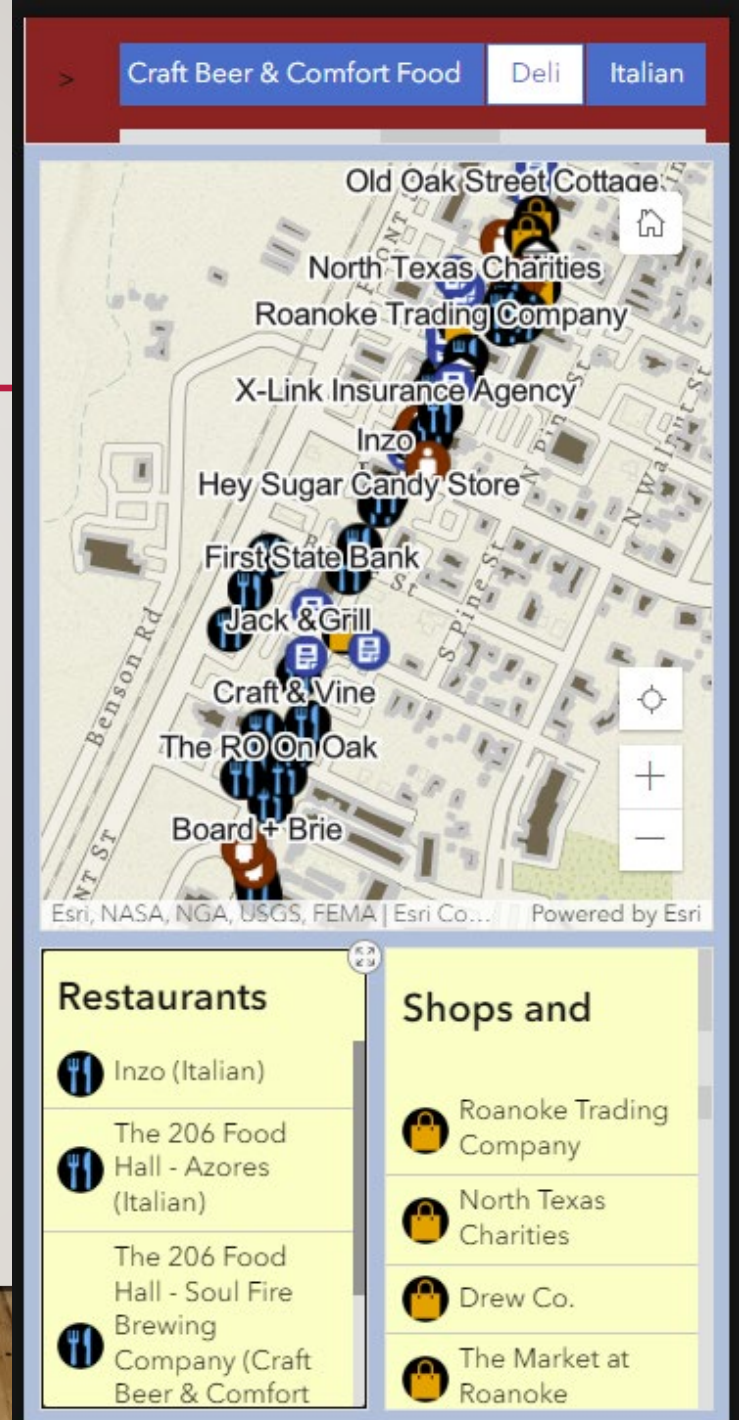
There had been a nicely formatted list of restaurants downtown that show on the electronic kiosks around town, but I found it to be outdated. So I built a Survey 123 collection app and walked Oak Street taking pictures and building a new database.



# QUICK APPS

## Downtown Restaurant Guide

The app has a slider across the top so you can choose one or more food category, then it will display a list of restaurants from your selection and show you where on the map they are.



# QUICK APPS

## Downtown Restaurant Guide

Once you select a restaurant, it zooms in to show more information in a pop-up window.


**Wise Guys Pizzeria**  
311 S. Oak St

🔍 📏

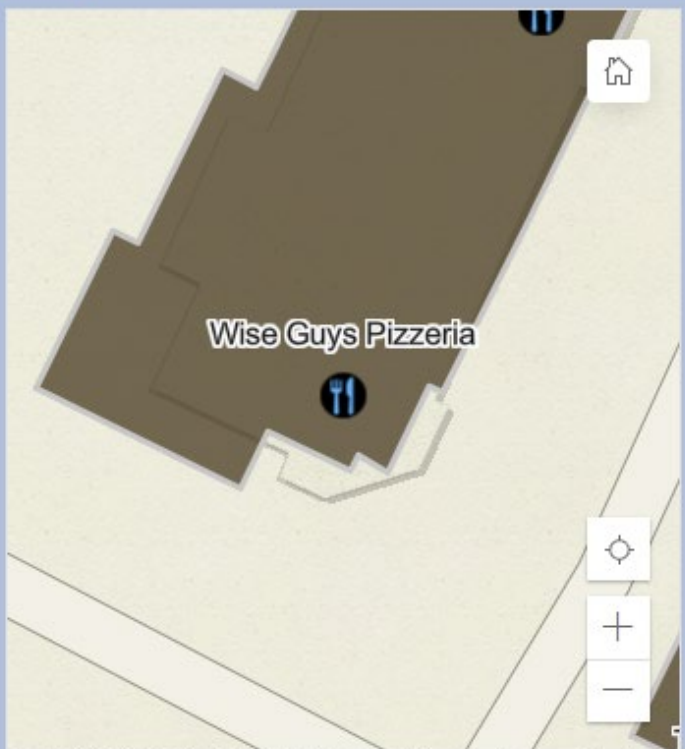
Description	Pizza, Pasta, & Premium Draft
Food Category	Italian
Operational Hours	Sun-Thu 11:00 AM - 10:00 PM   Fri-Sat 11:00 PM - 11:00 PM

**Wise Guys Pizzeria**  
311 S. Oak St

🔍 📏



> Craft Beer & Comfort Food Deli Italian



Wise Guys Pizzeria

Esri, NASA, NGA, USGS, FEMA | Esri Co... Powered by Esri

### Restaurants

- The 206 Food Hall - Soul Fire Brewing
- Company (Craft Beer & Comfort Food)
- Wise Guys Pizzeria (Italian)

### Shops and

- Roanoke Trading Company
- North Texas Charities
- Drew Co.
- The Market at Roanoke

# QUICK APPS

## Downtown Restaurant Guide

The app also contains business with similar pop-ups and photos.


**Sterling Stylez**  
212 N. Oak St

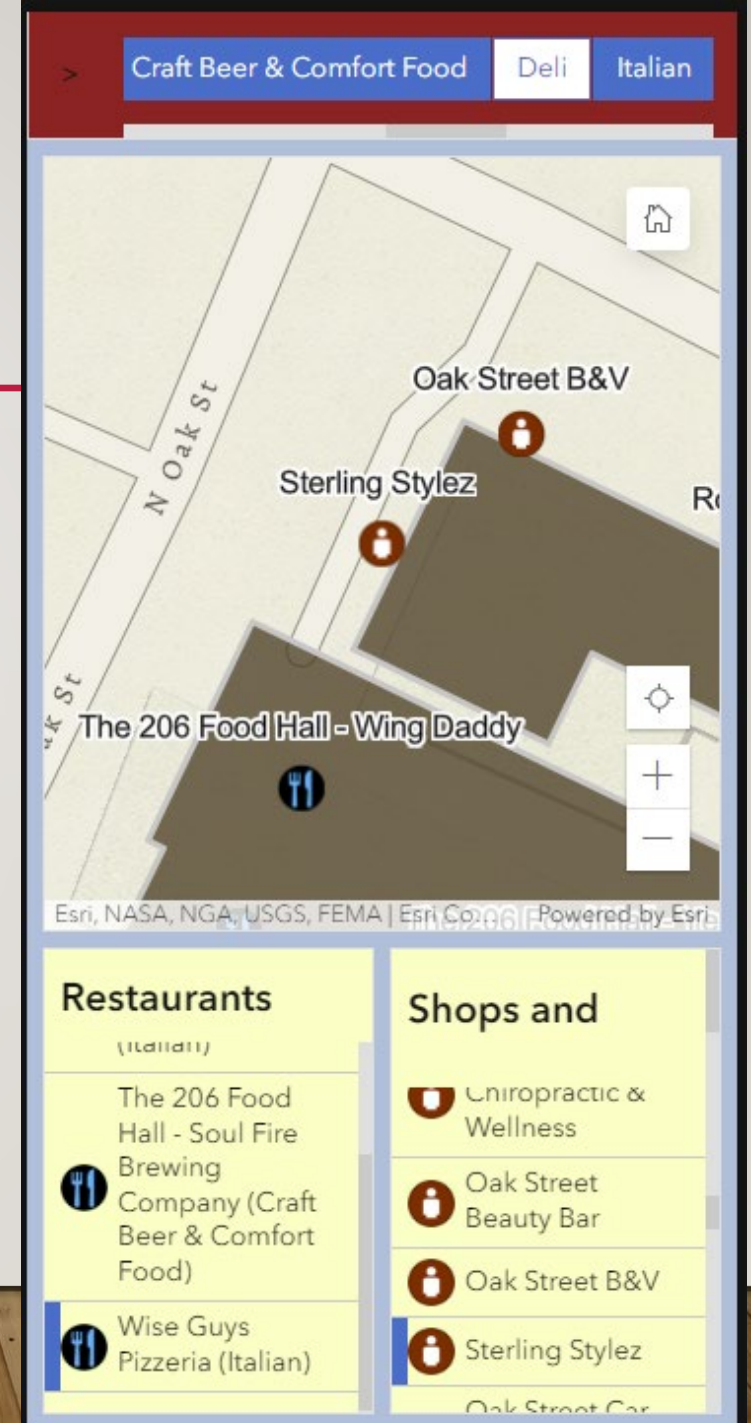
🔍 📍

Description	Barber Shop & Salon
Food Category	
Operational Hours	Mon - Sat 8:00 AM - 6:00 PM
Website Link	View

**Sterling Stylez**  
212 N. Oak St

🔍 📍





The screenshot shows a mobile application interface. At the top, there are three tabs: "Craft Beer & Comfort Food", "Deli", and "Italian". Below the tabs is a map showing a street grid with "N Oak St" and "Oak Street B&V" labeled. Several red location pins are placed on the map, with labels for "Sterling Stylez", "The 206 Food Hall - Wing Daddy", and "Oak Street B&V". A blue fork and knife icon is also visible on the map. To the right of the map are navigation controls: a home button, a location pin, a compass, and zoom in (+) and zoom out (-) buttons. Below the map is a list of businesses under two categories: "Restaurants" and "Shops and".

**Restaurants**

- The 206 Food Hall - Soul Fire Brewing Company (Craft Beer & Comfort Food)
- Wise Guys Pizzeria (Italian)

**Shops and**

- Chiropractic & Wellness
- Oak Street Beauty Bar
- Oak Street B&V
- Sterling Stylez
- Oak Street Car

# QUICK APPS

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## **Land / Property Lookup Map**

A request came in pretty early on to make a map to look up property information. Using the cadastre data I was able to build from the Denton CAD site I was able to put together an app that will report data from multiple datasets into a single pop-up.



# QUICK APPS

## Land / Property Lookup Map

The map itself is pretty straightforward. The interesting part is in the pop-up. By using an Arcade expression I was able to pull data from multiple datasets that may overlap the selected parcel and put all of that into a formatted pop-up.

Isn't that better looking than the old attribute pop-up? And using the old way I can't pull data from multiple layers!

Property ID	525476
Property Address	439 BRISTOL ST
Legal Description	BRIARWYCK ADDN PH 1 BLK A LOT 20
Exemptions	HS
Owner	THOMPSON, BERRY & DIANA
Owner Address	
Owner Address	439 BRISTOL ST
Owner Address	
Owner City	ROANOKE
Owner State	TX
Owner ZIP	76262

The property address is  
**1204 -1208 US 377.**

The Legal Description is:  
**HOMESTEAD RETAIL ADDITION, Block 7, Lot 13R1B .**

The current land use category is:  
**Commercial.**

The zoning category for this property is:  
**Planned Development.**

The property has these exemptions (if any):

The property owner is:  
**SHACHI INVESTMENTS CORPORATION  
5110 VANDERBILT AVE  
DALLAS, TX 75206**

Constuction was recorded on this property in **2016.**

The Denton CAD Property ID is 534977



**DENTON CENTRAL  
APPRAISAL DISTRICT**

[Click to see the detailed data sheet](#)

# QUICK APPS

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## Land / Property Lookup Map

The Arcade code for this was pretty daunting, but if you go step by step it's not that hard to build a very complex expression. In this snippet you can see the use of the `FeatureSetByPortalItem` that was used to get the zoning, as well as the interjection of HTML formatting tags.

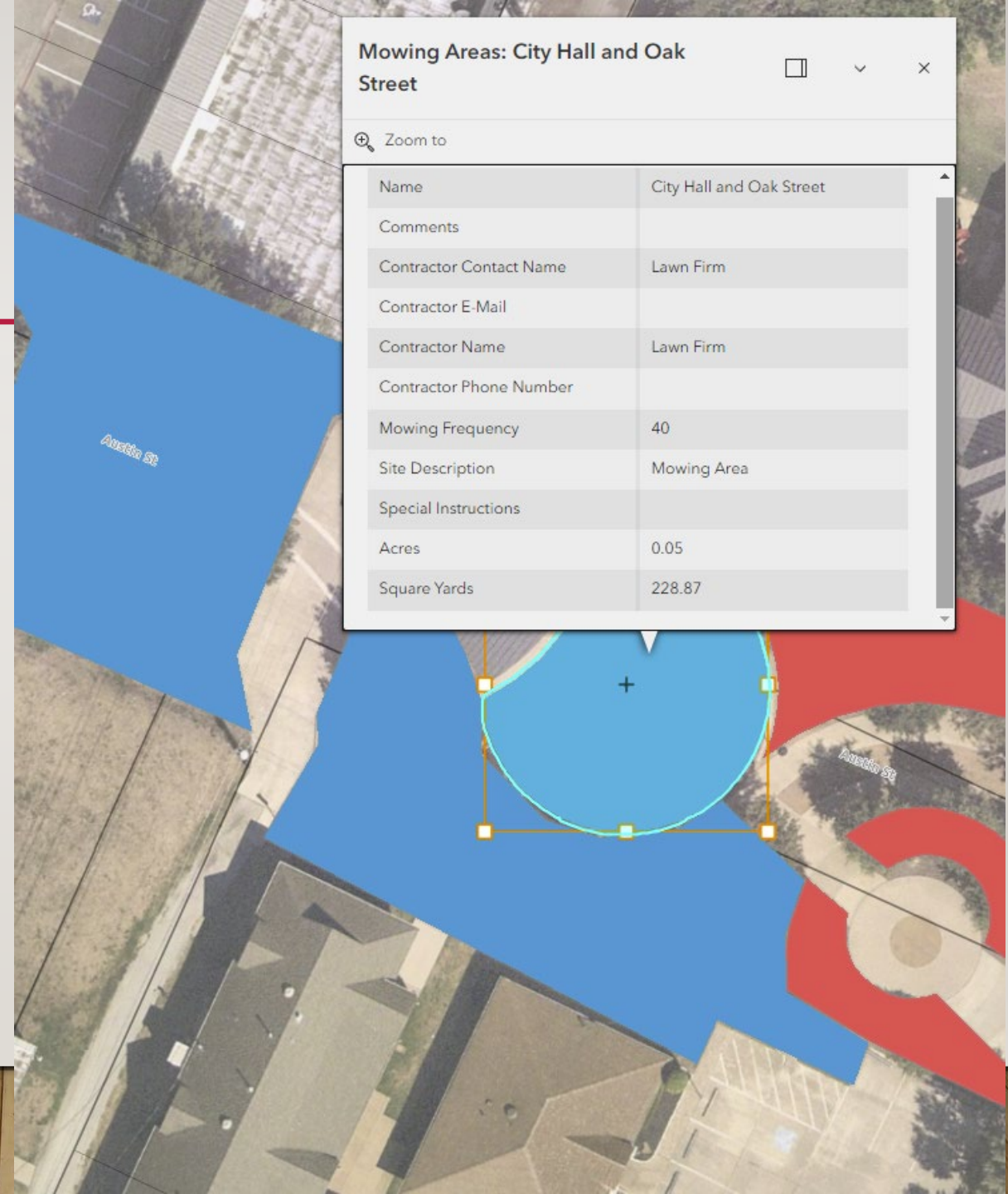
```
83 // Get the zoning info
84 var zoneFile = FeatureSetByPortalItem(Portal('https://roanoketexas.maps.arcgis.com/'), 'e5987859c68d4c3b896850794cbdf911',2,['Description'])
85
86 // Define a variable (size) to store the value we want
87 // Get the value by Intersecting the point location
88 // with the FeatureSet "Water_Main_Pipe", or pipesize
89
90 var zoneCode = First(Intersects($feature, zoneFile))
91
92 // If the current location intersects a zoning area,
93 // return the value in the field ['Description'].
94 // Otherwise, return a null value for areas where there is no intersecting polygon
95
96 var propertyZoning = '<br><br>The zoning category for this property is: <strong><br>' + zoneCode['Description'] + '</strong>.'
```

# QUICK APPS

## Parks Department Mowing Map

The Parks Department went out for bids on the city mowing contract and needed a map that specifically identified every place that needs to be mowed, and with what frequency. I first made an editable map so their guys could draw in the areas.

By documenting the areas the city mows and who eventually gets the contract, it's easy to keep track of the mowing and who to call if an area is missed.



# QUICK APPS

## Parks Department Mowing Map

Then I made a bid reference map for contractors to review before submitting a bid. The dashboard also included links to all the bid submittal requirements and instructions on how to use the map to review areas.

### City of Roanoke Parks & Recreation Department Mowing Contract Bid Process

Sealed bids will be received by the City of Roanoke at 500 S. Oak Street, Roanoke, Texas 76262, until 2:00pm on Thursday, October 26, 2023, at which time and place said bids will be opened and publicly read aloud for the following project: **City of Roanoke, Texas Contract Mowing Services.**

The bid invitation, instructions to bidders, general provisions and bid schedule can be downloaded here or can be obtained from the City of Roanoke Parks and Recreation Department either by email or in person by notifying Ray McDonald, Director of Parks and Recreation at least one day in advance to make reasonable arrangements to receive contract documents.

Completed bids must be returned in a sealed envelope. One (1) original and one (1) copy, of the proposed bid, signed by an officer of the company, clearly marked "City of Roanoke Mowing Services".

[Click to download the Bid Document](#)

Technical questions can be directed to Ray McDonald, Director of Parks and Recreation at (817) 837- 9935 or Dan Dearborn, Parks Superintendent at (817) 491-6071.

The City of Roanoke reserves the right to reject any or all bids, in whole or in part, to waive any informality in any bid, and to accept the bid which, in its discretion is in the best interest of the City of Roanoke.

## Mowing Contract Dashboard Bid Map

Use control on the right to select individual project areas for a summary ...

[Click to Select Project N...](#)  
All Projects Currently Sh...

Total area of the selected project  
**56.8 acres**

407  
Lamar St  
Annual  
Schedule  
/ Cycle:  
25  
0.26  
acres

Bobcat  
Blvd -  
Medians  
and  
ROW  
South  
ROW  
along  
Hwy 377,  
and ROW  
along  
Schoolin  
g Rd  
Annual  
Schedule  
/ Cycle:  
25  
0.98  
acres



[Click to get instructions on using the Mowing Bid Reference Map](#)


# QUICK APPS

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## **Special Event Mapping**

Esri makes a configurable app for special event permits, which I downloaded and set up for public use. We're still waiting on some clarifications from City Council on exactly how the permitting will happen so that project is on hold. But as an offshoot, our special events team as well as our Police Department latched on to this idea to make special event maps for all of the city's events. And this city does A LOT of special events.

I cherry picked the nice parts of the Esri app and made it into my own app. It has three basic parts

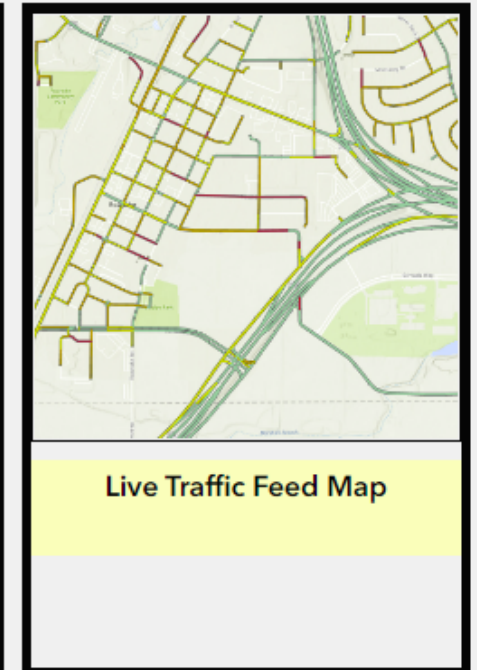
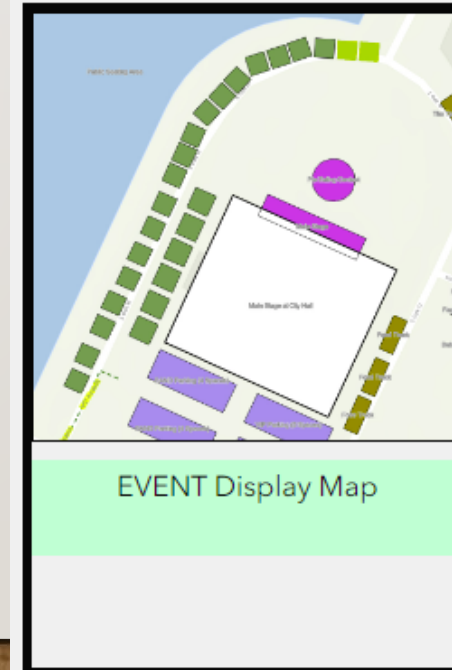
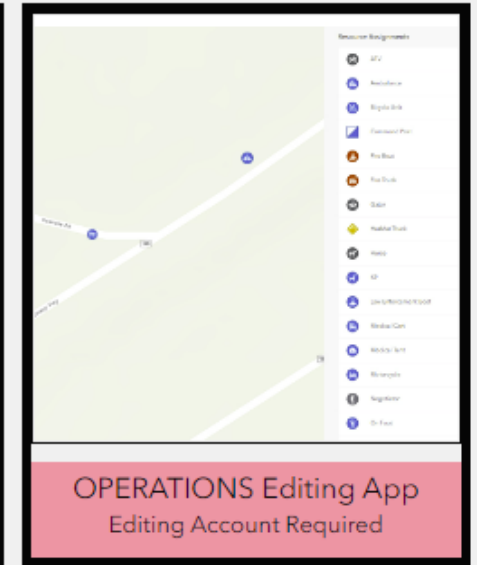
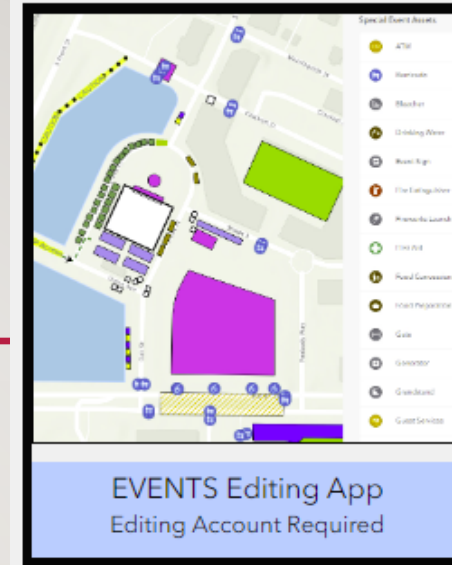
- An Operations Map for Police and Fire to plan their deployments
  - A Planning Map for the special events team to plan the layout including barricades, trash cans, bleachers, parade routes, etc...
  - A public facing Event Layout map
- 

# QUICK APPS

## Special Event Mapping

This Expression Builder app has links to the different components of the mapping set-up, and each team can click and edit the areas they are responsible for. Then the public map shows the details of the event without showing the planning information.

After the July 3<sup>rd</sup> Fireworks event when we had thousands of people exiting town at the same time which produced a traffic gridlock, I added the Live Traffic Feed map which includes the location of the traffic control boxes that PD can use to override the traffic lights.



# QUICK APPS

## Special Event Mapping

The editable maps allow the different departments to easily add all their assets.

Point of Contact	
Point of Contact Phone	
Resource Assignment Type	Police Vehicle
Comments	Staged vehicle
Unit ID	258
Radio Channel	
Event Identifier	July 3rd

- Ambulance
- Bicycle Unit
- Command Post
- Fire Boat
- Fire Truck
- Gator
- HazMat Truck
- Horse
- K9
- Law Enforcement Boat
- Medical Cart
- Medical Tent
- Motorcycle
- Negotiator
- On Foot
- Police Vehicle
- ATM
- Barricade
- Bleacher
- Drinking Water
- Event Sign
- Fire Extinguisher
- Fireworks Launch Site
- First Aid
- Food Concessions
- Food Preparation Equipment
- Gate
- Generator
- Grandstand
- Guest Services
- Handicap Access
- Heater - Cooler
- Information Kiosk
- Parking Restriction
- Pedestrian Route
- Staging Route
- Temporary Fencing
- Vehicular Egress Route
- Vehicular Ingress Route
- Dining Area
- Event Parking Area
- Event Perimeter
- Fireworks Fallout Area
- No Parking Area
- Pedestrian Traffic Only
- Sponsor Booth
- Staff Parking Area
- VIP Parking Area
- Volunteer Parking Area

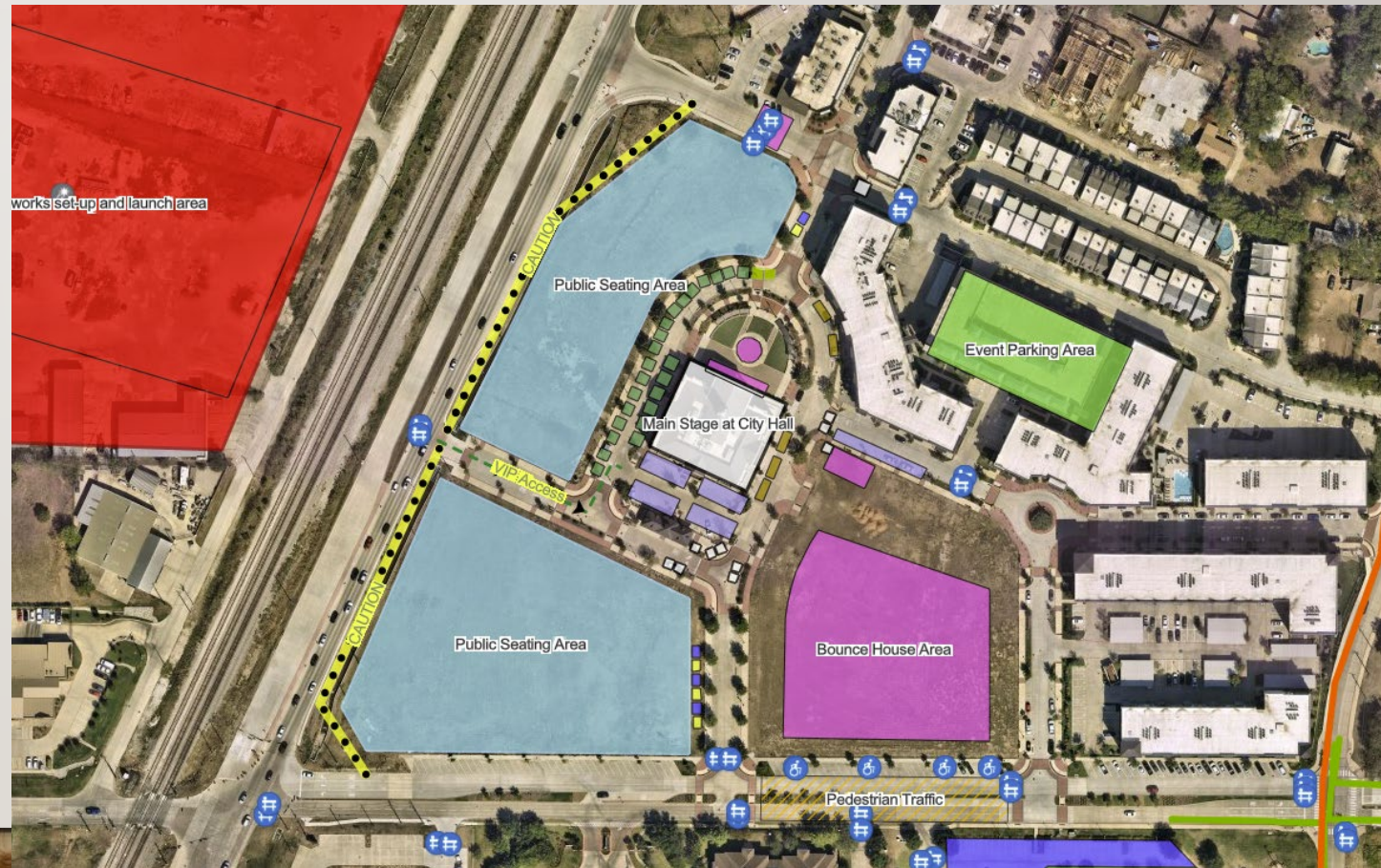
# QUICK APPS

## Special Event Mapping

The public map has the locations of parking, bounce houses, vendors, food trucks, games, stages, and other event related items.

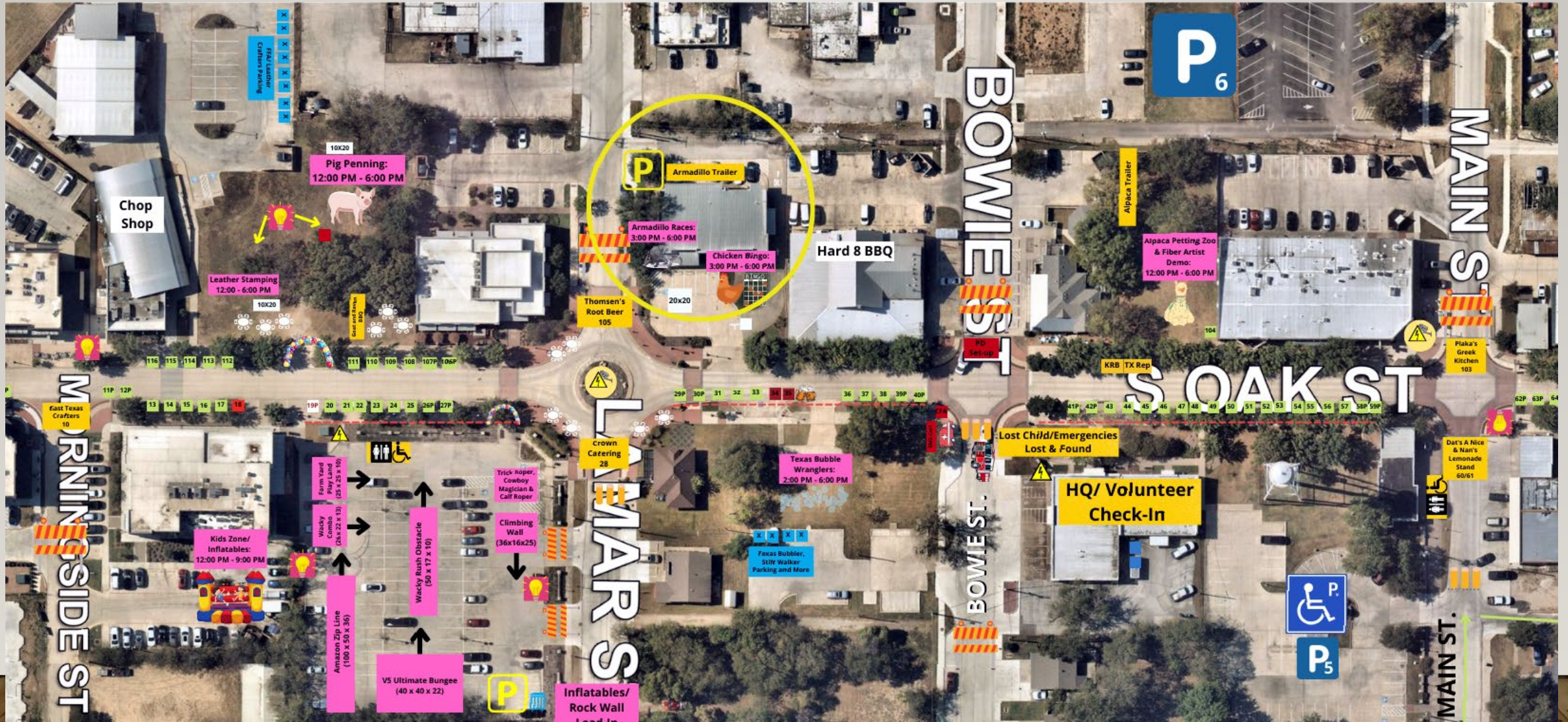
These are created for every event including:

- 3rd July Fireworks
- Veterans Day Parade
- Celebrate Roanoke
- Hometown Holidays
- ... whatever comes next ...





# QUICK APPS



# GIS IN PUBLIC WORKS

## GIS Utility Hub

I've done so much work for them that I made them their own hub.

Many of these are simple viewing maps, and a few are so that they can enter information from old paper reports into the new online databases.

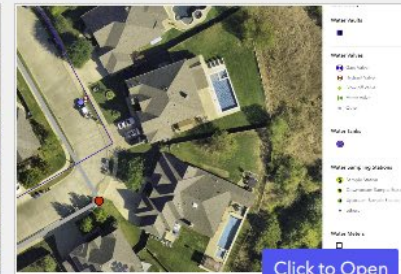
### Collection of Public Works Apps and Maps



[Click to Open](#)

#### Water Utility Public Map

This desktop app allows you view the water utility data.  
No account required - may be shared with the public.



[Click to Open](#)

#### Sewer Utility Public Map

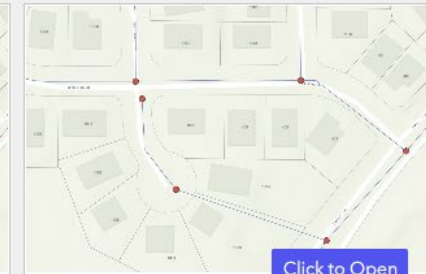
This desktop app allows you to view the wastewater utility data.  
No account required - may be shared with the public.



[Click to Open](#)

#### Utility System Public Map

This desktop app allows you to view the water and wastewater data in the same map.  
No account required - may be shared with the public.



[Click to Open](#)

#### Manhole Inspection Dashboard

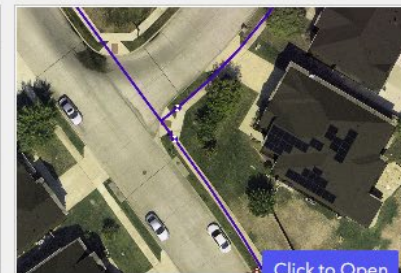
This dashboard displays the manhole inspection status.  
No account is required - may be shared with the public.



[Click to Open](#)

#### Utility Web Map

This desktop app allows you view the water, sewer, and storm utility data.  
Requires account and password.



[Click to Open](#)

#### Valve Data Updates

This desktop app allows you to select and update information about valves and fire hydrants.  
Requires account and password.



[Click to Open](#)


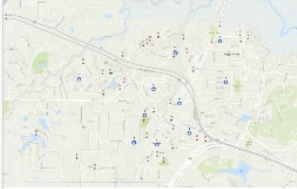






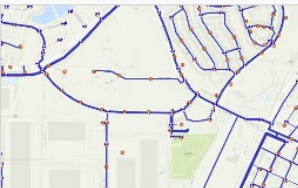

#### SS Manhole Updates

This desktop app allows you to select and update information about sanitary sewer manholes.  
Requires account and password.

# GIS IN PUBLIC WORKS

## Field Maps

The best stuff is happening in Field Maps.

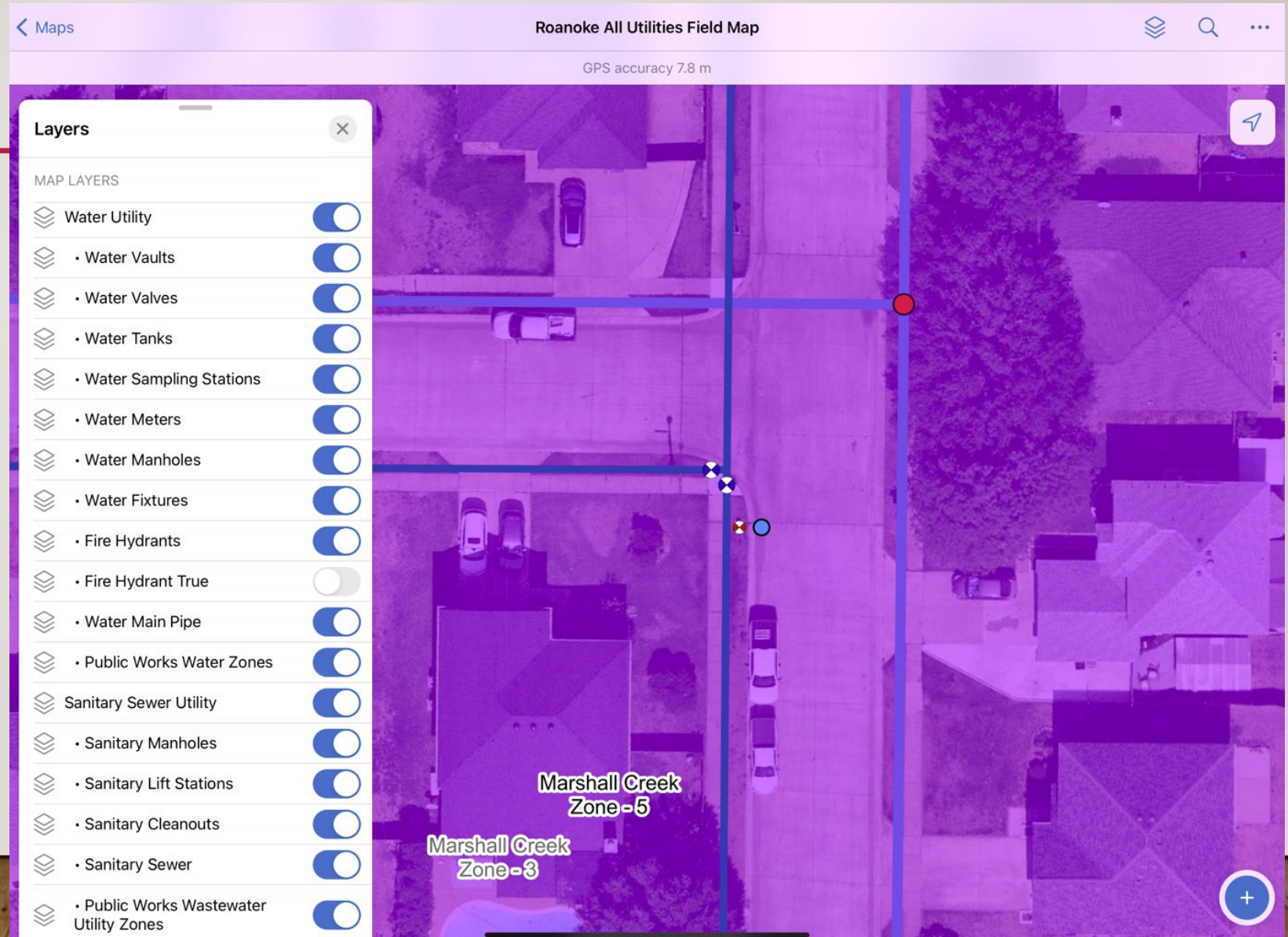
 <p>Traffic Control Boxes Map <input type="checkbox"/></p> <p>Modified Dec 4, 2023</p> <p><a href="#">🗺</a> <a href="#">📄</a> <a href="#">🗑</a></p>	 <p>Water Quality Sampling Program Map <input type="checkbox"/></p> <p>Modified Dec 3, 2023</p> <p><a href="#">🗺</a> <a href="#">📄</a> <a href="#">🗑</a></p>	 <p>Downtown Walking Tour Map <input type="checkbox"/></p> <p>Modified Nov 30, 2023</p> <p><a href="#">🗺</a> <a href="#">📄</a> <a href="#">🗑</a></p>	 <p>GPS Collection Water Field Map <input type="checkbox"/></p> <p>Modified Nov 29, 2023</p> <p><a href="#">🗺</a> <a href="#">📄</a> <a href="#">🗑</a></p>
 <p>Sewer Utility Field Map <input type="checkbox"/></p> <p>Modified Nov 27, 2023</p> <p><a href="#">🗺</a> <a href="#">📄</a> <a href="#">🗑</a></p>	 <p>Water Utility Field Map <input type="checkbox"/></p> <p>Modified Nov 27, 2023</p> <p><a href="#">🗺</a> <a href="#">📄</a> <a href="#">🗑</a></p>	 <p>Roanoke All Utilities Field Map <input type="checkbox"/></p> <p>Modified Nov 15, 2023</p> <p><a href="#">🗺</a> <a href="#">📄</a> <a href="#">🗑</a></p>	 <p>Manhole Inspection Dashboard Map <input type="checkbox"/></p> <p>Modified Nov 14, 2023</p> <p><a href="#">🗺</a> <a href="#">📄</a> <a href="#">🗑</a></p>
 <p>Feature Set Forms Test <input type="checkbox"/></p>	 <p>Irrigation System Field Map <input type="checkbox"/></p>		

# GIS IN PUBLIC WORKS

## Field Maps

The water and sewer crews each have a Field Maps app through which they can locate and/or update the data.

Field observations override all other data, especially in a city this old!

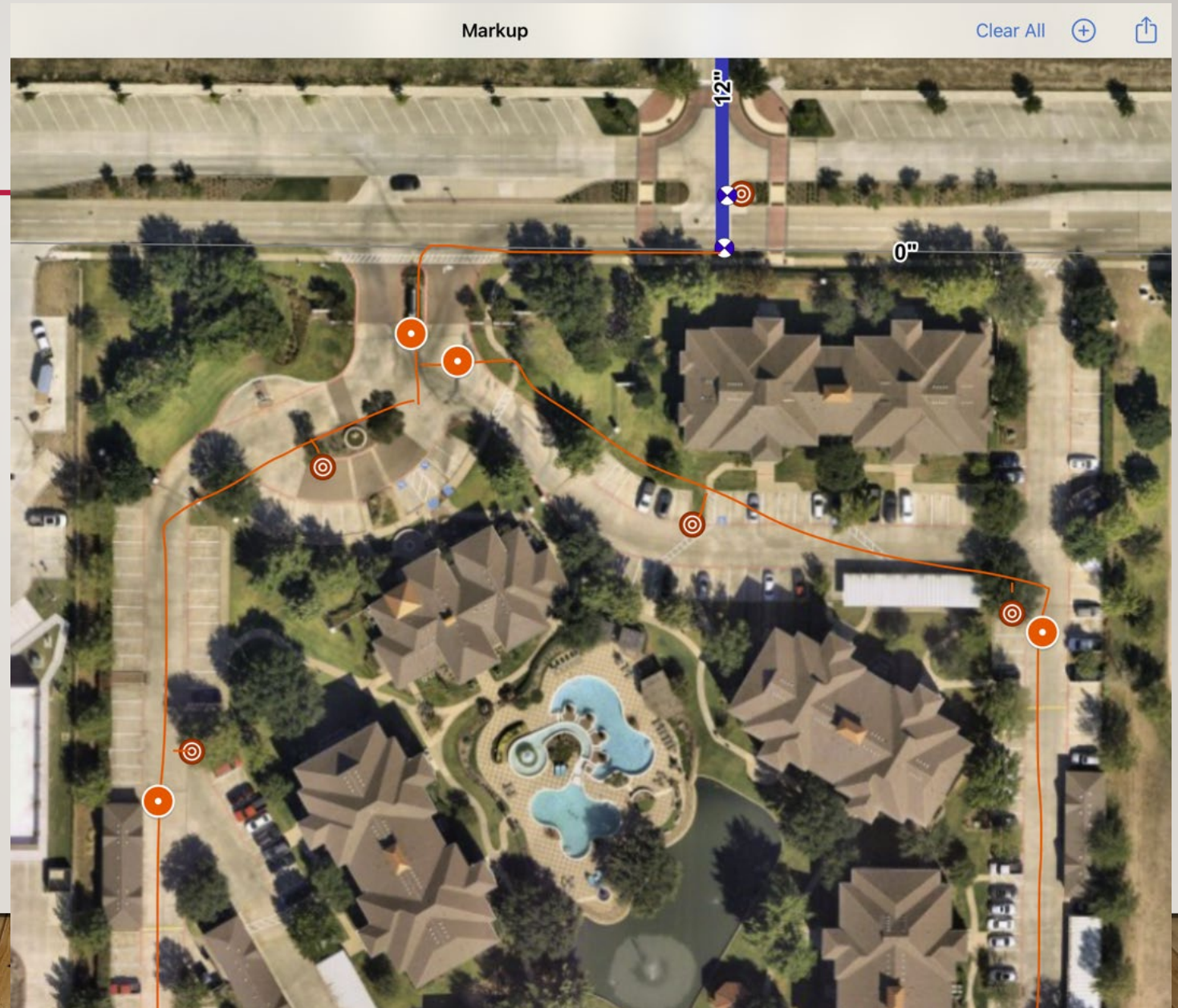


# GIS IN PUBLIC WORKS

## Field Maps

Field Maps has a Markup Layer that can be drawn in the field and comes straight to my desk.

When the field crews mark up the map I try to get the updates turned around within a day so they will have confidence in the accuracy of the maps.

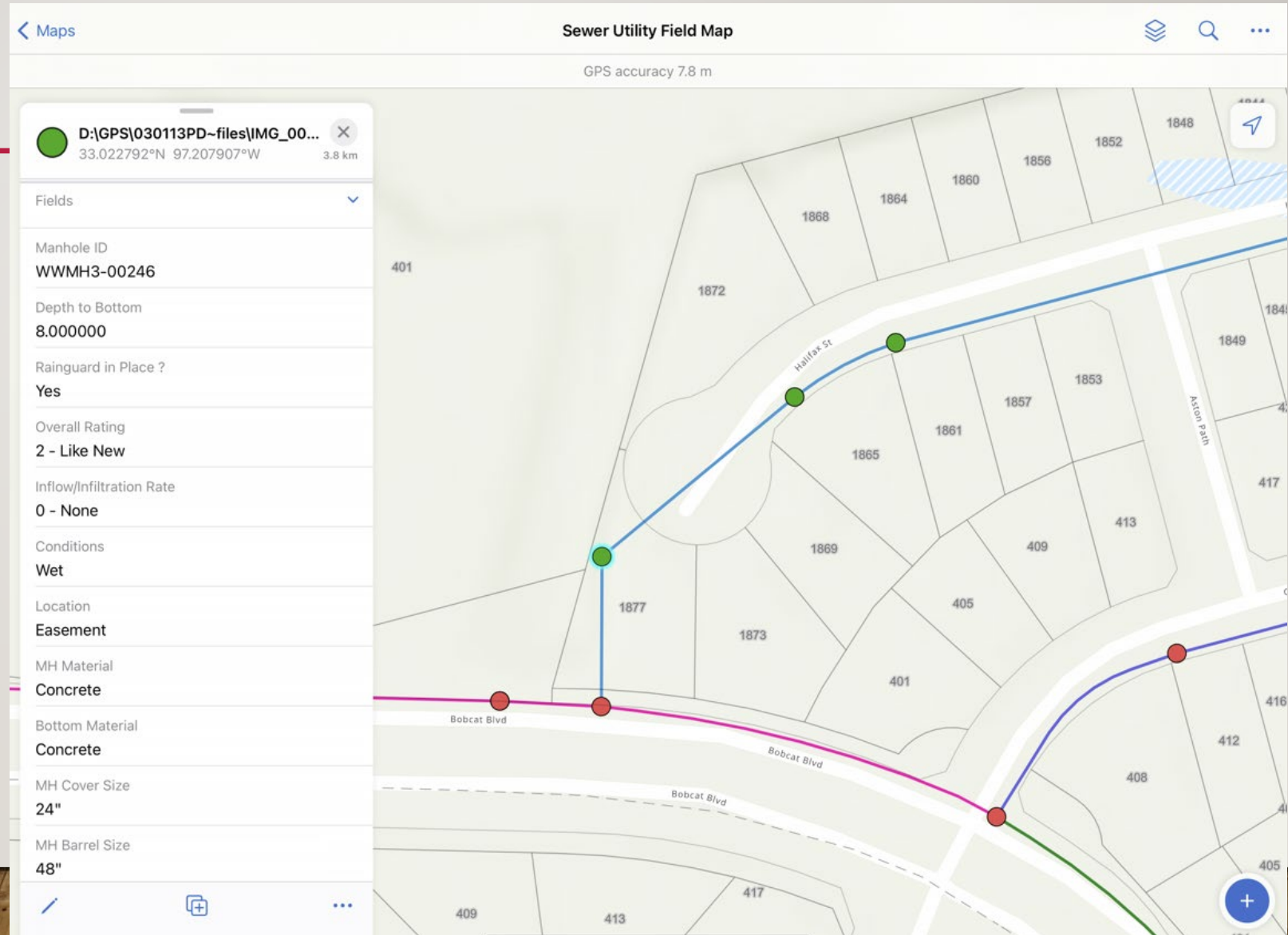


# GIS IN PUBLIC WORKS

## Field Maps

Field crews can also update the attribute data.

In this example a sewer manhole is selected and all the inspection data can be entered.

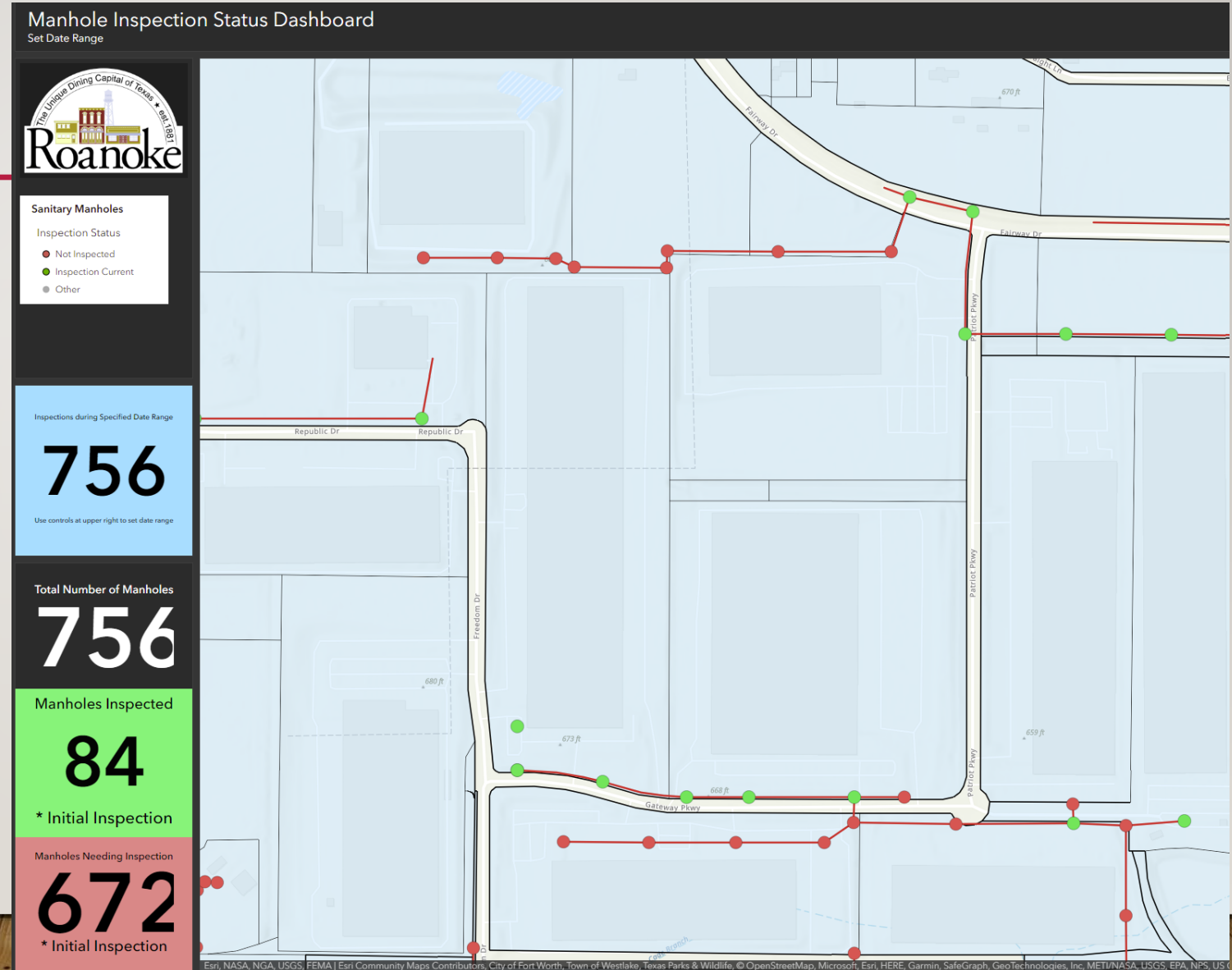


# GIS IN PUBLIC WORKS

## Field Maps

This dashboard displays the status of the manhole inspection program.

An Arcade expression is used to color the symbols according to how long it's been since a manhole was inspected.

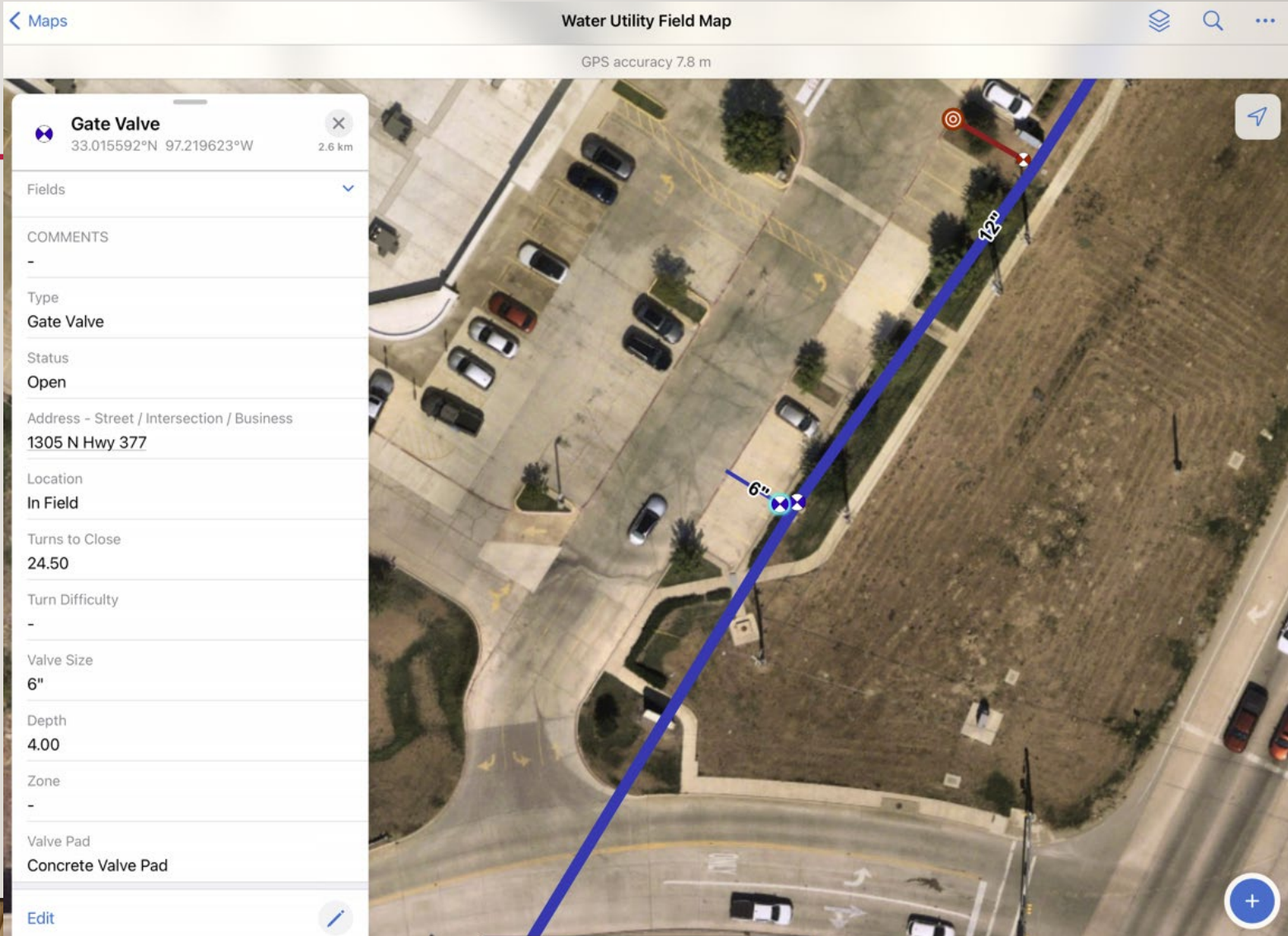


# GIS IN PUBLIC WORKS

## Field Maps

A similar project exists to track the water valve exercising program.

Each valve has its depth and turns-to-close, then the date is captured and any needed maintenance is reported. Then the valves are color coded according to how long its been since they were exercised.





# GIS IN PUBLIC WORKS

## Field Maps

I made a special Field Maps just for GPS data collection.

The iPad used here will Bluetooth connect to the GPS unit and dial the accuracy to within 10 cm. The data entry uses the forms I set up in Field Maps Designer and goes straight into the existing water layers.

Cancel Collect Submit

GPS accuracy 10.4 cm

**ValvesTemplate**  
32.995782°N 97.230050°W

Start Averaging

Type \*

- Gate Valve ✓
- Hydrant Valve
- Blow-off Valve
- Meter Valve

Valve Pad

- No value
- Concrete Valve Pad
- No Pad
- Set in Paving / Street ✓
- Set in Paving / Sidewalk or Driveway

Address - Street / Intersection / Business

Provider	DA2, 6327100309: Trimble
Profile	Catalyst
UPDATED JUST NOW	
Altitude	199.3 m
Horizontal Accuracy (RMS)	10.1 cm
Vertical Accuracy (RMS)	10.9 cm
Fix Type	RTK Fixed
Correction Age	6 sec
Satellites (Used/Visible)	21/41

# GIS IN PUBLIC WORKS

## Field Maps

I even added an Arcade expression that can get the address, water line size, and water pressure zone from other datasets and populate the appropriate fields in the form.

This script finds the water lines by portal ID, intersects the line located at the GPS point, and pulls out the line size.

Address - Street / Intersection / Business

121 Morningside Dr

Comments

Maintenance Request

Describe any maintenance that needs to be ordered for this location.

Valve Size

8

Zone

2 - Old Town Roanoke

Run

```
1 // Define a Featureset (pipes) from the layer "Water_Main_Pipe" NOT in this map
2 // that contains the attribute ['D'] representing the pipe size
3
4 var pipes = FeatureSetByPortalItem(Portal('https://roanoketexas.maps.arcgis.com/'),
5 '8b408a0f24774ea9bad6c5d860ea48e8',54,['D'])
6
7 // Define a variable (size) to store the value we want
8 // Get the value by Intersecting the point location
9 // with the FeatureSet "Water_Main_Pipe", or pipesize
10
11 var size = First(Intersects($feature, pipes))
12
13 // If the current location intersects a pressure zone,
14 // return the value in the field ['D'].
15 // Otherwise, return a null value for areas where there is no intersecting polygon
16
17 if (!IsEmpty(size)) {
18 | | return size['D']
19 } else {
20 | | return ""
21 }
```

# GIS IN PUBLIC WORKS

## Water Sampling

We just implemented a new digital collection app for water quality sampling and dead end main flushing. These have to be done on a frequent basis and water quality reports turned in to TCEQ.

Previously these were written into a paper form then entered into a spreadsheet. Now the collections are done through a Web AppBuilder app and each new report is stored in a related table.

(1 of 2)

Water Quality Sampling Program - Water Sample Collection Sites

Site ID	11
Site Description	Quick-connect sample site
Address	1027 U Myers Park Trl
Site Number	11

Attachments:

-----

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This screenshot shows a GIS application window titled '(1 of 2)' with a sub-header 'Water Quality Sampling Program - Water Sample Collection Sites'. It displays a form with four input fields: 'Site ID' (11), 'Site Description' (Quick-connect sample site), 'Address' (1027 U Myers Park Trl), and 'Site Number' (11). Below the form is an 'Attachments' section with a horizontal line and two dashes.

(1 of 2)

Water Sampling Station Readings

Related records:

2023-10-26	
2023-11-02	
2023-11-09	
2023-11-16	
2023-11-22	

This screenshot shows a GIS application window titled '(1 of 2)' with a sub-header 'Water Sampling Station Readings'. It displays a list of 'Related records' with a dropdown arrow. The list contains five entries, each with a date and a pencil icon for editing: 2023-10-26, 2023-11-02, 2023-11-09, 2023-11-16, and 2023-11-22.

Water Quality Sampling Program - Water Sample Collection Sites

Water Sampling Station Readings:

Temperature	
pH Level	
Total Chlorine (as -N)	
Mono-chloramine (as -N)	
Free Ammonia (as -N)	
Nitrite (as -N)	

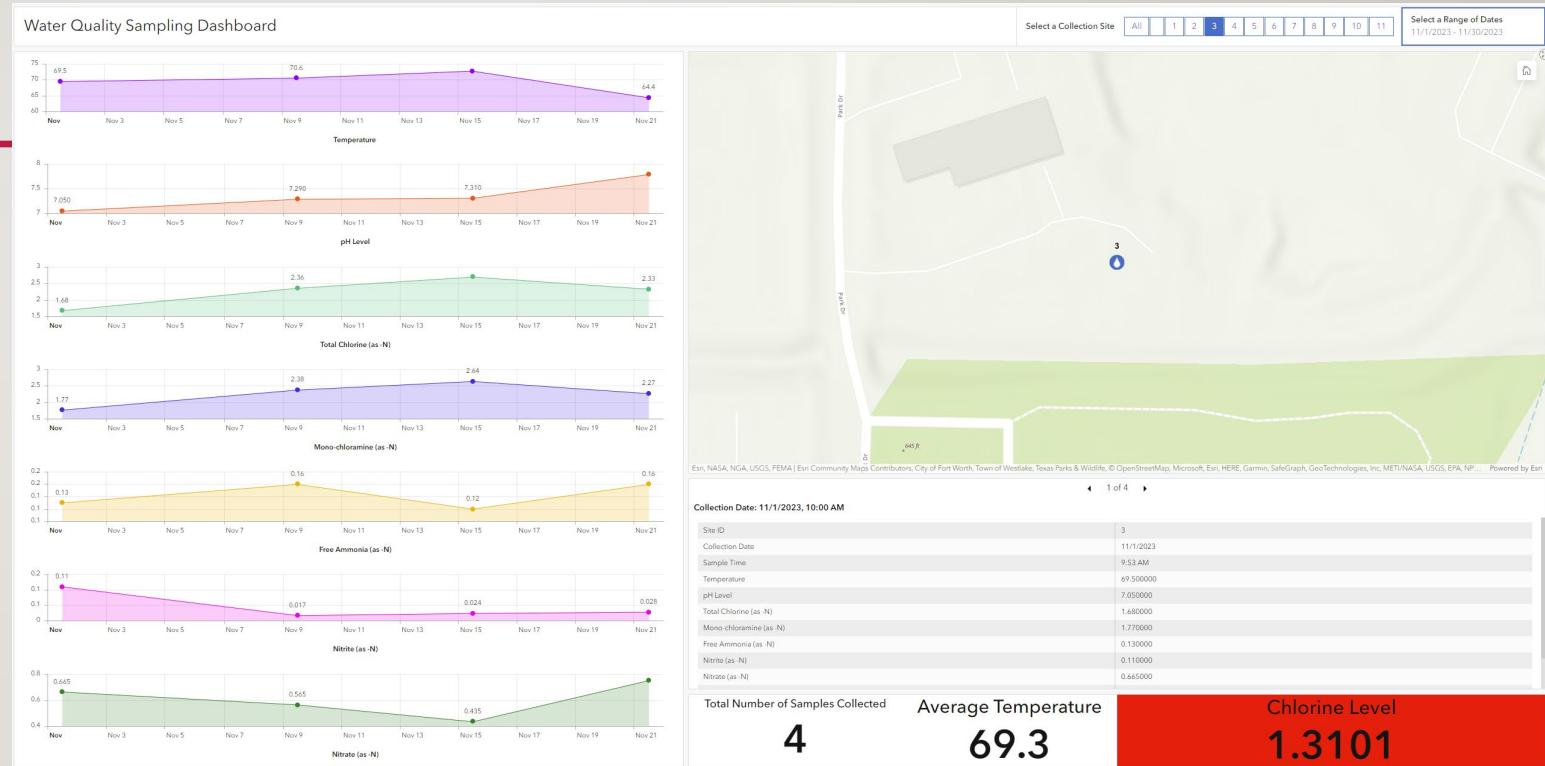
This screenshot shows a GIS application window titled 'Water Quality Sampling Program - Water Sample Collection Sites' with a sub-header 'Water Sampling Station Readings:'. It displays a form with six input fields for water quality parameters: Temperature, pH Level, Total Chlorine (as -N), Mono-chloramine (as -N), Free Ammonia (as -N), and Nitrite (as -N).

# GIS IN PUBLIC WORKS

## Water Sampling

The water quality dashboard shows the sample readings as soon as they are collected in the field.

This dashboard shows the overall status. Note the indicator in the lower right that has turned red showing that the chlorine level is low.



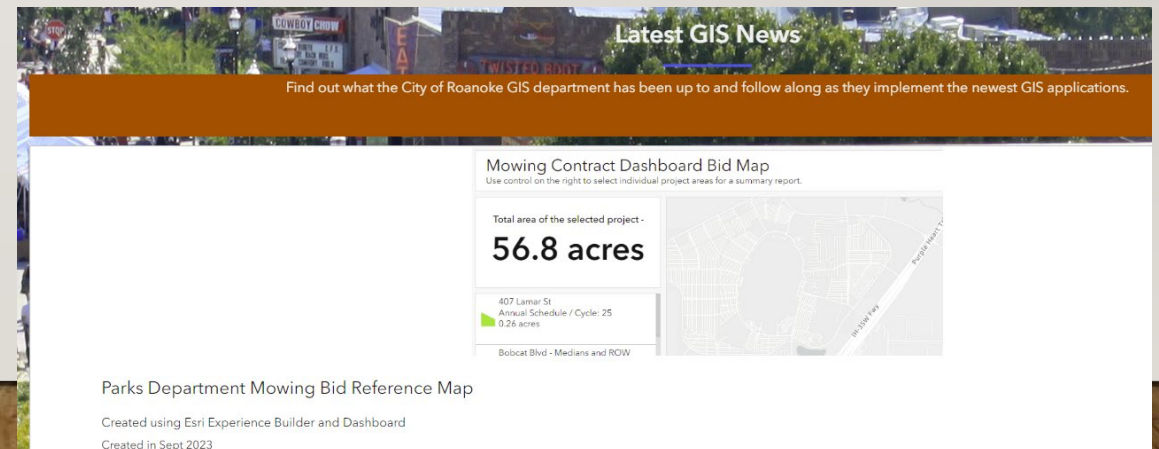
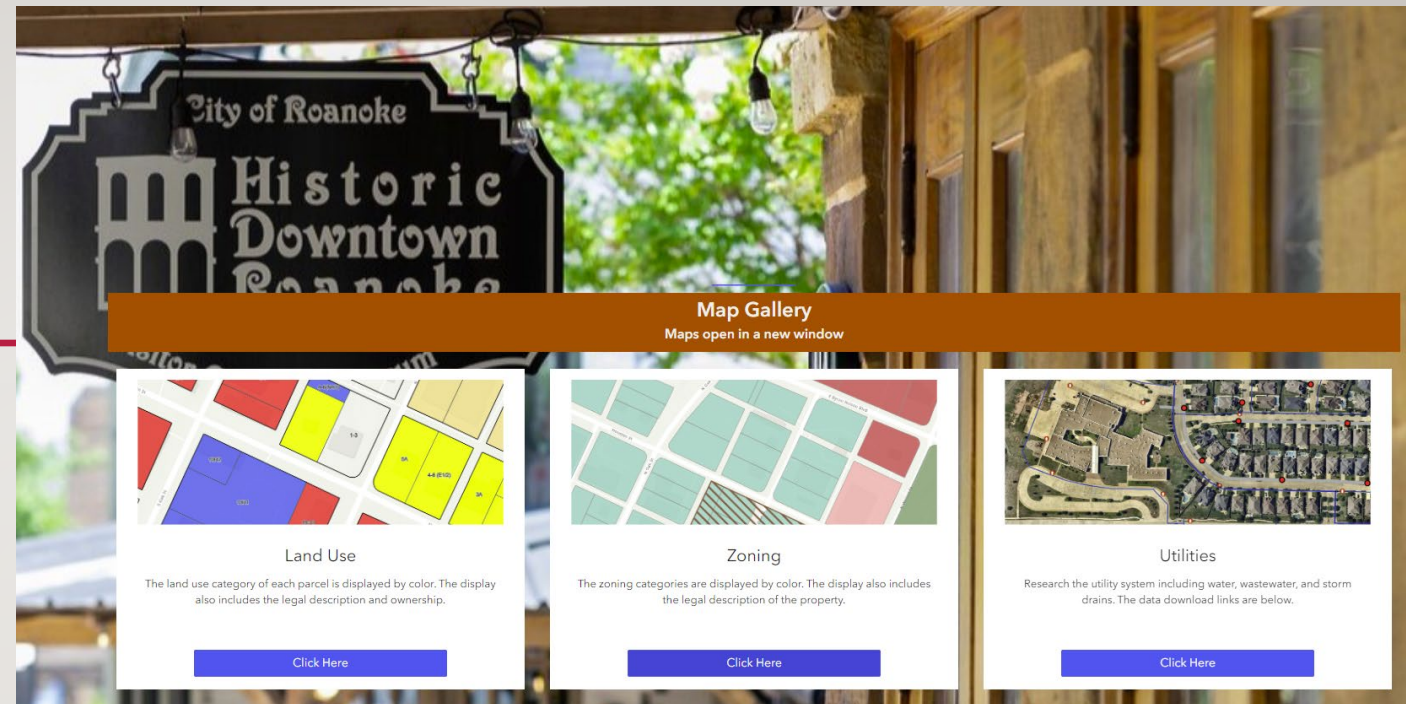
# GEOHUB

## Roanoke GeoHub

<https://tinyurl.com/RoanokeGeoHub>

All of our public facing GIS maps and data downloads are available at the Roanoke GeoHub.

At the bottom I frequently do write-ups on the newest projects with info on how to accomplish these at your shop.



# THANK YOU!!

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- Any Questions?

You can always contact me at

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