



City of Grand Junction and infraMAP® Software Mobile Field Application

City Of Grand Junction
Grand Junction Colorado
Scott List

infraMAP Software
Adam Hagee
Colin Kennedy

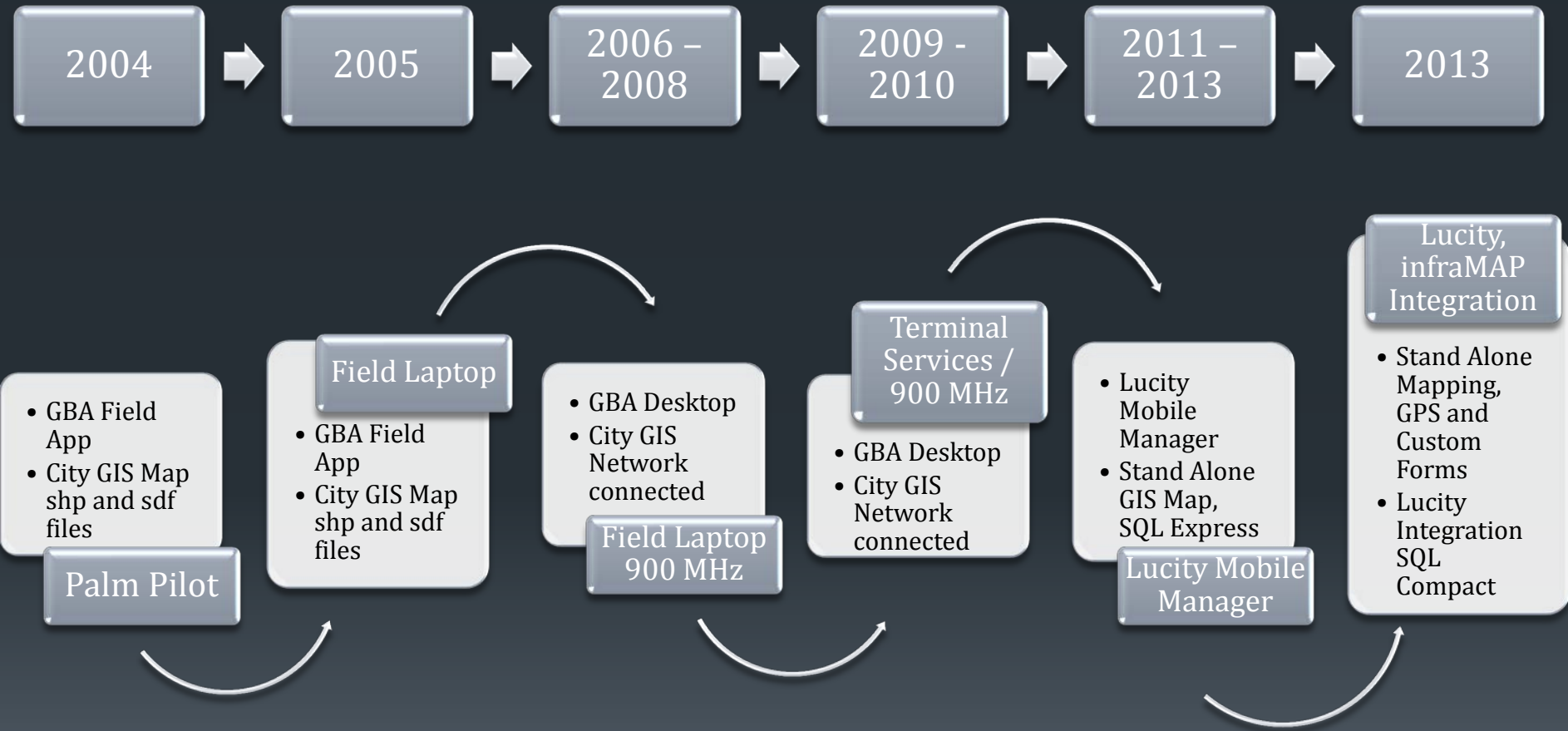
Grand Junction Background

2

- The City covers 39 Sq. Miles, Population of 60,298, with 212 miles of waterlines, 563 miles of sewer lines and 22,157 traffic signs.
- The Colorado National Monument, a series of canyons and mesas, overlooks the city on the west and east ends of the valley.
- The City uses multiple Lucity Modules including: Sewer, Storm, Transportation, Water, Trees / Parks, Equipment, Facilities, Work, and their Mobile module.

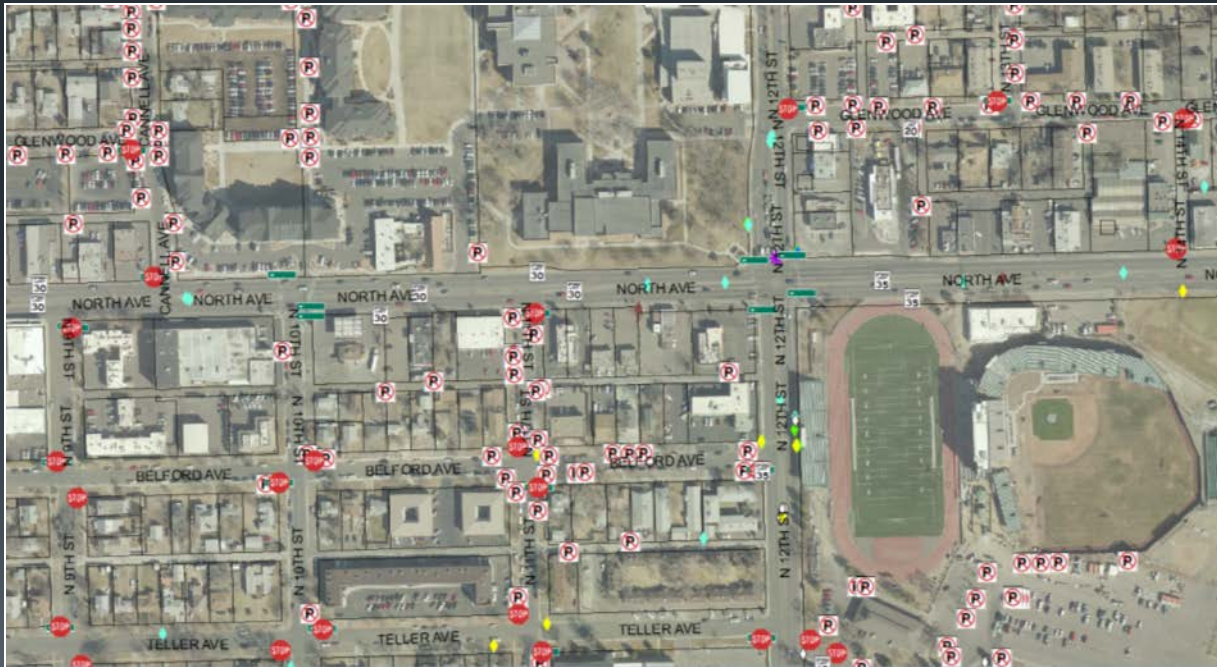


Mobile Application Time Line



How we chose iWater/infraMAP®

- Needed a True Stand Alone Mobile Application
- Had to Completely Integrate with Lucity
- Had to be Simple to Use
- Full GIS Integration with City's GIS



Where We Are Now?

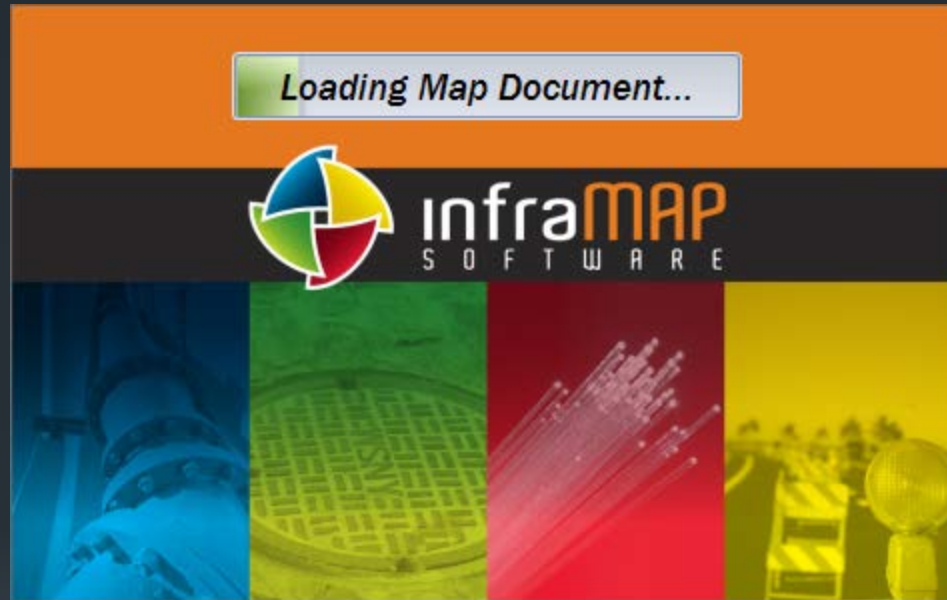
- Sewer, Water, Traffic, Utilities, Parks and Forestry use infraMAP each in it's own way. From Inspections to Work Orders to adding new assets into Lucity.
- infraMAP provides the ability to create individual forms for inspections and work orders in a simple easy to use form.
- Ongoing map corrections via redline process in infraMAP.
 - Redline feature provides direct and automatic communications to GIS or engineering to correct differences between mapped and real world facilities
 - GPS allowing crews to complete 25 locates in less than two hours. What use to of taken them a day and half.

Road Map Ahead

- Provide digital links to as-built records and pertinent photos
- Implement a Geometric Network to take advantage of infraMAP Tracing tool.
- Expand the application to other Departments and Divisions.
- Using Lucity REST API's allows us to greatly expand our mobile work force.



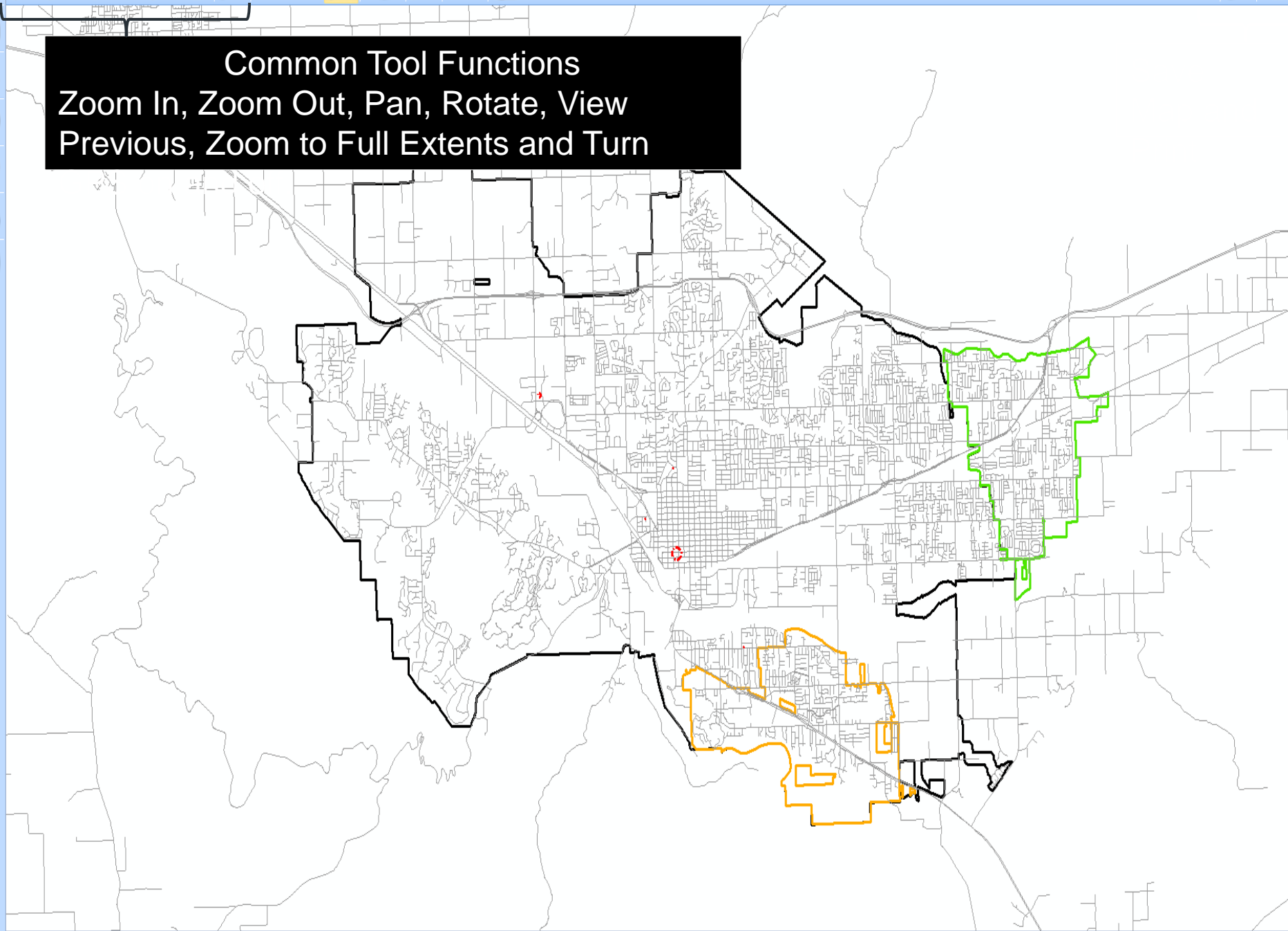
Grand Junction InfraMAP Demo



Loading the infraMAP application



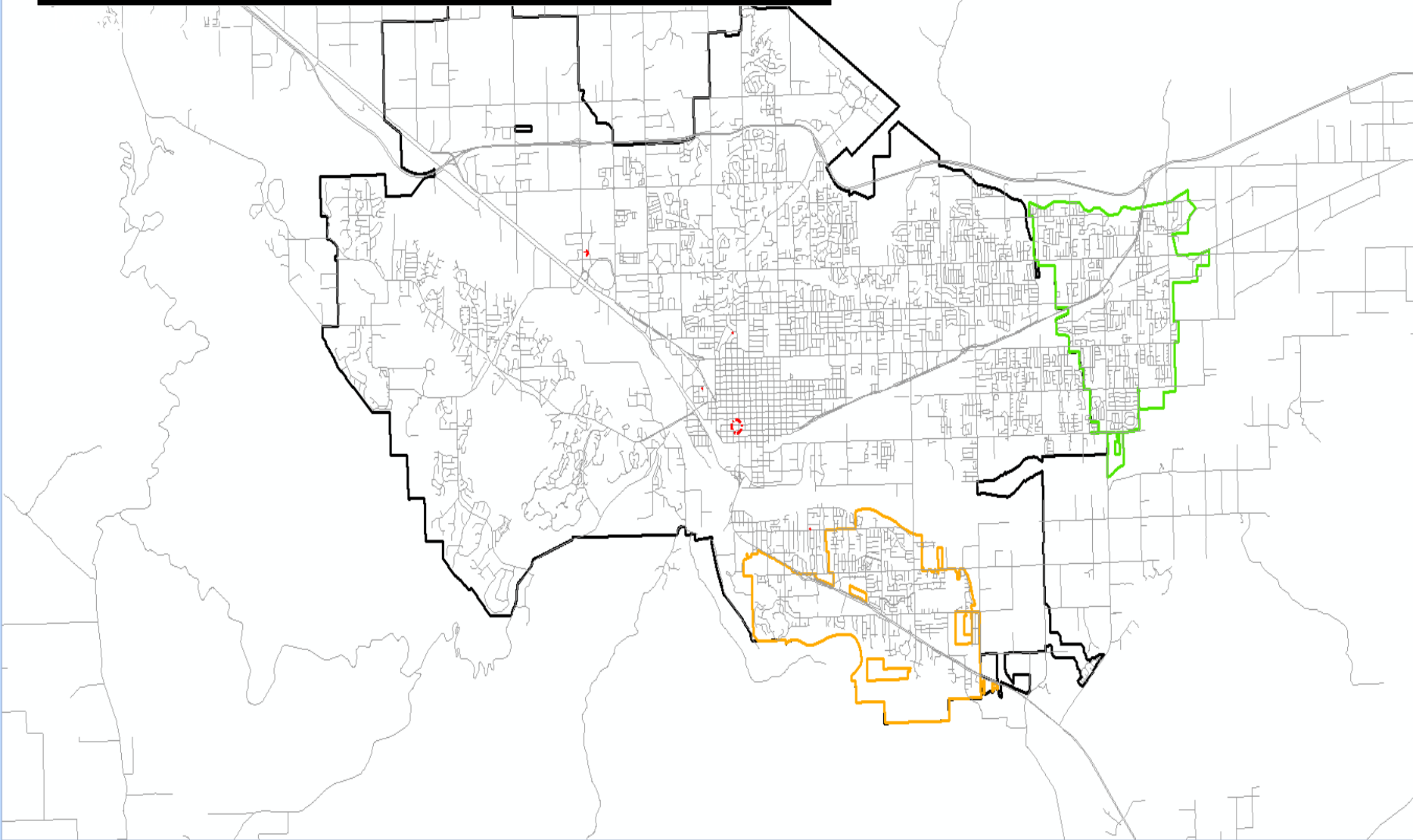
Common Tool Functions
Zoom In, Zoom Out, Pan, Rotate, View
Previous, Zoom to Full Extents and Turn

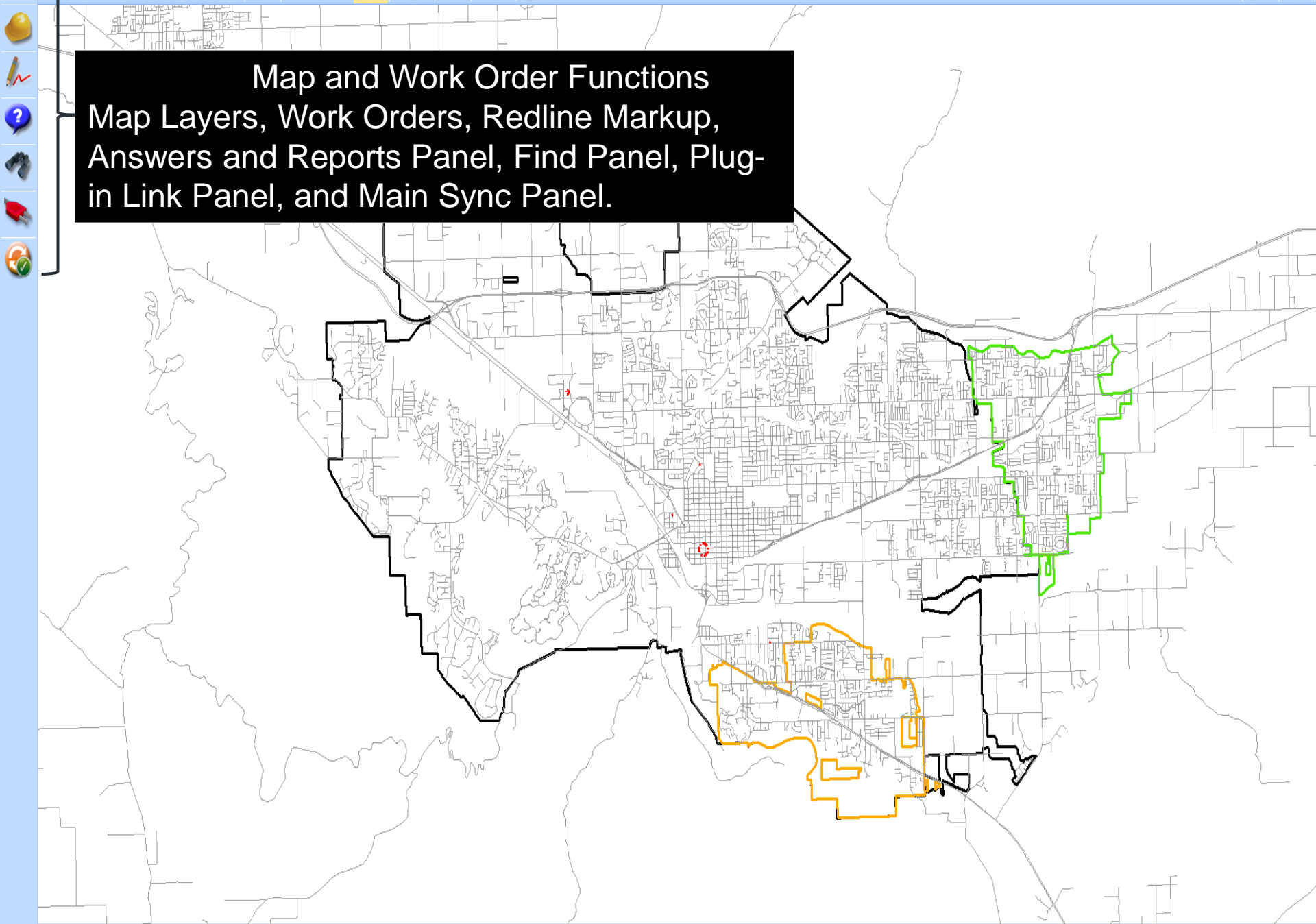




FieldNotes

Additional Tool Functions
Select and Open Forms, Add New Feature,
Identify Feature, Measure and View Linked





Map and Work Order Functions
Map Layers, Work Orders, Redline Markup,
Answers and Reports Panel, Find Panel, Plug-
in Link Panel, and Main Sync Panel.



Redlines and Notes



The redline tool allows field crews to mark up maps to add new lines, corrections or what needs to be deleted. Save the Markups and then send them directly to GIS or Engineering for evaluation or correction upon syncing. Once the mark up has been completed by staff, the mark up is automatically removed from the users PC and the changes applied.

Redline Type

Sewer

Redline Description

Add New Manhole And New Line To The North On 19Th St New Lineadd Manhole

Copy from Redline Text Tool

Save

Cancel

My Redline Notes

Everyone's Notes

Answers and Reports

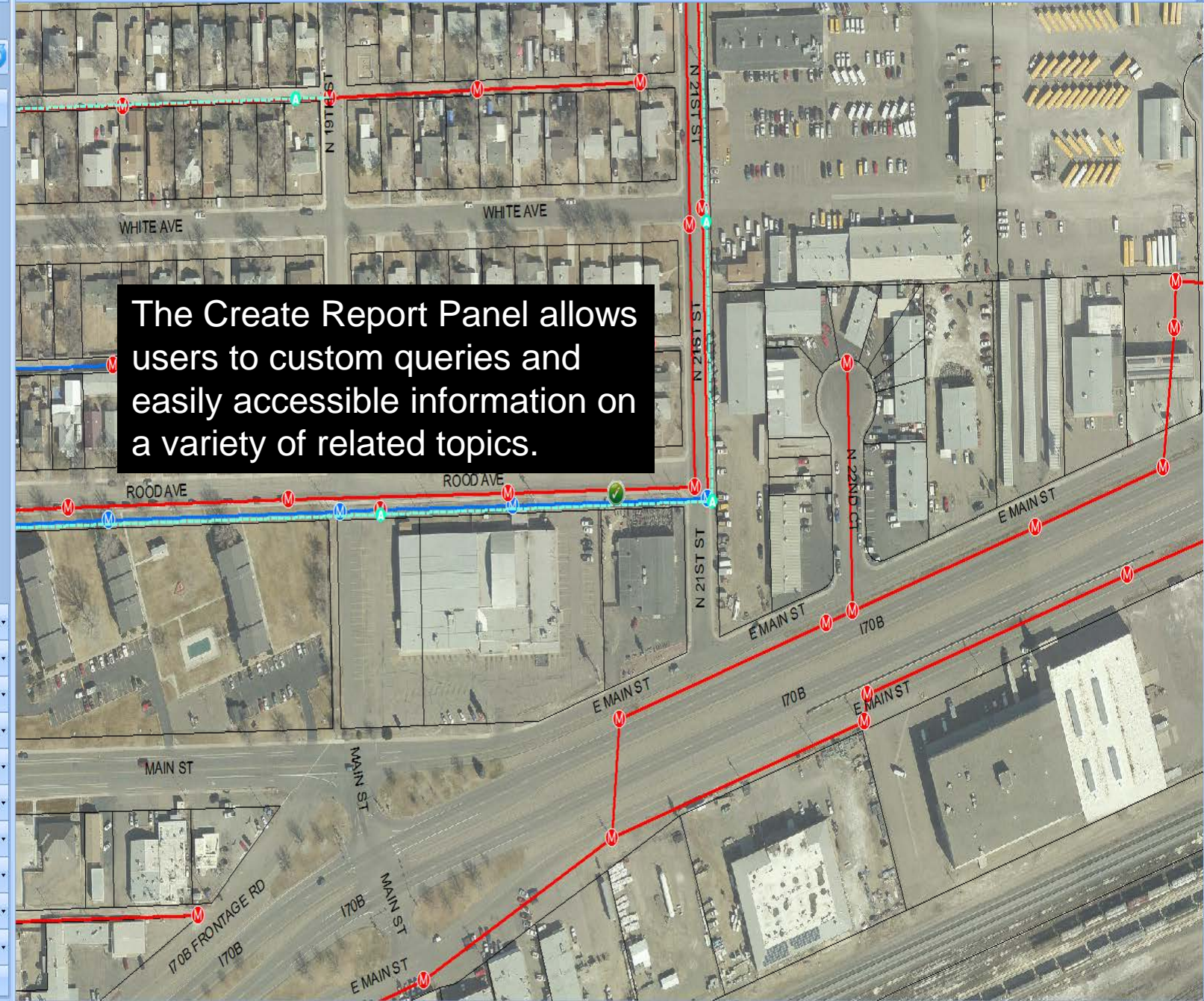
Show Current View Counts

Water Operations

Create Report

Navigation icons: Zoom In, Zoom Out, Home, Previous View, Next View, Full Screen, Print, Copy, Paste, Undo, Redo, Refresh, Help.

Layers: Sewer Pipe



The Create Report Panel allows users to custom queries and easily accessible information on a variety of related topics.

- (3,754) Water Valves
- (1,281) Fire Hydrants
- (0) Water Main Breaks
- (351,869) Total Feet of Wat...
- Custom Search
- (1,677,438) Ute Water Lines
- (3,932) Ute Water Fire Hydr...
- (1,053) Clifton Water Lines
- (776) Clifton Fire Hydrants
- Custom Search

Find Locations

Address #

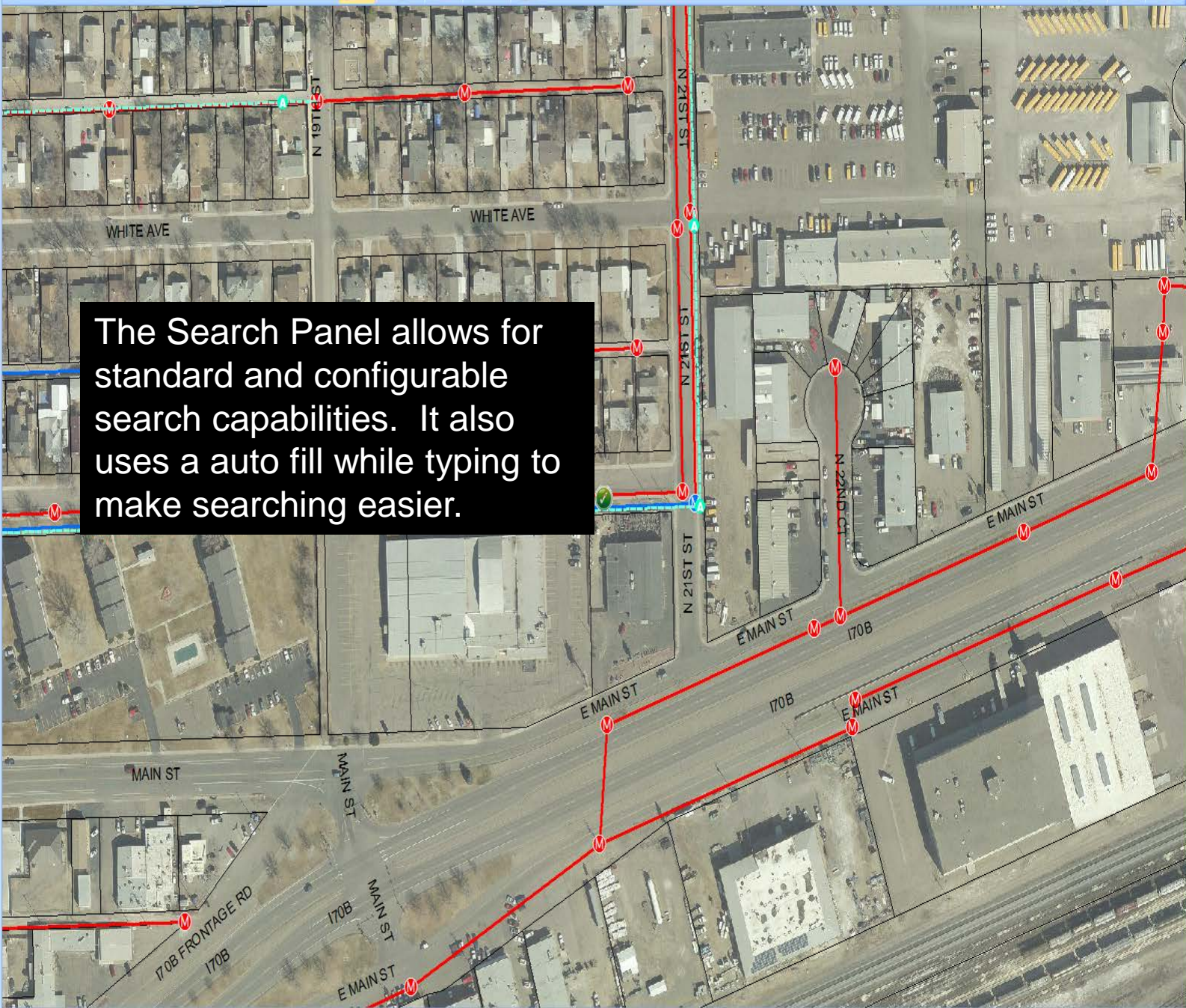
Street Name

Search

Clear Add to

- Locate Address
- Locate Intersection
- Water Valve
- Hydrant ID
- Sewer Pipe Manhole
- Old Sign Number
- Custom6
- Custom7
- Custom8
- Custom9
- Custom10

Sewer Pipe

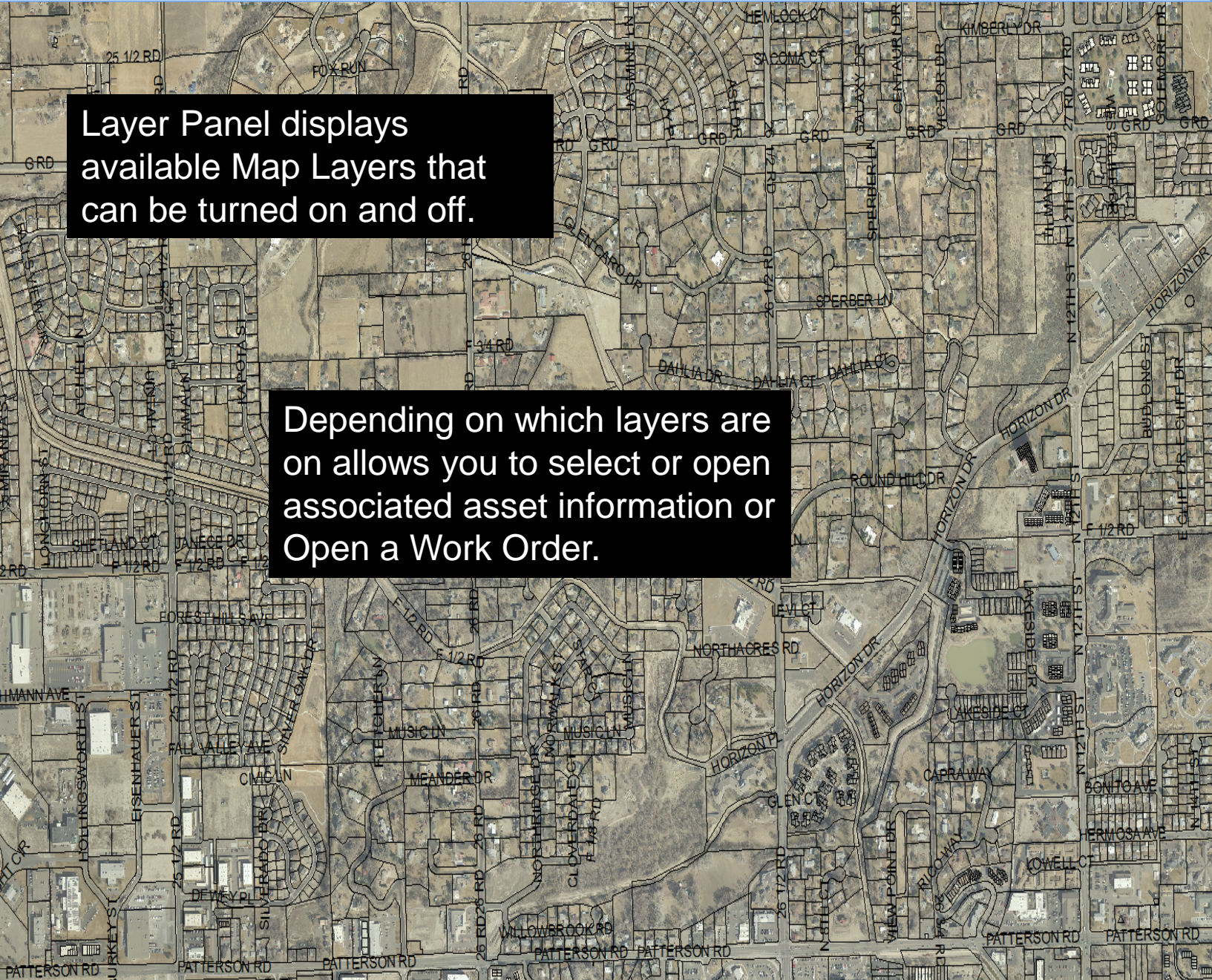


The Search Panel allows for standard and configurable search capabilities. It also uses a auto fill while typing to make searching easier.

Map Layers



- Layers
- FieldNotes
- Water
 - FireHydrants
 - WaterValve
 - Water Main Breaks
 - Water Pipe
 - Water Vault
 - Abandoned Pipe
 - Pipe Not Verified
 - City Water Meters
 - City Water by Date
 - City Water by Material
 - Clifton Water
 - Ute Water
- Sanitary Sewer
 - Sewer Problems
 - Abandoned Sewer
 - Sanitary Structures
 - Sanitary Structures Not Verified
 - Sewer Pipe
 - Sewer Pipes Not Verified
 - Sewer Pump Station
- Storm Water
 - Detention Basins
 - Detention Basins Not Verified
 - Storm Structures
 - Storm Structures Not Verified
 - Storm Conduits
 - Storm Conduits Not Verified
- Street Signs
 - Street Signs ALL
 - Speed Limit
 - Stop
 - Street Name
 - School
 - Parking
 - Bike
 - Delineators
 - Other
- Park and Trees
 - Park Structure
 - Tree
 - Park Equipment
 - Parks
- Weed Abatement
- Fiber
- Gas_Electric
- Background Data
- Street Centerline
- Sanitation Districts



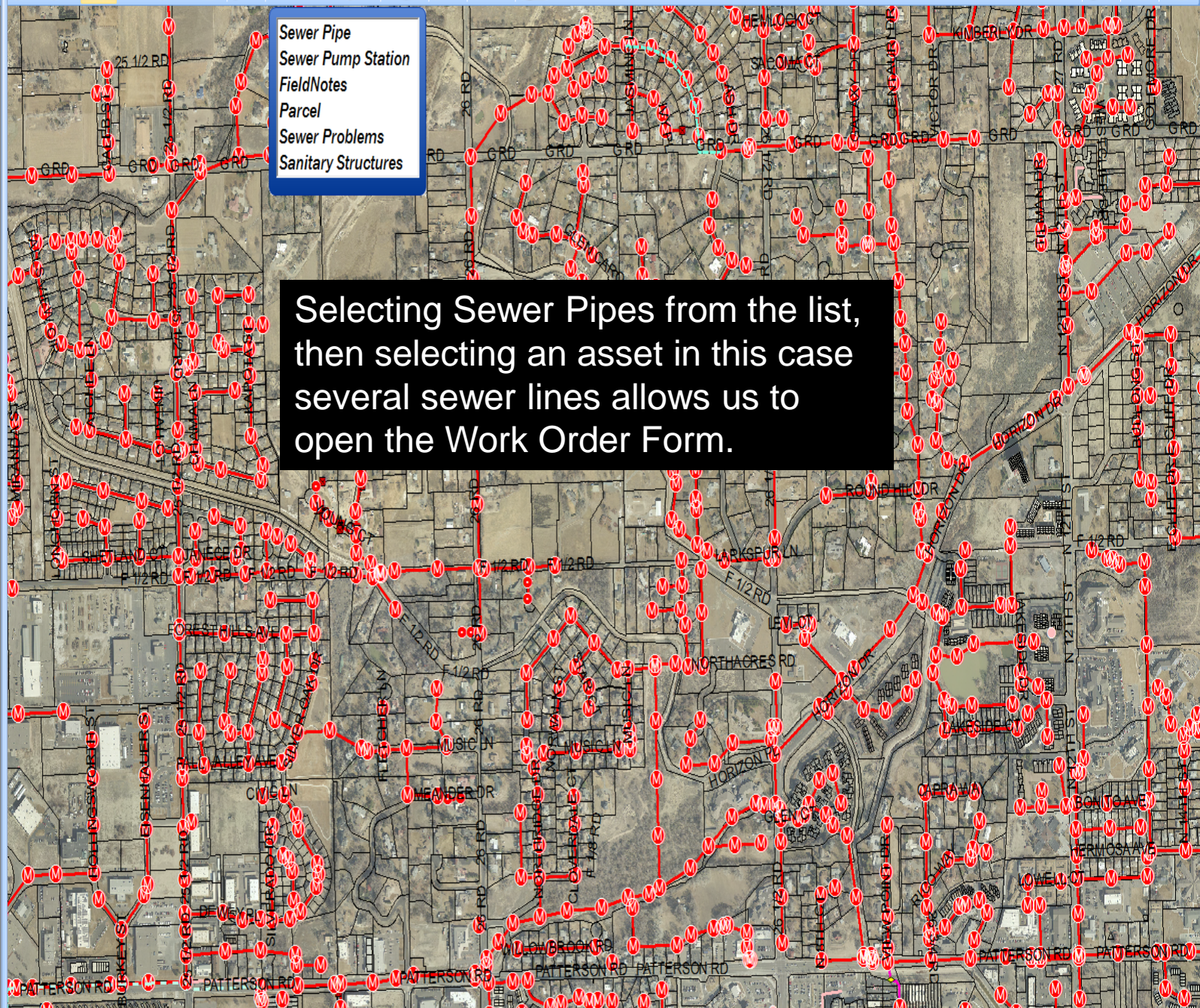
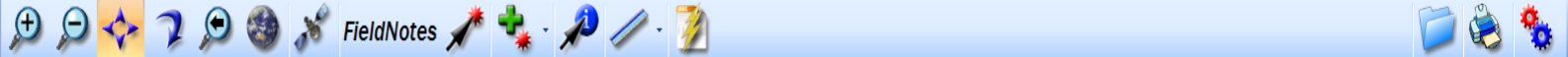
Layer Panel displays available Map Layers that can be turned on and off.

Depending on which layers are on allows you to select or open associated asset information or Open a Work Order.



Map Layers

- Layers
- FieldNotes
- Water
 - Fire-Hydrants
 - WaterValve
 - Water Main Breaks
 - Water Pipe
 - Water Vault
 - Abandoned Pipe
 - Pipe Not Verified
 - City Water Meters
 - City Water by Date
 - City Water by Material
 - Clifton Water
 - Ute Water
- Sanitary Sewer
 - Sewer Problems
 - Abandoned Sewer
 - Sanitary Structures
 - Sanitary Structures Not Verified
 - Sewer Pipe
 - Sewer Pipes Not Verified
 - Sewer Pump Station
- Storm Water
 - Detention Basins
 - Detention Basins Not Verified
 - Storm Structures
 - Storm Structures Not Verified
 - Storm Conduits
 - Storm Conduits Not Verified
- Street Signs
 - Street Signs ALL
 - Speed Limit
 - Stop
 - Street Name
 - School
 - Parking
 - Bike
 - Delineators
 - Other
- Park and Trees
 - Park Structure
 - Tree
 - Park Equipment
 - Parks
- Weed Abatement
- Fiber
- Gas_Electric
- Background Data
- Street Centerline
- Sanitation Districts



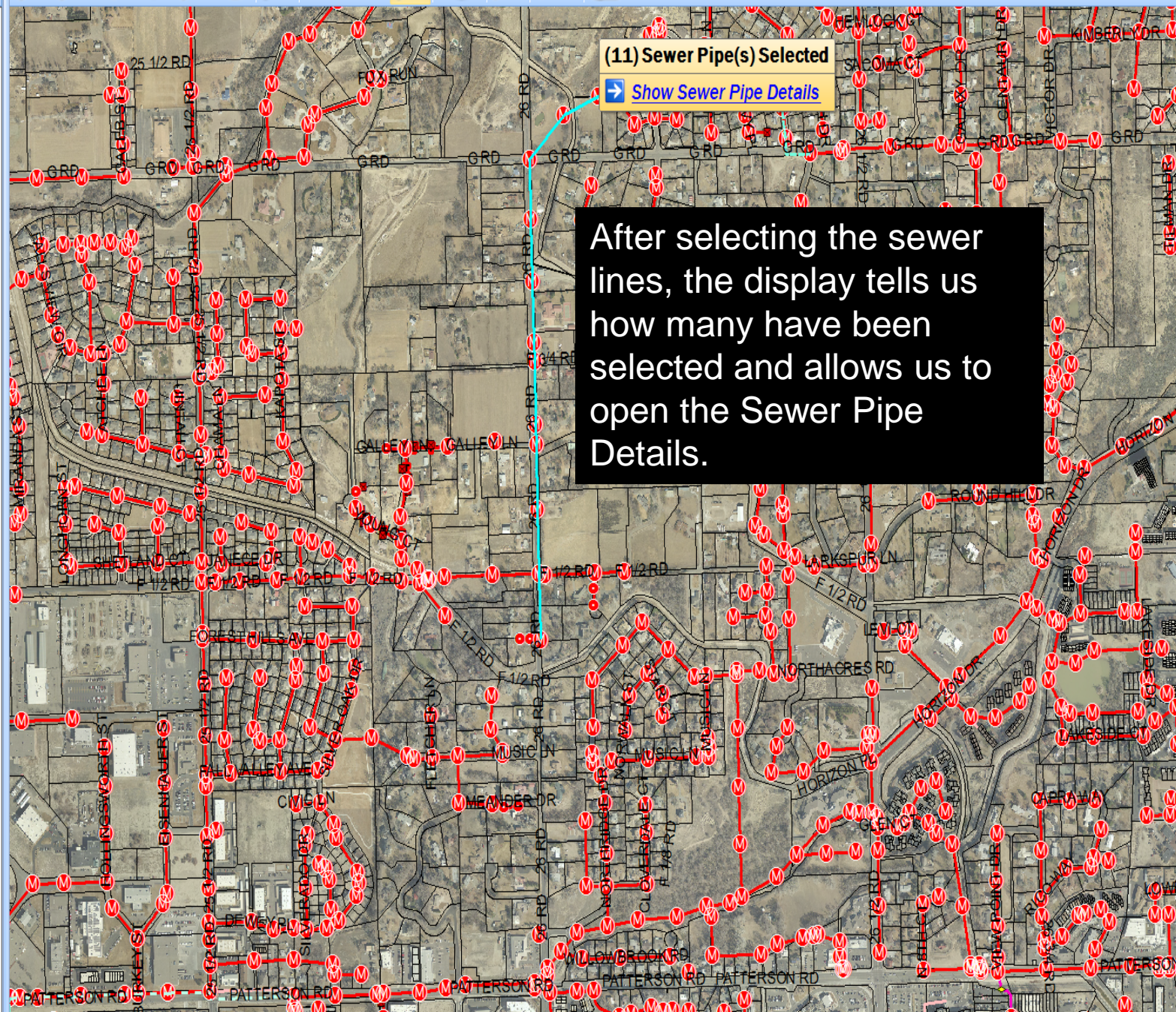
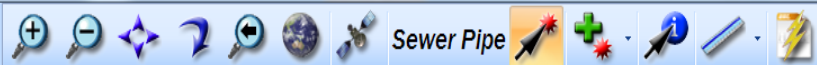
- Sewer Pipe
- Sewer Pump Station
- FieldNotes
- Parcel
- Sewer Problems
- Sanitary Structures

Selecting Sewer Pipes from the list, then selecting an asset in this case several sewer lines allows us to open the Work Order Form.



Map Layers

- Layers
- FieldNotes
- Water
 - FireHydrants
 - WaterValve
 - Water Main Breaks
 - Water Pipe
 - Water Vault
 - Abandoned Pipe
 - Pipe Not Verified
 - City Water Meters
 - City Water by Date
 - City Water by Material
 - Clifton Water
 - Ute Water
- Sanitary Sewer
 - Sewer Problems
 - Abandoned Sewer
 - Sanitary Structures
 - Sanitary Structures Not Verified
 - Sewer Pipe
 - Sewer Pipes Not Verified
 - Sewer Pump Station
- Storm Water
 - Detention Basins
 - Detention Basins Not Verified
 - Storm Structures
 - Storm Structures Not Verified
 - Storm Conduits
 - Storm Conduits Not Verified
- Street Signs
 - Street Signs ALL
 - Speed Limit
 - Stop
 - Street Name
 - School
 - Parking
 - Bike
 - Delineators
 - Other
- Park and Trees
 - Park Structure
 - Tree
 - Park Equipment
 - Parks
- Weed Abatement
- Fiber
- Gas_Electric
- Background Data
- Street Centerline
- Sanitation Districts



(11) Sewer Pipe(s) Selected
[Show Sewer Pipe Details](#)

After selecting the sewer lines, the display tells us how many have been selected and allows us to open the Sewer Pipe Details.

Clean/Jet Main



Date	Description
------	-------------

Opening the form, it displays the selected assets and the Work Order Form. It allows the user to populate the work order fields, add field comments and then create the work order.



Save



Cancel

Related Map

Sewer Pipe Information **Work Order** Resources \Tasks

Category		Comments
<input type="text"/>		<input type="text"/>
Status	Problem	
New Work Order <input type="button" value="v"/>	<input type="text"/> <input type="button" value="v"/>	
Status Date	Main Task	
9/11/2013 <input type="button" value="calendar"/>	JET LINE <input type="button" value="v"/>	
Asset		
<input type="text"/>		
Location		
<input type="text"/>		
Cause	Assigned By	Assets
<input type="text"/> <input type="button" value="v"/>	<input type="text"/> <input type="button" value="v"/>	Asset: F2-261-076
Assigned Crew	Assigned Date	Asset: F4-261-057
<input type="text"/> <input type="button" value="v"/>	<input type="text"/> <input type="button" value="calendar"/>	Asset: F4-261-058
Supervisor	Start Date	Asset: F4-261-059
<input type="text"/> <input type="button" value="v"/>	<input type="text"/> <input type="button" value="calendar"/>	Asset: F4-261-060
Lead Worker	End Date	Asset: F4-261-061
<input type="text"/> <input type="button" value="v"/>	<input type="text"/> <input type="button" value="calendar"/>	Asset: F3-261-056
Priority	Reason	Asset: F3-261-057
<input type="text"/> <input type="button" value="v"/>	<input type="text"/> <input type="button" value="v"/>	Asset: F3-261-058
Description		Asset: G1-261-087
<input type="text"/>		Asset: G1-261-088
	<input type="button" value="Create Work Order"/>	

Clean/Jet Main



Date	Description

Forms support calendar date and time, drop down menus, text boxes and many other formats.



Save



Cancel

After selecting Create Work Order the work is generated and allow the user to add resources on the next tab.

Sewer Pipe Information **Work Order** Resources \ Tasks

Category		Comments
SEWER MAIN		Slow drainage, Citizen called in asked what could be done. Jetted lines down to the main line. Checked with residents after jetting.
Status	Problem	
New Work Order	ROOTS	
Status Date	Main Task	
9/11/2013	JET LINE	
Asset		
Location		
Cause	Assigned By	Assets
UNKNOWN		Select a Date
Assigned Crew	Assigned Date	September, 2013
MM-PG		Mon Tue Wed Thu Fri Sat Sun
Supervisor	Start Date	26 27 28 29 30 31 1
Larry Brown		2 3 4 5 6 7 8
Lead Worker	End Date	9 10 11 12 13 14 15
D MARTINEZ		16 17 18 19 20 21 22
Priority	Reason	23 24 25 26 27 28 29
As Time Allows	CITIZEN REQUEST	30 1 2 3 4 5 6
Description		Today: 9/16/2013
	Create Work Order	

Clean/Jet Main

Date	Description
------	-------------

Users enter their names and hours. They can also enter equipment used and materials used.

**Save****Cancel****Related** Map**Employees**

			Employee	UOM	Units	TimeType
	Save	Delete	KORY JONES			
	Save	Delete	DANIEL TONELLO		4	Regular
	Save	Delete	D MARTINEZ		4	Regular

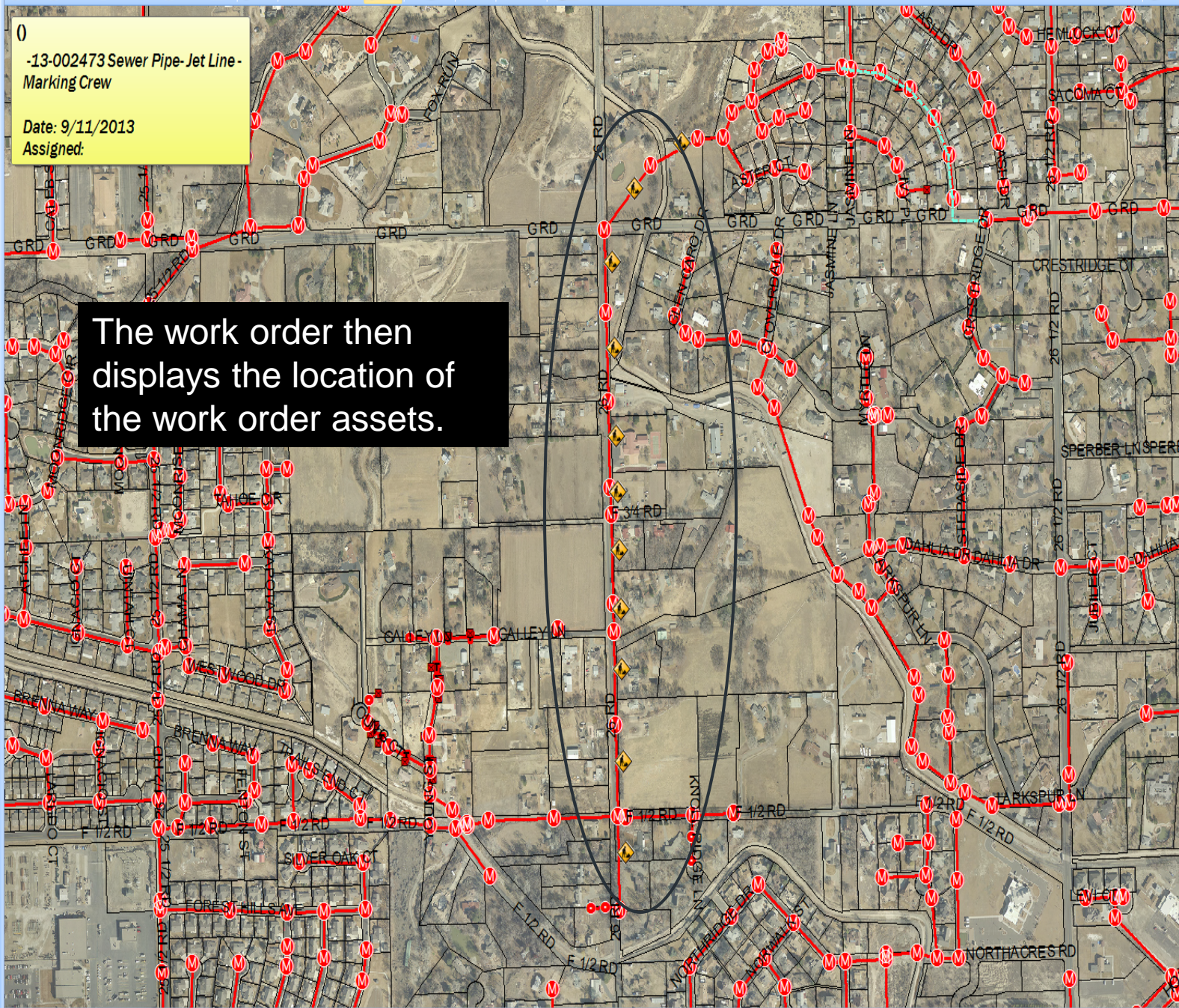
Equipment

			Equipment	Units	UOM
*	Click here to add a new row				

Materials

			Material	UOM	Units
*	Click here to add a new row				

- OPEN WORK ORDERS: (11)
- 13-002255 -Sewer Pump Sta
- 13-002254 -Sewer Pump Sta
- 13-002253 -Sewer Pipe -Mail
- 13-002251 -Sewer Pipe -Jet A
- 13-002229 -Sewer Pipe -Jet L
- 13-002227 -Water Pipe -Repa
- 13-001554 -Sewer Pump Sta
- 13-001552 -Sewer Pump Sta
- 13-001551 -Sewer Pump Sta
- Jet Line And Vector -Sign Cr
- 13-002473 Sewer Pipe -Jet
- COMPLETED WORK ORDERS:(1)



0
 -13-002473 Sewer Pipe -Jet Line -
 Marking Crew
 Date: 9/11/2013
 Assigned:

The work order then displays the location of the work order assets.

View Add to


My Work Tasks (12)

Work and Tasks

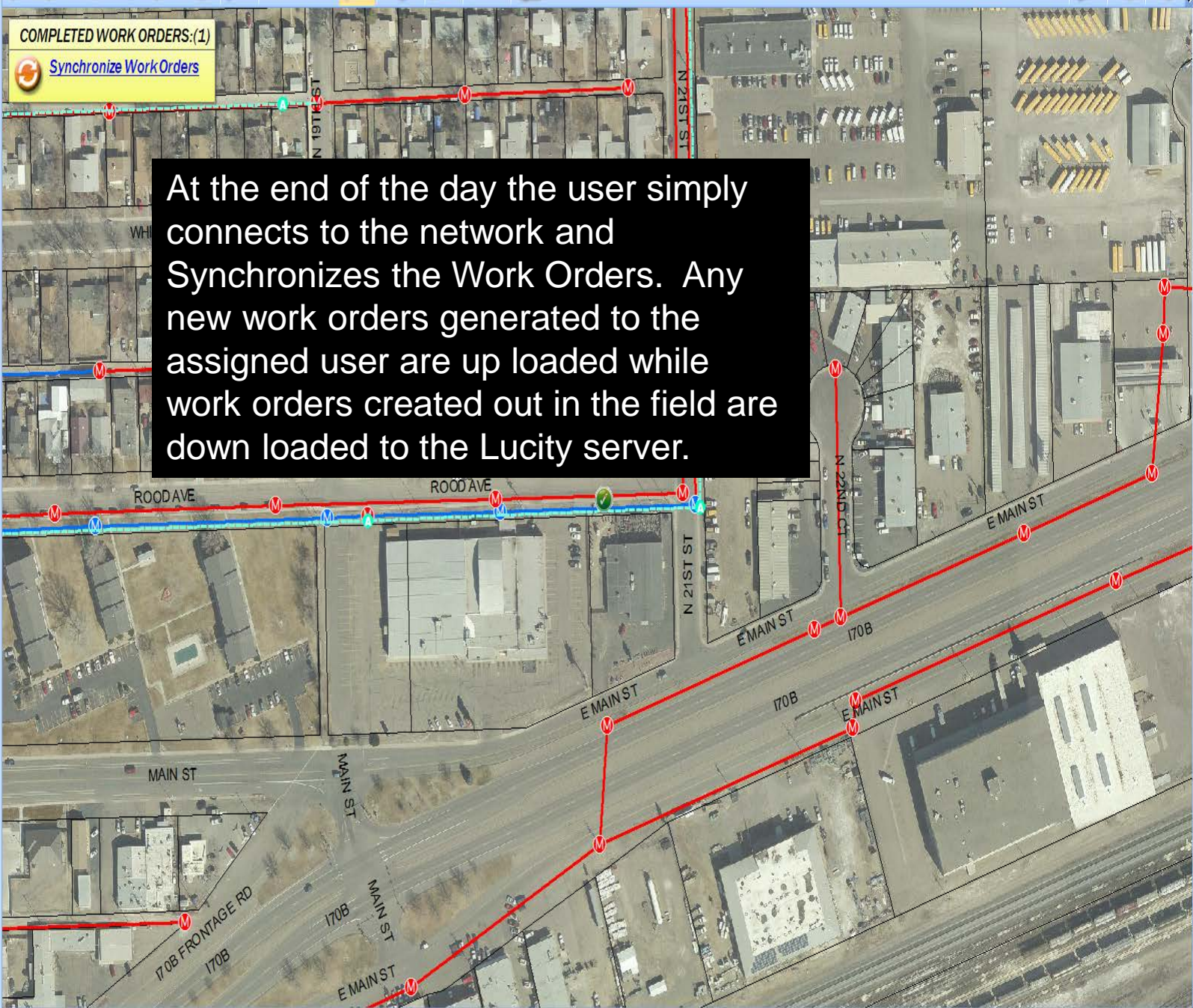
- OPEN WORK ORDERS: (11)
- 13-002255 -Sewer Pump Sta
- 13-002254 -Sewer Pump Sta
- 13-002253 -Sewer Pipe -Main
- 13-002251 -Sewer Pipe -Jet A
- 13-002229 -Sewer Pipe -Jet L
- 13-002227 -Water Pipe -Repa
- 13-001554 -Sewer Pump Sta
- 13-001552 -Sewer Pump Sta
- 13-001551 -Sewer Pump Sta
- Jet Line And Vector -Sign Cr
- 13-002473 Sewer Pipe -Jet

COMPLETED WORK ORDERS: (1)

COMPLETED WORK ORDERS: (1)

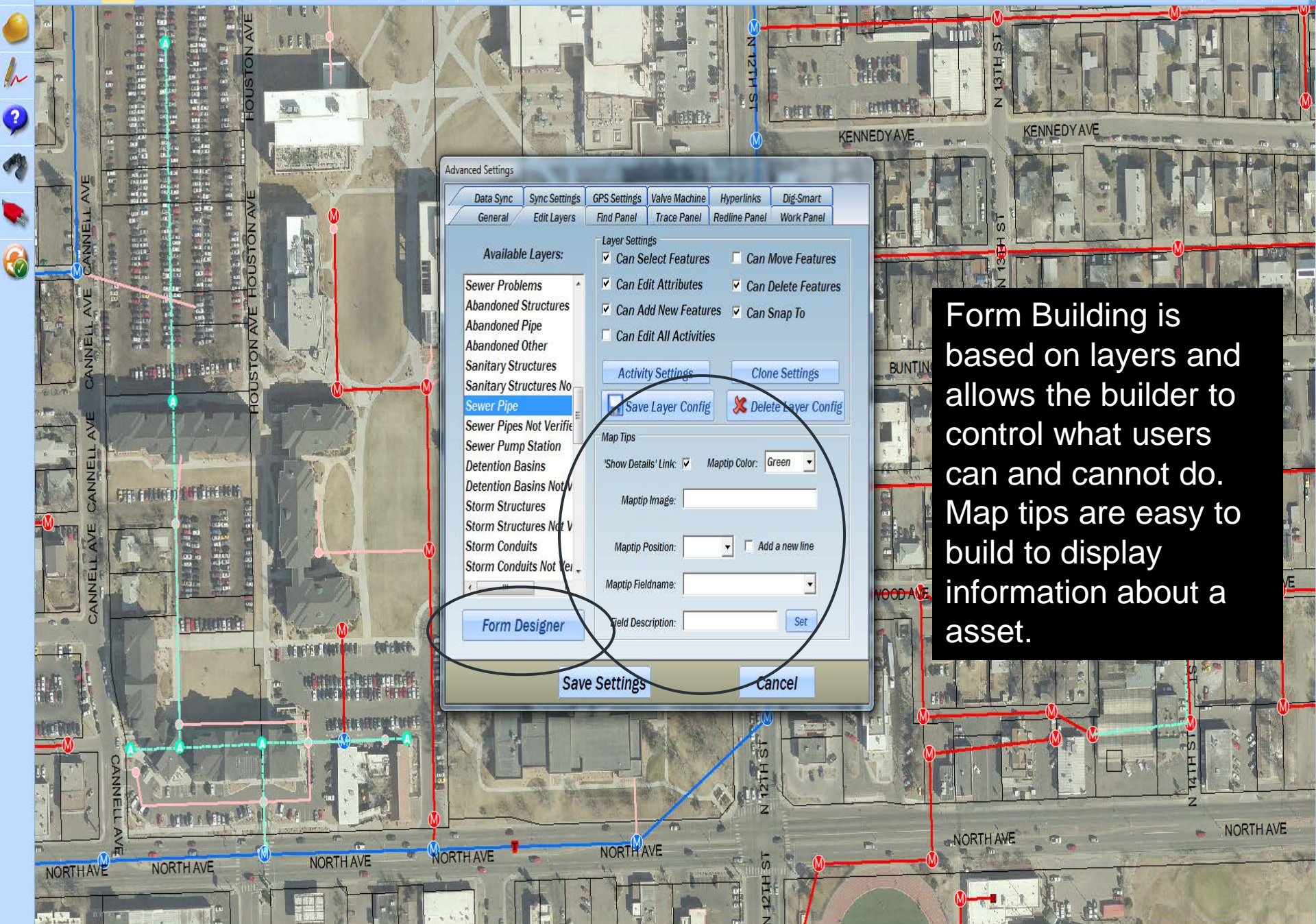
 [Synchronize Work Orders](#)

At the end of the day the user simply connects to the network and Synchronizes the Work Orders. Any new work orders generated to the assigned user are up loaded while work orders created out in the field are down loaded to the Lucyty server.



View  Add to 

 My Work Tasks (12)



Advanced Settings

Data Sync | Sync Settings | GPS Settings | Valve Machine | Hyperlinks | Dig-Smart

General | Edit Layers | Find Panel | Trace Panel | Redline Panel | Work Panel

Available Layers:

- Sewer Problems
- Abandoned Structures
- Abandoned Pipe
- Abandoned Other
- Sanitary Structures
- Sanitary Structures No
- Sewer Pipe**
- Sewer Pipes Not Verifie
- Sewer Pump Station
- Detention Basins
- Detention Basins Not v
- Storm Structures
- Storm Structures Not V
- Storm Conduits
- Storm Conduits Not Ver

Layer Settings

- Can Select Features
- Can Move Features
- Can Edit Attributes
- Can Delete Features
- Can Add New Features
- Can Snap To
- Can Edit All Activities

Activity Settings | Clone Settings

Save Layer Config | Delete Layer Config

Map Tips

'Show Details' Link: Maptip Color: Green

Maptip Image: _____

Maptip Position: _____ Add a new line

Maptip Fieldname: _____

Field Description: _____ Set

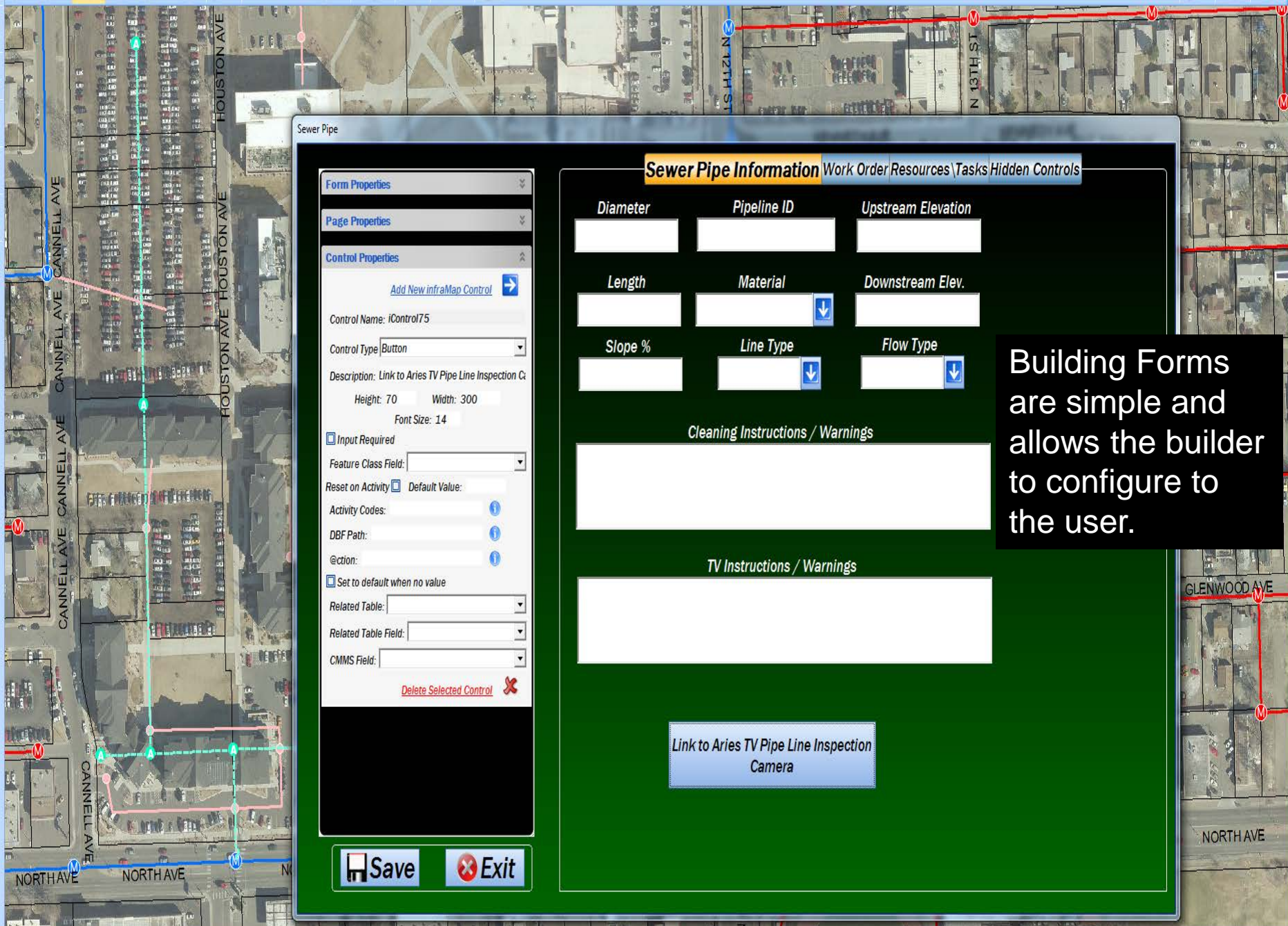
Form Designer

Save Settings | Cancel

Form Building is based on layers and allows the builder to control what users can and cannot do. Map tips are easy to build to display information about a asset.



Sewer Pipe



Sewer Pipe

Sewer Pipe Information | Work Order | Resources | Tasks | Hidden Controls

Form Properties

Page Properties

Control Properties

[Add New infraMap Control](#)

Control Name: iControl75

Control Type: Button

Description: Link to Aries TV Pipe Line Inspection Ca

Height: 70 Width: 300

Font Size: 14

Input Required

Feature Class Field:

Reset on Activity Default Value:

Activity Codes:

DBF Path:

@ction:

Set to default when no value

Related Table:

Related Table Field:

CMMS Field:

[Delete Selected Control](#)

Diameter **Pipeline ID** **Upstream Elevation**

Length **Material** **Downstream Elev.**

Slope % **Line Type** **Flow Type**

Cleaning Instructions / Warnings

TV Instructions / Warnings

[Link to Aries TV Pipe Line Inspection Camera](#)

Save **Exit**

Building Forms are simple and allows the builder to configure to the user.

Form Properties

Page Properties

Control Properties

[Add New infraMap Control](#)

Control Name: iControl27

Control Type:

Description: Category

Height: 30 Width: 550

Font Size: 12

Input Required

Feature Class Field:

Reset on Activity Default Value:

Activity Codes: UPDT,INST,CLN,RPR

DBF Path:

@ction:

Set to default when no value

Related Table:

Related Table Field:

CMMS Field:

[Delete Selected Control](#)

Sewer Pipe Information **Work Order** Resources \ Tasks Hidden Controls

Category

Status Problem

Status Date Main Task

Asset

Assigned Crew Assigned Date

Supervisor Start Date

End Date

Reason

Comments

Assets

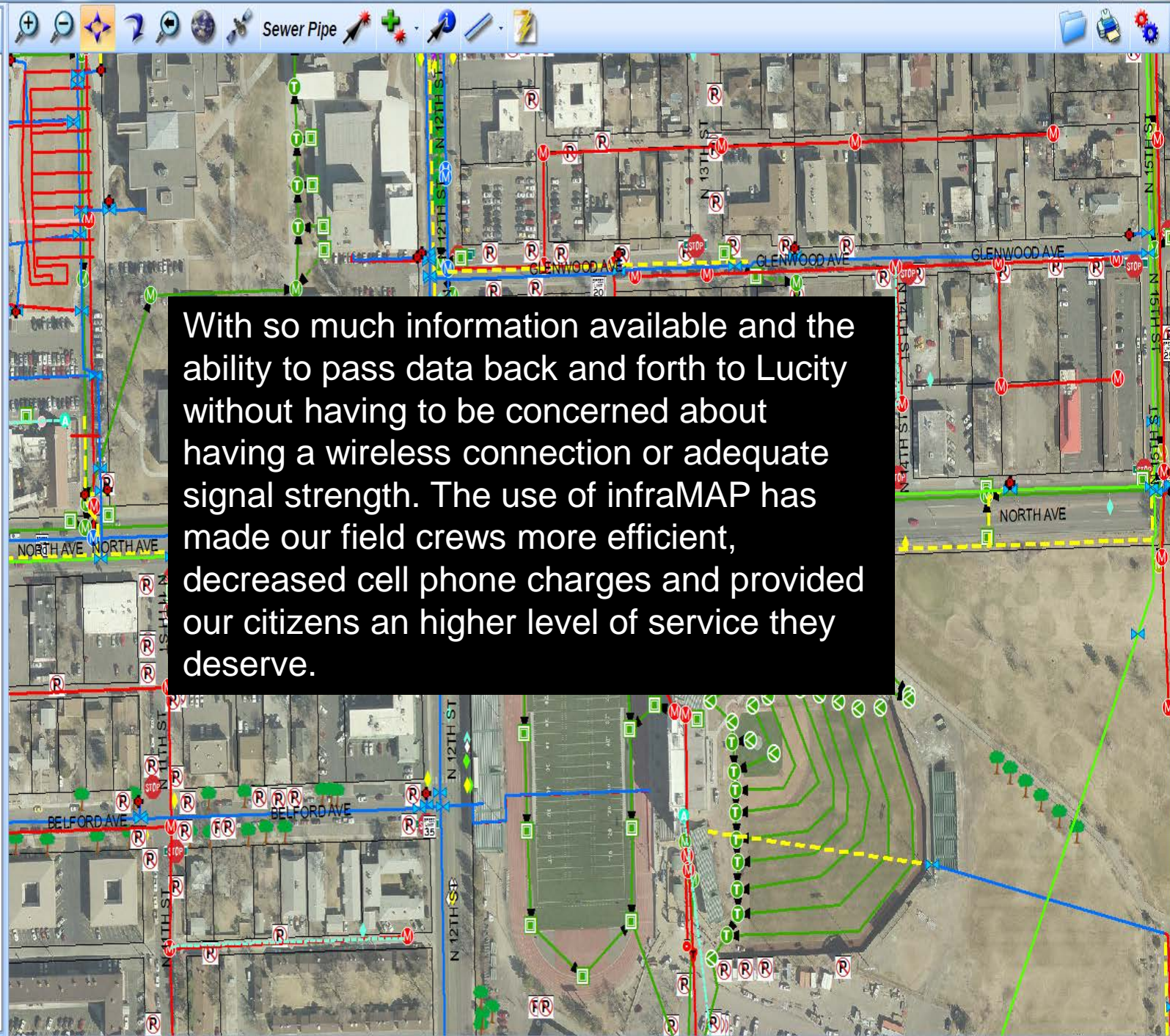
For displaying read only information the builder selects what feature class they want to display and link it the control.

Forms use the Lucity Rest API to connect to Lucity. When the API passes back (syncs) to Lucity, Lucity then assigns the Work Order Number, preventing duplicate WO number from being generated.

Save Exit

Map Layers

- Layers
- FieldNotes
- Water
 - FireHydrants
 - WaterValve
 - Water Main Breaks
 - Water Pipe
 - Water Vault
 - Abandoned Pipe
 - Pipe Not Verified
 - City Water Meters
 - City Water by Date
 - City Water by Material
 - Clifton Water
 - Ute Water
- Sanitary Sewer
 - Sewer Problems
 - Abandoned Sewer
 - Sanitary Structures
 - Sanitary Structures Not Verified
 - Sewer Pipe
 - Sewer Pipes Not Verified
 - Sewer Pump Station
- Storm Water
 - Detention Basins
 - Detention Basins Not Verified
 - Storm Structures
 - Storm Structures Not Verified
 - Storm Conduits
 - Storm Conduits Not Verified
- Street Signs
 - Street Signs ALL
 - Speed Limit
 - Stop
 - Street Name
 - School
 - Parking
 - Bike
 - Delineators
 - Other
- Park and Trees
 - Park Structure
 - Tree
 - Park Equipment
 - Parks
- Weed Abatement
- Fiber
- Gas_Electric
- Background Data
- Street Centerline
- Sanitation Districts



With so much information available and the ability to pass data back and forth to Lucity without having to be concerned about having a wireless connection or adequate signal strength. The use of infraMAP has made our field crews more efficient, decreased cell phone charges and provided our citizens an higher level of service they deserve.

Questions?

Scott List

Systems/Network Analyst

City of Grand Junction

970-256-4010

Scottl@gjcity.org

Adam Hagee

Territory Manager

infraMAP Software

949-768-4549 x 222

ahagee@iwater.org

Colin Kennedy

GIS Specialist

infraMAP Software

949-768-4549 x 322

ckennedy@iwater.org