

# Leveraging GIS for Cross Connection

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# SUEZ

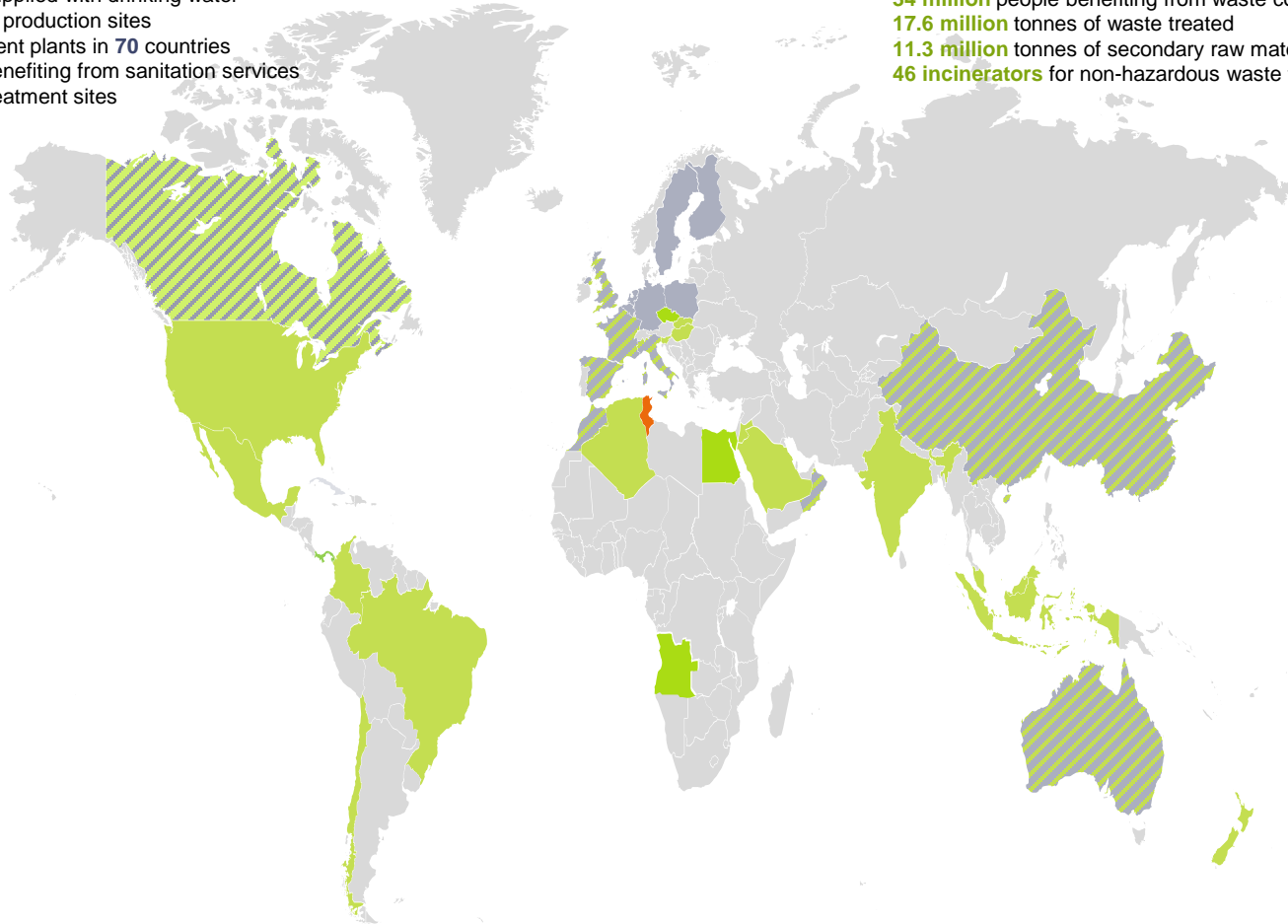
A world leader in sustainable management of resources

## WATER

92 million people supplied with drinking water  
1,130 drinking water production sites  
10,000 water treatment plants in 70 countries  
65 million people benefiting from sanitation services  
2,310 wastewater treatment sites

## WASTE

34 million people benefiting from waste collection services  
17.6 million tonnes of waste treated  
11.3 million tonnes of secondary raw materials  
46 incinerators for non-hazardous waste throughout the world



82,500  
employees

€16.2 Billion  
revenue in 20145

€74 Million  
invested in Research

SUEZ – a single brand serving the circular economy




# SUEZ in North America

Operating in all 50 States and Canada



**3,400 employees**



**15 water utilities**  
Regulated by State  
Utility Commissions



**55,000 tons of  
waste for recycling**



**16,000 industrial  
& municipal sites**  
for water treatment and  
advanced network solutions




**7.5 million people  
water & wastewater  
served**



**78 public-private  
partnerships – municipal  
water systems**

Two concession agreements  
investing over \$300 million  
in infrastructure in partnership  
with private equity firm KKR



**Revenue \$1.3 billion**  
Manager of \$3.3 billion  
in total assets in 2014



**Benefiting from \$80 million global  
research & innovation budget**

# **SUEZ in Boise, Idaho**

**Serving Over 200,000 Residents in the Greater Boise Area**

**90,000 Connections**

**1,200 Miles of Pipe**

**80 Wells**

**2 Treatment Plants**

**99 Employees**

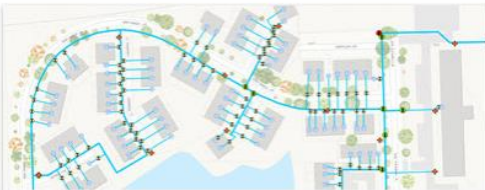
# <http://solutions.arcgis.com/#Water>



## Water

ArcGIS for Water provides maps and apps to maintain comprehensive water, sewer, and stormwater records; coordinate and plan capital projects; and improve the operations of utility networks that provide clean drinking water and protect public health.

[Documentation](#) | [What's New](#) | [Join Community](#)



### Water Delivery

Maintain information about your water network assets, plan capital projects, respond to leaks, reduce water loss, optimize field work, communicate with customers, and more.



### Sewer Collection

Gain insight from CCTV data, improve capital project planning, maintain information about sewer network assets, perform field inspections, inform customers about overflows, understand service requests, and more.



### Stormwater Conveyance

Inventory stormwater assets, find illicit discharges, maintain information about stormwater networks, share stormwater maps, and more.

# Backflow Inspection Template

## Backflow Inspection

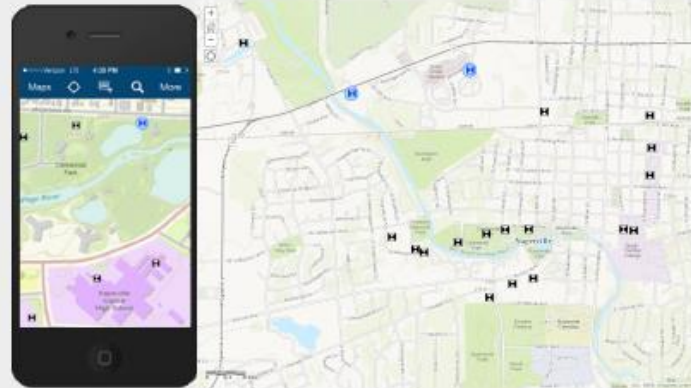
Home

Get Started

### Overview

To comply with the EPA's Safe Drinking Water Act, backflow prevention devices need to be inspected annually to ensure the infrastructure is working properly. If a device does not pass the set standards, repairs or replacement is required. Because of these requirements, a utility needs to record backflow prevention inspections and the infrastructure needing repairs.

Backflow Inspection is a configuration of ArcGIS Online or Portal for ArcGIS. Once configured, the Backflow Inspection map can be accessed by field crews using the Collector for ArcGIS app to view backflow prevention devices within the service area and collect inspection reports.



REQUIREMENTS

WHAT YOU GET

WHAT'S NEW

DOWNLOAD

# The High Points

- **Downloadable Skeleton**
- **Each Sample contains the pieces you need.**
- **Can use your GIS data**
- **Configuration not Coding**
  - Mostly
- **No Duplication of lists**
- **Simple for Field staff**
- **Staff handle their own data updates**
- **Very little GIS Staff interaction once built**
- **Full history for analyzation**

# Getting Started

- **Up to date Accurate data**
- **GeoCode to get locations**
  - Only kept devices that were within an 80% confidence.
- **Train staff and adapt system to their feedback.**
  - Within reason
- **Share with everyone the data is not a secret.**
- **Don't be afraid to start over.**
  - Don't import bad data start over. Leave the old system up for viewing.
  - Turn off the ability to edit.



# Device Web App

This is where the devices live.

SHANE LIM

Create Backflow Device

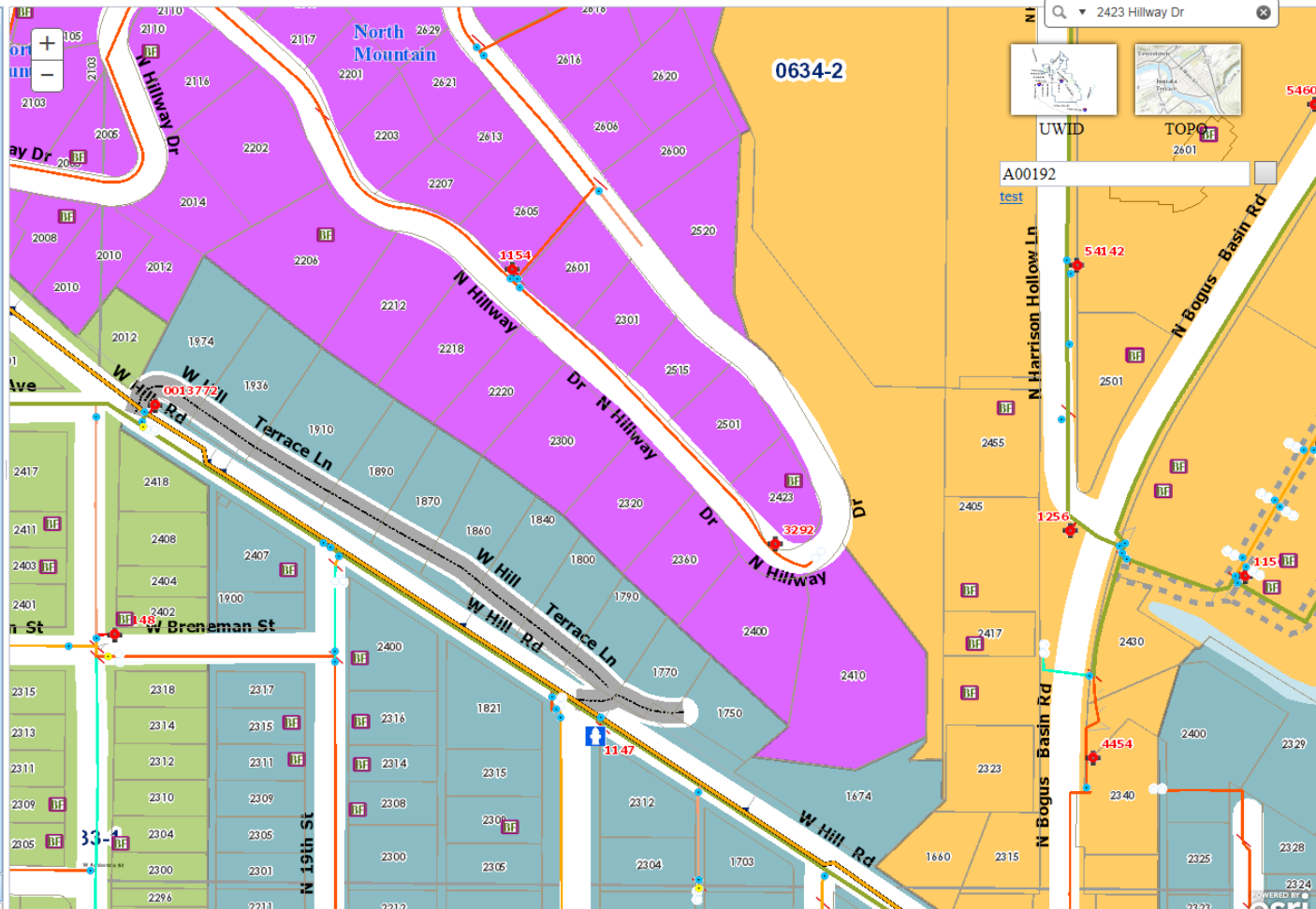
Back Flow

Back Flow

Simple Point Feature of the actual device.

Search By Address or Device.

Details



# Device Web App

SHANE LIM

Create Backflow Device (2 of 2)

Details

Back Flow

OBJECTID	23995
DEVICE_ID	28,010
PROPERTY	2423
PRFX	
STREET	HILLWAY
SFX	DR
CITY	BOISE
LOCATION_NOTE	LEFT BACK
SERIAL_NO	A00192
MODEL_NO	860U
BRAND	Febco
TYPE	DCVA
SIZE_INCH	1
PROTECT_TYPE	Premise
SCRAP	No
FIRST_NAME	DEBBIE
LAST_NAME	OLSEN
AltMail	-1
MAIL_PROPERTY	2423
MAIL_PRFX	
MAIL_STREET	HILLWAY
MAIL_SFX	DR
MAIL_SUITE	
MAIL_CITY	BOISE
MAIL_STATE	ID
MAIL_ZIP	83702
MAIL_ATTN	
LAST_DATE_NOTIFIED	5/16/2013
DATE_CREATED	
CREATED_BY	
SP_ID	
PREM_ID	

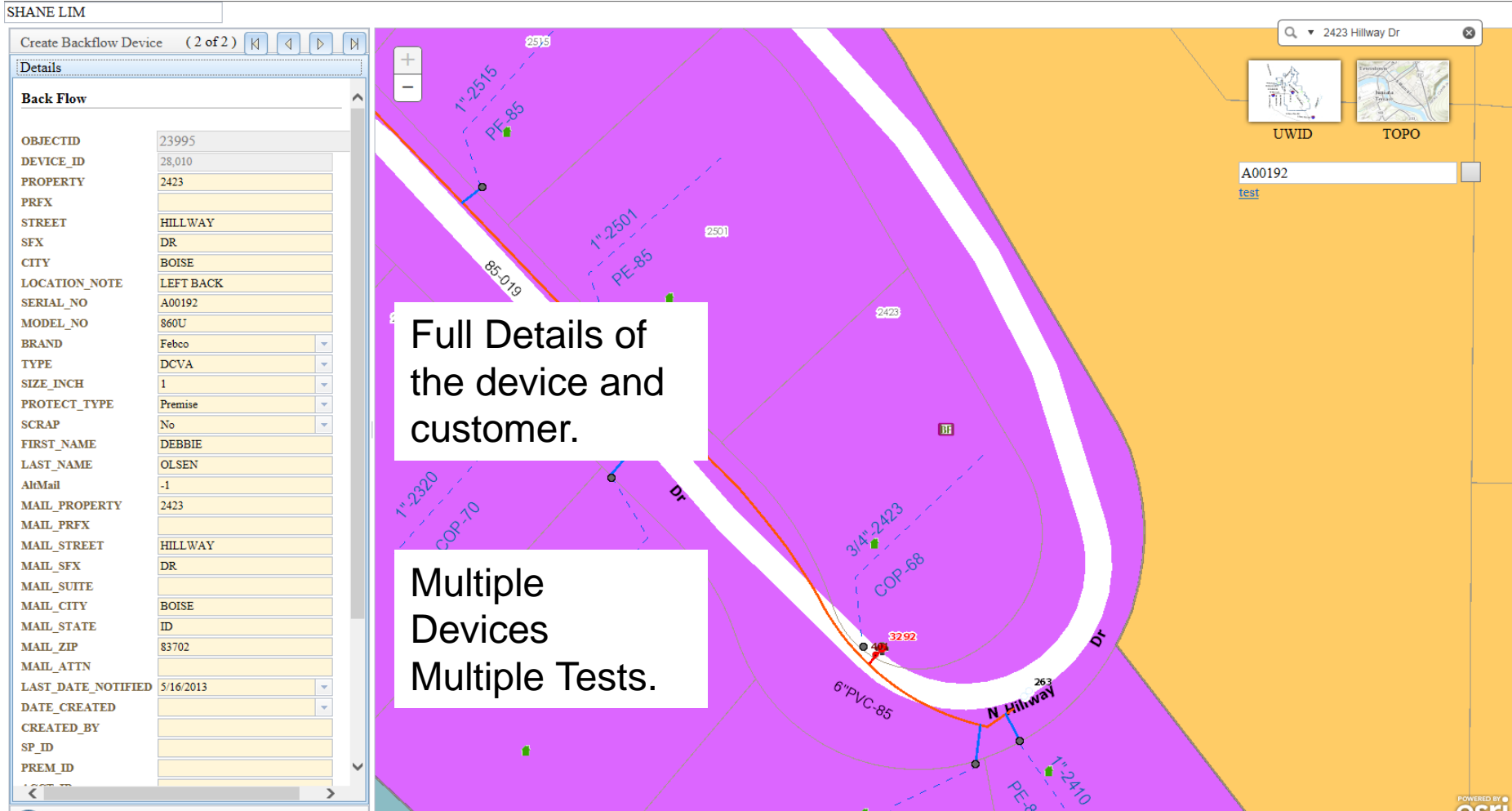
Full Details of the device and customer.

Multiple Devices  
Multiple Tests.

2423 Hillway Dr

UWID TOPO

A00192 test



SHANE LIM

Create Backflow Device (1 of 2)

Details

LOCATION_NOTE	LS-BACK OF HOUSE
SERIAL_NO	29100A
MODEL_NO	\$50U
BRAND	Febco
TYPE	DCVA
SIZE_INCH	1
PROTECT_TYPE	Irrigation
SCRAP	No
FIRST_NAME	DEBBIE
LAST_NAME	OLSON
AidMail	-1
MAIL_PROPERTY	2423
MAIL_PREFX	
MAIL_STREET	HILLWAY
MAIL_SFX	DR
MAIL_SUITE	
MAIL_CITY	BOISE
MAIL_STATE	ID
MAIL_ZIP	83702
MAIL_ATTN	
LAST_DATE_NOTIFIED	4/9/2015
DATE_CREATED	
CREATED_BY	
SP_ID	
PREM_ID	
ACCT_ID	
MR RTE_CD	225
DATE_REMOVED	
REMOVED_BY	
NOTE	
ADD_BY	
FULL_ADDRESS	2423 HILLWAY DR
CCB_ADDRESS	

List Tests New Test Delete



# Tests

SHANE LIM

Create Backflow Device (4 of 4)

Details

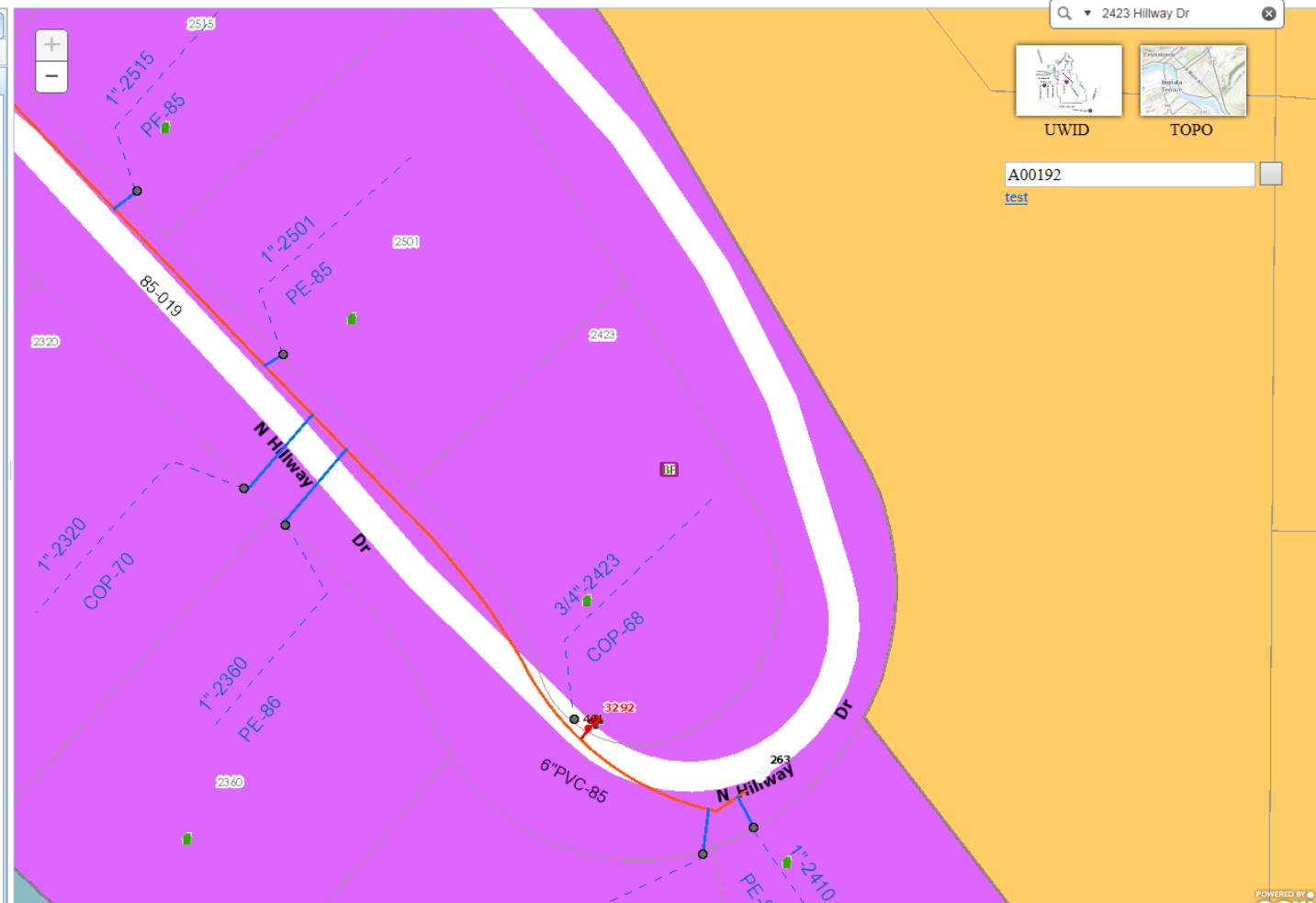
Tests

### Back Flow Test

OBJECTID	126966
TEST_ID	127,020
DEVICE_ID	28,010
TEST_DATE	4/20/2015
TESTER_CERT_NO	14,573
TestFailed	Yes
RECEIVED_TYPE	Bulk email
ADD_BY	Automated
ADD_DATE	5/3/2015

Delete

Related Table of tests allows us to see the history of the device.



# The Visualization

This is where the devices are not!!

SHANE LIM

Create Backflow Device

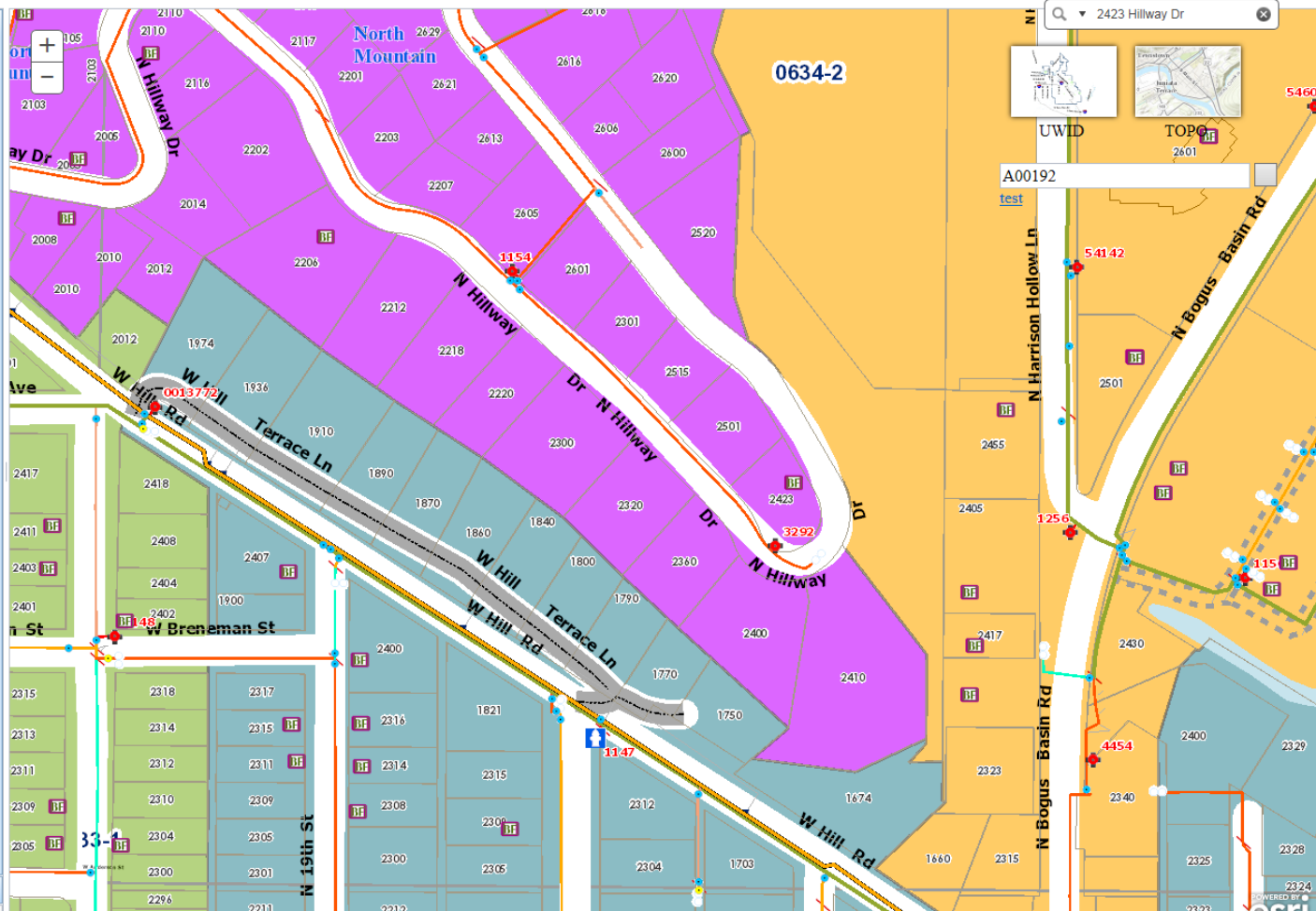
Back Flow

Back Flow

Easy to see the devices that are missing.

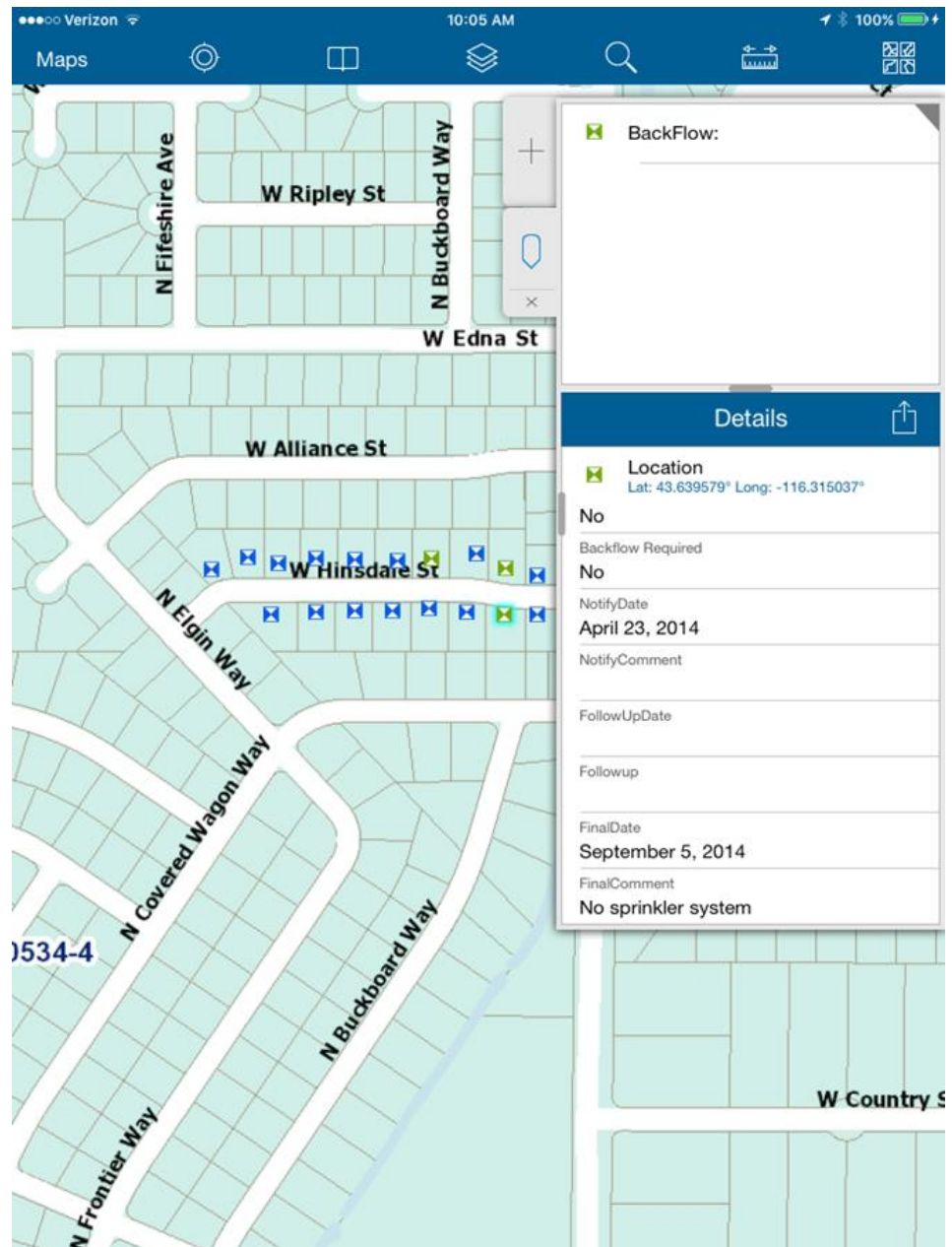
Plan for customer outreach by specific areas and customers.

Details



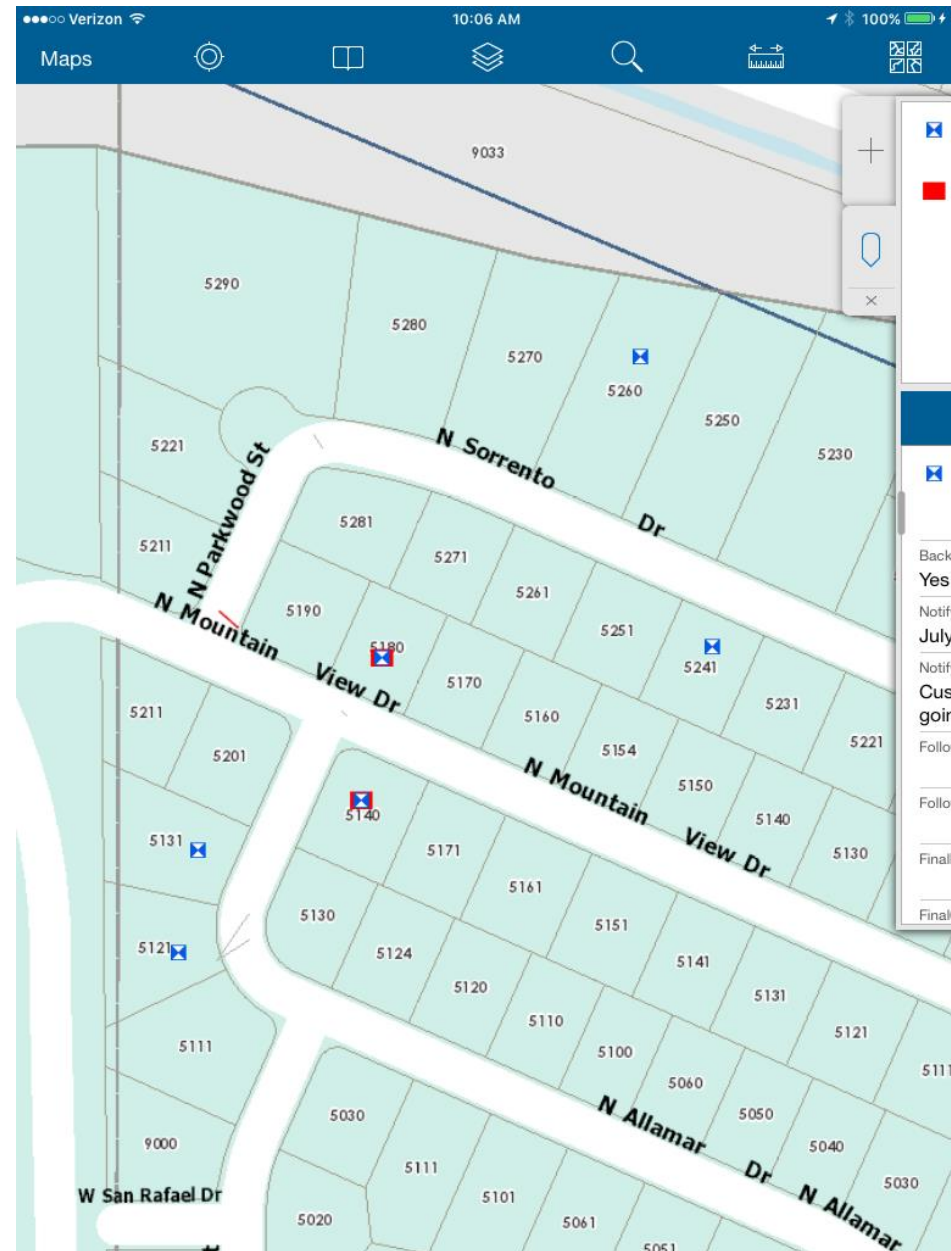
# Determination Collector

- We made this as simple and accessible as possible. Web, IOS etc.
- Short amount of data collected. **6 fields**
- Works on many devices including offline if needed.
- Used to make a determination of the need for cross connection. Nothing More.

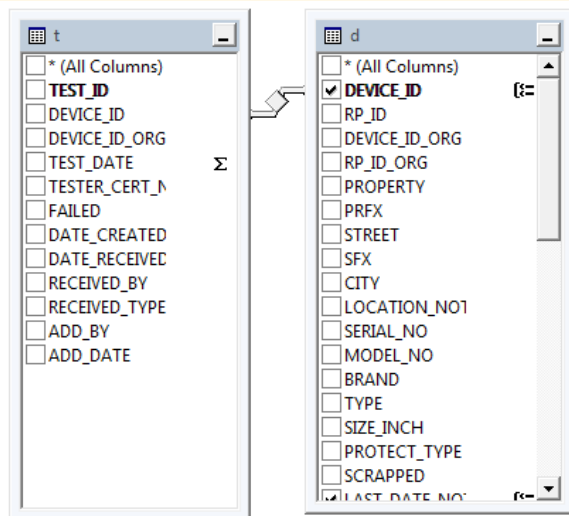


# Determination Collector

- Uses the device GPS to show us the determinations in the area.
- Overlay with devices that are missing the final notice.
- Current Backflows are drawn to eliminate duplicate work.



# Other ways to look at the data.



Finds and creates a list of:  
 Last test date, years since last test, last  
 year notified, years since last notice.

Column	Alias	Table	Outp...	Sort Type	Sort Order	Group By	Filter	Or...	Or...
DEVICE_ID		d	<input checked="" type="checkbox"/>			Group By			
LAST_DATE_NOTIFIED	LastNoticeDate	d	<input checked="" type="checkbox"/>			Group By			
DATEPART(YEAR, d.LAST_DATE_NOTIFIED)	LastNoticeYear		<input checked="" type="checkbox"/>			Expression			
DATEPART(YEAR, GETDATE()) - DATEPART(YEAR, d.LAST_DATE_NOTIFIED)	YearsSinceLastNotice		<input checked="" type="checkbox"/>			Expression			
TEST_DATE	LastTestDate	t	<input checked="" type="checkbox"/>			Max			
DATEPART(YEAR, MAX(t.TEST_DATE))	LastTestYear		<input checked="" type="checkbox"/>			Expression			
DATEPART(YEAR, GETDATE()) - DATEPART(YEAR, MAX(t.TEST_DATE))	YearsSinceLastTest		<input checked="" type="checkbox"/>			Expression			

```

SELECT d.DEVICE_ID, d.LAST_DATE_NOTIFIED AS LastNoticeDate, DATEPART(YEAR, d.LAST_DATE_NOTIFIED) AS LastNoticeYear, DATEPART(YEAR, GETDATE())
- DATEPART(YEAR, d.LAST_DATE_NOTIFIED) AS YearsSinceLastNotice, MAX(t.TEST_DATE) AS LastTestDate, DATEPART(YEAR, MAX(t.TEST_DATE)) AS LastTestYear,
DATEPART(YEAR, GETDATE()) - DATEPART(YEAR, MAX(t.TEST_DATE)) AS YearsSinceLastTest
FROM dbo.ccc_devices AS d INNER JOIN
dbo.ccc_device_tests AS t ON d.DEVICE_ID = t.DEVICE_ID
GROUP BY d.DEVICE_ID, d.LAST_DATE_NOTIFIED
    
```



# Additional enhancements.

## ○ **Bulk Import**

- Email tests from largest testing company to save on manual labor.

## ○ **Automatic Notification**

- Letter to customer created from GIS data and sent to staples for bulk printing and mailing.

## ○ **Distribution by Type**

- Fire, and Premise (after Irrigation letters are out. )
- Irrigation (before irrigation season starts)
- Allows us to distribute workload throughout the year.

# Questions