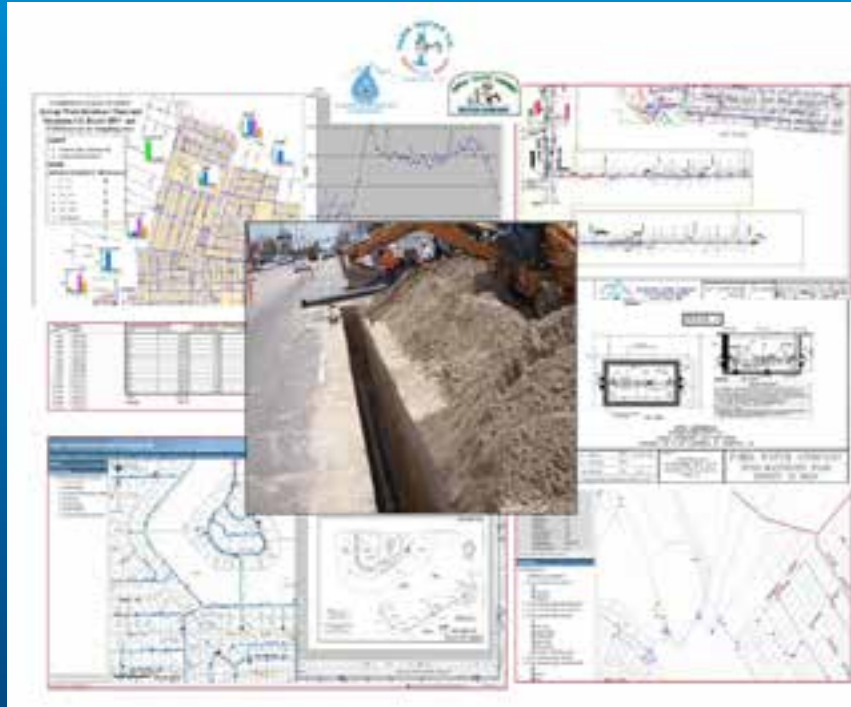
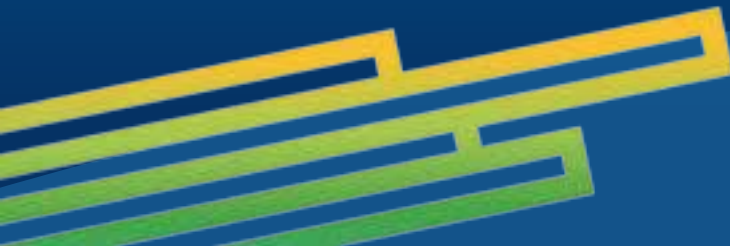


# Field Data Acquisition for Water Utilities

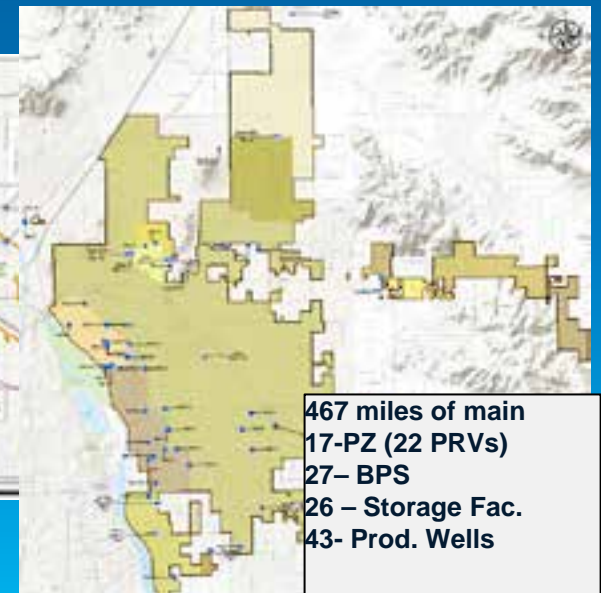
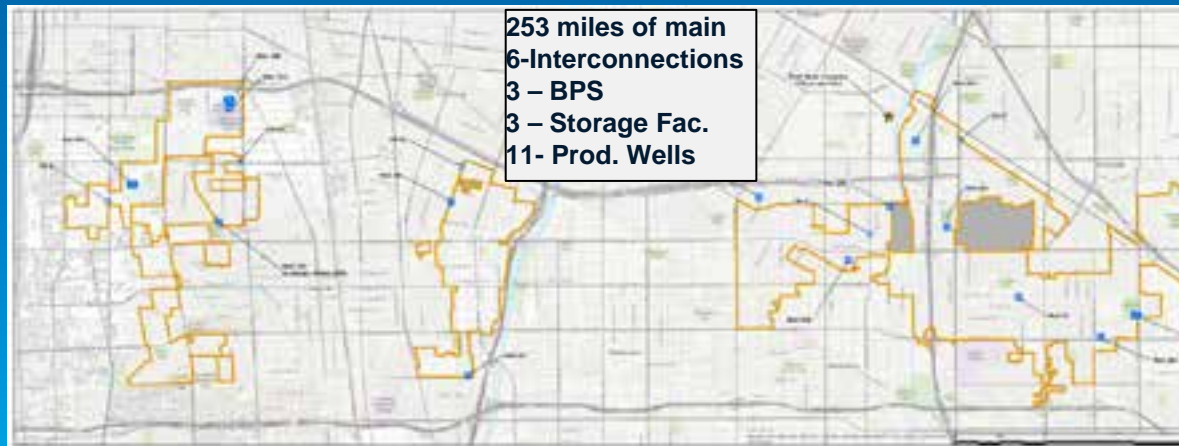
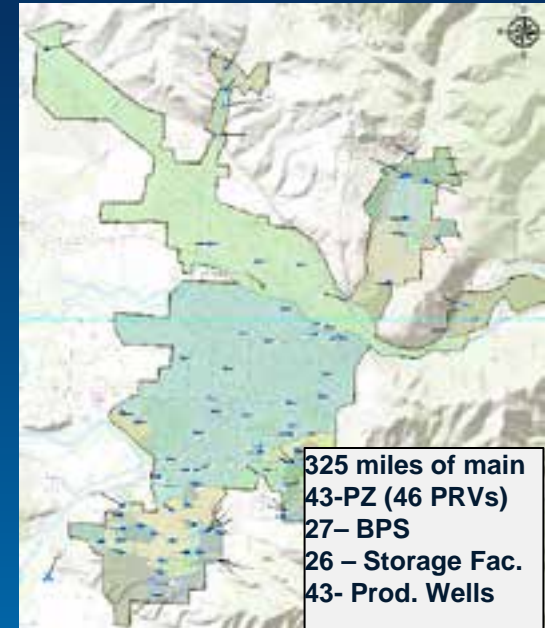


Aaron J. Gutierrez, P.E. – Park Water Company

Peter King – iWater, Inc.



# Field Data Acquisition – The Companies



# Needs

- **GIS in the field ß à work with GIS in Office**
- **Needed to be Esri based**
- **Work with Tablet PCs**
- **Needed a two-way sync with our Esri ArcGIS Server GDB**
- **Efficient collection of assets from the field**
- **Redlining Capabilities**
- **Simplified and Customizable management of inspection forms**
- **Legacy valve and hydrant database integration**
- **USA (Call Before you Dig) ticket integration [DigSmart]**

# *Field Solution*

- infraMAP was selected as field data collection solution
- Eliminated paperwork in the field
- GIS maps and functions in the field
- Fully disconnected – no need for Wi-Fi or VPN in the field
- Reporting/Query tools in the field
- USA (Call Before you Dig) ticket integration [DigSmart]



# Data Acquisition Tables

PWC

Inspection

Valve ID: 17MV021 Operational Status: OK

Valve Function: Main Valve Machine

Assembly Type: Gate Terms: 15 Depth (in.): 24

Manufacturer: Unknown Operation Comments: BPP

Diameter: 4 inch Additional Remarks:

Save Exit

Map

Date	Description
3/7/2014	Update Info
3/6/2014	Update Info
1/3/2013	Exercise Valve
4/18/2007	Exercise Valve
10/18/2004	Exercise Valve
4/30/2003	Exercise Valve
12/18/2001	Exercise Valve
10/2/2000	Exercise Valve
6/16/1997	Exercise Valve

General

Hydrant ID: 10-007 Flow GPM: 648 Flow @ 20: 2175

Lifecycle Status: Active Static PSI: 67 Resid. PSI: 62

Install Date: 1990 Pitot: 53 Orifice Size: 1.75

Manufacturer: Long Beach Flow Mins.: 1 Gals. Used: 648

Residual Location ID:

Operation Comments:

Linked Documents: (1)

Save Exit

Date	Description
10/22/2013	Fire Flow Test

Leak Form Leak Form Pt. 2 Dispatch EOC

Leak Type: Main Address: 16416 bradfield Leak Date: 4/20/2014

Main Diameter: 6 inch Main Material: AC Install Year: 1960

Leak Year: 2014 Crew: Doty Cust. Affected: 0

Clamps Used: 6STD X 7W Time Started: 3am

Staff: Saul Smith Time Ended: 3:35

Comments: entered by M.S. Hours Spent: 8

Est. Water Loss: 25200

Section of Pipe Replaced: Bury Depth In.:

Save Exit

Map

Date	Description
4/21/2014	Office Update
4/21/2014	Field Entry

# Data Acquisition Tables

MWC

The image displays three overlapping windows from a data acquisition software interface. Each window has a 'General' tab and a 'Save' button.

**Top-Left Window:**

- Activity Selection: **<Select an Activity>**
- Table:

Date	Description
2/13/2014	Read
2/13/2014	Read
1/30/2014	Install
- Fields:
  - Serial Number: 200510
  - Valve ID: VI113
  - Date Installed: 1/30/2014 2:00
  - Lifecycle Status: Active
  - Date Read: 2/13/2014 11:32
  - Reading: Leak Indicated
- Map: Shows a street map with a highlighted location.

**Top-Right Window:**

- Activity Selection: **<Select an Activity>**
- Table:

Date	Description
6/25/2014	Hydrovac
6/25/2014	Office Followup
6/25/2014	Field Followup
- Fields:
  - Vac Date: 6/25/2014
  - Vac Done By: Mountain Wa
  - MWC Personnel: Eric
  - Locate #: 9611234
  - Permit #: 20141
  - Address: 401
  - Street: Chestnut
  - Cross Street: S 4th W
  - Leak Source: Service Leak
  - PVC on Corp: No
  - SVC Dia: [empty]
  - SVC Material: Polythylene
  - CB to Main Meas: 8
  - Main Material: Galvanized Ste
  - Depth: 5.5
  - Comments: [empty]
  - Attached Documents: (0)
- Map: Shows a street map with a highlighted location.

**Bottom-Center Window:**

- Activity Selection: **<Select an Activity>**
- Table:

Date	Description
2/13/2014	Correlate
- Fields:
  - Valve / Red Sensor: 1113
  - Valve / Blue Sensor: 1099
  - Pipe Material: Kalmein
  - Diameter: 6"
  - Distance: 646
  - Reason Correlated: Datalogger
  - Correlation Quality: Good
  - Leak Indicated: yes leak indicated 69 feet east of valve 1113
  - Comments: [empty]
  - Attached Documents: (0)
- Map: Shows a street map with a highlighted location.

# Tools



# Reporting

## Customers Affected by Shutdown



Total Records: 159

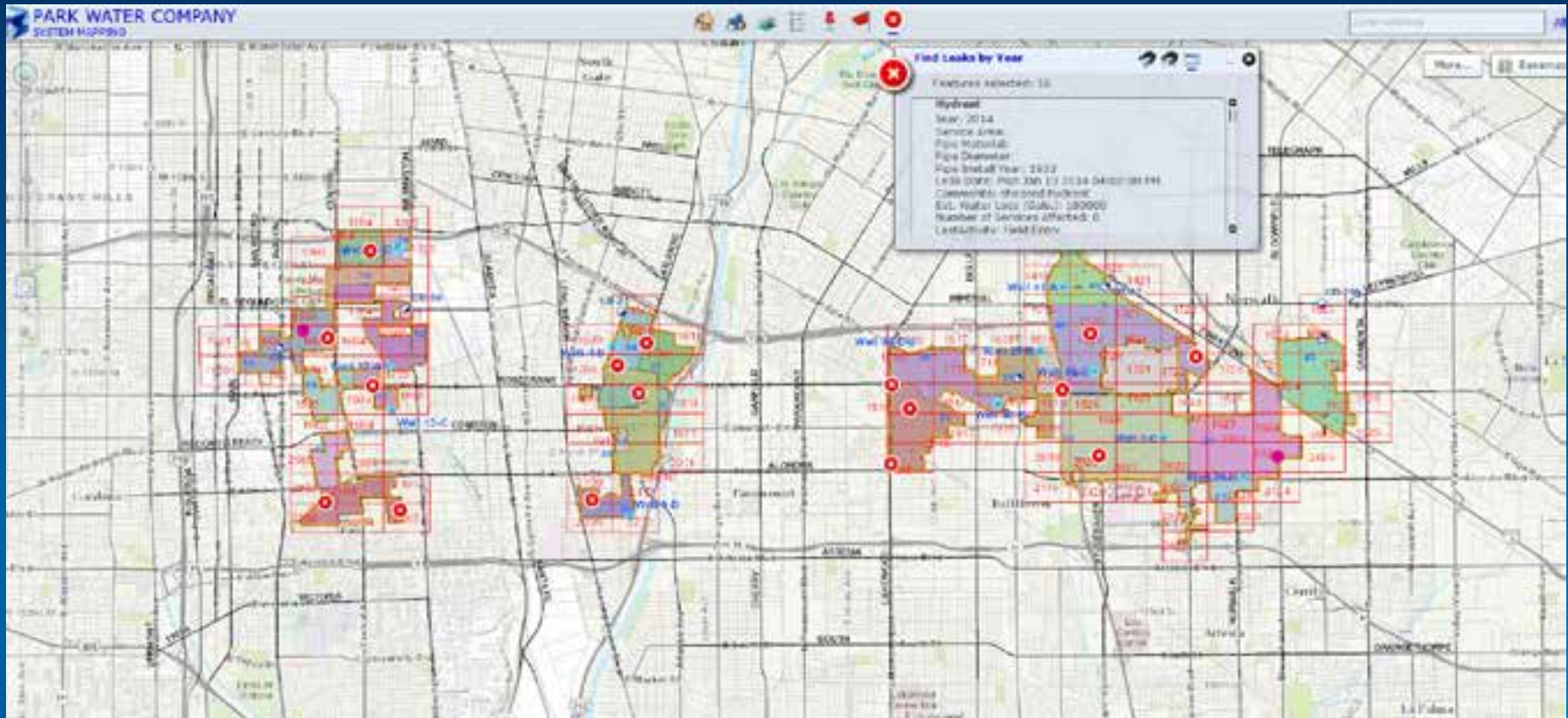
Report created on Wednesday, June 25, 2014

Customers Affected by Shutdown: 159 Records  
Created 6/25/2014 1:34:56 PM

LOCATION/DESCRIPTION	Pressure	Service Area	Service Type	Size	ACR#	Registration ID	Head Cycle	LA County Use Code	LAUC2	LAUC3			
2302 Tohamer St	Compton West	Area 31	Domestic	1/8 in		203079888	20307 PBT			100			
5306 Brandeis Ave	Compton West	Area 31	Domestic	1/8 in		302384866	20307 PBT			100			
5310 Brandeis Ave	Compton West	Area 31	Domestic	1/8 in		300613854	20307 PBT			100			
5305 Brandeis Ave	Compton West	Area 31	Domestic	1/8 in		303451609	20307 PBT			100			
5307 Brandeis Ave	Compton West	Area 31	Domestic	1/8 in		303648866	20307 PBT			100			
5312 Brandeis Ave	Compton West	Area 31	Domestic	1/8 in		303644224	20307 PBT			100			
5318 Brandeis Ave	Compton West	Area 31	Domestic	1/8 in		303309413	20307 PBT			100			
5304 Brandeis Ave	Compton West	Area 31	Domestic	1/8 in		303630477	20307 PBT			100			
5300 Brandeis Ave	Compton West	Area 31	Domestic	1/8 in		303968368	20307 PBT			100			
5320 Brandeis Ave	Compton West	Area 31	Domestic	1/8 in		333272890	20307 PBT			100			
5321 Brandeis Ave	Compton West	Area 31	Domestic	1/8 in		306317286	20307 PBT			100			
5329 Brandeis Ave	Compton West	Area 31	Domestic	1/8 in		303652796	20307 PBT			100			
5323 Brandeis Ave	Compton West	Area 31	Domestic	1/8 in		303636013	20307 PBT			100			
5309 Brandeis Ave	Compton West	Area 31	Domestic	1/8 in			20307 PBT			100			
5305 Brandeis Ave	Compton West	Area 31	Domestic	1/8 in		303763287	20307 PBT			100			
5303 Brandeis Ave	Compton West	Area 31	Domestic	1/8 in		303764278	20307 PBT			100			
5322 Chesteen Ave	Compton West	Area 31	Domestic	1/8 in		303764824	20307 PBT			100			
5316 Chesteen Ave	Compton West	Area 31	Domestic	1/8 in		303764179	20307 PBT			100			
5312 Chesteen Ave	Compton West	Area 31	Domestic	1/8 in		324084200	20307 PBT			100			
5323 Chesteen Ave	Compton West	Area 31	Domestic	1/8 in		303638296	20307 PBT			100			
5308 Chesteen Ave	Compton West	Area 31	Domestic	1/8 in		303732151	20307 PBT			100			
5300 Chesteen Ave	Compton West	Area 31	Domestic	1/8 in		303688718	20307 PBT			100			
5319 Brandeis Ave	Compton West	Area 31	Domestic	1/8 in			20307 PBT			100			
5320 Brandeis Ave	Compton West	Area 31	Domestic	1/8 in		303763945	20307 PBT			100			
5311 Brandeis Ave	Compton West	Area 31	Domestic	1/8 in		303636420	20307 PBT			100			
5305 Brandeis Ave	Compton West	Area 31	Domestic	1/8 in		303632996	20307 PBT			100			
5318 Brandeis Ave	Compton West	Area 31	Domestic	1/8 in		303636006	20307 PBT			100			
5319 Broadacres Ave	Compton West	Area 31	Domestic	1/8 inch	24982	9 AMR	Unknown	Compton West	1219 S BROADACRES AVE COMPTON 9020 COMPTON	318639612	303039612	20307 PBT	100
5300 Brandeis Ave	Compton West	Area 31	Domestic	1/8 inch	24887	9 AMR	Unknown	Compton West	1219 S BROADACRES AVE COMPTON 9020 COMPTON	318639612	303039612	20307 PBT	100
5311 Chesteen Ave	Compton West	Area 31	Domestic	1/8 inch	24913	9 AMR	Unknown	Compton West	1219 S DUVEDON AVE COMPTON 9020 COMPTON	318639612	303039612	20307 PBT	100
5319 Chesteen Ave	Compton West	Area 31	Domestic	1/8 inch	24814	9 AMR	Unknown	Compton West	1219 S DUVEDON AVE COMPTON 9020 COMPTON	318639612	303039612	20307 PBT	100
5323 Chesteen Ave	Compton West	Area 31	Domestic	1/8 inch	24825	9 AMR	Unknown	Compton West	1219 S DUVEDON AVE COMPTON 9020 COMPTON	302564123	302564123	20307 PBT	100
5305 Chesteen Ave	Compton West	Area 31	Domestic	1/8 inch	24819	9 AMR	Unknown	Compton West	1219 S DUVEDON AVE COMPTON 9020 COMPTON	302564123	302564123	20307 PBT	100
5300 Chesteen Ave	Compton West	Area 31	Domestic	1/8 inch	24820	9 AMR	Unknown	Compton West	1219 S DUVEDON AVE COMPTON 9020 COMPTON	302564123	302564123	20307 PBT	100
5302 Chesteen Ave	Compton West	Area 31	Domestic	1/8 inch	24820	9 AMR	Unknown	Compton West	1219 S DUVEDON AVE COMPTON 9020 COMPTON	302564123	302564123	20307 PBT	100
5322 Northwood Ave	Compton West	Area 31	Domestic	1/8 inch	24811	9 AMR	Unknown	Compton West	1219 S NORTHWOOD AVE COMPTON 9020 COMPTON	302564123	302564123	20307 PBT	100
5328 Northwood Ave	Compton West	Area 31	Domestic	1/8 inch	24812	9 AMR	Unknown	Compton West	1219 S NORTHWOOD AVE COMPTON 9020 COMPTON	302564123	302564123	20307 PBT	100
5334 Northwood Ave	Compton West	Area 31	Domestic	1/8 inch	24813	9 AMR	Unknown	Compton West	1219 S NORTHWOOD AVE COMPTON 9020 COMPTON	302564123	302564123	20307 PBT	100
5330 Northwood Ave	Compton West	Area 31	Domestic	1/8 inch	24817	9 AMR	Unknown	Compton West	1219 S NORTHWOOD AVE COMPTON 9020 COMPTON	302564123	302564123	20307 PBT	100
5306 Northwood Ave	Compton West	Area 31	Domestic	1/8 inch	24819	9 AMR	Unknown	Compton West	1219 S NORTHWOOD AVE COMPTON 9020 COMPTON	302564123	302564123	20307 PBT	100
5302 Northwood Ave	Compton West	Area 31	Domestic	1/8 inch	24821	9 AMR	Unknown	Compton West	1219 S NORTHWOOD AVE COMPTON 9020 COMPTON	302564123	302564123	20307 PBT	100

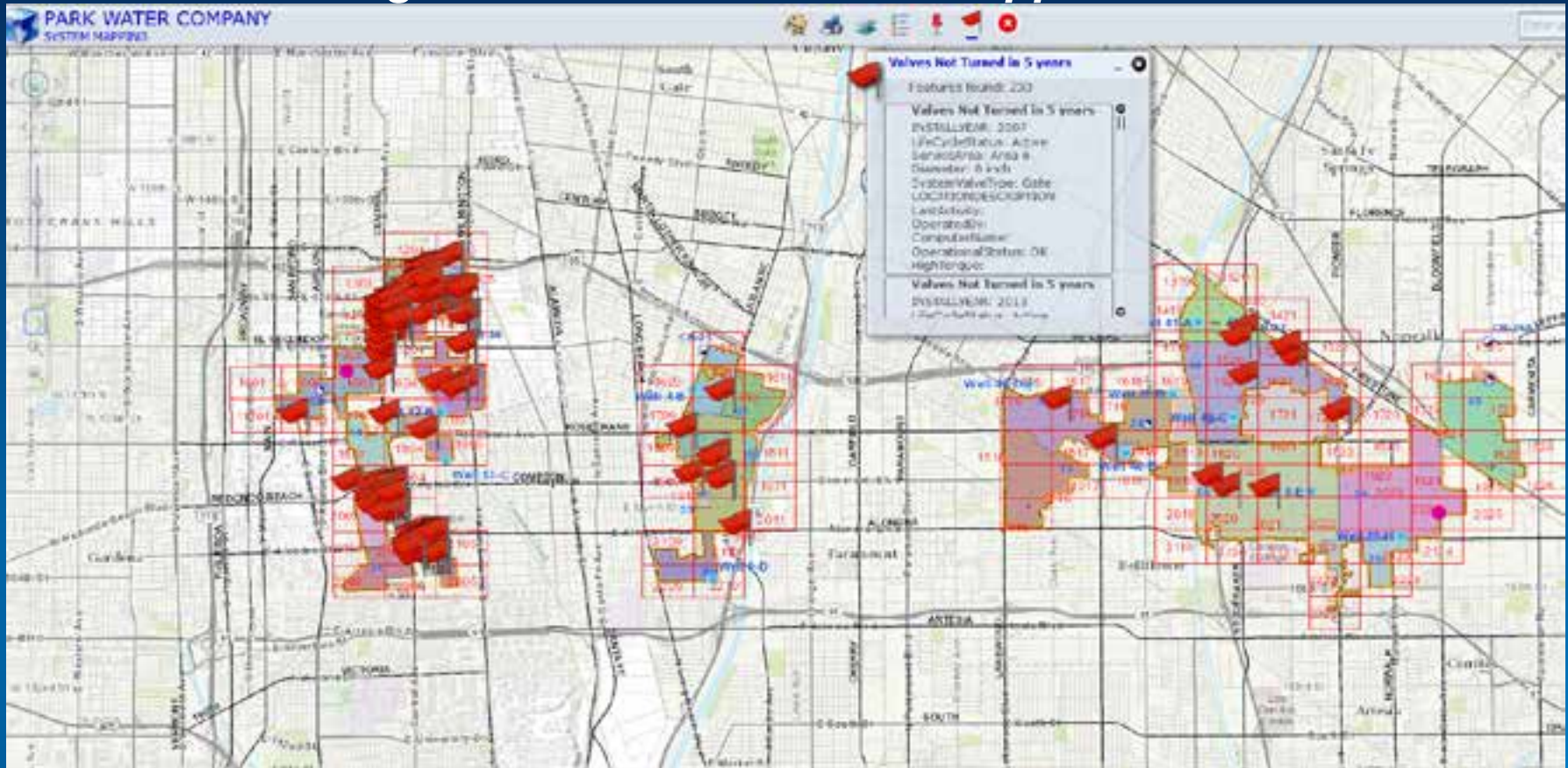


# Using Collected Data with Esri Applications



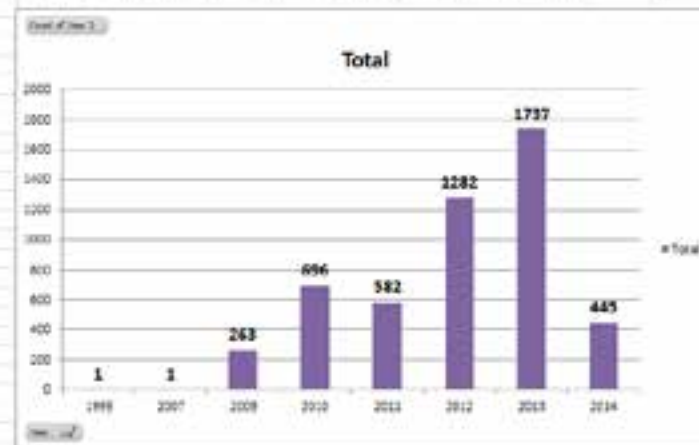
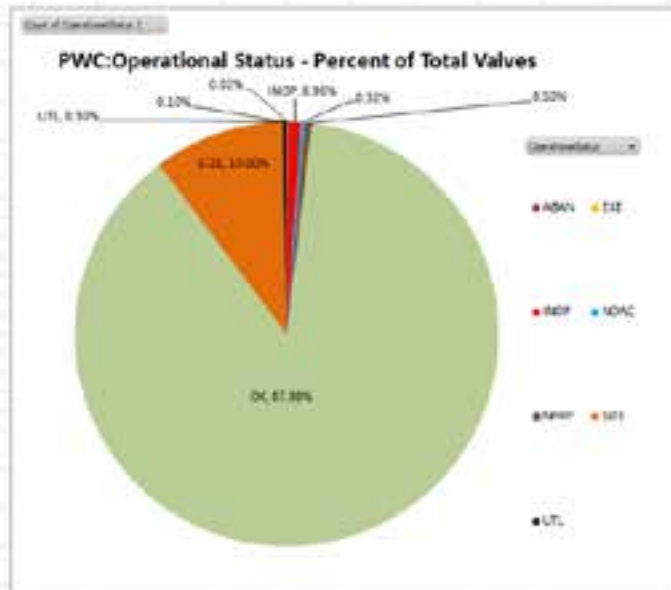
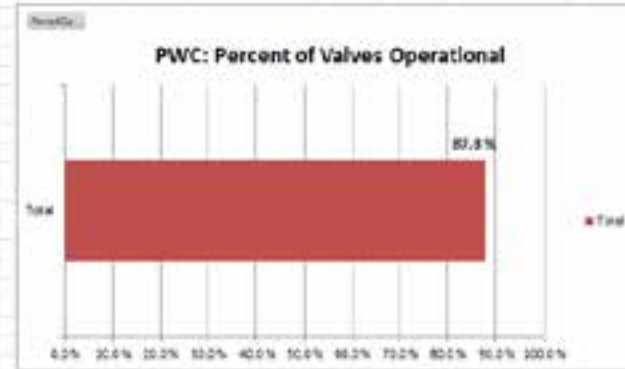
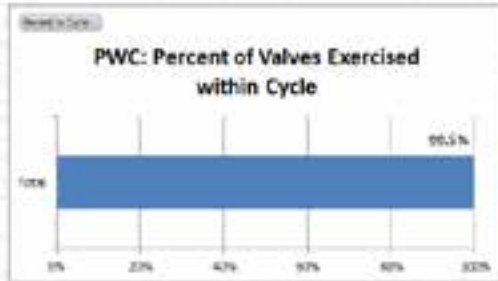
**All data collected in field ends up in GDB by a manual synch.  
Data is consumed by ArcGIS Online and Web Mapping tools.  
Data has been checked and then synched into Master GDB.**

## Using Collected Data with Esri Applications



*All data collected in field ends up in GDB. Those that do not use InfraMap can look at the data just the same.*

# Using Collected Data with Other Applications



**Data is also consumed into other Application by connecting SQL tables. This is for some Key Performance Indicators we have prepared for PWC.**

## *Things to Consider*

- Conduct a needs assessment
  - How complete is my GIS data, what does it contain?
  - What existing work flows are being replaced?
  - What existing databases are being replaced?
  - What new data is being captured in the field & where is it going?
  - What Data Collection Forms are needed
  - Can this new data be used/tied into other company databases, i.e. CIS, WMS, Asset Management, etc.
  - How can all this new field data help in other work, studies, reports?

# Questions?

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