

USING SURVEY 123 TO AUTOMATE DATA ENTRY ACTIVITIES



Thursday, April 26th, 7:00am – 8:00am Room #318



Presented By:

Andy Simpson,
Tacoma Water

INTRODUCTION

- Facts about Tacoma Water and Mapping History
- 2 Survey123 Data Collection Solutions at Tacoma Water:
 - Water Quality Sampling
 - Hydrant Flow Reporting
- Summary & Future Uses



TACOMA WATER FACTS

Basic Info:

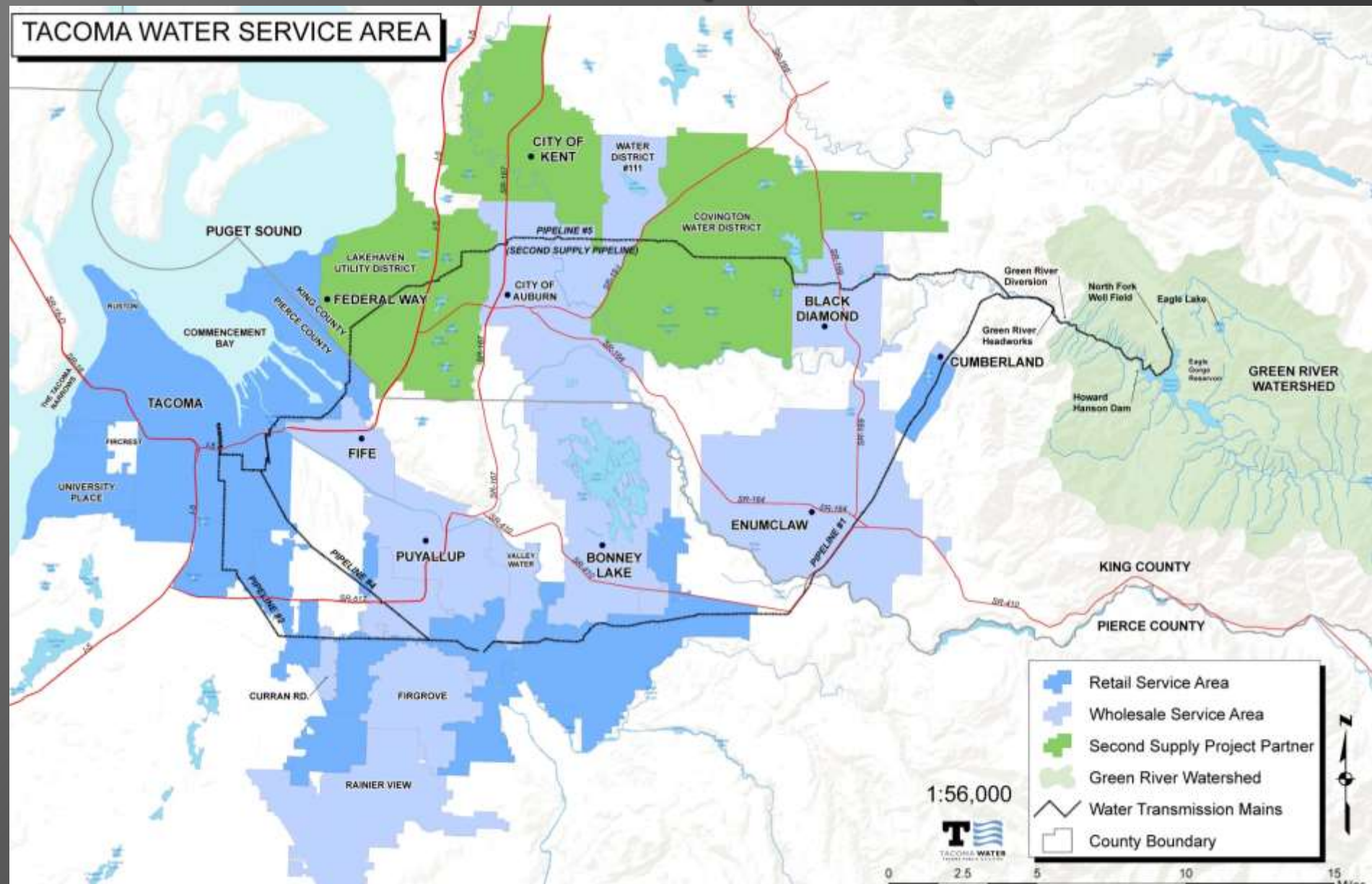
- Purchased by the City of Tacoma in 1893
- Covers 117 square miles of service area
- 239 Employees
- 1,365 Miles of water mains

Water Use:

- Avg. Annual Use per Household: 67,923 gallons
- Avg. Daily Use per Household: 186 gallons
- Avg. Cost per Household: \$360 year / \$30 month
- Total Annual Usage: 6 billion gallons

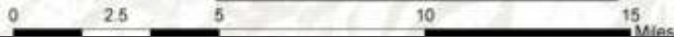
SURVEY 123 & WATER QUALITY SAMPLING

TACOMA WATER SERVICE AREA



- Retail Service Area
- Wholesale Service Area
- Second Supply Project Partner
- Green River Watershed
- Water Transmission Mains
- County Boundary

1:56,000



FACILITIES MAPPING HISTORY OVERVIEW

- Prior to 1990 – Water facilities were mapped using paper
- 1990 - Water infrastructure mapped using AutoCAD and newly created Base Map for the Incorporated are of Tacoma only
- 1996 – Tacoma Water rolls out Autodesk's Map Guide product and provides access to field users via a laptop computer
- 2003 – Tacoma Water acquires University Place and S.E. Tacoma Mutual water systems
- 2014 - Converted from AutoCAD to ESRI GIS mapping system

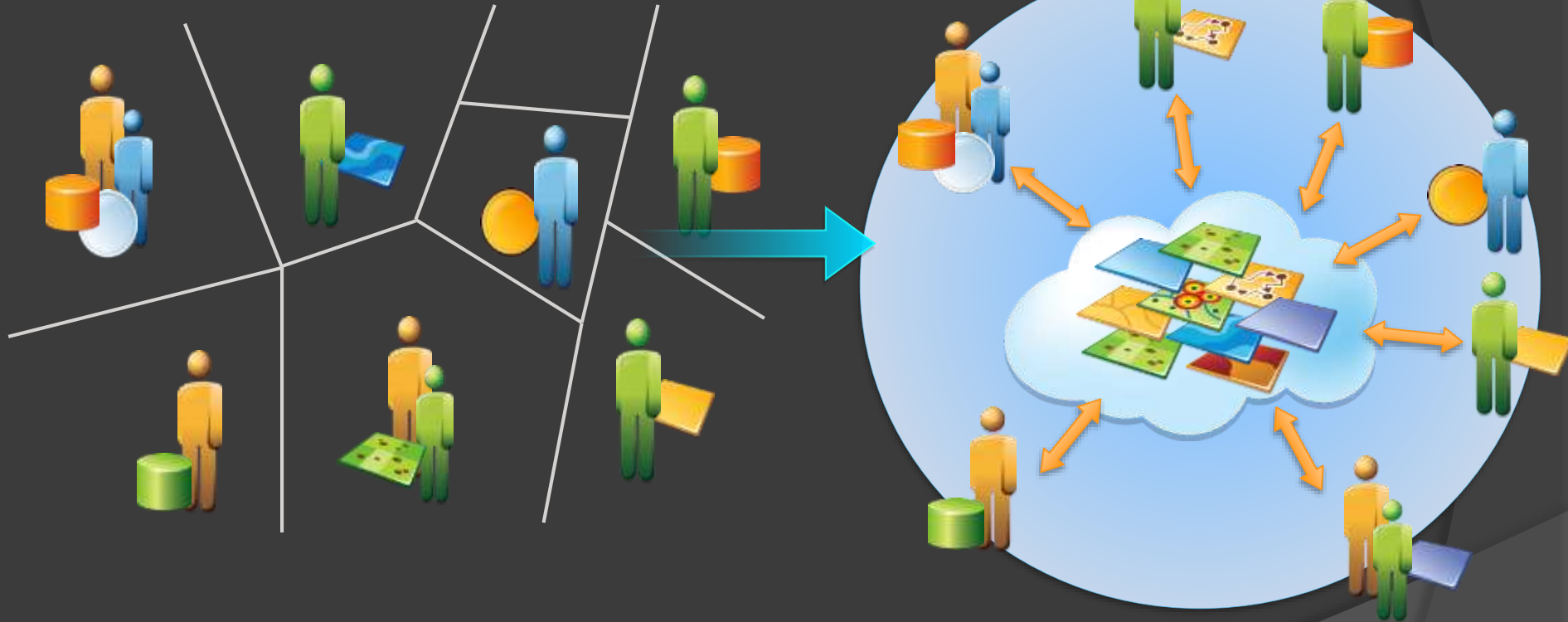
FACILITIES MAPPING HISTORY



ORGANIZATIONAL THINKING ABOUT DATA

Since 2014 State:

Current State:



BEFORE ESRI GIS & NOW

One "Swiss Army Knife" Application to Targeted Applications

Blue Wave Online Map Portal



Supply



System Flushing



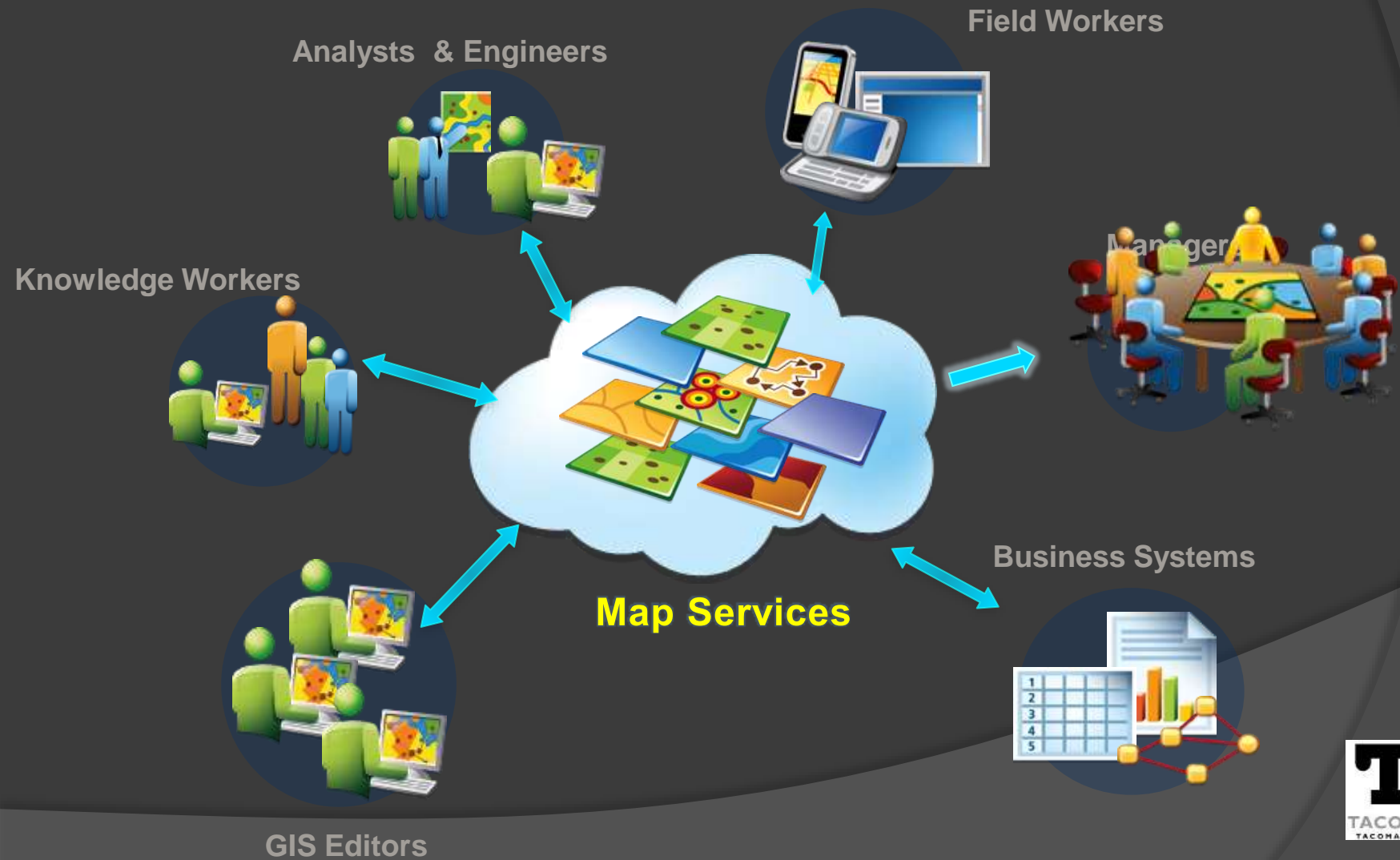
Travels with Flo



Water Purveyors

GIS AT TACOMA WATER

Provide Geo-Spatial Capabilities Across The Entire Organization

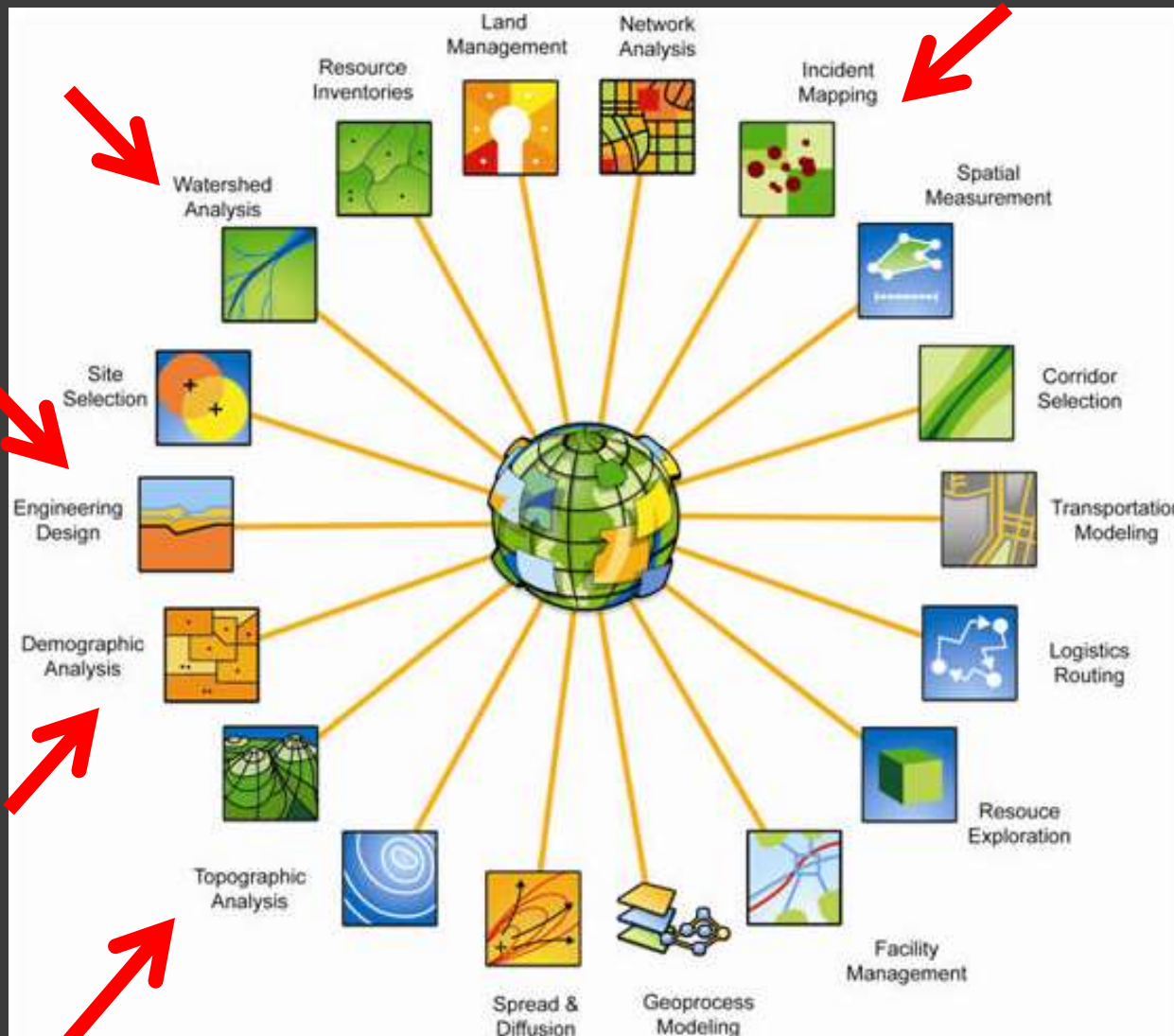


ORGANIZATIONAL TRANSFORMATION

The Organization Starts To Understand what GIS can do!



ORGANIZATIONAL TRANSFORMATION



Plus, the following:

- Hydraulic Modeling
- Economic Modeling
- Water Quality Sampling

FIELD DATA COLLECTION USING SURVEY123

- Water Quality Sampling



CURRENT WATER QUALITY SAMPLING METHOD

Tacoma Water Quality:

- 4 Fulltime Water Quality Specialists
- 110 Sample Locations
- 160-180 Samples taken per month, approx. 40-50 samples per week
- 20-40 avg. Water Quality calls per month, many occur due to our main flushing program, some calls require site visits for further investigation
- Daily Water Quality Self Reporting is Required by the State of Washington and the Pierce County for:
 - pH
 - CL (Chlorine Residual)



CURRENT SAMPLING METHOD



Sample Being Taken



pH measured from the sample

CURRENT SAMPLING METHOD

The pH and CL Values are then recorded on paper sheets:

Monday

ID	NAME	TIME	PH	CL2
501	1701 Pacific Ave - Tacoma Art Museum	9:20	8.14	1.23
601	424 Puyallup Ave	9:30	8.23	1.23
617	2041 Marc Ave	9:45	8.22	1.28
615	3533 E 11 th St	10:05	8.29	1.18
616	2901 38 th Ave NE <i>Top of hill</i>	10:25	8.26	1.28
614	5602 29 th St NE <i>By school</i>	12:10	8.26	1.26
609	4012 314 th St W	11:15	8.36	1.23
606	5225 Tower Ln NE - Indian Hills Reservoir	10:40	8.46	1.18
607	4909 La Hal Da	11:05	8.43	1.15
618	6412 Eastside Dr / Anchoridge	10:55	8.40	1.23
619	6801 9 th St E - Fife Heights	12:25	8.60	1.16
314	3502 E Grandview	12:55	8.27	1.13

Eng. left open

Appendix A

Weeks 2 & 4
Starting Monday 1/9/17 Sampler _____

Monday

ID	NAME	TIME	PH	CL2
501	1701 Pacific Ave - Tacoma Art Museum	9:20	8.14	1.23
601	424 Puyallup Ave	9:30	8.23	1.23
617	2041 Marc Ave	9:45	8.22	1.28
615	3533 E 11 th St	10:05	8.29	1.18
616	2901 38 th Ave NE <i>Top of hill</i>	10:25	8.26	1.28
614	5602 29 th St NE <i>By school</i>	12:10	8.26	1.26
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618	6412 Eastside Dr / Anchoridge	10:55	8.40	1.23
619	6801 9 th St E - Fife Heights	12:25	8.60	1.16
314	3502 E Grandview	12:55	8.27	1.13

Tuesday

ID	NAME	TIME	PH	CL2
304	304 th Way SE & Lake Walker Rd			
102	229xx South Prairie Rd			
100	21401 112 th St E			
104	12399 Falling Water Blvd			
201	14601 155 th St E / High Cedars			
203	11800 136 th Ave E			
204	17216 139 th Ave E - Morning View			
202	11105 127 th St Ct E - Highland Pump Station			
207	6001 154 th St Ct E - Whitcomb			
301	1812 112 th St E - Portland Ave Business Park	11/9	13:55	8.26 1.16
302	3515 E 80 th St - WMA	11/9	14:05	8.25 1.28

Wednesday

ID	NAME	TIME	PH	CL2
501	5303 N 91 st St - North End Reservoir			
500	5200 N Bennett St			
504	4401 N Waterview St			
503	1602 S L St			
504	311 S L St - Mary Bridge			
502	2 Broadway			
509	2600 N Narrows Dr			
409	7705 6 th Ave			
510	4614 S Alzona St			
219	300 North Ln			
204	819 E 64 th St			

Thursday

ID	NAME	TIME	PH	CL2
403	2790 Manitou Way			
514	71xx S 11 th St			
408	1916 Grandview Dr W			
412	4014 Huber Rd			
404	5001 Bridgeport Way W			
405	4300 S Clinton - S. Tacoma Pump Station			
309	1501 972 nd St - TPD Sector 4 Substation			
311	102 E Harrison St	1/9	13:15	8.7 8.29
316	3421 E M St	1/9	13:05	9.6 8.27
314	1363 E 51 st St	1/9	13:55	1.24 8.24
307	1203 E 40 th St	1/9	13:25	1.22 8.28

Black - Taken every week
Red - Taken only on designated week

Original pg 2 System ID: 86800N

CURRENT SAMPLING METHOD

Values are then entered from the Sample Sheet into an Access Database

Weeks 2 & 4
Starting Monday 1/9/17

Monday

ID	NAME	TIME	pH	CL2
601	1701 Pacific Ave - Tacoma Art Museum	9:20	8.14	1.23
602	424 Puyallup Ave	9:30	8.23	1.23
603	2041 Marc Ave	9:45	8.22	1.28
604	3533 E 11 th St	10:05	8.29	1.18
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607	4012 314 th St W	11:15	8.36	1.23
608	5225 Tower Ln NE - Indian Hills Reservoir	10:40	8.46	1.18
609	4909 La Hal Da	11:05	8.43	1.15
610	6412 Eastside Dr / Anchoridge	10:55	8.40	1.23
611	6801 9 th St E - Fire Heights	12:25	8.60	1.16
612	3507 E Grandview	12:55	8.27	1.13

End of data



Sample Data - Microsoft Access

File Home Create External Data Database Tools

View Paste Copy Format Painter Filter Ascending Descending Remove Sort Refresh All Delete Find Size to Fit Form Switch Windows Text Formatting

Water Sample Data Entry

History

Date Time

Sample # Note: 'Tab' twice after entering 'Sample #' while 'Location' is appended automatically

Location

CL2

pH

Taken By

Remarks

Sample Query

Date Query

Positive Hits HPC Ecoli

High HPC Count Total Coliform Fecal Coliform

Navigation Pane

All Access Objects

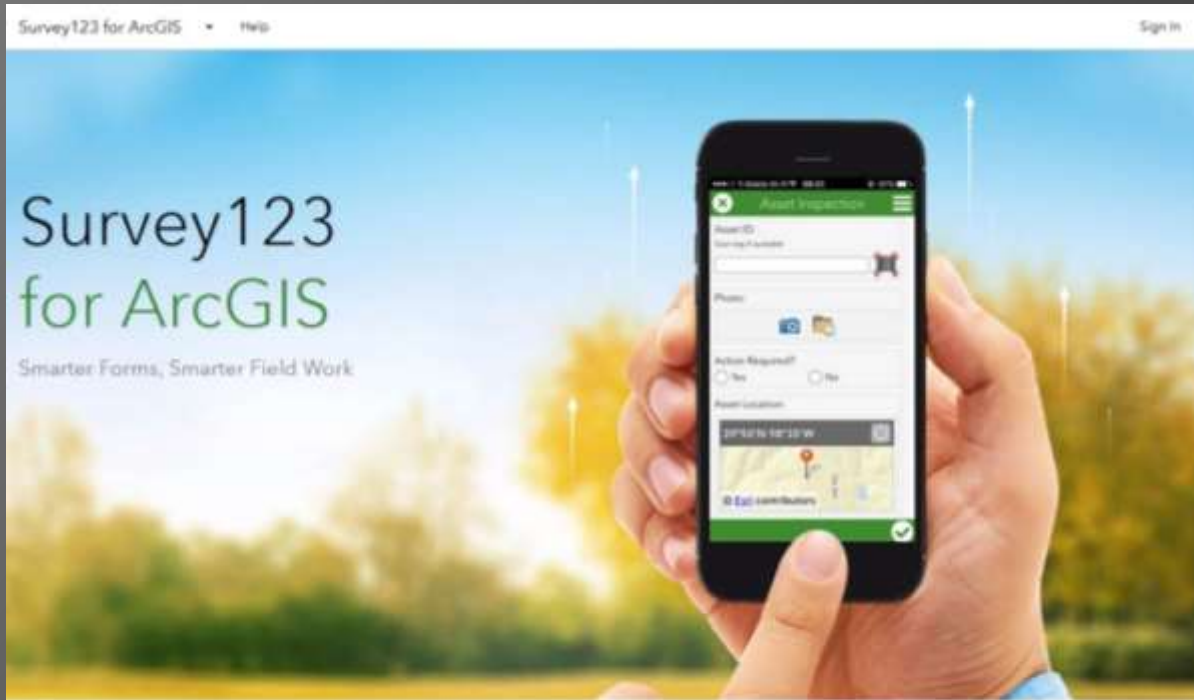
Date	Time	Sample	Locations	CL2	pH	HPC	Total Cr	Fecal Cr	Ecol	Operator	Remarks
1/9/2017	1:00	1	PRV in Orting	1.01		0	0	0	0	ejohnso2	no sample code number given
4/28/2008	12:00	1	8638 Pacific Ave. (Sample Stand)	0.64	7.40	0	0	0	0	jbrooks	
4/21/2008	10:00	1	8638 Pacific Ave. (Sample Stand)	0.62	7.20	0	0	0	0	fchapin	
4/14/2008	9:25	1	8638 Pacific Ave. (Sample Stand)	0.59	7.10	0	0	0	0	twloff	
4/7/2008	10:55	1	8638 Pacific Ave. (Sample Stand)	0.84	7.60	0	0	0	0	blangdon	
3/31/2008	11:10	1	8638 Pacific Ave. (Sample Stand)	0.77	6.50	0	0	0	0	fchapin	

USE CASE - CURRENT SAMPLING METHOD

What we realized about the current sampling method:

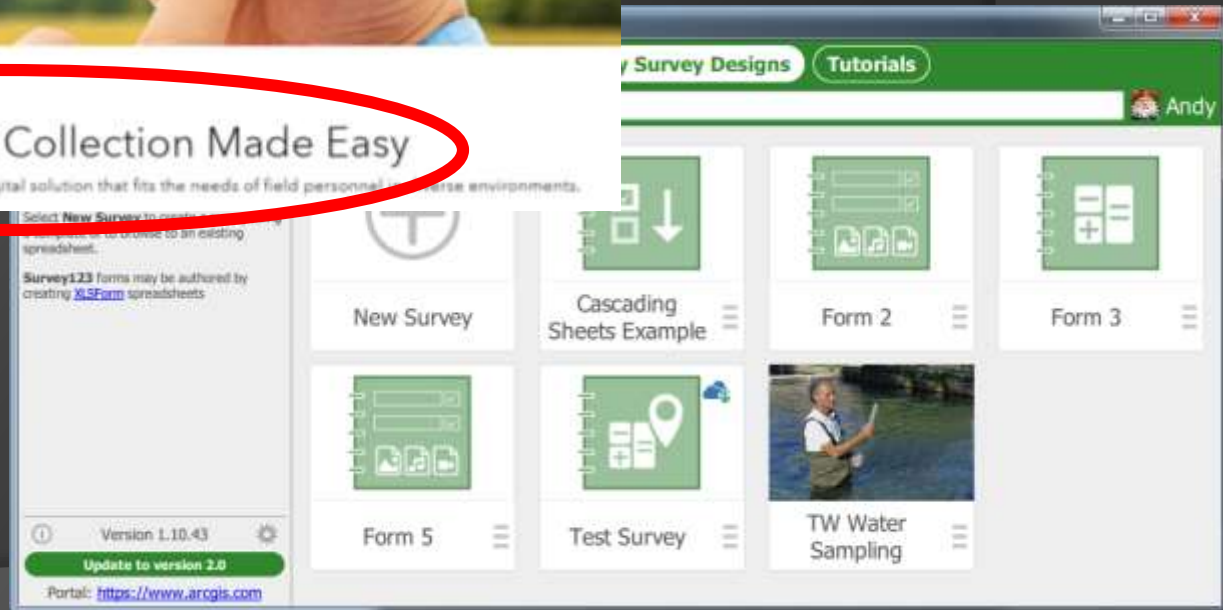
- Paper Based recording works but is time consuming
- A lot of data entry occurring at each step of the process
- Easy to make mistakes and write down the wrong values
- pH and CL sample results are not easily communicated to the rest of the organization quickly or at all

SURVEY 123 SOLUTION

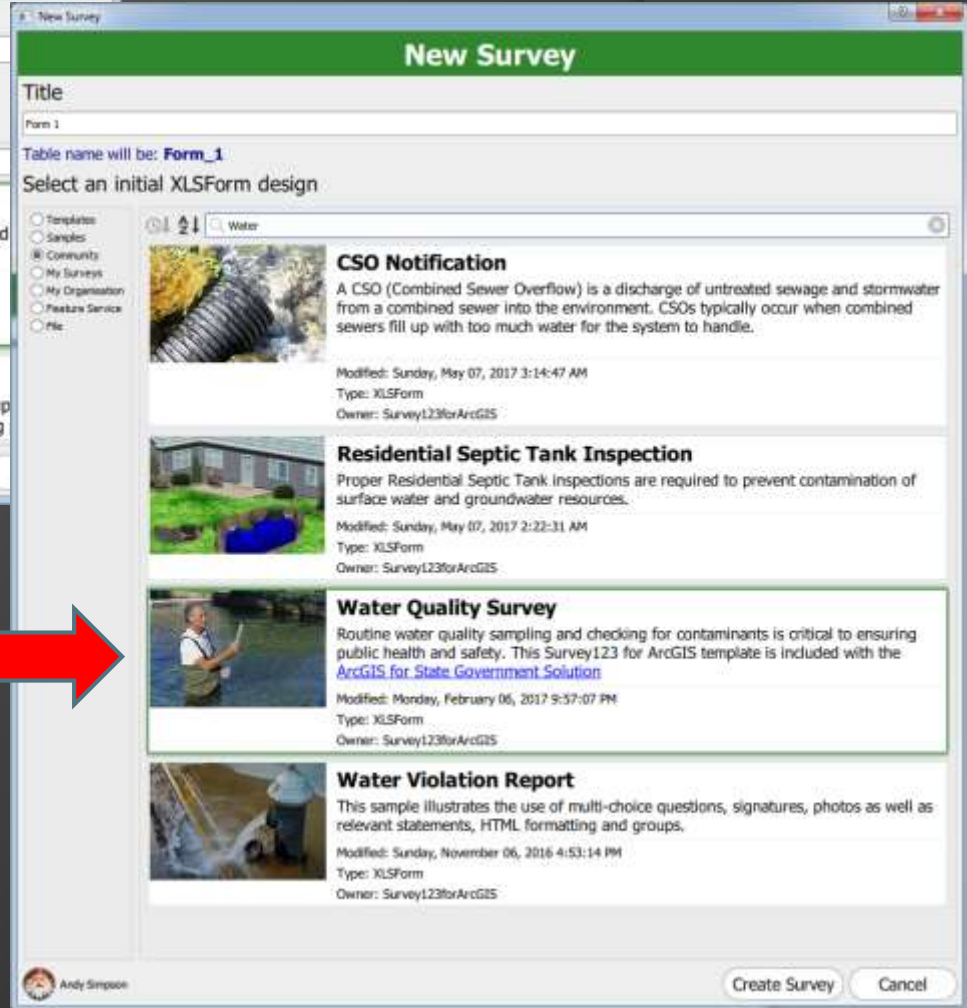
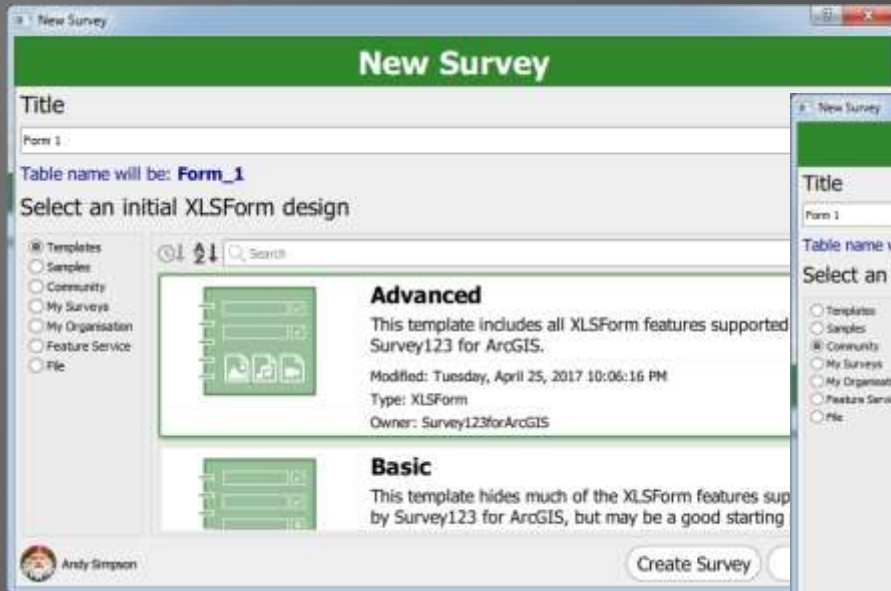


Accurate Field Data Collection Made Easy

Replace unreliable paper-based data collection with a trustworthy digital solution that fits the needs of field personnel in diverse environments.



SURVEY 123 SOLUTION



- By signing into “ArcGIS Online” we had access to several different community shared Survey that had already been configured and could easily be adjusted to meet our needs

SURVEY 123 SOLUTION

Survey123 Connect for ArcGIS

Form Preview Schema Preview Settings

TW - Water Quality Sampling

▼ Sample Station Observation Data:

Date & Time of Water Sample:
4/14/2018 4:19 PM

Station Number & Name: * ← 1

pH Measurement: * ← 2

CL2 Measurement: * ← 3

Celsius Water Temp: * ← 4
(In Celsius)

Notes:

Take a Picture or Attach File:

Leave a Message:

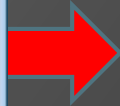
► Additional WQ Observation Data:

▼ Location Information:

Map the Location

Load time on Windows 3.9 seconds

Validate Input



File	Home	Insert	Page Layout	Formulas	Data	Review	View	Add-Ins	Exit Maps	Team	Dev
1	type	name									
2											
3	begin group	WaterBody_Group									1) Time/Date & Location:
4	dateTime	sampledate									At what time the water sample is taken?
5	hidden	sampleDay									Day of the week:
6	hidden	sampletime									Calculated from SAMPLEDATE
7	select_one [list_name]	StationID_1									Station Number:
8	select_one SamplingStation	StationID_1									Sample Station Name:
9	text	FUNCLOC									Functional Location:
10	text	EQUIPNUM									Equipment:
11	username	UserName									Sample Taken By:
12	end_group										
13											
14	begin group	WaterMeasurement_Group									2) Sample Station Observation Data:
15	decimal	ph									What is the pH measurement?
16	decimal	cl2									What is the CL2 measurement?

- The flow of questions in the Survey is determined inside the accompanying worksheet
- Red “*” means that this is a required field
- Drop down Domain like Values are “hard coded” into the worksheet

SURVEY 123 SOLUTION

The screenshot shows the 'My Content' interface. On the left, there is a 'Folders' list with various project folders. On the right, there is a table with columns for Title, Type, Modified, and Shared. Two items are listed: 'TW Water Sampling' (Feature Layer (hosted)) and 'TW Water Sampling' (Form), both modified on Mar 17, 2017.

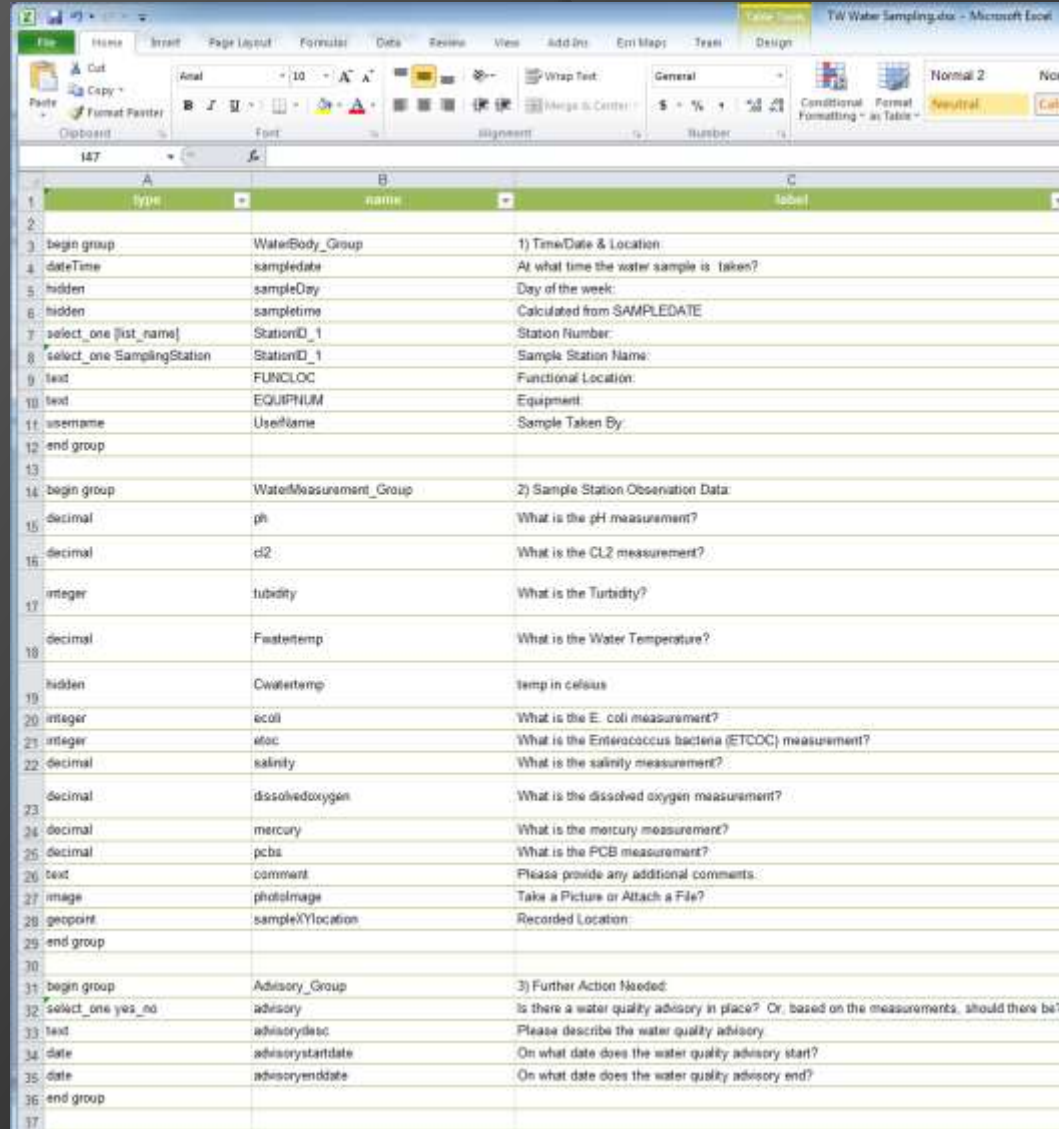
Title	Type	Modified	Shared
TW Water Sampling	Feature Layer (hosted)	Mar 17, 2017	Org:
TW Water Sampling	Form	Mar 17, 2017	Org:

The screenshot shows the 'Survey123 Connect for ArcGIS' interface. The main window displays a 'Form Preview' for 'Sample Station Observations'. A red arrow points to the 'Publish' icon in the left sidebar. A 'Publish Survey' dialog box is open, displaying a warning: 'Warning: This survey has already been published. The existing data service is not compatible with the survey - (Table TW_Water_Sampling not found). If you proceed with publishing again, all previously collected data may be lost. Tip: If you would like to back-up your data before publishing this survey check out this help topic.' The dialog also includes a checkbox for 'I understand that the existing data service will be deleted if possible' and buttons for 'Options', 'Publish Survey', and 'Cancel'.

- After you've designed your Survey, you "Publish" the Survey to your ArcGIS Online Organization account
- Once the Survey is shared within your organization, it can then be downloaded onto any device

SURVEY 123 SOLUTION


- Survey Templates are easily configured using MS Excel
- Notes on the specific data structures are helpful in designing the Survey.
- Controlling which values are hidden from the user but are being auto-populated in the survey is very useful
 - Ex: SAP Station Equipment Number




	A	B	C
	type	name	label
1			
2			
3	begin group	WaterBody_Group	1) Time/Date & Location
4	dateTime	sampledate	At what time the water sample is taken?
5	hidden	sampleDay	Day of the week:
6	hidden	sampletime	Calculated from SAMPLEDATE
7	select_one [list_name]	StationID_1	Station Number:
8	select_one SamplingStation	StationID_1	Sample Station Name:
9	text	FUNCLOC	Functional Location:
10	text	EQUIPHUM	Equipment:
11	username	Username	Sample Taken By:
12	end group		
13			
14	begin group	WaterMeasurement_Group	2) Sample Station Observation Data:
15	decimal	ph	What is the pH measurement?
16	decimal	cl2	What is the CL2 measurement?
17	integer	turbidity	What is the Turbidity?
18	decimal	Fwatertemp	What is the Water Temperature?
19	hidden	Cwatertemp	temp in celsius
20	integer	ecoli	What is the E. coli measurement?
21	integer	etoc	What is the Enterococcus bacteria (ETCOC) measurement?
22	decimal	salinity	What is the salinity measurement?
23	decimal	dissolvedoxygen	What is the dissolved oxygen measurement?
24	decimal	mercury	What is the mercury measurement?
25	decimal	pcbs	What is the PCB measurement?
26	text	comment	Please provide any additional comments.
27	image	photoimage	Take a Picture or Attach a File?
28	geopoint	sampleXYlocation	Recorded Location:
29	end group		
30			
31	begin group	Advisory_Group	3) Further Action Needed:
32	select_one yes_no	advisory	Is there a water quality advisory in place? Or, based on the measurements, should there be?
33	text	advisorydesc	Please describe the water quality advisory.
34	date	advisorystartdate	On what date does the water quality advisory start?
35	date	advisoryenddate	On what date does the water quality advisory end?
36	end group		
37			

Survey123 for ArcGIS


My Surveys



Hydraulic Model Flow Testing



TW Hydrant Flow Testing





TW Water Quality Sampling

Survey123 for ArcGIS

TW Water Quality Sampling

A water quality sampling app for Tacoma Water.

 **Collect**
Start collecting data

 **Sent**
Review sent survey data

Survey123 for ArcGIS

TW - Water Quality Sampling

Sample Station

Date & Time of Water Sampling: 4/14/2018

Station Number & Name: 701 Pacific Ave - Tacoma

pH Measurement

CL2 Measurement

Water Temp Measurement
(In Fahrenheit)

Notes:

Take a Picture or Add a Location

Survey123 for ArcGIS

TW - Water Quality Sampling

Leave a Message:

Additional WQ Observation Data

Turbidity Measurement:
Nephelometric Turbidity Unit (NTU)

Conductivity Measured:
(umhos/cm)

Total Coliform Count:
(per 100 mLs)

Heterotrophic Plate Count (HPC):
(per mL)

Escherichia Coli Count:
(per mL)

Enterococci Count:
(per 100 mLs)

Fluoride Measurement:
(mg/l)

Survey123 for ArcGIS

TW - Water Quality Sampling

Escherichia Coli Count:
(per mL)


Enterococci Count:
(per 100 mLs)


Fluoride Measurement:
(mg/l)

Location Information:

Map the Location

47°15'N 122°26'W





MAPS WITH SURVEYS FILTERED

ArcGIS Water Sample Map Report

Find address or place

TW Water Sampling View

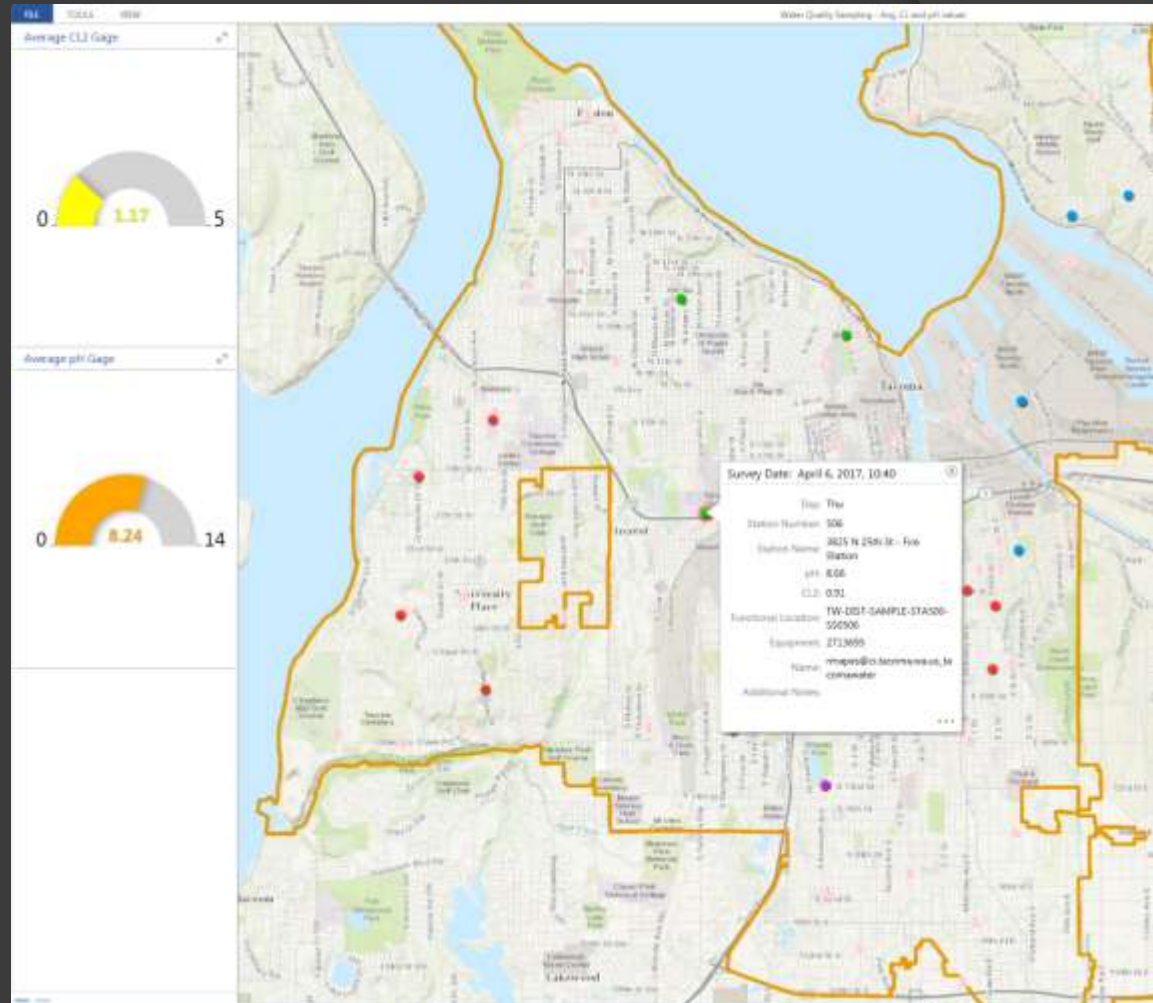
Options Filter by Map Extent Zoom to Clear Selection Refresh

Station Number	Sample Station Name	sampleDay	At what time the water sample is taken?	sampleTime	What is the pH measurement?	What is the CL2 measurement?	UserName	Please provide any additional comments.
615	3533 E 11th St	Tue	May 16, 2017	10:55	6.80	4.00	mhasty@ci.tacoma.wa.us_taci	
609	4012 314th St W	Tue	May 16, 2017	11:39	8.80	2.00	mhasty@ci.tacoma.wa.us_taci	
615	3533 E 11th St	Tue	May 16, 2017	12:26	7.30	1.57	mhasty@ci.tacoma.wa.us_taci	
314	3502 E Grandview	Tue	May 16, 2017	12:31	6.90	3.20	mhasty@ci.tacoma.wa.us_taci	
606	5225 Tower Ln NE - Indian Hills Reservoir	Tue	May 16, 2017	12:39	7.00	4.00	mhasty@ci.tacoma.wa.us_taci	

5 features 0 selected

DASHBOARDS

- Results can be shared with the rest of the organization quickly through ArcGIS Online Maps, Web Apps and Dashboards.
- Problems can be spotted quicker and values can be analyzed more graphically.
- A single location over a defined period of time or across all of the locations in one view.



FIELD DATA COLLECTION USING SURVEY123

- Hydrant Flushing and Flow Reporting



SURVEY 123 SOLUTION

Hydrant Flushing:

- Flow Testing needed to verify Fire Flows
- Usually completed at night or early morning
- 3-4 man crews
- 1-2 flow tests per month
- Results usually written on paper sheet and then manually entered into an excel worksheet several day later
- Observed Values plugged into equations and recorded



What we realized about the current Hydrant Flow Testing method:

- Paper Based recording of Values does work but is time consuming
- A lot of data entry occurring at each step of the current process here
- Easy to make mistakes and write down the wrong values
- Equations could be automated with Values from Survey
- Results are not easily communicated to the rest of the organization quickly or at all

SURVEY 123 SOLUTION

Survey123 Connect for ArcGIS

Survey123 Connect for ArcGIS

My Survey Designs Tutorials

Form Preview Schema Preview Settings

Water Flow Test Summary

Flow Test Info:

Date/Time of Test: *
 4/14/2018 10:48 PM

Residual Hydrant Tag #: *

Observations Taken By: *

James Vaughn Conan Scott Rich
 Southern Mylan Kempf Lafrenier She
 Kyle Wicks Other

Residual Hydrant Gauge Readings (Before Flow Test)

Static PSI Reading: *

▶ Flow Test Hydrant #1:

▶ Flow Test Hydrant #2:

▶ Flow Test Hydrant #3:

Residual Hydrant Gauge (After Test - Final Reading)

Final Static PSI Reading

Load time on Windows 34.2 seconds


TW Hydrant Flow Testing.xlsx - Microsoft Excel

type	name	label
37	text	FTHydTAG3 Hydrant Tag #3:
38	decimal	ResHydPSIDurTst3 Residual Hydrant PSI Reading (During Test #3)
39	select_one	HydOutletN FTHydSizeWOutlets3 Number of Outlets & Size
40	hidden	FTHydSiz4or45tst3 4" or 4.5" Test
41	decimal	FTLength3 Length of Flow Test (In Minutes)
42	decimal	FTPitotPSI4Inch3 4" - 4.5" Outlet Pitot Tube Measurement (PSI)
43	decimal	FTPitotPSI25A3 2.5" Outlet (A) Pitot Tube Measurement (PSI)
44	decimal	FTPitotPSI25B3 2.5" Outlet (B) Pitot Tube Measurement (PSI)
45	decimal	FTCalcGPM4Inch3 Calc 4" - 4.5" Outlet in GPM
46	decimal	FTCalcGPM25A3 Calc 2.5" Outlet (A) in GPM
47	decimal	FTCalcGPM25B3 Calc 2.5" Outlet (B) in GPM
48	end group	
49	begin group	ResHydGaugeReadFir Residual Hydrant Gauge (After Test - Final Reading)
50	decimal	ResPSIAfterTest Final Static PSI Reading
51	end group	
52	begin group	FTResultsSummary Flow Test Results and Summary:
53	decimal	StaticPressure Observed Static Pressure (In PSI)
54	decimal	ResidualPSI Lowest Observed Residual PSI (During Test)
55	decimal	DesiredResidualPSI Desired Residual Pressure
56	decimal	TotalGPMDischarge Total GPM Discharge (During Test)
57	decimal	FlowAtDesiredPSI Flow Available At Desired Pressure
58	end group	
59	text	FlowTestNotes Flow Test Notes:
60	audio	NotesWavFile Record a Message
61	image	photoImage Take a Picture or Attach a File?
62	begin group	HydInfoSection Residual Hydrant Characteristics:
63	text	ResHydPZ Pressure Zone
64	text	ResHydStatPress Calculated Static Pressure (In PSI)
65	text	ResHydSize Size (Inches)
66	text	ResHydType Type
67	text	ResHydMan Manufacturer
68	text	ResHydModelRef Model Number
69	text	Address Associated Address
70	text	CrossStreet Nearest Cross Street


Validate Input

Survey123 for ArcGIS


My Surveys



Hydraulic Model Flow Testing



Hydrant Flow Testing



TW Water Quality Sampling

Survey123 for ArcGIS

Water Flow Test Summary

Flow Test Info:

Date/Time of Test: *
 4/14/2018 10:16 PM

Residual Hydrant Tag #: *
 7880

Observations Taken By: *

James Southern Vaughn Mylan
 Conan Kempf Scott Lafrenier
 Richard Shepherd Kyle Wicks
 Other

Associated Address:
 4300 CENTER ST

Nearest Cross Street:
 S MASON AVE / CENTER ST

Location Description:
 WLMG @ ENTR TO 4302 CENTER ST

Residual Hydrant Gauge Readings:

PSI Reading #1 (Before Test): *
 0

PSI Reading #2 (During Test): *
 0

Survey123 for ArcGIS

Water

Residual Readings

PSI Reading
45

PSI Reading
35

PSI Reading
45

Flow Test

Hydrant T
3154

Number of
(2) x 2.5"

Length of P
-

4"- 4.5" Ou
Measureme
28.5

Calc 4" - 4
2290.8739

2.5" Outlet

Survey123 for ArcGIS

Water Flow Test Summary

Flow Test Results and Summary:

Observed Static Pressure (In PSI): *
 45

Observed Residual PSI (During Test): *
 35



Desired Residual Pressure: *
 20

Total GPM Discharge (During Test): *
 4245.489097023848

Flow Available At Desired Pressure: *
 6963.303660128636

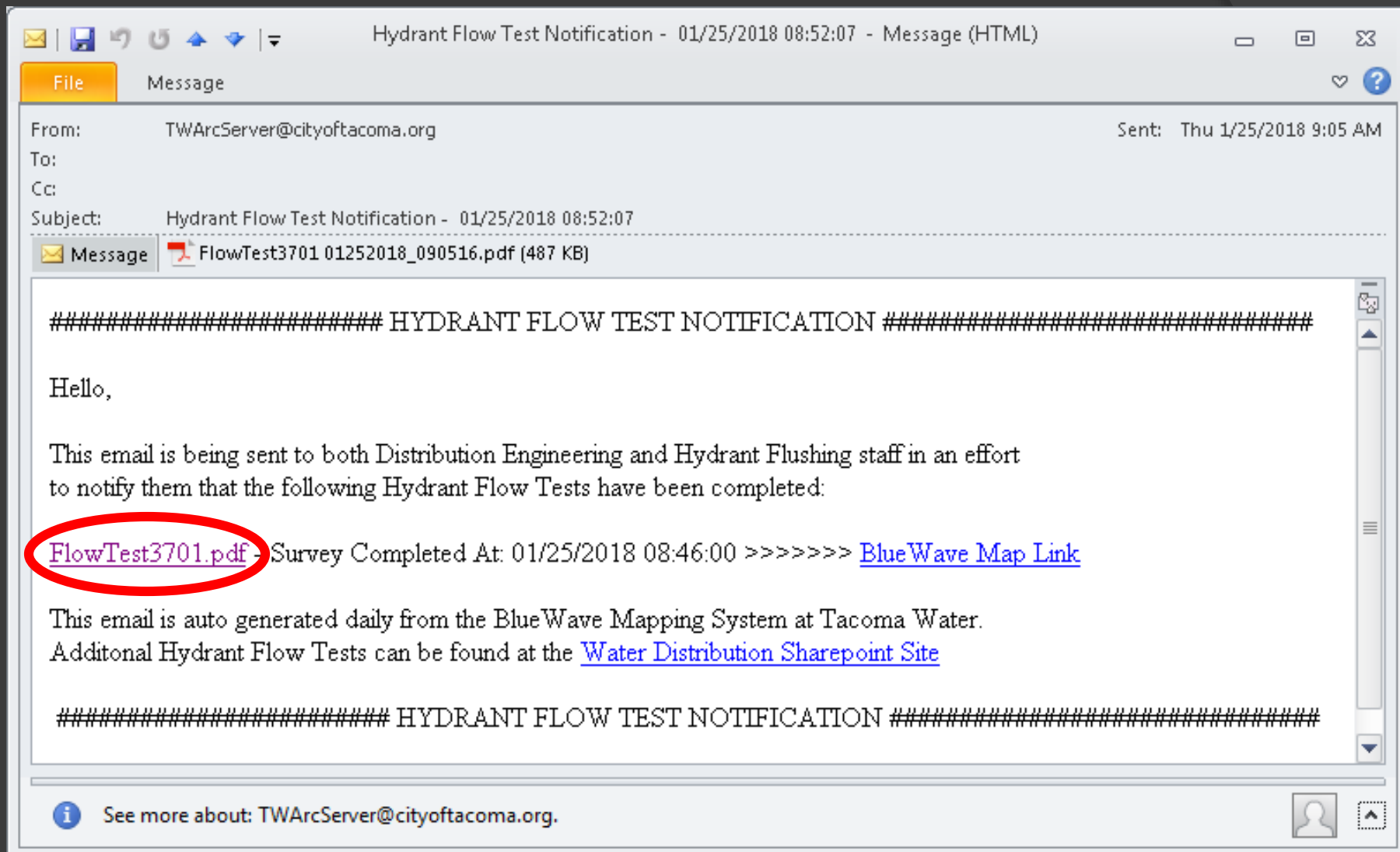
Flow Test Notes:

Take a Picture or Attach a File?



SURVEY 123 SOLUTION



Date/Time:	01/25/2018 08:46:00
Res Hyd ID (R1):	3701
Location Desc:	4600 E C ST 8 FT S OF SLMG
Res Hyd Size:	6"
Res Hyd Type:	Compression Hydrants
Flow Test Types:	1x4
PZone ID:	581
Res SAP FL:	TW-DIST-HYDRNT-003701
Calc'd Static:	87.9 PSI
Observers:	Jsouthern,Ckempf,VMylan,SLaFrenier

Hydrant Test Sequence:	Time (mins.)	PSI
3701 (R1) Static		84
11314 (F1) 1x4	6	34
3701 (R1) Static		84

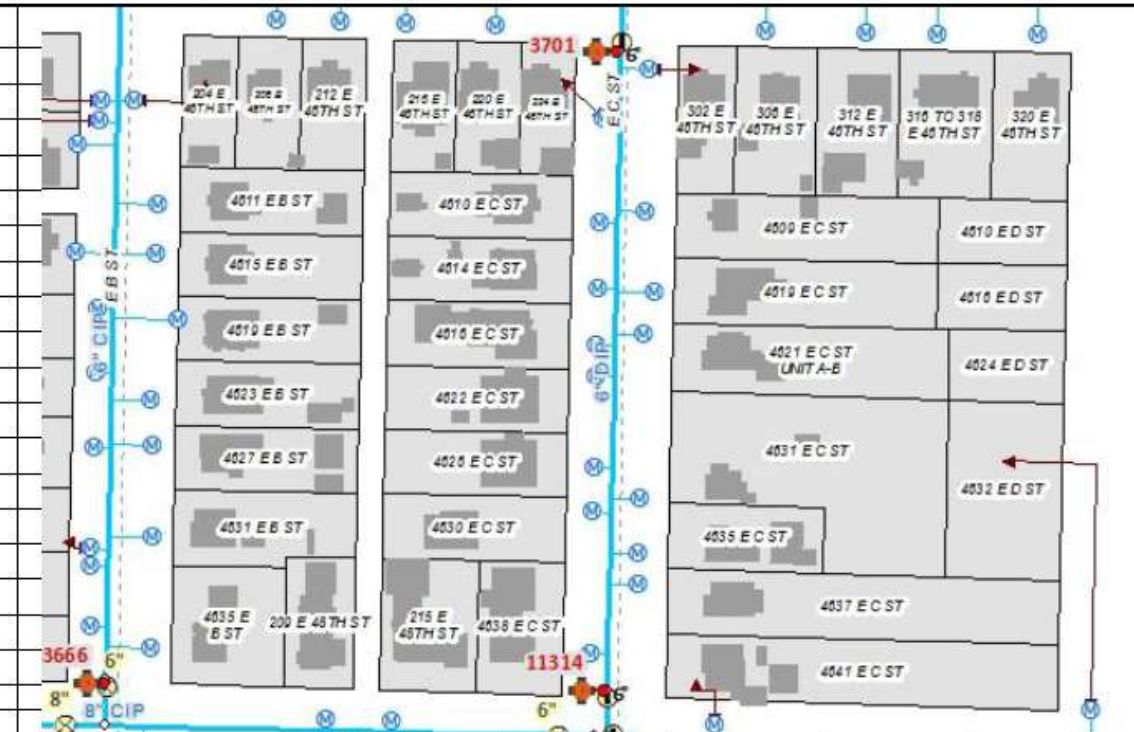
Flow Hydrant Discharge Data:

Hydrant Tag ID	Outlet Diameter	Pitot PSI	GPM
11314	4"	12	1,486.5
Total:			1,486.5

Summary and Results:

Static PSI	Lowest Residual PSI	Discharge GPM	Desired PSI	Flow (GPM) Available At Desired PSI	Notes on Supply:
84	34	1,486.5	20	1,698.5	

1,698.5 GPM Available @ 20 PSI.



Remarks:
lot of dirty water and had 50psi drop

SURVEY 123 SOLUTION

Hydrant Flow Test Notification - 01/25/2018 08:52:07 - Message (HTML)

File Message

From: TWArcServer@cityoftacoma.org Sent: Thu 1/25/2018 9:05 AM

To:

Cc:

Subject: Hydrant Flow Test Notification - 01/25/2018 08:52:07

Message FlowTest3701 01252018_090516.pdf (487 KB)

HYDRANT FLOW TEST NOTIFICATION

Hello,

This email is being sent to both Distribution Engineering and Hydrant Flushing staff in an effort to notify them that the following Hydrant Flow Tests have been completed:

[FlowTest3701.pdf](#) - Survey Completed At: 01/25/2018 08:46:00 >>>>>> [Blue Wave Map Link](#)

This email is auto generated daily from the BlueWave Mapping System at Tacoma Water. Additional Hydrant Flow Tests can be found at the [Water Distribution Sharepoint Site](#)

HYDRANT FLOW TEST NOTIFICATION

See more about: TWArcServer@cityoftacoma.org.

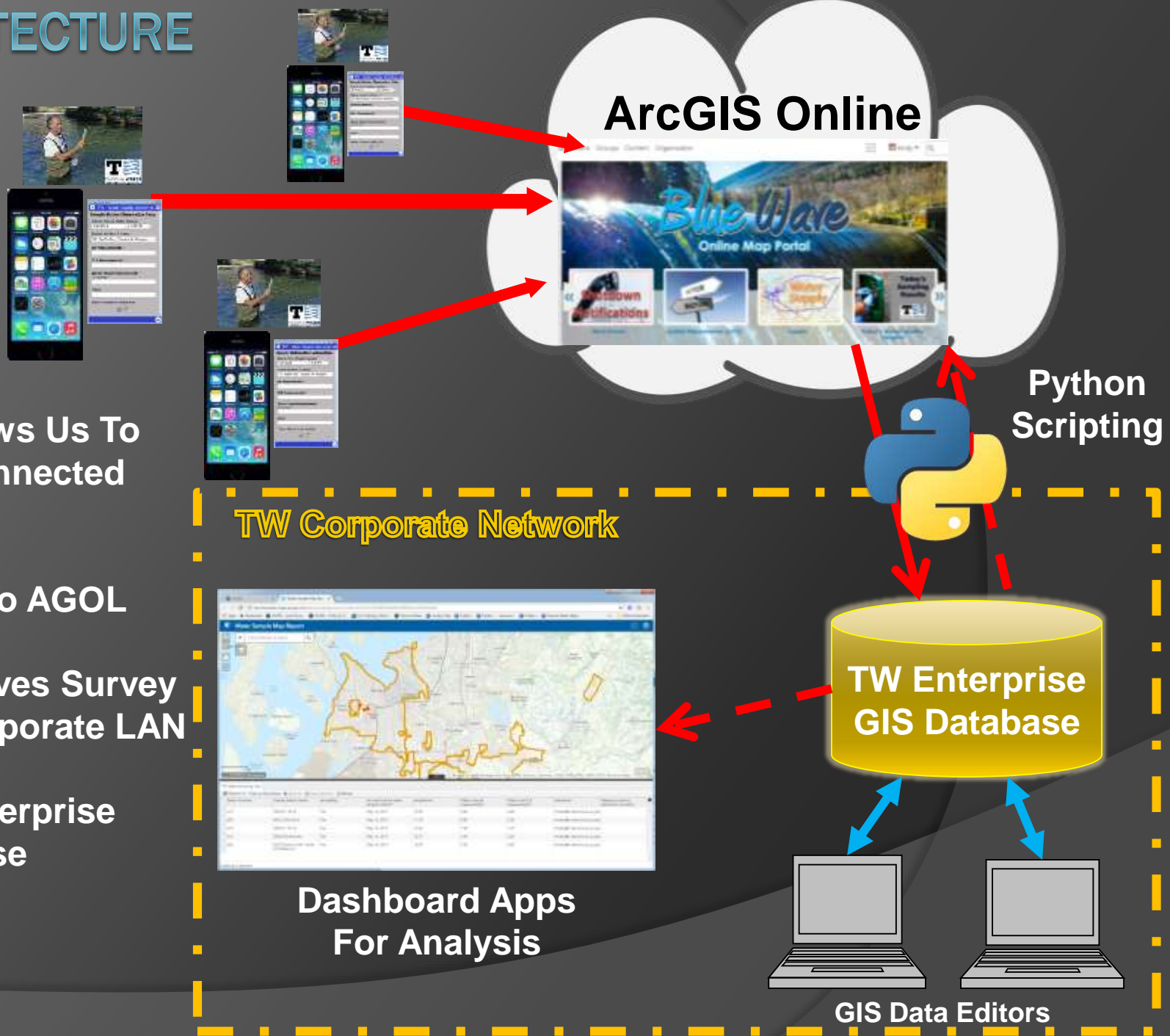
SURVEY 123 SOLUTION

The screenshot displays the BlueWave web application interface. At the top, there is a menu bar with 'File', 'Edit', 'View', 'History', 'Bookmarks', 'Tools', and 'Help'. Below the menu is a browser address bar showing the URL 'http://tew.redbrickhe...'. The main content area features a map of a residential street grid with various utility lines and hydrants. A popup window is open over a hydrant, displaying the following information:

- Hydrant Tag: 3701
- Scanned DO (if Available): TW-DIST-HYDRNT-003701
- Project Number:
- Size: 6"
- Status: INS RENT
- SAP Equipment Info
- Hydrant Flow Test Link

At the bottom of the map, there is a scale bar (0 to 60 feet) and a copyright notice: 'Tacoma Water | Pierce County, Tacoma Water | Tacoma Water, King County and Pierce County | Tac...'. The BlueWave logo is visible in the top left corner of the application window.

ARCHITECTURE



-AGOL Allows Us To Have Disconnected Editing

-User SSO to AGOL

-Python Moves Survey Data To Corporate LAN

-Data to Enterprise GIS Database



GIS Data Editors

SUMMARY

Lessons Learned:

- Don't be afraid or reluctant to try and fail a few times when designing and publishing a survey.
- Try and gather as much end user input upfront on the work flow that Survey may replace because you can't make substantial changes to survey once it is deployed
- Plan on completely replacing or republishing your survey a few times.
- Go to the Survey 123 Blog for information and help, chances are someone has run into the same issue that you have:
 - <https://geonet.esri.com/groups/survey123/blog>
 - Like how to delete a survey from a device

SUMMARY

Major Benefits:

- Easy to get started using predesigned templates
- Works on any device
- Can be shared quickly through ArcGIS Online and communicated out to other business units in a more graphical way
- Reduces our reliance on paper and creates better overall data
- Allows You to work disconnected from the Corporate Network
- Free and Easy to use with lots of configurability
- Saves staff time and makes data collection easier



SUMMARY & NEXT STEPS

- We recently cut over to the Survey123 method in April
- Converted all of the existing MS Access observation
- More Dashboards and Reports
- Improved data collection method is going to save time and money
- Better Data = Better Decision Making!!

Questions?



Andy Simpson, GISP
253-441-4860
asimpson@cityoftacoma.org