ESRI WATER CONFERENCE 2015

Turn Your Pipeline Inspections into Actionable Intelligence with ITpipes and Esri

Mark Shell Darrell Gadberry City of Fort Worth, Texas Water Department

ESRI Water Conference 2015 Portland Oregon February 11, 2015

Fort Worth Collection System (3,046 miles)

- 2000 2014 growth increased system footage by 37% (1,132 miles or 81 miles per year)
- However, 21% of the wastewater system is still over 50 years old (6" to 96")
- Recent growth has placed increased burden on existing aging infrastructure



Fort Worth Water Department

- 3,046 miles of sanitary sewer pipe and 8 CCTV crews
- Sanitary Sewer Condition Assessment (SSCS) Program;
 - Inspect 284 miles of small diameter (=< 21") of pipe per year
- Interceptor Condition Assessment Program (ICAP);
 - Outsource 36 miles of large diameter (> 21") pipe inspection per year (ICAP)



Fort Worth Water Department

- Fort Worth utilizes ESRI's model for water and wastewater geodatabase design
- Allows for interface with ESRI business partners for "off-the-shelf" integration
- Minimum customization, if any



Fort Worth Water Department

- ITpipes since 2009, digital since 2003
- Inspection data is SQL
- Dedicated 4TB server for all media
- All CCTV data and media is integrated with GIS
- All CCTV inspection projects are created in GIS

- ITpipes' Send export's GIS asset information into ITpipes inspection projects
- ITpipes' ViewIT allows any user to access CCTV data, pictures and videos



Actionable Intelligence – CCTV Basics

An Observation & Defect Manual is a Must



NOTE: THE PIPE DEFECT AND RATING LEVEL SHOWN ON THE PICTURES ABOVE MAY NOT BE APPLICABLE TO THE EXAMPLE PICTURES SHOWN

Actionable Intelligence – End Users

- ITpipes' Send export's GIS asset information into ITpipes inspection projects
- ITpipes' ViewIT allows any user to access CCTV data, pictures and videos

ViewIT					
*		Reports			
~ Asset					
DATE	6/2/2019 7:55:13 AM				
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Consultar	nt Contact Na.	. ROD THOP	ROD THORNHILL							
Consultar	nt Contact PH	# 214-725-89	214-725-8976							
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Contracto	r Contact	BRUCE JAI	MESONBRU	ICE						
Contracto	r Contact PH	# 817-401-36	39							

Actionable Intelligence – Power Users

- Inspection data (Sonar, Laser, & HD Video) stored in ITpipes Software
- Integrates HDTV, 3D, Laser and Sonar data, and Hydraulic model results into one software package

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- Quick access to previous inspections allows the "life" of an asset to be viewed for "Benchmarking"
- Future inspection efforts can be focused on specific pipe segments instead of entire interceptors; reducing inspection cost 8

Actionable Intelligence – Data Mining

- To date 53% of the entire WW collection system has an actual condition score
- 3% of the Entire WW Collection System is Projected to Have a RUL score of 4 or 5
- By 2019 +/- approximately 100% of the system will have an actual condition score



Actionable Intelligence – Asset Management



Actionable Intelligence – CIP Planning



Actionable Intelligence – Spatial Analysis

- Inspections are interfaced with GIS
- CCTV queries such as:
 - Replacement recommendations
 - Open Cut Spot Repairs
 - Trenchless Spot Repairs
 - Roots
 - Grease
 - ➢ Etc.
- Historical O&M work orders:
 - Stoppages/blockages
 - Sanitary Sewer Overflow (SSO)
 - ➢ Etc.



Fort Worth's ArcGIS Online iPhone

Water lines with imagery



Ability to display attribute table and other documents

••••• AT&T LTE 1:10 PM 7 \$ 69%	••••• AT&T LTE 1:10 PM 7 \$ 69% ■	••••• AT&T LTE 1:11 PM
Мар	Мар	mapitsouth.fortworthitexas.gov
Water Main Lines : X-12344	Z2H TAD Grid	
Line Type	2066-464	28 20 24 4 4 4 4 4 4 1 18
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Displays active work orders



Return on Investment (ROI) / Cost Saving

- Our Field Operation Division saves approximately \$50,000 annually
- Instant access for outside users; engineering, development, new service request GIS mappers, customer requests, etc. results in approximately \$50,000 annually
- Paper maps verses GIS Online \$150,000 annually
- Beginning stages of rolling out ITpipes' Sync Tool. Eliminate hard drive data transfers. Automated network connection and "sync" from office to CCTV unit and CCTV unit to office. Estimated annual savings equals \$150,000

Questions?

