

BENEFITS OF MAPPING YOUR ASSETS: WHAT YOUR WATER UTILITY MAP CAN TELL YOU BESIDES WHERE THINGS ARE

PRESENTED BY HEATHER HIMMELBERGER & JAMES MARKHAM

Why did we ask about:

Mapping?

6" CASTIRO

6" CAST IRON 6" CAST IRON

2" CAST IRON

Asset Management?

Capital Improvement Planning? Water Loss Auditing/Control?

6" CAST IRON 6" CAST IRON

RON

IR ON

ST IRON

ST IRON

CAST IR ON

2" CAST IRO

CAST IR ON

Rates & Fiscal Planning?

ATT PV

Because maps can tell you more than you think.

So what is a map? "a diagrammatic representation of an area of land or sea showing physical

features, cities, roads, etc."





272 248 242 273 8 169 169 238 236 237 177 121 191 36 237 177 178 191 166 166 179 179

ALL TYPES OF MAPS CAN BE USEFUL.

We tend to think of maps in terms of:

One type of "what": Assets ...

What assets do you own?

Which would be helpful on a map? Start with things that will help you the most.

Where?

Equipment & Software

records

MAPPING

MAKE MAPS, USE THEM & IMPROVE THEM

Use your maps, improve them and keep them current. A tool that isn't used is worthless.

PROOF DATA

Review your data. Does it make sense? Are there conflicts?

COMBINE SOURCES

Pull together useful data from other available sources.

Maps can tell you much more than what & where...

Example options:

- Operational status? Pressure?
- Acceptable usage?
- Condition?
- Is it part of flushing program? What's the testing schedule? What's the hydrant color? What does the color mean? Is it locked? Who has keys?

Break Data:

- Real Water Loss Control
- Capital Improvement planning
- Prioritizing Pipe Replacement
- Estimating Condition & Useful Life

What other data can we consider?

Leverage your datafor your maps

Data in one format: A physical map book

Data in another format: Excel

Å	A	В	с	D	E	F	G	н	1
1				WATER & SEW	ER LEA	AK CAL	L LOG		
2	WA/SE	DATE	TIME	ADDRESS	USER	CALLED	NOTES	UPDATES	WORK TICKET #
3	WA	2/9/2016	10:38AM	OLD HILLSIDE NURSING HOME	вн	RM	FIRE HYDRANT RUNNING	CREW WORKING ON LINE PER RM @ 10:50AM	48674
4	STREET	2/9/2016	11:24AM	1008 PLEASANT	DD	RM	LEAK IN THE STREET	FIXED	48642
5	SE	2/10/2016	10:00AM	400 FINNIMORE	BH	RM	SEWER BACKED UP AT STREET	UNCLOGGED	48683
6	WA	2/10/2016	10:00AM	3502 RIVER ROAD	BH	RM	A CAR HIT THE FIRE HYDRANT	FIXED DA/CN 2-22-16	48644
7	WA	2/10/2016	10:00AM	CORNER OR 22ND AND WACO	BH	RM	LEAK FILLING UP CULVERT		
8	SE	2/10/2016	10:36AM	2015 WACO STREET	DD	RM	RAW SEWER SHOOTING UP IN AIR FROM CLEAN OUT	UNCLOGGED	48684
9	WA	2/10/2016	3:15PM	1105 S LOVERS LANE	вн	RM	METER LEAK	FIXED	48647
0	WA	2/10/2016	3:30PM	206 FIELDSTONE	DD	RM	LEAK-METER WAS RUN OVER BROKE CUTOFF	FIXED	48648
1	WA	2/10/2016	3:32PM	119 N 28 ST	BH	RM	LEAK @ METER	FIXD	48649
2	WA	2/10/2016	3:57PM	119 N 28 ST	вн	RM	CUSTOMER CALLED AGAIN AND SAID METER LEAK WAS VERY LARGE. CALLED RODNEY TO LET HIM KNOW	FIXED	48649
3	WA	2/11/2016	9:00AM	28TH AND MEARS	BH	RM	WATER SHOOTING OUT OF MANHOLE	FIXED	48687
4	WA	2/11/2016	9:00AM	BLESSINGS BUILDING	BH	RM	WATER LEAK BEHIND BUILDING	FIXED	48671
-	6	13				8	CALLED LAST NIGHT AT 8 AND THEY		2 2

Used primarily in printed form...

					CALL	LOG	UPDATES	WORK TICKET #
			WATER & SEW	EK LEA	CALLED	NOTES	CREW WORKING ON LINE PER	48674
			ADDRESS	USER	CALLED	FIRE HYDRANT RUNNING	RM @ 10:50AM	48642
A/SE	DATE	TIME	ADDITE	вн	RM	THE THE STREET	FIXED	4868
4	02/00/2016	10:38AM	OLD HILLSIDE NURSING HOME	DD	RM	LEAK IN THE STREET	UNCLOGGED	4864
	02/09/2010	111.24AM	1008 PLEASANT	00	RM	SEWER BACKLO OT	FIXED DA/CN 2-22-10	1
ET	02/09/2016	0 11:24/10	400 FINNIMORE	ВН	BM	A CAR HIT THE FIRE THORSE		
	02/10/201	6 10:00AM	ALCO RIVER ROAD	BH		LEAK FILLING UP CULVERT	UNCLOGGED	
	02/10/201	16 10:00AM	3502 RIVER AND AND WACO	ВН	RM	RAW SEWER SHOOTING OF	FIXED	4
	02/10/202	16 10:00AM	CORNER OR ZZNO TA	DD	RM	METER LEAK	OKE LEIVED	
	02/10/-	16 10:36AM	2015 WACO STREET	вн	RM	LEAK-METER WAS RUN OVER BR	FIAED	
	02/10/20	1010.0	1105 S LOVERS LANE	00	RM	CUTOFF	FIXD	
	02/10/20	16 3:15PW	206 FIELDSTONE		RM	LEAK @ METCH	SAID	
	02/10/20	016 3:30PM	20011 20011	BH		CUSTOMER CALL	CALLED	
4	02/10/2	016 3:32PM	119 N 20 31		DM	RODNEY TO LET HIM KNOW	ANHOLE FIXED	
4	02/20/-			ВН	KIVI	WATER SHOOTING OUT OF W	FIXED	
		016 3:57PM	119 N 28 ST	ВН	RM	WATER LEAK BEHIND BUILDI	D THEY SEWER STOP UP FI	XED
A	02/10/2	010 5.51	28TH AND MEARS	RH	RM	CALLED LAST NIGHT AT 8 AM	HEN REALIZED	
	02/11/2	2016 9:00AM	BUILDING	DH	014	TURNED OFF WATER BUT	ID THEY NEED FIXED	OAM THERE

Same data combined in another format: GIS

Close up of same data

20 Years of pavement cuts...

Combined data from all sources

Leverage your mapsfor your data

Name: Date:

Date:

Utility:

Instructions:

Please input the water system's information in the green boxes. Please input the quantity and, where applicable, the size for each type of asset the utility owns. If the utility has recent unit price information for a specific type of asset listed below, that value can be input in the column labeled "Known Unit Price".

Orange Box: These are the calculated values

Gray Box: Unit Prices

Asset Type	Asset	Size	Quantity	Unit	Lo	w Range	H	ligh Range	Me	dian Range	Known	Lo	w Estimated	н	ligh Estimated	N	Aedian Value
Abset Type		Dicc	quantity	0	U	nit Price:	l	Unit Price:	ι	Init Price:	Unit Price:		Value		Value		
		4"-6"	62145.6		\$	21.50	\$	130.00	\$	35.75		\$	1,336,130	\$	8,078,928	\$	2,221,705
	Ductil Iron Pipe	8"-10"	0	par Linear Foot	\$	33.11	\$	150.00	\$	66.00		\$	-	\$	-	\$	-
	December	12"-16"	168682	per cilicar i oot	\$	49.64	\$	230.00	\$	79.00		\$	8,373,374	\$	38,796,860	\$	13,325,878
		18"-24"	0		\$	97.59	\$	320.00	\$	255.00		\$	-	\$	-	\$	-
Pipeline		4"-6"	0		\$	13.00	\$	161.00	\$	46.32		\$	-	\$	-	\$	-
	Main PVC	8"-12"	398640	per Linear Foot	\$	17.40	\$	185.00	\$	54.00		\$	6,936,336	\$	73,748,400	\$	21,526,560
		14"-20"	45936		\$	31.50	\$	180.00	\$	113.92		\$	1,446,984	\$	8,268,480	\$	5,233,029
	HDPE		0	per Linear Foot													
	Service Line	.75"-2	0	per Linear Foot	\$	552.00	\$	2,866.00	\$	1,636.00		\$	-	\$	-	\$	-
	Blow Off	2"	0	Each	\$	660.00	\$	1,460.00	\$	1,123.00		\$	-	\$	-	\$	-
	Gate Valve	8"-12"	1417	Each	\$	875.00	\$	6,200.00	\$	2,703.00		\$	1,239,875	\$	8,785,400	\$	3,830,151
Valves	Air Release Valve	1"-2"	1	Each	\$	465.00	\$	5,700.00	\$	2,275.00		\$	465	\$	5,700	\$	2,275
	PRV	4"-8"	1	Each	\$	9,820.00	\$	12,200.00	\$	11,107.00		\$	9,820	\$	12,200	\$	11,107
	Check Valve		0	Each													
	Ground Storage	2,000,000	1	Gallons	\$	0.80	\$	1.20	\$	1.00		\$	1,600,000	\$	2,400,000	\$	2,000,000
Storage	Elevated Storage	2,000,000	1	Gallons	\$	2.50	\$	3.25	\$	2.75		\$	5,000,000	\$	6,500,000	\$	5,500,000
Juliage	Steel Tank		0	Gallons	\$	0.75	\$	1.40	\$	1.10		\$	-	\$	-	\$	-
	Concrete Tank		0	Gallons	\$	1.00	\$	2.00	\$	1.80		\$	-	\$	-	\$	-
Hydrant	Fire Hydrant	4"-6"	1677	Each	\$	790.00	\$	5,912.00	\$	2,850.00		\$	1,324,830	\$	9,914,424	\$	4,779,450
Motore	Supply Meters	8"-10"	3	Each	\$	1,700.00	\$	16,800.00	\$	8,150.00		\$	5,100	\$	50,400	\$	24,450
meters	Customer Meters	.75"-2"	9430	Each	\$	40.00	\$	420.00	\$	155.00		\$	377,200	\$	3,960,600	\$	1,461,650
Pumps	Sumbersible Pump	1/2 HP- 30 HP	0	Each	\$	1,225.00	\$	7,000.00	\$	2,450.00		\$	-	\$	-	\$	-
i umps	Booster Pump	500 GPM-2000 GPN	12	Each	\$`	12,000.00	\$	60,000.00	\$	38,000.00		\$	144,000	\$	720,000	\$	456,000
Treatment	Chemical Feed and Storage System		0	Each	\$	10,000.00	\$	40,000.00	\$	22,000.00		\$	-	\$	-	\$	-
								Estim	nate	d Value F	lange:	\$	27,794,100	\$	161,241,400	\$	60,372,300

SOUTHWEST ENVIRONMENTAL FINANCE CENTER

I HAVE INFORMATION

I know something, I have information in my possession (in my head, my notebook, my truck, etc.)

DATA IS DIGITIZED

My data and data from other sources is digitized and combined.

WE KNOW MORE

The collective data and knowledge is now available to all.

I DOCUMENT IT

My information gets written down, or otherwise formally documented for use by others

DATA IS VISUALIZED & ANALYZED

Use appropriate tools (pushpins, GIS, etc.) to analyze and visualize the combined data. The whole is more valuable than the individual parts.

We've harnessed the collective knowledge...

... to make better, data-driven, decisions.

Maps can help you with your work force

SAVING OPERATOR TIME

CONSOLIDATING INFORMATION SOURCES

SHARING HARD EARNED EXPERIENCES

PASSING INFORMATION ON TO FUTURE OPERATORS

Cemetery

vi 11

Restland

Ce Visedar Ridge

Search	۹	Ŧ	Ш	92 records	Clear All Filters											Download Data
Filter Data	+	6.0	1		-		SU.			1. 1. 1. 1.	all I	N. V.		-		1 The second
▼ Record Updated		12	E			WERSIDE		-	2 h		Ser and	Can have		N. C.	Selle .	11.00
All		1	2	· •	C. S. T.	au		TI.	1-23	: 50		A A A				
Today 01/26/2018	Y	1	12		19 1/1	3			SE Smill	1	and the state	a and a sea		Pio 1	1	Star Star
Yesterday 01/25/2018	2		1.	· · //	S X/ B	*	0			44.	and the second		Ser.	Gray		a start and
Last 7 days 01/19/2018 - 01/26/2018	and a	11	12	The second	1. 9/100	NY .	30		and the second		33 S.			Nde	A.11	ALL PROVIDE
Last 30 days 12/27/2017 - 01/26/2018	8		No.	A PR		60 2	65		States and	1	and Sugar	C. a. a. B.	APP AD.	P.		All and a second
This Month 01/01/2018 - 01/31/2018	1				P SIDE	N. 91	1. 2	R	and the second	100	# Sector	2 130	ALL AND ALL AND		2	Sec. S. St.
Last Month 12/01/2017 - 12/31/2017	1 a	18	3			Charles -	1 2/3	THE -		and the Plan	A. 4. 2.		and the second		and	and a start
Specific Range		1. 1	AU	34/1	NY AND	28. 00.	Contra Contra		1.4	Stat DX		A & Sal	CARLE STOR		e	Sand States
Start date From To	ALLAN &			R0. (1					- Contraction			de la			4	10
▼ Status	17					a per s	0.10		10 may	1	A	Par ma	V . 200 - 20	14 . A.	No.	
🖉 😑 Field Data Complete			4	40	No.			Sec.			B. Con		and the second		© Digi	talGlobe; Terms of Use
🗹 🛑 Incomplete	Pa	tment F	acility?		Lift Station Assets	Install Date	Asset Size	Is it operational	Zone Z	Photos v	Address			- · · Δss	t ID v Co	ntains Isolation Valve

Need Clarification
 Not in Billing Inventory
 Office Data Complete
 Office Data Not Available
 Office Data Incomplete

e	atment Facility? 🔻	Assets v	Lift Station Assets V	Install Date 🔻	Asset Size 🔻	Is it operational? $ imes$	Zone 🔍	Photos v	• Address	Asset ID	 Contains Isolation Valve
≡ ▼		Meter, Residential			0.75			20		13181362	
≡ ▼		Manhole Sewage				Yes		C			
		Meter			0.75	Yes		125	Addresses	E-13181363	
= -		Meter, Residential			0.75	No			redacted.	E-13181391	
≡ ▼		Meter			0.75	Yes				E-13181392	
≡ ▼		Meter			0.75	Yes		034		E-13181361	
_											

Maps can help you plan for the future

--

even save you money (lots of it)

Maps can even save

Question your assumptions

Water Line Integrity Leaks/breaks per 100 miles of pipe

I DOCUMENT IT

The information was documented on paper work orders.

DATA IS VISUALIZED & ANALYZED

The break data was added to GIS system maps and the maps and Access database were analyzed for trends.

MAPPING

Proofing your data

6" PVC 9 6" CAST IRON 6" CAST IRON

6" CAST IR ON

6" CAST IR ON

6" CAST IR ON THE GET CAST IR ON THE CON

Outlines

6" CAST IRON

Map

Carl 💠 🗸 | 1:3,217

Select a template.

6" PVC

CAST IR ON 6" CAST IRON 6" CAST IR ON

6" PVC

Proofing your data

ID	- LOCATION -	W_O_DATE -		ADDRESS - DIRECTION -	TYPE_WORK -	DATE_REP - COMMENTS	COUNT - ACCOUNT -	W_
	1 BENITA	20030204		250	30	2030318 M Rayen Scho	1000000	CTY
	2 Victoria Rd	20030905		500	30	20031016 JM	100275	AUS
	3 Boardman	20030730		25 E	30	2003092 JM	100813	CTY
	4 Hendricks Rd	20030502		3805	30	2003070 JM	127391	AUS
	5 HALLS HEIGHTS	20030122	L-1243	39	30	20030220 RC	1000000	CTY
	6 HALL HEIGHTS	20030127	L-1244	3641	30	200301 7 RC Water off	1000000	CTY
	7 PARKHILL	20030203	L-1245	1135	30	200303 .5 RC	124602	CTY
	8 INDIANOLA	20030203	L-1247	862	30	200303 .5 RC	137470	CTY
	9 CLARENCEDALE	20030203	L-1248	125	30	200303 .5 RC	155953	CTY
	10 Bessemer	20030324	L-1250	355	30	200303 4 RC Water off	118022	CTY
	11 Bessemer	20030324	L-1251	353	30	200303. 4 Water Off	118021	CTY
	12 Indianola Rd	20030728	L-1257	737	30	200308: 8 RC	162538	BDM
	13 Hunter	20030823	L-1258	2645	30	20030828 RC Water off	149232	CTY
	14 Philadelphia	20030910	L-1260	343 E	30	2003101 RC	152607	CTY
	15 Vestal Rd	20030912	L-1261	3137	30	20031013 RC	118221	CTY
	16 Oxford	20030916	L-1263	716	30	20031013 RC	116552	CTY
	17 Garland	20030916	-1264	115 N	30	20031013 RC	175413	CTY
			11005				105075	

MAPPING

MAKE MAPS, USE THEM & IMPROVE THEM

Use your maps, improve them and keep them current. A tool that isn't used is worthless.

PROOF DATA

Review your data. Does it make sense? Are there conflicts?

COMBINE SOURCES

Pull together useful data from other available sources.

Maps shouldn't be static

Of all kinds....

CONSIDERATIONS:

Some data wasn't generated for mapping.

It may be great for its intended purpose but...

there will be issues/inaccuracy/concerns.

Over time you can change how you collect data and how you use it.

Don't let what you can't do stop you from doing what you can.

CONTACT INFORMATION

SOUTHWEST ENVIRONMENTAL FINANCE CENTER

Heather Himmelberger: heatherh@unm.edu

Dawn Nall: dnall@unm.edu

James Markham: jmarkham@unm.edu

Department of Civil Engineering MSC01 1070 1 University of New Mexico, Albuquerque, NM 87131 505-277-0644 swefc@unm.edu http://southwestefc.unm.edu