

City of Chicago Water Resource Management

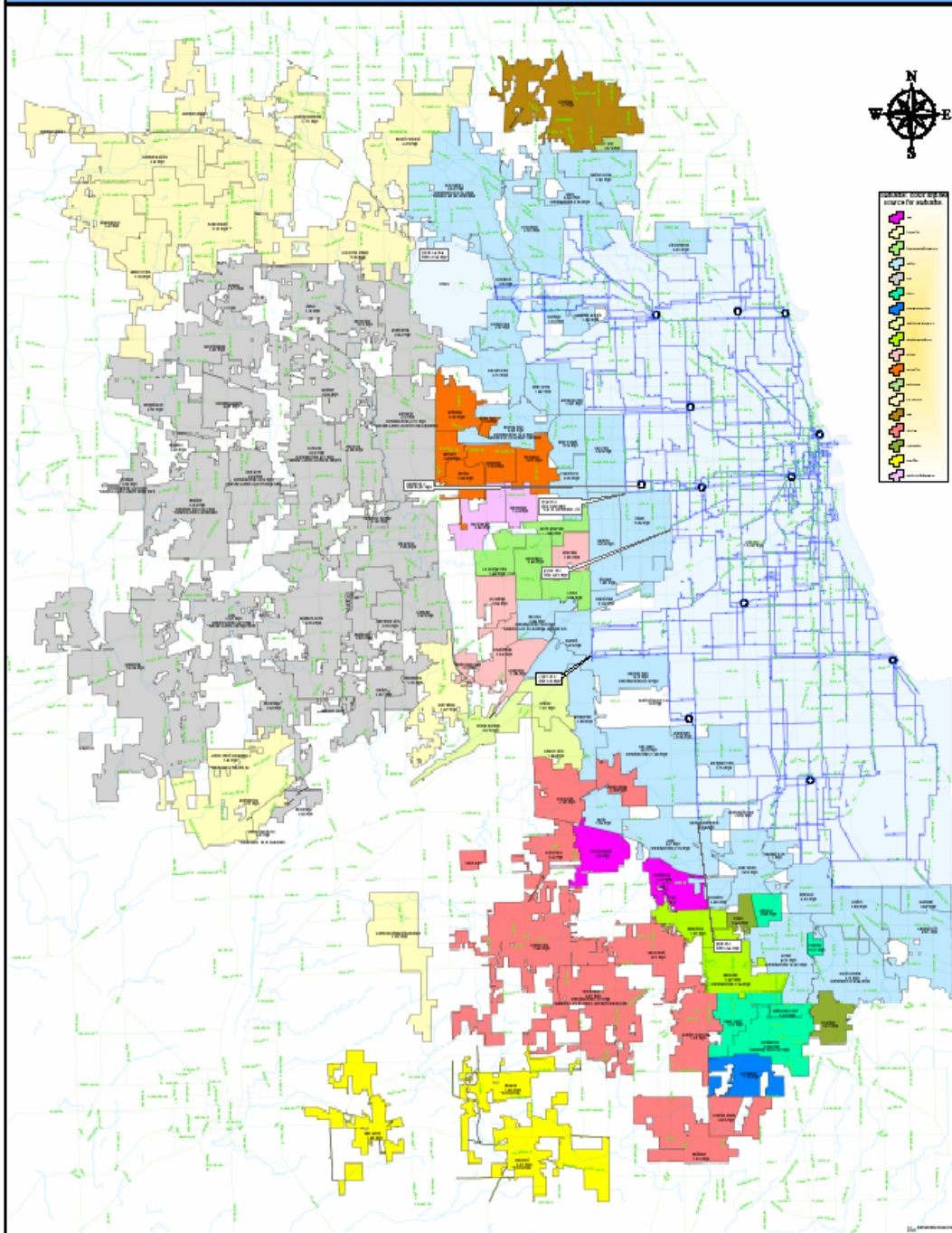
Presentation to the Metropolitan Planning Council and Openlands

March 31, 2011

Michael Sturtevant
Acting Deputy Commissioner
Bureau of Engineering Services

City of Chicago
Department of
Water Management

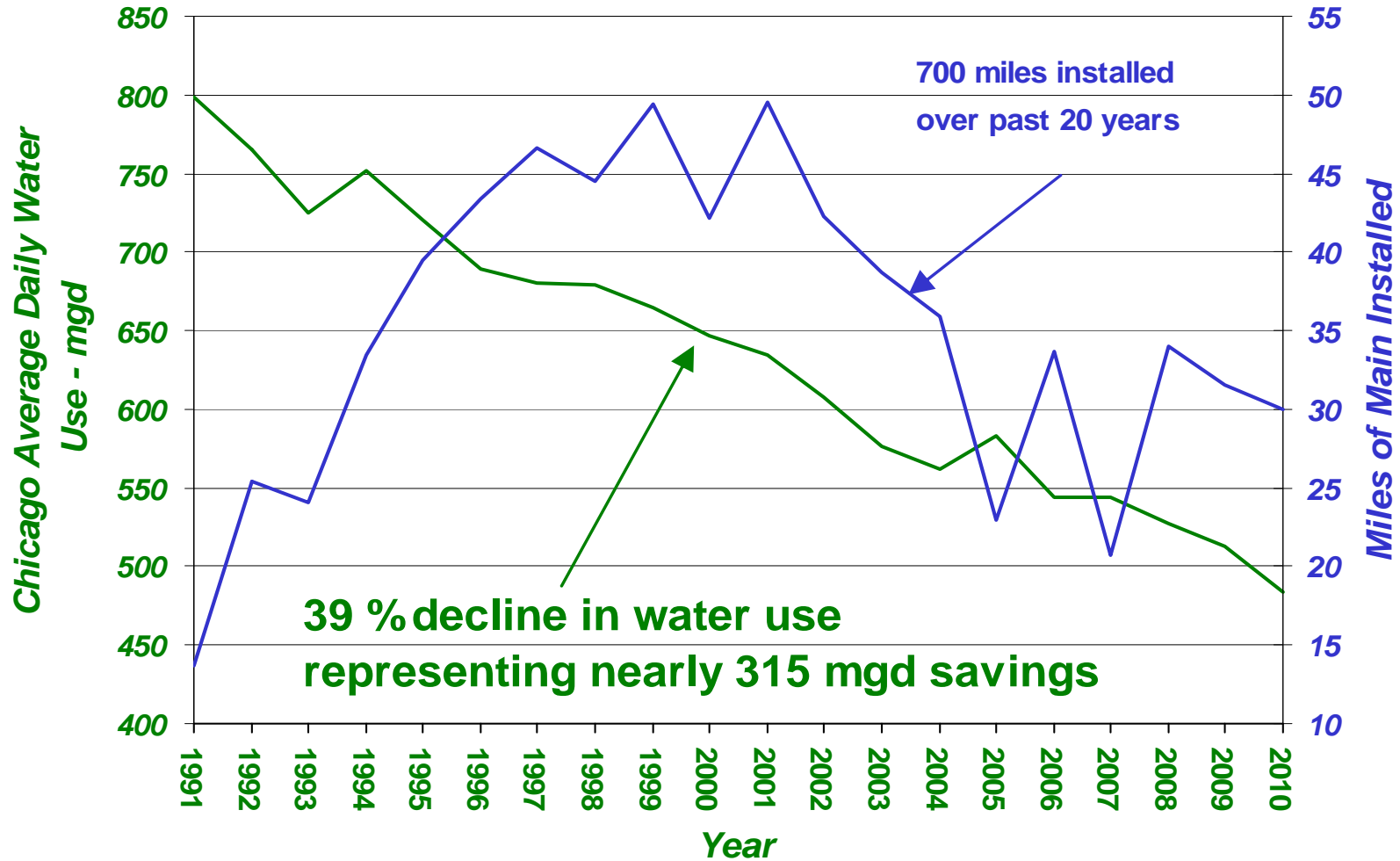




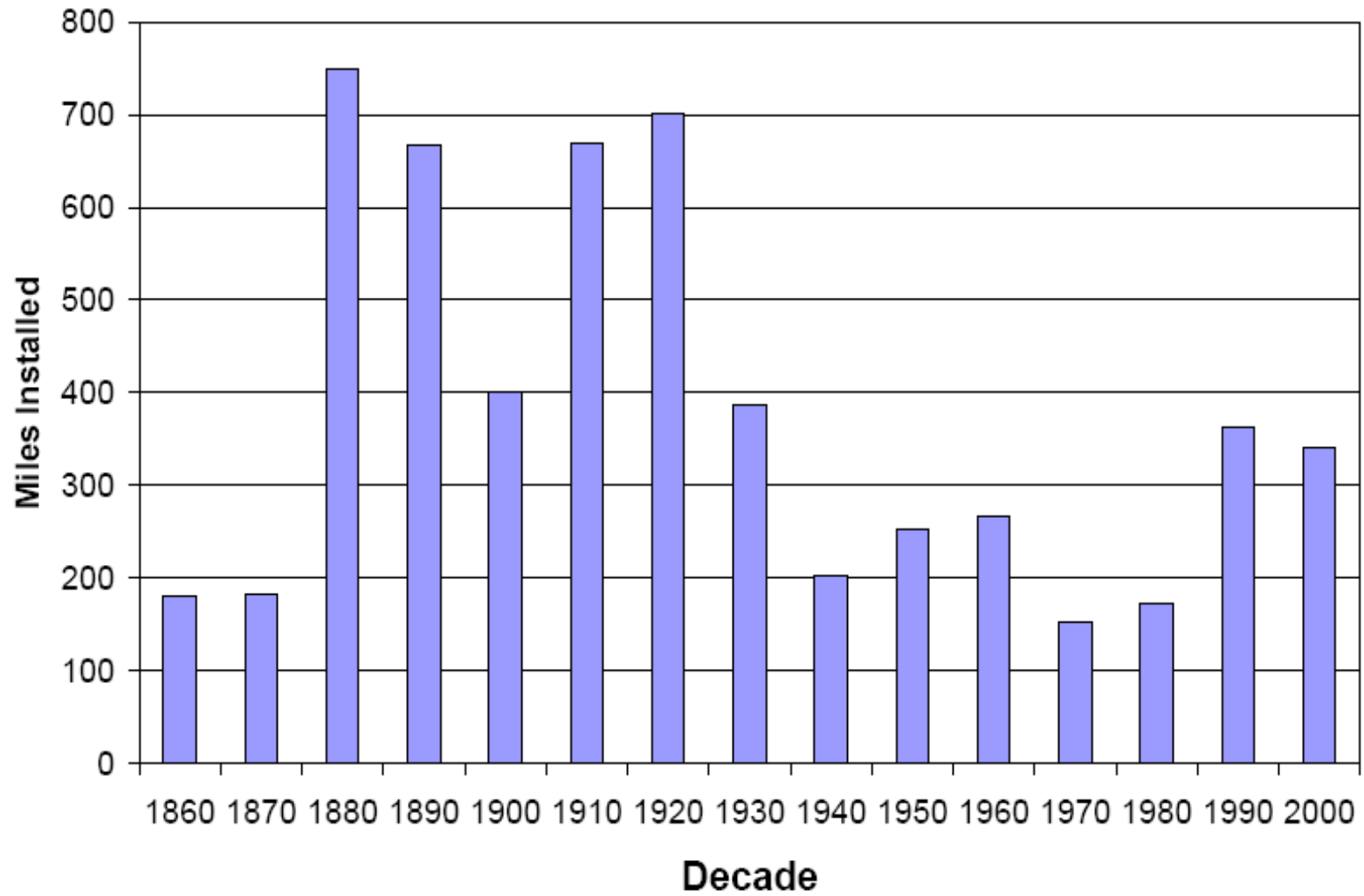
Water Supply Area

- Serves over 5.3 million people (41% of Illinois – 806 sq mi)
- City of Chicago – 2.7 million people – 228 sq mi
- Serves 48 municipalities that have a direct connection to us
- 125 Suburban Communities – 2.6 million people – 578 sq mi
- 2010 Water Use 773 mgd
City – 484 mgd Sub – 289 mgd

City of Chicago Water Use



Chicago Water Main Installation



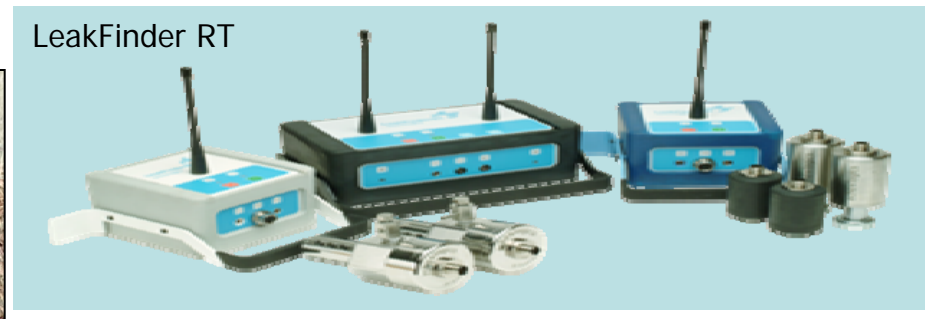
Water Main Replacement

- Largest source of unaccounted for loss
- 4,200 miles of water mains
- Over 600 miles of water mains 16-60 inch diameter
- Goal to replace 42 miles per year (1%)
- Caretakers of an aging water system

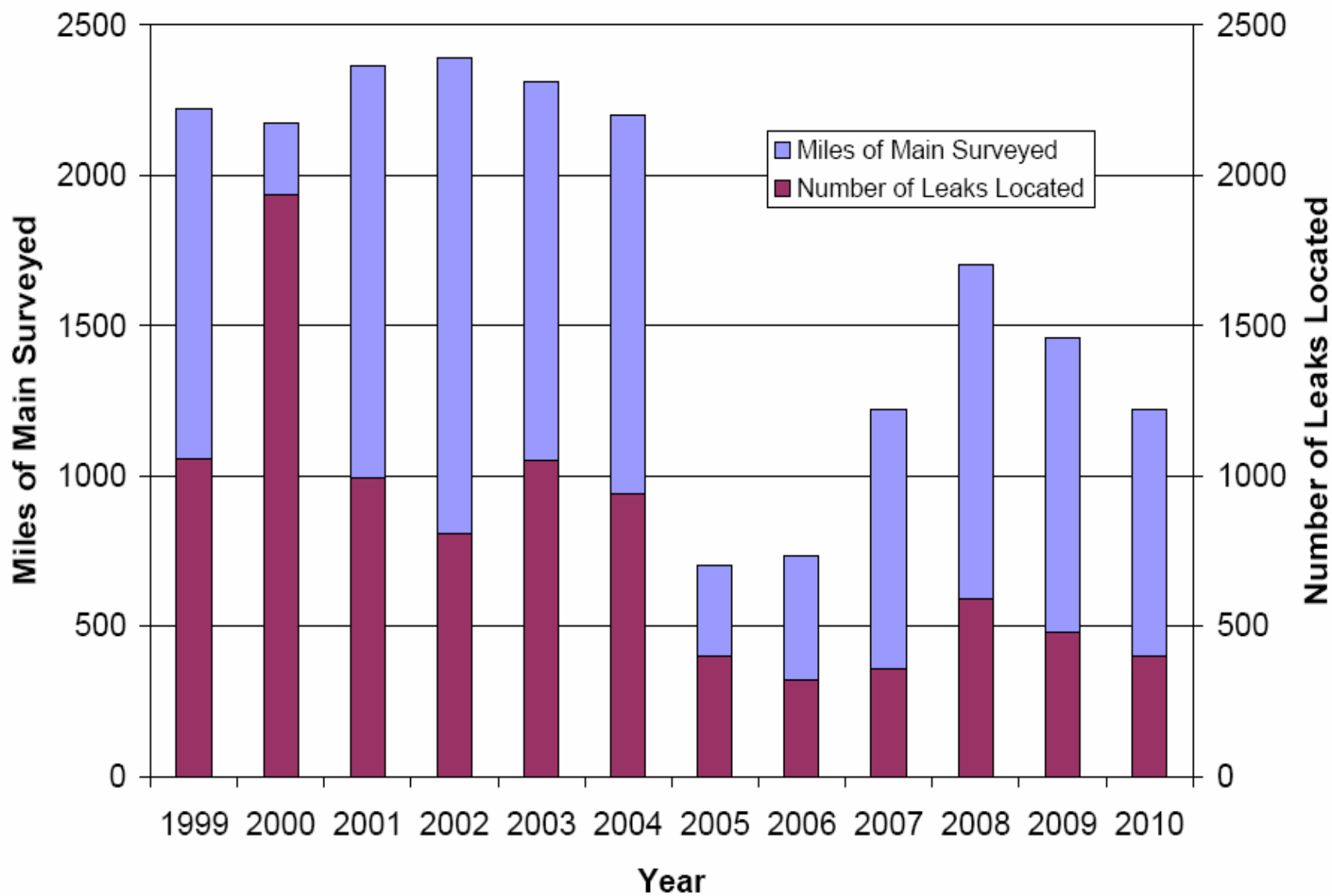


Underground Leak Detection and Repair

- Goal to survey 1,500 miles per year
- Yielding between 400 to 900 leaks/year
- Using “state of art” leak correlators
- Permalog leak detection technology
- Radcom SoundSens leak correlation technology
- Echologics –LeakFinder RT



Leak Detection Efforts Chicago, IL





Changes From Paper to Electronic Work Orders

Forman Report

DataStream Work Order Report

WATER MAIN BREAK AND LEAK REPAIR REPORT

Location: Central Dig Order No: 653081
RPT

Address: 1900 W 22nd

Date: 5-10-04 Time: _____ Atlas Page: _____

Field Data: Main Break
 (Foreman) Type of Pipe: CAS Size: 6" Type of Joint: Lead Main Cover: 6"

Type of Break: Circumferential Longitudinal Break Est. G.P.M. _____

Circum. and Long Pipe Blowout

Joint Fitting Split at Corp. Cox

Water Leak

Pipe or Service Material: _____ Size: _____ Cover: _____

1.) Main: Joint Fitting M.J. Bolts Leak Est. G.P.M. _____

2.) Valve: Packing Joint Gasket

3.) Service: Tap Tap Joint Lead Roundway Roundway Joint

4.) Meter: Meter Riser Meter Coup

5.) Hydrant: Base Hydrant Seat Hydrant Branch

General: Remarks: Let clamp on 6" MAIN MAKE REPAIR
50% complete

Proximity of Other Utilities: 36" GAS TO ONE HOLE

Type of Soil at Dig: CLAY

Apparent Cause of Failure: Corrosion Poor Workmanship Improper Bedding

Differential Settlement: Other Constr. Hydrant Use

Depth of Frost _____ in. Depth of Snow _____ in. Air Temp _____

Additional Data: USE REVERSE SIDE IF NEEDED
 (Dist. Office) Repair Difficulties: Hand dug away from 36" GAS MAW

Foreman Making Repairs: W. James

Office Data: (Engineers) Date Laid or Installed: _____

Remarks (Use Reverse Side): _____

Recorded By: _____ Date: _____

Type: Broken Water Main (DWM Use Only), 4801 N WESTERN AVE, 1L01

Work order #: 08-01935685, 4801 N WESTERN AVE, 1L01

Status: Closed

CSR Ticket #	08-01935685	Type	Emergency Work
Priority	1	Permit #	876759017
Assigned Truck	WSD913	Permit Exp. Date	
Digger #		Supervisor	GORDONROH
Water Atlas Page #	71	Crew Foreman	CANETJER
Ward #	47	Scheduled Start Date	9/23/08
Location	NDNE	Scheduled End Date	9/24/08
Dept./Fund	WATER	Activity	W321
Action		Failure	
Problem		Date Started	9/23/08 3:00 PM
Investigated by		Date Completed	9/23/08 11:00 PM
Total WO Cost	\$1,702.40		

Notes

Details: BROKEN 8" WATERMAIN VERIFIED. FLOODING. REFER TO REPAIR CREW TO DIG STREET AND REPAIR B/M. EMERGENCY. DO NOW. NOTIFIED ELIZABETH @ DIGGER TO NOTIFY ALL UTILITIES. DIG#-876724393. EMERGENCY DO NOW

Created By: 981768494
 CDOT Lane: CRTRLANE
 CDOT Side: "
 Investigator:
 Purpose: BROKEN 8" WATERMAIN

Break/Leak Repair Not Req'd

User Entered Comments: bad street leak, notified and made shut down, broke street, dug and exposed broken main, cut and removed 12' of broken main, installed 12' of di pipe, restored water and backfilled.

Water Main Break & Street Leak

Type of Pipe: CI
 Size: 8
 Type of Break: Longitudinal
 Apparent Cause of Failure: Corrosion
 DWM Work Required to Restore Area

Street Opening: YES
 No. of Openings: 1
 Alley: NO
 Size 1: 7x15

Crew Foreman Sign: _____ Asst. Superint. Sign: _____

Booked Hours									
Employee ID	Name	Trade	Rate Type	Rate	Date	Start	End	Hours	Cost
		LABORER-W	N	0	9/23/08	15:00	23:00	8.00	0.00
		FRMN-WPC	N	41.7	9/23/08	15:00	23:00	8.00	333.60
		HE	N	41.55	9/23/08	15:00	23:00	8.00	332.40
		MTD	N	29.15	9/23/08	15:00	23:00	8.00	233.20
		CAULKER	N	39.7	9/23/08	15:00	23:00	8.00	317.60
		LABORER-W	N	0	9/23/08	15:00	23:00	8.00	0.00
		LABORER-W	N	31.55	9/23/08	15:00	23:00	8.00	252.40
		MTD	N	29.15	9/23/08	15:00	23:00	8.00	233.20
Total Labor Cost									1,702.40

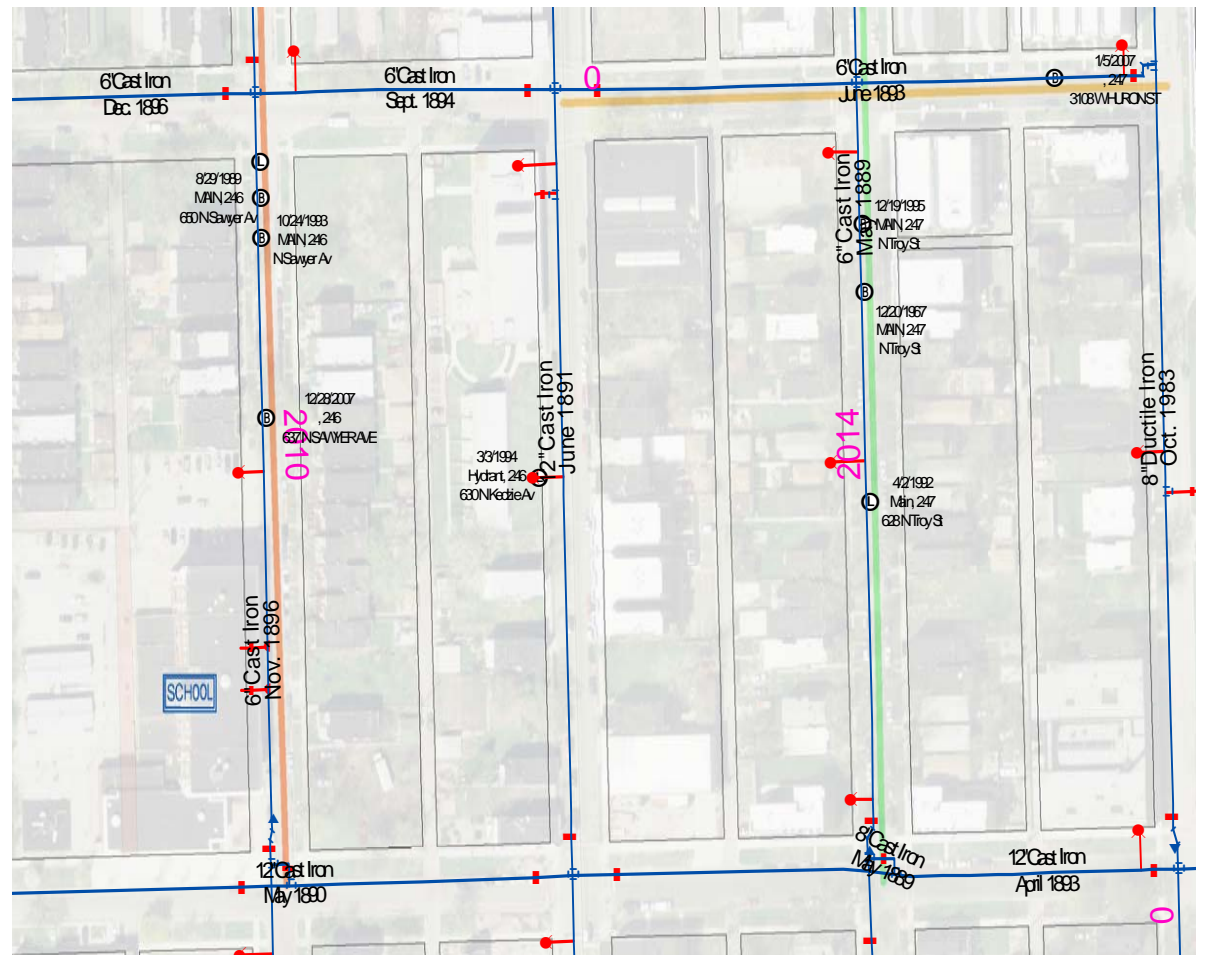
Work Order Number: 08-01935685

9/24/08 3:04:50 PM

Planning Using GIS

Layers Displayed

- Existing Water Facilities
- WM Characteristics
- Breaks and Leaks
- 311 Data
- DataStream Work Orders
- Landbase Information
- Coordination with CDOT



Current Metering Status

- Metered accounts:
 - 184,172 accounts
 - High usage – industrial, commercial, suburban
 - **80%** of water revenue
 - Flat rate of \$2.01 / 1,000 gallons for all customers
 - Technology upgraded to Automatic Meter Reading (AMR)
- Non-metered accounts:
 - 313,311 accounts
 - Low usage - single family homes, 2-flats
 - **20%** of water revenue
 - Based on the lot size, number of fixtures, etc.

METERSAVE.ORG

- The word is spreading!
 - Over 10,300 volunteers to date
- People are saving money!
 - Avg. savings is over 50% to date
- People are saving water!
 - Customers say they pay more attention to their water use
- Effect of the economy
 - people are looking for ways to save money
- Significant IT and Operational changes were needed to make the process fast & effective
 - Over 5,400 meters installed so far; goal for 2011 is 7,000 more!
 - Work culture change - paperless, automated, website driven