



CITY OF SPRINGFIELD CITY WATER, LIGHT & POWER LEAD SERVICE LINE PROGRAM



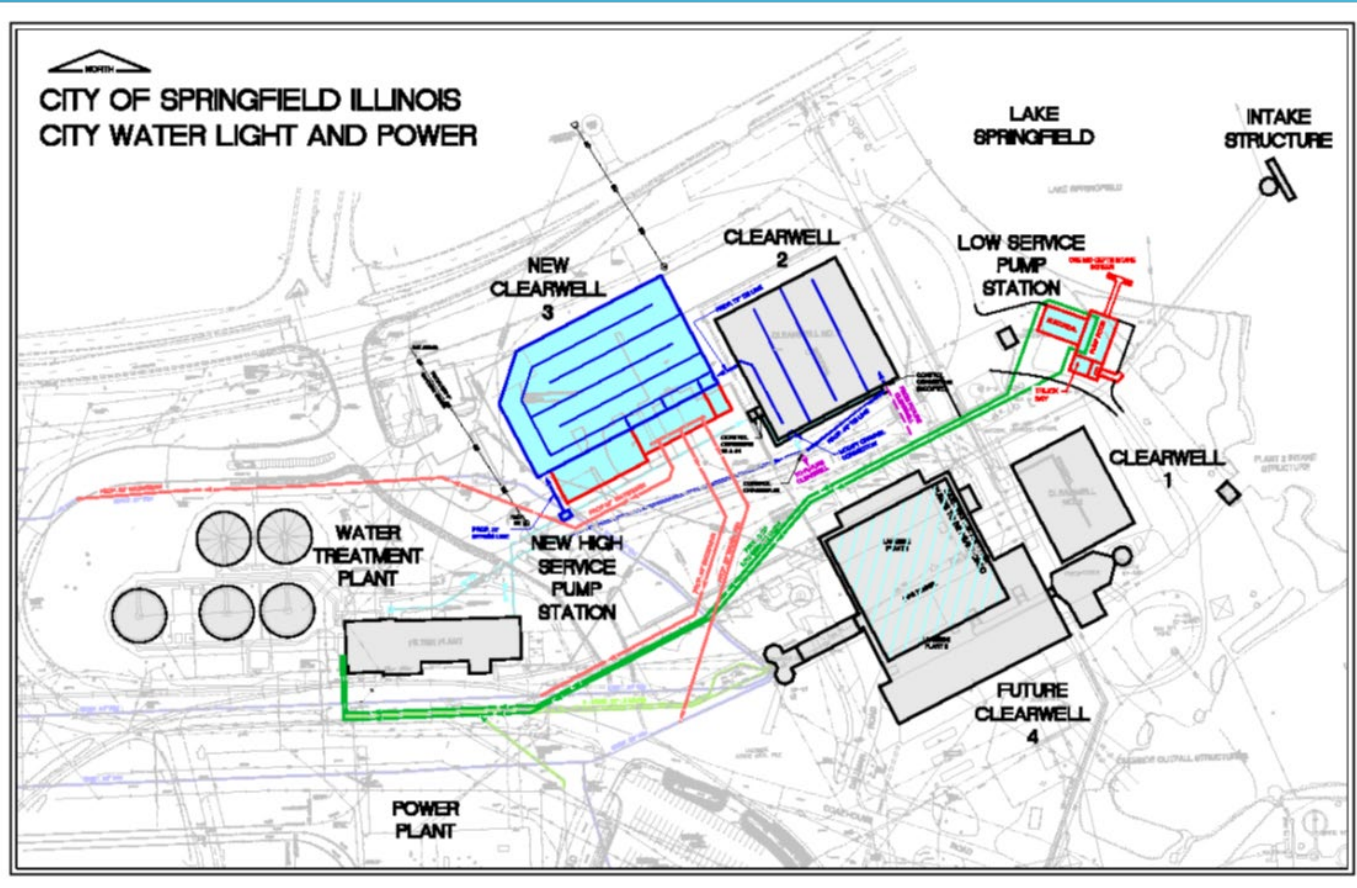
Kim Lucas
Water Purification Plant Director

Todd LaFountain
Water Division Manager

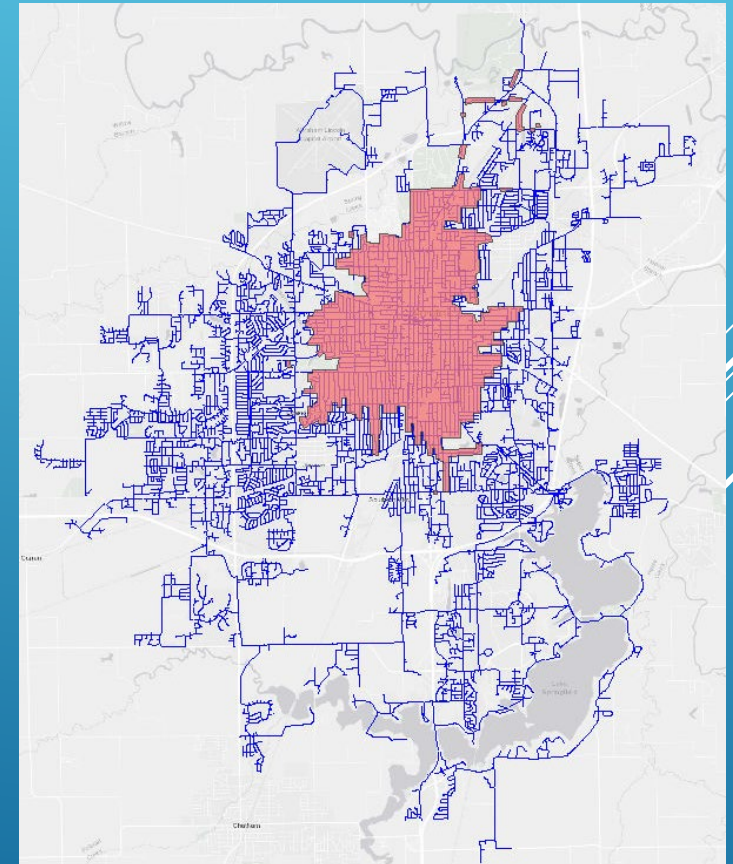
Mike Johnson
Superintendent of Water
Engineering & Operations

CWLP WATER INFRASTRUCTURE

Water Purification Plant



Water Distribution System



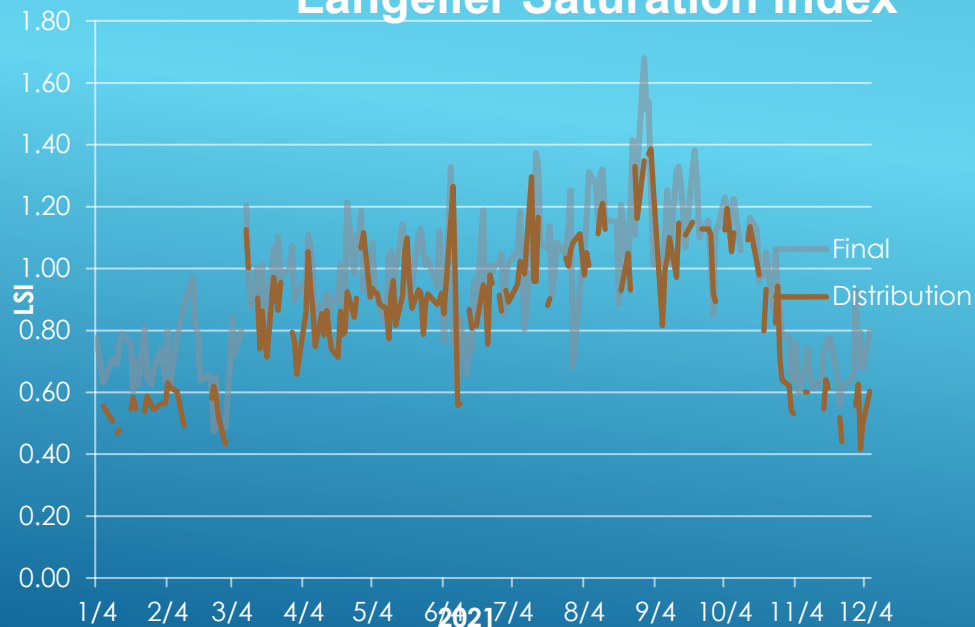
CITY OF SPRINGFIELD LEAD SERVICE LINE PROGRAM



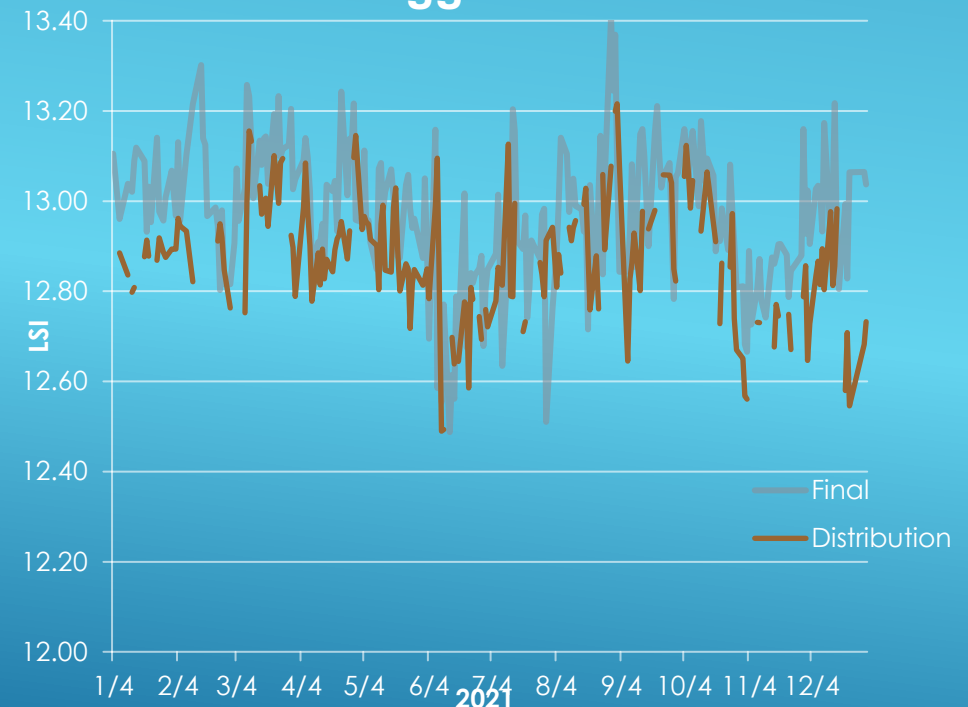
WATER QUALITY CHARACTERISTICS AND LEAD CORROSION

- Conventional Lime Softening Treatment Plant --- pH 9.0 to 9.5
- Langelier Index >0
- AI Index > 12

CWLP - Water Purification Plant Langelier Saturation Index



CWLP - Water Purification Plant Aggressive Index



HARVESTED LEAD SERVICE LINES AND PIPE LOOP STUDIES

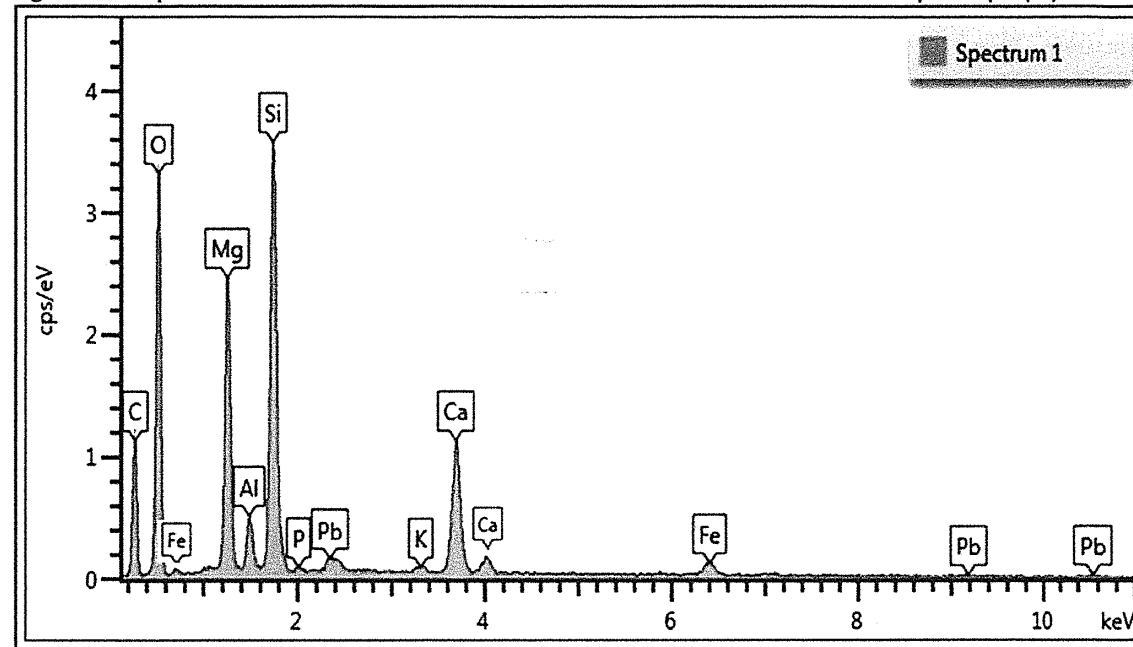
- ▶ X-Ray Diffraction Analysis Completed on Lead Service Line Scale
- ▶ Scale Sound and Very Protective Against Lead Corrosion



X-RAY DIFFRACTION (XRD) OF SCALE

- Scale is composed of calcium carbonate, or calcite
- Enstatite is a mineral commonly found in pipe scale.
- Hydrocerussite is a mineral found in oxidized lead. It is considered less soluble than cerrussite and therefore more desirable as a scale mineral.

Figure 2. EDS Spectrum of the Unknown Solid Material from the Inner Surface of the Scaled Pipe Sample (S1)



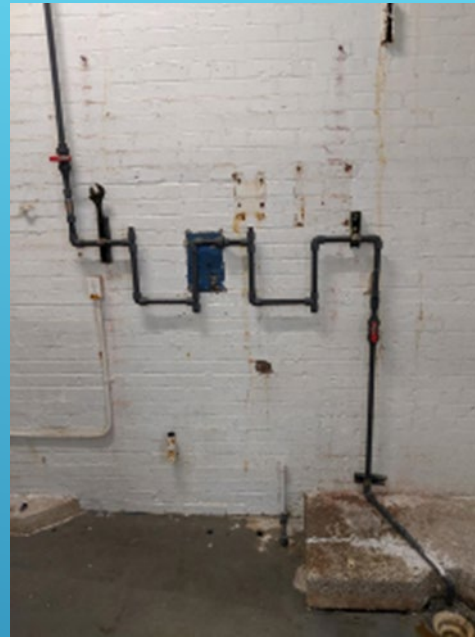
LEAD PIPE TESTING

- Continuous flow – No Detect
- 1st draw after pipe sat dry for 3 days – Detect
- Continuous flow after sitting dry for three days– No Detect

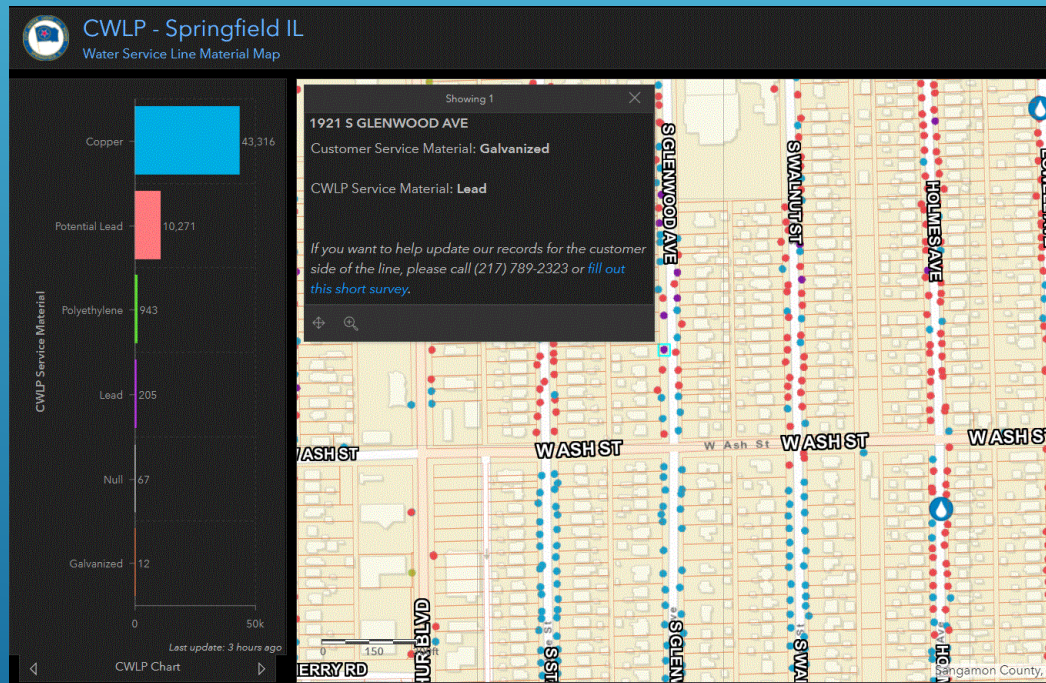
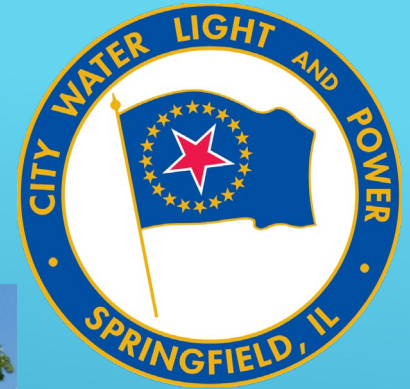


COUPON TESTING

- Loop Test ran for approximately 5 months
- Coupons intended to weigh every month
- Shows non-aggressive water
- 0.04866 ppb lead concentration over whole period
- 0.06% at most of lead mass lost



LEAD SERVICE LINE INVENTORY DEVELOPMENT

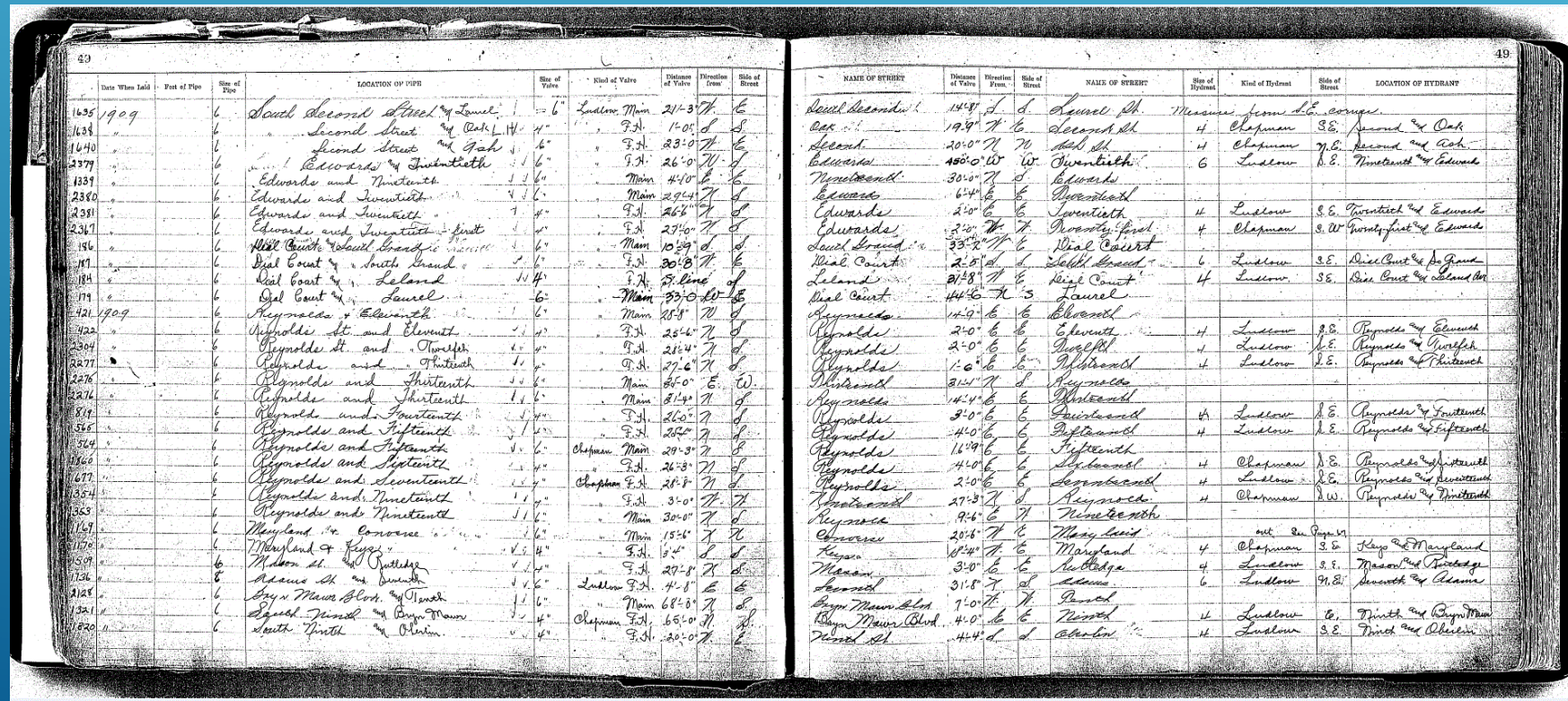


INVENTORY METHODOLOGY

- ▶ Field Investigation
- ▶ Developed program in 2016/2017 for field personnel to observe, identify and report pipe materials per SB550.
- ▶ Underground crews should observe and report pipe types on both CWLP & customer side during maintenance or any service work (find & replace).
- ▶ Troubleshooters to note customer service line material type when changing a basement meter or during a leak investigation or any other time you would see the service line entering a basement wall.
- ▶ All data is entered into spreadsheet and then added to GIS data.
- ▶ Potholed all high risk facilities (daycares, schools, etc.)
- ▶ Over 3,500 service lines have been visually verified to date.

INVENTORY METHODOLOGY

- ▶ Utility Records / Potholing
- ▶ From 2016 thru 2017 our engineering staff reviewed over 120 years of records to identify the pipe install date for all 765 miles of water main within our system. This data was added to our GIS system.
- ▶ A representative sample set of service lines with known installed dates were then potholed to verify the exact time frame the utility transitioned from using lead to copper.



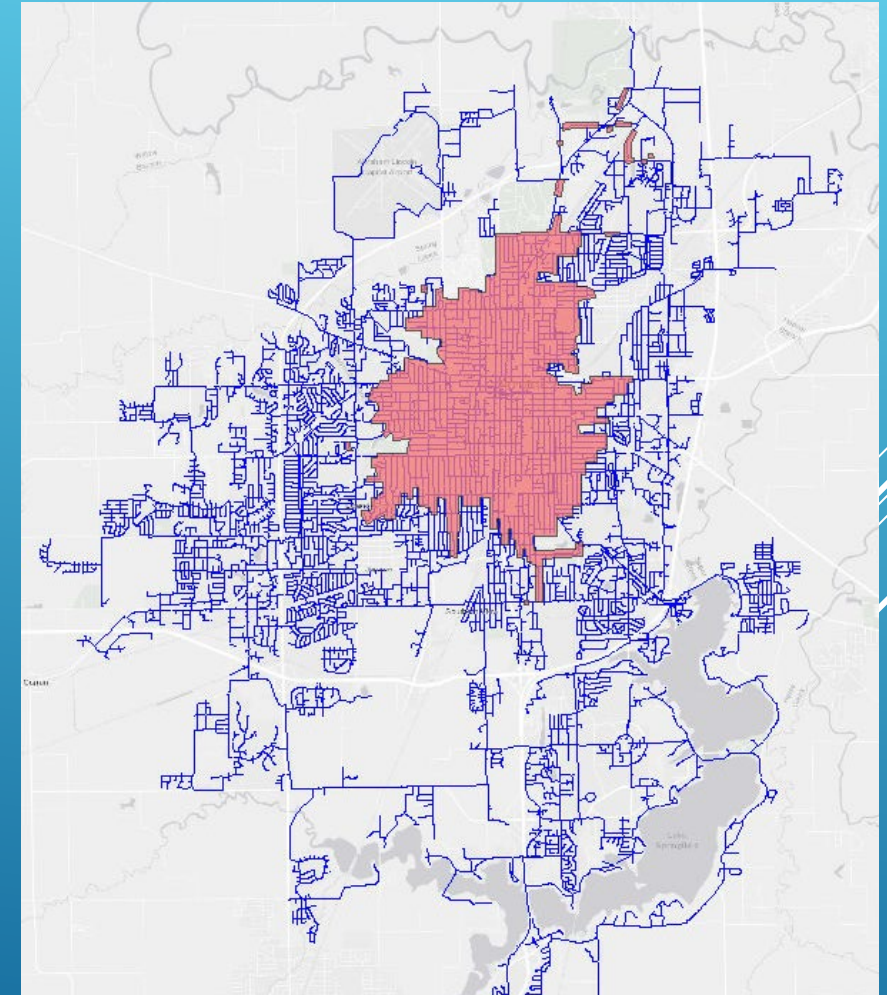
DETERMINE LEAD/COPPER TRANSITION DATE

- ▶ Reviewed records to determine pre-1940
- ▶ Potholed 10 services starting 1939 and working back
- ▶ Lead transitioned to Copper around 1930

Year	Lead	Copper	Total	% Lead
1920	13	4	17	76%
1921	12	8	20	60%
1922	26	7	33	79%
1923	19	6	25	76%
1924	15	19	34	44%
1925	36	11	47	77%
1926	14	7	21	67%
1927	13	8	21	62%
1928	2	18	20	10%
1929	0	18	18	0%
1930	0	6	6	0%
1931	0	1	1	0%
1932	0	5	5	0%
1933	0	2	2	0%
1934	0	2	2	0%
1935	0	3	3	0%
1936	0	5	5	0%
1937	0	3	3	0%
1938	0	3	3	0%
1939	0	6	6	0%
		Total	292	

CALCULATE SERVICE AREA 1930 AND PRIOR

- ▶ Mapped area with water mains installed prior to 1930.
- ▶ Map shown included over 14,500 services within this area.
- ▶ Next step was to review service cards for all 14,500 services in this area.



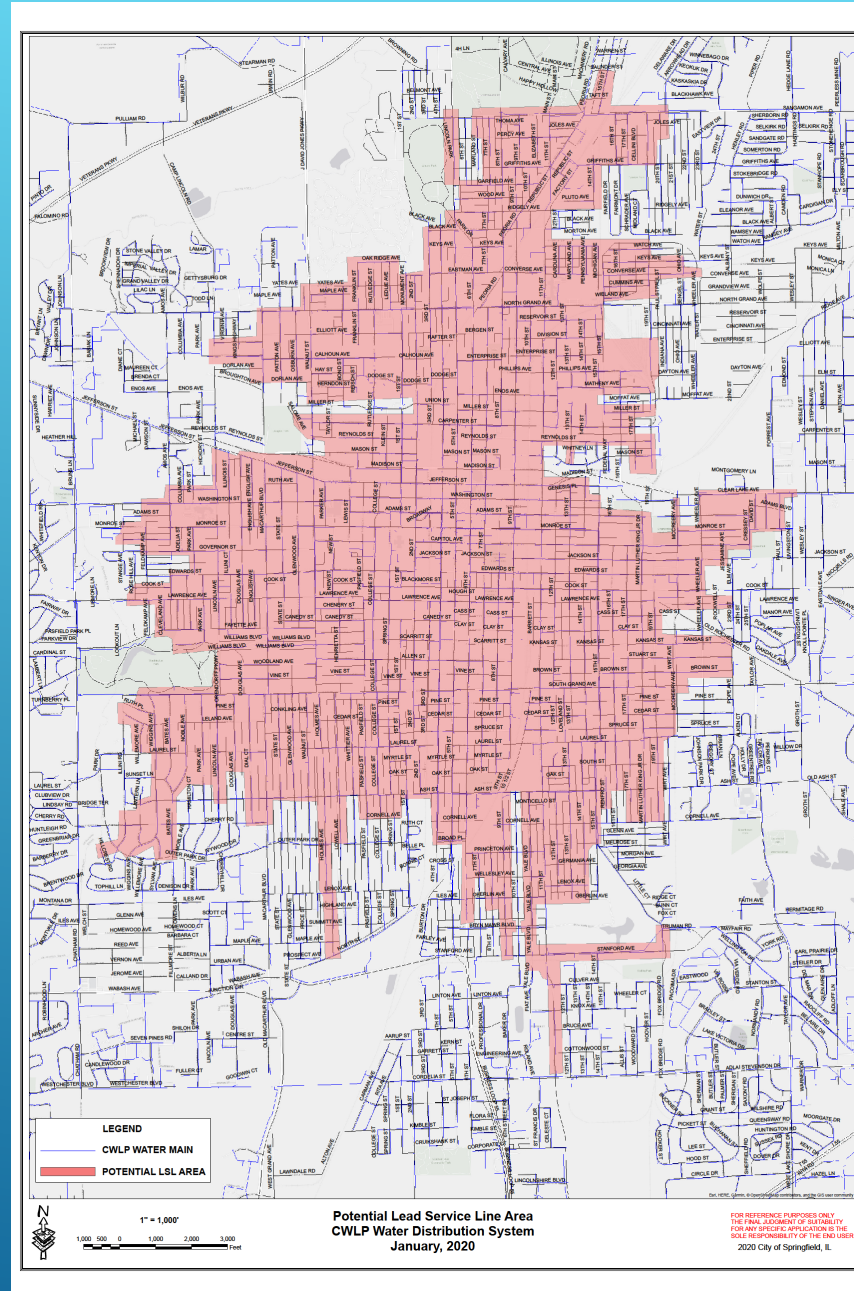
MANUAL REVIEW OF SERVICE CARDS

- ▶ In 2019 engineering staff reviewed over 14,500 individual service cards (historical records)
- ▶ Determine material of construction-initial and if replaced at some point with a new copper service line.
- ▶ Input into GIS. This process reduced our estimated # of lead service lines from 14,500 to 11,500.

SERVICE RECORD					
Street	Jefferson . West.	No.	602.		
Owner	Mary E. Hefferman.	Date	6/12/40.		
Tap No.	23208.	Size	3/4"	Copper	30'
		Lead		C. I.	
Location of Main Stop Box					
6' East of west of Park.					
72' south of south of Jefferson street.					
Location of Branch Stop Box					
Location of Branch Stop Box					
Location of Meter Pit					

POTENTIAL AND KNOWN LEAD SERVICE LINE AREA

- ▶ Service Population of over 153,000
- ▶ 52,400 Active Service Connections
- ▶ 10,800 Lead Service Lines




LEAD SERVICE LINE INVENTORY - NEXT STEPS

- ▶ Continue to request that customers identify their service line as part of Cross-Connection Survey and also online survey.
- ▶ Cross reference year of construction on county data base with service material types.
- ▶ Continuously update on-line service line inventory map
- ▶ Dedicate additional resources to pothole and field verify service lines in 2022 & 2023.

INTERACTIVE SERVICE LINE INVENTORY MAP

CWLP - Springfield IL Water Service Line Material

City Water, Light & Power 

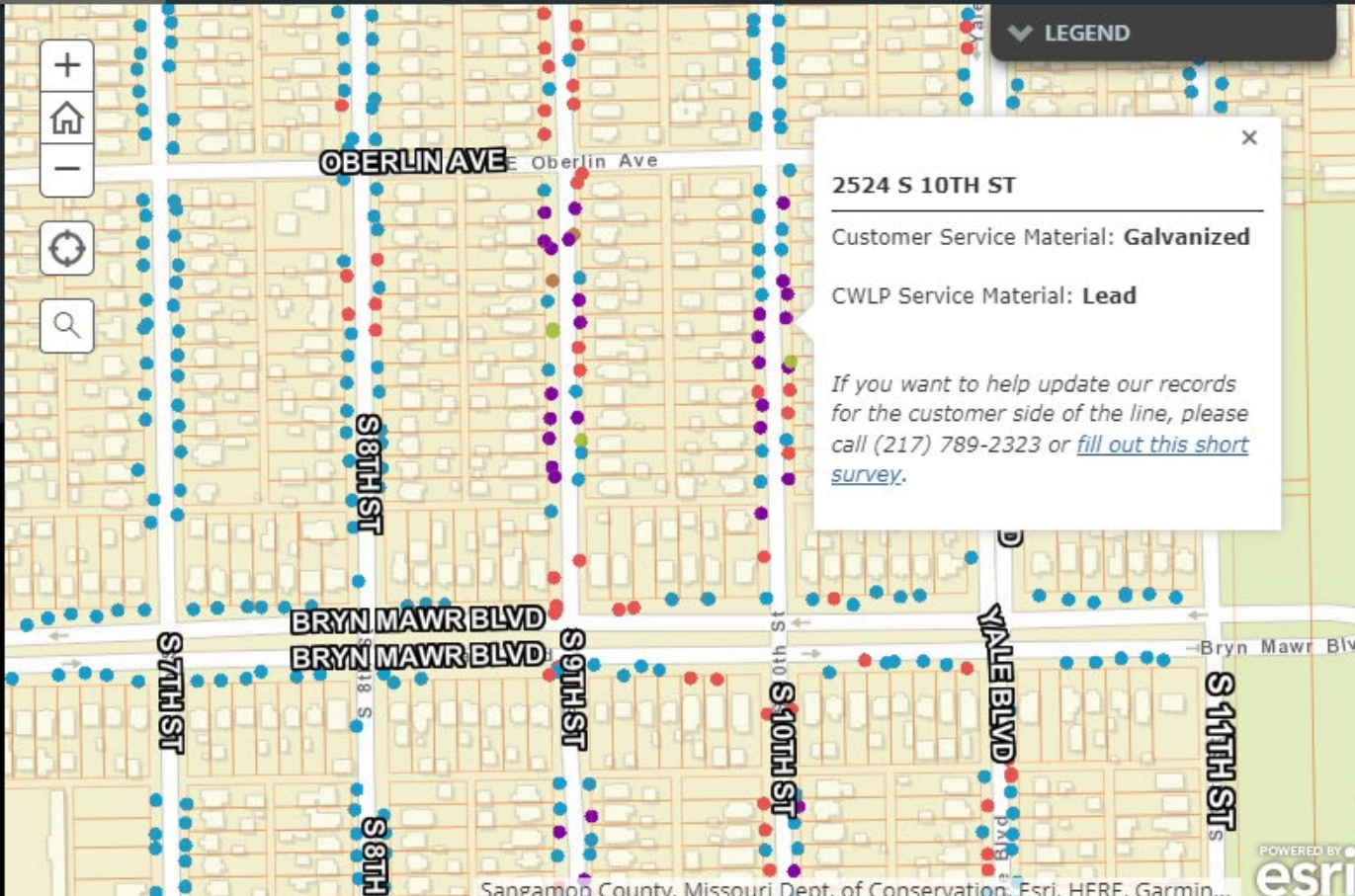
[Service Line Map](#) [Update Records](#)

About this map

CWLP has developed this interactive map and online survey to show and collect water service line material information for active customers within our service area.

CWLP has historic data for the CWLP owned portion of the water service line that derive from record drawings, plumbing inspections, maintenance records, and service inspections. In some locations, CWLP has verified the pipe material by visual observation. Other information is based on historic records and customer records, some of which has not been confirmed.

Because the information provided for the maps is limited to the best




LEGEND

2524 S 10TH ST

Customer Service Material: **Galvanized**

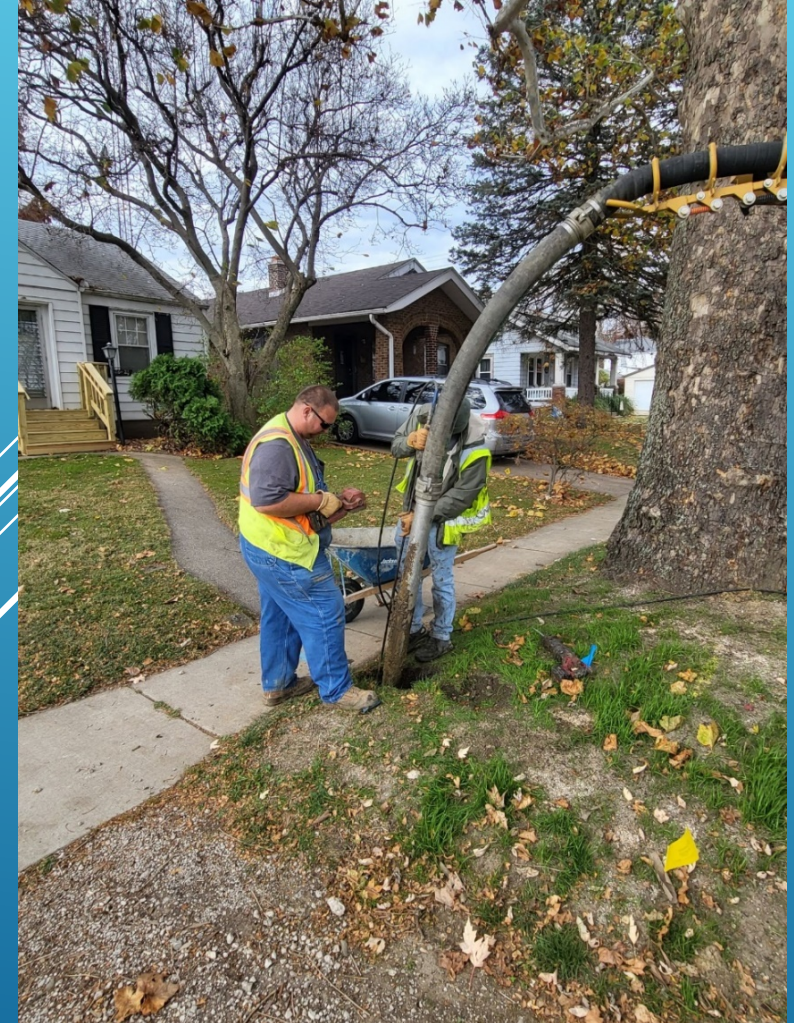
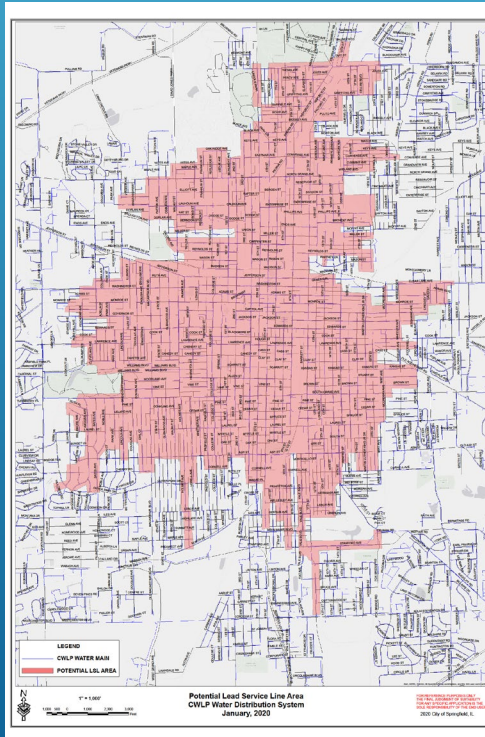
CWLP Service Material: **Lead**

If you want to help update our records for the customer side of the line, please call (217) 789-2323 or [fill out this short survey](#).

Sangamon County, Missouri Dept. of Conservation, Esri, HERE, Garmin... 

INVENTORY CONFIRMATION

Vacuum Excavation - \$1 M ARPA Funding
Bids Competitive – 4 Received
Price per Excavation & Backfill – \$126.15
Price Per Residence - \$252.30



LEAD SERVICE LINE REPLACEMENT PROGRAM (LSLRP) 2019 - 2023

- CWLP crews replace City's owned portion of Lead Service Line
- Contractor Replaces Homeowner Portion of Lead Service Line
- CWLP Portion Absorbed in O&M Budget
- Home Owner Portion/Street & Landscaping Repairs Financed through SRF Loan w/ Principal Forgiveness



PRIORITIZATION OF LEAD SERVICE LINE REPLACEMENTS

PLANNED REPLACEMENTS

- ▶ Schools and Registered Day Cares
- ▶ Low Income Areas by Census Tract

UNPLANNED REPLACEMENTS

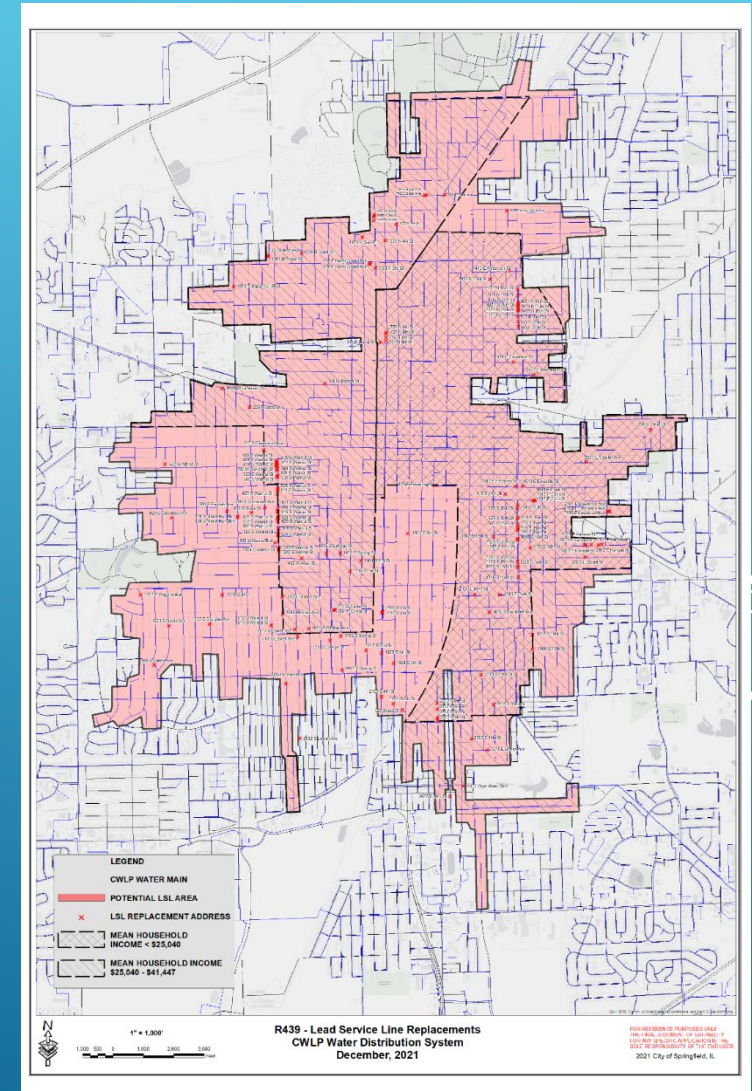
- ▶ Leaks and Emergency Maintenance
- ▶ Lead Sample Detects

EFFICIENT USE OF RESOURCES

- ▶ Main Replacement Projects
- ▶ Public Works Projects

OTHER CONSIDERATIONS

- ▶ Resource Distribution Among Wards



PRIVATE LEAD SERVICE LINE REPLACEMENT ADMINISTRATION PROCEDURE


► Step 1: Homeowner Application or Waiver

LEAD WATER LINE REPLACEMENT APPLICATION

S MacArthur Blvd
Springfield IL 62704

**Lead Water Line Replacement Program
2022-2023**

Presented by:



City Water, Light and Power- Water Services Office
401 North Eleventh Street
Springfield, IL 62702
Telephone: (217) 789-2323

Contact: Stefanie Skeeters for any questions:
(217) 789-2323 ext. 1611
Or stefanie.skeeters@cwlp.com

LEAD WATER LINE REFUSAL

1. Property Address: 1008 South Walnut Street, Springfield, IL 62704
2. PIN: 14-33.0-451-039
3. Owner Name: Deborah Williams

CERTIFICATION BY OWNER OF REFUSAL TO PARTICIPATE IN THE LEAD WATER LINE REPLACEMENT PROGRAM

1. The Owner does certify that they were offered participation in the Lead Water Line Replacement Program and have been informed of the hazards of lead in drinking water.
2. The undersigned Owner acknowledges that they have refused to participate in the Lead Water Line Replacement Program.
3. The undersigned understands that the City will be replacing the public portion of the lead service line that _____ serves my _____ and I am electing to not have my lead or galvanized portion of the service line replaced.
4. The undersigned understands that partial replacement is not desirable because of the potential for increased _____ release of lead into the water.
5. The undersigned Owner acknowledges that they will not be offered an opportunity to participate in the Lead _____ Water Line Replacement Program in the future.

Date X _____
Signature-owner

Date X _____
Signature-Owner

Witness

End of document ■

- Applications completed - 84%
- No Response - 12%
- Waivers – 4%
- 1 Month Average Response Time

STEP 2: CONTRACTOR COST ESTIMATE

- ▶ Contractor contacts homeowner and makes site visit to estimate for private side of the project. Many factors affect the estimate.



STEP 3: CONTRACTS BETWEEN CONTRACTOR/HOMEOWNER AND CITY/HOMEOWNER

Issues

LEAD WATER LINE REPLACEMENT PROGRAM

HOMEOWNER AGREEMENT

Homeowner:
Address of Property:
Contract Amount: \$

As a condition of participation in the City of Springfield, IL, a municipal corporation, Office of Public Utilities' Lead Water Line Replacement Program for the receipt of funds under said program, I do hereby agree to abide by the following provisions:

1. The assistance received will be used for lead water line replacement according to the terms specified in the contract between the general contractor and myself, for the dollar amount contained in the contract.
2. To allow the City of Springfield to inspect/audit my property with prior notice.
3. That no funds will be disbursed to the contractor until the funds are needed to pay eligible costs, including the contractor's cost for materials and labor, in accordance with the contract specifications.
4. That lead water line replacement shall be done and maintained in conformity with the current City of Springfield Building Code Standards as applicable to this project and in accordance with the applicable provisions of the UW21-01-55 issued by the City of Springfield.

SIGNED: _____ DATE: _____

SIGNED: _____ DATE: _____
Doug Brown, Chief Utility Engineer
City of Springfield Office of Public Utilities

Lead Water Line Replacement – Homeowner Agreement

LEAD WATER LINE REPLACEMENT PROGRAM

CONTRACT FOR LEAD WATER LINE REPLACEMENT

I, _____, hereinafter referred to as the Owner, hereby agree with **PETERSBURG PLUMBING AND EXCAVATING, LLC**, hereinafter called the Contractor, as follows: The Contractor agrees to furnish all materials and labor necessary to make water service line improvements on the property located at **S. MacArthur, Springfield, Illinois 62704**, according to the following job specifications:

I. SCOPE OF WORK

1. Replace customer's lead or galvanized service line if connected to a lead service line with 1" or ¾" type k copper from meter pit into existing home (18" maximum inside home from foundation wall).
2. Install 1" or ¾" brass ball valve and connect to existing plumbing within 18" of interior foundation wall.
3. Repair basement wall and flush air out of household plumbing.
4. Sidewalk and roadway repairs as needed. This includes removing CWLP's temporary surface over trench within the roadway, driveway or sidewalk and installing permanent roadway, driveway or sidewalk patch and replace curb as needed.
5. Surface restoration of yard.

II. GENERAL REQUIREMENTS

DEFINITIONS:

1. **CONTRACT:** This agreement and any addendum thereto.
2. **CONTRACTOR:** Person, partnership, joint venture or corporation acting as general contractor for the work covered by this contract and authorized to execute this contract.
3. **OWNER:** Owner of record authorized to execute this contract.
4. **LOCAL PUBLIC AGENCY (LPA):** The City of Springfield, Illinois, a municipal corporation, acting by and through its Office of Public Utilities.

The Contractor does hereby agree to furnish labor and materials and to complete work on this project in accordance with the above job specification in the sum of **\$8,242.00** with payment to be made as hereafter set forth. **Contractor's detailed estimate attached.** All materials are guaranteed to be as specified. All work is to be performed in a workmanlike manner according to standard practices and is guaranteed for one year after completion. Where the job specification does not state otherwise, all materials supplied and all work performed is to be in accordance with the applicable provisions of the UW21-01-55 issued by the (LPA) and incorporated herein by reference and made a part of this contract. Specifications as to the work required may not be changed,

Charles Johnson Page 1 of 5

- Completing documentation is time consuming. 3.5 Months Average Time To Receive Contract
- Agreement between homeowner and vendor to protect City in case of damage to private property
- Agreement between homeowner and City for receipt of public funds

STEP 4: NOTICE TO PROCEED

Administrative and Legal Issues

- ▶ Lack of guidance on model legal documents
- ▶ How to streamline process for faster replacements
- ▶ What legal relationships should be for public funding of private improvements
- ▶ How to protect homeowners and municipalities from damage, legal liability and poor work

LEAD WATER LINE REPLACEMENT PROGRAM

NOTICE TO PROCEED ORDER

APPLICANT:
ADDRESS: S. MacArthur, Springfield, IL 62704

HEREBY ISSUES AN ORDER TO PROCEED TO:

PETERSBURG PLUMBING AND EXCAVATING, LLC
ADDRESS: 3550 GREAT NORTHERN AVENUE
SPRINGFIELD, IL 62711

FOR WORK TO BE PERFORMED AT: 330 S. MacArthur, Springfield, IL 62704

Charles Johnson _____ Date

BRIAN VOGT _____ Date
of PETERSBURG PLUMBING AND
EXCAVATING, LLC

I, BRIAN VOGT of PETERSBURG PLUMBING AND EXCAVATING, LLC
HEREBY SET A TENTATIVE STARTING DATE OF:

_____, 2022

BRIAN VOGT _____ Date

Lead Water Line Replacement Program – Notice to Proceed Order

LSLRP PHASE 1

2019 TO 2021

- ▶ 160 Service Lines
- ▶ Loan Eligible Costs = \$530,987.00 (143 Services)
- ▶ CWLP Costs = \$569,216.20 (160 Services)
- ▶ Total Service Cost = \$1,100,203.20
- ▶ Cost Per Service = \$6,876.27

~ \$7,000



LSLRP PHASE 2

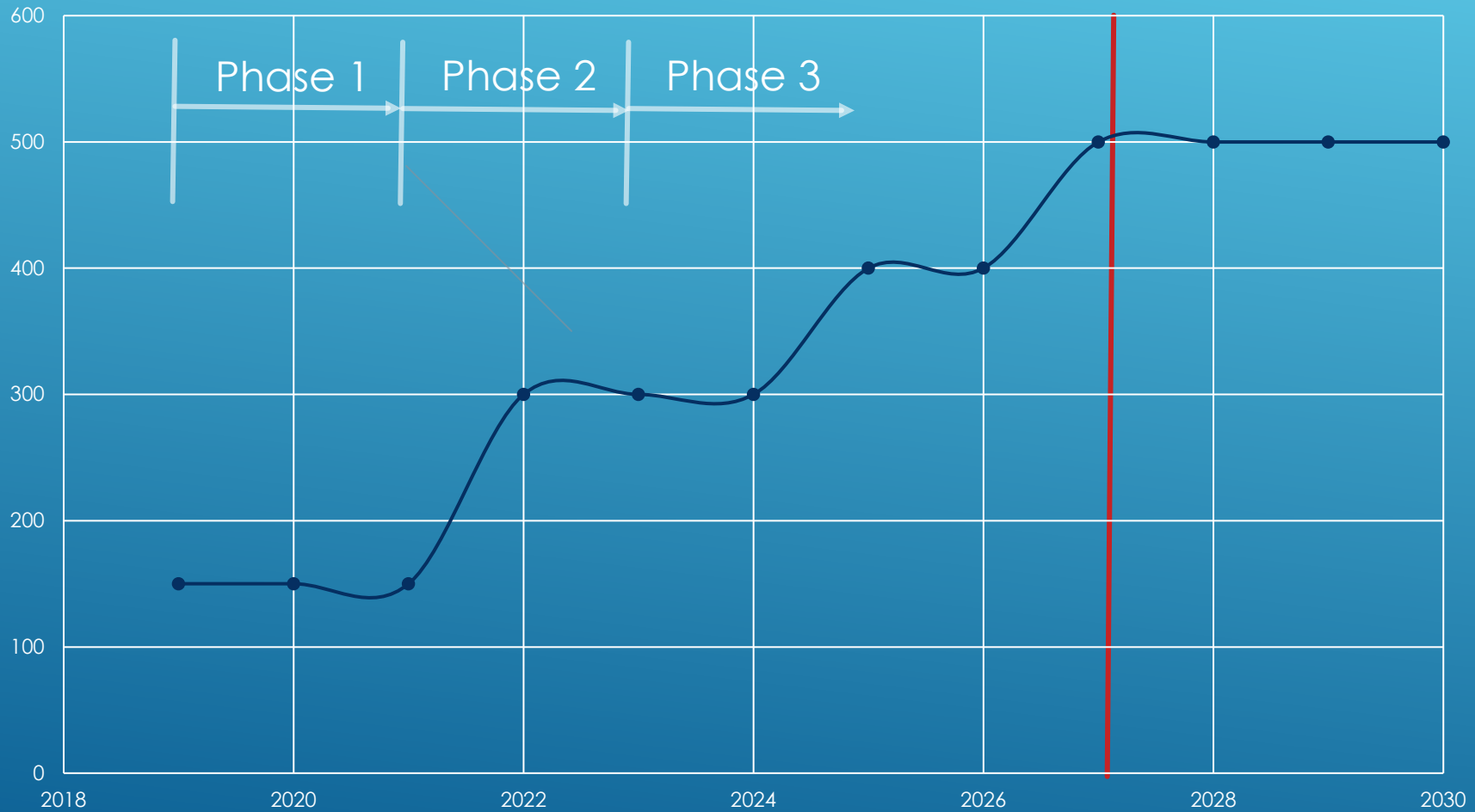
2021 TO 2023

- ▶ 600 Services (300 Per Year)
- ▶ 2 Year project currently under construction thru August 2023
- ▶ **Loan Eligible Costs (Approx.)**
 - ▶ Private service line (Labor, Equipment, Material) = \$3,300 each
 - ▶ Roadway & Parkway Restoration = \$3,350 each
 - ▶ Total = \$6,650
- ▶ **CWLP Non Eligible Costs (Approx.)**
 - ▶ CWLP service line (Labor, Equipment, Material) = \$3,600 each
- ▶ Total Service Line Replacement (Roadway) = \$10,250.00



LEAD SERVICE LINE REPLACEMENT PROGRAM

Number of Lead Service Replaced



LSLRP FUTURE PROGRAM FUNDING

- City Owned Portion – City Funded Through O&M Budget
- Customer Owned Portion – Who's Financial Responsibility?
Options For Customer Owned Portion
 - (1) Finance through water rates.
 - (2) Invoice each address separately.
 - (3) Attach liens to homes unwilling or unable to pay.
 - (4) Have homeowners sign waivers.
 - (5) Implement state or federal tax or fee.
 - (6) Additional state or federal grant/principal forgiveness funding.

LSLR COMMITTEE TOPICS

1. The sufficiency of various revenue sources to adequately fund replacement of all lead service lines in Illinois.
2. The financial burden, if any, on households falling below 150% of the federal poverty limit.
3. Revenue options that guarantee low-income households are protected from rate increases.
4. An assessment of the ability of community water supplies to assess and collect revenue.
5. Variations in financial resources among individual households within a service area.
6. The protection of low-income households from rate increases.

LSLR COMMITTEE - ITEM 1

SUFFICIENCY OF REVENUE

- ▶ City of Springfield – 10,000 lines @ \$10,000 = \$100,000,000 Project Over 20 Years
- ▶ \$5,000,000 Per Year
- ▶ Loans w/ Principal Forgiveness through Bi-Partisan Infrastructure Bill \$106.5 million for each of the next 5 years
- ▶ Without Grants/Principal Forgiveness – If allocated evenly across CWLP's 53,000 customers \$7.86/month

LSLR COMMITTEE - ITEMS 2, 3 & 6

LOW INCOME PROTECTION FROM FINANCIAL BURDEN

- Establishment or continuing to maintain the life line rate for the first five (5) units of water ensures low income households continue to pay reasonable water rates
- Current typical CWLP Bill for 5 Units of Water is \$14.80/month
- 63% Increase water rates to cover lead service line removal (~ \$8/month)
- Replacement efforts are subsidized across entire customer base
- LIWAP and other low income utility programs are available for those most in need

Water Rate 10: Inside-the-City Customers [Read More](#)

CWLP's standard water Rate 10 is available to residential, commercial and industrial customers for water supplied to meters at service addresses located within the Springfield city limits. The billing unit for water service is 100 cubic feet, which is equivalent to 748 gallons. The minimum monthly bill will be equal to the meter charge.

Meter Size (inches)	Monthly Charge
5/8	6.60
3/4	12.35
1	26.94
1 1/4	38.10
1 1/2	47.67
2	72.52
3	128.35
4	217.23
6	440.56
8	691.24
10	1140.65
12	1433.96

Water Rates	Monthly Volume of Use	Charge per Unit
Customers with 5/8" or 3/4" meters	First 5 units	\$1.64
	Next 5 units	\$2.64
	Over 10 units	\$2.74

Water Rates	Monthly Volume of Use	Charge per Unit
Customers with 1" or larger meters	all units	\$2.67

LSLR COMMITTEE – ITEM 4

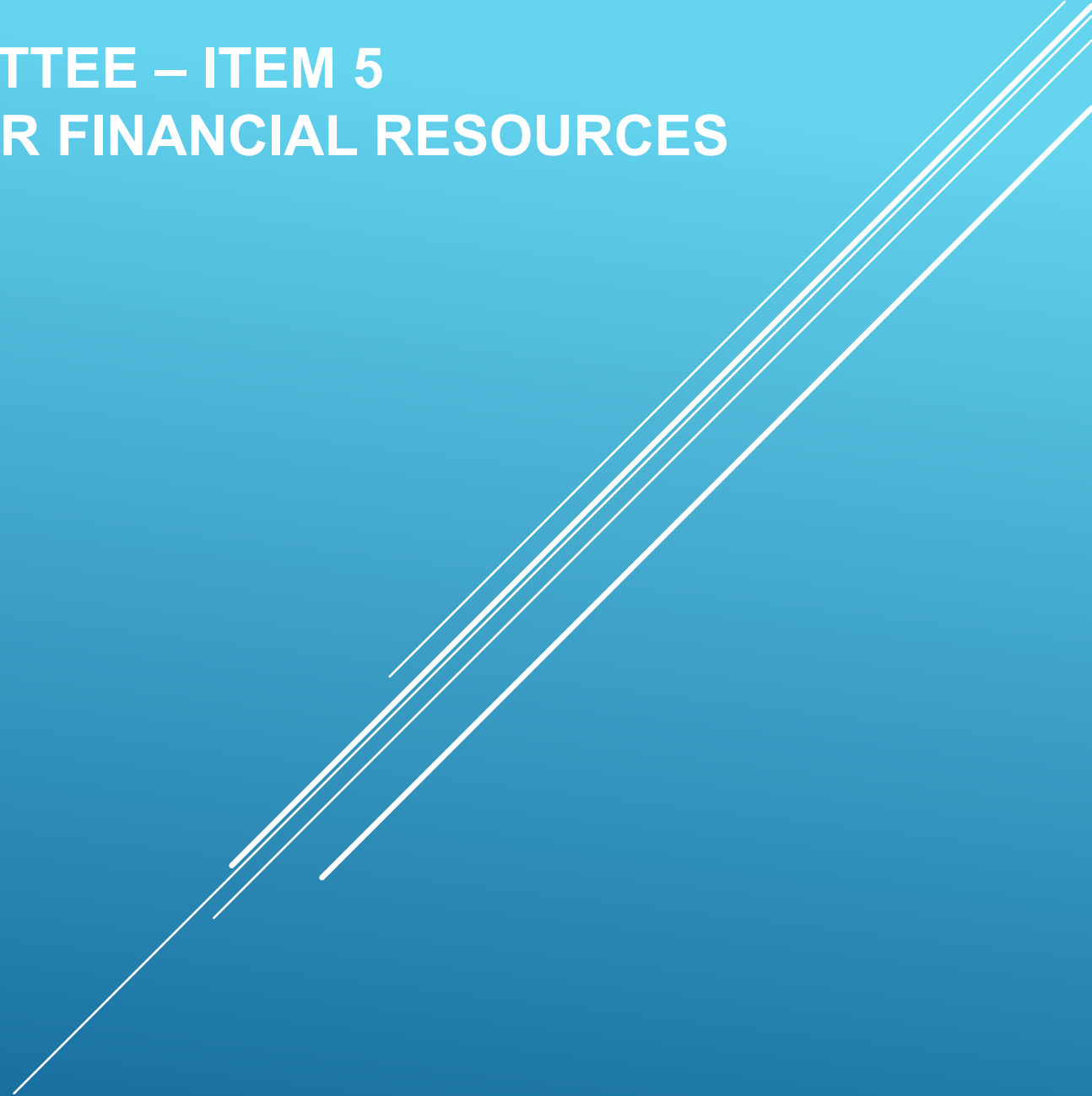
COMMUNITIES ABILITY TO COLLECT REVENUE

- ▶ Water Rate Increases and Billing/Collection Mechanisms Already in Place
- ▶ Water Rate Increases Require the Approval of Political Body Regulatory Agency
- ▶ Political Body may have own ideas on the best way to allocate costs



LSLR COMMITTEE – ITEM 5

VARIATIONS IN CUSTOMER FINANCIAL RESOURCES



LEAD SERVICE LINE REPLACEMENT POTENTIAL ISSUES

1. Lack of available funding to finance the program.
2. Private homeowner portion of the service line and who bears the cost.
3. Lack of Contractors with skill set to bid and complete the replacements in the required timeframe.
4. Lack of homeowner responsiveness in priority low income or disadvantage areas.
5. Emergency repair 30/120 day timeline requirement.
6. Waivers and potential related excursions.

QUESTIONS

