



# **PbXtractor:** Trenchless Lead Service Line Removal

*Part of Track I-E: Sewer/Water Emerging Technologies*



# Solving the lead problem

Flint, Michigan put a national spotlight on the problem of lead in drinking water

Over 18 million people across the country were served by systems violating the Lead and Copper Rule.

The EPA initiated the Drinking Water Lead Reduction Plan

- Identify, test and report LSL inventories

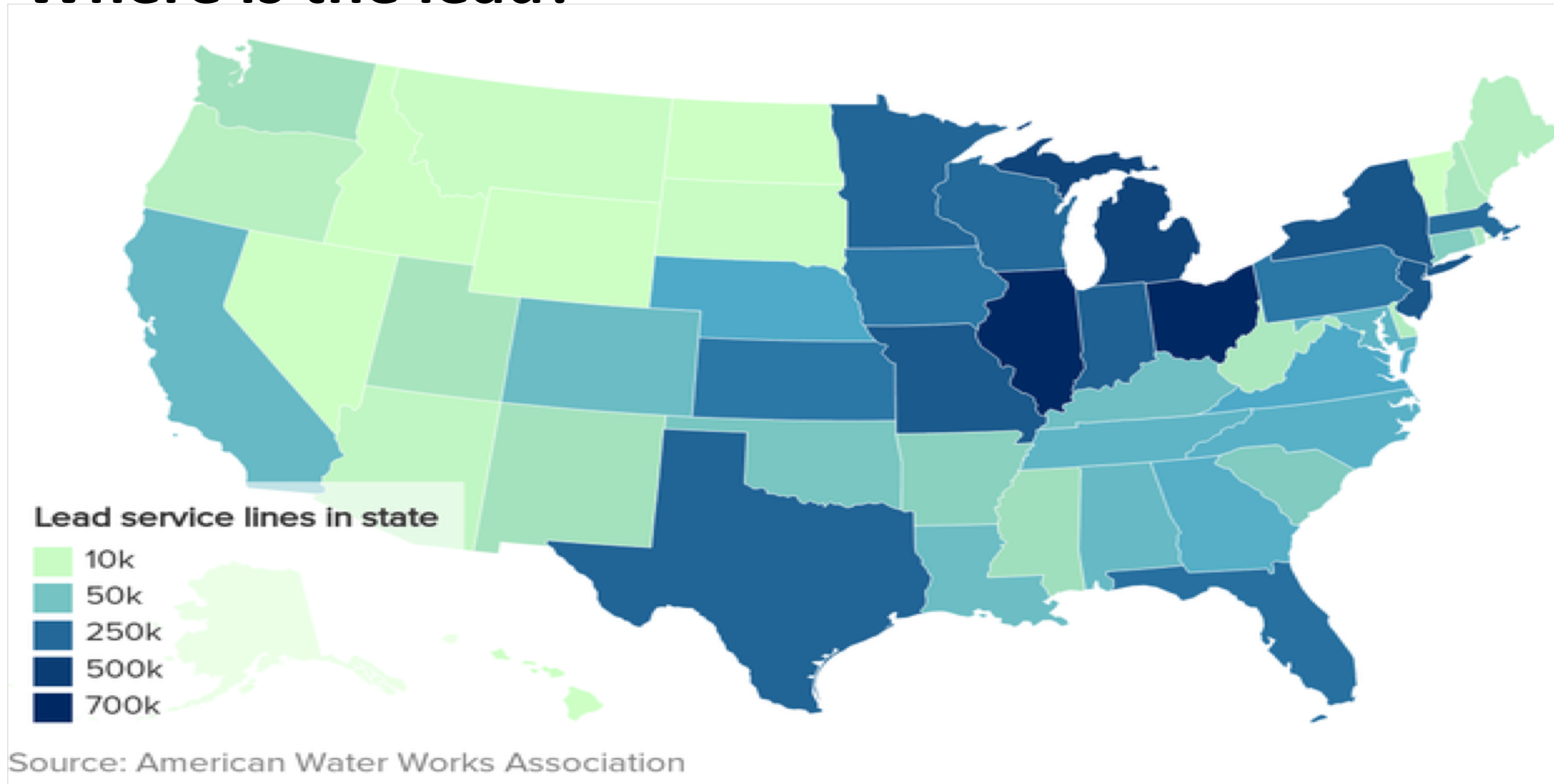
- Submit replacement plan

- Replace lead service lines

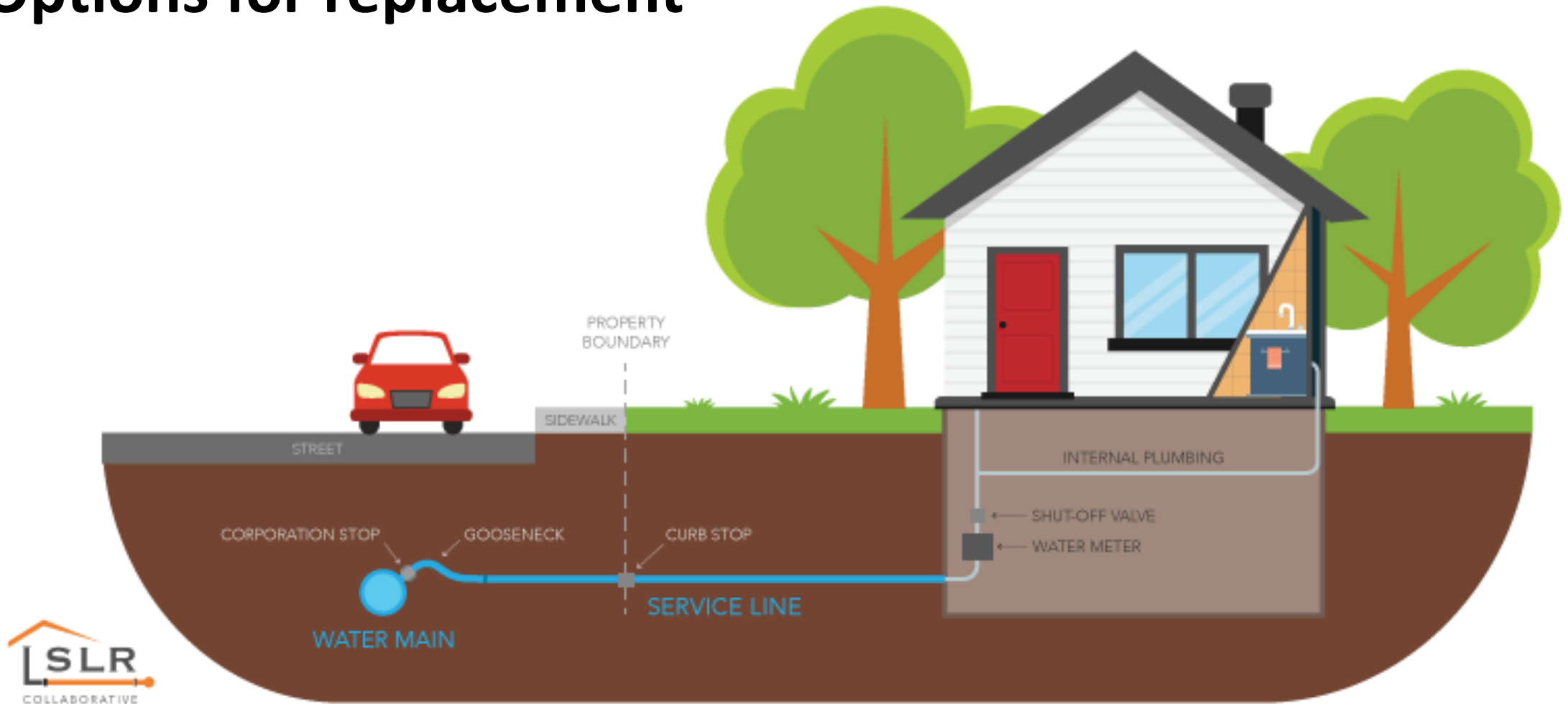




## Where is the lead?



# Options for replacement





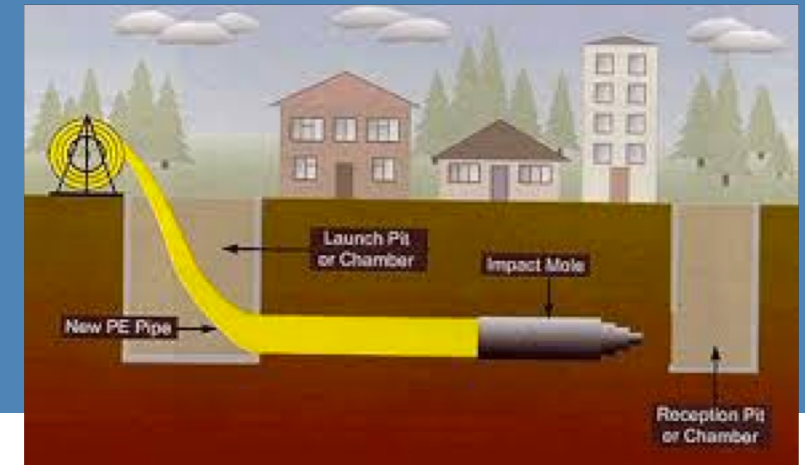


# Open trench excavation





# Impact moling, guided bore or piercing





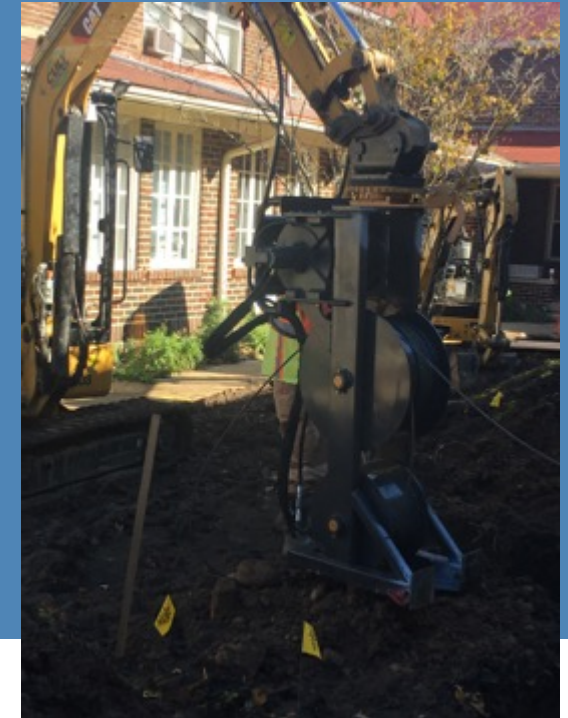
## Epoxy, Polyurea & PET liners







# Pipe extraction/pipe pulling





# PbXtractor

New mini excavator attachment designed to remove lead service lines.

- Trenchless
- Smaller access pits
- Removes the lead pipe in one piece
- Pulls in the new pipe







# PbXtractor

## How it Works

### Preparation

Excavate small access pits at the property line and main, basement access needed on the property side.

### Extraction

Connect PbXtractor cable to both ends of the service line and extract in one piece as the new service line is pulled in simultaneously.

### Completion

Make new connections and restore site.





# Lead Service Line Preparation





## #1 - Thread the LSL with the winch cable

Winch Cable







## #2 – Prepare pipe ends

Winch Cable

End Cap





## #2 – Prepare pipe ends





## #3 – Attach new pipe





## #4 – Extract the LSL and pull in the new pipe





THE **UNDERGROUND** UTILITIES EVENT

Underground Construction Technology | Jan. 29-31, 2019 | Fort Worth, TX

# PbXtractor

## Advantages

- Trenchless
- Utilizes smaller access pits
- Removes the lead pipe in one piece
- Pulls in the new pipe
- Lead is removed from the ground





# Thank you



## **PbXtractor: Trenchless Lead Service Line Removal**

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### Resources:

- EPA - [www.epa.gov](http://www.epa.gov)
- EDF - [www.edf.org](http://www.edf.org)
- AWWA - [www.awwa.org](http://www.awwa.org)
- LSLR Collaborative - [www.lslr-collaborative.org](http://www.lslr-collaborative.org)

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