



Pittsburgh  
Water & Sewer  
Authority

## PWSA Lead Program Summary

June 9, 2017

# PWSA Current Lead Program

- 1.) Inform the public
- 2.) Optimize treatment
- 3.) Find the lead
- 4.) Get the lead out

# 1.) Inform the public

- Educate public on health risks of lead in water
- Recommend flushing and filtering to reduce risk
- Free lead test kit program
- Curb box inspections results shared with residents via letter
- 45-day notice to residents for lead line replacements. Letter explains risks and encourages coordinating private-side replacement.
- Publish service line location data online
- Publish construction and inspection schedules

# Inform the public - Materials & outreach

- PWSA educational materials via mail, bill inserts, webpage, and social media
- Community education sessions in each Council District
- Educational outreach includes information on:
  - How to identify lead pipes
  - If you believe you have lead, flush taps before consumption
  - Use of NSF-certified drinking water filters

# Inform the public - Curb Box Inspections (CBIs)

- Customer receives a two-week inspection notice via door hanger
- Inspection schedules posted on PWSA website and email distribution list
- Owner and tenant receives CBI Inspection Results Letter, 4-6 weeks after inspection. Includes information on risks of lead, encourages private line replacement and directs customers to URA's ROLL loan program
- CBI data posted to PWSA web map

# Inform the public - Lead service line replacements

- Property owner/tenant receives 45 day notice of replacement – included information about partial line replacement risks
- Customer receives 48-hour construction notice via door hanger
- After construction, customer receives post-construction flushing instructions via door hanger (30 minute flush)
- If partial lead line replacement, customers received free:
  - NSF-certified pitcher-style filter, six months of filter refills
  - Mandatory post-construction lead test kit

# Inform the public – Partial lead line replacements

- On June 2, 2017, PWSA halted partial lead line replacements in its lead service line replacements contracts
- Partial replacements involve removing lead on the public side of the line and reconnecting to lead on the private side
- Decision made in consultation with Allegheny County Health Department based on elevated lead levels found in post-construction lead samples taken by customers.
- 49 properties received partials under PWSA's contractor replacement program
- If partial lead line replacement, customers received free:
  - NSF-certified pitcher-style filter, six months of filter refills
  - Lead water test kit

# Mayor's Safe Water Program

- Free NSF-certified pitcher style lead filters
  - Priority distribution for at-risk populations (pregnant women, children under age of six)
- Free lead water test kits for all City of Pittsburgh residents
- As of May 2017, City has processed over 9,600 requests for test kits and filters



# Inform the public - Free lead test kit program

- PWSA providing free lead testing for all city residents, including Housing Authority and tenants
- Lead tests useful to identify presence of lead. Levels detected may fluctuate
- Process improved in October 2016:
  - Two contract laboratories
  - Kits mailed to residents within 10 days
  - Results provided in 4-6 weeks
- Since April 2017, PWSA has received 11,189 water test kit requests  
4,907 customers have returned the kits and received test results

## 2.) Optimize treatment

- Changes in corrosion control chemicals used at treatment plant may explain lead level increase
- Using pipe loops to test optimal corrosion control chemicals (e.g. phosphates)
- Study scheduled to conclude fall 2017
- A change in corrosion control chemicals will trigger additional construction at the plant and DEP permitting requirements
- New corrosion controls will take time to be effective after application

## 3.) Find the lead

- Estimate approximately 25% homes have lead service lines (17,750 total)
- Curb box inspections – contractors use cameras to identify lead service lines
- Historical paper record digitization
- Lead test kit data – high test results indicate likely lead service line

# Find the lead - Curb box inspections

- PWSA contractors are performing 200 CBIs per week. Approximately 2,200 inspections performed to date
- Sites chosen based on parcel age, water main age, historical records, and lead test data
- CBIs dispersed among each Council district
- 40% inspections are not conclusive
  - CBIs are a new approach to identifying lead. PWSA working to improve success rate.
  - Historical records used to avoid inspecting non-lead locations
  - Physical inspection via excavation, if required

# Find the lead - Curb box inspections & excavations

- PWSA planning to perform 13,400 inspections per year (50K total\*)
- Inspections completed 2021
- Excavations necessary when curb box inspections and inconclusive

			2017	2018	2019	2020	2021
<b>Curb Box Inspection Program</b>	Inspect Curb Boxes (13,400/year) to determine water service line material. After historical records are digitized, only inspect those lines that are in the records as lead or no record exists.	5 years	\$5,056,000	\$5,207,680	\$5,363,910	\$5,524,828	\$5,690,573
<b>Exploratory Excavation Program</b>	Where curb boxes and historical records cannot verify material, excavate hole via vacuum excavation or hydroexcavation methods to determine material type (10% of all lines inspected through CBIs)	5 years	\$0	\$2,700,000	\$2,781,000	\$2,864,430	\$2,950,363

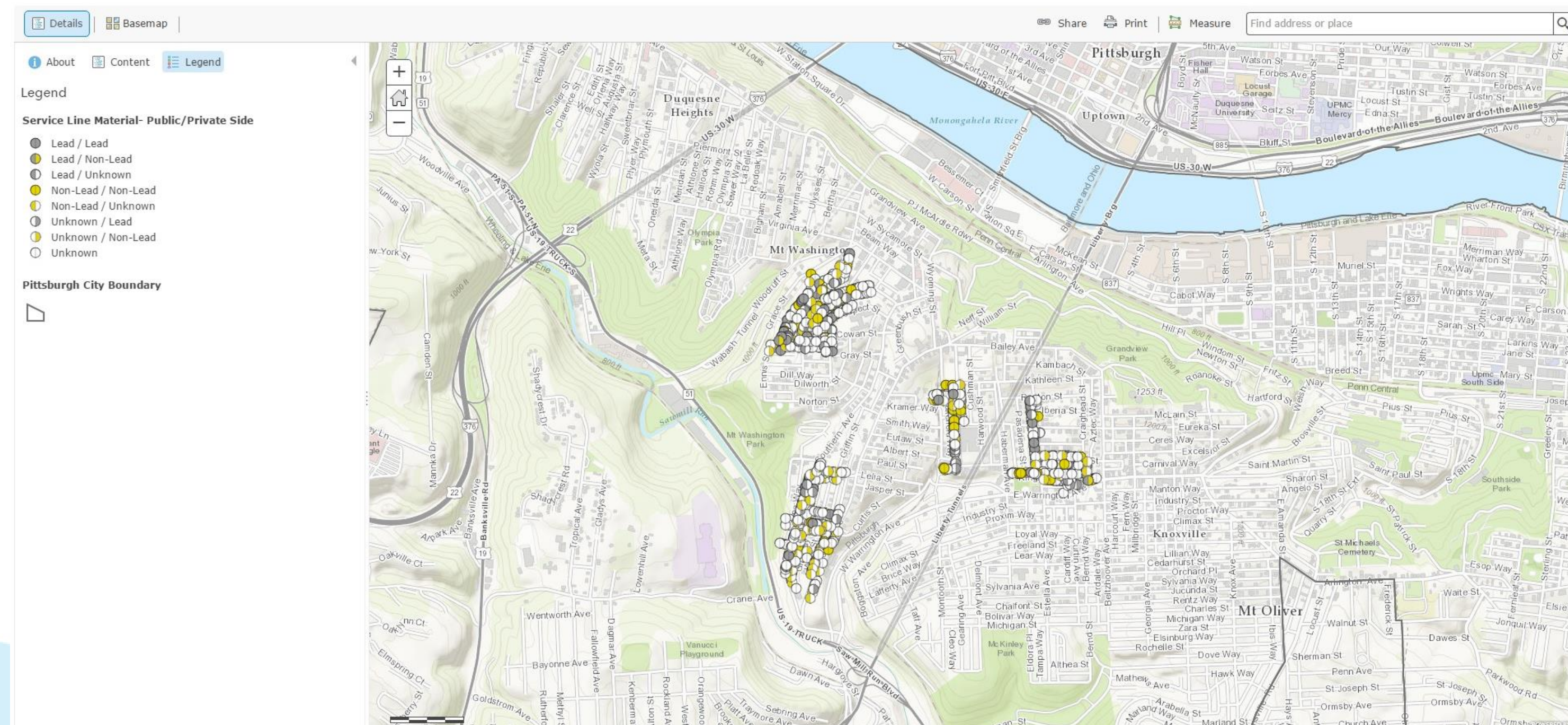
\*Assumes 30,000 sites will be determined to be non-lead using historical records

# Find the lead - Historical record digitization

- Old paper drill sheet records must be manually entered into database
- Data will be entered in GIS
- Method useful to determine which properties do not have lead on both public and private side
- Records were rarely updated. Many lead lines have been removed over time.

# Find the lead – Mapping lead lines

- As records are digitized and curb box inspections are completed, PWSA will post data to online map, [pgh2o.com/CBI](http://pgh2o.com/CBI)
- Data published on the web beginning June 2017



# 4.) Get the lead out

- Lead exceedance triggered EPA/DEP requirement to remove 7% of lead service lines per year (~1,400 lines/year).
- Schedule and budget assumes PWSA lead and copper rule testing fall below lead exceedance level by 2019.
- After PWSA is under the lead exceedance level, it plans to replace service lines as part of water main replacements.

			2017	2018	2019
<b>Lead Service Line Replacement Program</b>	Replacement of 7% of lead service lines per year. Assume Ops/Existing Projects replace 300 service lines. Assume 1200 replaced as just service line replacements.	3 Yrs.	\$23,700,000	\$16,860,000	\$17,365,800



# Replacing all PWSA lead service lines

*PWSA's current budgets and rates do not include private-side replacement*

## Lead Service Line Replacement Cost: Public and Private

Public Side Replacement Cost	\$6,600
Private Side Replacement Cost	\$4,500
Locating, Historical Record Search, Data Management	\$1,050
CM/CI/Design/Planning	\$3,600.00
Contingency (30%)	\$4,700.00
<b>Subtotal Single Line Replacement</b>	<b>\$20,450.00</b>
Total Residential Service Lines	71,000
Total Lead Lines (25%)	17,750
<b>Total Cost</b>	<b>\$363,000,000</b>

\*Approximately 14 years to replace all lead lines in PWSA service territory

# Private service line replacements

- PWSA and the City of Pittsburgh seek to replicate Philadelphia Water Department policies
  - Full lead service line replacements when work is initiated by the Authority (water main replacements/lead service line removal contracts)
  - Private service line work must be authorized by the property owner
  - Financial assistance for property owners who initiate removal of their private lead service lines
- Legislative action is underway to allow PWSA to fund and perform private lead service line replacements
  - Allowing municipalities and authorities to perform private water line replacements (SB 656)
  - Allowing use of PENNVEST funds for private water line replacements (SB 639)

# PWSA lead program timeline and projected schedule

- **February 2016:** PWSA Operations Department begins to track all lead lines that are replaced
- **Spring 2016:** PWSA Operations changes policy – Lead lines will not be repaired, they will be replaced in whole from the main to the curb box
- **June 30, 2016:** PWSA exceeds EPA/DEP Lead Action Limit
- **September 2016:** PWSA provides DEP with an estimate of the number of lead service lines in their system using a statistical model approach (20,250 total lines)
- **October – December 2016:** PWSA develops Lead Water Service Line Program including letting contracts for water service line material identification and lead service line replacement
- **December 2016:** Corrosion Control Implementation - Pipe Loop Construction

# Program schedule 2017

- **February 2017:** Corrosion Control Implementation - Pipe loop conditioning
- **January 2017:** Corrosion Control Implementation - Metal plate station conditioning
- **March 2017:** Corrosion Control Implementation - Metal plate station conditioning
- **January 2017:** The PWSA Curb Box Inspection Program begins as a means to identify lead service lines
- **April 2017:** PWSA kicks off project to scan and digitize historical paper records related to water service lines
- **May 2017:** PWSA begins large scale construction to replace lead service lines by contractors
- **July 2017:** Corrosion Control Implementation - Pipe loop and metal plate station chemical testing
- **August 2017:** Corrosion Control Implementation – Final analysis and recommendations

# Program schedule 2018-2021

- **February 2018:** Corrosion Control Implementation -Chemical facilities construction
- **April 2018:** Corrosion Control Implementation – Full scale implementation
- **April 2018:** Historical record digitization and scanning complete (Public Side)
- **October 2018:** Historical record digitization and scanning complete (Private Side)
- **December 2018:** First round EPA/DEP compliance lead testing below action level
- **June 2019:** Second round below action level
- **2019:** DEP lifts 7% lead service line replacement requirement
- **2021:** Curb Box Inspection program complete

# Data management plan

