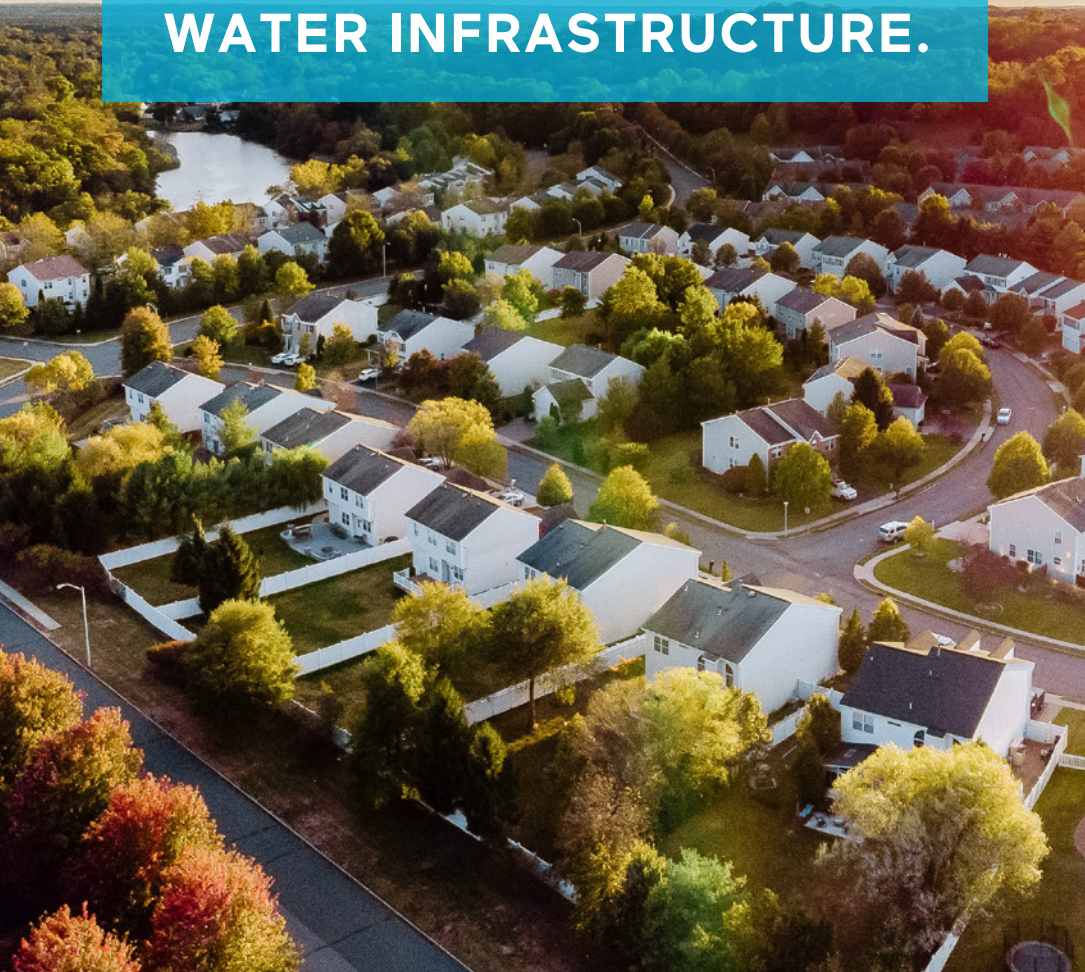


# ALTRA10x

*The Next Generation of the Formerly Known Aqua-Pipe®*

THE FIELD-PROVEN  
SOLUTION FOR **RESILIENT  
WATER INFRASTRUCTURE.**



## DELIVERING RESILIENCE

Our next-generation technology protects and renews your current water infrastructure from the inside with minimal disruption to your communities.

## BENEFITS

*1,300 miles / 2,100 km of water technology installed so far has proven to:*

### YEARS OF SERVICE LIFE ADDED TO WATER DISTRIBUTION SYSTEMS

- Structural, class IV, high resiliency against severe soil movements like frost heave, flooding, landslides, subsidence, nearby excavations, and earthquakes;
- Increased pressure and flow capacity;
- Added corrosion resistance;
- Regained full structural integrity;
- 100 year life expectancy.

### ENVIRONMENTAL BENEFITS

- Elimination of risk of future water main breaks;
- Reduction of 55M m<sup>3</sup> of drinking water leaks;
- Most environmentally friendly option with less GHG.

### INSTALLATION BENEFITS

- Enable work in difficult to access, ecologically sensitive or high density area (e.g., highways, etc.);
- Quick installation with minimal disruption for the community;
- Little excavation and noise leading to fewer complains from neighboring residents;
- No disturbance to adjacent infrastructures;
- Line through bends and future service taps easily performed;
- No future maintenance required;
- Replacing lead services can be done simultaneously.

### ECONOMIC CONSIDERATIONS

- Most cost effective water main infrastructure replacement methods;
- Reduction in treatment and pumping costs.

## TEAM OF WATER EXPERTS

### PUTTING OUR EXPERIENCE TO WORK FOR YOU

We have a proven track record of successful installation across North America, and we have developed deep expertise and advanced the state of the art with our trenchless technologies.



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## OUR FIELD-PROVEN EXPERTISE

- Acton (MA)
- Baltimore County (MD)
- Boston (MA)
- Burlington (VT)
- Cleveland (OH),
- Detroit (MI)
- Foxborough (MA)
- Francis Scott Key Bridge (MDTA)
- Harrisburg (PA)
- Jersey City (NJ)
- Livingston (NJ)
- Los Angeles (CA)
- Montreal (QC)
- Monroe County (NY)
- Naperville (IL)
- New York City (NY)
- North Penn Water (PA)
- Omaha (NE)
- Perkasié (PA)
- The Port Authority of NYNJ (Holland Tunnel)
- Providence (RI)
- Suez Water (NJ)
- Toronto (ON)
- Washington (DC)
- Webster (MA)
- Woodbridge (NJ)

*and many more.*

## TECHNICAL SPECIFICATIONS

### DIAMETER

ALTRA 10X : 4-12 inches  
(100-300 mm)

### INSTALLATION LENGTH

Up to 1,000 feet (300 m)  
between access pits

### INSTALLATION METHOD

Pulled-in-Place Pipe (PIPP)

### OPERATING PRESSURE

Tested at greater than 150 psi

### ALTRA10X LINER

Circular woven textile yarn jackets  
produced in our manufacturing  
facility and proprietary  
thermosetting resin

### HAZEN-WILLIAMS COEFFICIENT

Greater than 120

### LINER LIFESPAN

More than 100 year life expectancy

### CLASS IV STAND-ALONE STRUCTURAL LINER

- Regained pressure and flow capacity
- Corrosion resistance
- Regained structural capacity
- Proven not to break upon hostpipe failure.

*The ALTRA10X Structural Liners offer many advantages, such as when:*

- Complete access to driveways is a must and the closing of streets to residents as well as businesses is out of the question;
- In well populated areas where water main breaks and rusty water plague the system;
- The water main runs underneath a bridge or overpass rendering access to the main impossible.

## BASICS INSTALLATION STEPS

### 01. TEMPORARY BYPASS

Install temporary bypass  
through water meters or  
garden spigots

### 02. EXCAVATION

Excavate access pits at each  
end of the pipe section

### 03. CLEANING

Clean pipe with metal chain  
reamer

### 04. INSPECTION

Inspect pipe through  
closed-circuit television  
(CCTV) inspection to map the  
service connections

### 05. INSERTION

Insert plug in every service  
connection from inside the  
pipe using specialized robotic  
equipment

### 06. INJECTION

Inject epoxy into the liner  
on-site and pull into place

### 07. LINER FORMATION

Form the liner by sending  
swabs from one end to the  
other

### 08. CURING

Circulate hot water for curing

### 09. PRESSURE TEST

Perform hydrostatic pressure  
test

### 10. REINSTATE SERVICE

Reinstate service  
connections from inside the  
pipe by drilling using  
specialized robotic  
equipment

### 11. DISINFECTION AND RECONNECTION

Disinfect the pipe, test, and  
reconnect water distribution  
system

### 12. RESTORATION

Remove temporary bypass  
and restore site



Clean  
water main



Insert ALTRA



Robotically  
reinstating services

# CERTIFICATIONS

- Certified by NSF and UL to NSF/ANSI Standard 61
- Mechanical properties exceed ASTM F1216 and ASTM F1743 Standards
- Designated Class IV fully structural liner as per the AWWA M28 manual
- Meets the Solar Impulse Standards on Sustainability & Profitability
- Tested in compliance with Australian/New Zealand Standard 4020
- Standard BNQ 3660-950 approved product



**ALTRA**  
PROVEN WATER TECHNOLOGY

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