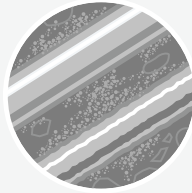


# WHAT CAN CAUSE WATER MAIN BREAKS

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Changes in water pressure within the pipes



Breakdown of pipe due to age, wear and tear.



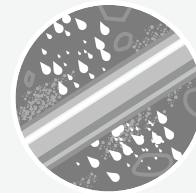
Changes in ambient water temperature



Installation process and unforeseen issues



Vibration from heavy traffic, construction or ground shifting



Corrosion from soil type and ground conditions

# WHO HELPS REPAIR WATER MAIN BREAKS?



## Foreman

Responsible for crew and site safety, organizing the job and directing the crew to complete the repair.



## Labourer

Responsible for assisting the intermediate/senior operator repair and acting as their eyes and ears at the ground level.



## Intermediate/Senior Operator

Responsible for assessing the break and executing the repair—from the bottom of the excavation, in any weather.



## Tandem driver/labourer

Responsible for removal of wet excavated soil and replacement with dry backfill soil and gravel, as well as assisting with many worksite tasks.



## Backhoe Operator

Responsible for excavating with precision around all utilities.



## Planner

Creates repair plan, including organizing emergency locates and assists with traffic setup.

# TYPES OF PIPE USED IN WATER MAINS

### Wooden pipes

Pre-1910  
(no longer in service)

### Cast Iron

1910 – 1968

### AC Pipe

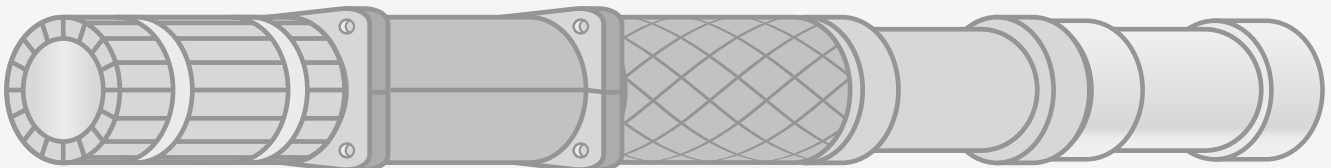
1955 – 1978

### Ductile Iron

1963 – 2010

### PVC

1976 – Now



## THE STEPS OF A WATER MAIN REPAIR

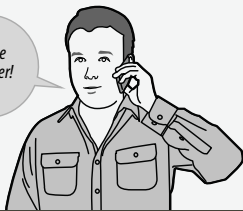
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1

### Call from citizen, Mobility, 311 or other party:

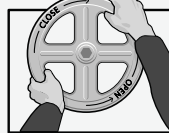
City of Calgary response initiated. Running surface water on street, sinkhole, service disruption in citizen's water, pressure changes.

I have no water!



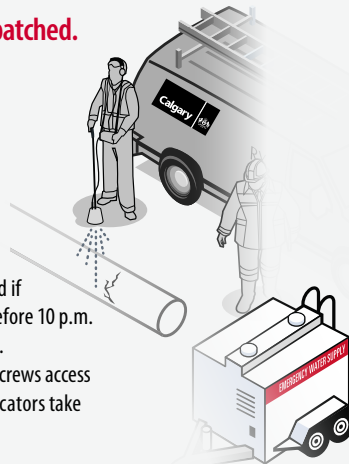
2

### Leak Locator team dispatched. All water is shut off.



**Daytime:** Customer are notified if possible if crews are on site before 10 p.m. Water wagons are dispatched.

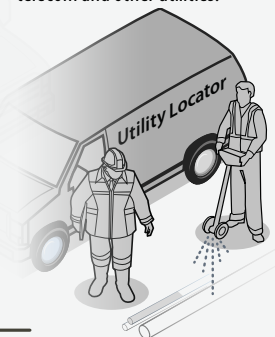
**Night time:** Primary Response crews access and identify problem. Leak Locators take over in daylight.



3

### Utility locator sent to site

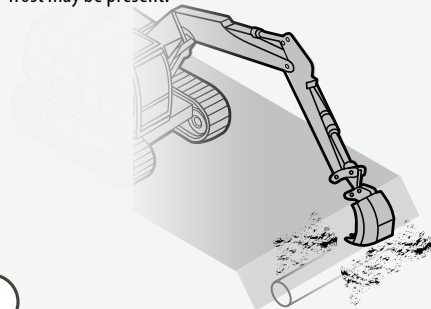
They locate and mark underground gas, sewer, electric, telecom and other utilities.



4

### Excavate and expose pipe

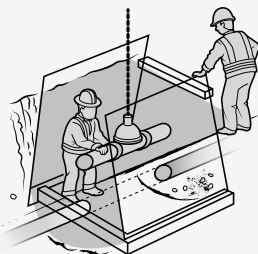
Duration is dependent on type of road and weather: 4 – 18 inches of asphalt, dirt, gravel and other materials must be excavated and during winter up to 8 ft of frost may be present.



5

### Assess and repair

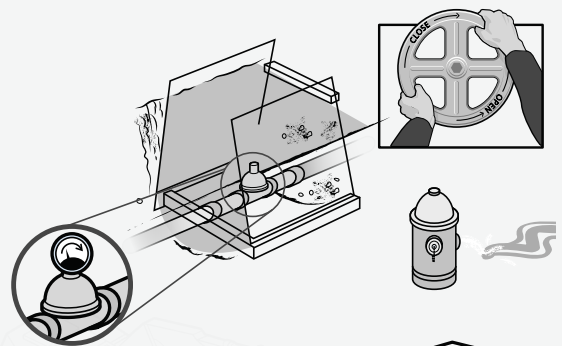
Assess the issue and repair with method best suited for issue and site conditions.



6

### Flush, pressurize and test

Fill pipe with chlorinated water to disinfect, pressurize the main to test repair & flush pipe through hydrant into the street.



7

### Test

Water samples are tested on site and in our lab to ensure water quality standards are met and water is safe to consume.



8

### Water on

Water is turned back on and citizen is asked to flush their taps.



9

### Backfill, compact and pave

Backfill a small amount at a time & compact. When compacting is finished, hole is paved over and has to cool (which can take up to 8 hours).

