

Municipal Service Tubing Past, Present and Future

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HISTORY OF WATER SERVICE



- Clay pipe and lead piping were used by the Romans to service private homes, amphitheatres and bath houses with potable water
- Lead was still the predominant metal used for water services for homes and businesses in North America up until about the end of WWII
- Lead was very flexible and extremely durable which made it an ideal piping material
- The use of lead for potable water declined sharply after WWII because of the dangers of lead poisoning
- Municipalities today often have lead pipe replacement programs in place



HISTORY OF WATER SERVICE



- Another material used for water distribution was hollowed wooden logs and barrel stave wooden piping
- Logs used for water distribution in England close to 500 years ago
- North America began using hollowed logs in late 1700's and through the 1800's
- This section of wooden pipe with branch was installed in 1799 in Troy, NY



HISTORY OF WATER SERVICE



- Interestingly, in the early 1800's fire fighters began to realize that they could bore into the logs to get water thereby helping fight fires more effectively
- When the firemen were finished fighting the fire, they would insert a plug closing off the water
- This is the origin of the “fire plug” and eventually “fire hydrant”



HISTORY OF WATER SERVICE



- In 1664, King Louis XIV commissioned over 30 km of cast iron pipe to be installed at Versailles Palace to bring water from the Seine River to the fountains and gardens of the Palace
- These one-meter long sections of flanged iron pipe were a major 17th century engineering feat
- Some sections remained in continuous service for over 300 years
- The innovation of using cast iron for water pipes, initially driven by the need for higher pressures for the fountains, helped pave the way for later, more advanced piping systems





HISTORY OF WATER SERVICE



- Galvanized pipe service lines are a steel pipe coated in zinc to prevent rust.
- Common in older homes (pre 1970's)
- Corrodes from the inside out, reducing water flow and potentially releasing trapped lead, requiring replacement for safe, reliable water supply
- Identifiable as a magnetic, dull grey pipe that develops rust-coloured flakes and reduced pressure over time



HISTORY OF WATER SERVICE



- Copper is perhaps the most widely used plumbing material in North America
- For the past 50 years, copper tubing has endured as the mainstay water service material from the utility main to the residential property line
- Copper tubing can be somewhat corrosion resistant in certain soils conditions, but often must be protected using a sacrificial zinc anode in Canada
- Available in long coils, to eliminate unnecessary joints, or hard, straight lengths for durability



HISTORY OF WATER SERVICE



- Copper tubing is sustainable, healthy and easily recycled at any point up to and including end of service life
- Because of its recyclability, and continually climbing prices, copper tubing becomes a high theft item on job sites and in service
- Copper can be exposed to UV rays without risk of cracking or failure
- Copper tubing is easy to join using a variety of leak-free methods, but the most common in service tubing would be the use of municipal brass fittings and stops

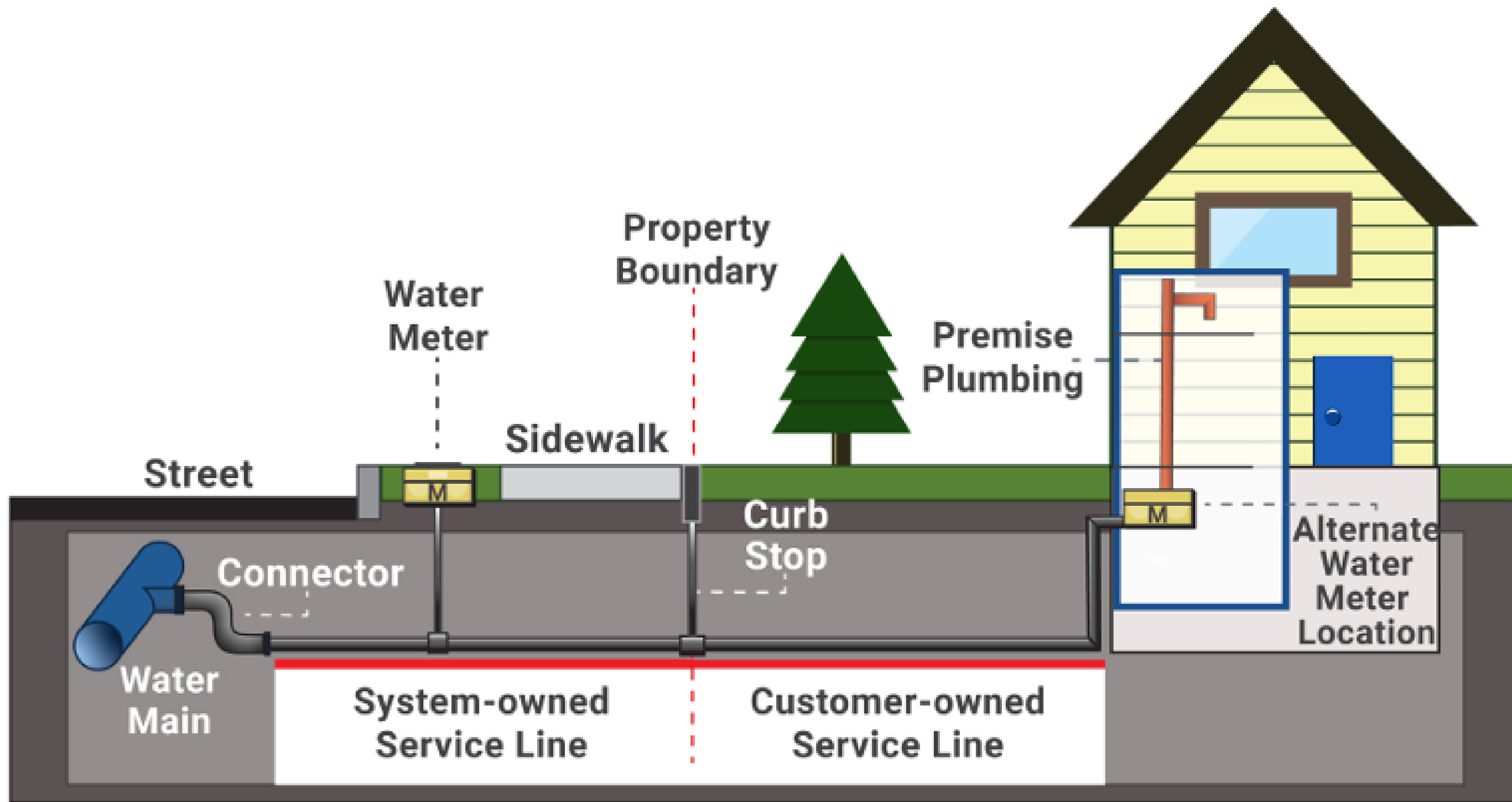


HISTORY OF WATER SERVICE



- Municipal brass fittings have become the standard in municipal services. Manufacturers such as Ford Meter Box, Cambridge Brass and Mueller provide reliable, leak free brass fittings, however one of these manufacturers has changed the composition of their brass from what is known as “red brass”, containing higher amounts of copper to a “yellow brass” containing much higher quantities of zinc. Zinc is known as a sacrificial metal and susceptible to much easier corroding of the fitting. This new brass has not been tested in North America so it is expected to fail much sooner when buried in Canadian soils





PRESENT DAY WATER SERVICE



- Pex A crossed linked polyethylene pipe has become the benchmark in plastic service tubing.
- Commonly known as “Municipex” or “Blue 904”
- Pex A was pioneered around 1967 in Europe and has been in use for almost 50 years (mostly in Europe). Commonly used in North America for the last 25 years or so.
- Available in Copper Tube Sizing from 3/4” to 2” and works very well with today’s brass fittings and connections
- Available in coils up to 1000’ in length



PRESENT DAY WATER SERVICE



- Service pressure rating of 200 psi
- 1 year UV protection so storage is an important consideration.
- Unlike copper, Pex A can be “pinched off” for repair with very little deformation of original pipe
- Manufactured in USA



FUTURE OF WATER SERVICE TUBING



- PolyTubes manufactures service tubing from Polyethylene PE 4710 resin which is strong, fusible and recyclable
- Commonly known as “Blue Muni” or MST
- PE 4710 resin meets or exceeds CAN/CSA B137.1, AWWA C901 and complies with NSF/ANSI 14, 61 standards
- Available in Copper Tube Sizing from 3/4” to 2” and works very well with today’s brass fittings and connections
- Available in coils up to 1000’ in length *Custom Available



FUTURE OF WATER SERVICE TUBING



- Service pressure rating of 250 psi
- 3 year UV protection so storage is a less important consideration.
- Similar to Pex a, Blue Muni can be “pinched off” for repair with very little deformation of original pipe
- Manufactured and inventoried in Canada





Polytubes

Polytubes is proud to be a **Canadian Owned Manufacturer**
of Polyethylene Plastic Pipe




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MUNICIPAL RESPONSIBILITIES

- Fiscal responsibility to rate payers to provide the best possible solutions at the most economical price and put those solutions into your specifications
- Written and Published Municipal Specifications
 - Does our utility have a written specification?
 - How recent is the most up to date specification?
 - How much detail is written into the specification? Standards, instructions etc.
 - Do we have adequate site supervision and inspection?
 - Do our installers, both utility and private contractors understand our specification?*
- ALTERNATIVE products in a specification does not necessarily mean they are EQUIVALENT in performance, price, manufacture, application or longevity to name a few.
- Be very detailed in every written specification. Encourage all manufacturers to attain the highest level of certification deemed reasonable.



	PolyTubes Blue Muni	Pex a
Pressure Rating	250 PSI	200 PSI
Burst Pressure	808 PSI @ 23° C	475 PSI @ 23° C
Available CTS	YES	YES
UV Stability	3 YEARS	1 YEAR
Recyclable	YES	NO
Country of Manufacture		USA
Purchase Price	\$	\$\$\$



Questions?

Thank You!

