Water Pressure Changes in East End Bath

Virtual Information Session

May 26, 2022 @ 7 p.m.

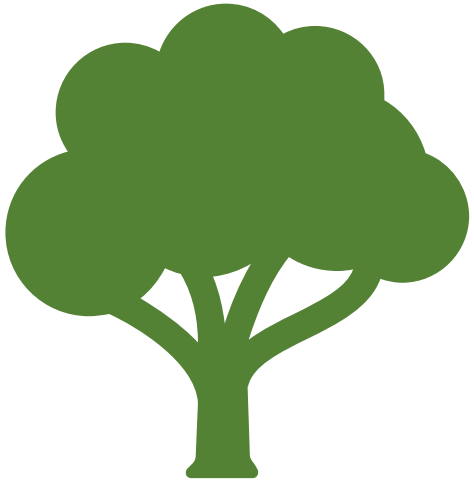
Information Session Housekeeping

The purpose of this session:

- To provide information as to why these changes were made.
- To answer any questions you may have regarding the water system.

PRESENTATION OUTLINE

- Background
- Frequently Asked Questions
- Consultant’s Review and Findings
- Questions



BACKGROUND

- Modifications to the water distribution system serving the east end of Bath have been planned for many years
- Pressure ranges are dictated by the MECP under the Design Guidelines for Drinking-Water Systems
- These changes are part of our ongoing effort to reduce water loss

Frequently Asked Questions

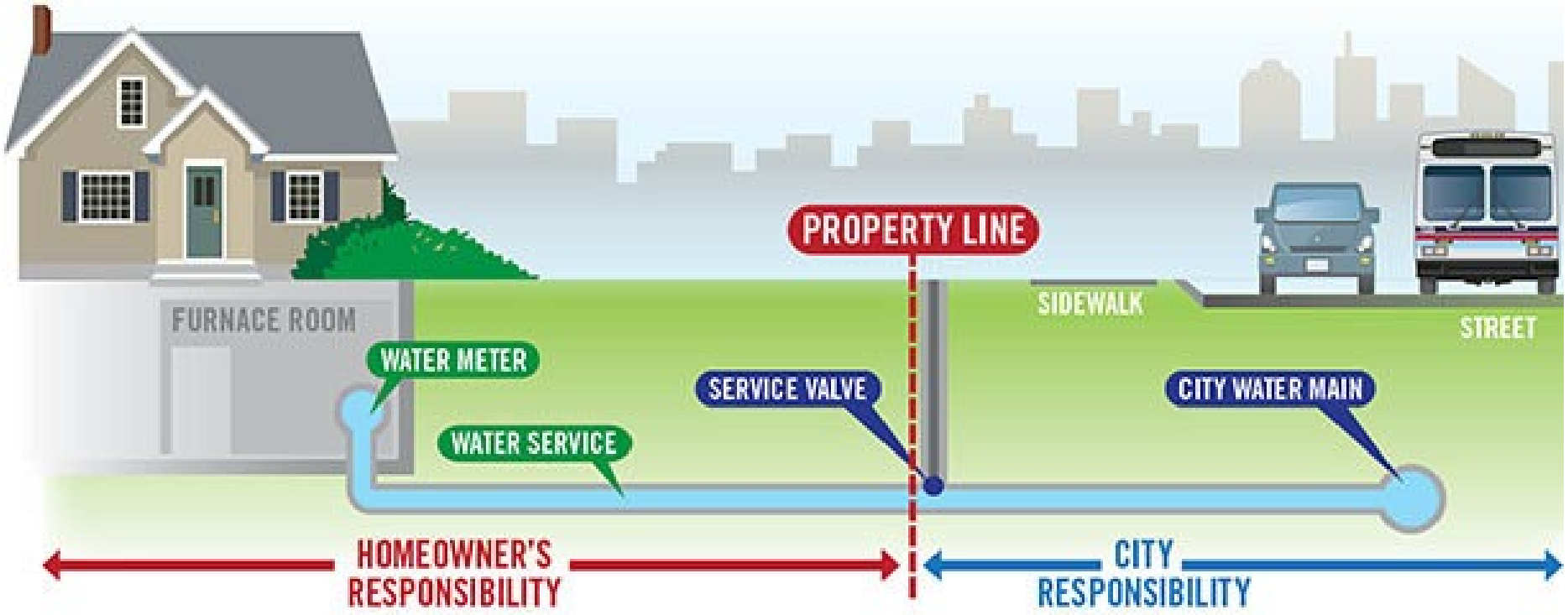
Was the distribution pressure reduced to accommodate the new development?

- No, the pressure at the east end of Bath was higher than recommended for many years.
- The Township always planned to reconfigure the watermain network to remedy the high pressure.
- This is a Township project; construction was completed in partnership with developer.

What is the recommended water pressure?

- Distribution system pressure – MECP
  - Recommended
    - 50 to 70 psi (275 kPa to 485 kPa)
  - Minimum
    - 20 psi (140 kPa)
  - Maximum
    - 100 psi (690 kPa)
- Private building pressure – OBC
  - Minimum at Building Entry
    - 29 psi (200 kPa)
  - Maximum
    - 80 psi (550 kPa)

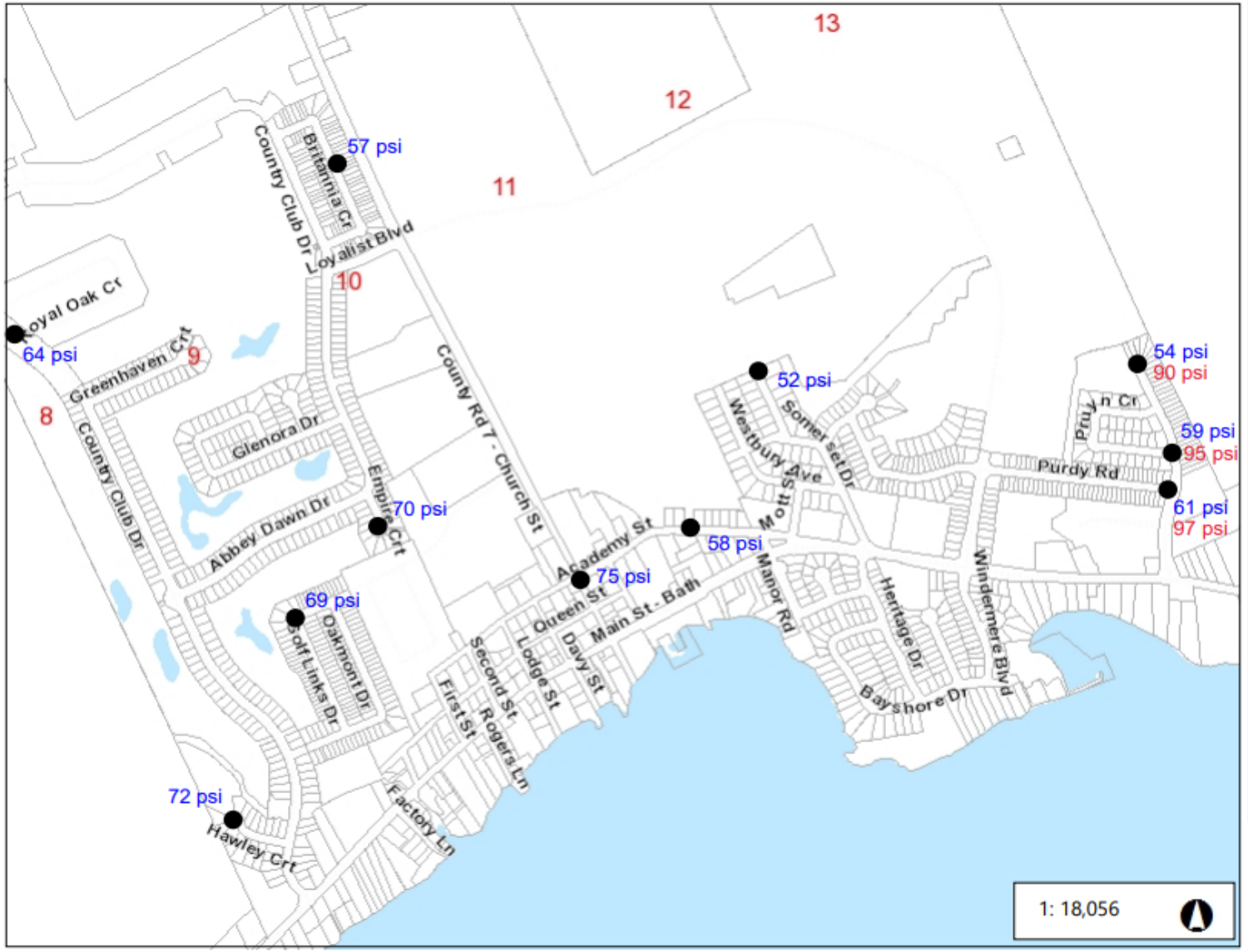
Pressures Illustration



Plumbing
Minimum = 29 psi
Maximum = 80 psi
(Ontario Building Code)

Water Distribution System
Recommended = 50 – 70 psi
Minimum = 20 psi
Maximum = 100 psi
(Ontario Ministry of Environment, Conservation and Parks)

Areas with Pressure Similar to the East End of Bath following Connection to Local Watermain



Legend

- Parcel Fabric
- Address Points
- Railway
- Lot Number
- Concession
- Waterbody
- Road Network
- ● Average Day Water Pressure at Location (in PSI)
- XX Current Water Pressure (After disconnection of East end from High Pressure Main)
- XX Existing Water Pressure (Prior to Disconnection of East end from High Pressure Main)

0.9 0 0.46 0.9 Kilometers

WGS_1984_Web_Mercator_Auxiliary_Sphere

This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.

THIS MAP IS NOT TO BE USED FOR NAVIGATION

Village of Bath - Average Day Water Pressures

April 2022

Prepared by: Engineering, EGCDS

What is the current pressure in the local watermain at the east end of Bath?

- The pressure is dependent on many factors.
  - Building elevation
  - Height of water in the tower at a given time
- The pressures are within recommended operational range of 50 psi – 70 psi.

Are there other areas in Bath with similar pressures in the distribution system?

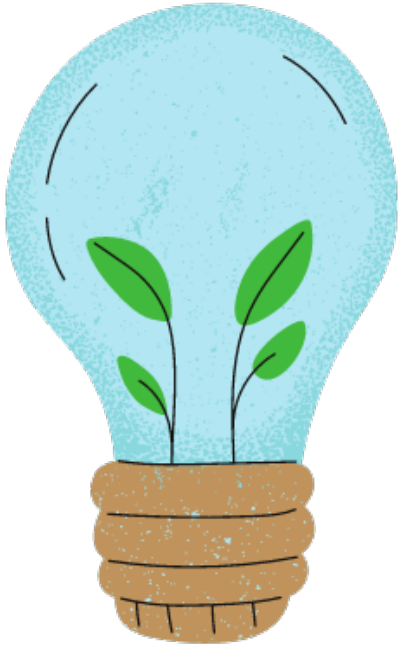
- Yes, the permanent pressure reduction in the east end brings the area in-line with other sections of Bath and the ministry's recommended pressure range.

Will the pressure drop again with the new builds at Windermere (Aura by the Lake)?

- More homes do not mean loss of pressure.
- The watermain size will accommodate growth and increased water demand in the area.
- Before a watermain is installed, it must be demonstrated that it meets MECP drinking water design guidelines for pressure and flow rate.

What are the benefits of optimized pressure in the distribution system?

- Water conservation
  - Estimated to reduce the water loss in this area by 37%
  - This water savings would fill more than half of an Olympic sized pool each year
- Energy savings
- Reduced treatment chemical needs
- Reduced pipe repair expense



How is water pressure maintained in the distribution system?

- Pumps at the treatment plants
- Maintaining adequate level of water in the water tower
- Continuous monitoring of the system

*Note: Maintenance activities can cause temporary pressure drops.

Why does pressure vary in the system?

- This is determined by many factors, including:
  - Elevation difference between the building and height of water tower and location of watermain
  - Restricted pipes due to mineral deposits from long time use
  - Installed filters, water softeners, aerators, tankless water heaters, high demand (simultaneous usage of fixtures)

Engineering Consultant's Review

- J.L. Richards and Associates reviewed the hydraulic modelling of the water distribution system.
- Findings:
  - Prior to the pressure zone reconfiguration:
    - The existing pressure was nearing 100 psi
    - The intent of the maximum pressure criterion is to avoid damage and mitigate premature failure of household taps, faucets and hot water tanks subject to consistent high pressure

Engineering Consultant's Review (continued)

- Findings (continued):
  - Following the pressure zone reconfiguration:
    - Average day pressure ranges from 54 to 64 psi conforming to normal operation pressures recommended in the design guidelines
  - Investigated opportunities to increase pressures in the east end by adjusting the Pressure Reducing Valve at Mott Street, which results in:
    - Pressure ranges from 64 to 74 psi in the east end
    - Pressures that exceed OBC maximum pressure of 80 psi in the majority of the remaining areas of the system

Engineering Consultant's Review (continued)

- Findings (continued):
  - Increasing the operating pressure of established, older vintage watermain infrastructure is typically not recommended as it can increase the following risks:
    - Additional system water loss
    - Pipe fatigue
    - Reduced service life
    - Frequency of watermain breaks
    - Service interruptions to users during repairs
  - Based on the foregoing model results it is not recommended that the Township consider increasing the Mott Street PRV setting

Thank you

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