

Schedule C EA (Phase 2)
for Upgrading of Durham Water Works
Municipality of West Grey
(22-037)

Problem Statement

The Municipality of West Grey's Durham Water Works (WW), in its existing condition is approaching the rated capacity of the treatment plants permitted by the drinking water works licence and permit. This was established by way of recent engineering study entitled "*Durham Water and Wastewater Treatment System Capacity Assessment*," dated September 28, 2021, prepared by GSS Engineering Consultants Ltd. Furthermore, the existing water supply well(s) yield is on the decline, thereby threatening availability of water supplies in sufficient quantity. The municipality is obligated to search for methods to increase water supply capability and rated capacity of water works in order that the water works can continue to supply potable water meeting Ontario Drinking Water Standards (ODWS) to water consumers. The municipality needs to undertake this investigation in accordance with Ontario Environmental Assessment Act, and must complete a Schedule C EA process requiring minimum two (2) contacts with the public as well as stakeholders at different phases of the EA.

Identification of Alternative Solutions

The municipal class EA process recognizes that there are several ways to solve the problem and requires that all reasonable alternatives solutions are considered. The list of the alternative solution that are being considered are as follows:

1. Do nothing
2. Limit Growth
3. Reduce loss of water from the distribution system and improve water conservation
4. Increased water supply from existing well(s)
5. Construct new ground water supply source(s) and add additional treatment capacity, as needed
6. Construct new surface water supply source intake and add additional treatment capacity, as needed
7. Obtain additional water supply from neighbouring municipality or water works to supplement shortfall in existing water works capacity

A brief description of each alternative and applicable comments are provided in **Table 1** and screening of alternatives is provided in **Table 2**.

Table 1 – Alternative Solutions to Upgrading Durham Water Work

November 30, 2022

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| ALTERNATIVE | DESCRIPTION | COMMENTS |
|---|--|--|
| 1. Do Nothing | <ul style="list-style-type: none"> • No improvements or changes would be undertaken to address capacity issue(s). | <p>“Do Nothing” alternative represents what would occur if none of the alternative solutions were implemented</p> |
| 2. Limit Growth | <ul style="list-style-type: none"> • Maintain existing WW and associated distribution system in existing condition and limit future growth • No increase in serviced population • Requires a change to municipal planning documents | <ul style="list-style-type: none"> ➤ Does not address significant water distribution losses and wastage of natural resource |
| 3. Reduce water loss and improve conservation | <ul style="list-style-type: none"> • Continue to utilize current WTP and distribution system • Address “water loss from distribution system” • Aggressively implement existing water conservation measures • Enforce lawn watering restrictions | <ul style="list-style-type: none"> ➤ This alternative is a long term solution, and also very expensive and may not fully address water demand issue ➤ Will require gradual replacement of all CI & DI watermains along with street reconstruction at significant expense |
| 4. Increased water supply from existing well(s) | <ul style="list-style-type: none"> • Hydrogeological investigation to determine if existing well(s) can supply more water • If yes, obtain permits and approval from MECP • Increase treatment equipment capacity as needed to match increased water supply | <ul style="list-style-type: none"> ➤ May not provide additional supply in adequate quantity ➤ Still good alternative to supplement other viable alternative(s) |
| 5. Construct new groundwater supply source and associated treatment plant | <ul style="list-style-type: none"> • Drill new water well for additional water supply, preferably near existing water treatment buildings locations • Construct new or upgrade existing water treatment equipment and building • Procure new land(s) as needed • Undertake detailed hydrogeological investigation to ensure long-term water supply capabilities • Connect to exiting water distribution network | <ul style="list-style-type: none"> ➤ New well, new treatment building or upgrading existing building will be capital intensive project ➤ Risks are associated with new drilled well capability of supplying adequate quantity, or water quality not complying with ODWS ➤ Relatively easier method to add additional treatment capacity |

Table 1 – Alternative Solutions to Upgrading Durham Water Work

November 28, 2022

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| ALTERNATIVE | DESCRIPTION | COMMENTS |
|--|---|---|
| <p>6. Construct new surface water supply source intake and associated treatment plant</p> | <ul style="list-style-type: none"> • Saugeen River is a potential water supply source • Determine suitable location and construct river water intake, after obtaining all approvals • Construct raw water pumping station to supply water to treatment plant • Construct new WTP building and connect to existing water distribution networks | <ul style="list-style-type: none"> ➤ Surface water sources are more prone to contamination and have more variable water quality ➤ Treatment process can be far more complex and expensive when compared to groundwater source ➤ Operators need to remain on guard during period of water quality changes during spring and fall and take timely corrective steps. Highly skilled operation is required ➤ Generally less desirable option when good groundwater supply source is readily available ➤ Capital Project Cost is anticipated to be highest among all alternatives |
| <p>7. Treated water supply from another Water Work in West Grey or adjacent municipality</p> | <ul style="list-style-type: none"> • Will require approval from County and neighbouring municipality that could supply water • West Grey has Neustadt WW, but with insufficient spare capacity to support Durham needs • Shall require construction of long water mains, associated booster pumping system and re-chlorination facility(ies) | <ul style="list-style-type: none"> ➤ Not likely a viable option ➤ Neustadt water works is not capable to supply additional water without significant upgrading of existing water works ➤ Hanover is the nearest water works that <u>may</u> be able to spare supply ➤ Typically, neighbouring municipalities saves surplus capacity of this water works for their own use rather than provide to others |

TABLE 2 – Screening of Alternative Solutions

| ALTERNATIVE | DECISION | RATIONALE FOR NOT CARRY FORWARD |
|---|-----------------|---|
| 1. Do Nothing | ✓ | Carried forward – must be considered |
| 2. Limit Growth | X | Screened – does not address the problem |
| 3. Reduce water loss and improve conservation | ✓ | Carried forward – must be considered in conjunction with additional water supply(ies) |
| 4. Increased water supply from existing well(s) | ✓ | Carried forward – must be considered in conjunction with Alternative 3 and 5 |
| 5. Construct new groundwater supply source and associated treatment plant | ✓ | Carried forward – feasible alternative |
| 6. Construct new surface water supply source and associated treatment plant | X | Screened – addresses the problem but time consuming and expensive and with operational challenges |
| 7. Treated water supply from another WW in West Grey or adjacent municipality | X | Screened – not a feasible alternative |

Preferred Solution

Based on screening, Alternative 5 appears to be most reasonable solution and is identified as Preliminary Recommended Alternative Solution for further investigation and consideration.

At the time of publication of this document, municipality is considering construction of new water supply well within the boundary limits of former town of Durham on a site that is located in SW area.

By way of this publication West Grey is requesting members of the public to provide their comments on the ongoing EA process and on the solutions that are being pursued. Please provide your written comments on the attached sheet, by December [REDACTED], 2022 to the undersigned.

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