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Report Re: Council, July 26, 2018

Report No: CAO41-2018

Subject: Amabel Water System Evaluation Recommendations

Recommendation:

That the Council of the Town of South Bruce Peninsula receive report CAO41-2018 dated July 26, 2018 regarding Amabel Water System Evaluation Recommendations;

And that Council authorize staff to proceed with further evaluation of the following options:

A. Expansion of the water system network including:
   i. Expand Amabel-Sauble to service Sauble business district between Lakeshore Road and Lakeland Drive
   ii. Expand Huron-Woods to service potential new development
   iii. Add Water Tower to provide storage capacity for broad water servicing to new development
B. Find economical solutions to Oliphant System including:
   i. Extension of Amabel-Sauble System to Oliphant
   ii. Continue trucking water
   iii. Trial of Treatment system
   iv. Fragmenting of system
C. Merge Wiarton and Amabel Water Rates.

Link to Strategic Planning:

Goal 1: Supportive and Accountable Municipal Operations and Governance
Objective 1.2: Creation of a Municipal Structure that improves Town wide Management and Operations
Goal 3: Sustainable Infrastructure and Built Environment
Objective 3.1: Development of Local Infrastructure that is Viable, Progressive and Sustainable though a Diverse Range of Opportunities and Partnerships

Background:

As mentioned in a previous report, CAO33-2018 – Amabel Water System Options Evaluation dated June 19, 2018, there has been a long standing concern that the water

rates within the Amabel system are high. This is a function of the cost to upgrade the systems following implementation of the Clean Water Act and the limited number of customers currently serviced by the system.

Staff have assembled a team of consulting experts to undertake a preliminary evaluation of alternatives for the Amabel Water System. These experts include:

- Watson & Associates
    - long standing expertise in financial analysis for municipalities including:
        - Capital and asset management planning
        - Water rate studies
        - Development charge studies
- B.M. Ross & Associates
    - Expertise in municipal infrastructure design and construction
- Ontario Clean Water Agency (OCWA)
    - Water and wastewater operators for the Town for the past decade – Very familiar with the Amabel operations and current and future requirements

While continuing to provide safe and clean drinking water to the community the objective of this evaluation is to reduce the water rates for Amabel users. While some of the options consider potential developments, the cost of expanding the system to accommodate those developments would be at the expense of those proposed developments and would not be carried by the existing users (i.e. growth pays for growth).

This preliminary evaluation considered the following options:

1. Expanding the water systems at Amabel-Sauble, Foreman, and Huron Woods to service more customers;
    a. Need to consider capital costs;
    b. Analysis of net impact on water rates with expansion
2. Options for the Oliphant/Fiddlehead system
    a. Survey users for option to fragment the system
    b. Cost Benefit analysis of:
        i. Extension of Amabel-Sauble Water or Wiarton water
        ii. Continued trucking water for Oliphant
        iii. Treatment trial
3. Merging the Wiarton and Amabel water rate structures to one system
4. Ability to provide additional capacity at Huron Woods system to accommodate new development

A public meeting was held on July 6, 2018 at the Amabel-Sauble School at 3 pm to present the scope of the options being considered and the process going forward. It provided an opportunity make the users aware of the evaluation efforts, to answer any

questions and solicit input or suggestions. A total of 75 persons recorded their attendance on the sign in sheet.

It has been identified that there are potentially properties along the watermain extentions between the former small treatment systems that were unable at the time to connect to the water system due to MOECC concerns regarding long-term capacity. There is an opportunity to potential to add these users to the system, however, it is prudent to ensure that a full evaluation of options, and the capacity requirements of each option, are undertaken prior to making any determination on permitting them to connect.

Since that time the evaluation team has completed further investigation and gathered more details in order to make recommendations to Council on what options to continue to evaluate. Furthermore, discussions were held to consider an additional option which would include the consideration of a water supply tower to address storage capacity within the Amabel-Sauble and Huron-Woods systems. Further detail on the water tower option will be provided below.

1. Expansion of the water system network
    a. Expand Amabel-Sauble to service Sauble business district between Lakeshore Road and Lakeland Drive
    b. Expand Huron-Woods to service potential new development
    c. Expand Foreman System to service existing or potential new development
    d. Add Water Tower to provide storage capacity for broad water servicing to new development
2. Find economical solutions to Oliphant System
    a. Extension of Wiarton system to Oliphant
    b. Extension of Amabel-Sauble System to Oliphant
    c. Continue trucking water
    d. Trial of Treatment system similar to that used in Shallow Lake
    e. Fragmenting of system to disband water system
3. Merge Wiarton and Amabel Water Rates

The following is a summary of the options and details related to each option:

<u>Option 1a Expand Amabel-Sauble to Service Sauble Business District</u>

- Extend watermain to service business district between Lakeshore Road and Lakeland Drive
    - Opportunities
        - Provide service to additional customers improves level of service in area
        - Increase customer base
        - Utilize treatment reserve capacity
    - Challenges

        - Lack of system looping – challenging at dead-end system extremities – maintaining chlorine residual and prevent freezing
        - Seasonal variation in customer base creates operational challenges
        - Capital cost for system expansion – Preliminary estimates at $1.5-$2.0 M
        - Capacity
    - Available Capacity
        - 444 m^3/day = approximately 91 homes less allowance for the 40 vacant lots already on the system
    - Next Steps
        - Concept level cost estimate
        - Determine the impact to water rates
        - Determine the financial contribution required of property owners along serviced route
        - Assess available capacity vs. proposed service area demand
        - Complete Condition Assessments
            - Understanding of current equipment conditions
        - Complete Comprehensive Performance Evaluation
            - Identification of bottlenecks to reaching rated capacity
            - Prediction of future flows due to community growth, development, amalgamation
        - Complete 10-year Capital Plan
            - Identification of capital needs to reach rated capacity and maintain current levels of service

<u>Option 1b Expand Huron-Woods to Service Potential New Development</u>

- Expand system to service potential new development (paid by developer)
    - Opportunities
        - Provide service to additional customers improves level of service in area
        - Increase customer base
        - Allows for community growth
    - Challenges
        - Seasonal variation in customer base creates operational challenges
        - Capital cost for system expansion (too much for developers?)
        - capacity
    - Available Capacity
        - 675 m^3/day = approximately 139 homes less allowance for the 45 vacant lots already on the system
    - Next Steps
        - Determine what is required to provide additional uncommitted capacity
            - Cost
            - Equipment

        - Mitigation of the impact of additional demand
    - Determine the impact to water rates
    - Assess available capacity vs. proposed service area demand
    - Complete Condition Assessments
        - Understanding of current equipment conditions
    - Complete Comprehensive Performance Evaluation
        - Identification of bottlenecks to reaching rated capacity
        - Prediction of future flows due to community growth, development, amalgamation
    - Complete 10-year Capital Plan
        - Identification of capital needs to reach rated capacity and maintain current levels of service

<u>Option 1c Expand Foreman System to Service Existing or Potential New Development</u>

- Expand system to service potential new development (paid by developer)
    - Opportunities
        - Provide service to additional customers improves level of service in area
        - Increase customer base
        - Allows for community growth
    - Challenges
        - Seasonal variation in customer base creates operational challenges
        - Capital cost for system expansion (too much for developers?)
- Not recommended to be further evaluated as it can be considered on a case by case basis as any development proposals come forward

<u>Option 1d Water Tower to Provide Storage Capacity for Broad Water Servicing</u>

- Construct a water tower to provide storage capacity for potential new development (developer would pay)
    - Opportunities
        - Provide storage capacity for broad new development around Sauble
        - Increase customer base
        - Allows for community growth
    - Challenges
        - Will require an environmental assessment = cost, approval, time
        - Will require financial commitments up front by developers
        - Capital cost for system expansion (too much for developers?)
        - Although storage capacity issue can be resolved the issue may be the capacity of the well systems to support the development
        - Impacts of source water protection areas (greater well volume used my increase well head protection areas)

- Next Steps
  - Determine what is required to provide capacity:
    - Plant upgrades;
    - Well upgrades
    - Network connections (i.e. tower supply and distribution)
    - Maximum potential capacity
  - Determine Cost
  - Determine level of committed interest by developers
  - Complete Condition Assessments
    - Understanding of current equipment conditions
  - Complete Comprehensive Performance Evaluation
    - Identification of bottlenecks to reaching rated capacity
    - Prediction of future flows due to community growth, development, amalgamation
  - Complete 10-year Capital Plan
    - Identification of capital needs to reach rated capacity and maintain current levels of service

<u>Option 2a Extension of Wiarton system to Oliphant</u>

- Extend a watermain from Wiarton to Oliphant
  - Opportunities
    - Eliminate trucking of water to Oliphant
    - Fully decommission existing unused Oliphant treatment works
  - Challenges
    - 10+ km of watermain plus boosting pumps → several $millions
    - Significant water crossing
    - Significant rock excavation
- Recommended to eliminate this option as it will be too expensive considering other alternatives

<u>Option 2b Extension of Amabel-Sauble System to Oliphant</u>

- Extend watermain from A-S to Oliphant
  - Opportunities
    - Eliminate trucking of water to Oliphant
    - Fully decommission existing unused Oliphant treatment works
  - Challenges
    - 8+ km of watermain plus boosting pumps
    -
- Next Steps
  - Concept level cost – Preliminary $1.5 to $2.0 M
  - Determine present worth value comparison of cost vs. trucking
  - Complete Condition Assessments

        - Understanding of current equipment conditions
    - Complete Comprehensive Performance Evaluation
        - Identification of bottlenecks to reaching rated capacity
        - Prediction of future flows due to community growth, development, amalgamation
    - Complete 10-year Capital Plan
        - Identification of capital needs to reach rated capacity and maintain current levels of service

Option 2c Continue Trucking Water to Oliphant

- Determine if trucking the most economical long-term solution
- Consider opportunity to truck from A-S system to reduce water charges
    - Opportunities
        - Low capital cost
    - Challenges
        - Higher operating cost – Average $55K per year
- Next Steps
    - Determine baseline present worth value – Preliminary using $1.5M (Option 2b) with inflation = interest it would take 27 years to reach $1.5M – watermain will far longer than 27 years – operational costs and more detailed costing required to firm up this PW value comparison
    - Compare to other options as baseline

Option 2d Trial of Treatment System for Oliphant

- Shallow Lake water system had similar source water quality issues and a treatment process was tested and implemented
- The system has been successful for Shallow Lake system
- Proposed to consider an off-line trial on the equipment subject to estimated capital and operating cost information
- Need significant confidence before investing
- Next Steps:
    - Conduct detailed comparison of source water quality
    - Determine cost for full scale implementation if preferred
    - Determine cost to undertake an off-line trial
    - Conduct detailed review of Shallow Lake operation including source water quality and operational effectiveness
    - Determine present worth value comparison of cost vs. trucking

Option 2e Fragmenting of Oliphant System

- Complex
- Potentially very expensive

    - Assuming $15K to install each new well
    - $15,000 x 54 serviced lots = $810,000
    - EA cost $200,000
- Who pays? Spend $1M to remove 54 customers = increased rates for everyone else – how does this compare to other alternatives?
- MOECC approval?
- Support by Oliphant users' needs to be determined
- Initial step – conduct survey of fragmentation options to garner interest and support
- Financial value of this option may have passed. May have been a cheaper alternative at the time the water systems need upgrading, however, Province was not willing to even consider fragmenting municipal water systems at that time and it was not an option
- Next Steps
    - Undertake survey of Oliphant users to determine willingness to consider fragmentation
    - Continued discussion with regulatory officials
    - Determine cost cost and how funded
    - Determine present worth value comparison of cost vs. trucking
    - Determine impact to water rates

<u>Option 3 – Merge Water Rate Structure of Amabel and Wiarton</u>

- The Town is implementing the water service fee recommendations of the 2014 "Drinking Water and Wastewater System Rate Report"
- The following table summarizes the current average annual water bill forecast to 2025 for the Wiarton and Amabel Water Systems

	2018	**2025**
Wiarton Water Customer	$522	$698
Amabel Water Customer	$1,645	$2,188

Note: Based upon $80m^3$ and 5/8 inch meter

- The *Municipal Act* provides municipalities with powers to impose fees and charges for services provided
- Fees and charges for water services may be imposed on an area-specific or system-specific basis, or uniform service-wide basis
- Utilizing uniform service-wide fees for water services provide municipalities with broader funding sources to address lifecycle costs of service and to mitigate affordability and service impacts
- Based on the 2014 Rate Study, a uniform service-wide rate sensitivity analysis was prepared using 5/8 meter and forecasting to 2025 using two scenarios:
    - Scenario 1 - Harmonizing the monthly fixed water rates at Wiarton projections (i.e. $32.05/month increasing to $43.87/month by 2025, for a

5/8" water meter), would require a consumptive rate of $3.20/m^3, increasing to 4.18/m^3 by 2025

- Scenario 2 - Harmonizing the monthly fixed water rates at Wiarton projections (i.e. $32.05/month increasing to $43.87/month by 2025, for a 5/8" water meter), and maintaining monthly reserve charge for Amabel customers (i.e. $28.14/month increasing to $32.61/month by 2025), would require a consumptive rate of $2.45/m^3, increasing to 3.24/m^3 by 2025

- Scenario 1 - Wiarton customers bills increase by approx. $11.50/month, Amabel decrease by approx. $95.70/month
- Scenario 2 - Wiarton customers bills increase by approx. $6.00/month, Amabel decrease by approx. $70.30/month

	2018	**2025**
Wiarton Water Customer	$522	$698
Amabel Water Customer	$1,645	$2,188
Scenario 1 - Both	$640	$861
Scenario 2 - Wiarton	$581	$785
Scenario 2 - Amabel	$918	$1,201

Note: Based upon 80m^3 and 5/8 inch meter

- Certainly on a simple scale the water rates for Amabel could be significantly reduced with a modest increase to Wiarton users
- Alternative some analysis needs to be done to determine at what level do Amabel water rates need to be reduced to by implementation of other options above before this option could become more financially acceptable
- It is recommended that this option continue to be evaluated as it may become a part of an integrated solution in combination with one or more of the other alternatives
- While some would view this as Wiarton subsidizing Amabel, when future capital requirements for both systems, timing of capital requirements, and reserve contributions are considered, merging the financials of both harmonize the Town service provisions and establish a fair and equitable system for all users regardless of location
- Next Steps
  - Continue to evaluate merging of water rates based upon all options to measure impact

<u>Process and Schedule</u>

- Stage 1 – Preliminary Review
  - July 2018
- Stage 2 – Detailed Review of Selected Options
  - August 2018 to March 2019
- Stage 3 – Recommendations
  - Spring 2019

- Stage 4 – Design/Study/Report/Approvals
  - 2019 to 2020 depending on option
- Stage 5 – Construction/Implementation
  - 2020 to 2021 depending on option

Consultation

- Public/User consultation will be part of each Stage
- Some stages may require more than one consultation process depending on complexity or legislation (i.e. Environmental Assessment or Water Rate Study)

Summary

The following options are being recommended to be carried forward to a detailed level of evaluation:

D. Expansion of the water system network
   iv. Expand Amabel-Sauble to service Sauble business district between Lakeshore Road and Lakeland Drive
   v. Expand Huron-Woods to service potential new development
   vi. Add Water Tower to provide storage capacity for broad water servicing to new development
E. Find economical solutions to Oliphant System
   v. Extension of Amabel-Sauble System to Oliphant
   vi. Continue trucking water
   vii. Trial of Treatment system
   viii. Fragmenting of system
F. Merge Wiarton and Amabel Water Rates

Options:

1. Support the request to undertake further detailed evaluation of the recommended alternatives;
2. Defer the Amabel Water Evaluation to 2019 budget discussions; or
3. Not continue to support the Amabel Water Evaluation.

Inter-departmental Impact:

There will be no immediate interdepartmental impact other than including the senior management team in the discussions as they move forward.

Budget Implications:  Approval of Manager of Financial Services

It is expected that this 2nd stage evaluation will require an additional $60,000 of funding to pay team consulting fees. Any further funding will be part of future discussions as an outcome of the Stage 2 evaluation. Funds will be drawn from the Amabel reserve fund at year end if required.

The Condition Assessments, Comprehensive Performance Evaluations, and 10-year Capital Plans are also necessary for legislated Asset Management Plan updates and can serve a dual purpose.

Expected Date of Completion:
The Stage 2 work will be completed within 8-9 months of authorization to proceed.

Respectfully submitted,

Brad McRoberts, MPA, P. Eng.
Chief Administrative Officer

Date: July 24, 2018