The City of BARRIE

STAFF REPORT ENG049-11
September 19, 2011

TO:	**GENERAL COMMITTEE**
SUBJECT:	**EVALUATION OF SANITARY SERVICING FOR CURRENTLY UNSERVICED AREAS**
PREPARED BY AND KEY CONTACT:	**S. DIEMERT, P. Eng.** **INFRASTRUCTURE PLANNING ENGINEER (Ext. 5150)**
SUBMITTED BY:	**R. W. MCARTHUR, P. Eng.** **DIRECTOR OF ENGINEERING**
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CHIEF ADMINISTRATIVE OFFICER APPROVAL:	**JON M. BABULIC** **CHIEF ADMINISTRATIVE OFFICER**

RECOMMENDED MOTION

1. That the following sanitary servicing strategy be utilized for currently unserviced areas through the capital planning process:

   a) That the timing of the sanitary sewer servicing maximize the useful life of the septic systems while minimizing the number of septic system replacements that are required.

   b) That the condition of all other infrastructure in the right-of-way be considered in the recommended timing of sanitary sewer servicing, in order to maximize the investment in existing infrastructure.

PURPOSE & BACKGROUND

2. As the City of Barrie has expanded over the years, some areas that were annexed had individual sanitary servicing utilizing septic systems and municipal servicing has not been provided. This is also the situation with the most recent annexation of land from Innisfil.

3. A septic system is designed to last anywhere from 20-25 years, or even longer, if it is properly installed and maintained with regular pump-outs every three to five years. The cost of system replacement can vary between $12,000 to over $20,000 depending upon site conditions and local market conditions. The cost of system repair can vary from $500 for line flushing to over $6,000 to replace clogged leaching bed line (tile line).

4. The aging septic systems in the unserviced areas of the City of Barrie, and the potential impact these systems could have on local groundwater and Lake Simcoe (pathogens, viruses and phosphorus), are of concern to the public, provincial agencies, and the City of Barrie. The Province recognizes septic systems as a concern for water quality and potential contamination.

5. The City of Barrie Water Pollution Control Centre (WPCC) is currently being expanded to 76 million litres/day (MLD) and is capable of handling the volume of sanitary sewage that would be generated from the unserviced areas.

6. There are two mechanisms to initiate the provision of municipal sanitary and/or water servicing where it does not exist within the City of Barrie and all municipalities in Ontario. The first would be by a local improvement petition submitted by the area property owner(s) for sanitary and/or water servicing. The petition needs to be signed by at least two-thirds in number of the owners representing at least one-half of the value of the lots liable to be assessed. The municipality is under no obligation to act on the petition. The second mechanism would be, under Section 326 of the Municipal Act, 2001, when the City of Barrie would initiate the servicing and receive a portion of the capital cost from the benefiting property owners in the area. The cost of the works by either mechanism usually is apportioned based on frontage of the benefiting owner's property.

7. It has been Council's practice to proceed with sanitary and water servicing of unserviced areas, per Section 326 of the Municipal Act, when possible and provided funds are available however, a formal strategy does not exist. Areas which have either recently been serviced or are currently being serviced include Tyndale Road area (and other roads), Cox Mill Road and Pine Drive area (including Cherry Court, Walnut Crescent, Hickory Lane, etc.).

8. The Sanitary and Water Servicing for the Bay Lane, Cottage Lane and Royal Oak Drive area – Municipal Class Environmental Assessment Addendum was completed in June 2009 to proactively review servicing of this area. Class Environmental Assessments (Class EAs) are not required for the provision of sanitary/water servicing in all cases.

9. The City of Barrie's latest draft version of the Sanitary Sewage Collection System Design Guidelines states that development of new septic systems or private sewage systems is not permitted, but may be considered in cases where replacement or upgrading of existing systems is warranted.

10. The Province of Ontario, under Regulation 219/09 for the Lake Simcoe Protection Act, 2008, has enacted the Lake Simcoe Protection Plan (LSPP) which is to address the restoration and protection of the health of Lake Simcoe. The development of the implementation plan for these policies is underway by the Province and other agencies. The LSPP addresses the impact of septic systems on the Lake, through various guidelines and strategies.

ANALYSIS

11. Currently, various municipalities in the Lake Simcoe watershed are requiring landowners who are upgrading or replacing on-site sewage systems to connect to the municipal sewage treatment system when available. Moreover, replacing or repairing failing on-site sewage systems, or restricting the construction of new shoreline on-site sewage systems and encouraging owners of failing systems to connect to municipal sanitary systems, will contribute to improving near-shore water quality by reducing the pathogens and nutrients entering the Lake.

12. Greenland was retained in 2007 by the City to assess the annual load of total phosphorus associated with the existing septic systems in the Royal Oak Subdivision. Twenty-two percent of the properties in this area are within 100 metres of either Lake Simcoe or Lover's Creek. The identified failure rate of inspected septic systems across Ontario is 36%. To estimate the potential phosphorus load on the Lake, the report assumed a 10% septic field failure rate, and calculated that approximately 50 kg per year of phosphorus was entering the Lake.

13. The following list of streets in Barrie have cluster areas of individual septic systems and currently do not have complete municipal sanitary servicing:

    a) Dyer Boulevard and Redfern Avenue (Area 1 as referenced in this Staff Report), Edgehill Drive and Miller Drive (Area 2), Jean Street and Tyndale Road (Area 3), Foster Drive, Maclaren Avenue, Merret Drive, Yeates Avenue, and Garson Street (Area 4), and Bay Lane, Cottage Lane and Royal Oak Drive Area (Area 5). See Appendix "B" for a City map detailing locations of unserviced areas. Appendix "A" contains an Analysis of Existing Septic Systems in Unserviced Areas. These are the significant areas but not a complete list.

14. There are approximately 320 septic systems in these areas. Some constructed as early as the 1950s (3), majority in the 1970s (81) and 1980s (72) and a few more recently, which are likely replacements or upgrades. We consider the useful life of septic systems, utilized in unserviced areas for individual sanitary treatment, to be 25 years and many of these systems have already reached the end of their useful life and plans for servicing should move forward.

15. A review of the road, storm sewer and water distribution in these cluster areas was completed in order that sanitary servicing could be considered in conjunction with the lifecycle needs of other infrastructure. Normally sanitary servicing occurs in conjunction with other infrastructure replacement and road urbanization.

16. There are 831 known septic systems in Barrie. The City uses sewer use exemptions, electricity billing, and building permit data to track where septic systems exist and their age. There is no mechanism to accurately track all of them. Of the 831, 320 are considered to be clustered in areas where municipal sewer could be more efficiently constructed and provide maximum benefit. There are individual septic systems throughout the City, where servicing is not available or difficult with existing infrastructure.

17. The Province has established legislation surrounding an on-site sewage system maintenance re-inspection program, to complement and support the LSPP through amendments to the Building Code (O. Reg. 315/10). The timelines for servicing the study areas will be proactive in addressing the City's obligations under the LSPP, and is expected to complement the minimum requirements under the re-inspection program.

ENVIRONMENTAL MATTERS

18. The following environmental matters have been considered in the development of the recommendation:

    a) The Lake Simcoe Protection Plan

    b) Source Water Protection

    c) Protection of the natural environment

19. The City of Barrie's continued efforts in reducing phosphorus loads to Lake Simcoe demonstrate an environmental commitment by the City of Barrie to making a positive change within the Lake Simcoe Watershed and ensures that the City stays at the forefront of environmental issues that affect Lake Simcoe. Potential threats for the groundwater will be addressed through the proposed strategy to align with the future Source Water Protection Plan.

ALTERNATIVES

20. There are two Alternatives available for consideration by General Committee:

Alternative #1 General Committee could decide to leave individual septic systems as is and not provide municipal sanitary servicing.

This Alternative is not recommended. The Provincial Policy Statement outlines the hierarchy of services with municipal servicing being the preferred method. Municipalities may choose to use individual septic systems where municipal services are not provided, however, municipal services are considered more reliable.

Alternative #2 General Committee could decide to proceed with providing sanitary servicing alone and not consider the lifecycle needs of other assets in the right-of-way to maximize the investment in existing infrastructure.

This Alternative is not recommended as it deters from the capital planning process in place which focuses on maximizing the useful life of municipal infrastructure, and using an entire right-of-way approach to capital planning.

FINANCIAL

21. For the significant cluster areas identified as currently being unserviced, cost estimates were prepared to review the alternatives for providing full urbanization versus sanitary servicing only:

Area	Total Cost for Replacement of all Infrastructure and Urbanization of Area *	Cost for Sanitary Servicing Only (including Road Restoration)	Annual Operation & Maintenance Costs for New Sewers **
Area 1 – Dyer Boulevard and Redfern Avenue	$2,620,000	$1,450,000	$4,800
Area 2 – Edgehill Drive and Miller Drive	$2,840,000	$1,570,000	$5,100
Area 3 – Jean Street and Tyndale Road	$1,360,000	$750,000	$2,500
Area 4 – Foster Drive, Maclaren Avenue, Merret Drive, Yeates Avenue, and Garson Street	$5,520,000	$3,050,000	$10,000
Area 5 – Bay Lane, Cottage Lane and Royal Oak Drive Area	$6,200,000	$3,430,000	$11,100
TOTAL	**$18,540,000**	**$10,250,000**	**$33,500**

*Includes sanitary, water, storm, sidewalks, street lights, and roads.
**Cost per km of $5,860 from 2010 OMBI, does not include the cost of sewage treatment.

22. If the strategy is approved, candidate projects would be identified and prioritized as part of the annual capital planning process. Communication of the strategy to the affected cluster areas would occur along with monitoring of septic system useful life.

23. With previous Class EAs on serving unserviced areas, the issue of cost was a prime concern to residents and the impact of these costs to the benefiting properties. For sanitary servicing, it will be the individual homeowner's responsibility to pay a frontage cost (estimated at $300 - $400 per frontage metre), a sanitary service lateral cost (estimated at $3,000 per lateral), as well as a general administrative fees. Council can recommend financing so that the costs to the property owners for sanitary servicing can be repaid to the City over a ten year period. Also, the Owner must pay for the connection from the property line into the house or septic bed on private lands (cost varies between Owners). Although there will be a cost to the individual homeowner at the outset, these costs will be offset by an elimination/reduction of future expenses related to the operation, maintenance, and the replacement of individual septic systems.

24. Provincial legislation requires water and wastewater services to be funded solely by water and wastewater rates and not through property taxes. Individual homeowners in these areas would be required to pay for wastewater services. In 2011, a typical home that consumes 180 cubic metres of water annually would pay an annualized cost of $270 for the wastewater portion.

LINKAGE TO 2010 – 2014 COUNCIL STRATEGIC PLAN

25. The recommendation included in this Staff Report supports the following goal identified in the 2010-2014 City Council Strategic Plan:

    ☒ Manage Growth and Protect the Environment.

26. The proposed servicing will improve the quality of water entering Lake Simcoe. A reduction in total phosphorus is identified by the Province in the Lake Simcoe Protection Plan as a critical element in maintaining the health of Lake Simcoe. Potential threats for the groundwater will also be addressed through the proposed strategy to align with the future Source Water Protection Plan.

APPENDIX "A"

Analysis of Existing Septic Systems in Unserviced Areas

General

- The total number of individual septic systems in the five cluster areas is 320.
- All cluster areas have been reviewed and are able to be serviced.
- Stormwater in these areas currently receives some treatment in ditches. If storm sewers were provided in these areas, water quality treatment could be provided with the addition of oil/grit separators or similar devices, or implementation of Low Impact Development elements.

Area 1 (Dyer Boulevard & Redfern Avenue)

- Area 1 has 39 known septic systems ranging in age from 1980s to 2000s and 1 with an unknown date of installation.
- The watermain was constructed in 1982.

Area 2 (Edgehill Drive & Miller Drive)

- Area 2 has 48 known septic systems ranging in age from 1950s to 1990s and 61 with unknown dates of installation.
- Storm servicing is provided in a ditch and water servicing was installed in 1985 and 1986.
- Existing drainage in ditches is not well defined and drainage goes beyond city limits, potential issue with Bear Creek tributary if this area is urbanized.

Area 3 (Jean Street & Tyndale Road)

- Area 3 has 6 known septic systems ranging in age from 1960s to 1980s.
- Watermain on Jean Street was constructed in 2002.

Area 4 (Foster Drive, Maclaren Avenue, Merret Drive, Yeates Avenue, & Garson Street)

- Area 4 has 57 known septic systems ranging in age from 1960s to 1990s and 33 with unknown dates of installation.
- Existing drainage outlets to Whiskey Creek and Lovers Creek. Potential upgrading of storm drainage to outlet to Whiskey Creek would be required at time of servicing.
- Watermain was constructed on Foster Drive in 2004, Maclaren Avenue in 1995 & 1999, Merret Drive, Yeates Avenue and Garson Street in 1965.

Area 5 (Royal Oak Drive, Forestwood Lane, Lovers Court, Bay Lane, & Cottage Lane

- Area 5 has 63 known septic systems ranging in age from 1970s to 1990s and 12 with unknown dates of installation.
- Sanitary & Water Servicing for the Bay Lane, Cottage Lane, & Royal Oak Drive Area – Municipal Class EA has been completed for this area.
- Watermain was constructed on Royal Oak Drive, Forestwood Lane and Lovers Court in 1976, and on Bay Lane in 2000. There is no watermain on Cottage Lane.

APPENDIX "B"

Unserviced Sanitary Area Map