
Pilot Project to Utilize Raw Water to Irrigate Parks in Brighton

Recommendation

That the Standing Policy Committee on Environment, Utilities and Corporate Services recommend to City Council:

1. That the Administration proceed with the development of a plan to implement a pilot project utilizing raw water for irrigating parks in Brighton as proposed by Dream Development and report back on the implications to a future Servicing Agreement for the neighbourhood as well as opportunities for developing a corporate approach to the use of raw water for parks irrigation.

Topic and Purpose

The purpose of this report is to report back to City Council on the feasibility of using raw water intakes for parks irrigation as a means to reduce treated water usage. In addition, this report seeks City Council approval to further review and refine a proposed pilot project to use raw water for parks irrigation from Dream Development for the Brighton Neighbourhood.

Report Highlights

1. Raw water includes rain water, storm water, ground water, and water from bodies such as lakes and rivers.
2. In 2017, the Parks division spent approximately \$2.4M on potable water to irrigate parks and open spaces. Growing inventory of irrigated spaces within new neighbourhoods, longer and drier growing seasons, and annual utility rate increases will increase this cost over time.
3. Irrigating parks and open scape landscapes with raw water does not save water. The volume of water used to irrigate a park or open space landscapes would remain the same and is determined by the City's service level, which is not impacted by the source of water.
4. Irrigating parks and open space landscapes with raw water has the potential to reduce irrigation costs by eliminating the need to purchase potable water, and reduce greenhouse gas emissions related to the use of potable water.
5. Raw water is being safely used for parks irrigation in other jurisdictions and risks to public health can be managed through water quality standards, monitoring and treatment.
6. Dream Development has proposed the use of raw water for parks irrigation in the Brighton Neighbourhood which requires additional effort by Administration prior to approval.

Strategic Goals

The recommendations in this report support the Strategic Goal of Environmental Leadership by addressing whether using raw water for parks irrigation reduces water usage, or has other environmental implications. The report also relates to the Strategic Goal of Quality of Life and the strategy to coordinate a corporate approach for the maintenance of properties by addressing how the use of raw water for parks irrigation could impact park maintenance; as well as the Strategic Goal of Asset and Financial Sustainability, by exploring an opportunity to reduce the operational costs of parks irrigation.

Background

City Council, at its meeting held on October 23, 2017, resolved, in part:

- “6. That Administration report back within three months on using raw water intakes for parks irrigation as a means to reduce water usage.”

Report

Raw water is naturally occurring water found in the environment that has not been treated and is not approved for human consumption (non-potable). Raw water includes rain water, storm water, ground water, and water from bodies like lakes and rivers. Attachment 1, Raw Water Definitions, has more information on each type of raw water. Raw water does not include other alternative water sources that are categorized as recycled or reused water, such as grey water from buildings, treated water from the waste water treatment plant, or reused water from spray pads and paddling pools.

The City of Saskatoon currently uses potable (drinking) water for parks irrigation, similar to many other western Canadian cities. In 2017, the Parks division spent approximately \$2.4M on potable water to irrigate parks and open spaces in the City of Saskatoon, making water the most expensive input (other than salaries) to support over 600 ha of irrigated park and open space areas. The growing inventory of irrigated spaces within new neighbourhoods, due to the continued aesthetic preference by developers and some residents for grass in parks and open spaces, longer and drier growing seasons related to the impacts of climate change, and annual utility rate increases, are all contributing factors that increase the cost of irrigation over time.

A review of the regulatory context indicates that there are likely no significant barriers to proceeding with raw water for parks irrigation. Depending on the specific project, the Water Security Agency, provincial Ministry of Environment, federal Department of Fisheries and Oceans, Transport Canada, Saskatchewan Health Authority, and Meewasin Valley Authority may need to be consulted and regulations followed. Attachment 2, Regulatory Context, describes how each agency is related to raw water irrigation in parks.

A review of other jurisdictions from Western Canada shows a number of municipalities are using raw water for parks irrigation when it is economically and environmentally

feasible. As well, jurisdictions in the United States and Australia, have developed a number of projects and resources that use raw and recycled water for parks irrigation. These examples demonstrate that raw water can be safely used for parks irrigation and that risks can be mitigated. Attachment 3, Municipal Best Practices, provides a summary of examples and resources, and sections of Attachment 4, Raw Water Park Irrigation - Frequently Asked Questions, has information related to health and public engagement.

Raw water parks irrigation does not save water. The volume of water used to irrigate a park is determined by the City's service level, which is not impacted by the source of water. Instead, this practice changes the source of water from a potable (drinking) water source to a non-potable (raw water) source. Every raw water parks irrigation system is different depending on the type of raw water, the proximity of the source, the pumps required and the associated energy use, the treatment required, and the irrigation requirements of a park as outlined in the City's service level. Specific raw water parks irrigation projects that do not require significant energy for water treatment or pumping have the potential to reduce the greenhouse gas emissions of parks irrigation. As well, projects that eliminate the annual cost of potable water may result in financial savings. However, a full analysis would need to be prepared for specific projects to include the capital and operating costs over the lifetime of a project. More information on environmental and financial implications can be found in Attachment 4.

Dream Development has approached Administration with a proposal (Attachment 5, Pilot Project), for use of raw water for parks irrigation in the Brighton Neighbourhood. Administration has reviewed the proposal and recommends a pilot project from this proposal. A pilot project would provide an opportunity to:

- Work through specific regulatory matters (i.e. source water permitting, water quality assurance requirements, signage requirements, issues associated with on-site storage and potential interaction with storm water, etc.);
- Apply the best practices research that has been completed; and
- Develop a process for identifying and approving future raw water parks irrigation projects.

If development of the pilot project is approved, Administration's intention would be to develop a plan to implement the pilot in coordination with the park design process.

By pursuing the pilot project approach, Administration will be able to evaluate the feasibility, time, costs, environmental implications, and policy requirements prior to exploring a city-wide approach. A city-wide approach may include developing supporting policies to enable safe and effective use of raw water for parks irrigation, and a strategy that identifies parks where raw water irrigation would yield maximum environmental and economic outcomes.

Options to the Recommendation

City Council may decide to receive the information in this report pertaining to raw water and not to pursue raw water parks irrigation, or to pursue raw water parks irrigation but forgo a pilot project, instead focusing on policy and strategy development.

Administration did not recommend these approaches since a significant opportunity to implement a raw water irrigation system in a new neighbourhood may be missed, and there are a significant number of best practices from other jurisdictions to guide the development and approval of the proposed pilot project.

Public and/or Stakeholder Involvement

Dream Development has provided a Letter of Intent (Attachment 6) indicating their interest in proceeding with the development of a pilot project within the Brighton Neighbourhood.

Communication Plan

A communications plan would need to be developed to support the implementation of raw water parks irrigation and include information related to education and public safety. Communications requirements, such as signage, will be included in the follow-up report regarding the feasibility of the pilot projects.

Other Considerations/Implications

There are no policy, financial, environmental, Privacy, or CPTED implications or considerations at this time. These considerations will be addressed in the follow-up report on the feasibility of the pilot projects.

Due Date for Follow-up and/or Project Completion

A follow-up report on the pilot project, with a recommendation on implementation will be completed in approximately 12 months.

Public Notice

Public Notice pursuant to Section 3 of Policy No. C01-021, Public Notice Policy, is not required.

Attachments

1. Raw Water Definitions
2. Regulatory Context
3. Municipal Best Practices
4. Raw Water Park Irrigation - Frequently Asked Questions
5. Pilot Project
6. Dream Development Letter of Intent

Report Approval

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