Wastewater Watch

An Okanagan Falls Sewer Project UPDATE

June, 2005

Survey Enclosed! *Please complete and return by June 30th*

Wastewater Advisory Committee recommends BNR at new treatment site

The Okanagan Falls Wastewater Advisory Committee (WAC) was struck last August to review and make recommendations for wastewater management upgrades within portions of Electoral Area D, including, but not limited to, Okanagan Falls, Kaleden, and Skaha Estates.

A select committee appointed by the Regional District of Okanagan Similkameen (RDOS) Board, the nine-member group met seven times to review regional wastewater policies, programs, and services, and to identify technically, socially, environmentally, and financially sound solutions to current and future wastewater challenges.

WAC members include: Don Albright from Skaha Estates; Les Clarke from Kaleden; and William Eddy, Alfred Hartviksen, Gerry Hughes, Souren Mukherjee, May Simpson, and Eleanor Walker from Okanagan Falls. The committee chair is RDOS Area D director Bill Schwarz; the project coordinator is Tom Siddon.

Preferred Options

In December 2004, the RDOS hired Earth Tech Canada to undertake a strategic assessment of current and future wastewater treatment needs in Okanagan Falls and surrounding areas. After studying the resulting review of existing conditions and numerous solutions, WAC members short-listed several options for more detailed consideration. Ultimately, Option #7 emerged as the recommended option, with #6 being ranked second. While these two options had higher overall costs, they rated highest in the social and environmental spheres — guaranteeing flexibility, reliability, and minimal public impacts.

Option #6 involves construction of a BNR (biological nutrient removal) plant at the existing location. Since the site is located near a housing complex and school, the plant would require advanced odour and noise control. The $4.6-million upgrade would have annual operating and maintenance costs of about $300,000.

Option #7 provides for construction of a BNR plant at an appropriate location downstream of the existing site. Since the plant would be surrounded by a buffer of undeveloped land, it would be less intrusive. An access road from Highway 97 would eliminate traffic impacts on Cedar Street and the nearby school. The new site would also offer greater potential for future capacity and expansion of service to outlying areas. This $5.2-million upgrade would have an annual operating and maintenance budget of about $300,000. Although Option #7 has a slightly higher capital cost than Option #6, it was ranked highest because of its long-term social and environmental advantages.

Construction of the new wastewater treatment plant would begin in 2008, provided appropriate land could be acquired at reasonable cost.

see 'Recommended Option' on page 2

You're Invited!

The Regional District of Okanagan Similkameen and the Okanagan Falls Wastewater Advisory Committee invite you to share your thoughts about the future of wastewater facilities and services in Okanagan Falls and surrounding areas.

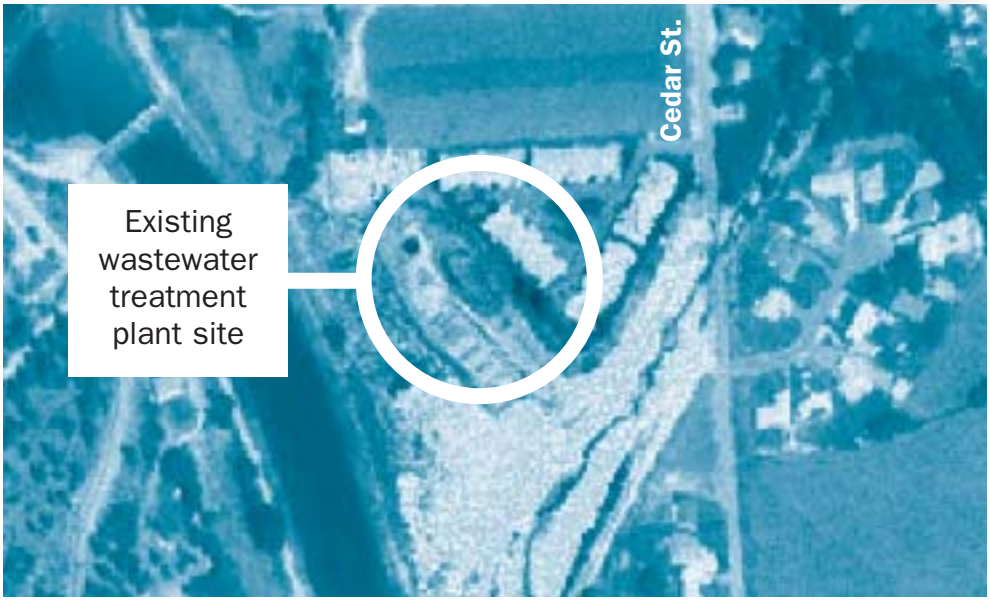
OPEN HOUSE

Wednesday, June 22nd
OK Falls Elementary School
1141 Peter Street
4 PM to 8 PM

Presentations will be given at 5 PM, 6 PM, and 7 PM

Committee members, Regional District staff, and engineering consultants will be available to answer your questions.

For more information call Judy Burton at the Regional District 250-490-4135



The Okanagan Falls Wastewater Advisory Committee recommends the treatment plant be moved from its existing site to a new downstream location.

Recommended Option continued from page 1

There is the option of doing nothing, but RDOS would still have to raise funds starting now for future upgrades. The resulting increase in annual fees would be comparable to those associated with Option #6 or Option #7 with two-thirds government funding.

Depending on which option is supported by the majority of residents — as indicated at the Open House and via the enclosed survey — the RDOS Board will then decide how to proceed.

Other Considerations

While committee members agreed that extending sewer service to outlying areas would be too costly at this time, they did recommend the RDOS work with residents of Skaha Estates and Kaleden to develop sewage treatment plans for these communities. To help assess need in these areas, the committee recommends the RDOS seek funding from appropriate government agencies to undertake a comprehensive water quality monitoring program for Skaha Lake.

And to ensure future wastewater treatment plant capacity, the committee recommends the RDOS work with the Okanagan Falls Irrigation District to initiate a long-term water conservation strategy to reduce sewage flows.

	ADVANTAGES	DISADVANTAGES
OPTION #6 *BNR (biological nutrient removal) at existing site*	• No land acquisition required • No amendment to Liquid Waste Management Plan, Official Community Plan, or Operating Permit required • Can recycle treated effluent for agricultural irrigation • Slightly lower unit cost for new connections	• Not likely to be eligible for senior government funding • Close proximity to multi-family housing (e.g. odour, noise) • Traffic flow through residential area (e.g. sludge removal)
OPTION #7 *BNR downstream of existing site*	• No impacts on residential or commercial areas (e.g. odour, noise) • Greater long-term potential for capacity and service to outlying areas • Can recycle treated effluent for agricultural irrigation and/or habitat development (e.g. wetland) • Eligible for senior government funding	• Land acquisition required • Marginally higher capital costs in the absence of senior government funding • Amendments to Official Community Plan, Liquid Waste Management Plan, and Operating Permit required

The Bottom Line

A financial model was created to calculate user fees for Options #6 and #7 under two funding scenarios: 1) with two-thirds funding from senior governments; and 2) with no funding from senior governments. The calculations assume that development cost charges for new connections would finance 30 percent of capital costs, and that capital costs would be financed over 20 years at the current Municipal Finance Authority interest rate of five percent. The fee increases are based on distributing costs over the current number of connections. However, significant development is expected over the next three years, which will result in an increased number of connections, therefore, lower annual fees. To minimize financial impacts to users, the RDOS could delay implementing a full upgrade until grant funding can be secured.

	For average single-family home		
	Existing annual fees	Annual increases	Annual totals with increases
Option #6 without government funding	**$285**	**$312**	**$597**
Option #7 with 2/3 government funding	**$285**	**$82**	**$367**
Option #7 without government funding	**$285**	**$345**	**$630**
Do nothing but build capital reserves	**$285**	**$150**	**$435**

Sewer to Skaha Estates and Kaleden?

As part of its mandate, the Wastewater Advisory Committee (WAC) reviewed information prepared by Earth Tech regarding possible sewer extension from Okanagan Falls to Skaha Estates and Kaleden.

Capital costs were estimated for constructing a sewer collection system in Skaha Estates to service 183 lots in the 54-hectare area along Skaha Lake. The $3.1-million cost breaks out to about $17,000 per parcel, before senior government funding.

Capital costs were also estimated for construction of a sewer system to service 142 lots in the 32-hectare Kaleden lakeshore area. Parcel costs of $22,250 per lot would contribute to the $3.1-million price tag.

While WAC members agree these prices are prohibitive considering there is no pressing need at this time, they also concur that public consultation specific to Skaha Estates and Kaleden should be undertaken before any long-term decisions are made. WAC also supports an Earth Tech recommendation that the Regional District seek funding from appropriate government agencies to undertake comprehensive monitoring of Skaha Lake to determine the impact of septic systems on water quality and aquatic habitat. ■

Interim Measure

Installed on trial at the Okanagan Falls wastewater treatment plant in April, the Salsnes filter is intended to increase capacity during peak loading times until a decision can be made about the plant's future.

Wastewater flows through an inlet tube to a rotating mesh screen, which filters out 40 to 80 percent of suspended solids. The resulting sludge is transported to an air cleaning device, and then forced through a press cylinder for further dewatering. Wastewater then flows to the oxidation ditch, while the dewatered sludge is disposed of in the landfill. ■

Area D regional director and Wastewater Advisory Committee chair Bill Schwarz checks out the Salsnes Filter pilot at the treatment plant.

Treatment plant under pressure

Built in the '70s to process about 750 cubic metres of wastewater daily, the Okanagan Falls sewage treatment plant is located near the confluence of Shuttleworth Creek and Okanagan River. Its simple treatment process — including an oxidation ditch, clarifier, sludge drying beds, and infiltration basins — has served residents well for two decades.

In the early '90s, a multi-family housing complex was built next to the treatment plant. As the original sludge management system was not designed for odour or noise control, the Regional District of Okanagan-Similkameen (RDOS) began receiving complaints from nearby residents.

Then came capacity concerns. By the late '90s, wastewater flows had increased by about 25 percent, producing peak summer flows as high as 920 cubic metres per day. Today, development proposals for two subdivisions and a resort hotel within the Okanagan Falls Sewerage Service Area aggravate concerns about current and future capacity. In addition to these 300 new connections, we can expect infill construction of at least 30 single-family homes. These units will increase the number of connections to more than 1,500 and boost the average daily flow to the treatment plant by 270 cubic metres. This will push required summer capacity to about 1,100 cubic metres per day by 2010. Looking beyond 2010, even with a modest annual growth rate of two percent, the required plant capacity will increase by 380 cubic metres per day, for a total of about 1,500 cubic metres per day by 2025.

For the plant to continue operating within the limits of its current operating permit, and in accordance with the Liquid Waste Management Plan approved by the province in 1989, a series of immediate upgrades and long-term measures are required. In response, the RDOS established a Wastewater Advisory Committee WAC to review options, hired a project coordinator, and contracted with consulting engineers to develop interim and long-term plans for wastewater treatment in Okanagan Falls and surrounding areas. The resulting recommendations by Earth Tech Canada include construction of a new BNR (biological nutrient removal) treatment plant at an appropriate location downstream from the existing site. As proposed by the WAC and Area D director Bill Schwarz, Earth Tech's recommended Option #7 would serve Okanagan Falls, and potentially its surrounding areas, until at least 2025. ■

The existing treatment plant, with its close proximity to multi-family housing, produces unwanted odours, noise, and traffic.

Why BNR (biological nutrient removal)?

Historically, wastewater treatment plants used 'primary treatment' to remove only organic solids from wastewater before the resulting effluent was released into receiving waters such as lakes and rivers. Because wastewater effluent contains nitrogen and phosphorus at levels sometimes toxic to human and aquatic health, 'tertiary' or 'secondary treatment' is now recommended and often required as a condition of discharge to receiving waters.

Both Options #6 and #7 include a proven tertiary BNR (biological nutrient removal) process that is reliable, robust, operator-friendly, and extremely adaptable to changing flow and load conditions. The proposed treatment process is based on the "three-stage Bardenpho" BNR process which removes carbonaceous material (BOD), phosphorus and nitrogen.

Nitrogen and phosphorus act as fertilizers, which promote the growth of algae and other aquatic plants such as Eurasian Milfoil. These unwanted side effects pose serious recreational and environmental problems (e.g. reduced oxygen levels for fish). BNR treatment, such as that used this Summerland plant, removes nitrogen and phosphorus before the wastewater effluent is discharged to receiving waters.

With filtration and disinfection, effluent from the BNR process is of a drinking water standard. The high quality effluent provides for a range of uses and disposal methods. The effluent can be reused as irrigation water,

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Answers to Frequently Asked Questions

What follows are answers to questions you may have about the proposed wastewater treatment upgrade. For more information please contact RDOS Engineering Services at (250) 490-4135.

What is wrong with the existing wastewater treatment plant?

The existing plant has reached, and often exceeds, its intended capacity of 750 cubic metres per day. Current and future development planned for the next five years is expected to generate an additional 400 cubic metres per day. Even a modest annual growth rate of two percent would increase required capacity to 1,500 cubic metres per day by 2025.

Why should the wastewater treatment plant be moved?

In the short term, to minimize nuisance complaints about odour, noise, and traffic. In the long term, to provide expanded capacity for growth in Okanagan Falls and surrounding areas (e.g. Skaha Estates and Kaleden).

Why is Option #7 preferred over Option #6, even though it's more expensive?

Option #6 — which involves construction of a BNR (biological nutrient removal) plant at the existing site — doesn't address nearby residents' concerns about odour, noise, and traffic. Option #7 — which comprises a BNR plant downstream of the existing site — addresses residents' concerns and provides for greater capacity over the long term and expansion to outlying areas such as Skaha Estates and Kaleden. Option #7 is also a better choice environmentally, as effluent can be discharged into man-made wetlands that will enhance treatment and provide wildlife habitat.

Who will decide which option is chosen?

The Wastewater Advisory Committee will make a recommendation to the RDOS Board after receiving input from residents at the open house June 22nd and from the enclosed survey. The RDOS Board will then decide how to proceed.

Who will pay for the wastewater treatment upgrade?

Because of its environmental benefits, Option #7 is more likely to be eligible for senior government funding than Option #6. If Option #7 is the preferred option — as indicated by residents at the open house and from the survey — the RDOS will apply for an infrastructure grant from the federal and provincial governments. If funding is secured, two-thirds of the $5.2-million capital costs would be covered by the grant. Developers would fund the remaining one-third of capital costs through DCCs (development cost charges) on new connections. Existing users would fund increased operations and maintenance costs through their sewer fees. With funding, the average annual increase would be about $82 per residential connection. Without funding, the average annual increase in parcel taxes and user fees would be about $345 per residential connection.

Why must we wait until 2008 to proceed with Option #7?

Before commencing with the upgrade, the RDOS must identify the most appropriate site; hire an engineering firm to prepare final designs and specifications; and amend its land-use designations, Liquid Waste Management Plan, and Operating Permit. The RDOS must also create a development cost charge bylaw to help cover the upgrade's capital costs.

Could an upgrade be staged to spread the costs out over a longer period?

In the absence of adequate capital funding from senior governments, a lower-cost fallback option could be considered. Existing infrastructure could be enlarged or replaced in a step-wise fashion, as funds permit. As this approach may not be eligible for senior government funding, the ultimate cost to residential connections may be somewhat higher than either Option #6 or Option #7. ■

Why BNR? continued from page 3

discharged to a river or used to enhance habitat in wetland environments.

BNR technology was implemented in Canada in the late 1970s when the first BNR plant was constructed in Kelowna to address nutrient impacts to Okanagan Lake. BNR plants in other Okanagan communities have proven successful, such as those in Summerland (on the previous page) and Lake Country (at right). ■

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Survey

The Regional District of Okanagan Similkameen (RDOS) and the Okanagan Falls Wastewater Advisory Committee want to make wastewater treatment decisions that reflect the wants and needs of area residents. To that end, they encourage you to complete this short survey and return it by Thursday, June 30 to:

Regional District of Okanagan Similkameen
101 Martin Street
Penticton, B.C.
V2A 5J9

Please indicate whether you agree or disagree with the following statements.
Please read all questions before recording your responses.

	Agree strongly	Agree somewhat	Disagree somewhat	Disagree strongly	Don't know
1. Capacity: The Okanagan Falls wastewater treatment plant has reached its intended capacity and, therefore, should be upgraded or replaced.	☐	☐	☐	☐	☐
2. Option #7 with senior government funding: Upon confirmation of two-thirds senior government funding, the RDOS should proceed with Option #7 as outlined in the report prepared by Earth Tech Canada. Option #7 involves construction of a BNR (biological nutrient removal) plant downstream of the existing site. The capital cost would be $5.2 million; annual operating and maintenance costs would be about $300,000. Annual user fees would increase from $285 to $367.	☐	☐	☐	☐	☐
3. Option #7 without senior government funding: Even without senior government funding, the RDOS should proceed with Option #7. Annual user fees would increase from $285 to $630.	☐	☐	☐	☐	☐
4. Option #6 without senior government funding: In the absence of senior government funding, the RDOS should proceed with Option #6, which involves construction of BNR (biological nutrient removal) plant at the existing sewage treatment site. The capital cost would be $4.6 million; annual operating and maintenance costs would be about $300,000. Annual user fees would increase from $285 to $597.	☐	☐	☐	☐	☐