

Report to Council



Date: October 2, 2017
File: 1845-20
To: City Manager
From: Utility Services Manager
Subject: New Glenmore Landfill Fill Plan

Recommendation:

THAT COUNCIL receives for information the New Glenmore Landfill Fill Plan report prepared by the Utilities Services Manager dated October 2, 2017;

AND THAT COUNCIL approves the implementation of the proposed Glenmore Landfill Fill Plan as described within the Utilities Services Manager report

Purpose:

To report on the results of the engagement process to review the proposed Glenmore Landfill fill plan and to seek Council's endorsement and approval of the new fill plan.

Background:

Staff are recommending changes to the Glenmore Landfill fill plan to extend the life of the landfill by approximately 25 years taking it from the year 2065 through to about 2090. The proposed changes would better utilize the current geography in the area by changing the side slopes and top of the landfill to blend into the natural terrain of the adjacent Tutt Mountain and Bredin Hill. The new fill plan would not incur any major additional expenses as it uses the same basic footprint. However, it is vital that the planning and placement of base infrastructure is coordinated in late 2017 / early 2018 to accommodate the larger fill plan.

Staff are proposing to change the landfill side slopes in the northern portion of the landfill from a 5:1 slope to a 3.26:1 (3:1) slope. The proposal would raise the maximum elevation of our landfill by up to 20m higher than the existing year 2065 fill plan to match the current elevations of Bredin Hill and Tutt Mountain. The new fill plan would increase the available airspace by 18.3 million cubic meters or 15.5 million tonnes. At the City's current growth rate, this would extend the life of the landfill by approximately 25 years. No other substantive changes to the landfill footprint are being proposed.

Adding height to the existing footprint will lower the unit cost of landfilling over the life of the facility by spreading the fixed costs (preparation, closure and post closure) over more waste. In addition, if we continue with the existing fill plan and then have to pay an additional \$32 per tonne to ship our waste to a different facility beginning in 2066, the increased cost to citizens would be \$500 million (current dollars) over the 25-year period through 2090.

The 3:1 slope is not uncommon and is currently being used in several landfills across Canada including the Hartland Landfill that services greater Victoria, and the Vancouver Landfill located in Delta. Further, a 3:1 slope is currently designed for the southern half of the Glenmore Landfill. The overall landfill height, from base to peak, will be approximately 90 metres. The change is bringing the northern and southern parts of the landfill to blend into the elevations of Bredin Hill and Tutt Mountain respectively.

The City has confirmed with the RDCO and Province that the proposed 2017 Glenmore Landfill Fill Plan is consistent with the RDCO draft 2017 Solid Waste Management Plan and the 2016 revision of the BC Landfill Criteria for Municipal Solid Waste.

The proposed changes would not add significant odour, noise or dust nuisances from the current fill plan, although the generation of these nuisances would extend another 25 years and would increase somewhat with growth in disposal volumes, depending on the rate of landfill growth. The additional height of the proposed Fill Plan will have some visual impact which will diminish in severity as the site is closed and seeded for revegetation. The proposed design also blends into surrounding hillsides, providing a more natural looking closed site in the long term after closure.

The current landfill disposal rate for garbage and demolition material is approximately 155,000 tonnes per year. This new fill plan and landfill life duration provides for the predicted growth rate in disposal that anticipate approximately 300,000 tonnes per year 35-40 years from now and over 600,000 tonnes per year as the landfill approaches closure in 2090.

Staff collected public and stakeholder feedback on the proposed landfill plan in February 2017. Some nearby residents expressed concern regarding odour management going forward and proximity of the landfill site to the Quail Ridge neighbourhood, as well as ensuring access to nearby walking trails and protection of wetland areas of the landfill site. About 60 per cent of the respondents who provided feedback responded favourably to the proposed landfill plan. For more details, see the Communications Comments section below.

A decision on updating the landfill plan is required at this time for the following reasons:

1. Base preparation and planning for the expansion will need to begin in the next six months to accommodate relocation of our fill area.
2. To allow the City to update our Design, Operating and Closure Plan (DOCP) for the landfill which is currently an outstanding deficiency of our landfill Operating Certificate.
3. To accurately estimate the total closure and post closure costs for the landfill and account for these as required by Public Sector Accounting Standards.

Work on the DOCP will begin in October and will reflect Council's preferred fill plan. The DOCP will outline long term costs for the city, including accounting for closure and post closure costs which will be very significant. Long term financial planning for the landfill will need to be adjusted to incorporate information in the DOCP.

Next Steps

Over the next few years significant investment will be required to prepare for continued solid waste disposal. During development of the new Fill Plan a number of projects and costs were more clearly identified over the next 8-10 years in order to allow for continued operation. The following table summarizes these identified costs. Many of these costs are new and were not identified in the 2017 10-year capital plan, putting significant financial pressure on landfill operations. These costs have been added to the most current financial model that is used to determine the impact on rates and reserve balances.

Main Task Description	Estimated Capital Cost	Timing
1. Confirm Direction on fill plan		Fall 2017
2. Complete Design Operating & Closure Plan (DOCP)		Fall 2018
3. Prepare old landfill entrance area for fill, reconstruct operations and maintenance facility. Phase 1 Organic and inorganic relocation	\$7.85 Million	2018
4. Finish preparation of old landfill entrance area for fill. Phase 2 organic and inorganic relocation	\$4.85 Million	2019
5. Prepare north area for fill (liner construction), design, grade and blast east area (phase 1) for fill. Phase 3 organic and inorganic relocation	\$8.25 Million	2020
6. Prepare east area (phase 1) for fill (liner construction), Phase 4 organic and inorganic relocation	\$6 Million	2021
7. Phase 5 organic and inorganic relocation	\$6.8 Million	2022
8. Phase 6 organic and inorganic relocation	\$7 Million	2023
9. Further liner construction (East phase 1) liner design East phase 2	\$1.75 Million	2024
10. Complete preparations of East phase 2 for fill, complete construction of ASP for organic composting	\$8.9 Million	2025
TOTAL	\$51.4 Million	

Once the above works are complete, the major capital expenses for the next 10-20 years will simply be related to ongoing operation (primarily leachate and gas management) and incremental closure as the landfill construction advances. Further base preparation and liner construction will need to occur in the south fill area which was historically filled with garbage in the 60's and early 70's.

The Glenmore landfill is a very valuable asset for both the City of Kelowna and the Region. It is the only final disposal location identified in the 2017 Regional Solid Waste Management Plan. Extending the lifetime of this City asset provides a cost effective and environmentally sustainable solution for Regional Solid Waste Management.

Internal Circulation:

Divisional Director, Financial Services

Divisional Director, Infrastructure
Community Communications Manager
Infrastructure Engineering Manager
Landfill Supervisor

Legal/Statutory Procedural Requirements:

As a regulatory requirement of the Landfill Operational Certificate, the City must submit a new Design, Operation and Closure Plan (DOCP) to the Province. The consultant team to prepare the DOCP will be selected in October. Should we decide to implement the new fill plan, we must include the new fill plan as part of the DOCP submission to the Province.

Financial/Budgetary Considerations:

The new fill plan will increase the efficiency of the landfill and will reduce the long term per tonne costs of disposal in comparison to the existing plan. The main reason for this is that the base costs, outlined above, are required in either scenario. The new "Peak" Fill Plan can distribute these overall costs across many more tonnes of waste and many more years of service to our community. A DOCP revision is underway that reviews all expected future capital expenditures and operational costs over the life of the landfill. An updated financial plan will be completed once the new DOCP has been finalized. The DOCP and financial plan process is expected to take up to two years to complete.

Communications Comments:

On February 21, 2017, city staff hosted an open house at the Glenmore Landfill administration building from 4 p.m. to 7 p.m. to provide information directly to residents nearest to the landfill and to the general public. Approximately 1600 mailed invitations were sent out to residents in communities neighbouring the landfill, along with stakeholders in the area. Further, the open house was advertised to the general public in newspapers, on social media and by electronic sign boards. Feedback was received at the open house and then online until March 3, 2017.

Approximately 70 attendees turned out to the open house with 23 exit surveys completed on site and an additional two surveys submitted online in the two weeks following. Presentation materials and the feedback form were made available online at kelowna.ca for those who could not attend the open house.

Survey Results:

- 96 per cent of survey respondents indicated that the information was presented in an understandable format that explained the scope of the project.
- 100 per cent of respondents indicated that the information presented allowed them to make an informed decision.
- Approximately 40 per cent of attendees who filled out an exit survey said they lived nearby the landfill.
- 96 per cent of respondents indicated that they had reviewed the presentation materials and flyover simulations.
- Of the respondents who provided feedback on the proposed fill plan, approximately 60 per cent responded favorably
- Approximately 24 per cent of respondents stated they had some concern about the proposed fill plan with mentions regarding odour management and proximity to Quail Ridge area and nearby walking trails.

- A handful of members from the Okanagan Naturalists Club attended to speak to staff about bird watching and wetland protection in the area and specifically on the landfill site.

Considerations not applicable to this report:

Legal/Statutory Authority:

Existing Policy:

Personnel Implications:

External Agency/Public Comments:

Alternate Recommendation:

Submitted by:

K. Van Vliet, Utility Services Manager

Approved for inclusion:

A square box containing a handwritten signature in blue ink, which appears to be 'J. Creron'.

J. Creron, Deputy City Manager

cc:

Divisional Director, Financial Services

Divisional Director, Infrastructure

Community Communications Manager

Infrastructure Engineering Manager

Landfill Supervisor