
Landfill Airspace Value

Recommendation

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

1. That the landfill airspace valuation be used in the development of future waste rates and funding plans; and
2. That additional funding requirements be included in the calculation of a user fee associated with a potential Unified Waste Utility.

Topic and Purpose

This report is to establish the value of landfill airspace including the costs of operating the Landfill and the required contribution to the Landfill Replacement Reserve (LRR) in order to fund future closure and replacement costs.

Report Highlights

1. The total landfill airspace value is estimated to range from \$321 to \$452 million. This equates to \$59 to \$75 for every tonne of waste buried in the Landfill.
2. The required contribution to the LRR to adequately fund future capital, closure, post-closure, and replacement costs is \$27 to \$33 per tonne. The five-year average contribution to the LRR has been \$18 per tonne.
3. The annual operating cost of the Landfill is \$32 to \$42 per tonne.
4. Siting of a future landfill is included in the current airspace value, however, future operating is not. Any future City owned landfill(s) outside city limits will impact waste collection costs. Capital costs for additional trucks are estimated at \$5 million and operating increases are estimated at \$2.5 million per year.

Strategic Goal

The recommendation in this report supports the Strategic Goal of Asset and Financial Sustainability by establishing the long term funding required to rehabilitate and maintain City infrastructure and by reducing reliance on residential property taxes.

Background

In 2011, City Council approved the Landfill Optimization Project, which included the Integrated Landfill Management Plan and an outline of future transfers to the LRR required to fund the future construction work at the Landfill.

On February 26, 2018, City Council received a report on Recovery Park and Saskatoon Regional Waste Management Centre Project Comprehensive Funding Plan that stated further reporting on the value of the Landfill airspace and an updated cost estimate for constructing a new landfill will be provided in 2018.

Report

Landfill Airspace

Landfill airspace is the amount of remaining space available for waste. The airspace a landfill has available is limited based on the site size and design. The more waste that is received, the faster that airspace is consumed. Conversely, increased diversion increases landfill life. More information on airspace is included in Attachment 1.

The Integrated Landfill Management Plan identifies a maximum of 8.7 million cubic metres of airspace remaining if all planned capital investments and operating targets are achieved. Depending on the amount of waste received, this translates to 40 to 50 years of remaining landfill life.

Airspace value is generally conveyed in dollars per cubic metre; however, the Landfill does not have the ability to charge customers based on their volume of waste so the calculations are shown in dollars per tonne. Currently, the Landfill is capable of compacting 0.74 tonnes of waste into every cubic metre of landfill airspace.

The airspace value is the calculation of the revenue required to fund the ongoing operation of the Landfill, as well as the future capital costs, closure costs, post-closure costs, and eventual landfill replacement costs. Estimated costs for each of these components are included in Table 1 below. All values are presented in 2018 dollars.

Table 1: Costs Included in Landfill Airspace Value

	Annual	Total
Operating Costs	\$4.1M	\$164M to \$270M
Capital & Closure Costs	Variable	\$50M to \$75M
Post Closure Care Costs	\$0.2M	\$7.0M
Replacement Costs	N/A	\$100M
Total		\$321M to \$452M

The total value of the remaining airspace is estimated to range from \$321 to \$452 million. Based on the remaining tonnes of waste that can be accepted at the Landfill, the current value of landfill airspace ranges from \$59 to \$75 per tonne. This is the break-even amount that must be charged for every tonne of waste received in order to cover operating costs, as well as contributions to the LRR, to fund future capital, closure, post-closure and replacement costs.

Table 2: Airspace Value by Component

	Low Estimate (\$/tonne)	High Estimate (\$/tonne)
Operating Portion	\$32	\$42
Landfill Replacement Reserve Portion	\$27	\$33
Total:	\$59	\$75

Landfill Airspace Value

There are multiple variables that can impact remaining airspace so the low and high estimates presented in Table 2 are based on a range of probable scenarios. These scenarios are further outlined in Attachment 2.

Landfill Replacement Reserve Contributions

As shown in Table 2, the required contribution to the LRR ranges from \$27 to \$33 per tonne, however, the average contribution to the LRR over the past five years has been \$18 per tonne. The underfunding of the LRR has resulted in some projects being funded by internal borrowing. Since 2011, the LRR has not realized the transfers identified in the 2011 Landfill Optimization Report. A summary of past performance of the LRR contribution is included in Attachment 3.

Although landfill tipping fees are currently set at \$105 per tonne, more than 62,000 tonnes (approximately 65%) of the waste received at the Landfill is brought in on City garbage trucks from the single-family and multi-family residential sector. The current funding model does not charge landfill tipping fees for this waste.

The risk of not adequately funding the LRR means that future investments and required closure and post-closure costs will not be fully funded.

Future Waste Collection Impacts Resulting from a New Landfill

In addition to the capital cost of developing a new landfill (estimated at \$100 million), a new landfill located outside of City limits will result in increased operating and capital impacts for City waste collection services. Longer haul distances will result in increased trucks, fuel and operators required to provide an equivalent level of service. Estimated impacts include \$5 million in capital investments to the garbage collection fleet, as well as annual operating increases of \$2.5 million. These costs are not included in the landfill airspace value and would be considered an additional expense.

Options to the Recommendation

1. City Council may choose to not include the value of landfill airspace in any future waste funding models. This is not recommended as it does not consider the true costs of waste management and would not enable adequate funding for future landfill capital, closure, post-closure and replacement costs.
2. Under the current operating model for the Landfill (property tax and user fee funded) in order to have the Landfill continue to be financially sustainable, an increase to the Landfill's operating budget allocation of \$600,000 to \$1,750,000 would be required. As current user fees are considered to be in line with market rates; it would be difficult to increase these and remain competitive, therefore this would require a mill rate allocation equivalent to 0.26% to 0.75%.

Public and/or Stakeholder Involvement

The Landfill is regulated under the Environmental Management and Protection Act. The City's Permit to Operate Waste Disposal Grounds, granted by the Ministry of Environment includes details at a concept level outlining closure and post-closure plans.

Financial Implications

If the City were to transfer to a utility model, this additional funding requirement would be included in the calculation of a potential user fee. As the Unified Waste Utility model scope is still to be developed, which could include aspects such as collection, compost and other diversion initiatives, the estimate of a user fee impact is difficult to determine at this point and will be presented in future reports.

Environmental Implications

Upon closure of the Landfill, the City is required to maintain landfill infrastructure and perform monitoring activities necessary to ensure any potential adverse environmental impacts are mitigated.

Without environmental monitoring and mitigation strategies, closed landfills can negatively affect surface water and ground water. Additional greenhouse gases could be released without continued operation of the landfill gas collection system upon closure of the site. At the time of closure, the Landfill is estimated to produce 150,000 tonnes of CO₂e per year.

Other Considerations/Implications

There are no policy, Communications, privacy, or CPTED implications or considerations.

Due Date for Follow-up and/or Project Completion

The development of a waste utility funding model will include the value of landfill airspace. The Administration will update the landfill airspace calculation to City Council in line with the budget cycles.

Public Notice

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

Attachments

1. Calculating Landfill Airspace and Value
2. Probable Landfill Scenarios
3. Historical Landfill Replacement Reserve Contributions

Report Approval

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