

WASTE DIVERSION TARGET UPDATE

EXECUTIVE SUMMARY

In 2007, Council approved the 80/20 by 2020 waste diversion strategy (UE2007-35). The 80 per cent diversion target was to be achieved in part through a combination of resource recovery programs (such as recycling and composting), policy initiatives (banning material from landfills), and other stewardship and education programs. The original plan indicated that these activities had the potential to divert 70 per cent of waste at program maturity. The remaining 10 per cent would be addressed with emerging waste-to-energy (WtE) technologies. The 80 per cent diversion target was ambitious as the estimated level of diversion in 2007 was 20 per cent.

A more measured program implementation plan has delayed the achievement of the 70 per cent diversion target by five years, which is now reflected in the new target.

ADMINISTRATION RECOMMENDATION(S)

That the SPC on Utilities and Corporate Services recommends that Council direct Administration to:

1. Adopt a revised target date for the waste diversion rate of 70 per cent across all waste sectors by 2025;
2. Revisit the Construction and Demolition sector strategy and return to Council in Q2 2016; and
3. Report back on the potential application of waste-to-energy (WtE) technology in Q1 2018.

PREVIOUS COUNCIL DIRECTION / POLICY

On 2007 November 26, Council approved Waste & Recycling Services' (WRS) strategy (80/20 by 2020) to achieve 80 per cent diversion of waste resources from landfills by 2020 (UE2007-035). The 80/20 by 2020 strategy identified a number of planned activities to divert waste from The City's landfills including blue and green cart for Single Family residents (SF); diversion programs for the Multi Family (MF), Industrial, Commercial and Institutional (ICI) and Construction & Demolition (C&D) sectors; pay-as-you-throw options; and emerging WtE technologies.

On 2015 April 29, SPC on Utilities and Corporate Services received report UCS2015-0323 (Update on 80/20 by 2020 Waste Diversion Goal) for information.

BACKGROUND

The original 80/20 by 2020 strategy approved in 2007 recommended the introduction of the blue cart program in 2009, the green cart program in 2010 and WtE in 2018. With the delay in implementing the green cart program, the timeline has changed, delaying the estimated timing to reach the approved diversion target. Since 2007, WRS has implemented a number of diversion initiatives to reduce the volume of waste going to landfill and a series of actions to improve diversion in the C&D sector were also approved.

Blue cart recycling was introduced to the SF sector in 2009, followed by automated black cart garbage collection in 2011 and the green cart pilot program in 2012. Programs for this sector were developed first, as WRS exclusively provides both collection and processing services,

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which simplifies program implementation and provides greater influence on customer behaviours.

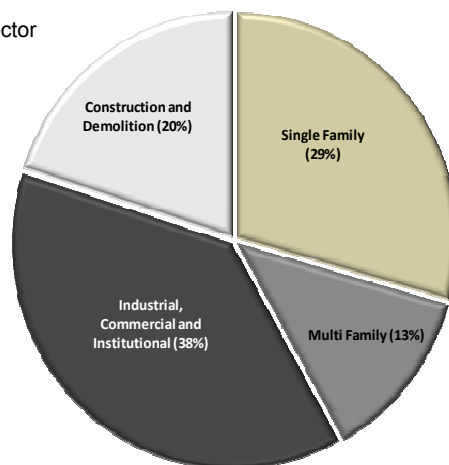
In addition to these SF programs, an ICI strategy and amendments to the Waste and Recycling Bylaw (20M2001) for MF were approved in 2014. These programs were created to provide greater diversion opportunities in these sectors where WRS has less direct influence.

WtE was to be implemented once a full suite of mature diversion programs were in place for all sectors. The revised timing of full diversion program implementation in all four sectors has moved the requirement for WtE to beyond 2025.

INVESTIGATION: ALTERNATIVES AND ANALYSIS

In 2014, the four waste sectors contributed approximately 750,000 tonnes of waste sent to The City of Calgary's three landfills, as shown in Figure 1.

Figure 1: 2014 Waste Tonnes by Sector



Since the 2007 targets were approved, WRS has been collecting and monitoring waste generation and diversion data. Analysis of this data indicates that by 2025 the following diversion targets can be achieved within individual waste sectors:

- | | |
|---|-------------|
| • Single family (SF) | 70 per cent |
| • Institutional, commercial, industrial (ICI) | 75 per cent |
| • Multi-family (MF) | 65 per cent |
| • Construction and demolition (C&D) | 40 per cent |

These individual sector targets were determined by analyzing the amount of divertible organic and recyclable material in each sector. Further details on the waste diversion targets for each sector are provided in the Attachment.

Improving diversion in existing programs and introducing new programs will ensure a diversion rate of 70 per cent of materials across all four sectors by 2025. The overall diversion estimate of

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70 per cent relies on the success of the SF programs and collaborative efforts with the private sector to manage diversion from the MF, ICI and C&D sectors. The approved MF and ICI recycling bylaw amendments as well as the MF and ICI organics strategies and an update on the C&D strategy will make significant progress towards these new waste diversion targets.

Between 2020 and 2025, program effectiveness will be increased. These programs will focus on recyclables, organics, waste prevention, variable pricing, existing extended producer responsibility and collaboration with the private sector. During this time WRS will confirm program maturity in all sectors by continuing to measure, validate and adjust programs where necessary.

A WtE strategy is best developed beyond 2025, once the current and planned diversion programs have matured and the feedstock available can be reliably assessed. At that point it can be determined if WtE is the best option for the remaining residual materials. As the lead time for planning and implementation of WtE facilities can be up to 10 years, WRS will report back in Q1 2018 on the potential application of waste-to-energy technology.

Depending on the nature and volume of the feedstock and the technology applied, WtE treatment facilities can be expensive (between \$100 - \$500 million) and therefore are built to operate over an extended period of time (typically 20 to 25 years) in order to justify the capital investment. Also, recent unsuccessful WtE developments in other jurisdictions suggest that some technologies are still not commercially viable. Calgary is in an advantageous position to learn from these examples and provide clear direction once diversion program maturity has been achieved.

Stakeholder Engagement, Research and Communication

Stakeholder engagement is an integral part of all waste diversion programs and strategies. Stakeholder input helps shape and influence program design and execution to achieve success.

Calgarians support The City's waste reduction efforts as evidenced in recent citizen surveys:

- 91 per cent of citizens said they are satisfied with The City's environmental performance.
- 93 per cent of citizens said that they support the implementation of a City-wide recycling program for multi-family households.
- 95 per cent of citizens said Blue Cart increased their perceived quality of life.
- 96 per cent of citizens said that reducing waste to landfill is important.
- 91 per cent of Green Cart pilot communities support a city-wide program.

Strategic Alignment

This new diversion target is an important step in reducing the amount of waste going to landfills and contributes to The City's vision of zero waste. It also aligns with Action Plan 2015 – 2018 Strategic Action H1 - Implement the green cart program and multi-family recycling strategy, and reduce industrial, commercial and institutional waste in our landfills.

Social, Environmental, Economic (External)

Social

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Diverting more materials from landfill requires changes in behaviour by Calgarians. The readiness of Calgarians to participate in waste diversion programs has been growing over the last number of years. This change is driven by increasing knowledge related to the negative impacts of waste. Implementation of waste diversion programs will make Calgary a more attractive place to live and increase Calgary's reputation as an environmentally-friendly city.

Environmental

Diverting waste from landfill is a critical component of reducing Calgary's impact on land, air and water.

Diverting waste reduces greenhouse gas emissions, redirects natural resources back into the economy and reduces future contamination and environmental liability.

Economic

The rate of waste generation increases with the rate of the gross national product (GNP) and consumerism. More waste increases liability and the cost of long-term management of the landfills. It is not only the cost of landfilling that is considered, but also the infrastructure required to process diverted materials. Ensuring the longevity of landfills in Calgary is critical, either as storage facilities for future divertible material or for the management of residuals. Partnering with the private sector provides an incentive for economic development in the community.

Financial Capacity

Current and Future Operating Budget:

Program initiatives to move towards the goal of zero waste are incorporated in Action Plan 2015-2018.

Current and Future Capital Budget:

The diversion programs and infrastructure mentioned within are aligned with the WRS Infrastructure and Investment Plan (WRIIP).

Risk Assessment

There are no significant risks associated with this report.

REASON(S) FOR RECOMMENDATION(S):

In 2015 April, Waste & Recycling Services provided an update on the 80/20 by 2020 strategy. A more measured program implementation plan has delayed the achievement of the 70 per cent diversion target by five years, which is now reflected in the new targets. The remaining 10 per cent (of the 80 per cent) was to be achieved through the implementation of waste-to-energy technology. Waste-to-energy represents a significant investment and a detailed strategy and implementation plan is required. Recent bylaw amendments will advance diversion in both the multi-family and industrial, commercial and institutional sectors. The construction and demolition sector strategy will be updated to assess current diversion as well evaluate opportunities to improve performance and increase diversion opportunities.

Attachment:

Waste Diversion Sector Target Update