



Committee of the Whole Report

For the Meeting of November 7, 2019

To:	Committee of the Whole	Date:	November 1, 2019
From:	Fraser Work, Director of Engineering & Public Works		
Subject:	Zero Waste Strategy – Update and Considerations		

RECOMMENDATION

That Council direct staff to:

1. Proceed with the next development phase of the City's Zero Waste Strategy.
2. Advance zero waste priority actions as follows:
 - a. Engage with CRD to support the development and implementation of its regional Solid Waste Management Plan and partner with the CRD and community stakeholders to discuss opportunities to advance the following focus areas:
 - i. Organics and recycling diversion
 - ii. Construction, renovation and demolition materials diversion
 - iii. Single use item reductions and guidance on compostable alternatives
 - iv. Public education and solid waste management information tools
 - b. Initiate a plan to enhance the City's residential collection program with an expressed interest to improve the diversion of organic and recyclable materials.
 - c. Develop a plan to introduce or modify the City's bin designs to improve public realm diversion as part of the 2021 financial planning process.
 - d. Initiate and report in 2020 on the planning, program and policy considerations for sustainable building demolitions that maximize resource and material recovery, safeguard heritage value, and include affordability, public health, safety, economics, and other sustainability considerations.
 - e. Partner with local business and community food industry stakeholders and report back on the planning and resource considerations to implement a 2021 pilot program for reusable takeback food-ware containers.
 - f. Consider allocating \$200,000 and one new staff resource to the next development phase of the Zero Waste Strategy development and initial implementation actions as per this report as part of the 2020 financial planning process.

EXECUTIVE SUMMARY

Staff are nearing completion of the first development phase of the Zero Waste Strategy. The strategy aims to help the City and the community transition to a future where materials are avoided, reduced and reused instead of disposed in the landfill. The goal of zero waste is an emerging and

increasingly common priority for cities and governments, who have identified the need to take action to eliminate unsustainable trends in materials and waste management. Programs and systems are required to sustainably manage materials across their entire life cycle by keeping them at their highest and best use for as long as possible.

Regional governments, businesses, residents and tourists play important roles in the responsible management of waste. Many local businesses and community members are already embracing zero waste practises that can be leveraged to stimulate collaboration and learning between stakeholders to build capacity and support sustainable change.

The Circular Economy framework establishes a promising opportunity to rethink the way that materials are produced and used across society. The Circular Economy demands that materials stay in use for as long as possible, that waste is “designed out” of materials, and new systems and processes eliminate pollution and regenerate natural capital. This new model is inspiring innovations across all sectors of the economy. Understanding the municipal roles and responsibilities in respect to this emerging system can ensure the City is well positioned to support the local change needed to transition to sustainable waste management.

The first development phase of the Zero Waste Strategy was completed to better understand the source of material generated in the city and their destination to compost, recycling and landfill sites/facilities. This analysis is important to target future engagement to uncover barriers and opportunities, and ultimately develop the strategies that will lead to the elimination of waste. This initial phase included reviews of best-practice municipal zero waste programs and interviews with local waste management stakeholders, operators, processors and other service providers. In addition, staff commissioned an audit of municipally managed street and park waste bins to better understand what materials were being disposed of throughout the city public receptacles. This worked helped to reveal a number of insights and focus areas for targeted engagement and strategy development as follow:

1. There is an opportunity to divert significantly more recyclable and organic material from the regional landfill.
2. More policies and programs are needed to focus on waste avoidance, reduction and reuse.
3. Single use materials and wasted food represent the majority of material disposed across the city’s public realm.
4. The total annual waste disposed at the Hartland Landfill remains high despite reductions in per capital disposal, likely due to increased economic and development activity.
5. The city is generating a higher proportion of regional waste than was previously understood due mainly to the city’s position as the region’s hub for employment, commerce and tourism.
6. The City possesses a range of policy tools and services that complement the CRD’s strategies to reduce landfill disposal.
7. The development and implementation of zero waste strategies is best done in partnership with regional stakeholders and the CRD.
8. The City has an opportunity to demonstrate leadership through corporate waste management practises and share lessons with stakeholders.

The next development phase of the Zero Waste Strategy proposes targeted engagement with CRD and community stakeholders to better understand why materials continue to be generated, and escape diversion to compost, recycling and more sustainable outcomes. This understanding will help develop impactful and supported strategies to achieve zero waste. Staff are also

recommending that Council consider an set of actions to enhance municipal waste services to improve diversion and a pilot to support the introduction of reusable food-ware alternatives in 2020.

PURPOSE

The purpose of this report is to provide Council with an update on the development of the Zero Waste Strategy and present an initial suite of implementation actions to advance zero waste.

BACKGROUND

The City of Victoria provides community solid waste¹ management services including residential garbage and kitchen scraps collection, residential yard and garden waste drop-off and seasonal pickup programs, public realm garbage bin collection, downtown tri-bin collection (recycling/organics/landfill), and cigarette butt collection/recycling. The City's waste management mandate has evolved from a historical model that focussed primarily on managing the disposal of garbage to avoid litter to a more modern and sustainable model of stewardship and reduction programs to avoid or manage many different material wastes. New programs introduced by the City aim to treat problematic items that are not being disposed, recycled, composted, or managed sustainably. The City's waste management role as a service provider is enabled by Provincial legislation and its responsibility to reduce landfill disposal is guided by the region's Solid Waste Management Plan.

In late 2017, Council directed staff to initiate work to develop a waste reduction strategy, and approved a new dedicated staff resource in the Engineering and Public Works Department to support strategic waste reduction program initiatives.

In 2018, staff efforts remained focused on supporting businesses and the community with the transition to the changes associated with the Checkout Bag Regulation Bylaw that came into effect on July 1, 2018. In late 2018, the procurement process was initiated to engage a consultant to provide expert advice, guidance, research, and analysis to support City staff in the development of the first phase of the Zero Waste Strategy (i.e. waste reduction strategy).

On March 14, 2019, Council adopted the 2019-2022 Strategic Plan and identified the following actions under the Climate Leadership and Environmental Stewardship Strategic Objectives:

- Develop a Zero Waste Strategy
- Ban plastic straws taking into consideration accessibility needs
- Ban single-use coffee cups, straws and single-use takeout containers (as with plastic bag ban bylaw, determine logical exceptions)
- Implement a robust Zero Waste Strategy

Two new staff positions were created (2-year term) to support priority actions in support of Council's Strategic Plan and Council directed staff to report back on the additional resource requirements and considerations upon completion of the initial development phase of the Zero Waste Strategy.

In October 2019, the Capital Regional District released a draft of its new Solid Waste Management Plan for consultation that includes a regional target to reduce per capita landfill disposal by 33% by 2030 and strategies and action to achieve that goal, many of which require municipal involvement.

¹ In this report, "waste" refers specifically to municipal solid waste as defined in BC's Environmental Management Act to mean refuse that originates from residential, commercial, institutional, demolition, land clearing or construction sources.

A renewed municipal focus on material avoidance and reuse is required to reduce the city's share of the materials disposed at the Hartland Landfill while realizing local environmental, economic and social benefits. In many cases, alternative products and or waste management programs and systems are not yet in place to incent better choices and performance. A mix of carefully planned services, regulations, partnerships, incentives, education and behaviour changes are all required to ensure that valuable materials are not lost to the local landfill as garbage. To be successful, municipal zero waste strategies and actions will need alignment, involvement and support between CRD and local stakeholders.

ISSUES AND ANALYSIS

Defining Zero Waste

Zero waste can be defined as:

"The conservation of all resources by means of responsible production, consumption, reuse, and recovery of products, packaging, and materials without burning and with no discharges to land, water, or air that threaten the environment or human health." (Zero Waste International Alliance)

Sustainable waste management relies on the pollution prevention hierarchy planning tool² to guide priority actions and initiatives towards achieving zero waste. The pollution prevention hierarchy establishes a sequential priority for managing waste as follows:

1. **Avoid** – The prevention or avoidance of use of a material or product
2. **Reduce** – The reduction in the consumption or use of a material or product
3. **Reuse** – The reuse of an existing material or product
4. **Recycle** – The recycling a material or product into something new
5. **Dispose** – The disposal or incineration of a material or product

Zero Waste and the Circular Economy

As described above, zero waste is a term used by governments and institutions to establish an ambitious commitment to the complete elimination of waste in society. A new, widely endorsed paradigm called the "circular economy" encompasses not only these concepts of zero waste, but defines the systems and processes that need to be in place to reach it.

A circular economy contrasts the conventional "linear economy" we currently rely on, which extracts resources to create products that are used and then disposed (linear, being "take, make, waste"), and instead seeks to design out waste and pollution, keep products and materials in use, and regenerate natural systems, represented by circular loops of continual reuse to avoid heavy resource extraction³. A circular economy requires that materials are retained at their highest value for as long as possible and emphasizes the prioritization of key processes in both industrial/technological and natural systems (biological cycle) for a product or material as follows (see below):

² This tool is referenced in BC's Environmental Management Act and guiding documents for solid waste management planning across the province and the world.

³ Ellen MacArthur Foundation, available online at: <https://www.ellenmacarthurfoundation.org/circular-economy/concept>

OUTLINE OF A CIRCULAR ECONOMY

PRINCIPLE

1

Preserve and enhance natural capital by controlling finite stocks and balancing renewable resource flows
ReSOLVE levers: regenerate, virtualise, exchange

PRINCIPLE

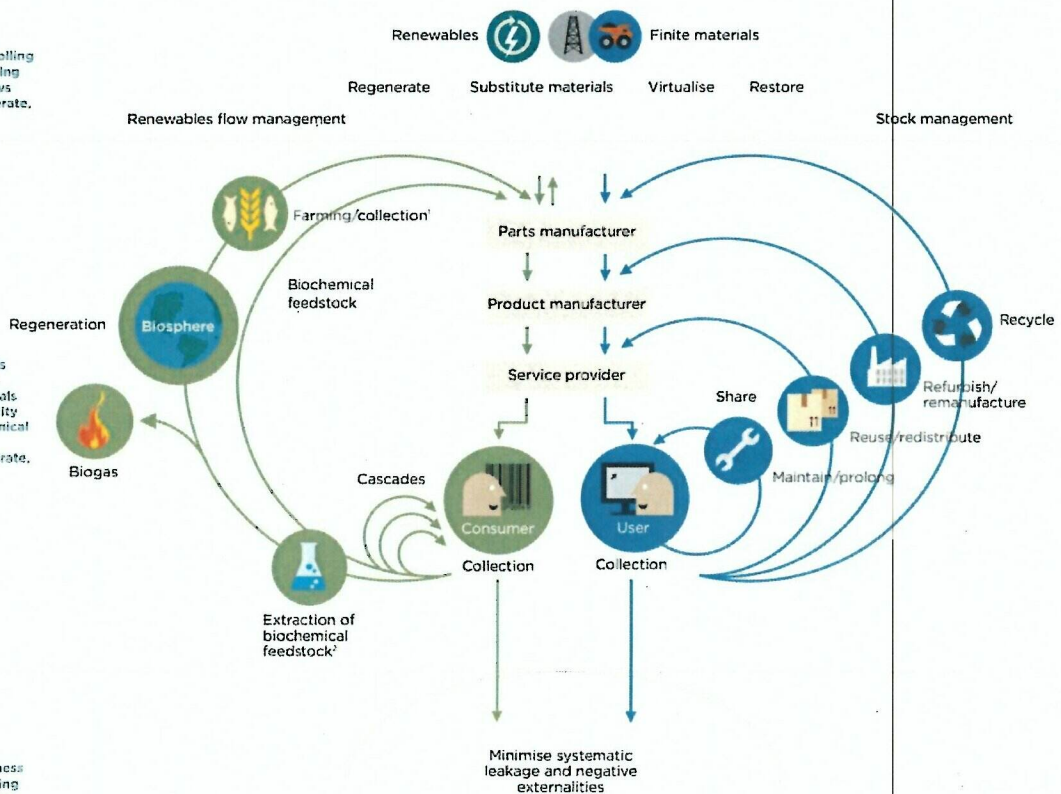
2

Optimise resource yields by circulating products, components and materials in use at the highest utility at all times in both technical and biological cycles
ReSOLVE levers: regenerate, share, optimise, loop

PRINCIPLE

3

Foster system effectiveness by revealing and designing out negative externalities
All ReSOLVE levers



1. Hunting and fishing
2. Can take both post-market and post-consumer waste as an input
Source: Ellen MacArthur Foundation, 2012, and McKinsey Center for Business and Environment. Drawing from Braungart & McDonough's Cradle to Cradle (C2C).

Figure 1. Outline of a Circular Economy that represents the product cycles to maximize the value of resources. The inner circles shown in the diagram represent the processes of priority focus. (Source: Ellen MacArthur Foundation⁴)

Government Roles and Responsibilities for Solid Waste Management

Roles and responsibilities for solid waste management exist across all levels of government. A summary of the government legislative context is provided below.

Federal

Constitutionally, solid waste management is a Provincial responsibility, however the Federal Government complements and supports Provincial and local initiatives through:

- Controlling international and interprovincial movements of hazardous waste and hazardous recyclable material.
- Conducting research and providing guidance on best practices to minimize toxic pollution from the management of waste.
- Providing funding for pilot projects, community activities and major infrastructure projects to reduce waste sent to landfills.

⁴ Ellen MacArthur Foundation, available online at: <https://www.ellenmacarthurfoundation.org/circular-economy/concept/infographic>

Provincial

The British Columbia Ministry of Environment and Climate Change Strategy establishes rules for solid waste management through the Environmental Management Act (EMA). The Act sets requirements for landfill operations, establishes recycling regulations for product producers, and defines the role of regional governments for planning and managing municipal solid waste. These key provincial legislative elements are detailed as follows:

Landfill Operations

The province requires landfill operators to meet criteria performance characteristics set out by an Operational Certificate issued by the Ministry of Environment. This certificate sets their requirements for the design, operation, maintenance, and performance of sites or facilities used for the storage, treatment or disposal of waste or recyclable material.

Extended Producer Responsibility

The Province's Recycling Regulation establishes the Extended Producer Responsibility (EPR) program that defines collection and recycling roles and responsibilities for the producers (manufacturers, importers, distributors) of recyclable products. Categories of recyclable products under the EPR program are managed by product stewards, who act as service delivery agents on behalf of producers. Product stewards are required to meet minimum material recovery targets and establish provincially approved plans that set and achieve positive environmental results, offer reasonable and free consumer access to collection facilities or collection services, and demonstrate accountability and transparency (e.g., provide financial statements that are independently audited and publicly available).

The current provincial EPR program covers 18 product categories. Noteworthy categories that are not covered by EPR include collection of packaging and paper products from the commercial sector (the product steward is currently only required to collect from residential and municipal properties), construction and demolition materials and products that are difficult to recycle, such as carpets, textiles, furniture and mattresses.

Regional Solid Waste Management Planning

Regional Districts are required to conduct long term planning for the disposal of solid waste and recyclable materials generated in their regions through the development and implementation of strategies, policies and bylaws. Regional Solid Waste Management Plans (SWMP) require ministerial approval and the Province establishes guidelines for how the plans are to be prepared in consultation with regional stakeholders, including local governments.

Regional

The Environmental Management Act sets requirements that Regional Districts develop plans for the management of municipal solid waste and recyclable materials and grants them authority to regulate these materials using a number of mechanisms including but not limited to landfill material bans, material-specific disposal fees and site/facility licensing.

The Capital Regional District (CRD) is developing a new SWMP to replace the current plan that was adopted in 1994. The new SWMP sets a 2030 target for per capita landfill disposal rate of 250 kg/year, which represents a 33% decrease from the current regional average of 380 kg/year. The

new SWPM introduces a draft set of 15 strategies and 73 actions to achieve this target⁵. The SWMP proposes a number of strategies and actions that require the use of municipal policy tools, services and supports as outlined in the table below.

Table 1. CRD SWMP Proposed Municipal Responsibilities

Municipal Tools	Municipal Actions
Policy	<ul style="list-style-type: none"> • Develop or amend municipal bylaws and plans to align with the SWMP (e.g. OCP). • Adapt zoning regulations to enable the siting of facilities that support the achievement of zero waste. • Develop requirements/guidelines for source-separation and diversion from residential properties, businesses and events. • Apply procurement models for municipal products and services that support waste diversion. • Introduce requirements for waste plans through business licensing. • Regulate construction, renovation and demolition waste through construction permitting. • Develop and enforce building standards and codes to support end-of-life material recovery from urban development.
Service provision	<ul style="list-style-type: none"> • Allocate space or resources to reuse and sharing programs. • Incentivize material diversion through municipal service user fees. • Support regional infrastructure through the commitment of municipally collected materials (e.g. kitchen scraps for biofuel facility)
Engagement	<ul style="list-style-type: none"> • Support the development and dissemination of educational material. • Advocate to provincial and federal governments to make regulatory changes to address local waste management issues.

The CRD's proposed SWMP relies on municipalities to use regulatory powers and authorities not available to the Regional District, to enhance or provide new services, and to amplify regional advocacy, education and outreach activities to support the transition to region's landfill disposal target.

Municipal

Under the EMA the regulatory authority in relation to municipal solid waste rests with Regional Districts rather than municipalities directly. However, municipalities in British Columbia have traditionally used their authority to provide a service under the Community Charter for the purpose of local municipal solid waste management. Common services provided by BC local governments include:

- Residential curbside collection for garbage and organic materials
- Residential recycling collection and/or operating material drop-off depots
- Collection of materials in the public realm through waste bins, street cleaning, litter collection and pickup of illegally dumped items
- Solid waste, recyclable and organics transfer and disposal

⁵ CRD Solid Waste Management Plan website, available online at: https://www.crd.bc.ca/docs/default-source/solid-waste-management-plan-2019/strategies.pdf?sfvrsn=8af064cb_6

Municipalities also possess a number of authorities under the Community Charter and Local Government Act that influence the generation of waste including zoning, permitting, business regulation and nuisance regulation.

It is also important to note that solid waste, or certain types of waste materials, can have direct impact on the natural environment. Local governments in British Columbia have shared authority with the provincial government to regulate in this area that, subject to provincial approval, allows municipalities to regulate, prohibit and impose requirements for the protection of the natural environment. The exercise of this power could, in some instances, affect the generation of solid waste in the community.

City of Victoria's Official Community Plan

The community's official direction for solid waste management is established in the City's Official Community Plan (Bylaw No. 12-013), which states that the City is to "support steps for Victoria to move towards a zero net solid waste community in partnership with the Capital Regional District and the private sector" and provides the broad objective that "solid waste [is] managed as [a] closed loop system with optimal levels of recovery and re-use" across different stakeholder groups.

Achieving Zero Waste

Achieving zero waste is an ambitious goal that requires a transformational shift in the materials we use, society's consumption and disposal habits, and the way we manage materials. The City of Vancouver identified a series of factors that influence the creation of waste outside of population growth which were determined to be due to customer convenience and consumer habits of replacement instead of reuse, material blends/composites⁶.

Current State of Regional and Local Solid Waste Management

Regional Solid Waste Management

The majority of waste within the region is disposed at the Hartland Landfill, owned and managed as a public asset by the Capital Regional District. In 2018, approximately 160,000 t/year of waste was disposed equating to 380 kg per person. The long term trend in regional landfill disposal demonstrates a decline in per capita waste by 40% over 30 years, but total waste generation remains high as a result of population growth.

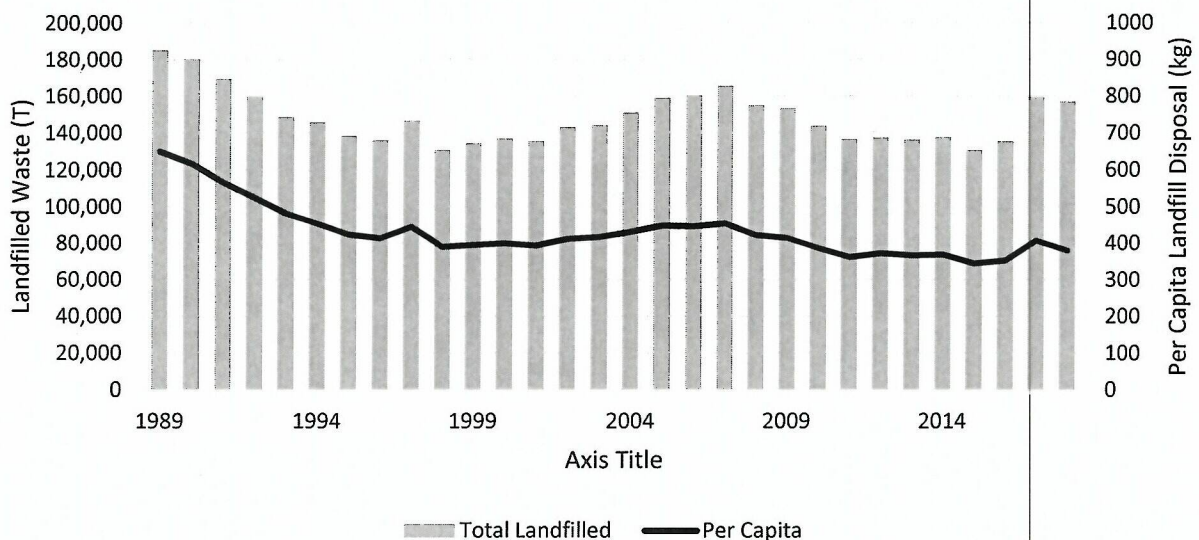


Figure 2. Historic trends in Hartland Landfill disposal. The left axis and grey columns indicate the total annual waste disposed in the landfill while the right axis and black line indicates the per capita disposal rate.

The waste disposed in the Hartland Landfill is made up mainly of materials that could have been diverted. Together, organics, paper and plastics make up more than half of all the material disposed. In addition, approximately 55% of the materials currently being landfilled are composed of biogenic materials that release methane, a potent greenhouse gas, when decomposed in the landfill.

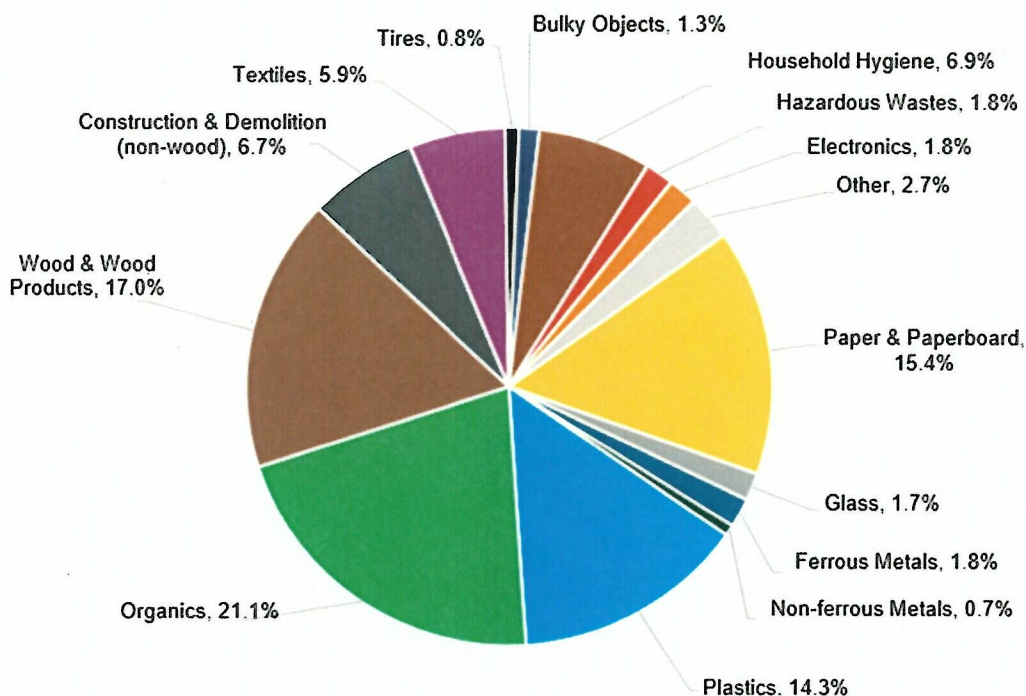


Figure 3. The composition of materials disposed at the Hartland Landfill (2016 Capital Regional District Landfill Waste Composition Study).

The materials disposed at the Hartland Landfill is comprised of the following dominant categories (2016):

- 29,000 t of organic materials (including 16,000 t of avoidable food waste, 11,000 t of unavoidable food waste and 1,800 t of yard and garden waste)

- 23,000 t of wood and wood products (including 14,000 t of treated and painted wood, 2,700 t of wood pallets, and 1,900 t of wood furniture)
- 21,000 t of paper and paperboard (including 7,800 t of soiled compostable paper, 3,200 t of paper packaging, 2,300 t of printed paper and 2,000 t of corrugated cardboard)
- 19,000 t of plastics (including 9,300 t of plastic film and 4,700 t of plastic containers)
- 9,000 t of household hygiene products (including 4,300 t of diaper and 2,600 t pet waste)
- 9,000 t of construction and demolition waste (including 3,200 t of asphalt shingles and 1,600 t of carpet)
- 8,000 t of textiles
- 2,300 t of hazardous waste

Key Takeaways – Baseline Data

Review of the regional and local waste management trends suggests that:

- Total regional landfill disposal remains high despite a reduction in the per capita disposal rate, due to increased population and human activity (development, construction, economic).
- EPR diversion programs coupled with landfill material bans (organics and recyclables) have resulted in significant landfill waste diversion, but still represent a majority of the material being disposed in the landfill.
- The landfill disposal rate has been increasing in the City's residential collection service, potentially due to increased household occupancy, demographic changes and economic conditions.

City of Victoria Solid Waste Management

Solid waste management services in the City of Victoria are provided by both the municipality and the private sector. Private waste hauling companies are contracted by business and multifamily buildings for garbage, recycling and organic materials collection and disposal/diversion services. A range of private transfer stations, recycling drop-off locations and treatment facilities also exist across the city and region.

The City collects approximately 4,100 t of waste per year, which represents roughly 10% of the waste generated across the municipality. This waste is collected through the City's residential service for garbage and kitchen scraps and the public realm bins. The City of Victoria provides the following solid waste and sanitary services:

- Residential collection of garbage and kitchen scraps every two weeks from approximately 14,000 households.
- Curbside residential collection of leaves and branches once a year each.
- Dropoff service for yard and garden waste at the City's Public Works Yard every Saturday (for residential utility ratepayers).
- Public realm sanitation services including the collection of waste from over 1,100 streetscape bins, litter collection, illegally dumped item pickup and disposal, and a cigarette butt recycling program with over 50 canisters located around the city.
- Collection of recycling, organics and garbage from municipal facilities.

With the introduction of a landfill ban on organic material in 2013, the City of Victoria introduced source-separated kitchen scraps collection that helped divert approximately 2,100 t/year of organic material. Organics diversion has stabilized after initial increases during the first three years of the program. Landfill disposal at these residential city-serviced households has increased by

approximately 25% over the past 5 years. This increase may be due to combination of factors, including increased household occupancy, economic activity, consumption and/or renovations.

Downtown Public Realm Multi-Material Bins

Staff are currently implementing a program to introduce newly configured public realm bin designs, with the intent to mitigate the contamination rates between compost, landfill and recyclable streams while reducing operational costs.

Opportunities for a Zero Waste Future

Sustaining and extending the service-life of the Hartland Landfill is a central requirement of regional waste management and requires the involvement of all member municipalities to support the CRD in attaining its waste reduction targets. However, there is a range of additional benefits and opportunities related to achieving zero waste, many of which have a direct impact on the local community as follows:

Table 2. Sustainability Benefits of Zero Waste

Environmental Benefits	
<ul style="list-style-type: none"> • Reduced greenhouse gas emissions from the diversion of organic material • Reduced pollutants from leachate • Reduced upstream ecological damage from resource extraction • Reduced litter throughout the community 	
Economic Benefits	
<ul style="list-style-type: none"> • Cost avoidance for siting new disposal facilities and services • Sharing and reuse can avoid the cost of (re)purchasing products • New local business opportunities for sharing and reuse • Supports a shift towards a circular economy 	
Social Benefits	
<ul style="list-style-type: none"> • Community connection and the potential for ongoing education from sharing and reuse programs • Recovering quality products to serve communities in need (e.g. furniture and food recovery) 	

The Case for a Zero Waste Strategy

Historically, the City of Victoria's solid waste management system has been designed to collect waste materials from across the community and transport them to the Hartland Landfill for disposal. These services and programs developed over time in response to community demand, legislative changes, technological advancements, sustainability awareness and alternative business models.

The CRD has drafted strategies and actions to reduce waste disposal in a new Solid Waste Management Plan. The policy and regulatory tools granted to the CRD enable them to intervene at the point of disposal through landfill bans and tipping fees. To move upwards on the pollution prevention hierarchy (i.e. improve sustainability) requires a focus on waste avoidance and reduction, and reuse. The region shares a need for improved educational and awareness initiatives and the City can play a critical role in applying consistent program and policy tools to enhance the sustainability of municipal waste management.

Victoria is a major source of the waste disposed at the Hartland Landfill. There are also a unique suite of solid waste management considerations for Victoria given its role as the main urban centre

servicing South Vancouver Island. Important sectors and characteristics influencing waste in the city include:

- Centre for regional hotel, tourism and hospitality industry
- Centre of employment (high daytime population)
- Significant number of multifamily buildings
- Light and medium industry
- Densification and development
- Shopping districts
- Busy parks and open spaces

These unique characteristics require careful consideration in designing targeted policies and programs to achieve zero waste.

The City's Zero Waste Strategy is intended to set the priorities and strategies to support the transition to a future where nothing wasted. As there are many materials that are still escaping diversion and recycling programs, and ending up in landfill, it is clear more work is required. A transition upward on the pollution prevention hierarchy is needed to improve the sustainability of the current waste management system. The circular economy also introduces a framework to help prioritize the development of policies, programs and actions that keep materials at their highest value. These new approaches require intelligent planning and allocation of resources to make an impact.

Taking account of the diversity of stakeholders and the unique position of the Victoria in the region the City of Victoria's Zero Waste Strategy shall:

- Demonstrate leadership in corporate waste reduction performance
- Design, implement and manage waste infrastructure, operations and services that promotes a transition to zero waste
- Align with and support the efforts of the CRD to divert waste from the landfill

Zero Waste Strategy Development – Phase 1

The first development phase of the Zero Waste Strategy included a literature survey and scan of municipal best practice in solid waste planning, an analysis of CRD waste totals, an estimate of Victoria's waste sources and destinations, a public realm waste bin material composition study, and planning for the second phase of development.

Scan of Leading Jurisdictions

Zero waste and circular economy frameworks, policies and programs from leading local governments in BC, North America and Europe with similar characteristics as Victoria were reviewed to inform the development of Victoria's Zero Waste Strategy. The following frameworks and planning tools were commonly used to frame and prioritize zero waste actions:

- Pollution Prevention Hierarchy – Leading cities prioritize prevention, reduction and reuse of materials before recycling, recovery and disposal as a best practice to achieve zero waste.
- Circular Economy – Strategies and policies aim to drive towards a circular economy by emphasising reuse, redesign, repair, refurbishment, remanufacturing and recycling to create close-loop systems that minimize the use of resource inputs and the creation of waste, pollution and greenhouse gas emissions.

The following material categories were repeatedly addressed:

- Organics and food
- Construction and demolition waste
- Single-use plastics
- Textiles
- Appliances and furniture
- Electronics

Policies and Programs

A range of policies and programs were discovered each at various stages of development or implementation. They are summarized as follows according to whether they were assessed to represent transformational or incremental changes for the local solid waste management system and whether the impacts were proven or experimental:

Table 3. Example Zero Waste Policies and Programs from Leading Cities.

Transformational Policies and Programs	
<i>Proven</i>	<i>Experimental</i>
<ul style="list-style-type: none"> • Municipal or single-source contracts for solid waste collection services for multifamily buildings • Purchasing policies for municipal products and services that direct the market to incorporate considerations for zero waste and a circular economy 	<ul style="list-style-type: none"> • Partnerships to support textile recycling • Repair programs and services for appliances and electronics • Tax breaks to organizations participating in food redistribution • Financial incentives to support local innovation • Pay as You Throw (PaYT) programs to encourage increased recycling and composting
Incremental Policies and Programs	
<i>Proven</i>	<i>Experimental</i>
<ul style="list-style-type: none"> • Building demolition material diversion requirements • Regulations for unnecessary and problematic single-use items • Building standards that facilitate material reuse and recovery • Regulations for mandatory separation of recycling, organics and landfill waste for all sectors and at events • Development standards for space requirements for recycling, composting and landfill waste bins 	<ul style="list-style-type: none"> • Litter abatement fees for items commonly littered such as cigarettes • Downsizing of waste collection bins/totes • Mobile technology applications that provide sorting tools and drop-off depot and donation locations • Piloting and testing the implications of new technologies and operational models with corporate solid waste programs

Analysis of the Source and Destination of Materials in Victoria

Analysis was completed to provide an initial estimate of the source and destination of materials generated across the city to help understand which stakeholders to partner/engage with as part of the second development phase of the Zero Waste Strategy. Further stakeholder engagement will

help improve the understanding of the issues, processes and systems that support or provide barriers to achieving zero waste over the long term.

Staff's analysis initially focussed on an assessment of the City's portion of regional landfilled waste and where it may have originated. Due to the number of service providers and disparities in data reporting, the exact source and type of waste generated within the city remains uncertain. However, interviews and engagement with local stakeholders identified trends and practices that will help inform strategy engagement in 2020.

In the past, some attempts to define the city's contribution to overall regional waste was done by applying a population factor to estimate proportions. This estimate approach does not account for the waste that is generated in the municipality from the economic, development and tourism activities associated with the city's role as the regional hub.

The concentration of business and economic activity in Victoria is producing a greater share of waste from commercial sources (professional buildings, institutions, etc). This assumption is supported by regional economic statistics that indicate that 40% of the region's jobs are in Victoria. Understanding what types of waste typically emerge from these types of institutions is also helpful to understand waste disposal trends and opportunities for improvement. Taking employee-based waste composition findings from a recent Canadian study⁷ of commercial waste composition in Oxford County suggests that office, retail, hospitality and health services are responsible for the majority of commercial sector wastes in Victoria.

More than half of the region's multifamily buildings are located in the Victoria and are estimated to contribute approximately 20% of the total waste generated across the city, which represents a unique opportunity in the region to engage with multifamily property owners and occupants to improve diversion in this sector.

We also know that portions of the waste generated in our community is disposed of elsewhere. Hazardous wastes may be disposed most responsibly outside the region, at processing facilities off the island. There is currently an unclear picture of what types and volumes of waste leave the region, and how that information could help support more sustainable long term material management programs. Interviews with local waste haulers support that a significant portion of the region's construction waste is not accounted for in the CRDs landfill data since it is being disposed outside of the region. The CRD does not currently have the authority to mandate that waste remain in the region. Further analysis and engagement with stakeholders is required to better understand these factors and any opportunities to improve .

Discussions with CRD staff and cruise ship waste service providers helped to identify rough estimates of cruise ship waste sent to Hartland Landfill. Council has also provided direction for staff to liaise with the CRD and GVHA to determine how to best support the avoidance and/or diversion of cruise ship waste. Initial meetings have identified a number of important considerations including regulations, health and safety requirements and environmental considerations that must be carefully managed and understood before alternative options could be considered.

Staff have also been engaging with service providers and industry on the performance of compostable materials, which has identified a clear need to address concerns that compostable plastic cutlery is an increasing problem, since it is not breaking down in the regional processing facility and often intermixed with indistinguishable conventional plastic cutlery. In most cases, these hard plastic compostables are being screened-out of the compost materials and diverted to landfill. The standardization of compostable materials is an increasingly important issue to address, and

⁷ Oxford County IC&I Waste Study, 2017

should be progressed in parallel to reusable materials programs, to develop a sustainable mix of alternatives for industry and the public.

These issues demand more conversations and planning with the CRD and local and regional stakeholders to better understand actions already underway and what potential solutions may provide the most attractive mix of sustainable performance. These discussions will be furthered in the next phase of the strategy development.

Public Realm Waste Audit

A study of the composition of material collected throughout the public realm in the City of Victoria was completed in August 2019 to assess future opportunities for improved diversion. The study involved manually sorting the contents of public realm waste bins into over 80 material categories at 45 sample locations across the City including the downtown core, parks and residential areas. The outcomes indicate that single use items and food waste comprise the majority of materials disposed and collected through the City's public realm bins. An extrapolation of the study from these samples across the whole city provides an estimate of daily waste disposal trends:

Table 4. City Public Realm Waste Audit (August 2019).

Material/Product	Daily Collection	
	Kg	Count
Cups (paper/plastic)	330	13,000
Takeout Containers	150	6,300
Straws	30	5,800
Checkout Bags (paper)	30	600
Checkout Bags (plastic)	3	200
Food Waste	550	-
Pet Waste	320	-
Glass	120	-
Household Garbage	280	-
Newsprint/Bound Paper	80	-

Based on this analysis, around 30% of the weight of materials collected from the City's public realm bins is single-use items and packaging or by count 13,000 single use cups and over 12,000 takeout containers and straws are collected in the City's public realm bins each day. This assessment was completed during tourism season and another public bin waste materials audit is also being completed to capture off-seasons trends in disposal rates.

These rates also show approximately half a tonne a day of food waste is disposed in the City's public realm bins instead of being diverted to compost. The rate of contamination and volume of both food and single-use items support the priority development of effective diversion programs and new reusable materials choices throughout the community.

Many residents, tourists, businesses and retailers across have expressed interested or have taken action to reduce single use items. Staff held an initial stakeholder engagement session with the food service sector on single use items the summer to commence the next round of important partnerships and dialogue with businesses stakeholders on waste reduction options and participants articulated the desire to pilot reusable cups and takeout containers.

OPTIONS AND IMPACT

This report outlines the status of the Zero Waste Strategy and recommends initial implementation actions based on the findings to date.

Option 1: Proceed with the remaining work to complete the Zero Waste Strategy, as per the recommendations in this report (*recommended*).

This option represents a set of projects and planning that staff assess as important priorities for zero waste. These actions can be accomplished using the current and planned staffing additions defined through Council's 2019 strategic planning process with one additional staff resource.

This option does not include regulatory programs at this stage due staff's assessment that further planning and pilots are first needed to address infrastructure and program requirements to enable the transition to more sustainable practises and products.

Option 2: Direct staff to implement alternative actions that Council deems higher priority.

Next Steps

The proposed scope of the second development phase of the Zero Waste Strategy includes:

- Closing important information gaps to identify and evaluate potential options to achieve zero waste goals.
- Developing an initial set of metrics and targets for evaluating zero waste performance related to avoidance, reduction and reuse.
- Engaging with key stakeholders to understand and develop the strategies and actions to shift towards zero waste in priority sectors.
- Public engagement on the draft zero waste strategy.
- Ongoing updates on major project milestones with a report back on the Zero Waste Strategy development progress as part of the annual reporting and planning processes.
- Finalization and publication of the Zero Waste Strategy to guide Victoria's transition to zero waste for both the Corporation and the community.

2019 – 2022 Strategic Plan

This program is a direct action, under Strategic Objective 6, Climate Leadership and Environmental Stewardship (2019 action number 1, 2021 action number 16).

Official Community Plan Consistency Statement

Under chapter 11, Solid Waste Management, the City's Official Community Plan provides direction to "support steps for Victoria to move towards a zero net solid waste community in partnership with the Capital Regional District and the private sector" and provides the broad objective that "solid waste [is] managed as [a] closed loop system with optimal levels of recovery and re-use."

Impacts to Financial Plan

A recommended allocation of \$200,000 to the second development phase of the Zero Waste Strategy and project implementation as per this report in addition to one additional staff position to support development of the strategy and ongoing implementation estimated at \$100,000 per year as part of the 2020 financial planning process.

Accessibility Impact Statement


Waste management services and infrastructure have direct accessibility benefits and potential impacts. Accessibility stakeholders and people with lived experience will be engaged during the subsequent Zero Waste Strategy program development to consider accessibility impacts.


CONCLUSION

The initial development phase of the City's Zero Waste Strategy is nearing completion, which included a literature survey and scan of municipal best practice in solid waste planning, an analysis of city waste totals, and estimate of the types and sources of waste, a public realm waste bin material composition study, and planning for the second phase of development.

Staff have identified targeted materials and stakeholder groups to progress understanding and identify options and actions as part of the second development phase of the strategy including organic and recycling diversion in multifamily and commercial sectors, construction, renovation and demolition materials diversion, single use item reductions and the City's corporate waste management. Proposed actions in 2020 to advance towards zero waste include enhancements to municipal waste services and planning to support waste reduction in the food service sector and construction industry.

Respectfully submitted,

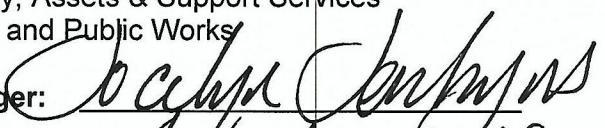


Fraser Work, Director
Engineering and Public Works

Rory Tooke, Manager
Sustainability, Assets & Support Services
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Report accepted and recommended by the City Manager:

Date:


NOV 4, 2019