



# DRAFT STRATEGIES FOR PTAC REVIEW

## Strategies of the Columbia Shuswap Regional District's Solid Waste Management Plan

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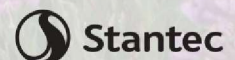
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## DEFINITIONS AND ACRONYMS

Acronym	Meaning
<b>Circular Economy</b>	A circular economy is one that is restorative and regenerative by design, and which aims to keep products, components and materials at their highest utility and value at all times, distinguishing between technical and biological cycles <sup>1</sup> .
<b>C&amp;D</b>	Construction and demolition waste
<b>CO<sub>2</sub>e</b>	Carbon dioxide equivalent
<b>Disposal</b>	Landfilling
<b>Diversion</b>	Activities that divert waste materials away from landfill disposal to alternatives such as recycling or composting.
<b>EPR</b>	Extended producer responsibility
<b>Generation</b>	The sum of all materials discarded that require management as solid waste, including garbage, recycling, and organic waste.
<b>GHG</b>	Greenhouse gas
<b>ICI</b>	Industrial, commercial, and institutional (also referred to as non-residential)
<b>MoE</b>	BC Ministry of Environment and Climate Change Strategy
<b>PPP</b>	Residential packaging and paper product
<b>PTAC</b>	Public and Technical Advisory Committee
<b>Residual Waste</b>	The portion of the solid waste stream not managed through recycling, composting or recovery activities. It is commonly referred to as “garbage” or MSW. Residual waste typically requires disposal at a landfill.
<b>SUP</b>	Single use plastics
<b>SWMP</b>	Solid Waste Management Plan, also referred to as “the Plan”
<b>TS</b>	Transfer Station
<b>5R</b>	5R pollution prevention hierarchy (or simply waste hierarchy): reduce and reuse, recycle, energy recovery and residual waste management

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<sup>1</sup> From the Ellen MacArthur Foundation. More information via URL: <https://www.ellenmacarthurfoundation.org/circular-economy>

# 1 INTRODUCTION

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Under the Environmental Management Act, regional districts are required to have a solid waste management plan (SWMP, or the Plan), which must be developed following the solid waste management planning guidelines provided by the Ministry of Environment and Climate Change Strategy (the MoE) for content and process.

The Columbia Shuswap Regional District (CSRD) is in the process of developing a new SWMP. The planning process was initiated in 2022 resulting in the formation of the Public and Technical Advisory Committee (PTAC) in April 2023. Since its formation, PTAC has met to discuss the current system assessment and the engagement approach (June 21, 2023), as well as a range of specific issues and opportunities. Four separate meetings have been held between January and June 2024 to discuss regional solid waste related topics:

- Potential waste prevention and diversion options for the CSRD's SWMP update, which was presented to PTAC on January 25, 2024.
- Potential institutional, commercial, and industrial (ICI) and construction and demolition (C&D) waste diversion options for the CSRD's SWMP update, which was presented to PTAC on March 7, 2024.
- Potential facility-focused options for the CSRD's SWMP update, presented to PTAC on May 2, 2024.
- Potential non-sector specific waste management options for the CSRD's SWMP update, which were presented to the PTAC on June 27, 2024.

Feedback from PTAC members and their priorities form the basis of this report which presents the list of preferred strategies. PTAC members will have an opportunity to review and discuss this list at a meeting in October 2024. Some strategies and actions can be added, omitted or modified based on PTAC input.

The strategy relating to landfill disposal (Strategy 13) and long-term financial sustainability (strategy 14) will be developed at the end of 2024 once the CSRD has assessed the feasibility of various disposal options.

The final list of new strategies will form the basis of the Draft SWMP, which will be brought to the public for engagement and feedback later in 2025.

## 1.1 Pollution Prevention Hierarchy

The pollution prevention hierarchy (also known as the waste hierarchy) refers to Reduce, Reuse, Recycle, Recover, Residuals Management (Figure 1). The CSRD has developed guiding principles, strategies and actions that are aimed at conserving resources and addressing the top of the hierarchy.



Figure 1: Pollution Prevention Hierarchy, as presented in the MOE's Guide to Solid Waste Planning (2016)

## 1.2 Guiding Principles

The MoE has developed eight provincial guiding principles for regional districts to follow for developing their SWMPs. Regional districts can also include additional locally relevant guiding principles in their plans.

After a discussion about the suitability of the MoE's guiding principles with PTAC on November 2, 2023, all eight guiding principles were adopted in principle to guide the planning process and a ninth was added as shown below. The PTAC developed nine guiding principles for the creation of the region's new SWMP and these have helped to set the direction of proposed strategies:

### 1: Rethink waste, promote zero waste approaches and support a circular economy

- Promote waste reduction to help reduce consumption, minimize waste generation and enable the sustainable use and reuse of products and materials. Promote GHG mitigation and climate resilience and support a shift to thinking of waste as a resource rather than residual needing landfilling.

### 2: Focus on the first 3Rs with a priority for reducing waste (Reduce, Reuse, Recycle)

- Emphasize the importance of waste prevention and diversion by prioritizing the first 3 Rs (reduction, reuse, recycle) and focusing heavily on reducing waste.

### 3: Maximize the beneficial use of waste materials and manage residuals appropriately

- Maximize the beneficial use of waste materials through local solutions, when possible. Focus on increasing diversion options, such as repurposing, repairing items keeps them out of the landfill, as well as composting.

### 4: Support polluter & user-pay approaches and manage incentives to maximize behavior outcomes

- Support a system operated in accordance with the “user pay” principle, which requires a robust cost recovery system centered on the provision of user-fees. Work to see collective actions and a high degree of community ownership in finding solutions.

### 5: Prevent organics and recyclables from going into garbage wherever practical

- Discourage organics and recyclables from going into the garbage stream and the landfill and reinforce behaviours that align with the 3 Rs of the pollution prevention hierarchy, and provide access to services relating to reduce, reuse and recycling, wherever practical.

### 6: Develop collaborative partnerships with interested parties to achieve regional targets set in plans

- Collaborate and partner with interested parties during Plan implementation, such as member municipalities, Indigenous communities, non-profit organizations, waste and recycling sector service providers, local businesses (waste generators), product stewardship agencies, other regional districts. All parties are key contributors for achieving the region’s targets. Identify opportunities to improve collaborations and partnerships to achieve regional targets.

### 7: Level the playing field within regions for private and public solid waste management

- Ensure all solid waste management facilities within a given region are subject to similar requirements. This could be done through regulations and consistent bylaw enforcement.

### 8: Develop a climate resilient solid waste management system

- Manage all waste materials to limit GHG emissions, protect the environment and improve the climate resilience of the solid waste management system.

### 9: Improve operational efficiency of the current solid waste system

- Improve the operational efficiency of the current regional solid waste system. System efficiency applies to all solid waste management services, facilities and other initiatives related to the waste hierarchy. For example, this includes access to facilities for residents and businesses, streamlining services, and assessing the need for capacity increases where necessary.

## 2 PREFERRED STRATEGIES

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A total of 14 preferred strategies have been identified so far, with one strategy relating to waste prevention, six associated with recycling and organics diversion, six strategies tied to residual waste management and the last strategy relating to cost recovery and system efficiency.

Figure 2 shows an overview of all the new strategies that are proposed in addition to the existing programs and initiatives currently undertaken by the CSRD.

Strategy 13, relating to landfill disposal, and Strategy 14, relating to long term financial sustainability, will be developed at the end of 2024 or early in 2025 once the CSRD has assessed the feasibility of various disposal options and there is an understanding of the costs of all strategies.

Each strategy has a set of actions to implement, either in the short-term (first five years of the Plan implementation, in the long-term (after 5 years and beyond), or throughout the next ten years as an on-going action.

All new strategies and actions will require additional staff resources to implement. Impacts on staffing have been estimated for each action.

Section 2 presents each strategy with information on:

- The key issues or opportunities behind each proposed strategy.
- A description of each proposed action.
- The proposed implementation time frame.
- Annual costs and staffing impacts

Section 3 describes the overall financial and administrative (resourcing) impact of the proposed strategies and actions (excluding strategy 13 and 14).

- 1) Improve Waste Prevention
- 2) Improve Access to Three-Stream Curbside Collection
- 3) Improve Organics Processing and Diversion Capacity
- 4) Improve Education and Enforcement
- 5) Improve ICI Waste Diversion through Regulatory Requirements and Education
- 6) Improve C&D Waste Diversion
- 7) Continue to Subsidize Recycling Services in the CSRD where Appropriate
- 8) Improve Emergency Debris Management
- 9) Prevent Wildlife Interactions
- 10) Prevent Illegal Dumping
- 11) Improve Transfer Station Network to Increase the Operational Efficiency and Level of Service to Users
- 12) Review Innovative Technologies to Maximize Disposal Capacity and reduce GHG Emissions
- 13) Regionalize the CSRD Landfills
- 14) Ensure Cost-Effective Waste Management and Long-term Financial Sustainability

Figure 2: Overview of the fourteen new strategies for the updated SWMP

## 2.1 Reduction, Reuse, and Repair

The CSRD has one overarching strategy that relates to waste prevention and the top of the waste hierarchy.

### STRATEGY 1: Improve Waste Prevention through Reduction, Reuse, and Repair Opportunities

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This strategy is focused on waste prevention efforts and how the CSRD and member municipalities can reduce waste generation, enhance reuse and repair opportunities, and view waste as a resource.

Waste prevention efforts are important to conserve resources and keep them in circulation, but the impacts to a region's waste disposal rate is often limited.

#### Food Waste Prevention and Food Rescue

It is estimated that every person in the province of BC (through residential curbside collection programs) throws away 100 kg of preventable food waste each year.<sup>2</sup> Food waste prevention covers the rescue of preventable food waste for beneficial uses and preventing organics from having to be managed at curbside or transfer station/depots.

Food rescue initiatives are becoming more common to focus on preventing divertible food from entering the waste stream. Although it is typically up to the business to take part in food rescue initiatives, the regional district can play a role by making local businesses aware of the opportunities and helping them set up initiatives. The CSRD is interesting in encouraging and supporting local businesses to reduce food waste. This can involve education via webinars, workshops or using the successful household waste reduction campaign Love Food Hate Waste.



Figure 3: Love Food Hate Waste campaign logo

#### Supporting Waste Prevention and Diversion Initiatives Through Grant Funding

Local businesses, organizations, and non-profits can have a large impact on waste prevention and diversion through implementing initiatives in the communities. Multiple regional districts in BC have implemented similar funding programs. Funding can be provided to support community groups, and organizations such as non-profits, and school groups for projects that contribute to waste reduction.

The CSRD is interested in exploring the opportunity to develop an on-going grant program that supports local waste reduction and reuse initiatives. The effectiveness of the grant program can be assessed after five years and funding levels can be adjusted as needed.

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<sup>2</sup> MoE's Residential Food Waste Prevention Toolkit, available via URL: <https://www2.gov.bc.ca/gov/content/environment/waste-management/food-and-organic-waste/prevent-food-waste/prevent-residence-food-waste>



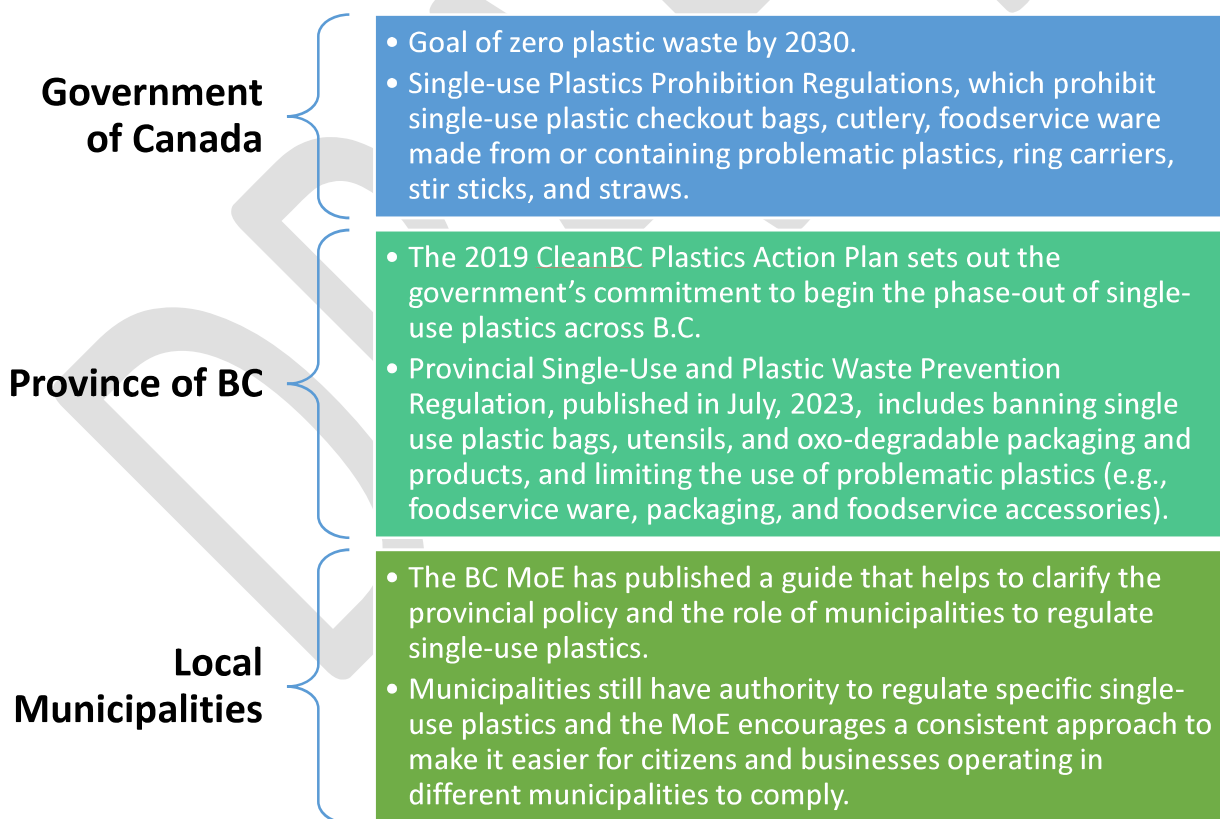
## Reduction of Single-use Items and Packaging

Plastic waste is a leading source of environmental pollution and poses a serious threat to the health of our oceans, waterways, and well-being. Paper and cardboard products do not persist in the environment; however, their production consumes non-renewable resources and is energy intensive. Since both plastic and non-plastic single-use items have environmental consequences, the reduction of single-use items and packaging is important.

To-date, multiple levels of government are addressing single-use items and packaging reduction. Locally, the City of Revelstoke adopted a Single-Use Plastics (SUP) and Other Items Ban (Bylaw 2263), which was adopted in January 2022.<sup>3</sup> Enforcement began on January 1, 2023. The City of Salmon Arm also banned SUP Bags (Bylaw No. 4478) as of July 1, 2022.<sup>4</sup>

Regional districts however cannot regulate businesses in terms of single-use plastics. The CSRD has a role in educating residents and businesses on federal and provincial bans and support member municipalities in their reduction efforts.

Both the Provincial and Federal governments have goals and regulations related to SUPs, including:



The CSRD is interested in advocating for transitioning away from single-use items and packaging by collaborating with member municipalities and suitable local organizations to

<sup>3</sup> [Single Use Items | Revelstoke, BC - Official Website](#)

<sup>4</sup> [Single-Use Plastic Bags | Salmon Arm, BC - Official Website](#)

educate residents and businesses on federal and provincial regulations and provide education on suitable alternatives to single-use items and packaging. One opportunity to do this is to develop a food takeout guide that considers alternatives that are compatible with the local infrastructure for recycling and organics processing.

### Waste Prevention Through Sharing, Reuse, Repair

Recognizing the strong public support for more reuse options, the CSRD wants to explore different options that encourage and support reuse and repair.

The CSRD can use successful household waste reduction, repair, and diversion campaigns, which are available at low cost, such as Metro Vancouver's Think Thrice campaign with a focus on clothing waste reduction. Depending on partnerships in the region, the CSRD can pilot programs, such as the give-away weekends, swap days, re-use fairs or expand repair cafés<sup>5</sup> in suitable areas, in partnership with local organizations. To do this, the CSRD can focus on supporting local non-profits and organizations involved in these areas.

### Summary of New Actions to Improve Waste Prevention through Reduction, Reuse, and Repair

A summary of the proposed new actions related to this strategy are shown in the table below:

Proposed New Actions	Timeframe	Additional Costs	Additional Staffing Needs
1A: Encourage and support residents and local businesses to reduce food waste.	Year 1-5	\$7000 <sup>6</sup> in year 2	100 hrs
1B: Establish grant funding to support local waste prevention and diversion initiatives.	Year 1-5	\$50,000 <sup>7</sup> each year	200 hrs
1C: Collaborate with member municipalities and local organizations to provide education and outreach to residents, schools, and businesses on alternatives to single-use items and packaging.	Year 1-5	\$1,000 <sup>8</sup> in year 2 and 3	50 hrs
1D: Undertake or support reuse or repair programs or events in partnership with local organization and expand if deemed feasible.	Year 1-10	\$5,000 <sup>9</sup> in year 1, 3 and 6	150 hrs
1E: Adopt successful waste reduction, repair and diversion campaigns targeting residents.	Year 5-10	\$5,000 <sup>10</sup> in year 4 and 5	100 hrs

<sup>5</sup> Repair Café is a foundation that was started in Amsterdam and has locations worldwide, include throughout Canada. Residents can bring broken items from their home and, with specialists who are experienced, repair the items. [Repair Café FAQ - Frequently Asked Questions \(repaircafe.org\)](https://www.repaircafe.org/)

<sup>6</sup> Assumes printing costs of \$5,000 for any education materials in year 2 and \$2,000 for design costs associated with materials for distribution.

<sup>7</sup> Assumes that the CSRD provides funding of \$20,000 per year.

<sup>8</sup> Assumes printing costs of \$1,000 in year 2 and 3.

<sup>9</sup> Assumes \$5,000 in implementation costs in year 1, 3 and year 6. Different areas can be targeted, based on needs and partnerships.

<sup>10</sup> Assumes printing costs of \$5,000 for any materials in year 4 and 5.

## 2.2 Recycling and Organics Diversion

Recycling and organics diversion (e.g., composting) are initiatives under the 3<sup>rd</sup> R in the waste hierarchy after reduce and reuse. Recycling is preferred over recovery and residuals management (the 4<sup>th</sup> and 5<sup>th</sup> Rs).

Many recyclable materials are regulated under extended producer responsibility (EPR) programs. Recycling facilities and diversion services are available to residents and businesses across the region. These include:

- Residential curbside collection programs provided by municipal governments.
- Subscription-based recycling collection by private companies offered to both residential and commercial customers not serviced by local governments.
- Depot services for recycling drop-off areas at recycling depots and select transfer stations.
- Organics collection and processing.
- Diversion of construction, demolition and land clearing materials.

Six strategies are proposed to improve recycling and organics diversion in the region. These involve actions that would be in addition to existing services.

### **STRATEGY 2: Improve Access to Three-Stream Curbside Collection**

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The CSRD's 2009 SWMP identified that having access to curbside services in all member municipalities and in higher density electoral areas was a priority. Previous SWMP identified that Area G (formerly Area C) and Sicamous are areas that should be explored for curbside collection programs due to high population densities.

Approximately 60% of the region's population has access to curbside collection for garbage. The town of Golden and City of Revelstoke offer 2-stream curbside collection, while Salmon Arm offers 3-stream curbside collection to its residents. Waste composition studies have shown that Salmon Arm has the lowest proportion of organics in the garbage, which can be attributed to being the only area that offers curbside organics collection.

The CSRD currently does not operate curbside garbage or recycling collection programs. Curbside recycling collection options are still limited or not available in some areas of the region and residents are required to self-haul materials to the depot/ transfer station.

The District of Sicamous and all the electoral areas do not have curbside programs, and only some areas have access to private curbside collection services, but not to for all three streams. There is opportunity for the CSRD to explore curbside collection in all areas without current service.

Although curbside collection provides improved accessibility and convenience for recycling, a curbside recycling program would only accept materials currently accepted under the Recycle BC Stewardship Programs (paper products and containers (e.g, plastic/tin)). Under the current system, other recyclables (e.g., flexible plastics, Styrofoam and glass) would still have to be

self-hauled to a depot. Recycle BC is moving towards accepting more items in the curbside collection.

Cost is an important factor to consider when looking at curbside collection. Recycle BC requires that a collector is obligated to limit the amount of contamination of unacceptable program material to less than 3% by weight. High contamination drives up costs for increased sorting to maintain marketability of the collected recyclables. With Recycle BC clamping down on contamination, it may become riskier (costly) to manage recyclables for a curbside collection program. The District of Sicamous would benefit from undertaking a cost analysis of a curbside service and engaging residents on their program acceptance.

The CSRD is interested in supporting the District of Sicamous, Golden, Revelstoke to implement three-stream curbside collection. There is also opportunity to assess providing curbside collection services to households that do not yet have mandatory curbside recycling, organics, and garbage collection, with priority in areas that meet Recycle BC funding criteria. Currently Electoral Area G potentially meets the Recycle BC funding criteria, however, the District of Sicamous may need to partner with Salmon Arm as their population does not meet current Recycle BC criteria. The CSRD will continue to work with Recycle BC and provide input into reviews of their EPR plan in an effort to increase access to funding and services related to curbside collection programs.

### Summary of New Actions to Improve Access to Three-Stream Curbside Collection

A summary of the proposed new actions related to this strategy are shown in the table below:

Proposed Actions	Timeframe	Additional Costs	Additional Staffing Needs
2A: Support member municipalities to assess and implement three-stream curbside collection programs, if deemed feasible.	Year 1-5	\$10,000 <sup>11</sup> in year 1, 2 and 3	150 hrs
2B: Implement three-stream curbside collection programs with priority on areas that meet Recycle BC's funding criteria.	Year 1-5	\$40,000 <sup>12</sup> in year 2	200 hrs

### STRATEGY 3: Improve Organics Processing and Diversion Capacity

Although the region has made great strides in organic waste diversion to-date, additional diversion hinges on establishing more organics processing capacity and a subsequent expansion of curbside collection programs for compostable organics (refer to the previous strategy).

<sup>11</sup> Assumes that the CSRD can contribute towards municipal studies (\$10,000 in year 1, 2 and 3). Municipal costs to provide curbside collection are not included.

<sup>12</sup> One study assumed in year 2 and does not include costs associated with implementing recommendations.

As was voiced by the public in the 2023 survey on the SWMP update and by the PTAC members, identifying local organics processing options for communities without a curbside organics collection program is a priority for the region.

**Revelstoke Composting facility:**

Located at the Revelstoke Landfill, this facility opened in the fall of 2022 and accepts both commercial and residential food, yard and garden waste.

Golden has a population of approximately 4,000 (2021 Census) and the community is often isolated in the winter due to road closures. The CSRD has previously partnered with Local Food Matters in the Town of Golden to engage on issues related to securing a suitable organics processing facility. There are no suitable sites for a facility and moving forward, the CSRD is interested in better utilizing the Revelstoke composting facility and expand its capacity.

There is opportunity for the Town of Golden to accept curbside organics at a transfer station and haul materials to the Revelstoke composting facility. This option provides opportunities for backhauling of finished compost back to the community. If this is not feasible, organic waste will need to be hauled to third party facility, either in or out of the region. There is also an opportunity to review alternative collection and processing models, such as the in-kitchen organics processing option used by the City of Nelson.

At a transfer station, the organic waste is temporarily stored and consolidated before being hauled to a processing facility. The development of suitable organics diversion options needs to consider GHG impacts relating to hauling in the context of what is diverted from landfill.

When processing facilities are established, the CSRD is interested in collaborating with member municipalities to implement regulatory tools, such as organics disposal restrictions/bans, or mandatory source separation bylaws, to help influence source segregation and increase organics diversion (this also aligns with Strategy 5). As well, the CSRD will have the ability to charge the higher disposal fees for mixed loads, as food can be deemed marketable.

**Summary of New Actions to Improve Organics Processing and Diversion Capacity**

A summary of the proposed new actions related to this strategy are shown in the table below:

Proposed Actions	Timeframe	Additional Costs	Additional Staffing Needs
3A: Partner with relevant municipalities and assess feasibility of organics processing solutions and implement if deemed feasible.	Year 1-5	\$20,000 <sup>13</sup> in year 1	150 hrs
3B: Increase capacity of the Revelstoke composting facility.	Year 1-5	\$300,000 <sup>14</sup> in year 1	150 hrs

<sup>13</sup> Assumes a \$20,000 study in year 1.

<sup>14</sup> Assumes \$300,000 in year 1 for capital equipment and site upgrades and expansion.

## STRATEGY 4: Improve Education and Enforcement

Regulatory requirements for waste diversion, such as disposal bans, and waste management bylaws only result in significant improvements to diversion and disposal rates if all parties involved are well informed about waste diversion options and if the regulatory requirements are well enforced.

In the CSRD, differential tipping fees have been used since 2018 to incentivize waste diversion through Bylaw No. 5859. Once a waste stream is deemed “marketable”<sup>15</sup> in an area, the waste generator pays a significant surcharge for bringing marketable wastes in a load of waste destined for landfilling (referred to as refuse in the bylaw). The Bylaw is updated on an as-needed basis.

The 2023 waste composition study showed that approximately half (49%) of the disposed waste stream was made up of paper (13%), plastic (17%), and compostable organics (19%) across all waste streams. Inadequate staffing has been noted as a major factor in effectively encouraging waste diversion through bylaw education and enforcement. There is an opportunity to further improve diversion through better education of residents and businesses as well as enforcement at the CSRD facilities.

The CSRD manages eight transfer stations, two compost facilities (the Revelstoke Compost Facility and a yard and garden compost at the Salmon Arm Landfill), 18 Recycle BC depots and four landfills.

Currently there are only four staff who are responsible for administering the CSRD’s waste reduction and solid waste management programs with temporary support by a summer student each year. Apart from waste reduction and solid waste management staff, the CSRD has no specific bylaw enforcement staff. Staffing levels are not sufficient to enable effective enforcement of incoming loads, such as inside curbside trucks or at the active face of the landfill.

The CSRD is interested in focusing on education and enforcement of the existing bylaw and wants to increase staffing to increase bylaw enforcement beyond current levels. Increased staffing level would also be beneficial to improve education of tourists and seasonal residents on local waste and recycling regulations.

### **Marketable Waste, as per Bylaw No. 5859:**

“Waste which can be directed to a Provincial Product Stewardship Program, a Regional District program or a commercial market through waste reduction, reuse or recycling opportunities,” including composting.

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<sup>15</sup> Marketable waste means the waste can be directed to a provincial product stewardship program, a regional district program or a commercial market through waste reduction, reuse or recycling opportunities (including composting).

## Opportunities for Education in the CSRD

The CSRD is interested in exploring partnerships with local, private waste service providers, to improve the education of residents, including schools, and businesses on existing diversion options and bylaws. It is important that all parties are able to work together to understand the barriers limiting success and how to overcome these barriers.

For the roll-out of changes to tipping fees in new areas (Revelstoke, Golden or Sicamous when food waste can be considered a marketable material) or new bylaws, waste haulers play a particularly important role as they become the on-the-ground bylaw enforcers.

## Opportunities for Improved Enforcement

Although CSRD facilities are managed by the CSRD, they are operated by contractors on three to five-year terms. Currently CSRD facilities are operated by about ten different contractors, all of which are important for education and bylaw enforcement.

To increase bylaw enforcement beyond current levels, the CSRD is interested in hiring a specific Bylaw Officer to administer CSRD bylaw enforcement.

In addition, the CSRD can review if the operational contracts are sufficiently incentivizing the contractors to encourage waste diversion amongst facility users and support bylaw enforcement.

Longer term, the CSRD is interested in exploring the costs and benefits of moving operations of CSRD's facilities from contractors to CSRD staff. The benefits of having CSRD staff on the front-line at the CSRD landfills instead of contractors makes it easier to ensure consistent staff messaging and enforcement of site users. The CSRD will have to consider the cost for this transition. Moving to an in-house model would involve a significant change which would require a large expansion of the department.

The CSRD can also consider alternative options to simplify enforcement, such as using smart technology or clear bags for landfill disposal.

## Summary of New Actions to Improve Education and Enforcement

A summary of the proposed new actions related to this strategy are shown in the table below:

Proposed Actions	Timeframe	Additional Costs	Additional Staffing Needs
4A: Partner with local, private service providers and organizations to provide better education on existing diversion opportunities and bylaws.	Year 1-5	\$10,000 <sup>16</sup> per year	100 hrs
4B: Review contractor incentives for facilities operated by contractors to better encourage waste diversion.	Year 1-5	\$10,000 <sup>17</sup> in year 2	100 hrs

<sup>16</sup> Recurring costs for education and campaigns (\$10,000 per year) between year 1 to 5.

<sup>17</sup> Assumes a third-party review of contractor incentives in year 2.

Proposed Actions	Timeframe	Additional Costs	Additional Staffing Needs
4C: Increase CSRD enforcement capacity beyond current 2023 levels.	Year 1-5	-	1 FTE <sup>18</sup>
4D: Assess the cost-benefit of using contractor vs. in-house staff to operate CSRD facilities, and transition to in-house service if it is determined to be beneficial.	Year 1-10	\$30,000 <sup>19</sup> in year 4	50 hrs
4E: Review options to simplify enforcement (e.g., clear bag requirement for landfill disposal, or use of AI technology), and implement if deemed feasible.	Year 5-10	-	100 hrs

### STRATEGY 5: Improve ICI Waste Diversion

In the beginning of Plan implementation, the CSRD can focus on targeting the institutional, commercial, and industrial (ICI) sector by increasing the education and enforcement of existing bylaws and the incentive-based tipping fees currently used (refer to Strategy 4).

#### Regulatory Options

In the long-term, the CSRD may want to assess the suitability of other regulatory options if the improved education and enforcement of the incentive-based tipping fees is not effective. This could include options such as disposal bans, mandatory waste source separation and waste hauler licensing (Figure 4). By then, other regional districts may have data to support how effective additional regulations are.

<sup>18</sup> Assumes that the CSRD require a new FTE for bylaw enforcement.

<sup>19</sup> Assumes a third-party study in year 4.



### Waste Stream Management Information Reporting Bylaw No. 5662

- Revisit Bylaw No. 5662 as it is intended to enforce standards for solid waste facilities to prevent improper garbage disposal, but currently is not fulfilling that as it is limited to a reporting system.

### Disposal Bans

- Review of whether the use of disposal landfill bans would be more effective. Material Bans can help by simplify enforcement and lets the hauler deliver the message to the generator that they cannot accept their waste for collection.

### Mandatory Waste Source Separation

- Consider suitability of a bylaw for waste sorting. This is timely when organics diversion options become readily available with access to processing and collection throughout the region.
- The Regional District of Nanaimo (RDN)'s Mandatory Waste Source Separation bylaw requires all ICI and Multi-Family buildings to have a system to separate their waste into organics, recycling, and garbage containers for collection. The Fraser Valley Regional District has a similar waste sorting bylaw.

### Waste Hauler Licensing

- Consider the suitability of a Waste Hauler Licensing Bylaw.
- RDN has a Waste Hauler Licensing Bylaw, waste haulers will receive reduced tipping fees if the volume of recyclables and/or organics in their loads is below a determined threshold. The RDN anticipates that these savings in tipping fees charged to haulers will be passed on to their customers – incentivizing both generator and hauler to separate their waste.

Figure 4: Regulatory options for ICI waste diversion

The CSRD would like to review the effectiveness of current regulation, after more resourcing is allocated for education and enforcement of existing bylaws.

The use of these regulatory tools, such as waste hauler licensing or mandatory waste sorting, would need to be included in a regional district's SWMP and would also require approval under the Local Government Act.

## Non-regulatory Options

There are also non-regulatory approaches that the region can implement for waste diversion in the ICI sector. Education is emphasized in Strategy 4. The CSRD can also explore opportunities to develop grant funding targeted at ICI waste prevention and diversion and promote available business certifications aimed at ICI waste prevention and diversion.

Longer term, the CSRD may want to develop an ICI waste diversion working group. This group can work together to develop resources and education, such as supporting local businesses to take part in voluntary programs with a waste prevention and diversion focus. The need to develop such a working group can be reviewed when the CSRD undertakes the five-year effectiveness review. Additional resourcing can be allocated if this initiative is prioritized.

## Summary of New Actions to Improve ICI Waste Diversion

A summary of the proposed new actions related to this strategy are shown in the table below:

Proposed Actions	Timeframe	Additional Costs	Additional Staffing Needs
5A: Review effectiveness of current regulations and assess suitability to amend current bylaws and/or implement additional regulatory requirements, including waste hauler licensing and mandatory waste sorting.	Year 5-10	\$30,000 <sup>20</sup> in year 5	150 hrs
5B: Establish ICI specific grant funding to support ICI waste prevention and diversion.	Year 1-10	\$10,000 each year	100 hrs
5C: Create an ICI waste diversion working group for developing and dispersing resources and education.	Year 5-10	-	100 hrs
5D: Promote certifications that are aimed at waste prevention and diversion.	Year 5-10	-	50 hrs

## STRATEGY 6: Improve C&D Waste Diversion

The Local Government Act provides for local governments to regulate construction, alteration, repair and demolition of buildings. Construction and demolition of buildings are regulated by the CSRD or by the member municipalities. However, the CSRD does not have any such regulation or bylaw.

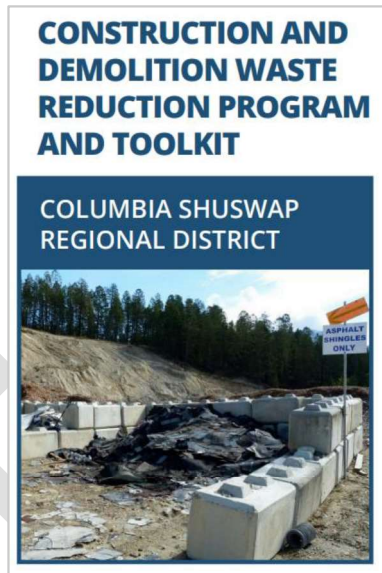
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<sup>20</sup> A third-party study assumed in year 5 at the time of the five-year effectiveness review, which is mandated by the MoE.

C&D materials are accepted for diversion at all four of CSRSD's landfills. Materials diverted include, asphalt shingles, scrap metal, concrete, and wood waste (chipped and whole) for recycling and/or recovery. Some of the diverted materials are used as landfill cover or repurposed as road material. There are no diversion options for gypsum board/drywall or treated wood in the CSRSD.

A construction and demolition (C&D) waste reduction program and toolkit was developed in 2010 including a supporting brochure published in 2017. This toolkit was not used to its full potential.

The CSRSD also undertook a pilot program for wood waste diversion that involved separation into three streams. However, there were no opportunities to manage treated (dirty) wood and they have since gone back to separating yard and clean wood waste for recycling and recovery.



### Regulatory Options to Review

To advance C&D waste prevention and diversion through source segregation, recycling, and recovery, the CSRSD can consider supporting its member municipalities in exploring the addition of new programs and policies. Many of these options however have barriers and it is important that the region, alongside member municipalities, assess the local feasibility.

The CSRSD is interested in undertaking a feasibility study with member municipalities to determine what C&D regulatory approaches are best suited in the region and implement the most suitable ones. As part of this, it is important to determine what steps must be taken first to ensure effectiveness of the recommended regulatory options in the long-term. In considering the options, PTAC emphasized the importance for prioritizing harmonizing regulations across the region to demonstrate consistency. Municipalities will need to administer and enforce new regulations. There are opportunities for municipalities to fund this enforcement, such as with the fees associated with the demolition permit application process.

### Non-Regulatory Options to Review

Further support can be provided through non-regulatory actions. The CSRSD may want to support C&D diversion through the implementation of successful campaigns and initiatives that specifically target local demolition businesses and residents.

The CSRSD is also interested to explore the opportunity to pilot C&D waste material separation to sort mixed C&D materials and divert them from landfilling. Options for beneficial recycling of materials should be prioritized rather than downcycling when processed materials are used as landfill cover. A pilot could be set up and operated by the CSRSD on property at a landfill, or by a third-party, where the materials are then transferred to the appropriate facility. Tipping fees will need to be lower than the fees for landfilling.

As well, for long-term support, the region may want to develop a C&D working group with representatives from member municipalities, industry, and other C&D actors. Support can be provided to the member municipalities through technical assistance with adapting and adopting salvage, recycling, and/or deconstruction bylaws, educational information, and training (i.e., for salvage assessments, contractor training). Education and training can be crucial for understanding of and uptake of new program or policies, to inform residents about the impact of C&D materials on the environment (e.g., asbestos) and the benefits from avoiding landfilling and keeping these materials within the local economy. The need to develop such a working group can be reviewed when the CSRD undertakes the five-year effectiveness review.

### Summary of New Actions to Improve C&D Waste Diversion

A summary of the proposed new actions related to this strategy are shown in the table below:

Proposed Actions	Timeframe	Additional Costs	Additional Staffing Needs
6A: Collaborate with member municipalities to conduct a feasibility study to determine what C&D regulatory approaches are best suited in the region and implement the most suitable ones.	Year 1-5	\$30,000 <sup>21</sup> in year 4	150 hrs
6B: Implement successful C&D waste diversion campaigns and initiatives targeting local demolition businesses and residents.	Year 1-5	\$1,000 <sup>22</sup> per year	50 hrs
6C: Pilot C&D waste material separation to sort mixed C&D materials and divert them from landfilling through a third-party or the CSRD.	Year 1-5	\$100,000 <sup>23</sup> in year 3	150 hrs
6D: Develop a C&D working group for developing and dispersing resources, education, and developing new resources.	Year 5-10	-	100 hrs

### STRATEGY 7: Continue to Subsidize Recycling Services in the CSRD where Appropriate

There are currently over 20 regulated provincial Extended Producer Responsibility (EPR) programs covering a wide range of material categories. Current EPR programs mainly focus on the residential sector and not the ICI sector.

The cost of recycling and hauling of materials regulated under the provincial Recycling Regulation, and managed under EPR, exceeds the revenue collected by the CSRD through tipping/user fees and funding received from stewards. As a result, the region's taxpayers are

<sup>21</sup> Assumes that the CSRD can contribute \$30,000 to municipal studies in year 4.

<sup>22</sup> Assumes annual costs of \$1,000 for education campaign in years 1-5.

<sup>23</sup> Assumes the cost of a pilot in year 3. This does not include costs if deemed feasible to implement large-scale.

subsidizing the recycling of EPR materials, which is not aligned with the intent of the Recycling Regulation.

The CSRD has been very progressive in developing partnerships with stewardship agencies to be able to offer recycling options for a wide suite of regulated EPR products and materials. The CSRD is currently offering recycling services for EPR materials as well as many materials that are not yet covered by EPR programs, such as used clothing, books, mattresses, and children’s car seats at many of CSRD’s facilities.

Access to recycling services has long been a focus of the CSRD, even though some of the services have not been fully subsidized by the stewardship agencies. The Recycle BC Packaging and Paper Products (PPP) program has been subsidized by the CSRD from the beginning (starting in 2015). The 18 depots that the CSRD operates on behalf of Recycle BC do not generate enough revenue to cover the costs of operating the depot.

The CSRD estimates that the costs to manage PPP and household hazardous waste at the transfer stations/depots is costing the regional district \$300,000 - \$400,000 per year which is not covered by funding from the stewards. Despite this, the CSRD is committed to build collaborations with the stewards and providing recycling services to the region. The CSRD would like to continue to subsidize recycling depots and offer recycling services not yet fully funded through the EPR programs.

The CSRD is a member of the BC Product Stewardship Council, a body that advocates on behalf of local government for effective EPR programs. Regional district staff regularly engage with stewardship agencies to discuss how access to their recycling programs can be improved in the region. The CSRD continues to advocate for additional funding for existing EPR programs.

### Summary of New Actions to Continue to Subsidize Recycling Services in the CSRD where Appropriate

A summary of the proposed new actions related to this strategy are shown in the table below:

Proposed Actions	Timeframe	Additional Costs	Additional Staffing Needs
7A: Continue to support recycling depots through subsidies.	Year 1-10	\$200,000 <sup>24</sup>	-
7B: Continue to offer current or improved recycling services at CSRD facilities, where appropriate.	Year 1-10	-	-
7C: Advocate for increased stewardship support to improve accessibility to recycling and cover recycling costs.	Year 1-10	-	-

<sup>24</sup> Assumes that the CSRD will need to pay more annually for contracted costs due to increased labour and rental costs.

## 2.3 Residual Waste Management

The following six strategies relate to issues that involve residual waste management. Strategy 13 will be fully developed once the CSRD has completed the feasibility study of disposal options for the region.

The other strategies cover the emergency debris management, preventing wildlife interactions, illegal dumping, the transfer station network, maximizing landfill capacity and reducing GHG emissions.

### STRATEGY 8: Improve Emergency Debris Management

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As a result of recent years with extreme weather events and natural disasters leading to emergencies such as forest fires and flooding, there has been acknowledgment of the need to prepare for future events.



The CSRD has identified the need to develop a debris management plan to manage unpredictable surges in waste materials, including hazardous wastes resulting from extreme weather events and other emergencies. Emergencies can also include an animal epidemic, human pandemic, dam failures and earthquakes.

The province developed a Debris Waste Management Guidance (DWMG) document in response to the atmospheric river event in the fall of 2021.<sup>25</sup> This document provides information on debris clean up, including safety, working in a watercourse, creating a temporary waste management plan, sorting and handling the waste, transporting the waste, and where you can go for additional help.

Locally, the CSRD is part of a joint program, the Shuswap Emergency Program (SEP), with the City of Salmon Arm, District of Sicamous, and Areas C, D, E, F, and G. Revelstoke and Area B. The SEP ensures that residents are prepared and informed for extreme weather events to keep residents safe. Some of the resources that are provided include an evacuation status dashboard, updates on recent events, and information on emergency related topics, such as waste removal and disposal. The Town of Golden and Electoral Area A conduct their own emergency management planning.<sup>26</sup>

There is an opportunity for the CSRD along with the three member municipalities to add a waste plan component to the SEP, using the DWMG to provide guidance. The CSRD will need to develop emergency response plans for its solid waste facilities.

After an emergency plan for waste has been developed, the CSRD may also want to consider creating a debris waste management guide for residents to educate them on best practices for

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<sup>25</sup> [Debris Management Guidelines \(gov.bc.ca\)](https://www2.gov.bc.ca/gov/content/safety/emergency-preparedness-response-recovery/debris-management-guidelines)

<sup>26</sup> [Shuswap Emergency Program | CSRD, BC](https://www2.gov.bc.ca/gov/content/safety/emergency-preparedness-response-recovery/shuswap-emergency-program)

managing debris waste during and after extreme weather. The goal is to equip residents with the knowledge and information needed to respond in the best way to these events.

### Summary of New Actions to Improve Emergency Debris Management

A summary of the proposed new actions related to this strategy are shown in the table below:

Proposed Actions	Timeframe	Additional Costs	Additional Staffing Needs
8A: Develop a debris waste management plan and emergency response plans for CSRD facilities to manage unpredictable surges in waste materials from natural disasters.	Year 1-5	\$50,000 <sup>27</sup> in year 1	150 hrs

### STRATEGY 9: Prevent Wildlife Interactions

Odorous waste can be a significant attractant for wildlife. Interactions can range from pests, birds, and dogs, to bears accessing improperly stored or set-out containers and becoming habituated to garbage or organics. This can be dangerous for both residents and wildlife.



The overall management of our bears and other wildlife is the responsibility of the province and the Conservation Officer Service (COS) can serve fines for the intentional or unintentional feeding of our bears or any wildlife.

The City of Revelstoke, Town of Golden, and Salmon Arm all have aspects of bylaws that outline specifications for waste collection containers and wildlife attractants, to reduce wildlife interaction with garbage.

The CSRD is interested in collaborating with member municipalities, WildSafeBC and the BC Conservation Officer Service to increase community awareness around wildlife attractants. This can be done by developing education campaigns for community outreach and support the organization of info sessions for community members, who live in wildlife-rich areas. Education efforts should be focused on prevention, rather than be reactionary.



To prevent wildlife interactions, the CSRD is also interested in collaborating with a non-profit to offer a fruit harvesting program. These programs can reduce excess fruit in yards that attract

<sup>27</sup> Assumes costs to engage a third-party in year 1.

wildlife and can support community members in need through donation of excess fruit. This can be supported through Strategy 1, Action C, with grant funding.

The CSRD can work with member municipalities to incorporate requirements around wildlife attractants in collection bylaws. If the CSRD started offering curbside collection in targeted areas, the organization may want to consider incorporating wildlife management into a waste collection bylaw. A collection bylaw can outline the responsibility of every owner/occupier of a serviced residential premise to secure the garbage and food waste containers as necessary to prevent entry of water and accidental spillage or disturbance by wildlife. Collection bylaws can set strict regulations around storage and collection-day practices.

### Summary of New Actions to Prevent Wildlife Interactions

A summary of the proposed new actions related to this strategy are shown in the table below:

Proposed Actions	Timeframe	Additional Costs	Additional Staffing Needs
9A: Develop an education campaign, including info sessions for residents, around improving wildlife management.	Year 1-5	\$1,000 <sup>28</sup> per year	150 hrs
9B: Work with member municipalities to incorporate requirements around wildlife attractants in collection bylaws.	Year 5-10	-	50 hrs

## STRATEGY 10: Prevent Illegal Dumping

The CSRD has several initiatives to discourage illegal dumping. The CSRD tracks issue areas and has in the past placed educational signs around commonly dumped areas.

Residents are encouraged to report illegal dumping by contacting the Report a Poacher and Polluter (RAPP) hotline by phone or using an online form that is linked on the website. The CSRD also developed bylaw No. 5615 strictly for illegal dumping.<sup>29</sup> Illegal dumping is a ticketable offense and anyone that contravenes with the bylaw can be ticketed by a CSRD bylaw Enforcement Officer, as defined in bylaw No. 5296.<sup>30</sup> BC Conservation Services can issue fines as



Figure 5: Dumping observed around garbage bins, taken from the Salmon Arm Observer

<sup>28</sup> Assumes annual costs of education materials.

<sup>29</sup> [Bylaw-Number-5615-PDF \(csrd.bc.ca\)](#)

<sup>30</sup> [Bylaw-Number-5296-PDF \(csrd.bc.ca\)](#)



well. However, the CSRD does not currently have any Bylaw Enforcement staff available to respond to illegal dumping complaints.

The CSRD waives tipping fees and has budget to aid community groups that organize cleanup of illegal dumps. Typically, the CSRD receives one or two requests for support annually.

Longer term, if illegal dumping become more of an issue, the CSRD may want to develop a working group focused on illegal dumping. This group can focus on proactive measures to prevent illegal dumping, such as through education. This education should include proper disposal of common problem materials. Improving access to facilities can also influence illegal dumping (refer to Strategy 11).

### Summary of New Actions to Prevent Illegal Dumping

A summary of the proposed new actions related to this strategy are shown in the table below:

Proposed Actions	Timeframe	Additional Costs	Additional Staffing Needs
10A: Establish an Illegal Dumping Task Force and develop an illegal dumping strategy aimed to improve tracking and reduce the number of illegal dumping incidents.	Year 5-10	-	100 hrs

### STRATEGY 11: Improve Transfer Station Network to Increase Operational Efficiency & Level of Service to Users

Members of the public and PTAC have voiced strong support for improving the transfer station network in the region, specifically wanting better access to facilities. Through a solid waste survey conducted in the fall of 2023 as part of the plan update, residents commented on concerns related to hours of operations, signage at facilities and levels of service.

Due to this feedback, the CSRD is interested in making changes to its transfer station network to manage waste materials more efficiently and enhance services to facility users. Some of the specific improvements that have been identified as emerging needs include:

- Accommodating the growing populations in Areas C and G.
- Amalgamating and developing a larger, more centralized facility with increased services for:
  - Skimikin Transfer Station, Sorrento Recycling Depot, and Tappen Co-Op Recycling Depot.
  - Falkland and Glenemma Transfer Stations.
- Malakwa Recycling Depot and Malakwa Transfer Station.

- Developing a larger facility for Scotch Creek as the transfer station is often operating over capacity during the summer months.

In the short-term, the CSRD can look at standardizing the hours of the transfer stations to improve access to facilities for residents. For example, extending the hours outside of typical working hours (e.g., the weekend) so that residents can access facilities before and after work or on weekends. As well, having consistent hours across the region can make it easier for residents to access facilities and understand when and where they can bring waste and recycling. This is also important for addressing seasonal fluctuations in facility users to ensure the facility capacity matches the demand.

The CSRD is also interested in undertaking a comprehensive transfer station review to assess the costs and implications of improving facilities, establishing new facilities, and amalgamating some of the current sites. The review can inform future planning and siting and help identify hauling and operational efficiencies.

The CSRD should be mindful to strike a balance between providing facilities for easy accessibility and the level of services provided at these facilities. Improving access to facilities can have an impact on illegal dumping by making facilities more accessible (also addressed by Strategy 10).

The review will need to consider expansion of curbside programs. When more communities introduce curbside collection, the demand for their local transfer stations may decrease.

The transfer station network will also be impacted by decisions relating to the CSRD's landfills (refer to Strategy 13). Improvements to the transfer station network must consider impacts from potential landfill closures.

**Some potential benefits of amalgamating transfer stations include:**

- Having 'one stop drop' transfer stations with increased services.
- Reducing costs by having fewer transfer stations, but with more services, and reducing overall transportation costs.
- Improved traffic controls (in bound and out bound scales).
- Improved hours of operation.
- Having an impact on illegal dumping by making facilities more accessible through increased services and hours of operations to meet the demands.

**Summary of New Actions to Improve Transfer Station Network to Increase Operational Efficiency & Level of Service to Users**

A summary of the proposed new actions related to this strategy are shown in the table below:

Proposed Actions	Timeframe	Additional Costs	Additional Staffing Needs
11A: Assess user demands at all facilities and adjust or increase operational hours at	Year 1-5	\$50,000 <sup>31</sup>	150 hrs <sup>32</sup>

<sup>31</sup> Assumes increased annual operational costs from increasing hours/access to meet demands.

<sup>32</sup> Assumed to review user demands in year 1, prior to a full study on transfer station network.

Proposed Actions	Timeframe	Additional Costs	Additional Staffing Needs
selected sites to improve access and meet seasonal demands.			
11B: Conduct a transfer station assessment with siting and design options for sites that justify being amalgamated into centralized upgraded transfer station facilities.	Year 1-5	\$100,000 <sup>33</sup> in year 2.	100 hrs

## STRATEGY 12: Review Innovative Technologies to Maximize Disposal Capacity and Reduce GHG Emissions

The CSRD has experienced ongoing compliance issues at its landfills in recent years. One significant compliance issue that applies to all four landfills is exceedances of groundwater quality limits at or beyond the landfill property boundaries. The Golden, Revelstoke and Sicamous Landfills are all natural attenuation sites (i.e., unlined), and this is not an uncommon issue these kinds of landfills.

New regulatory standards in the updated Landfill Criteria for Solid Waste issued in 2016 require new landfills to be lined. The CSRD would likely require major capital upgrades to the Golden, Revelstoke and Sicamous Landfills to convert these sites to engineered (lined) landfills. Lining landfills also means that leachate needs to be collected and treated, further adding to both the capital and operating costs of the facility. The Salmon Arm Landfill is the only regional landfill with engineered cells / phases.

Engineered landfills are expensive to establish and to operate and the CSRD is interested in looking at innovative technologies to reduce need for landfilling. The CSRD wants to review energy recovery options and technologies that can help to reduce landfill space consumption and also limit GHG emissions.

### Energy Recovery from Non-recyclable Waste

Energy recovery refers to the capture of the energy embodied in non-recyclable waste. There is currently no suitable proven waste-to-energy technology for CSRD's size<sup>34</sup>. Rather than a large-scale process or technology, the CSRD is interested in small-scale recovery options, such as the use of "Waste to Fuel technologies". These are typically mechanical processes that prepare the waste for energy conversion by a third party. The product of this process is called refuse-derived fuel (RDF), or it is sometimes called "alternative fuel" by the industry using the product. RDF can be fluff or pellets and can be stored and transported. For this type of process to be

<sup>33</sup> Assumes third-party study in year 2. The costs to design and establish new facilities are not included as these will be identified by the study.

<sup>34</sup> In 2023, Environment and Climate Change Canada published the "Study of Waste to Energy Approaches for Processing Residual Municipal Solid Waste in Canada". Morrison Hershfield was retained to undertake the study on WTE Approaches in a Canadian context. The study aimed to collect information on WTE technologies and operations and looked at the WTE industry trends in Canada and internationally.

viable, there must be a market for the RDF within a reasonable haul distance. Markets for this product in BC include cement kilns and pulp mills.

The CSRD is interested in collaborating with other regional districts to explore what opportunities are available for energy recovery of non-recyclable waste.

### Innovative Approach to Maximizing Landfill Capacity

The CSRD is interested in continually review innovative ways to maximize landfill capacity. In 2023, the Regional District of Nanaimo (RDN) staff reported on a pilot in which the regional district shredded and compacted waste for landfill disposal.<sup>35</sup> The pilot involves:

- Using a GPS system to accurately track compacted waste which results in a higher density to use landfill space more efficiently with less air pockets and decreasing water penetration, leachate and landfill gas.
- Using a waste shredder, which results in less impact on operators' bodies, less litter escaping off site and more materials packed into a smaller landfill area.

### Technologies to Limit GHG Emissions from Waste Management

The CSRD is also interested in continually reviewing innovative approaches to reduce GHG emissions associated with landfills (e.g., mandatory biocover on any closed phases, landfill gas collection / co-generation). This could reduce the environmental impact of the landfills through the reduction of GHG emissions and potentially generate electricity that can be used locally.

### Summary of New Actions to Review Innovative Technologies to Maximize Disposal Capacity and Reduce GHG Emissions

A summary of the proposed new actions related to this strategy are shown in the table below:

Proposed Actions	Timeframe	Additional Costs	Additional Staffing Needs
12A: Collaborate with other regional districts to identify opportunities for energy recovery for non-recyclable materials, such as wood waste.	Year 1-5	\$15,000 <sup>36</sup> in year 5	50 hrs
12B: Review new technologies that can help to maximize landfill capacity and GHG emissions from landfills.	Year 1-5	-	100 hrs

<sup>35</sup> [RDN Landfill Airspace Analysis. Staff report to Solid Waste Management Select Committee, June 20, 2023 \(escribemeetings.com\)](#)

<sup>36</sup> Assumes a third-party study assumed in year 5.

## STRATEGY 13: Regionalize the CSRD Landfills

The CSRD has experienced ongoing compliance issues at its landfills over recent years. One significant compliance issue that applies to all four landfills is exceedances of groundwater quality limits at or beyond the landfill property boundaries.

In the short term, the CSRD is working to improve monitoring through the use of additional offsite groundwater monitoring wells. Regional district staff will collaborate with the MoE to find solutions for compliance issues related to natural attenuation landfills.

Regional district staff have emphasized the need to standardize requirements on landfills in BC (e.g., litter control, wildlife management) as the enforcements of regulatory requirements appear to be inconsistent between different regions.

The CSRD is facing significant cost increases, either through increasing fines from the MoE, costs to address compliance issues, or future engineering and design requirements for landfill expansions.

The actions and associated costs will be developed when the CSRD has completed the Design and Operations Plan (DOCP) updates at the Golden and Revelstoke Landfills. These findings will help determine the feasibility of various long-term disposal options. Options include upgrading existing landfills to fully engineered landfills, or closing one or more landfills, converting these to transfer stations and hauling waste to larger engineered landfills within reasonable hauling distance.

### Summary of New Actions to Regionalize the CSRD Landfills

A summary of the proposed new actions related to this strategy are shown in the table below:

Proposed Actions	Timeframe	Additional Costs	Additional Staffing Needs
13A: Continue to collaborate with the MoE to find solutions for compliance issues related to natural attenuation landfills.	Year 1-5	-	-
13B: Continue to lobby the MoE to standardize requirements on landfills in BC (e.g., litter control).	Year 1-5	-	-
13C: <i>To be developed once the CSRD has identified the most suitable options for the landfills in Golden, Revelstoke and Sicamous.</i>		TBC	

## 2.4 Cost Recovery, System Efficiency and Financial Sustainability

### STRATEGY 14: Ensure Cost-Effective Waste Management and Long-term Financial Sustainability

This strategy and related actions, costs and staffing impacts will be developed when the CSRD has completed the upcoming disposal studies that will determine the costing of the proposed disposal options.

#### Summary of New Actions to Ensure Cost-Effective Waste Management and Long-term Financial Sustainability

A summary of the proposed new actions related to this strategy are shown in the table below:

Proposed Actions	Timeframe	Additional Costs	Additional Staffing Needs
14A: To be developed once the CSRD has identified costs for all strategies.			

## 3 FINANCIAL AND ADMINISTRATIVE IMPACTS

Capital costs have been identified for each strategy with information on the approximate timing of the expenditures. The expenditures associated with long term landfill disposal (Strategy 13) and cost recovery (Strategy 14) are not yet included. The Draft SWMP will present a table with all expenditures for plan implementation, once all costs are identified.

Currently there are only four staff who are responsible for administering the CSRD's waste reduction and solid waste management programs with temporary support by a summer student each year.

All new strategies and actions, which have been identified so far as part of the SWMP update, will require additional staff resources to implement in addition to the existing resources.

Adequate resourcing is essential for a successful Plan implementation. If all actions in this report are pursued, the regional district would need to hire approximately 2.5 additional full time equivalent (FTE) positions dedicated to strategies and new actions over the first five year of Plan implementation. Beyond year 5, the CSRD will only require one FTE position in addition to the current staff level.

Most noteworthy is Strategy 4, which will require one new FTE position for bylaw enforcement at the CSRD facilities. The success of this strategy can be evaluated once the regional districts undertakes a Five-year effectiveness review of the SWMP.