
TO: Erin Blaney, Regional District of Kitimat Stikine
FROM: Veronica Bartlett
Morrison Hershfield
PROJECT No.: 190497600
RE: Evaluation of Preferred Options for Inclusion in the Solid
Waste Management Plan
DATE: June 18, 2020

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

The Regional District of Kitimat Stikine (RDKS) is in the process of developing a new SWMP. The planning process was initiated in 2017 and steps 1 and 2 of the planning process were completed in 2018, resulting in the formation of the Public and Technical Advisory Committee (PTAC), assessment of the current system, development of the consultation plan and development of six technical memos covering specific topics. In November 2019, Morrison Hershfield (MH) was commissioned to provide consulting support to continue developing the SWMP for the RDKS.

MH worked closely with the RDKS to develop a series of five technical memos, each presenting potential management options on key solid waste related topics:

- Summary of Reduce and Reuse
- Recycling and Composting
- Residual Waste Management at Existing Facilities
- New Facilities and Service Areas for RDKS
- Cost Recovery

The content of each memo was presented to the PTAC and feedback on these memos has been considered for the development of this final memo outlining Preferred Options to be included in the new draft SWMP.

This memo provides a summary of the shortlisted options from previous phases for PTAC members to do a final evaluation of all of the proposed strategies. At the PTAC meeting on June 25, members will have the opportunity to vote on which options should be part of the draft SWMP, which will require evaluation and sign off by the Regional District Board prior to public consultation. A workshop with the Board will take place in August and it will determine the preferred direction for each of the updated plan elements, which will be brought to the public for consultation during fall of 2020.

1) PROPOSED STRATEGIES

The proposed strategies for the new SWMP were developed through a series of PTAC meetings, each presenting potential management options on key solid waste related topics. This section presents existing and proposed new strategies, which have been prioritized by PTAC members. The strategies follow the order of the pollution prevention hierarchy. The preferred options will be shown in the order of priority given by PTAC. Options / strategies that were given higher priority with a shorter

implementation period (first five years of implementation) are presented before those with on-going implementation and lower priority strategies with an implementation beyond 5 years.

The key issues or opportunities behind each proposed strategy are summarized together with the proposed implementation time frame, role and responsibility for its implementation, and anticipated capital and annual costs (see Figure 1). Annual costs include staff operational time provided in staff hours, or if a specific action is likely to be outsourced, an estimated cost is presented.



Figure 1 Overview of infographic used to summarize important information around each proposed Strategy.

1.1 Reduction

The RDKS already promotes waste reduction and reuse of resources through outreach and education programs and by supporting non-profit thrift stores by reimbursing tipping fees paid on unsuitable donations received.

This section provides a summary of the five proposed additional strategies and initiatives that aim to further reduce waste generation as shown below.

#	Strategy	Short-term Priority (Year 1-5)	Long-term Priority (Year 6-10+)
1	Lobby for reduction of single-use items and packaging	✓	
2	Encourage voluntary reduction of single-use items by businesses	✓	
3	Promote waste reduction ideas through targeted campaigns	✓	✓
4	Support member municipalities with implementation of bylaw(s) to eliminate the distribution of single-use items		✓
5	Adopt a preferential purchasing policy for green procurement that supports reduce, reuse and the use of recycled content		✓

STRATEGY 1 Lobby for Reduction of Single-Use Items and Packaging

Issue/Opportunity: In recent years, many local and regional governments across Canada and in BC have been investigating and implementing policies to limit the amount of single-use items being generated, which require management through curbside collection, litter management in public spaces, disposal, etc.

Although the waste composition study conducted in 2017 did not specifically identify single-use items, it showed the quantity of several categories of plastics in the landfilled waste. It is estimated that up to 13% of the total waste stream could be single-use plastic items for which use could have been avoided or that could have been directed to recycling facilities.

In June 2019, the Prime Minister announced that the Government of Canada is taking additional steps to reduce plastic waste coming from the use of single-use items through the Canada-wide Action Plan on Zero Plastic. In July 2019, the Ministry of Environment and Climate Change Strategy (the Ministry) issued the Plastics Action Plan, a policy consultation paper on how the Province intends to address plastic waste. Although the Ministry has not announced any immediate plans for future EPR products, it has indicated that products such as single-use items are on the priority list for future inclusion.

Suitable organizations for the RDKS to lobby for a provincial EPR program include, for example, the Provincial Recycling Roundtable that govern recyclable materials and products in association with EPR programs, the Union of British Columbia Municipalities, and the North Central Local Government Association.

- 1A. Lobby for the implementation of a provincial EPR program for single-use items and packaging-like products via suitable organizations.
- 1B. Lobby the Federal government to enact regulations and regarding the distribution of single-use items.



Year 1-5



CapEx: \$n/a

OpEx: \$n/a

RDKS staffing: 30 hrs

Responsibility: RDKS with support from member municipalities

STRATEGY 2 Encourage Voluntary Reduction of Single-use Items by Businesses

Issue/Opportunity: Although this is a priority area for the Ministry, it will take time to develop provincial measures to reduce the distribution and use of single-use items. Meanwhile the RDKS can encourage businesses to voluntarily change their distribution practices and find alternatives to using single-use items. Food safety needs to be carefully considered for dish share programs or bring your own container, or so called BYOC, programs. There is potential to learn from and adapt Metro Vancouver's targeted reduction campaigns.

- 2A. Encourage businesses to voluntarily commit to a reduction of the use of single-use items by developing and implementing outreach campaigns.
- 2B. Support member municipalities to encourage events free of single-use items.
- 2C. Collaborate with Northern Health to develop a guidance document on how to set up a BYOC program.



Year 1-5



CapEx: \$n/a
OpEx: \$n/a

RDKS staffing: 100 hrs

Responsibility: RDKS and member municipalities

STRATEGY 3 Promote Waste Reduction Ideas through Targeted Campaigns

Issue/Opportunity: In Canada the annual waste generation per person from residential sources continues to increase. Although the disposal rate has plateaued, the amount of residential waste diverted through recycling and organics diversion initiatives has almost doubled. Continued efforts are needed to promote waste reduction ideas. The RDKS wants to make reduction of clothing waste a high priority since clothing makes up almost 9% of residential curbside garbage and outreach campaign materials are readily available from Metro Vancouver.

- 3A. Promote waste reduction ideas using some of the readily available campaigns.



Year 1-10



CapEx: \$n/a
OpEx: \$n/a

RDKS staffing: 100 hrs

Responsibility: RDKS with support from member municipalities and/or by non-profit groups

STRATEGY 4 Support Member Municipalities with Implementation of Bylaw(s) to Eliminate the Distribution of Single-use Items

Issue/Opportunity: Many Canadian municipalities including Victoria and Vancouver have begun implementing restrictions on the use, distribution and sale of certain single-use items. However, in July 2019 the B.C. Court of Appeal struck down the City of Victoria's proposed ban on single-use plastics on the basis that the bylaw was based on environmental grounds, which fall under provincial jurisdiction,



and not a business regulation, which would fall under the purview of the city. Since then, the District of Saanich amended its single-use plastic bag ban and had it approved by the Ministry¹.

If supported by the Ministry, the RDKS can support member municipalities with developing and implementing reduction strategies and bylaw(s) to eliminate the distribution of single-use items. The support could include providing educational information and outreach resources to implement bylaws.

4A. Support member municipalities with developing and implementing reduction strategies and bylaw(s) to eliminate the distribution of single-use items, provided it is supported at a provincial level.



Year 6-7



CapEx: \$n/a

OpEx: \$n/a

RDKS staffing: 50 hrs

Responsibility: RDKS and member municipalities

STRATEGY 5 Adopt a Preferential Purchasing Policy for Green Procurement that Supports Reduce, Reuse and the Use of Recycled Content

Issue/Opportunity: The RDKS and its member municipalities purchase significant volumes of products. Recognizing the influence that government can have within the marketplace, the RDKS wants to commit to reducing products such as single-use plastic items in its operations. Even though PTAC was not in full support of this strategy, the RDKS believes it is important for the organization to ‘walk the talk’ and perform actions consistent with the guiding principles of the SWMP. The RDKS already has some green procurement practices in place informally. Formalizing through policy is lower priority, yet important to ensure a more consistent approach across all departments.

¹ <https://vancouverisland.ctvnews.ca/saanich-bylaw-banning-plastic-bags-approved-by-b-c-government-1.4851224>

5A. Adopt a preferential purchasing policy for green procurement that supports the 3Rs (reduce, reuse and recycling) and encourage member municipalities to follow its example.



Year 6-7



CapEx: \$n/a

OpEx: \$n/a

RDKS staffing: 50 hrs

Responsibility: RDKS and member municipalities

1.2 Reuse

Reuse is the second preferred option in the 5R pollution prevention hierarchy. Reuse includes use of materials and products as originally intended without any modification (e.g. furniture, electronics) or repurposing of materials, such as used lumber and other building materials or reclaimed wood or textile through so called up-cycling. Reuse in this context also includes repair or refurbishing of items to retain their value, usefulness and function.

There is a strong interest for more reuse opportunities in the region. Almost half of all respondents in the April 2019 Public Solid Waste Survey expressed their support for more reuse opportunities in their communities.

The RDKS maintains recycling directories including reuse options (e.g. secondhand stores) for all communities within the RDKS service areas. There are no directories for areas outside, such as Kitimat and Dease Lake.

This section provides a summary of the four proposed additional strategies and initiatives for reuse in the region.

#	Strategy	Short-term Priority (Year 1-5)	Long-term Priority (Year 6-10+)
6	Develop a contractor's guide to reduction, reuse and recycling	✓	
7	Support reuse through share sheds and reuse stores	✓	✓
8	Support reuse and/or repair events	✓	✓
9	Reuse of construction and demolition materials through deconstruction		✓

STRATEGY 6 Develop a Contractor's Guide to Reduction, Reuse and Recycling

Issue/Opportunity: The RDKS published a brochure in 2017 that provides information on Construction Site Waste Management. The brochure focuses on recycling by listing which materials are prohibited and restricted from disposal at RDKS facilities, and alternatives to disposal for those materials. Reduction and reuse are not addressed in the brochure. The RDKS will encourage local reuse opportunities of construction and demolition materials by updating the contractor's guide.

6A. Update the current information brochure to include reduce and reuse options for renovation, construction and demolition contractors and home owners.



Year 1



CapEx: \$n/a

OpEx: \$n/a

RDKS staffing: 50 hrs

Responsibility: RDKS

STRATEGY 7 Support Reuse through Share Sheds and Reuse Stores

Issue/Opportunity: Landfill scavenging is prohibited at all RDKS solid waste facilities unless prior written approval from RDKS Administration is given. There are many examples of regional districts and municipalities establishing or supporting share sheds or reuse stores for residents to drop off usable items that they no longer need or want. These facilities require careful management to limit public dumping and abuse, and have relatively high staffing requirements compared to the waste diversion potential.

The RDKS will prioritize supporting and promoting existing reuse organizations. There are currently limited options in the RDKS for reuse and recycling of reusable goods, including renovation, construction and demolition materials. The RDKS will assess the feasibility of partnering with the private sector, including non-profit agencies, to set-up reuse store(s) at suitable waste management facilities. In Hazelton, where there are currently no reuse opportunities, there may be an opportunity to partner with the Skeena Bakery and Skeena Supported Employment Society to support reuse. If support for existing reuse organizations or partnering opportunities is not feasible, the RDKS may want to allow space at an RDKS facility for reusable materials to be stored for collection by a partner and sold elsewhere.

The RDKS may need to amend their Solid Waste Regulation Bylaw to allow for the separation and storage of reusable goods and materials within the landfill buffer zone.

- 7A. Support and promote existing reuse organizations, by, for example, including those in Dease Lake and Kitimat not currently included in the RDKS directory of reuse options.
- 7B. Assess the feasibility to establish space at the waste management facilities for collection of reusable goods to be offered for sale or for free either by the RDKS or in partnership/support from private industry.
- 7C. If deemed necessary, amend the RDKS Solid Waste Regulation Bylaw to facilitate the reuse of waste materials at the current waste management facilities.



Year 1-10



CapEx: \$10K*
OpEx: \$n/a
RDKS staffing: 100 hrs

Responsibility: RDKS

* Estimated cost for sea can storage in Year 2.

STRATEGY 8 Support Reuse and/or Repair Events

Issue/Opportunity: An alternative to a permanent, physical facility is to host, support or promote reuse and repair events throughout the Regional District. There is strong movement toward reuse, repair and community sharing of resources throughout BC. Of high priority is for the RDKS to seek federal or provincial funding to run a pilot for a regional reuse event. Annual or bi-annual reuse events could be organized by the RDKS with limited involvement or investment. The pilot can identify if items are most suited to be collected at the curb or at set locations such as waste management facilities.

- 8A. Apply for provincial or federal funding to run a pilot for a regional reuse event to assess community uptake and feasibility for a wider implementation.
- 8B. Organize, sponsor or promote reuse through local flea markets or trunk sales.
- 8C. Promote local repair cafés and similar events through sponsorship or marketing.



Year 1-10



CapEx: \$n/a
OpEx: \$n/a
RDKS staffing: 60 hrs

Responsibility: RDKS

STRATEGY 9 Reuse of Construction and Demolition Materials through Deconstruction

Issue/Opportunity: The RDKS Waste Regulation Bylaw prevents people from removing or salvaging any materials from a Waste Management Facility except with the prior written approval of the Solid Waste Services Coordinator. This currently limits reuse of solid waste at the RDKS waste management



facilities. The RDKS recognizes the strong public support for more reuse options and is proposing actions to increase the reuse of construction and demolition (C&D) materials. These are actions in addition to encouraging reuse of C&D materials via Strategy 6 and 7.

- 9A. Facilitate reuse through deconstruction by promoting markets for reusable building materials.
- 9B. Assess the feasibility of having member municipalities require building deconstruction through a cost benefit analysis and support implementation if deemed feasible.



Year 6-10



CapEx: \$n/a
OpEx: \$n/a
RDKS staffing: 60 hrs

Responsibility: RDKS and member municipalities

1.3 Recycling

Current recycling initiatives undertaken by the RDKS include:

Drop-off options for select recyclables, select Extended Producer Responsibility (EPR) products² and other divertible materials (e.g. organic waste, metal, clean wood) at landfills and transfer stations. Materials accepted vary by facility based on alternative services available within the private sector.

Curbside collection of printed paper and packaging (PPP) recyclables for Electoral Area residents in the Terrace Solid Waste Service Area.

Covering costs for transportation and processing of commercial cardboard collected at RDKS facilities in the Hazelton & Highway 37 North Service Area.

Promotion and education of drop-off and collection options for recyclables and EPR products, for example via the RDKS website, an electronic directory and brochures for specific service areas (e.g. the Recycling Directory for the Terrace Area as shown in Figure 2), and how-to guides for ICI recycling and organics collection. The RDKS also provides residents with recycling service information through the Recycle Coach desktop and smart phone apps of the “MyWaste™” platform.

Recycling Programs (EPR Depots)
Terrace Area

<p>Antifreeze, Used Lubricating Oil, Filters, and Containers</p> <ul style="list-style-type: none"> OK Tire & Auto Service (4528 Greig) Terrace Toyota (4912 Hwy 16) Petro Canada (5136 Keethi - Northwest Quay) <p>Batteries (under 6kg)</p> <ul style="list-style-type: none"> City of Terrace (City Hall 3216 Eby) Public Works (5003 Graham) Sight & Sound (4720 Keethi) <p>OR drop off both (batteries and cellphones) at</p> <ul style="list-style-type: none"> Staples (6645 Greig) Northwest Regional Airport (103-4401 Bristol) The Source (4741 Lakelse) Andre's Electronics (4741 Keethi) Coast Mountain Wireless Communications (3650 Fifer) Regional District Office (4545 Lazelle) Canadian Tire (5100 Hwy 16) <p>Beer Containers</p> <p>Most containers with deposits can be returned to all original retailers (limits apply).</p> <ul style="list-style-type: none"> BC Liquor Store (5240 Eby) Skowen Hotel Liquor Store (6510 Greig) Northern Motor Inn Beer Store (5080 Hwy 16) Terrace Inn Liquor Store (3005 Kikum) <p>Bicycle Tires</p> <ul style="list-style-type: none"> W&K Bike (4710 Lazelle) <p>Electronics (Energy only - limits may apply)</p> <ul style="list-style-type: none"> Staples (6645 Greig) 	<p>Cellphones</p> <ul style="list-style-type: none"> Andre's Electronics (4716 Keethi) <p>Callphones</p> <p>OR drop off both (batteries and cellphones) at</p> <ul style="list-style-type: none"> Staples (6645 Greig) Northwest Regional Airport (103-4401 Bristol) The Source (4741 Lakelse) Andre's Electronics (4741 Keethi) Coast Mountain Wireless Communications (3650 Fifer) Regional District Office (4545 Lazelle) Canadian Tire (5100 Hwy 16) <p>Beer Containers</p> <p>Most containers with deposits can be returned to all original retailers (limits apply).</p> <ul style="list-style-type: none"> BC Liquor Store (5240 Eby) Skowen Hotel Liquor Store (6510 Greig) Northern Motor Inn Beer Store (5080 Hwy 16) Terrace Inn Liquor Store (3005 Kikum) <p>Bicycle Tires</p> <ul style="list-style-type: none"> W&K Bike (4710 Lazelle) <p>Electronics (Energy only - limits may apply)</p> <ul style="list-style-type: none"> Staples (6645 Greig) 	<p>Lead-Acid Batteries</p> <ul style="list-style-type: none"> Kal-Tite (6929 Keethi) North Coast Equipment (5141 Keethi) Ruckin Hydraulics Ltd. (6205 Keethi) Canadian Tire (5100 Hwy 16) <p>Medications</p> <p>pills should be removed from bottle and bagged. Empty bottles accepted.</p> <ul style="list-style-type: none"> Pharmacies (103-4741 Lakelse) Safeway Food & Drug Pharmacy (4655 Lakelse) Save-On-Foods Pharmacy (4731 Lakelse) Shoppers Drug Mart - both locations (3834 Park and 4647 Lakelse) Wal-Mart Pharmacy (4427 Hwy 16) <p>Smoke and Carbon Monoxide (CO) Alarms</p> <ul style="list-style-type: none"> Thornhill Fire Department (3128 Hwy 16 E) <p>Outdoor Power Equipment</p> <ul style="list-style-type: none"> Allen's Scrap & Salvage Ltd. (6206 Keethi) <p>Thermometers</p> <ul style="list-style-type: none"> EMCO (2015 Park Ave) Aqua Plumbing & Heating Ltd. (3115 Fifer Drive) <p>Tires</p> <ul style="list-style-type: none"> Canadian Tire (5100 Hwy 16) OK Tire & Auto Service (4628 Greig) Terrace Kolum Ford (4623 Keethi) Fontaine Tire (4641 Keethi) Innovation Automotive Ltd. (2801 Kikum) Kal-Tite (Cedarland) (6929 Keethi) Kolum Tire (4628 Hwy 16) Kern's Marine (4646 Greig) (ATV and motorcycle tires only) MacCarthy Motors (5004 Hwy 16) Thornhill Motors (3026 Hwy 16)
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Figure 2 Example of information provided in RDKS recycling directory

² The Recycling Regulation requires producers of designated products to develop programs for their end-of-life collection and recovery of materials. Producers of designated products often appoint a stewardship agency to collect EPR products.



The RDKS is proposing six additional strategies and initiatives that aim to further improve recycling and reduce the associated costs in the region.

#	Strategy	Short-term Priority (Year 1-5)	Long-term Priority (Year 6-10+)
10	Lobby for improved accessibility to EPR programs	✓	
11	Increase diversion of C&D waste	✓	
12	Provide continuous diversion education and outreach programs coupled with enforcement	✓	✓
13	Support ICI to encourage waste diversion	✓	✓
14	Reduce recycling costs	✓	✓
15	Improve drop-off options for household hazardous waste where gaps exist	✓	✓

STRATEGY 10 Lobby for Improved Accessibility to EPR Programs

Issue/Opportunity: There are currently over 20 regulated provincial EPR programs covering a wide range of material categories, which are mainly focused on the residential sector and not the ICI sector. The RDKS will lobby for inclusion of new materials, regardless of the source (residential or ICI), under the Recycling Regulation. For small rural communities in the Region, recyclables management could be simplified and made more efficient and more economical if PPP from the ICI sector is managed together with residential sources, which are currently regulated. The RDKS is currently having to subsidize the recycling costs of some ICI PPP. The producers of these materials should be required to be part of the solution provided by stewardship organizations.

The RDKS provides drop-off options for a number of EPR and stewardship products and aims to offer drop-off options where there are gaps in private collection services. In 2018 the RDKS articulated concerns the Stewardship Agencies of BC (SABC) with regards to the rural accessibility standard used by stewardship associations.

The RDKS has identified a number of issues it plans to bring up with the Ministry, including infrequent collection service offered by stewards, need for increased access to more drop-off locations for some additional EPR products, flexibility to accept bulk-drop off of PPP from rural communities at Recycle BC depots, and need for more public education on how and where to return EPR products. For example, consumers of EPR products often drop off materials in unlabeled containers or outside opening hours, at depots accepting used lubricating oil, antifreeze, and oil filters.

Specific materials that the RDKS would like to see regulated include:

- ICI PPP
- Hazardous wastes, such as mercury, diesel fuel, acid, household cleaners, garden products, and pesticides, which are currently not included as regulated materials.
- Tires on rims and oversize tires (large off-road tires and industrial tires)
- Bulky furniture and mattresses
- Drywall

- 10A. Lobby for inclusion of new materials, regardless of the source (residential or ICI), under the Recycling Regulation, in particular ICI packaging and printed paper.
- 10B. Lobby for better service levels for existing EPR materials in rural areas.



Year 1-5



CapEx: \$n/a
OpEx: \$n/a
RDKS staffing: 40 hrs

Responsibility: RDKS

STRATEGY 11 Increase Diversion of C&D Waste

Issue/Opportunity: The Construction and demolition (C&D) sector is responsible for 17% of the total amount of waste disposed and only limited quantities are being diverted from landfilling. Approximately 5% is currently achieved through segregation of clean wood waste and beneficial use of contaminated soil at the Forceman Ridge Landfill. No waste composition study has been performed for commercial C&D loads accepted at the landfill. However, the RDKS understands that loads often contain significant portions of compostable organics, such as clean wood (e.g. dimensional lumber and pallets) as well as asphalt roofing materials, identified through visual inspection. Bylaws are already in place requiring diversion of certain C&D materials, including organic materials such as yard waste, tree branches and compostable structural wood waste; or via variable tipping fees; however these bylaws can be updated and can be enforced better.

- 11A. Under existing bylaws specify identified divertible materials, such as clean wood waste and asphalt shingles, and classify these as restricted materials. Amendments to the tipping fee structure to encourage segregation of these materials may also be warranted.
- 11B. Create a C&D waste working group with parties from the C&D sector and if suitable from industry.
- 11C. Perform a waste composition study of commercial C&D waste to identify and quantify recyclable waste streams.
- 11D. On a regular basis conduct research to identify local diversion options for asphalt shingles, drywall and clean wood.
- 11E. Explore the need for operational material at the landfills and the options to use shingles and/or concrete for beneficial use.



Year 1-5



CapEx: \$n/a
OpEx: \$20,000*
RDKS staffing: 200 hrs

Responsibility: RDKS

* Estimated consulting budget for waste composition study in Year 1.

STRATEGY 12 Provide Continuous Diversion Education and Outreach Programs Coupled with Enforcement

Issue/Opportunity: Do Your Part receives recyclables from RDKS facilities, private service providers of collection ICI properties, and self-hauled recyclables from residential and ICI customers. Do Your Part Recycling reported an 8.5% contamination rate of the RDKS residential curbside recycling. Participants in the Recycle BC recycling program cannot exceed contamination rates of 3%, which increases the importance of continued outreach and education, especially to those stakeholders receiving Recycle BC funded services or wishing to become part of the Recycle BC program. The City of Terrace's curbside collection program is partly funded by Recycle BC, while the curbside collection offered by the RDKS is currently not Recycle BC funded. The RDKS is actively working to increase the level of financial support provided by Recycle BC for residential recycling.

There is a need for continued education and outreach to further reduce contamination of organic waste going to the Terrace compost facility (e.g. bags and other products marketed as biodegradable, plastic bags and vegetable wraps). The compost product is currently too contaminated to be sold to the public or used in public gardens.

More education is needed to clarify:

- who manages and pays for recycling
- where non-curbside materials can be recycled
- where the recyclables go and how they are processed

Education and outreach play a key role in waste reduction, diversion, and proper disposal of residual waste. The RDKS plans to prioritize data collection, such as curbside or set-out audits, coupled with education and will collaborate with haulers over the long term to develop a strategy to pass down fines to offenders.

- 12A. Perform audits, such as set-out audits, to assess curbside participation rates or curbside audits to assess the waste composition of the different waste streams, coupled with in-person education and out-reach. Issuing of fines may be considered for repeat offenders.
- 12B. Regularly update existing communication plan. Develop performance targets and monitor the performance of the implemented communication plan.
- 12C. Provide contractor education pertaining to bylaw requirements, contract requirements and the importance of reporting of non-compliance and contaminated waste loads. Implement incentives through contract adjustments or other means might be warranted.



Year 1-10



CapEx: \$n/a
OpEx: \$n/a
RDKS staffing: 200 hrs

Responsibility: RDKS

STRATEGY 13 Support ICI to Encourage Waste Diversion

Issue/Opportunity: The main economic activities within the RDKS include mining, forestry, energy, fishing, and transportation. The area is home to several mills and multiple hydro projects and there are a number of industrial work camps in the area. New mining, forestry, oil and gas and/or energy



developments in the region may result in a significant increase in waste from industrial work camps and construction.

Recognizing that 73% of the waste generated by the ICI sector in the region is landfilled and only 27% diverted, the RDKS needs to address the ICI sector with different approaches than the residential sector.

A recent waste composition study showed that the largest component of ICI waste was paper (21.3%), followed by compostable organics (19.7%), plastic (14.9%), and household hygiene (14.0%).

This strategy warrants an on-going focus. Clear communication is needed to ensure the ICI sector meets applicable bylaw requirements. The RDKS is wanting to establish an ICI waste diversion working group with a focus on helping the biggest waste generators to divert more waste, reduce business costs, and identify circular economy opportunities. For example the RDKS may be able to facilitate the capture of surplus food from grocery stores or hotels to go to people in need via not-for profit organizations, or as animal feed.

- 13A. Support private collectors with an updated hauler information package to encourage better ICI recycling amongst its customers.
- 13B. Promote available waste diversion opportunities and provide or support diversion education to commercial generators.
- 13C. Establish an ICI waste diversion working group to focus on the largest waste generators and find waste diversion solutions that can benefit many parties. In collaboration with waste haulers, develop a common approach allowing haulers to pass down fines for contaminated waste loads to the waste generator.



Year 1-10



CapEx: \$n/a
OpEx: \$n/a
RDKS staffing: 50 hrs

Responsibility: RDKS and member municipalities

STRATEGY 14 Reduce Recycling Costs

Issue/Opportunity: The RDKS pays for the collection, transportation, and processing fees for all PPP recycling services it offers, with the exception of the Recycle BC-supported depot at the Stewart Transfer Station for residential streams. The RDKS wants to emphasize the importance of stewardship organizations taking more responsibility for recycling in rural communities (refer to concerns and options as outlined in Strategy 10 Lobby for Improved Accessibility to EPR). The RDKS is actively working to increase the level of financial support provided by Recycle BC for residential recycling at the Kitwanga Transfer Station and for curbside collection in the Greater Terrace Area.

Cardboard from the ICI sector is not eligible for Recycle BC funding. In the parts of the region that are not eligible for Recycle BC financial support, the cost to collect and transport PPP to a processing facility and ship it to market is extremely high.

As a last resort, the RDKS would like to have the ability to set an upper cost threshold for acceptable recycling costs. If the cost threshold is exceeded, the RDKS would consider alternative lower cost



options (e.g. composting, burning or landfilling). Once the recycling costs exceed the agreed threshold, alternatives to recycling are implemented until recycling costs can be reduced below the agreed threshold. A cost threshold should be revisited every year. Landfilling or burning of any recyclables would only be undertaken during undue financial hardship.

This strategy warrants an on-going focus and further actions to reduce other system costs are included in Strategy 33 for cost recovery options. Initial focus to reduce recycling costs will be placed on collaboration with stewards and establishing local processors and markets to reduce transportation costs.

- 14A. Maximize the partnership opportunities with stewardship organizations, such as for residential recycling at the Kitwanga Transfer Station and for curbside collection in the Greater Terrace Area.
- 14B. Undertake an efficiency review of the management of recyclables within the region.
- 14C. Pursue composting of paper products at locations where deemed feasible.
- 14D. Set cost threshold when alternative lower cost options (e.g. composting, burning or landfilling) are pursued until recycling is no longer cost prohibitive.



Year 1-10



CapEx: \$n/a
OpEx: \$n/a
RDKS staffing: 50 hrs

Responsibility: RDKS with support from member municipalities

STRATEGY 15 Improve Drop-off Options for Household Hazardous Waste where Gaps Exist

Issue/Opportunity: Although many household hazardous waste materials are regulated EPR materials, many of them still have limited drop-off options available in parts of the region, especially outside the Greater Terrace Area. The 2017 waste composition study showed that 4.7% of the overall garbage arriving at the Thornhill Transfer Station is made up of household hazardous waste³.

Generally no liquids (e.g. used oils/antifreeze, paints, pesticides, flammables, fertilizer) are collected at any RDKS facilities. RDKS promotes drop-off options available at private facilities but does not have any agreement with stewardship organizations such as Product Care or the B.C. Used Oil Management Association (BCUOMA). With the exception of Do Your Part Recycling, which accepts pesticides, flammable liquids, fertilizers for Product Care, there are no drop-off options for these hazardous wastes in the entire region.

Continuous focus needs to be given to the management of household hazardous waste considering the potentially high environmental impact of improper disposal. The RDKS wants to prioritize areas with limited options for hazardous waste collection. The RDKS wants to implement periodic roundup events

³ Hazardous waste included batteries, light bulbs, oil & antifreeze, paint, pesticides, medications, biohazard, needles, solvents, other hazardous waste and other non-hazardous waste, such as containers with product remaining (cosmetics, nail polish, health and beauty aids, sunscreen, bug spray, Windex, other relatively benign household cleaners/products).

to collect hazardous waste materials in locations where permanent drop-off options are not available or feasible to establish.

- 15A. Offer recurring roundup collection events for hazardous waste in potential partnership with stewardship organizations.
- 15B. Offer permanent drop-off options for targeted EPR materials at suitable transfer stations through partnership with stewardship organizations.
- 15C. Develop a targeted campaign for hazardous household waste with the purpose of informing residents and businesses of proper material management aimed to capture more materials.



Year 1-10



CapEx: \$n/a
OpEx: \$10 - 70K*
RDKS staffing: 100 hrs

Responsibility: RDKS with support from member municipalities

** \$60,000 assumed for HHW events every two years. An annual cost of \$10,000 for contractor to remove non-EPR materials from permanent drop-off sites. Although only regulated EPR materials would be accepted at permanent drop-off points, the RDKS anticipates that some non-EPR materials would be dropped off by residents. Assumed low as permanent drop-off infrastructure can be funded by stewards.*

1.4 Organics Diversion & System Efficiency

Current organics⁴ diversion initiatives undertaken by the RDKS include:

- Curbside organics collection to residents in the Terrace Service Area who live outside the City of Terrace.
- Operation of a composting facility at the Forceman Ridge Waste Management Facility using an in-vessel Gore™ cover system capable of processing 4,000 tonnes of organic material per year (see Figure 3).
- Production of compost, which will initially be used in the closure process of the Thornhill Landfill and Kitwanga Landfill to reduce costs of bringing in external material. Eventually the composting process will generate Class A compost, which may also be made available to the community for use on community gardens or parks.

⁴ Organic waste includes yard and garden waste, food scraps (including cooked foods, meat, dairy, grains, fruits and vegetables), and food-soiled paper/cardboard.



Figure 3 Composting facility at Forceman Ridge Waste Management Facility.

The RDKS is proposing four additional strategies and initiatives that aim to improve organics diversion through composting and overall system efficiency to increase waste diversion.

#	Strategy	Short-term Priority (Year 1-5)	Long-term Priority (Year 6-10+)
16	Establish organics processing capacity at suitable facilities	✓	✓
17	Amend solid waste bylaw to encourage waste diversion	✓	✓
18	Support communities to introduce curbside collection	✓	✓
19	Incentivize improved contractor and diversion performance	✓	✓

STRATEGY 16 Establish Organics Processing Capacity at Suitable Facilities

Issue/Opportunity: There is a need to establish additional organics processing capacity in targeted areas. Organic waste is costly to transport long distances and the RDKS has identified composting as a potential additional service at the Hazelton Waste Management Facility. There is already unused space for a potential future compost facility with a leachate catchment system at the Hazelton Waste Management Facility. Based on feedback from local residents there is also a need for compost in local gardens.

The District of Stewart has looked at composting options for the Stewart Transfer Station, but has not progressed due to concerns of wildlife protection and the lack of current suitable infrastructure. The RDKS wants to support the District of Stewart to identify feasible options for the community.

To make composting more affordable for small rural communities, the RDKS wants to lobby for the Organic Matter Recycling Regulation (OMRR⁵) to also include uncontaminated paper products (including cardboard) as approved feedstock, where these products are cost prohibitive to recycle. Provided a useful soil amendment can still be achieved this option would allow rural communities to compost cardboard and paper if it is cost effective.

- 16A. Lobby for the regulation governing organics management to include uncontaminated paper products as approved feedstock where recycling is cost prohibitive.
- 16B. Issue a request for qualifications to assess suitable designs and costs to establish a composting facility at Hazelton Waste Management Facility, and implement if deemed feasible.
- 16C. Support the District of Stewart to assess the feasibility of a small-scale compost facility and support implementation if deemed feasible.



Year 1-10



CapEx: \$200K*
OpEx: \$10 - 200K*
RDKS staffing: 60 hrs

Responsibility: RDKS with support from member municipalities

**\$200,000 consulting support in Year 2 & 3. \$200,000 in Year 5 for construction of compost facility at Hazelton the site. Some of the capital costs may be covered by external funding. \$10,000 as annual operating costs after Year 5.*

STRATEGY 17 Amend Solid Waste Bylaw to Encourage Waste Diversion

Issue/Opportunity: Within the Region there are a number of bylaws in place to encourage waste diversion and responsible management of waste materials. The RDKS has three different solid waste related bylaws and local municipalities have their own municipal bylaws. Controlled, restricted and prohibited materials are identified in the RDKS bylaws. However, the materials included in these categories vary between the two service areas. By eliminating differences between the two, the RDKS can create a more cohesive and fair waste management system.

The RDKS is able to issue fines between \$100 and \$1,000 for disposal offences. However, to date there has been limited follow up on reported non-compliances. A relatively common alternative approach to issuing fines for contaminated loads is to apply surcharges. Discounts could also be applied to materials that are of value or needed for operations, such as lower tipping fees for metal and organic materials in the Terrace Service Area.

The RDKS is committed to ensuring that recycling options exist and that sufficient resources are available to enforce bylaw amendments.

⁵ The OMRR governs the construction and operation of compost facilities, and the production, distribution, storage, sale and use of biosolids and compost. It provides guidance for local governments and compost and biosolids producers, on how to use organic material while protecting soil quality and drinking water sources.

- 17A. Amend the definition of organic materials and develop a separate category for clean wood waste. Include this new category under restricted material under both Bylaw 671 and 688.
- 17B. Amend the list of prohibited materials to be as consistent as possible between the two service areas, granted diversion options exist and are developed.
- 17C. Adjust the current fee schedule to encourage increased diversion. Consider surcharges on contaminated loads.
- 17D. Adjust the current fee schedule to allow agreements with stewards (e.g. Major Appliance Recycling Roundtable).



Year 1-10



CapEx: \$n/a
OpEx: \$n/a
RDKS staffing: 50 hrs

Responsibility: RDKS with support from member municipalities

STRATEGY 18 Support Communities to Introduce Curbside Collection

Issue/Opportunity: Many communities offer curbside collection for recyclables, organics and residual waste (garbage). The RDKS wants to take on a facilitating role to encourage communities to offer consistent services, where possible. For example, this could involve facilitating the communication between member municipalities and Recycle BC to seek opportunities to form partnerships with the steward and obtain financial support to cover recycling costs. Support to communities can be provided granted recycling/ organics processing facilities exist.

- 18A. Support the implementation of curbside collection of recyclables and/or organics in communities in the region.



Year 1-10



CapEx: \$n/a
OpEx: \$n/a
RDKS staffing: 40 hrs

Responsibility: RDKS and member municipalities

STRATEGY 19 Incentivize Improved Contractor and Diversion Performance

Issue/Opportunity: The RDKS facility contractors are currently bound to perform certain tasks under their contract's conditions. Additional incentives may be warranted to further improve the performance under these contracts, for example to increase diversion at RDKS facilities. The RDKS will regularly assess the need for more incentive based contracts.



19A. Explore the option of introducing an incentive based program to improve contractor and diversion performance through a combination of education, increased contractor involvement and potentially financial rewards.



Year 1-10



CapEx: \$n/a
OpEx: \$10K in Yr 3
RDKS staffing: 20 hrs

Responsibility: RDKS

1.5 Residual Waste Management at Existing Facilities

Current initiatives undertaken by the RDKS to manage residual waste at existing facilities include:

- Curbside collection of recyclables, organic waste, and residual waste in two service areas (Electoral Areas C and E).
- Acceptance of waste from curbside collection vehicles, residential self-hauled materials, and commercial customers at three transfer stations in Thornhill, Stewart and Kitwanga.
- Operation of five landfills owned by the RDKS.

Residents in other areas are serviced by member municipalities or by First Nation operations departments. Private companies offer subscription-based collection to both residential and commercial customers not serviced by local governments.

In addition to the landfills owned by the RDKS, there are five operational landfills owned by other parties located in Kitimat (municipal and private), Dease Lake, New Aiyansh, and Telegraph Creek.

The RDKS is proposing nine additional strategies and initiatives that aim to further improve residual waste management at existing facilities in the region.

#	Strategy	Short-term Priority (Year 1-5)	Long-term Priority (Year 6-10+)
20	Set limits for solid waste accepted from outside the service area	✓	
21	Reduce greenhouse gas emissions	✓	
22	Effectively use landfill airspace	✓	
23	Improve public accessibility to existing solid waste management facilities	✓	
24	Deliver operational services in-house	✓	



#	Strategy	Short-term Priority (Year 1-5)	Long-term Priority (Year 6-10+)
25	Close selected small landfills and replace with transfer stations	✓	✓
26	Engage with and communicate to citizens on waste management	✓	✓
27	Set limits and reporting requirement for liquid waste		✓
28	Assist in the prevention of illegal dumping		✓

STRATEGY 20 Set Limits for Solid Waste Accepted from Outside the Service Area

Issue/Opportunity: The RDKS solid waste management facilities are partially funded through tax requisition collected from the two service areas. Out-of-service-area waste generators (e.g. industrial waste) are currently charged a 25% surcharge for disposal at RDKS facilities which is set with the intention of offsetting the tax funded portion of the landfill airspace used.

When the landfill at Forceman Ridge WMF, located in the Terrace Service Area, was designed, the volumes of potential incoming industrial waste were estimated as much lower than current situation. Landfill airspace is being consumed at a faster rate than initially projected, largely due to the current LNG Canada project.

With current funding models for the two service areas, the Terrace Service Area is experiencing greater tipping fee revenues as more waste is accepted from industrial sources in this service area. The Hazelton and Highway 37 North Service Area is not experiencing the same financial benefit as less industrial waste is accepted at the facilities in this service area.

With large industrial work camps in the region and the LNG construction project in Kitimat there is a potential opportunity to accept more industrial waste from industry over the next few years and increase additional revenue through collection of tipping fees. Preference will be given to industrial materials that do not unnecessarily take up landfill airspace, such as organics, clean wood, and contaminated soil that can be used on-site as cover material.

The RDKS will first focus on developing a policy for out-of-service-area waste and then on determining the value of airspace and setting surcharges for out-of-service-area waste based thereon.

- 20A. Develop a policy that specifies the type and maximum amount of out-of-service-area waste accepted.
- 20B. Reassess the value of landfill airspace and significantly increase surcharge for out-of-service-area waste.
- 20C. Develop policy to allow disposal from neighbouring Regional Districts.

Responsibility: RDKS



Year 1-5



CapEx: \$n/a
OpEx: \$10K*
RDKS staffing: 20 hrs

**\$10,000 consulting support in Year 4 to reassess value of airspace.*

STRATEGY 21 Reduce Greenhouse Gas Emissions

Issue/Opportunity: The RDKS reports annually on GHG emissions relating to solid waste management, including landfill gas (LFG) management and organic waste composting in an effort to reduce organizational GHG emissions. The collection system for LFG has not yet been established at the Forceman Ridge facility, and will not be legally required until 2069. Early installation of an active LFG management system can be considered a voluntary GHG emission reduction initiative which can generate some tradable carbon credits for the RDKS. The RDKS will focus on continuing current effort to reduce both the generation and emission of GHG and investigate opportunities for carbon credits and revenue sources. Any revenue obtained from carbon credits will need to be allocated to the service area where the carbon credits were generated.

- 21A. Assess eligibility for carbon credits for GHG reduction efforts in solid waste operations, assess cost- benefit of pursuing.

Responsibility: RDKS



Year 1-5



CapEx: \$n/a
OpEx: \$15K*
RDKS staffing: 30 hrs

**\$15,000 consulting support to perform cost-benefit analysis in Year 5.*

STRATEGY 22 Effectively Use Landfill Airspace

Issue/Opportunity: Remaining airspace at existing landfills, such as the Forceman Ridge WMF, should be considered invaluable as siting of a new facility or expansion of the current one may be challenging. For example, airspace should not be consumed by landfilling recyclable materials. The RDKS wants to review the current operations, such as procedures, waste placement, and compaction to identify areas of improvement, set goals, and work with the contractor in reaching these goals including potentially incentivize.

- 22A. Enforce existing bylaws to control the waste disposed and minimize unnecessary airspace consumption.
- 22B. Review the landfill operations including the use of operational soil and alternative daily covers and waste placement and compaction. Based on findings consider providing, recommending, or requiring additional contractor training to improve operations.
- 22C. Consider segregating materials, such as asphalt shingles, to be used for landfill operations thereby offsetting some need for operational soils while saving landfill airspace.



Year 1-5



CapEx: \$n/a
OpEx: \$n/a
RDKS staffing: 100 hrs

Responsibility: RDKS

STRATEGY 23 Improve Public Accessibility to Existing Solid Waste Management Facilities

Issue/Opportunity: One of the main comments received through the April 2019 Public Solid Waste Survey relates to facility accessibility. There is a strong interest in having increased access to waste management facilities.

The primary focus of the RDKS will be to review current operating hours at selected facilities to enhance accessibility. The review should consider opening hours of private facilities that offer solid waste services, contractor agreements, and risk of increased illegal dumping.

- 23A. Adjust operating hours at transfer stations based on public feedback without raising operational costs significantly, by maintaining the total hours of operation.
- 23B. Develop seasonal operating hours at targeted RDKS facilities.



Year 1-3



CapEx: \$n/a
OpEx: \$n/a
RDKS staffing: 50 hrs

Responsibility: RDKS

STRATEGY 24 Deliver Operational Services In-house

Issue/Opportunity: The RDKS has made significant capital investments in its solid waste management infrastructure. Ensuring that operations are optimized to get maximum benefit from the infrastructure and services is a priority. The RDKS has spent significant resourcing managing operations contractors at some sites, in particular remote ones. Operations contracts are challenging to secure for remote facilities. There are very few proponents willing to bid on operational contracts for remote facilities, and as a result of limited competition the operational costs of these facilities become inflated.

In the short term, the RDKS will assess the cost-benefit of in-house vs. contracted staff for facility operations, taking into account current contracts and existing contractor relationships.

- 24A. Assess the cost-benefit of using contractor vs. in-house staff to operate RDKS facilities, and transition to in-house service if determined to be beneficial.
- 24B. For facilities operated by contractors, review contract incentives to better incentivize waste diversion and site cleanliness.



Year 1-5



CapEx: \$n/a
OpEx: \$15K*
RDKS staffing: 30 hrs

Responsibility: RDKS

**\$15,000 for cost-benefit assessment in Year 4.*

STRATEGY 25 Close Selected Small Landfills and Replace with Transfer Stations

Issue/Opportunity: The RDKS operates some smaller landfills, which typically require significant costs to operate and maintain on a per tonne basis. Due to the limited amount of waste disposed and fixed



costs associated with landfilling, the cost per tonne of waste landfilled is considerably higher than at a larger landfill. There are opportunities to reduce operating costs to the RDKS by closing some of the smaller landfills and establishing transfer stations at these sites. This approach was already taken by the RDKS at Kitwanga, where a transfer station was established in 2017 in conjunction with the closure of the existing landfill.

There are currently two smaller landfills that could benefit from being replaced by transfer stations: Rosswood Landfill and Iskut Landfill.

The Rosswood Landfill, which is approximately a 30-minute drive north of Terrace, is intended for residential MSW generated from the Rosswood community of 150 - 200 residents. There are no tipping fees at this landfill. The RDKS has observed that some Terrace Service Area residents drive out to this landfill to avoid paying tipping fees at the Thornhill Transfer Station. If the landfill were to close, and a transfer station built, waste from Rosswood would be sent to the Forceman Ridge WMF.

The Iskut Landfill is also relatively small, and services both the Iskut Band and residents of Electoral Area D. The RDKS has experienced on-going issues with maintaining compliance with the site's operational certificate. In collaboration with Iskut Band, the RDKS wants to investigate the cost/benefits of closing the current landfill and establishing a transfer station that can offer improved waste diversion opportunities for the area. There is a potential to collaborate with Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) to offset some of the capital and operating costs. The RDKS will need to assess the feasibility of accepting waste at the Meziadin Landfill from a transfer station in Iskut.

The RDKS will focus on maintaining the level of service at these two landfills, while basing a decision of closure on the remaining life of the smaller landfills, and the related cost of expansion or closure (e.g. environmental controls, transfer station construction and operation, and hauling of waste).

- 25A. Assess cost/benefit of closing Rosswood and Iskut landfills by determining community need for transfer stations and implement if deemed feasible.
- 25B. Consider options to continue to operate the Iskut Landfill for demolition and land clearing waste.



Year 1-10



CapEx: \$1M*
OpEx: \$300K*
RDKS staffing: 100 hrs

Responsibility: RDKS

**\$30,000 cost-benefit analysis in Year 1, \$270,000 consulting support to plan and design a transfer station in Year 3-5, and \$1million for one transfer station in Year 6.*

STRATEGY 26 Engage with and Communicate to Citizens on Waste Management

Issue/Opportunity: The RDKS has identified the need to increase public education about the region's landfills, landfill closures and gas capture programs, and the need for responsible residual waste management. The RDKS Board has set a strategic mandate for the organization as a whole to increase



efforts to engage and communicate with residents. This strategy should be given on-going focus, while carefully considering staff requirements and the effectiveness of the strategy.

- 26A. Establish an education site at the Thornhill Closed Landfill to educate the public and schools in responsible management of residual waste.
- 26B. Offering tours at suitable waste management facilities.

Responsibility: RDKS



Year 1-10



CapEx: \$n/a
OpEx: \$n/a
RDKS staffing: 100 hrs

STRATEGY 27 Set Limits and Reporting Requirement for Liquid Waste

Issue/Opportunity: Septage is accepted for treatment at Forceman Ridge and Hazelton Waste Management Facilities as well as Meziadin and Iskut Landfills. The types of liquid waste accepted are outlined in RDKS bylaws. There are currently only three liquid waste haulers with active disposal permits (two for the treatment facility at Forceman Ridge WMF and the one for the facility at Hazelton WMF). There are no records of active permits at the Meziadin or Iskut Landfills. The reporting requirement for the haulers is currently limited to specifying quantity and if the waste originates from residential or commercial sources. Current reporting requirements provide the RDKS with limited control of the liquid waste accepted, its source and quality, which reduces the ability to enforce applicable bylaws.

The RDKS will develop policy to provide clear direction and unbiased decision making for acceptance of liquid waste and focus on improved record keeping at the landfills. RDKS will ensure that it has a Liquid Waste Management Plan that includes the liquid waste management facilities located at RDKS solid waste management facilities.

- 27A. Develop policy that requires haulers to report additional details on the quantity, source and type of waste disposed at facility (as part of annual permit).
- 27B. Improve record keeping as it pertains to active permits and liquid waste accepted at the landfill at Hazelton WMF and Iskut and Meziadin Landfills.
- 27C. Develop education program aimed at generators of liquid waste.

Responsibility: RDKS



Year 6-10



CapEx: \$n/a
OpEx: \$n/a
RDKS staffing: 50 hrs

STRATEGY 28 Assist in the Prevention of Illegal Dumping

Issue/Opportunity: Illegal dumping⁶ is an ongoing issue for the RDKS. Materials found at illegal dump sites are often those that would have been collected in a residential curbside program or could have been dropped-off free of charge at the appropriate depots. Some of the main factors influencing illegal dumping include the perceived inconvenience to access disposal facilities, and a lack of education around available disposal options, and avoidance of anticipated disposal costs. Residents may be unaware of convenient disposal options in their area.

- 28A. Utilize the existing illegal dumping working group to develop an illegal dumping strategy aimed to improve tracking and reduce the number of illegal dumping incidents.
- 28B. Implement strategy including survey of illegally dumped materials, public outreach, and enforcement.

Responsibility: RDKS and member municipalities



Year 6-10



CapEx: \$n/a
OpEx: \$n/a
RDKS staffing: 100 hrs

1.6 Waste Management at New Facilities or in New Service Areas

The RDKS consists of two solid waste management Service Areas: Terrace Service Area and Hazelton and Highway 37 North Service Area. The two Service Areas were established in July 2015 under Bylaws 657⁷ and 658⁸. The entire region does not receive solid waste services from the RDKS;

⁶ "Illegal dumping" refers to the intentional disposal of waste materials in unauthorized locations.

⁷ Kitimat-Stikine Hazelton and Stewart Area Solid Waste and Recyclable Material Management Service Establishment Bylaw No. 657, 2015.

⁸ Kitimat-Stikine Terrace Service Area Solid Waste and Recyclable Management Service Establishment Bylaw No. 658, 2015.



however, approximately 75% of the population is provided solid waste management services by the RDKS. The majority of the population not receiving solid waste management services by the RDKS reside in the District of Kitimat.

The RDKS is proposing three strategies for expanding the current service areas and for establishing new solid waste facilities within these areas.

#	Strategy	Short-term Priority (Year 1-5)	Long-term Priority (Year 6-10+)
29	Develop new agreement between the RDKS and the District of Kitimat, including provisions for use of the landfill at Forceman Ridge WMF.	✓	
30	Include Dease Lake in the RDKS Service Area	✓	✓
31	Increase RDKS service area to include Telegraph Creek Landfill (and transfer station)		✓

STRATEGY 29 Develop New Agreement between the RDKS and the District of Kitimat, including Provisions for Use of the Landfill at Forceman Ridge WMF

Issue/Opportunity: The District of Kitimat (Kitimat) is currently not included in either of the two RDKS Service Areas. Waste originating from Kitimat is therefore considered out-of-service-area waste and is subject to a surcharge if received at an RDKS solid waste management facility.

In 2019, Kitimat developed a Solid Waste Management Strategy and Action Plan with the objective of developing and selecting options to improve Kitimat’s waste diversion and disposal system. The Plan was approved in February 2020. Kitimat owns the Kitimat Landfill, which is operated by a private contractor under contract. All residential and commercial residual waste generated and collected in Kitimat is disposed at the site. Waste is also accepted from Kitimaat Village (Haisla Nation). Kitimat estimates there are approximately three years of remaining capacity in Phase 2 of the Kitimat Landfill and they are not able to expand into Phase 3 without significant capital investment in design and operational improvements.

Kitimat recently approved the introduction of three stream curbside collection starting in 2021. The RDKS and Kitimat may be able to align curbside collection contracts in the future, which should be a fairly smooth transition as the collection programs are similarly designed. Currently the same contractor is providing curbside collection services in both areas. Collaboration through Service Area expansion or a Forceman Ridge WMF user agreement could potentially generate additional revenue for the RDKS in the range of \$750,000-\$900,000 annually based on current disposal rate at the Kitimat landfill, Terrace Service Area taxation rate, and tipping fees.



- 29A. Assess the costs and benefits of including Kitimat in the RDKS Greater Terrace curbside collection program. Develop cost sharing between Kitimat and RDKS to create a system fair to all.
- 29B. Assess the costs and benefits of including Kitimat in the RDKS Terrace Service Area, building a transfer station in Kitimat, and hauling waste to Forceman Ridge WMF. Develop options for cost sharing and responsibilities related to the Kitimat Landfill and the new transfer station.
- 29C. Assess the costs and benefits of permitting Kitimat to access the landfill at Forceman Ridge WMF without joining the Terrace Service Area. If deemed the best option, develop an agreement between the two parties.



Year 1-5



CapEx: \$TBD*
OpEx: \$25K*
RDKS staffing: 150 hrs

Responsibility: RDKS and District of Kitimat

**\$25,000 for cost-benefit study in Year 1. The study will determine the associated capital cost.*

STRATEGY 30 Include Dease Lake in the RDKS Service Area

Issue/Opportunity: The Dease Lake Landfill is owned by Ministry of Transportation and Infrastructure (MOTI) and operated by a local road maintenance contractor. The landfill receives approximately 100 tonnes of waste a year (2017 estimate) from the surrounding community; however, there is no scale to confirm accurate quantities. Waste is also accepted from Telegraph Creek. MOTI has expressed an interest in handing landfill ownership and operation over to the RDKS. The RDKS is not interested in taking over the landfill ownership or liability. If the RDKS takes over operational responsibility of the Dease Lake Landfill, the landfill would become a facility under the Hazelton and Highway 37 North Service Area. The MOTI would be responsible for capital costs for the landfill, including future closure and post-closure costs.

There are existing environmental impact liability issues with this site. If the RDKS takes over operational responsibility of Dease Lake Landfill, two options would need to be considered; either continuing the landfill operations or assisting MOTI with the landfill closure and the establishment of a transfer station. The RDKS would operate the transfer station and be responsible for hauling of waste to a disposal site (most likely to Meziadin Landfill). The funding and ownership of a potential transfer station would need to be considered and assessed.

30A. Assess feasibility of developing an agreement with MOTI where RDKS is responsible for operations of the landfill and any future transfer station, while landfill liability remains with MOTI, and implement if deemed feasible.



Year 6-8



CapEx: \$n/a
OpEx: \$40K*
RDKS staffing: 50 hrs

Responsibility: RDKS, Tahltan /Telegraph Creek Band, MOTI

**\$40,000 in consulting fees in Year 6.*

STRATEGY 31 Increase RDKS Service Area to Include Telegraph Creek Landfill (and Transfer Station)

Issue/Opportunity: Telegraph Creek Landfill is owned by Telegraph Creek Band, which is part of the Tahltan Nation. Waste is no longer accepted for disposal at the Telegraph Creek Landfill and Telegraph Creek is currently hauling one 40 cubic yard bin of waste to Dease Lake Landfill on a weekly basis.

The RDKS contributes funding to the Telegraph Creek Band for facility use by Electoral Area D residents through a cost-sharing agreement. The RDKS has had limited input on long-term development of the site and are open to increasing the level of involvement in matters relating waste management.

The closure of the Telegraph Creek landfill and the hauling of waste may impact the RDKS, especially if the Dease Lake Landfill is included in the RDKS service areas as discussed in Strategy 30 . The RDKS would like to have a higher level of involvement in the planning and decision-making process for the Telegraph Creek Landfill and transfer station.

31A. Increase the RDKS's involvement in the planning and decision-making process for the Telegraph Creek Landfill and transfer station. Review the current agreement and propose an amendment, if warranted.



Year 6-7



CapEx: \$n/a
OpEx: \$n/a
RDKS staffing: 50 hrs

Responsibility: RDKS, Tahltan /Telegraph Creek Band



1.7 Cost Recovery and Financial Sustainability

The RDKS consists of two solid waste management Service Areas: Terrace Service Area and Hazelton and Highway 37 North Service Area. These were established in July 2015 under Bylaws 657⁹ and 658¹⁰. The two RDKS Service Areas have different cost recovery models tailored to each area. Each Service Area is financed separately, and the cost recovery is outlined in Section 4 of each bylaw. Cost and revenue sharing is currently not possible between the two service areas under current bylaws as per the Local Government Act (*Part 11, Division 2, Items 378-380*).

The RDKS' solid waste management system has undergone some major changes over the past few years, including the construction of a new landfill, the expansion of another with significant upgrades, and the construction of three new transfer stations; two with integrated recycling depots. Additional changes include the closure of four landfills—two RDKS-owned and two owned by member municipalities. These upgrades have required significant capital investments. The upgrades and added services have also resulted in increased and difficult-to-predict operational costs in both service areas.

The Terrace Service Area is currently operated with a surplus; however, the Hazelton and Hwy 37 North Service Area is experiencing higher than expected capital and operating costs and an annual deficit.

During the planning process a Financial Working Group (FWG) met twice to discuss the current cost recovery models, options to improve the cost recovery, and the member communities' ideas, concerns, and observations. The FWG is made up of financial representatives from member municipalities and First Nations within the RDKS.

The development of cost recovery options was directed by the five Guiding Financial Principals developed in collaboration with the RDKS and the FWG. These five principals are:

1. Strive for long-term financial sustainability
2. Take advantage of economies of scale, where possible
3. Provide good and equal level of service
4. Provide equitable service to all residents in the same service area
5. Improve operating efficiencies of current solid waste management services and facilities

The RDKS is proposing four additional strategies and initiatives that aim to further improve the current cost recovery and financial sustainability in the region.

#	Strategy	Short-term Priority (Year 1-5)	Long-term Priority (Year 6-10+)
32	Review cost recovery model within the service areas to provide fair cost sharing	✓	✓
33	Reduce costs	✓	✓
34	Increase revenue	✓	✓
35	Implement indirect cost sharing between service areas		✓

⁹ Kitimat-Stikine Hazeltons and Stewart Area Solid Waste and Recyclable Material Management Service Establishment Bylaw No. 657, 2015.

¹⁰ Kitimat-Stikine Terrace Service Area Solid Waste and Recyclable Management Service Establishment Bylaw No. 658, 2015.



STRATEGY 32 Review Cost Recovery Model within the Service Areas to Provide Fair Cost Sharing

Issue/Opportunity: Over the past five years, facility operating costs in both service areas have increased substantially, as shown in Figure 4 below. The cost per capita to operate the solid waste facilities in the Hazelton and Highway 37 North Service Area is about three to four times higher than the cost of operating the facilities in the Terrace Service Area. The significantly higher per-capita facility operating cost is due to the substantially smaller population base, the greater number of solid waste facilities, and the greater distance between facilities in the Hazelton and Highway 37 North Service Area.

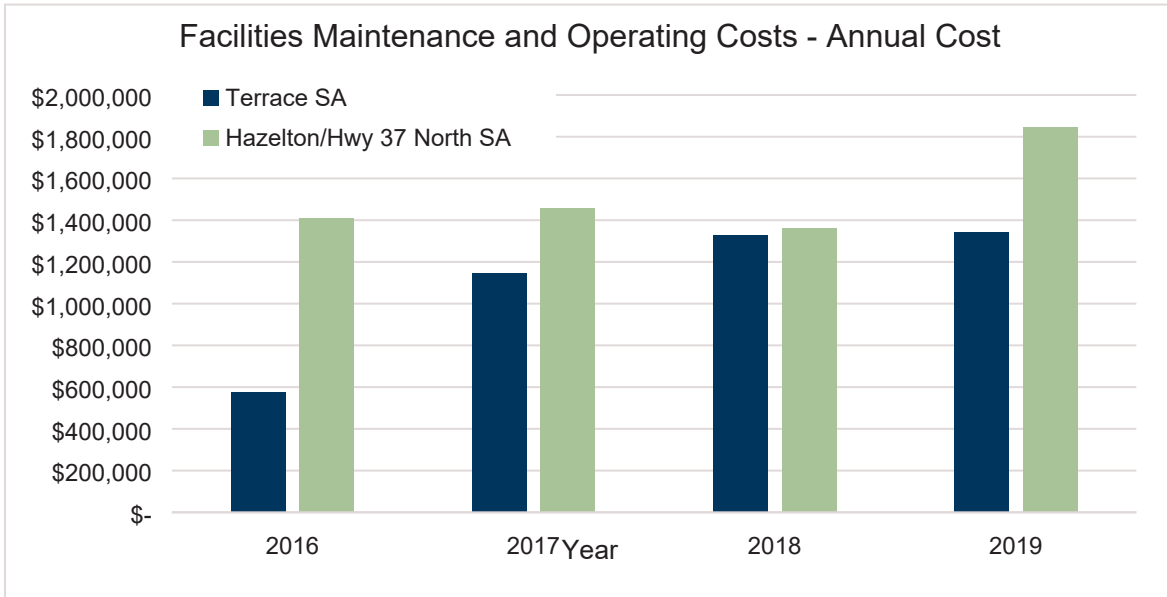


Figure 4 Annual facility maintenance and operating costs for service areas over last four years.

Based on estimated waste tonnages accepted in the Hazelton and Highway 37 North Service Area where no weigh scales exist, the per-tonne facility operating costs in the Hazelton and Highway 37 North Service Area are likely more than double the per-tonne costs in the Terrace Service Area. The per-tonne disposal cost in the Terrace Service Area has decreased over the past three years which is primarily due to the increase in landfilled waste from industrial and commercial sources. The Hazelton and Highway 37 North Service Area does not have the same access to revenue through disposal of industrial waste at this time. The per-tonne disposal cost increased for the Hazelton and Highway 37 North Service Area between 2018 and 2019 which is mainly the result of operating costs related to the Stewart Transfer Station.

The two Service Areas were established in 2015 prior to the completion of the major capital investments and service changes in the regional district, and both have different funding models. The RDKS may want to review the long-term sustainability of the cost recovery models, considering it has been five years since the two Service Areas were formed and operating costs have increased substantially since that time.

The RDKS wants to develop a number of key performance indicators (KPIs) considering cost per capita, household or business, and cost per tonne of waste generated or disposed. The KPIs will assist with evaluating the current cost recovery models against the Guiding Financial Principals outlined section above. KPIs normalize costs to a common denominator (such as per capita or household),



which allows for a standard comparison of costs between service areas. Using normalized KPIs is particularly important when comparing costs between two different service areas with significantly different populations.

There may not be a clear understanding of the high cost of waste management among residents and business owners and the RDKS wants to enhance messaging around waste management costs.

- 32A. Develop KPIs to assist in evaluation of the current cost recovery models between service areas. Adjust cost recovery models to facilitate a continued service delivery fair to all residents and businesses.
- 32B. Include messaging around waste management cost in RDKS's public education efforts.

Responsibility: RDKS



Year 1-10



CapEx: \$n/a
OpEx: \$20K*
RDKS staffing: 50 hrs

**\$20,000 in consulting fees in Year 5.*

STRATEGY 33 Reduce Costs

Issue/Opportunity: Directing efforts to reduce cost is a natural way to balance the budgets. Cost reductions can sometimes be found through improved operating efficiencies. Cost saving efforts should be considered in conjunction with potential impacts to levels of service or quality provided. All cost saving efforts should aim to avoid compromising the existing service levels being provided to residents.

Many areas for improvement have been identified during the SWMP development process and are included as part of specific strategies that relate to the waste hierarchy of reduce, reuse, recycle and residual management. One important example is that the RDKS wants to increase the number of service agreements with stewardship organizations such as Recycle BC and other stewards with the aim of offset some collection costs.

The service area that struggles with the highest operational costs is the Hazelton and Highway 37 North Service Area. It is currently operating with a deficit, mainly due to high transportation costs, higher than expected operating costs, hauling distances, and the limited market for recyclable materials.

The RDKS is committed to reducing costs by focusing on the following areas:

- Reviewing material management including compaction and co-hauling/back-hauling of waste material.
- Reassessing the operating hours of selected facilities, the use of RDKS equipment, and the allocation of staffing to specific tasks.

- Exploring the opportunity of performing tasks in-house using RDKS staff members, where currently contracted staff are used.
- Developing long-term goals and strategies, including potential investment aimed to increase diversion and bylaw adherence.
- Closing selected small landfills and establish transfer stations (refer to Strategy 25).

The RDKS acknowledges that all major system changes come at a price and this must be accounted before implementing changes aimed to achieve overall cost savings.

- 33A. Complete detailed hauling analysis to assess the feasibility of alternative co-hauling and back-hauling options.
- 33B. Perform a cost-benefit analysis of baling and/or compacting recyclable materials hauled from the Hazelton and Highway 37 North Service Area.
- 33C. Regularly revisit agreements and operating procedures to explore options to reduce cost while maintaining service level and quality.
- 33D. Develop long-term goals and strategies, including potential investment, with the purpose of reducing cost in the long term.
- 33E. Complete operational reviews for each facility, which would include a review of staffing, past operating performance, primary operating costs, and identification of areas for improvement.



Year 1-10



CapEx: \$n/a
OpEx: \$100,000*
RDKS staffing: 100 hrs

Responsibility: RDKS

* Fees for efficiency reviews over years 1 to 5.

STRATEGY 34 Increase Revenue

Issue/Opportunity: The RDKS's main revenue sources include requisition through taxation, cost-sharing agreements with First Nation communities, tipping fees, and curbside collection fees. These revenue sources are aimed at covering the solid waste management operations, whereas loans and grants are used to pay for capital projects.

Since the Forceman Ridge WMF started accepting waste in 2017, the amount of industrial waste and soil accepted at the facility has increased substantially. Under the existing bylaw, soil that is suitable for cover is charged a reduced rate of \$55.00/tonne, whereas contaminated soil is charged \$65-\$78/tonne, depending on the level of contamination. General refuse is charged \$110/tonne. Industrial waste and any waste generated outside the Service Area is charged a 25% surcharge in addition to the posted tipping fees. Recent financial modelling and assessment of the surcharge indicate that the RDKS may want to increase the surcharge, from 25% to around 100%, for the industrial waste and waste generated outside the Service Area to ensure sufficient funds exist to expand into the next landfill phase once the current one has reached capacity.

The RDKS wants to further review the surcharge applied to industrial waste, out-of-service-area waste, as well as the tipping fee charged for soil material. A revised surcharge for industrial waste and tipping fee for soil will be developed with consideration of the following:



- The full cost of the landfill, including planning, design, operations, closure, and post-closure costs. As a best practice, the tipping fee should be established to cover all landfill costs over its entire lifespan (including the post-closure period). By considering the full cost of the landfill, the value of the remaining available airspace can be quantified.
- The tipping point at which it is more economical for industry to dispose of waste at another facility or construct their own landfill.
- The benefits and costs of accepting contaminated soil at a discounted tipping fee (compared to general garbage).

The RDKS Board has voted to increase tax requisition in the Hazelton and Highway 37 North Service Area to recover the 2019 deficit (and future anticipated deficits) over the next 5 years. Additional efforts to increase revenue, particularly for the Hazelton and Highway 37 North Service Area, should be considered to reduce the cost burden on residents and businesses. Currently, there are no tipping fees charged at the Landfill at Hazelton WMF and the Meziadin Landfill (with the exception of select ICI loads). Assuming a tipping fee of \$110/tonne, this represents an additional potential revenue stream of up to \$650,000.

The introduction of user-pay tipping fees in the Hazelton and Highway 37 North Service Area is consistent with the Guiding Principles of the SWMP. A user-pay system incentivizes residents and businesses to divert more material and reduce the amount of waste disposed. The RDKS is considering introducing tipping fees for large waste loads only, originating from commercial sources.

Should tipping fees be considered for residential users, a model could be set up where each household in the Service Area is given a set waste volume or number of visits for free (or for an annual fee) each year and waste beyond that would be subject to tipping fees. The communities of the District of Stewart, Village of Hazelton, District of New Hazelton, Gitanyow, Gitwangak, Gitsegukla, Witset, Gitanmaax, Glen Vowell, Hagwilget, and Kispiox currently receive curbside pickup of garbage, and residents could be provided with a set number of self-haul visits for free.

It is recognized that tax requisition will likely need to be adjusted if tipping fees are introduced in the Hazelton and Highway 37 North Service Area. Communications related to the implementation of tipping fees should clearly indicate that the objective is to charge residents an amount that is more proportional to the amount of waste they are disposing (user-pay system). Communications should clearly explain the total cost to residents if revenues are collected through a combination of tipping fees and tax requisition and compare the proposed costs to the total costs that residents are paying under the current tax-based cost recovery model. It is understood that residents may feel like they are paying twice if tipping fees are introduced.

- 34A. Regularly review and update the current cost model for the landfill at Forceman Ridge WMF and adjust tipping fees for industrial and out-of-service-area waste as needed.
- 34B. Assess the costs and benefits of introducing a “user-pay” cost recovery model in the Hazelton and Highway 37 North Service Area by introducing tipping fees and adjust tax requisition based on new tipping fee structure. Implement a “user-pay” cost recovery model if deemed beneficial to residents, businesses and the RDKS while following the Guiding Financial Principals.



Year 1-10



CapEx: \$n/a
OpEx: \$20K*
RDKS staffing: 100 hrs

Responsibility: RDKS

**\$20,000 for consulting fees over Year 4-5.*

STRATEGY 35 Implement Indirect Cost Sharing between Service Areas

Issue/Opportunity: The Terrace Service Area is currently operating in a surplus and the Hazelton and Highway 37 North Service area is operating in a deficit. Under the current bylaws and Local Government Act, cost and revenue sharing between the two service areas is not allowed.

Bylaws No. 657 and 658 were established in 2015 based on the current and projected facility operating costs and revenues at that time. As discussed above, operating costs in both service areas have increased significantly over the last five years. Tax requisition in the Hazelton and Highway 37 North Service Area has recently been increased substantially in order to cover the increasing facility operating costs.

The Forceman Ridge WMF receives a significant quantity of waste from industrial sources. The RDKS can consider the feasibility of redirecting waste to the Hazelton and Highway 37 North disposal facilities by providing incentives to industrial users to haul directly to the Meziadin Landfill or Hazelton WMF. However, the round-trip hauling time from Terrace to the Hazelton WMF or Meziadin Landfill is a barrier to redirecting waste to these facilities. Even if industrial waste haulers are incentivized to dispose at these facilities (for example, through reduced tipping fees), the economics of hauling an additional four to six hours may be too much of a financial barrier. A feasibility assessment would need to consider the suitability to receive industrial waste, hauling distance, environmental impact and costs to producers and haulers.



35A. Assess the feasibility of redirecting industrial waste to the Hazelton WMF and/or Meziadin Landfill to allow indirect cost sharing.



Year 5-10



CapEx: \$n/a
OpEx: \$40K*
RDKS staffing: 50 hrs

Responsibility: RDKS and District of Kitimat

**\$40,000 in consulting fees in Year 6.*

2) KEY CONSIDERATIONS FOR DEVELOPING & ASSESSING PROPOSED STRATEGIES

During the planning process, the RDKS has worked closely with the consultant, Morrison Hershfield, and PTAC to ensure that a wide range of factors have been considered during the development of potential options, the selection of proposed strategies and determining associated actions.

Some of the key considerations used for developing and assessing proposed strategies during the planning process include:

General:

- **Alignment with existing or proposed provincial strategies and initiatives** – the guiding principles proposed by the Ministry were adopted for the SWMP development.
- **The potential of a policy / waste management service solution to result in significant waste stream reduction** – the waste composition results helped to guide decisions on waste streams that the RDKS still needs to prioritize to reduce landfill disposal.
- **Potential challenges administrating policy once introduced** – in developing operational costs the RDKS has considered new staffing requirements.
- **Opportunity for public-private partnerships** – the RDKS has proposed strategies that encourage partnerships, and the PTAC were actively involved in identifying potential partnerships that may be important for specific strategies.
- **Flexibility to adapt policy to changing circumstances over time** – one of the main focus areas of the new SWMP is to improve system efficiency. The proposed strategies have been developed to allow the RDKS flexibility to adapt policy if necessary.
- **Risk of failure** – the RDKS has made it clear that the remaining landfill capacity should be considered invaluable as siting of a new facility or expansion of the current one may be challenging. The siting, design, and construction of a landfill such as the Forceman Ridge Waste Management Facility would require major capital investment.

Environmental:

- **Linkages to the pollution prevention hierarchy and prioritization of the first 3 Rs** – the planning process explored potential options in accordance with the pollution prevention hierarchy with focus on the 3 Rs (reduction, reuse, and recycling).
- **Facility discharges to the environment and level of associated environmental risk** – the RDKS has prioritized improved drop-off options for hazardous waste, which the RDKS wants to ensure are managed in an environmentally responsible manner.
- **Associated direct environmental benefits** – the RDKS will focus on continuing to reduce both the generation and emission of greenhouse gases associated with Forceman Ridge landfill, divert more organic waste and produce a high quality compost for local use.
- **Associated ancillary environmental benefits** – The proposed strategies include strategies to prevent waste and support the use reusable items, products with recycled content, etc.

Social:

- **Associated social benefits** – the proposed strategies involve empowering residents through increased public awareness and education and increased accessibility to waste management services. Education on system costs and policy changes are important to gain community buy-in and influence behaviour changes.
- **Ability to create opportunities for new partnerships** – many partnership opportunities have been identified, many which have potential to create low-barrier workforce opportunities/training.
- **Opportunities for collaboration with neighbouring regional districts** – collaboration is likely to focus on sharing of educational and public outreach materials.
- **Opportunities for increased private sector involvement and benefit to the region** – the RDKS is proposing to establish an ICI working group to increase private sector involvement.

Many of proposed strategies involve feasibility and cost-benefit assessments for reviewing particular aspects of the waste management system prior to implementing changes. The RDKS is committed to considering environmental, social and economic impacts as part of all assessments, in particular for studies involving the establishment of solid waste infrastructure. Only cost-benefit assessments that show a strong case are likely to lead to implementation. For cost-benefits assessments the RDKS can consider economic benefits (revenues, employment opportunities), available recycling infrastructure and end-markets for collected materials, transportation costs, RDKS staff implications, costs, potential savings and costs to taxpayers and consumers compared to alternatives, fairness and equity regarding the distribution of accrued costs and benefits, etc.

3) NEXT STEPS

During the PTAC meetings on June 25, committee members are presented a summary of all proposed strategies as highlighted in this Memo. There will be an opportunity to provide feedback to ensure that these preferred options have been accurately captured based on previous PTAC meetings. Committee members will also be asked to vote to show if the proposed strategies and priorities (short- and long term) are supported. Only the strategies and priorities, which are supported by PTAC will be used to develop the new SWMP. These proposed strategies and priorities will be brought to the Regional District Board for evaluation and sign-off prior to taking the draft plan to the Public for consultation later in 2020.