



MORRISON HERSHFIELD

FINAL REPORT

Assessment of Full-Service Levels for the Regional District Transfer Station Network

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GLOSSARY OF TERMS

BC	British Columbia
EPR	Extended producer responsibility
FBRL	Foothills Boulevard Regional Landfill
HHW	Household hazardous waste, including EPR materials such as paints, flammable liquids and pesticides
ICI	Industrial, commercial and institutional
MARR	Major Appliance Recycling Roundtable
MOE	Ministry of Environment and Climate Change Strategy
MPP	Mixed paper products
MSW	Municipal solid waste
OCC	Old corrugated cardboard
ODS	Ozone depleting substance
PPP	Packaging and printed paper
RBC	Recycle BC (RBC) is a steward under the Recycling Regulation and has a responsibility for implementing services for the collection and recycling of residential packaging and printed paper throughout BC
RDFFG	Regional District of Fraser-Fort George
RMC	Residential mixed containers
UBCM	Union of B.C. Municipalities

EXECUTIVE SUMMARY

Scope of Study and Background

The Regional District of Fraser-Fort George (RDFFG) provides solid waste management services to its four municipalities — the City of Prince George, the District of Mackenzie, the Village of McBride and the Village of Valemount— as well as rural residents in all 7 electoral areas. Service delivery to the approximately 94,500 residents is guided by the 2015 Regional Solid Waste Management Plan.

Delivery of waste management services is primarily through an infrastructure system, or network, that consists of two landfills for disposal of municipal solid waste (MSW), one select landfill for disposal of demolition, land-clearing and construction waste (DLC) and 17 transfer stations, as well as a number of private recycling facilities.

The collection services of waste materials at the RDFFG's transfer stations are varied. Some facilities only receive MSW for disposal, while others receive a wide variety of MSW and recyclables, including Extended Producer Responsibility (EPR) products¹. The RDFFG has existing partnerships with stewardship agencies for the collection of EPR products and also collects materials independently from the stewardship agencies.

Currently, the RDFFG does not have a policy framework for determining its role in providing collection services for EPR products. In fall 2018, the Board was presented with three EPR models based on how EPR materials were typically managed across regional districts in BC. RDFFG staff received direction from the Board to explore full-service EPR as a service delivery model at RDFFG solid waste facilities. The Board wanted to assess how the RDFFG could provide a broad range of EPR collection services within the current solid waste transfer station system.

Morrison Hershfield was commissioned to undertake an assessment of service levels within the existing transfer station and landfill network, with the objective of identifying opportunities to increase waste diversion with particular emphasis on EPR products and materials. The assessment was to include a review of options for full-service EPR within the transfer station and landfill network.

As part of the development of options, an initial report (Report 1) provided a detailed review of the service area and service levels currently available at each transfer station facility. The report also included information on collection services provided by private facilities for recyclable products under the Province's designated EPR program, including identification of gaps in access to this service across the region. Report 1 findings were presented at the June 2019 Board meeting.

¹ 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. Refer to section 2.1 for more information.

In Report 2, “Options for Full-Service EPR Delivery and Improving Caretaker Amenities”, Morrison Hershfield identified three full-service options to consider, along with rationale for the selected options and the anticipated environmental, social, and financial impacts of each. The report findings were presented at the September 2019, Board meeting.

This Final Report summarizes the previous two Reports and provides recommendations for moving forward with developing an EPR Policy Framework.

Diversion of EPR Materials in the Region

EPR products are currently collected in the region at RDFFG’s transfer stations and landfills (often in partnership with a stewardship agency) or via private organizations, either at producer-led return-to-retailer programs (Shaw, Telus, Bell, London Drugs) or via private recycling companies, either established directly by the stewardship agencies or through agreements with the stewards.

Residents in the City of Prince George have many EPR product drop-off options, with overlapping services provided by RDFFG’s transfer stations or by private facilities and return-to-retailer options. The review of EPR collection services available in Mackenzie, Valemount and McBride showed that there are some gaps in collection options for EPR products.

Residents in other rural electoral area communities have much more limited options for EPR product recycling. The transfer stations in McLeod Lake, Summit Lake and Miworth only collect refuse and no recyclables or EPR products. There are ten transfer stations that collect cardboard as part of the collection for mixed paper packaging operated and funded by the RDFFG.

Planned Facility Changes

The RDFFG is planning for significant changes to four of the existing facilities:

- **Mackenzie Regional Landfill (MRL)** will have the potential to expand opportunities for collection of EPR products, as construction is set to be completed by December 2019.
- **Cummings Road Regional Transfer Station** will be reconfigured to improve traffic flow and accessibility, improve wildlife management, and improve site safety.
- **Foothills Boulevard Regional Landfill (FBRL)** will have a new public drop-off area and entrance design, including new scales and scale house.
- **Quinn Street Regional Recycling Depot** is located on property leased from the City of Prince George. The lease agreement ends in 2021, and a replacement facility is being considered, pending the direction the Board gives on the EPR policy framework.

Issues and Opportunities Identified with the Current Transfer Station System

During the review of the current transfer station system, several issues and opportunities were identified and are summarized in the table below.

Issues and Opportunities Identified with the Current Transfer Station System

Issue/ Opportunity	Comments
Duplication of services through close proximity of some transfer facilities	Specific areas are over-serviced with transfer stations within close proximity, e.g. RDFFG facilities Buckhorn, Cummings Road and Shelley are within a 20-minute drive of each other. There is potential for consolidation of services. Miworth is 15 minutes from Foothills as is Chief Lake.
Material management and number of loads processed at some sites	All accepted materials at each facility must be screened, stored, and hauled. Increasing accepted commodities will increase the number of loads processed and hauled.
Operational constraints/site limitations of specific sites	Need to improve access, material and traffic management, etc. e.g. Cummings Road has traffic and access constraints, Buckhorn has no available room for expansion.
Available space to expand selected transfer stations	Several transfer stations have the space to expand. For example, the Shelley Regional Transfer Station already accepts numerous materials, but also has available space to expand. Additional staffing would be required.
Safety at the RDFFG Transfer Stations	Need improved fall protection due to gaps in guard railings at specific sites, e.g. railings above construction and demolition waste bins at Cummings Road.
Fluctuating Market Prices of Recyclables	Increased fluctuations in market demands for recyclables has led to the RDFFG paying to have materials recycled. For example, the cost of marketing the fibre materials (mixed waste paper) collected in the multi-material recycling bins is potentially a \$200 per tonne expenditure under current one year contract revised in early 2019. The RDFFG will need to factor in the risk of fluctuating markets when deciding to partner with Recycle BC for the collection of packaging and printed paper (PPP). Regional Districts currently partnered with Recycle BC (e.g. the regional districts of Cariboo, Peace River and Kitimat Stikine) have not been impacted by recent market changes to the same extent.
Future EPR Products	The MoE has indicated that products such as mattresses, PPP from the industrial, commercial and institutional (ICI) sector and single-use plastics are on the priority list for future inclusion. The RDFFG needs to consider how any future material categories may impact the transfer stations.
Education and Promotion of Existing Collection Services Offered at Facilities	Need for greater public education, promotion and coordination of existing waste diversion/EPR programs/services in the region. All three neighbouring regional districts promote all EPR collection sites (regional and private facilities) via online directories that are frequently updated.

Options for Full Service EPR Policy Framework

Three options were developed for implementation of full-service EPR delivery by the RDFFG. All three options had to ensure that the majority of residents have access to collection options for EPR products.

Options 1 and 2 involved increasing the number of EPR materials collected at targeted facilities within a service area based on the key considerations listed above. Option 3 focused on addressing gaps where private facilities were not available for collection of EPR products and the removal of RDFFG involvement where take-back options exist.

For each identified option, the impact on existing operations at RDFFG's facilities was assessed by modeling the assumed changes to EPR materials collected at each facility. High-level operational and financial implications of partnering with additional stewardship agencies were assessed based on operational assumptions and cost estimates. Refer to report 2 for more details of each option, impacts of materials accepted at each RDFFG facility as well as environmental, social, and financial impacts.

The options were presented at the September 2019 Board meeting, the Board expressed interest in pursuing Option 1 and had concerns with proposed costs. Further discussions with RDFFG staff as well as a Board administrative briefing precipitated Morrison Hershfield developing recommendations for moving forward with an EPR Policy Framework as outlined in this report.

Recommended Upgrades to Caretaker Amenities

Morrison Hershfield was tasked to review the existing caretaker amenities at the Regional transfer stations as part of this study's scope. Currently the RDFFG does not place specific requirements on site amenities for caretakers, such as staff shelter or portable toilets. There are currently six attended RDFFG facilities without caretaker amenities. The attendants at these facilities are contracted by the RDFFG. The facilities where the attendants are directly employed by the RDFFG each have a shelter and toilet.

Based on Morrison Hershfield's experience in transfer station design throughout British Columbia and in other provinces and territories, the recommendation is that heated staff shelters and access to washrooms be considered essential to an operating facility attended by caretaker staff.

Morrison Hershfield recommends that the contractor should supply the caretaker amenities, including shelter and washrooms, for the six sites. The requirements on amenities would be part of existing contracts and the RDFFG would not be responsible for the maintenance and repair of the amenities. The length of the remaining contract may impact the facility amenities provided and this would need to be addressed as part of the contract re-negotiation process.

Recommendations for Next Steps

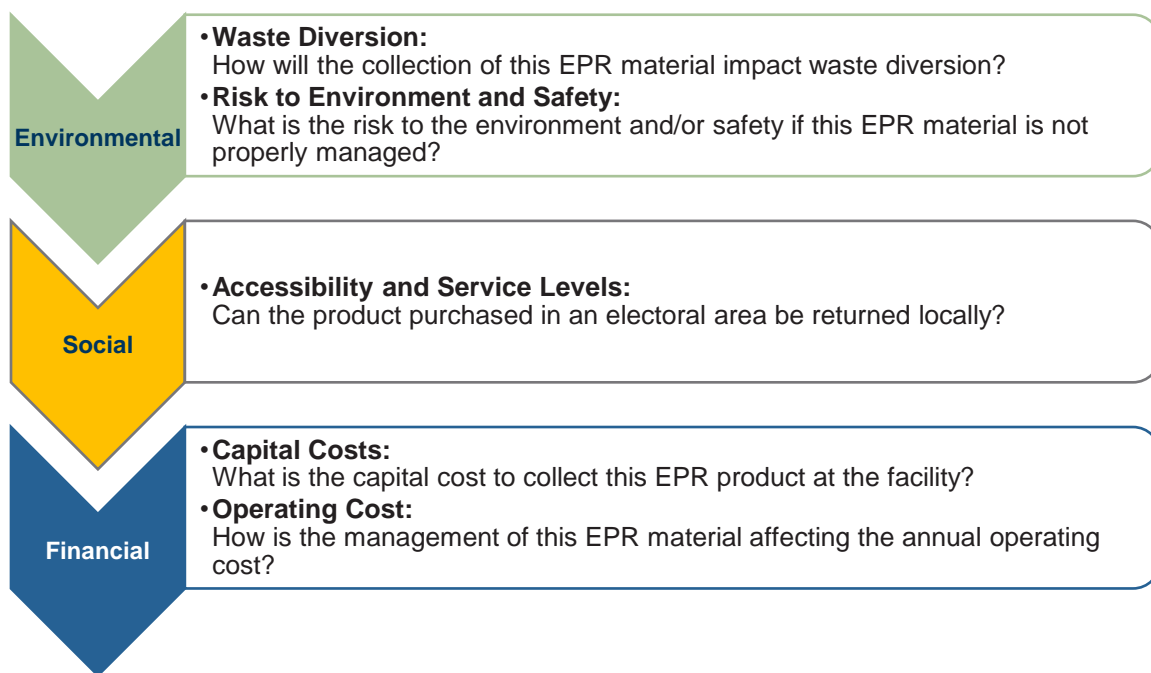
The following provide recommendations on how the RDFFG can ensure a consistent approach to decide which EPR products to collect within the transfer station network, while maximizing environmental, social and financial benefits.

Develop an EPR Policy Framework for the RDFFG

Morrison Hershfield recommends that the RDFFG Board and staff develop an EPR Policy Framework for the RDFFG as stated in the Waste Diversion Implementation Strategy. A policy framework will guide staff on decision-making as new EPR materials are proposed as well as evaluating whether the currently accepted EPR materials should continue to be collected. This policy framework will simplify the decision-making around which EPR materials are accepted, in particular when additional EPR materials are included under the Recycling Regulation or added to current EPR programs.

Establish Decision-Making Criteria for EPR Materials

A proposed decision-making criteria was developed by Morrison Hershfield for consideration by the RDFFG. The key criteria for decision-making are provided below and include criteria under Environmental, Social and Financial considerations.



Proposed Decision-Making Criteria for Assessing Changes to EPR Material Collection at the RDFFG Facilities

The proposed decision-making criteria can be used to enable a consistent evaluation of changes to service levels for EPR material collection at the RDFFG facilities. Each time the RDFFG has an EPR product or material to consider for collection at a specific facility, staff can follow the proposed decision-making process. The process ensures a streamlined and consistent approach based on the environmental, social and financial implications.

Enhance Public Education to Implement the EPR Policy Framework

We recommend that the RDFFG increase the level of public education to promote the collection options available in the region. All three neighbouring regional districts (Cariboo Regional District, Peace River Regional District and Regional District of Kitimat Stikine) promote all EPR collection sites (regional and private facilities) via online directories that are frequently updated.

Changing behaviors of residents through increased promotion of diversion options is key for successful implementation of an EPR Policy Framework.

Advocate for Legislative Changes to the Recycling Regulation

EPR as a policy tool is designed to shift the cost of managing end-of-life products from local governments to producers and consumers. However, when the RDFFG accepts more EPR products at its facilities, it typically increases the cost to the RDFFG as full cost recovery from the Stewards has not been demonstrated. Therefore, residents may be paying for recycling via an eco-fee or a deposit at the time of purchase as well as taxes to fund the collection services at RDFFG facilities.

The Board has submitted several resolutions to the Union of B.C. Municipalities (UBCM) over the years to advocate for EPR to be the producer's full responsibility. Morrison Hershfield encourages the RDFFG to continue to advocate for legislative changes for remote and rural communities that are not well served by the Recycling Regulation.

1. INTRODUCTION & STUDY SCOPE

The Regional District of Fraser-Fort George (RDFFG) provides solid waste management services to its four municipalities — the City of Prince George, the District of Mackenzie, the Village of McBride and the Village of Valemount— as well as rural residents in all 7 electoral areas. Service delivery to the approximate 94,500 residents is guided by the 2015 Regional Solid Waste Management Plan, which was approved by the Regional Board in February 2016.

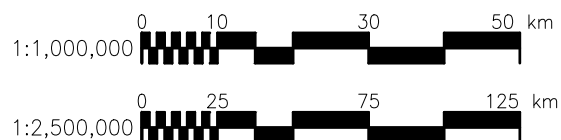
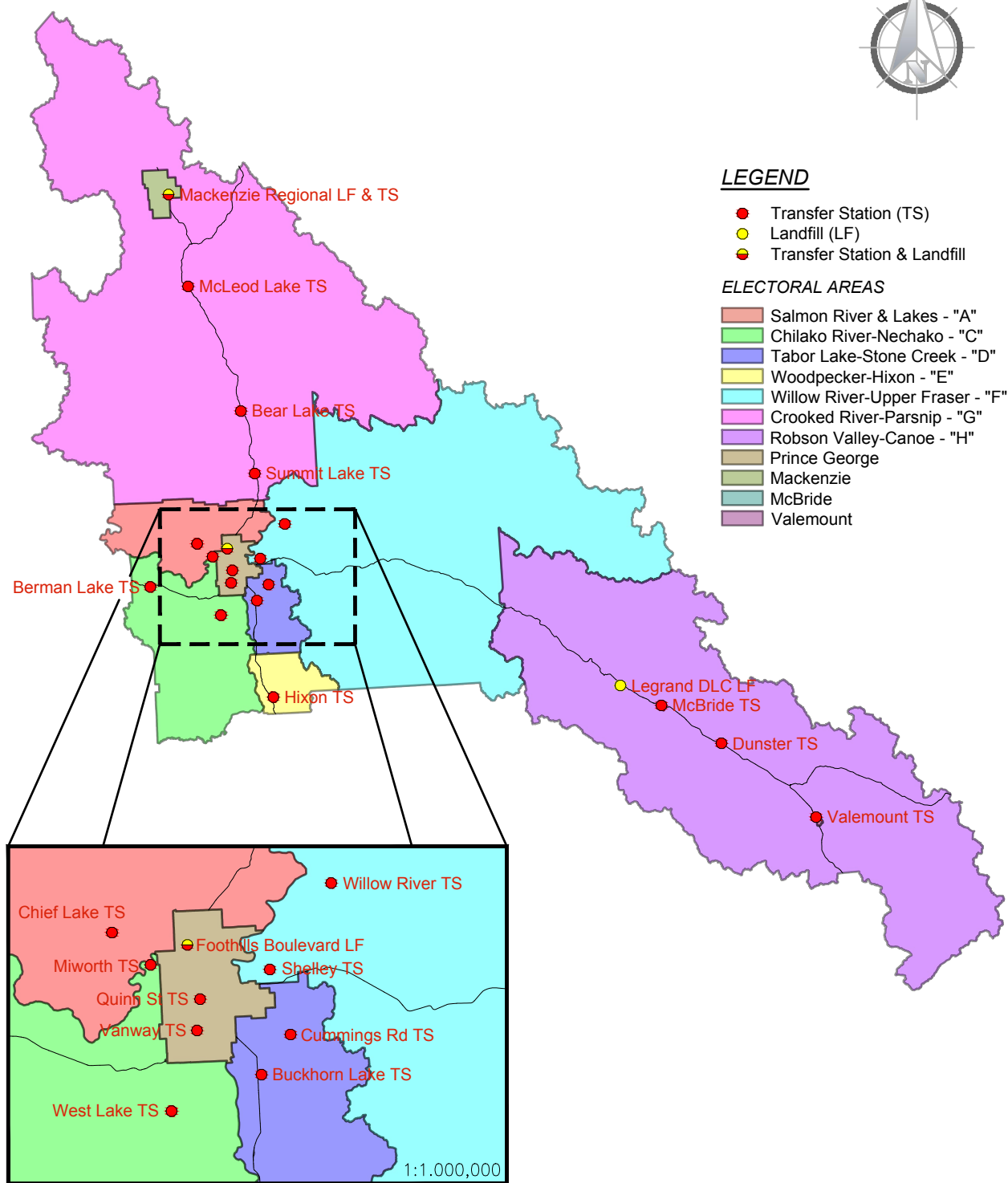
Delivery of waste management services is primarily through an infrastructure system, or network, consisting of two landfills for disposal of municipal solid waste (MSW), one landfill for disposal of select demolition, land clearing and construction waste (DLC) and 17 transfer stations as shown in Figure 1, as well as a number of privately owned and operated recycling facilities. The current transfer station system is varied, with some facilities only receiving MSW for disposal, while others receive a wide variety of solid waste and recyclables, including Extended Producer Responsibility (EPR) products².

Currently, the RDFFG does not have a policy framework for determining their role in providing collection services for EPR products. In fall 2018, the Board was presented with three EPR models based on how EPR materials were typically managed across regional districts in British Columbia (BC). RDFFG staff received direction from the Regional Board to explore full service EPR as a service delivery model at RDFFG's solid waste facilities. The Board wanted to assess how the RDFFG could provide a broad range of EPR collection services at local government solid waste facilities.

Morrison Hershfield was commissioned to undertake an assessment of service levels within the existing transfer station and landfill network, with the objective of identifying opportunities to increase waste diversion with particular emphasis on EPR products and materials. The RDFFG wanted to assess options for full-service EPR as a service model. Figure 2 shows the key steps and timeline for the assessment.

As part of the development of options, an initial report entitled "Report 1: Current Waste Collection and Diversion Services" (Report 1) provided a detailed review of the service area and service levels currently available at each transfer station facility, population served, quantities of materials handled (both mixed waste and recyclables), general site amenities, and conditions and limitations. The report also included information on collection services provided by private facilities for recyclable products under the Province's designated EPR program, including identification of gaps in access to this service across the region. The report reflected operational experience from municipal staff and contractors, gathered in a stakeholder workshop. Report 1 findings were delivered to the Regional District's Environment and Parks Standing Committee at the June 2019 Board meeting.

² The Recycling Regulation requires producers of designated products to develop programs for their end-of-life collection and recovery of materials. Refer to section 2.1 for more information.



The information presented in Report 1 formed the basis for the identification and development of options for full-service EPR. The Technical Advisory Committee (TAC)³ provided input during the summer of 2019 that was considered for the options development.

Subsequently Morrison Hershfield developed a second report, entitled “Report 2: Options for Full-Service EPR Delivery and Improving Caretaker Amenities”. This report identified three options to consider for full-service EPR delivery, along with rationale for the selected options and anticipated environmental, social, and financial impacts of each. The report findings were presented to the Environment and Parks Standing Committee at the September 2019 Board Meeting.

This Final Report summarizes the previous two Reports and provides recommendations for moving forward with developing an EPR Policy Framework.

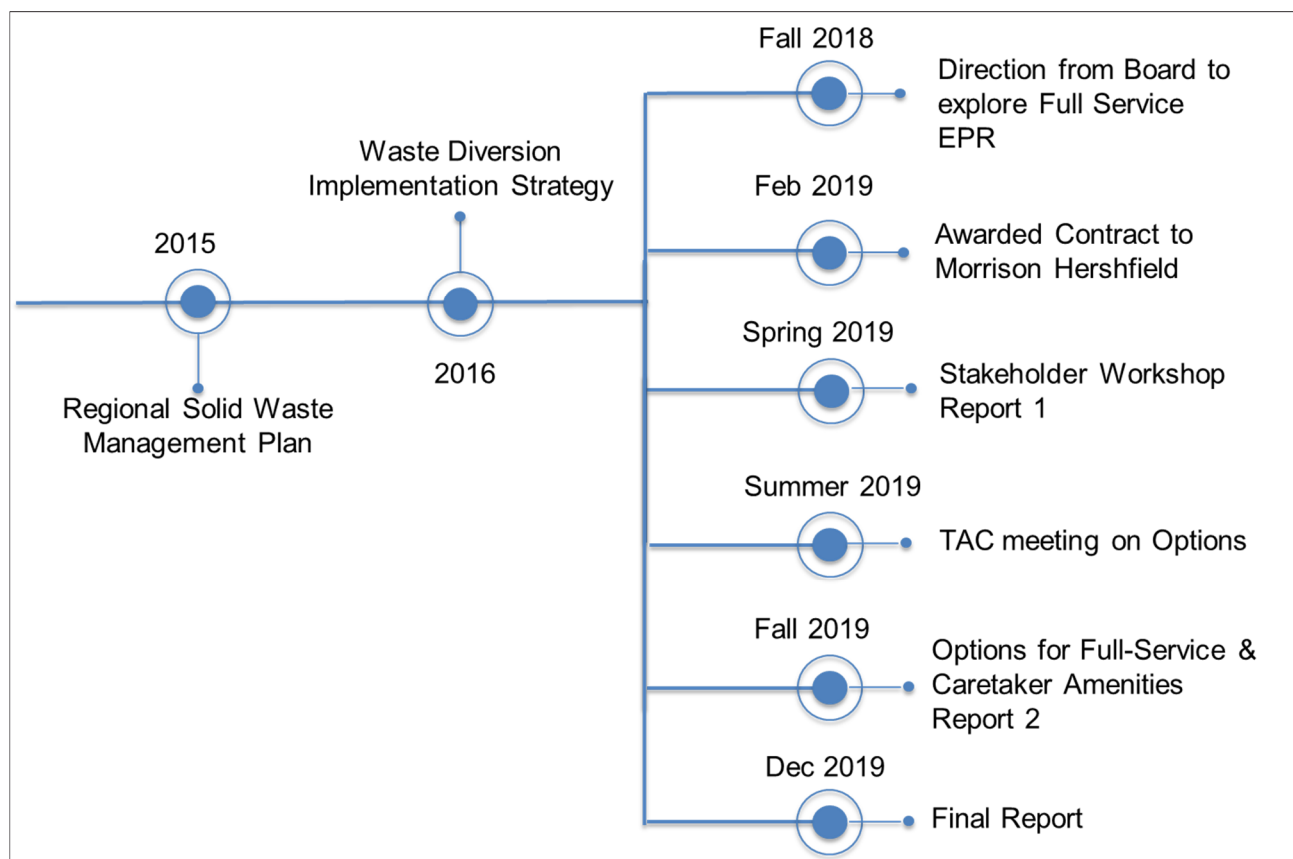


Figure 2: Key Steps and Timeline for the Assessment of Full Service Levels for the Regional District Transfer Station Network

³ The Technical Advisory Committee is comprised of representatives from the member municipalities of Mackenzie, Valemount, McBride, Prince George and Indigenous Peoples.

2. BACKGROUND

The following sections provide an overview of current EPR programs and collection services for designated program materials in the region, including information on existing partnerships with stewardship agencies responsible for the EPR programs and programs in effect.

2.1 EPR Programs in BC

The Recycling Regulation requires producers of designated products to develop programs for their end-of-life collection and recovery. There are currently over 20 EPR programs in BC covering a wide range of products (refer to Appendix A for a complete list of EPR programs), many of which are accepted for recycling at RDFFG's transfer stations or at private facilities.

EPR products are currently collected in the region at RDFFG transfer stations and landfills (often in partnership with a stewardship agency), or via private organizations, either at producer-led return-to-retailer programs (Shaw, Telus, Bell, London Drugs), or via private recycling companies established directly by the stewardship agencies or through agreements with the stewards.

The Recycling Regulation requires each program to provide reasonable and free consumer access to collection facilities or collection services. Stewardship agencies must demonstrate that each program provides adequate access to services to residents in BC.

Although the BC Ministry of Environment and Climate Change Strategy (MoE) has not announced any immediate plans for future EPR products, it has indicated that products such as mattresses are on the priority list for future inclusion.

2.2 Existing Partnerships with EPR Programs

The RDFFG has existing partnerships with stewardship agencies for the collection of many EPR products. Table 1 lists all the products currently managed at RDFFG facilities in these partnerships. Each stewardship agency places different requirements on collection facilities (e.g. security, storage facilities, staff training).

Extended Producer Responsibility (EPR) is a provincial policy tool that aims to shift the responsibility for end-of-life management of products (physically and economically) to the producer and consumer, and away from local governments. This policy is intended to create an incentive for producers to include environmental considerations in design of products.

EPR programs in BC are mandated by Recycling Regulation 449/2004, under the Environmental Management Act.

Producers of designated products often appoint a stewardship agency to collect EPR products.

EPR products are focused on those produced by households and not the ICI sector.

Table 1: Stewardship Agencies with Existing Partnerships with the RDFFG for the collection of EPR Products

Stewardship Agency	Products Managed	Comments
Major Appliance Recycling Roundtable (MARR)	Large appliances, such as refrigerators, freezers, clothes washers, etc. Some contain ODS	RDFFG has 10 sites certified to collect major appliances
Tire Stewardship BC	Tires (off-rim only)	Accepted at some facilities
BC Used Oil Management Association (BCUOMA)	Used oil, oil filters, used antifreeze and used plastic oil and antifreeze containers from residential sector	Accepted at some facilities
Call2Recycle	Household batteries, including single use and rechargeable dry cell batteries weighing <5 kg	Accepted at some facilities
ProductCare	Paint and Household Hazardous Waste (HHW), such as solvents and flammable liquids, gasoline and pesticides	Only collected at seasonal round-up events
Electronic Products Recycling Association (EPRA)	Portable and non-portable electronics	Only collected at seasonal round-up events
Outdoor Power Equipment Recycling operated on their behalf by ProductCare (OPEIC)	Outdoor power equipment (e.g. handheld/walk-behind/freestanding power equipment and lawn tractors)	Only collected at seasonal round-up events
Canadian Electrical Stewardship Association (CESA)	Portable electrical appliances and power tools designed for use in homes	Only collected at seasonal round-up events

2.3 EPR Materials Collected by the RDFFG outside EPR Programs

Some EPR products, such as residential packaging and printed paper (PPP) and automotive batteries are collected for recycling independently from the stewardship agencies. The RDFFG is solely responsible for these materials, including both costs and revenues.

Each stewardship program sets different requirements for collection procedures (e.g. security, recording and reporting, storage facilities, staff training). RDFFG staff estimate that there would be additional costs incurred by the Regional District if it entered into an agreement with a stewardship agency such as RBC for the collection on PPP and with Canada Battery Association for automotive batteries.

The collection of EPR materials independently of the stewards has typically not been perceived as a financial risk; however, recent increased fluctuations in market demands for recyclables, such as PPP, has led to the RDFFG paying to have materials recycled. For example, the cost of

marketing the fibre materials (mixed waste paper) collected in the multi-material recycling bins is potentially \$200 per tonne expenditure under current one year contract revised in early 2019. The financial risk may be reduced by forming partnerships with stewardship agencies. However, partnership agreements are renewed every five years, and increased costs could be transferred to the RDFFG at the time of renewal.

The RDFFG will need to factor in the risk of fluctuating markets when deciding to partner with Recycle BC or not. Other Recycle BC partners (e.g. the regional districts of Cariboo, Peace River and Kitimat Stikine) have not been impacted by recent market changes to the same extent.

2.4 Potential Future EPR Materials to Collect

In recent years, local governments have pressured the MoE to include additional waste materials, such as used mattresses, under future EPR programs. In 2019, the MoE commissioned a study into a gap analysis of EPR products in BC to inform priorities for new regulated product categories. RDFFG staff participated in the study and provided feedback on gaps in the RDFFG.

The MoE has not announced any immediate plans for future EPR products but has indicated that products such as mattresses, PPP from the industrial, commercial and institutional (ICI) sector and single-use plastics are under consideration. The ICI sector is thought to contribute recyclables to the RDFFG's facilities, but these materials are currently not tracked separately by the RDFFG.

If the RDFFG is committed to continuing to collect EPR materials, then adequate receiving and covered storage space will be needed as new EPR products are added (e.g. mattresses and ICI-sector PPP).

3. CURRENT TRANSFER STATION SYSTEM

This section provides a brief overview of the transfer station and landfill network in the region, population served, facility type, and service levels. For more detailed information, refer to Report 1. The network comprises 17 transfer stations and currently two landfills for MSW disposal and one landfill for DLC waste (refer to Figure 3). The waste flows, facility class and the accepted materials are shown on Figure 3. The facility class relates to the level of services provided at each facility, as designated in Bylaw 3121 for all RDFFG's solid waste facilities.

3.1 Summary of Current System

3.1.1 EPR Materials Collected at Each Facility

The collection services for EPR products at the RDFFG transfer stations are varied. The majority of facilities have provisions for accepting EPR products such as residential PPP materials (offered at 84% of the transfer stations), used oil and antifreeze (32%), metals, such as major appliances (53%), tires (42%), and batteries (32%). A summary of the materials collected at each facility is shown in Table 2. The RDFFG also promotes and encourages residents to access available private recycling programs for EPR products that are not collected at RDFFG facilities.

Table 2: Summary of Materials Collected at Each Facility

Facility	OCC	MPP & RMC ⁴	Oil & Antifreeze	Metal	Tires	Batteries	Refuse	DLC	Yard & Garden Waste
Mackenzie Regional Landfill	X	X	X	X		X	X	X	X
Bear Lake		X		X	X		X	X	
Chief Lake		X					X		
McLeod Lake							X		
Summit Lake							X		
Dunster		X					X		
McBride	X	X	X	X	X	X	X	X	
Valemount	X	X	X	X	X	X	X	X	X
Shelley		X		X *	X		X	X	X
Willow River		X					X		
Buckhorn		X					X		

⁴ MPP = mixed paper products, RMC= residential mixed containers

* No major appliances containing ODS accepted

Facility	OCC	MPP & RMC ⁴	Oil & Antifreeze	Metal	Tires	Batteries	Refuse	DLC	Yard & Garden Waste
Cummings Road		X		X *	X		X	X	
Hixon		X		X	X		X	X	
Berman		X					X		
Miworth							X		
West Lake		X					X		
FBRL	X	X	X	X	X	X	X	X	X
Quinn	X	X	X	X*		X			X
Vanway	X	X	X	X*		X	X		X
% of total facilities	32%	84%	32%	53%	37%	32%	95%	42%	32%

The RDFFG, in partnership, periodically offers seasonal collection services in targeted communities where the collection options for some EPR products are limited.

3.1.2 *Diversion of EPR Products in the RDFFG*

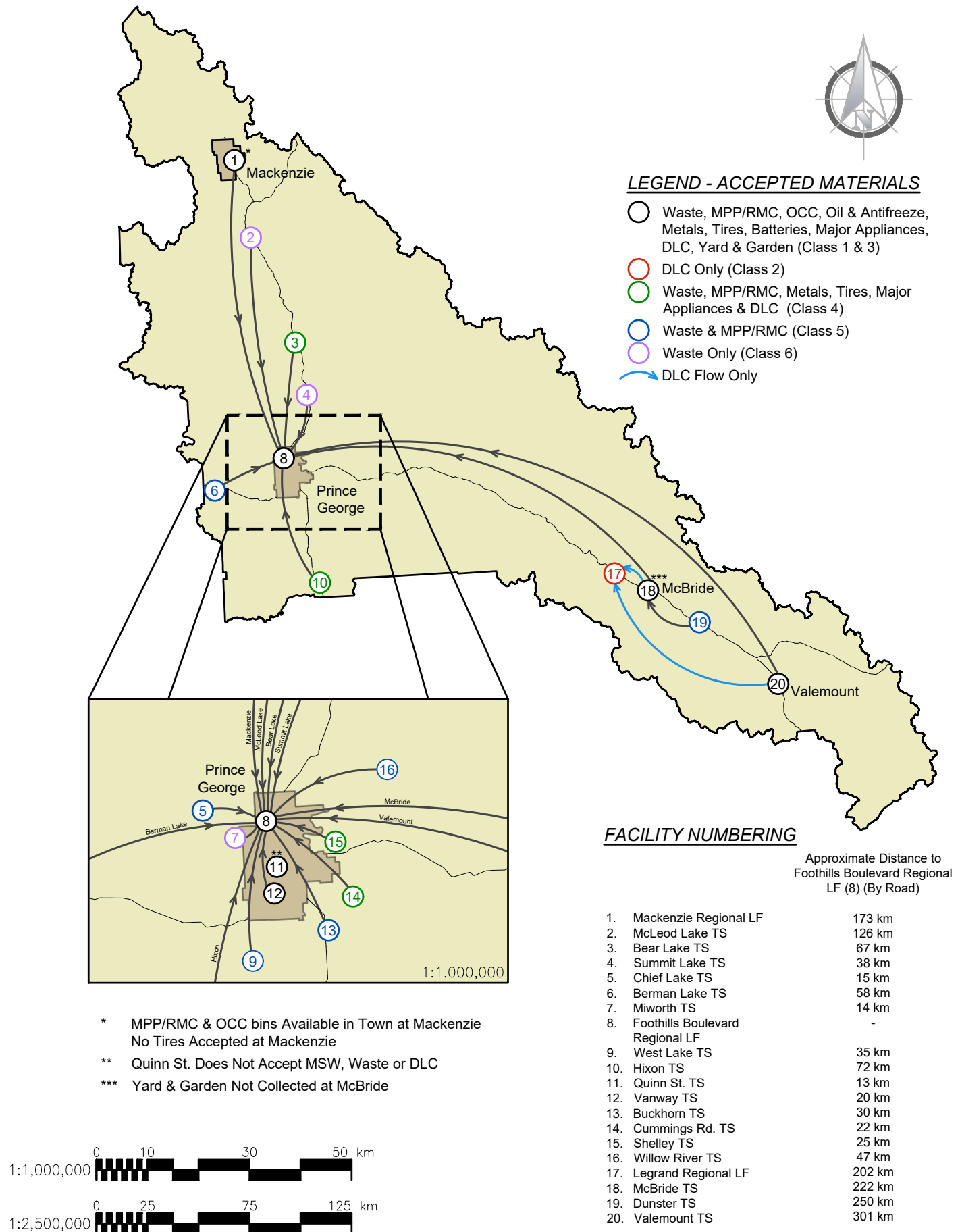
Morrison Hershfield was tasked to review EPR collection services available in Mackenzie, Valemount and McBride. Currently residents in the City of Prince George and surrounding area have many collection options for EPR products, with overlapping services provided by RDFFG's transfer stations or by private facilities and return-to-retailer options.

McBride residents are offered a seasonal recycling round-up event, which ensures that collection is covered for almost all EPR products in this community.

A similar round-up event in Mackenzie was limited to tires, which leaves residents with no collection options for thermostats, outdoor power equipment, small appliances, some HHW and smoke alarms.

Based on services provided at the RDFFG's transfer stations, via seasonal events or by private facilities, the review identified some gaps in collection options for EPR products for residents in Mackenzie, Valemount and McBride (e.g. small appliances, thermostats and some HHW, such as flammables).

Outside these four main service hubs around Prince George, Mackenzie, Valemount and McBride there are limited collection services for EPR product recycling being offered from RDFFG or private facilities or return-to-retailer options.



3.1.3 Review of Facility Operations and System Efficiency

Morrison Hershfield reviewed the current waste collection and diversion services (not limited to EPR products) and assessed the transfer station system efficiency. Review findings were presented in Report 1.

Refuse, segregated metals and EPR products are all hauled to FBRL in Prince George for landfilling or processing. The current exception is the Mackenzie Regional Landfill which is currently landfilling refuse until the new transfer station is completed later in 2019, when refuse will be hauled to FBRL.

Transfer stations that accept a large number of materials (such as EPR products) usually have a high frequency of bin hauls. The types of materials accepted at a facility and the number of bins hauled directly impacts the operational costs of the facility. Each accepted material must be screened, stored for contamination and hauled. Facilities that accept a large number of materials and have a relatively high tonnage of materials accepted, have bins that are hauled from site more than once per day (e.g. Cummings Road). The three Prince George transfer stations (FBRL, Quinn Street and Vanway) collect the highest tonnage of materials for recycling with the largest portion of the recyclable material being yard and garden waste. Metals, MPP, RMC and OCC comprise the majority of the remainder of the recycling materials collected.

The RDFFG has had no safety incidents reported at their facilities recently. At a few of the facilities there is potential for fall due to gaps in guard railings in particular around the Transtor Bins (e.g. Willow River Regional Transfer Station). The Cummings Road Regional Transfer Station was understood to have safety concerns which included fall protection, bear encounters and traffic management. The RDFFG is currently reviewing options for redesign of this facility as discussed in the next section.

There were some operational constraints and site limitations including site access, snow management and high traffic volumes at peak periods noted during Morrison Hershfield's review of the facilities. However, some sites do have available space which would allow for expansion, if required, without significant capital expenditure.

The current distribution and proximity of the rural RDFFG facilities, especially within a 30 minute drive of the City of Prince George, provides a very high level of accessibility and convenience to residents with overlapping collection services for diversion and refuse disposal.

Nearly all attended facilities are open at least 40 hours per week over 5 days, which typically includes weekends. In general, the overall operating hours provide a very high level of accessibility to the facility users considering the small population being serviced by many of these facilities.

3.1.4 *Planned Changes to Existing Facilities*

The RDFFG is planning for significant changes to four of the existing facilities:

- **Mackenzie Regional Landfill (MRL)** will have the potential to expand opportunities for collection of EPR products, as construction is set to be completed by December 2019.
- **Cummings Road Regional Transfer Station** will be reconfigured to improve traffic flow and accessibility, improve wildlife management, and improve site safety.
- **Foothills Boulevard Regional Landfill (FBRL)** will have a new public drop-off area and entrance design including new scales and scalehouse.
- **Quinn Street Regional Recycling Depot** is located on property leased from the City of Prince George. The lease agreement ends in 2021, and a replacement facility is being considered pending the direction the Board gives on the EPR policy framework.

4. OPTIONS FOR FULL-SERVICE EPR DELIVERY

Three options were developed for implementation of full-service EPR delivery by the RDFFG. All three options had to ensure that the majority of residents have access to collection options for EPR products. These options provided examples of what the full-service EPR policy framework could entail when implemented and what each one would entail in terms of service levels to users, the RDFFG's role and impacts on materials accepted and facility requirements.

The options were developed by Morrison Hershfield and RDFFG staff with input from the Technical Advisory Committee (TAC) in July 2019. These options were modeled on the existing transfer station network using the following key considerations:

- Population served by each facility.
- Number of users recorded for each facility.
- Current service level and staffing at each facility.
- Proximity to other RDFFG facilities and private facilities for collection of EPR products.
- Site constraints.

Each option offered different levels of convenience for the users of RDFFG solid waste facilities; however, each option was considered as offering full service for collection of EPR products within a service area. The full-service EPR model recognized that the RDFFG would likely engage with stewardship agencies to provide expanded EPR services at multiple RDFFG facilities.

The study focused on the EPR materials currently accepted for recycling at the RDFFG's transfer stations, additional EPR materials (under existing EPR programs) with a high waste diversion potential, and materials that are hazardous in nature that the RDFFG wanted to ensure are disposed in an environmentally responsible manner.

For each option, only the current EPR products were considered and modelled. However, the chosen option should also consider the potential expansion of stewardship programs and how this new collection service might affect the RDFFG's solid waste facility network.

4.1 Overview of Options

The three options are illustrated in Figure 4: Three Options for Full-Service EPR Delivery. Figure 4. Options 1 and 2 involved increasing the number of EPR materials collected at targeted facilities within a service area based on the key considerations listed above. Option 3 focused on addressing gaps where private facilities were not available for collection of EPR products and the removal of RDFFG involvement where take-back options exist.

For each identified option, the impact on existing operations at RDFFG's facilities was assessed by modeling the assumed changes to EPR materials collected at each facility. High-level operational and financial implications of partnering with additional stewardship agencies were assessed based on operational assumptions and cost estimates. Financial incentives relating to partnerships were not considered as they were too difficult to determine without entering into specific negotiations with each steward.

For the options in which additional EPR materials would be accepted at targeted facilities, anticipated infrastructure and operational requirements were based on having all accepted materials at each facility stored separately. Each accepted material would need to be screened for contamination and hauled. All segregated EPR products need to be hauled to Prince George for processing. Therefore, increasing the accepted number of materials was assumed to increase the number of loads processed and hauled.

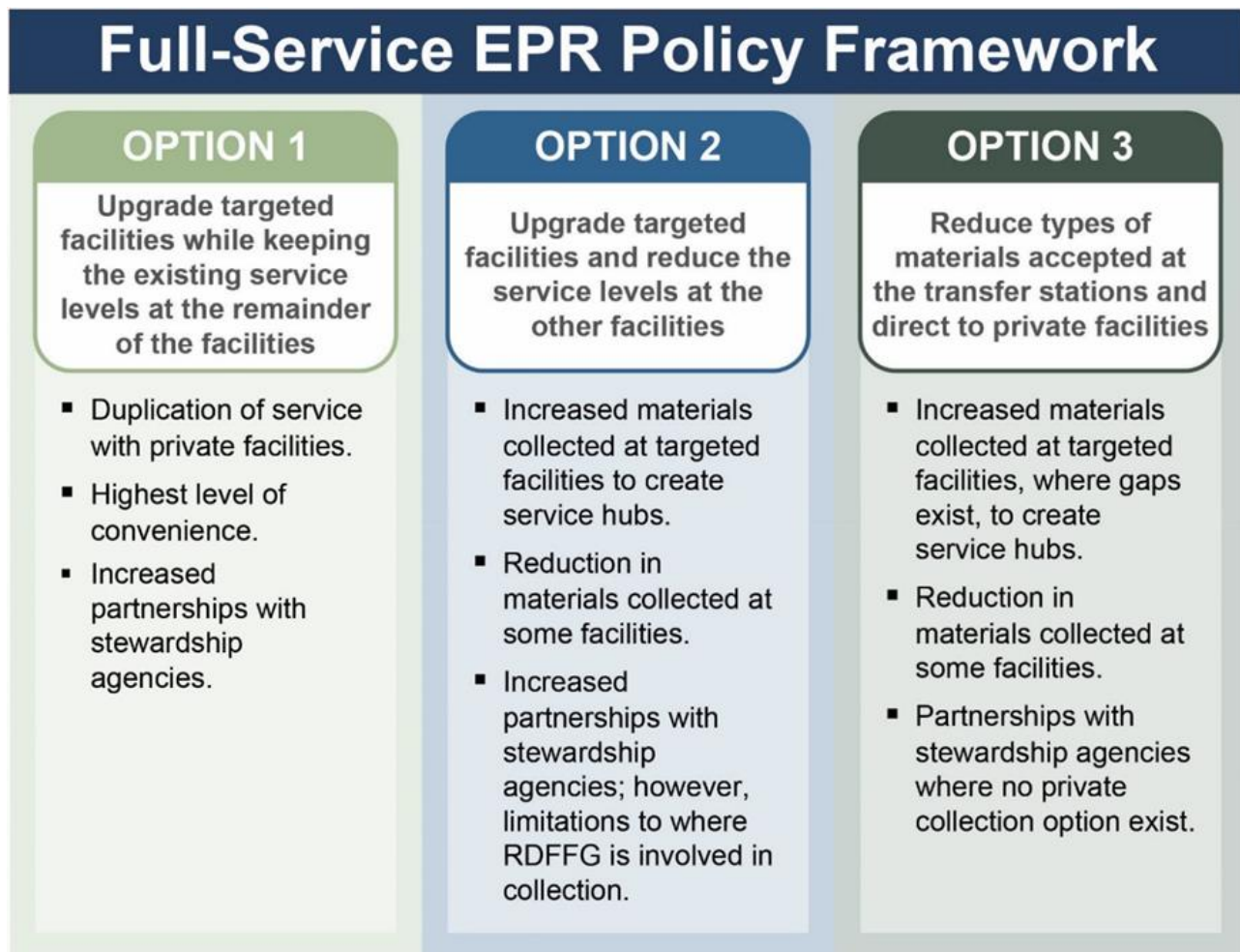


Figure 4: Three Options for Full-Service EPR Delivery

4.2 Comparison of Options

The impacts of each option were assessed using the environmental, social, and financial considerations listed in Table 3.

Table 3: Comparison of Options Using Environmental, Social and Financial Considerations

Consideration	Option 1	Option 2	Option 3
Environmental			
Waste Diversion	<ul style="list-style-type: none"> Improved waste diversion potential since it offers the highest level of access to collection services. 	<ul style="list-style-type: none"> Would most likely not significantly improve waste diversion. 	<ul style="list-style-type: none"> May reduce waste diversion in certain areas where users would see reduced collection services at RDFFG's facilities.
Climate Change Impacts	<ul style="list-style-type: none"> Likely net reduction in GHG emissions. 	<ul style="list-style-type: none"> Net impact was unclear, as some facilities would reduce emissions from hauling and others increase them. GHG savings would also depend on amount of materials being recycled. 	<ul style="list-style-type: none"> Similar impacts as Option 2. Net impact was unclear.
Illegal dumping	<ul style="list-style-type: none"> Illegal dumping likely to be minimized. 	<ul style="list-style-type: none"> Illegal dumping may increase in areas with reduced services. 	<ul style="list-style-type: none"> Illegal dumping may increase in areas with reduced services.
Social			
Community Development and Innovation	<ul style="list-style-type: none"> More partnerships with stewardship agencies would make it difficult to consider local needs and business aspirations. 	<ul style="list-style-type: none"> Similar impacts as Option 1 were anticipated; however, increased opportunity for innovation in the private sector to capture EPR materials no longer collected by the RDFFG. 	<ul style="list-style-type: none"> Would provide more opportunities for innovation in private sector to capture materials not collected by the RDFFG through e.g. local re-use/repair and recycling efforts.
Collaboration	<ul style="list-style-type: none"> More partnerships with stewardship agencies would be likely to be perceived as competition by private collection facilities. 	<ul style="list-style-type: none"> There would be an opportunity for the RDFFG to collaborate with private facilities and/or stewards to address areas with reduced number of collection options. 	<ul style="list-style-type: none"> Same as Option 2. This option would likely support building stronger communities, as collaboration with the private sector will be essential.

Consideration	Option 1	Option 2	Option 3
Accessibility and Convenience	<ul style="list-style-type: none"> Highest level of convenience and accessibility. 	<ul style="list-style-type: none"> This option would increase the number of EPR materials collected at six facilities with high usage, whilst other facilities would see no change or a slight reduction in accessibility. 	<ul style="list-style-type: none"> Offered the least amount of convenience and accessibility.
Equity	<ul style="list-style-type: none"> Would likely benefit the greatest number of people in the Regional District, including rural and Indigenous people. 	<ul style="list-style-type: none"> Similar impacts as Option 1. Facilities with reduced service would generally only serve small populations / or within close proximity to other collection facilities. 	<ul style="list-style-type: none"> This option likely would not benefit everyone, mainly residents using the facilities in Mackenzie, McBride and Valemount.
Financial			
Capital Costs	<ul style="list-style-type: none"> Approximately \$1,880,000 to \$2,880,000 (dependent on the cost to replace Quinn Street Regional Recycling Depot). 	<ul style="list-style-type: none"> Approximately \$736,000 	<ul style="list-style-type: none"> Approximately \$120,000
Operating Cost	<ul style="list-style-type: none"> Would likely increase operational budget by 30% - 34%. 	<ul style="list-style-type: none"> Would likely increase operational budget by 12% - 16%. 	<ul style="list-style-type: none"> Would likely increase operational budget by 4% - 6%.
Risk	<ul style="list-style-type: none"> Assumed costly to residents who may be paying for recycling via ecofee or a deposit (at the time of purchase) as well as taxes to fund Option 1. 	<ul style="list-style-type: none"> Private facilities will see an increase in users after RDFFG facilities in Prince George would no longer accept PPP. There would be a potential need for the RDFFG to support private facilities. 	<ul style="list-style-type: none"> There would be a risk that existing private facilities are not well equipped to manage substantial increases of incoming EPR materials. There would be a potential need for the RDFFG to support private facilities.

4.3 Discussion of Options and Board Feedback

The options were based on current status and knowledge of the number and types of materials collected can change, and the actual nature and number of partnerships with stewardship agencies would depend on the specific terms and conditions of each program.

In summary, more partnerships with stewardship agencies is assumed to lead to increased capital and operational costs. However, there is the potential for the partnerships to bring in more revenues for collected EPR materials paid by stewards as financial incentives compared to the current contractual arrangement the RDFFG has for some materials.

As EPR programs only include the residential sector there is limited waste diversion potential by collection of these products. Collection of EPR materials have a significant operational cost considerations, in particular for rural communities and may only provide a minor increase in overall waste diversion.

Morrison Hershfield has highlighted that specific areas are currently over-serviced with transfer stations within close proximity of each other. Morrison Hershfield believes that there are opportunities for consolidation of facilities and improved system efficiency. Facilities that are consolidated would require the current users to take materials to other adjacent facilities and the impact of consolidation on these nearby facilities will need to be evaluated.

The three options were presented to the Environmental and Parks Standing Committee at the Board meeting in September 2019. The Board expressed interest in pursuing Option 1, however were seeking to understand how costs could be reduced under this option. Further discussions with RDFFG staff as well as a Board administrative briefing precipitated Morrison Hershfield developing recommendations for next steps for moving forward with an EPR Policy Framework as outlined in this Section 6 of this report.

5. RECOMMENDED UPGRADES TO CARETAKER AMENITIES

Morrison Hershfield was tasked to review the existing caretaker amenities at the region's transfer stations as part of this study's scope and review findings were presented in Report 2.

Currently the RDFFG does not have specific requirements for site amenities for caretakers, such as staff shelter or portable toilets.

Based on Morrison Hershfield's experience with transfer station design throughout British Columbia and in other provinces and territories, heated staff shelters and access to washrooms are essential for facilities attended by caretaker staff.

It is recommended that all attended sites have the minimum caretaker amenities, including a heated shelter and washrooms available. Sites where the caretaker services are contracted, the contracts should reflect the provision for supply of caretaker amenities. The RDFFG would be responsible for the capital investment required to supply power to the shelters, which in all likelihood would be trailers given the typical length of contracts.

With the recommended approach to supply amenities as part of existing contracts, the RDFFG would not be responsible for the maintenance and repair of the amenities. However, the length of the remaining contract may impact the facility amenities provided. This would need to be addressed as part of the contract re-negotiation process.

6. RECOMMENDATIONS FOR NEXT STEPS

Service delivery in the Region is guided by the 2015 Regional Solid Waste Management Plan. In the RSWMP, EPR programs are regarded as an important part of waste diversion. In 2016, the RDFFG's Waste Diversion Implementation Strategy identified the need to review the collection services offered for EPR products. This section provides Morrison Hershfield's recommendations on how the RDFFG can ensure a consistent approach for deciding which EPR products to collect within the transfer station network, while maximizing environmental, social and financial benefits. Recommendations include next steps to ensure the development of an EPR Policy Framework and a decision-making criteria that can greatly assist RDFFG staff and ensure transparency in deciding which collection services for EPR products should be offered at RDFFG facilities. The figure below shows how the EPR Policy Framework and decision-making criteria are a part of the solid waste management guiding documents for the RDFFG.

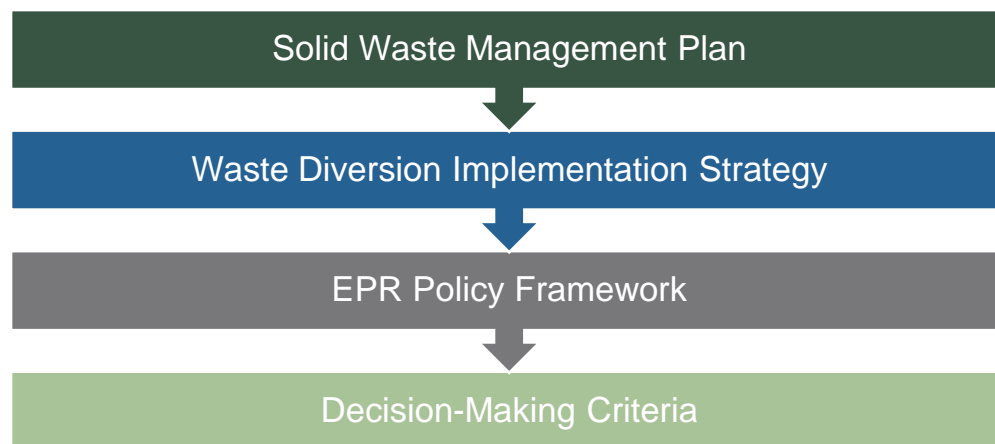


Figure 5: Overview of Solid Waste Management Guiding Documents

6.1 Develop an EPR Policy Framework for the RDFFG

Morrison Hershfield recommends that the RDFFG Board and staff develop an EPR Policy Framework for the region. A policy framework will guide staff on decision-making as new EPR materials are proposed as well as evaluating whether the currently accepted EPR materials should continue to be collected.

Although the MoE has not announced any immediate plans for future EPR products, it has indicated that products such as mattresses, PPP from the industrial, commercial and institutional (ICI) sector and single-use plastics are on the priority list for future inclusion. Having an agreed policy framework for how EPR products are managed within RDFFG's transfer station and landfill network will simplify the decision making inclusion of new materials.

6.2 Establish Decision-Making Criteria for EPR Materials

A proposed decision-making criteria was developed by Morrison Hershfield for consideration by the RDFFG. The key criteria for decision-making are provided in Table 4 and include environmental, social and financial considerations.

The proposed decision-making criteria can be used to enable a consistent evaluation of changes to service levels for EPR material collection at the RDFFG facilities. By using the criteria, RDFFG can evaluate new EPR materials on a program-by-program basis and only expand collection services at sites where this can be justified by the environmental, social and financial benefits.

Table 4: Proposed Decision-Making Criteria for Determining Changes to EPR Material Collection at the RDFFG Facilities

Criteria	Question to Guide Evaluation
Environmental	
Waste Diversion	How will the collection of this EPR material impact waste diversion?
Risk to Environment and Safety	What is the risk to the environment and/or safety if this EPR material is not properly managed?
Social	
Accessibility and Service Levels	Can the product purchased in an electoral area be returned locally?
Financial	
Capital Costs	What is the capital cost to collect this EPR product at the facility?
Operating Cost	How is the management of this EPR material affecting the annual operating cost?

6.2.1 Environmental Criteria

The key environmental criteria relate to waste diversion, the risk to the environment and safety. When considering the collection of an EPR material at a facility the potential impact on the overall waste diversion should be considered. This is dependent on the number of users at that facility and whether recycling options of that product are known by the consumer. For example, if a user has typically recycled that EPR material in the past, the impact on waste diversion should be higher than a less frequently recycled EPR material (i.e. in the case of an EPR material that becomes regulated as part of the Recycling Regulation). In addition, the impact on landfill space should be a consideration within the waste diversion criteria. For example, one mattress takes up approximately 0.9 m³, although the diversion potential in tonnages may be limited.

There could be risk to the environment if EPR materials are not managed properly, for example from mercury-containing lamps and lighting products, or ozone depleting substances in major appliances. There could also be safety concerns if that material is not properly disposed of at a transfer station or landfill. Some EPR products are flammable or could be explosive and improper management has higher risks.

6.2.2 Social Criteria

The social criteria mainly relate to accessibility and whether there are collection options available in a community such as RDFFG facilities or private collection (e.g. return-to-retailer programs or private recycling companies). How well the program is understood within the community is also an important consideration. For example, residents may not be aware of available return-to-retailer programs although they exist or even that some products are part of an EPR program.

If an EPR material is currently collected at a facility, the impacts of removing that collection should be considered not only within the social criteria evaluation, but it also may have impacts on waste diversion and the risk to the environment. It also may be more difficult to retrain people to go to a new location to return EPR products if certain facilities have accepted them.

6.2.3 Financial Criteria

Potential changes to collection of EPR materials at a facility need to consider capital and operational costs.

Capital costs depend on whether the site requires expansion to accept the added material and if site expansion is not possible, site relocation may be necessary, which would significantly increase capital costs.

Capital costs need to cover any major works required to accept the EPR material, such as infrastructure, fencing, lighting, power supply and other amenities.

Operational costs associated with the collection of a specific EPR material include the cost to screen, collect and haul the material. Costs would also cover the administration costs related to partnering with stewardship agencies. The partnership agreement would influence both capital and operational requirements. In some cases, the RDFFG may require new caretaker contracts or increased maintenance of new amenities/infrastructure.

Operational costs are lower for materials for which the RDFFG can receive financial incentives to collect. However the risk of incurring penalties for a non-complying EPR material (e.g. contaminated) should also be considered.

Operational costs should also consider the need for greater public education and promotion in order to increase waste diversion of EPR products.

6.2.4 Proposed Decision-Making Process

Each time the RDFFG has an EPR product or material to consider for collection at a specific facility, staff can follow the proposed decision-making process outlined in Figure 6. The process ensures a streamlined and consistent approach that informs RDFFG staff as to whether the targeted EPR product should be collected at that facility.

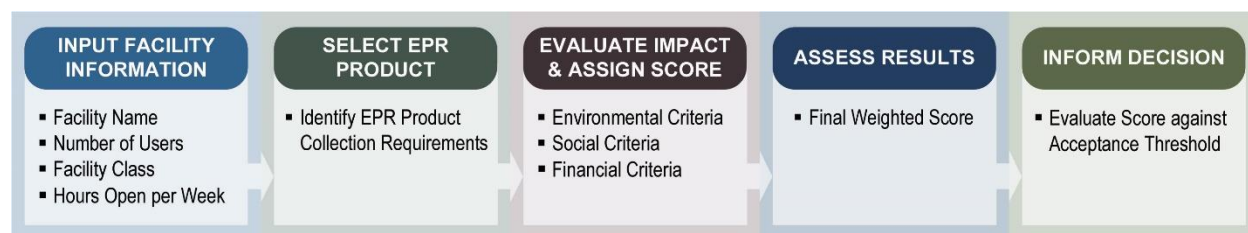


Figure 6: Proposed Decision-Making Process for Evaluating EPR Products

The acceptance threshold will need to be developed by the RDFFG. Morrison Hershfield suggests this could be developed by first determining at which facilities certain materials will remain accepted and then assign a score to these materials. The lowest score from these evaluation processes should be designated the acceptance threshold for evaluation of currently collected materials at existing facilities. The acceptance threshold may need to be modified in the future as markets fluctuate and agreements with the product stewardship agencies are adjusted. The RDFFG may want to apply a different acceptance threshold for materials not currently collected.

6.3 Enhance Public Education to Implement the EPR Policy Framework

We recommend that the RDFFG increase the level of public education to promote the collection options available in the region. In Report 1, we noted that all three neighbouring regional districts promote all EPR collection sites (regional and private facilities) via online directories that are frequently updated. For example, the Cariboo Regional District provides and frequently updates a guide online for residents outlining where to drop off various EPR items. It directs residents to both Regional District and private facilities. The regional District of Kitimat Stikine promotes recycling services at the regional facilities on the RDKS website. They have an online search function where the user can type in a material and will be directed to the appropriate drop-off location in their region.

Changing behaviors of residents through increased promotion of diversion options is key for successful implementation of an EPR Policy Framework.

6.4 Advocate for Legislative Changes to the Recycling Regulation

EPR as a policy tool is designed to shift the cost of managing end-of-life products from local governments to producers and consumers.

When the RDFFG accepts more EPR products at its facilities, it typically increases the cost to the RDFFG. Therefore, residents may be paying for recycling via an ecofee or a deposit at the time of purchase as well as taxes to fund the collection services at RDFFG facilities. The Board has submitted several resolutions to the Union of B.C. Municipalities (UBCM) over the years to advocate for EPR to be the producer's full responsibility. The Board has signaled concerns with the Recycling Regulation in BC via UBCM that relate to the criteria in the approval of EPR plans. For example, that the product stewardship plans do not adequately ensure that the producer collects and pay the costs of collecting and managing their products.

The Board continues to advocate to UBCM for changes to regulation that better reflect collection costs and low capture rates for northern and rural communities.

Morrison Hershfield encourages the RDFFG to continue to advocate for legislative changes for remote and rural communities that are not well served by the Recycling Regulation.