



Regional Solid Waste Management Plan

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GLOSSARY

Acronym	Meaning
C&D	Construction and Demolition
COW	Committee of the Whole
Disposal	Landfilling
Diversion	Activities that divert waste materials away from disposal as garbage to alternatives such as recycling or composting. Does not include combustion of waste to produce energy.
EPR	Extended producer responsibility
Generation	The sum of all materials discarded that require management as solid waste, including garbage, recycling, and organic waste.
HHW	Household hazardous waste
ICI	Industrial, commercial and institutional
MOE	BC Ministry of Environment and Climate Change Strategy
MSW	Municipal solid waste
PPP	Residential packaging and printed paper
PRRD	Peace River Regional District
PTAC	Public and Technical Advisory Committee
PTSC	Public Technical Stakeholder Committee
RAPP	Report all Poachers and Polluters
RERF	Regional Energy Recovery Facility
Residual Waste	The portion of the solid waste stream not managed through recycling, composting or recovery activities. It is commonly referred to as “garbage” or MSW. Residual waste typically requires disposal at a landfill.
RSC	Recycling Services Contract
RSWMP	Regional Solid Waste Management Plan
Single-use items	Products often made of plastic, such as shopping bags, straws, utensils, and takeout containers, which are intended to be used only briefly before they are thrown away or recycled.
SWC	Solid Waste Committee
5R	5R pollution prevention/waste hierarchy: reduce and reuse, recycle, energy recovery and residual waste management

EXECUTIVE SUMMARY

The Peace River Regional District (PRRD) is geographically the largest regional district in BC. Located in northeastern BC, it comprises all lands south of the 58th parallel and east of the Rockies, an area totaling approximately 120,000 square kilometers.

The Environmental Management Act requires each of BC's regional districts to have a solid waste management plan in place. The PRRD has reviewed and updated its 2016 Regional Solid Waste Management Plan (RSWMP or the Plan) in a process initiated in May 2018. The process involved five steps as shown in Figure 1¹ and is intended to provide the Region with a direction for solid waste management for the next 10 years.

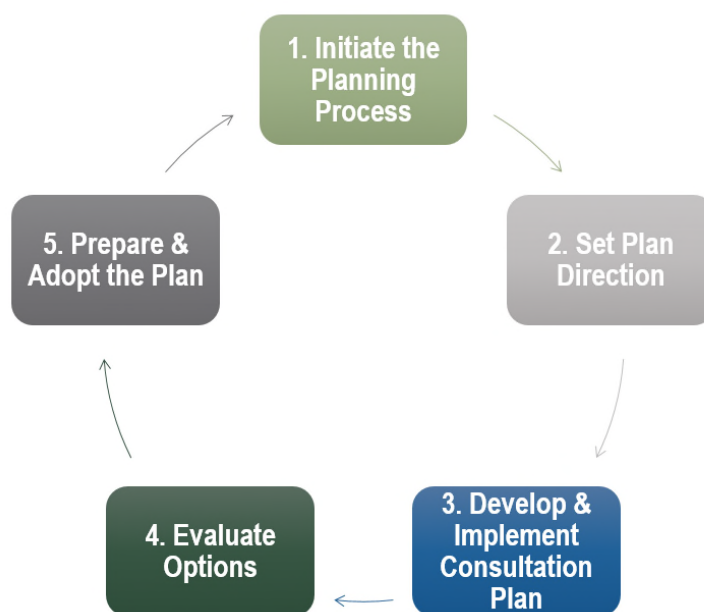


Figure 1: Five-step Process

This report (the Draft Plan) presents the assessment and selection of options for addressing the Region's future solid waste management needs.

Guiding principles and targets were established as part of the planning process, based on the guiding principles developed by the Ministry of Environment and Climate Change Strategy (MOE, or "the Ministry"). The guiding principles were adopted to help direct the long-term management of waste materials in the Region.

¹ The planning process and the development of this report have been undertaken in accordance with MOE's "A Guide to Solid Waste Management Planning" (September 2016).

A waste composition study² indicated that there is still a significant quantity of disposed waste that could be diverted from landfilling. The proposed strategies and actions described in this report target the initial reduction of waste, increased reuse of waste materials, and increased recycling and energy recovery to minimize the residual waste stream that requires landfilling.

The average disposal rate was 909 kg/capita in 2019, almost three times the provincial target. Challenges with achieving the provincial target include difficulty providing the same recycling and diversion services across a vast geographic area that includes remote communities. Additionally, the transportation needed across remote areas and distances to recycling markets create higher than average recycling costs, another challenge or barrier to affordable waste diversion. In addition, approximately 75% of the residual waste originated from commercial sources in the PRRD and achieving high diversion from this sector is challenging in this Region. A significant shadow population made up of transient workers contribute to the high per-capita disposal rate. Currently the disposal rate does not account for the shadow population, only the permanent population. These are unique challenges that needs to be considered when setting and monitoring targets.

Upon full Plan implementation, these proposed strategies and actions could reduce the amount of waste sent to landfill from the current estimate of 909 kg/ capita to 650 kg/capita by 2032, which is a 30% reduction. The PRRD will continue to track residential and ICI diversion achieved through their waste management programs and collection and disposal sites. This information will be used for internal progress tracking and to identify diversion opportunities.

The key initiatives in this Plan are:

- Lobby for improved extended producer responsibility (EPR) programs in the PRRD.
- Promote and educate on the pollution prevention hierarchy.
- Look for recycling options for agricultural plastics.
- Increase waste diversion in the ICI sector through promoting the waste hierarchy.
- Improve collection of hazardous waste and targeted EPR materials.
- Increase diversion of construction and demolition waste through promoting the waste hierarchy.
- Establish organics processing capacity in the Region.
- Assessing suitability of technologies for energy recovery for organics in the Region.
- Assessing suitability of technologies for energy recovery for residual waste.
- Improve accessibility and efficiency of the solid waste network.
- Monitor the PRRD's three active landfills and continually assess long-term disposal options.

² A waste characterization study of the residual waste disposed at the PRRD's landfills was conducted by Tetra Tech in 2018 resulting in the report 'Four Season Waste Composition Study'.

- Develop an illegal dumping strategy.
- Set limits on recycling cost and implement other management methods as necessary.
- Continually assess financial model used to fund the solid waste system.

The implementation schedule for this Plan is 2022 to 2032. The Plan development commenced before the COVID-19 pandemic hit Canada and continued during the pandemic. The PRRD recognizes that this, and potential future pandemics, may impact the strategies and the implementation time frames provided in the proposed new strategies (e.g. reuse, repair and recycling initiatives). There is some uncertainty related to the pandemic and its impacts on this plan.

Estimated additional annual costs to the PRRD for the proposed strategies ranges from \$10,000 to \$280,000 overall.

The implementation of the new Plan will be administered by PRRD Staff. As required by the MOE, a Public Technical Stakeholder Committee (PTSC) will oversee the implementation by acting as a sounding board for the PRRD to review results of feasibility assessments, cost benefit analyses, and pilot programs, as well as to make suggestions on implementation. The PTSC's recommendations will be forwarded to the Solid Waste Committee and Board of Directors for approval and recommendation for action. PRRD staff will report annually to the PRRD Board on the Plan's progress and on effectiveness.

1. INTRODUCTION

In British Columbia, each regional district is mandated by the Environmental Management Act to develop a Solid Waste Management Plan that provides a long-term vision for solid waste management, including waste diversion and disposal activities. Plans are updated on a regular basis to ensure they reflect regional districts' current needs, as well as current market conditions, technologies and regulations.

The planning process and the development of this report have been undertaken in accordance with MOE's "A Guide to Solid Waste Management Planning" (September 2016).

1.1 Guiding Principles

The MOE has developed eight provincial guiding principles for regional districts to follow in developing their solid waste management plans (shown Figure 2³ below). Regional districts should also include additional locally relevant guiding principles in their solid waste management plans.



Figure 2: Provincial guiding principles for regional solid waste plan development

³ As per the solid waste management planning guide published by the MOE 2016.

The following are the guiding principles for the PRRD's RSWMP, which were developed based on discussions on provincial guiding principles with members of the two committees involved in the planning process (see Section 2 for more information):

1. Promote the first 3Rs (Reduce, Reuse and Recycle) with targeted efforts

The PRRD is committed to focusing on the first 3Rs by concentrating on initiatives that identify the target audience in order to tailor effective waste diversion programs.

2. Promote zero waste approaches and support a circular economy

The PRRD is committed to encouraging, wherever practical, a shift from thinking about waste as a residual requiring disposal to thinking about waste as a resource that can be used sustainably in a local circular economy.

3. Prevent organics from going into the garbage wherever practical

The PRRD wants to focus on diverting the large portion of organic waste currently being landfilled. Preferred solutions are those that are able to manage materials locally and reduce transportation of waste materials.

4. Maximize beneficial use of waste materials and manage waste and divertible materials appropriately

The PRRD is committed to maximizing beneficial use of waste materials, whenever practical, and managing all waste materials (recyclables, organics and residual waste) in an environmentally responsible way. This includes making solid waste management services and facilities available to the Region's residents and businesses.

5. Support polluter and user-pay approaches, and manage incentives to maximize behaviour outcomes where practical

The PRRD is committed to making the solid waste system costs equitable for residents and businesses, wherever practical, and to focus on incentive-based tipping fees that encourage segregation of materials and waste diversion rather than landfill disposal.

6. Prevent recyclables from going into the garbage wherever practical

The increasing cost of recycling is a growing issue in the Region. The PRRD is committed to preventing recyclables from entering the garbage when it is practical and cost effective to do so.

7. Collaborate with other Regional Districts and develop collaborative partnerships with interested parties wherever practical

The PRRD is committed to exploring partnerships and collaborations with other regional districts and jurisdictions, as well as service providers, private-sector parties and not-for-profit associations, where cooperative efforts could optimize successful outcomes. The PRRD is particularly interested in collaborating with others to explore energy recovery

opportunities, maximize hazardous waste collection and lobby for government interventions and changes to the Recycling Regulation.

8. Level the playing field within Regions for private and public solid waste management facilities

The PRRD is committed to working with private service providers rather than competing with them.

9. Ensure all waste materials are managed responsibly as technology or local options are developed

The PRRD is committed to taking responsibility for the management of all materials—not just residual waste destined for landfilling. If recycling markets are challenging and the PRRD identifies a local but less preferable option (from a waste hierarchy perspective), it may still make more sense to manage the recyclable material locally than sending it at a high cost to markets abroad, with little control over the materials' end fate.

1.2 Pollution Prevention Hierarchy and Targets

In addition to the guiding principles, the RSWMP will adopt the pollution prevention (“waste”) hierarchy as illustrated in Figure 3. The MOE's Guide for the Plan development emphasizes the importance of developing a Plan that considers this hierarchy.

The proposed strategies and actions are organized using the waste hierarchy (reduce, reuse, recycle, energy recovery and residual waste management).

In 2013 the MOE developed two provincial solid waste targets for 2020. The two targets are:

- Reduce the annual municipal solid waste disposal rate to 350 kg/capita; and
- Include 75% of BC's population under organic waste disposal restrictions.



Figure 3: Pollution prevention hierarchy

Recognizing that all regional districts are faced with different challenges, the MOE's Guide⁴ suggests that regional districts should set locally relevant targets.

An overview of the current PRRD solid waste management system and its performance is presented in Section 4 and Section 5. The average disposal rate was 909 kg/capita in 2019. Challenges with achieving the provincial target include difficulty providing the same recycling and diversion services across a vast geographic area that includes remote communities. Additionally, the transportation needed across remote areas and distances to recycling markets create higher than average recycling costs, another challenge or barrier to affordable waste diversion. In addition, approximately 75% of the residual waste originated from commercial sources in the PRRD, which limits the ability to reduce and divert waste from landfilling. The PRRD shares these challenges with other northern regional districts in BC.

An analysis of the PRRD disposed waste streams and their composition suggest that the PRRD could reduce the current annual disposal rate to around 650 kg/capita by 2032. This would require an aggressive reduce, reuse, recycling program resulting in:

- 10% waste reduction, and
- 50% capture rate of compostable organics, compostable and food-soiled paper, and recyclable plastics and diversion from the residential and ICI separated waste stream.

Recognizing the disposal rate target set by the Ministry is not within reach in the short term, the PRRD will strive towards reaching an average annual disposal rate of 350 kg/capita in the long term. Meanwhile, the PRRD will focus on diversion of organic waste, aligned with the second target set by the Ministry, and diversion of recyclable plastics with the goal of reaching an average annual disposal rate of 750 kg/capita by 2027 (17.5% reduction) and 650 kg/capita by 2032 (30% reduction). The PRRD will continue to track residential and ICI diversion achieved through their waste management programs and collection and disposal sites. The PRRD will consider the shadow population (e.g. transient workers) when reporting on disposal rate. This information will be used for internal progress tracking and to identify diversion opportunities.

⁴ Solid waste management planning guide published by the MOE 2016.

2. BACKGROUND

2.1 Plan History

The PRRD adopted its first RSWMP in the mid-1990s and amended the Plan in 2009 after a two-year planning process involving extensive stakeholder and public consultation. In 2013 and 2016, the PRRD made minor Plan amendments involving only updates to the Plan schedules. The 2016 RSWMP included specific Zero Waste goals, along with guiding principles to support these goals.

Although the 2016 Plan's overall vision is still relevant, it was updated to better reflect the current realities of waste and recyclables management in the Region, and to establish specific programs needed to address existing gaps, emerging issues and opportunities.

The PRRD initiated the planning process in May 2018. In September 2019 the PRRD commissioned Morrison Hershfield (MH) to review the current Plan and support the development of a new RSWMP to provide the direction for solid waste management for the next 10 years and beyond.

The Plan update process first involved reviewing the current solid waste management system and identifying gaps and key issues that need to be addressed. An online survey was made available to the public over a 6-week period in the fall of 2019 (between September 13 and October 31)⁵. The survey presented multiple choice questions and allowed respondents to provide feedback and suggestions on improving the Region's waste management system. The feedback was taken into careful consideration throughout the planning process. The Current Waste Management System and Gap Analysis⁶ report provided direction for the overall Plan development.

A consultation plan was developed to ensure adequate consultation with the general public and potentially affected stakeholders. The PRRD collaborated with two separate advisory committees during the Plan review and update process:

- The Public and Technical Advisory Committee (PTAC), which was established in November 2019 for the purpose of the planning process.
- The Committee of the Whole (COW), which is made up of PRRD directors.

MH worked closely with PTAC and COW to identify key issues with the existing solid waste management system, review potential options for addressing the Region's future needs, and select preferred management options.

⁵ The survey was also provided in hard copy at PRRD's attended solid waste facilities and at the PRRD offices in Dawson Creek and Fort St. John.

⁶ Available via PRRD's website: <https://prrd.bc.ca/services/garbage-and-recycling/plans-and-strategies/>

Several technical memoranda were prepared by MH to support PTAC and COW members in the discussion and evaluation of options. These documents are available on PRRD's website and include:

- Technical Memorandum 1: Waste Diversion Options.
- Technical Memorandum 2: Energy Recovery and Residual Waste Management Options.
- Technical Memorandum 3: Other Solid Waste Services and System Financing Options.

The preferred options were reviewed and consolidated based on feedback from COW members. The revisions to the strategies did not change the overall direction of the Plan. The revisions were then presented back to PTAC members who were all in agreement with the consolidation of strategies. The preferred options are presented in this document as a draft version of the Plan. The final Plan will incorporate feedback from community consultation.

The main drivers for developing a new Plan include challenges such as rising recycling costs and illegal dumping, as well as opportunities to improve various pieces of the waste management system. Section 6 presents the proposed strategies that have been shortlisted by the PTAC and COW members. The main issues (i.e. challenges and opportunities) are summarized for each strategy and the basis for selecting each strategy is provided.

The majority of initiatives outlined in the 2016 Plan have either been implemented or implementation is in progress. Some initiatives are not yet completed but are planned to be completed in the near future. Initiatives the PRRD has not yet implemented have been included as proposed strategies (Section 6), as they are still regarded as important.

2.2 Plan Area

The Plan area includes four rural unincorporated electoral areas (B, C, D and E) and seven member municipalities (as illustrated in Figure 4):

- City of Dawson Creek
- City of Fort St. John
- District of Chetwynd
- District of Hudson's Hope
- District of Taylor
- District of Tumbler Ridge
- Village of Pouce Coupe

The Region's topography varies from the Rocky Mountains in the west to interior plains in the east. The Peace River drains much of the Region.

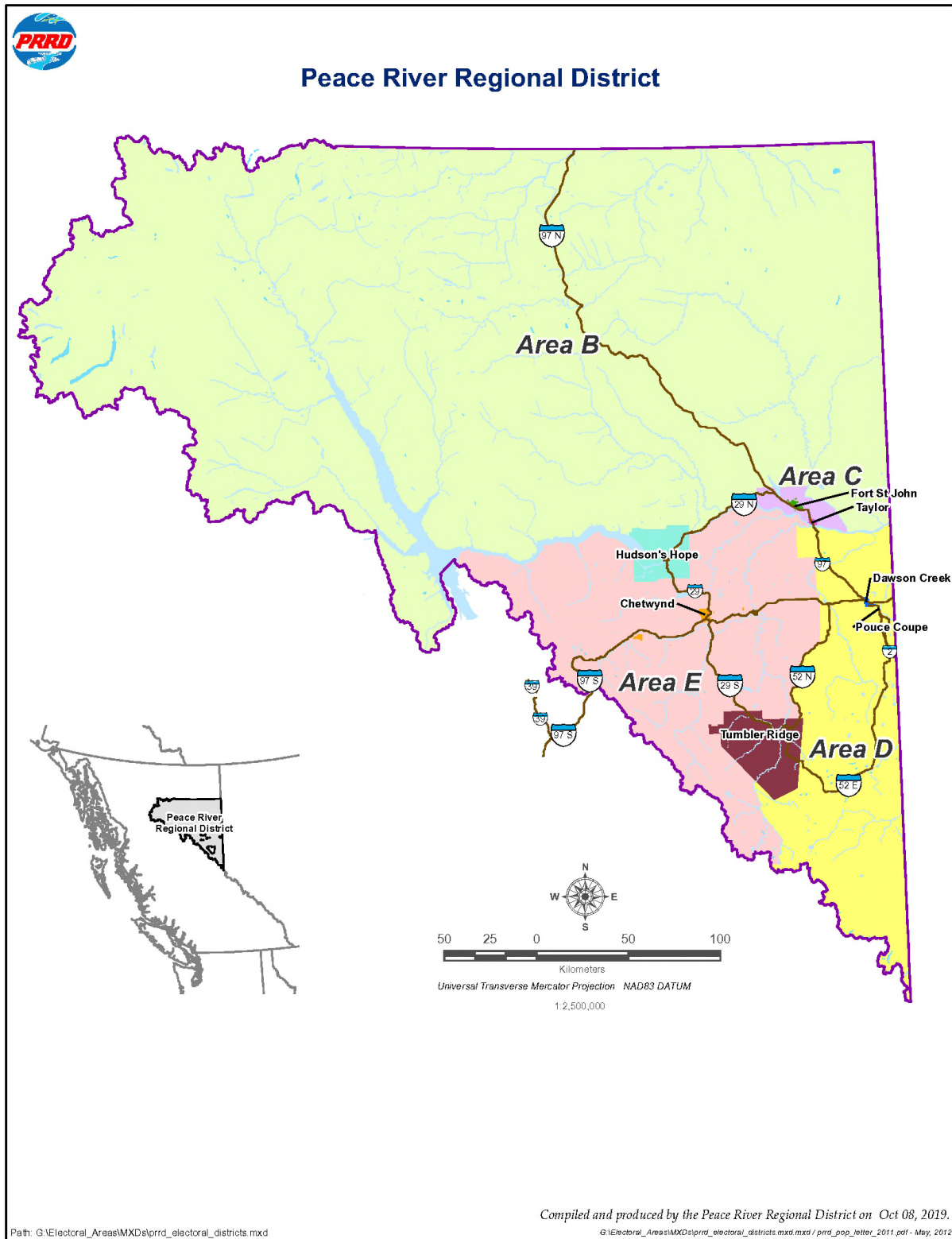


Figure 4: Map of PRRD and member municipalities

2.3 Population and Growth Estimates

In 2016, the PRRD's population was estimated to be 62,942⁷. Municipalities accounted for approximately 64%, and electoral areas approximately 35%, with the remaining 3% First Nations reserves. The PRRD's population increased by 4.8% between 2011 and 2016⁸. The total population is projected to increase to 80,149 by 2041, growing at an average rate of 1.1% per year⁹.

The City of Fort St. John, the Region's most populous municipality, is projected to grow at an above average annual growth rate of 2.2% until 2036¹⁰. Most electoral areas are projected to remain relatively stable, with the exception of Electoral Area B, which is projected to grow at an average annual rate of 2.5% between 2016 and 2021¹¹.

Population density is 0.5 people per square kilometre, based on the 2016 census data.

In 2016, the Region had 24,264 private dwellings occupied by permanent residents, with an average of 2.5 people per household.

Population growth in the Region is highly dependent on major construction projects and economic activity in the resource sectors, such as oil and gas and forestry.

Table 1: Populated areas within the Region (per 2016 Census)

Area	2016 Population	% of total PRRD Population
Dawson Creek, city	12,178	19%
Fort St. John, city	20,155	32%
Chetwynd, district municipality	2,503	4%
Hudson's Hope, district municipality	1,015	2%
Taylor, district municipality	1,469	2%
Tumbler Ridge, district municipality	1,987	3%
Pouce Coupe, village	792	1%
Peace River B, regional district electoral area	5,628	9%
Peace River C, regional district electoral area	6,772	11%
Peace River D, regional district electoral area	5,920	9%
Peace River E, regional district electoral area	2,949	5%
First Nations reserves/other	1,574	3%
Totals	62,942	100%

⁷ Statistics Canada, 2016 Census of Population

⁸ Statistics Canada, 2016 Census of Population

⁹ BC Stats - Sub-Provincial Population Projections - P.E.O.P.L.E. 2018 (Sept 2018)

¹⁰ Fort St. John Official Community Plan 2018

¹¹ PRRD Rural Official Community Plan 2011

2.4 Main Economic Activities in the Region

The PRRD has a growing and diverse economy with industries that include agriculture, tourism, manufacturing, petroleum exploration and development, hydroelectric and wind power generation, forestry and mining. Tourism is a growing industry within the region.

There has been significant recent investment in the industrial service sector for the oil and gas industry within the PRRD, with Fort St. John the hub of BC's vibrant oil and gas industry. The first oilfields in BC were developed near Fort St. John in the early 1950s¹², and the energy sector makes up almost 14% (over 1,500 jobs) of Fort St. John's total labour force.

Major projects within the PRRD are associated with the mining, the oil and gas sector and the utilities sector (hydroelectric and wind power generation). Based on the Government of BC Major Projects Inventory, there are 49 major projects listed in the PRRD¹³.

Approximately 27% of BC's Agricultural Land Reserve is located within the PRRD, with an area of approximately 12,900 square kilometres. The total area of agricultural production in the PRRD is estimated at 8,200 square kilometres¹⁴. The main field crops dominating crop production in the PRRD are wheat, oats, barley, alfalfa, tame hay/fodder crops, canola (Figure 5), and forage seed. The most significant livestock production in the PRRD is beef cattle. Other important livestock include poultry, sheep, lambs, horses, bison, and bees¹⁵.



Figure 5 Agricultural production of canola

¹² City of Fort St. John Official Community Plan, 2018.

¹³ <https://www2.gov.bc.ca/gov/content/employment-business/economic-development/industry/bc-major-projects-inventory>

¹⁴ PRRD Regional Agricultural Plan, November 2014

¹⁵ PRRD Regional Agricultural Plan, November 2014

3. CURRENT WASTE MANAGEMENT SYSTEM

A brief outline of the PRRD's existing solid waste management system is provided in the sections below. A detailed description is included in the Current Waste Management System and Gap Analysis report (November 2019) available on the PRRD's website.

3.1 Roles and Responsibilities

PRRD and member municipalities' roles and responsibilities are as follows:

PRRD Roles

- Regional solid waste management planning, including RSWMP review and update, waste characterization studies, and administration of the PTSC and PTAC.
- Operation of all landfills and transfer stations.
- Administration of contracts with:
 - Stewardship agencies
 - Haulers
 - Landfill operations
 - Rural transfer station operations
 - Transfer/Transtor site operator for garbage collection (Hudson's Hope, Tumbler Ridge, Mile 62.5, unattended sites)
 - Private recycling centres.
- Community-based waste reduction programs, including reduce, reuse and recycle education and promotion, etc.
- Solid waste services to the Region's electoral areas via the transfer station network.

Roles of Member Municipalities

- Administer individual contracts, education, and enforcement for curbside collection with the collector.
- Collect payment from residents for solid waste services, either through taxation or utilities.
- Manage waste diversion activities at transfer sites (Hudson Hope, Tumbler Ridge).
- Participate in the PTAC/PTSC meetings.

3.2 Current Solid Waste Management Network

PRRD has a vast network of solid waste management facilities and sites that currently includes three landfills and 29 rural transfer stations (16 attended and 13 unattended). Figure 6 and Figure 7 show the distribution of PRRD solid waste sites in the North Peace and South Peace regions, respectively. A list of all PRRD facilities and locations is included in Schedule A to this report.

The majority of attended transfer stations are classified as Tier 1 or Tier 2 facilities, based on the service level provided. Tipping fees are charged at all attended Tier 1 and Tier 2 transfer stations for waste disposal. Drop-off of household recyclables is free of charge.

Three sites in the PRRD transfer station network are not classified as either Tier 1 or Tier 2: two Transtor sites (Hudson's Hope and Tumbler Ridge) and one transfer site (Mile 62.5) that operates as a hybrid between an unattended site and a Tier 2 facility.

PRRD Attended Transfer Stations

7 x Tier 1: Accept household waste, recyclables, bulky waste, wood waste, metal waste, and select EPR material.

6 x Tier 2: Accept household waste, recyclables and reusable items.

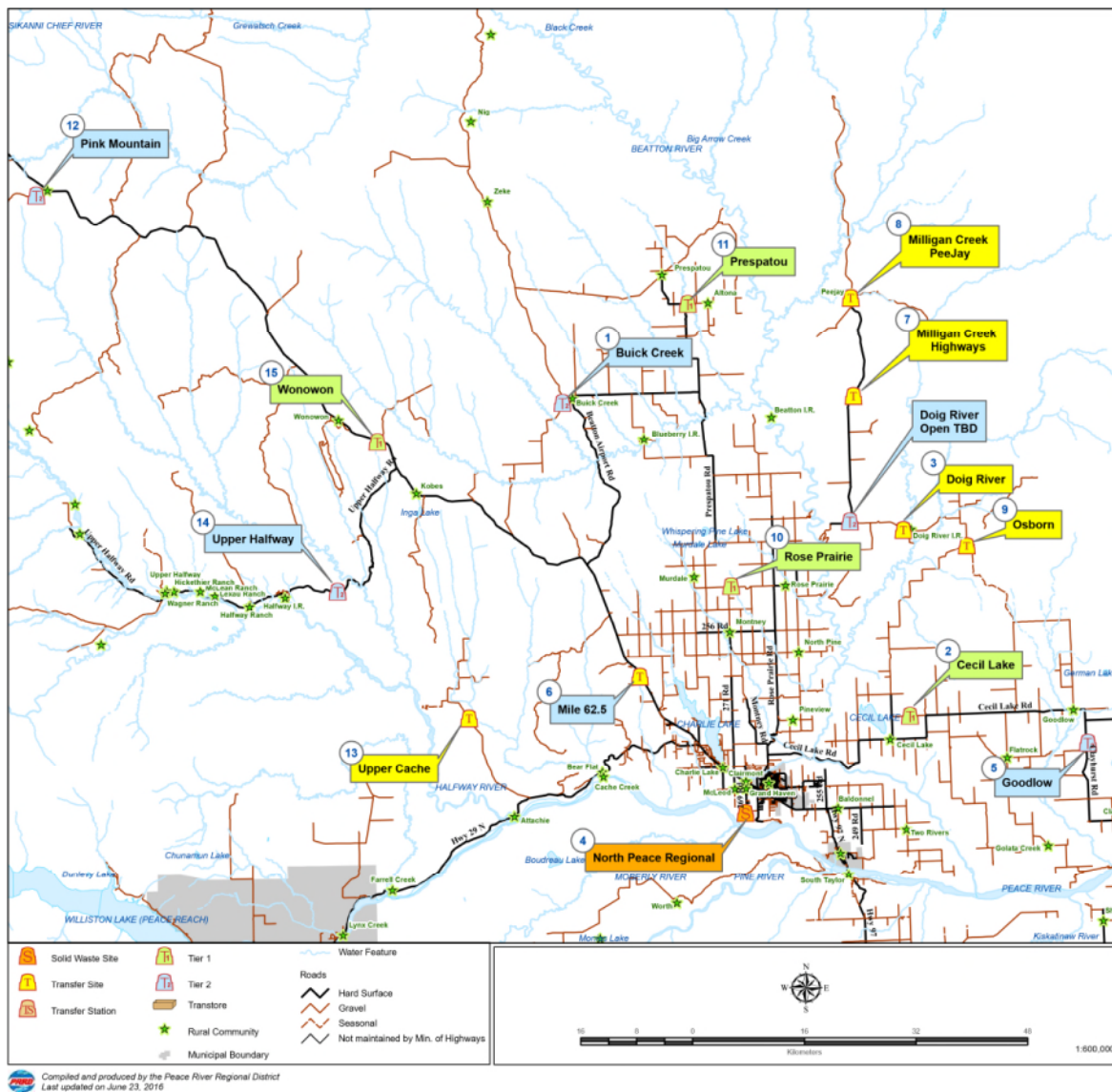


Figure 6: Solid waste sites – North Peace

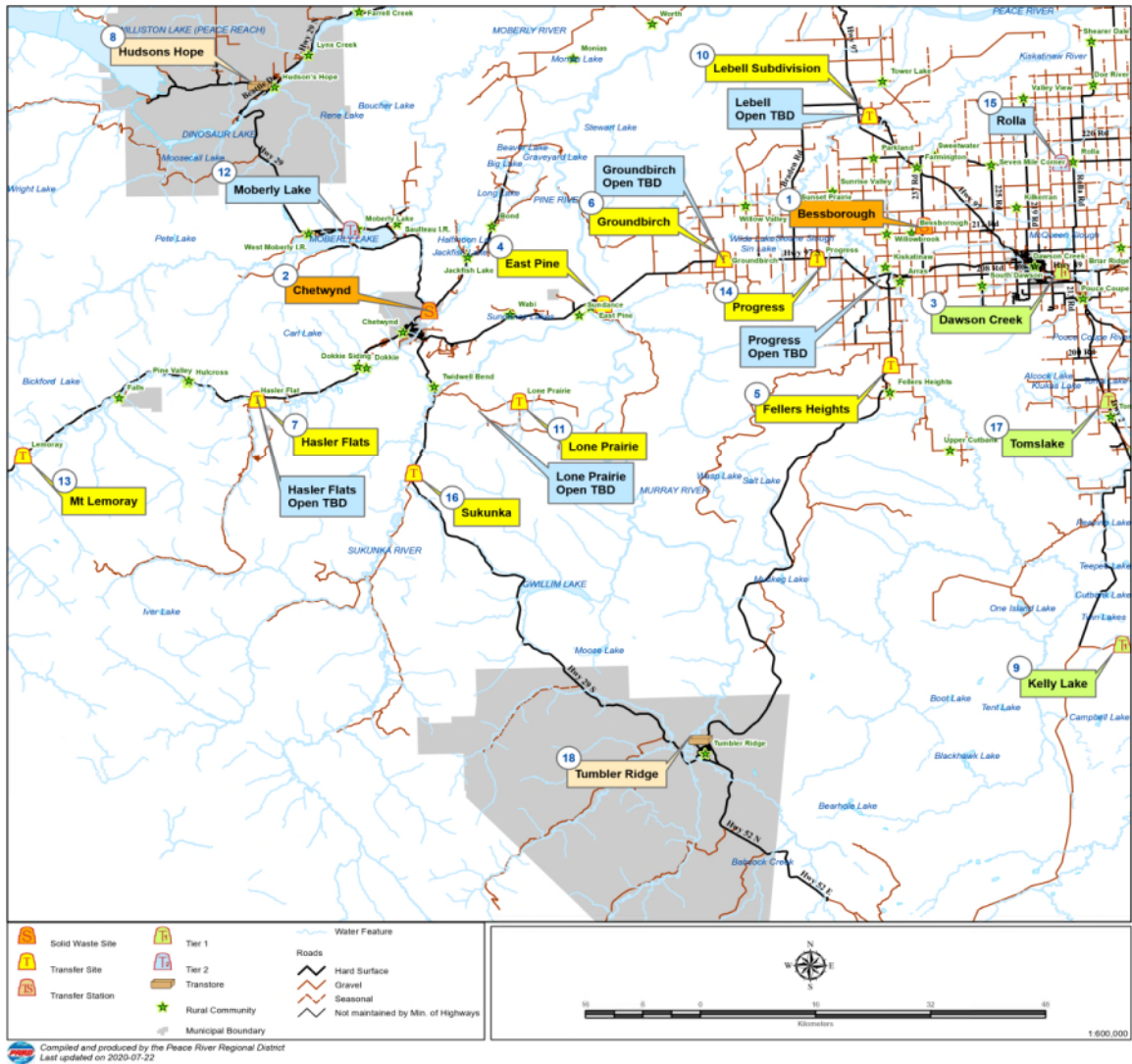


Figure 7: Solid waste sites – South Peace

3.3 Supporting Services

Education and Promotion: PRRD and its member municipalities deliver waste management education and outreach programs to the Region's residents and businesses. Communication tools include the PRRD's waste education mascot, pRRRdy Bird (Figure 8), the PRRD's website, blogs/newsletters, and social media platforms. Education and promotion activities also extend to specific events, such as cleanup events, consultation opportunities, newspaper advertisements, TV/radio commercials, etc.



Figure 8: pRRRdy Bird, used to deliver waste education

Questions about recycling or waste management are answered via the PRRD's toll-free 'Greenline' or the pRRRdy Says waste app.

Reduction and Reuse Programs: Waste reduction programs can include school tours of landfill and recycling centres to encourage greater awareness of waste reduction in children and youth.

There are share sheds at all of the PRRD's rural transfer stations (excluding Dawson Creek), where residents can drop off and take reusable items free of charge during operating hours (Figure 9). The PRRD also has a larger share shed at the North Peace Regional Landfill that accepts the same materials as the rural transfer stations.



Figure 9: Share shed at a rural transfer station

Recycling: Recycling in the PRRD is currently managed through two programs: Recycle BC (a regulated provincial stewardship program, which collected 130 tonnes in 2019) and a recycling services contract (RSC) with a local recycling service provider, which collected 4,527 tonnes of recyclables in 2019.

There are 13 depots, located at the rural transfer stations, collecting residential printed paper and packaging for Recycle BC¹⁶. Apart from the depot in Tumbler Ridge, Recycle BC does not service the remaining six member municipalities.

All remaining recyclables in the Region are managed through the RSC, including ICI and residential materials not currently managed by Recycle BC. A local recycler holds the current RSC and works with two local partners to collect and manage recyclable material throughout the PRRD. Schedule A provides a list of PRRD's facilities and Schedule C a list of other operational waste management facilities in the Region.

¹⁶ Recycle BC 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.

EPR Programs: EPR products are currently collected in the Region at PRRD's transfer stations and landfills (often in partnership with stewardship agencies/stewards) or via private recyclers, either at producer-led return-to-retailer programs (i.e. Shaw, Telus, Bell, London Drugs), or via private recycling companies established directly by the stewards or by agreements with the stewards.

What is EPR?

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 the 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.

Curbside Collection: Seven member municipalities provide curbside garbage collection. Four of them (City of Fort St. John, City of Dawson Creek, Village of Pouce Coupe and District of Chetwynd) also collect recyclables at the curb.

Multifamily apartment complexes not serviced by curbside collection programs can arrange for waste collection via private collection service providers. Residents in areas where curbside collection is not offered must self-haul to a private recycling drop-off location or to a local PRRD facility.

Residential Recycling: Residential recyclables are collected at all of PRRD's facilities except the 13 unattended sites. Recyclables are managed either through Recycle BC's Stewardship Program at 13 facilities (Figure 10) or via the RSC, under which the service provider also accepts materials from commercial sources.



Figure 10: Typical PPP collection set-up for Recycle BC (Moberly Lake)

Other Recycling Facilities: The ICI sector is required to bring their recyclables, such as plastics and cardboard and other packaging, to private facilities.

Each of the local RSC partners—R3, DC Recycling, and Chetwynd Recycling—owns and operates private recycling facilities that accept materials from the ICI sector and residents. These facilities vary in size and capacity; however, each has a drop off depot and a processing area. The private depots are so called Return-It depots that also accept various stewardship program material. Outside the large municipalities, RSC partners provide unmanned recycling stations at a number of locations, some in close proximity to PRRD facilities.

There are also small Return-It bottle depots in Fort St. John and Tumbler Ridge that typically accept beverage containers and sometimes other EPR materials. ABC Recycling and Richmond Steel Recycling in Fort St John offer scrap metal recycling services for residents and commercial customers.

Recyclables Material Recovery: There are no material recovery facilities in the PRRD, and post-collection of recyclables requires transportation of materials out of the Region for further processing into new materials. Municipal curbside recyclables are amalgamated and baled through the RSC and local partners.

Organics Management: The PRRD currently accepts yard and wood waste at all three PRRD landfills and Tier 1 transfer stations. Additionally, yard and wood waste are accepted at the Hudson's Hope and Tumbler Ridge Transtor sites but managed through the respective municipalities. Other residential composting initiatives offered in the Region include an unmanned drop-off location operated by the City of Dawson Creek, 3-4 annual drop-off events held by the City of Fort St. John, and a composting program operated by the Saulneau First Nation community.

A private composter, located in Fort St. John, offers in-vessel composting of logging debris.

Management of Bulky Waste, Wood Waste, Construction and Demolition Waste: PRRD's landfills and Tier 1 transfer stations accept a range of bulky waste, wood waste, construction and demolition waste for recycling and other diversion if they are dropped off segregated (Figure 11).

Wood waste is ground up and used for landfill operations. Both concrete and asphalt shingles are reused operationally for roads and access at the landfills.



Figure 11: Bulky waste bins

Energy Recovery: There are currently no energy recovery facilities in the Region. In 2018, the PRRD issued a Request for Proposal to develop an anaerobic digestion (AD) facility at the

Bessborough Landfill to process the Region's organic waste material for a period of 20 years. An AD facility produces energy in the form of biogas. The procurement process was cancelled due to uncertainties in the business cases provided by the two proponents.

Garbage Drop-off at Transfer Stations, Transfer Sites and Transtor Sites: Residents can drop off household garbage at all 29 sites (landfills, transfer stations, transfer sites, Transtor sites and unattended sites in the Region). Table 2 shows the tipping fees at PRRD's sites. The collected garbage is hauled to the closest landfill (either North Peace Regional, Chetwynd, or Bessborough).

Table 2: Tipping fees at PRRD's sites

Site Type	Materials Accepted
Transfer Stations	Tipping fees are applied at all attended facilities (16 in total).
Transfer Sites	Tipping fees are collected at the Mile 62.5 Transfer Site, which is the only facility of this type.
Transtor Sites	Household garbage accepted for free at two sites (Hudson's Hope and Tumbler Ridge), as residents pay for waste disposal through municipal taxation.
Unattended Sites	Household garbage accepted for free at 13 sites.

In 2019, the PRRD piloted spring and fall clean-up events for residents and businesses to clean up their properties and dispose of materials generated. Tipping fees are waived at all PRRD facilities during the event.

The PRRD provides residents opportunities for free disposal at all PRRD facilities. Historically these have involved the use of clean-up coupons and bi-annual clean-up campaigns.

Waste Management in First Nations Communities: The PRRD is not responsible for collecting recyclables and garbage from First Nations land. However, the PRRD does operate rural transfer stations that service residents outside of municipal boundaries, including First Nations communities.

Operational Waste Disposal Facilities: PRRD operates three landfills in the Region. All three have scales, and tipping fees are applied on a per-tonne basis. The ICI sector is allowed to take garbage to these three landfills only.

The Chetwynd Landfill is nearing capacity. It may be possible to expand the landfill and gain an additional two years of landfill capacity. However, options for landfill expansion or transfer to another facility need to be reviewed soon.

Both of the larger landfills—North Peace Regional and Bessborough—have significant remaining airspace, as shown in Table 3 below. For additional information refer to the PRRD's Current Waste Management System and Gap Analysis (November 2019) available on the PRRD's website.

Table 3: Landfill waste tonnages and remaining capacity and lifespan (2018)

Landfill	Annual Waste Tonnage (2018)	Remaining Airspace (end of 2018)	Remaining Lifespan (end of 2018)
North Peace Regional Landfill	28,844 tonnes	1,281,000 m ³	28 years
Bessborough Landfill	15,844 tonnes	1,925,000 m ³	42-66 years
Chetwynd Landfill	7,901 tonnes	130,000 m ³	~ 8 years

There are many landfills in the Region that have been permanently closed. Schedule B includes a list of all closed waste disposal sites known to the PRRD. All sites are monitored on an annual basis, with groundwater monitoring performed at a number of the closed landfills in accordance with Ministry-mandated monitoring requirements.

Solid Waste Bylaws: A number of bylaws are in place that govern solid waste management activities within the PRRD.

Illegal Dumping Program: The PRRD is addressing illegal dumping through a range of initiatives, including education and promotion of current waste management options, reporting of illegal dumping on Crown land via the (Report all Poachers and Polluters) RAPP line, supporting community spring and fall clean-ups, waiving tipping fees for community or non-profit groups (up to \$500) if the waste clean-up is conducted on Crown land.

Emergency Debris Management: The PRRD's emergency committee has identified the need to develop a debris management plan; however, the plan has not yet been developed.

4. SYSTEM PERFORMANCE

4.1 Waste Generation, Disposal and Diversion

Residual waste from residential and commercial sources is accepted for disposal at the three PRRD-owned landfills. In 2019 approximately 58,000 tonnes of waste (combined) was disposed at these landfills, with about 59% landfilled at North Peace Landfill, 27% at Bessborough Landfill, and 14% at Chetwynd Landfill. Of note, these waste quantities only reflect waste managed at PRRD-owned facilities and waste disposed of at alternative facilities, such as First Nations landfills or industrial disposal sites within the Region, is not included. However, these quantities are assumed to be minor in the regional context.

As shown in Figure 12 below approximately 75% of the residual waste originated from commercial sources in 2019; these mainly composed of separated commercial waste and Construction and Demolition (C&D) waste.

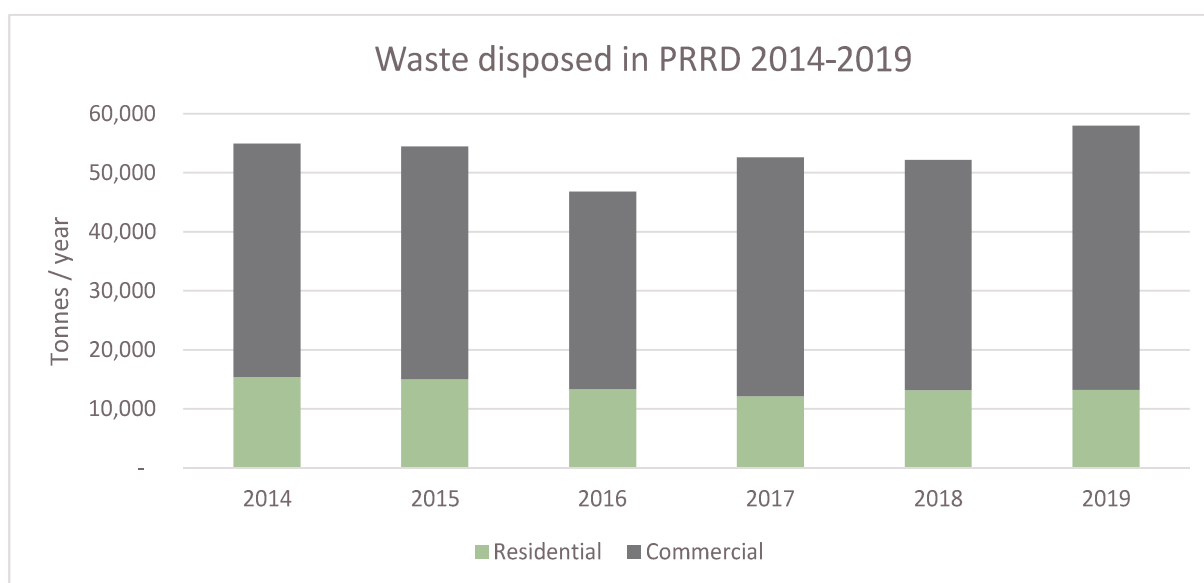


Figure 12: PRRD 2014-2019 waste disposal (residential vs. commercial sources)

The PRRD's 2019 overall disposal rate is estimated at 909 kg/capita, using population numbers from BC Statistics PEOPLE population projections¹⁷. The residential disposal rate was 207 kg/capita and the commercial rate was 702 kg/capita for the same year. The disposal rate is calculated using the Region's permanent population. It does not account for any shadow population made up of transient workers who also contribute waste, however the amount of waste generated by these people is included, since it ends up at PRRD facilities.

¹⁷ BC Stats - Sub-Provincial Population Projections - P.E.O.P.L.E. 2018 (Sept 2018).

4.2 Waste Characterization of Disposed Waste

The overall composition of the disposed waste is presented in Figure 13¹⁸.

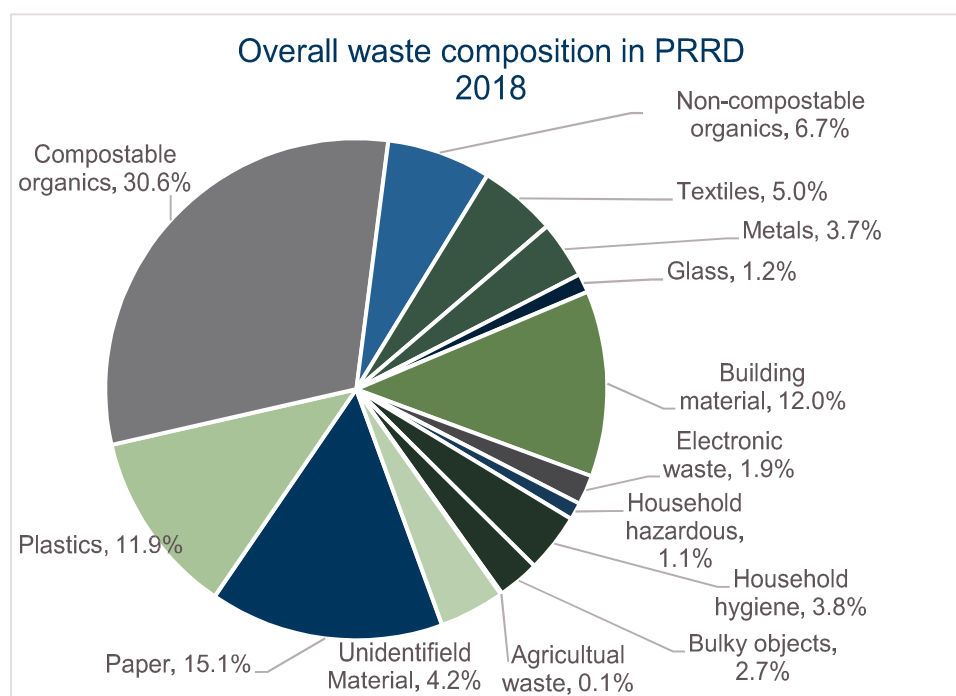


Figure 13: Overall composition of disposed waste in the PRRD

The largest four waste categories—compostable organics, plastics, paper and building materials—make up 70% of all waste disposed at the regional landfills. The portion of compostable organics is substantially higher than the overall composition for waste originating from the single-family households (44% of the waste) and the work-camp sectors (52%).

4.3 Current Waste Diversion

The PRRD's 2019 waste management activities were successful in diverting approximately 15,800 tonnes of materials from landfill through collection at landfills and rural transfer stations, transfer and transfer sites. In 2018 approximately 8,300 tonnes of material were diverted by private industry via the RSC and non-PRRD collection (as reported by EPR programs).

Diverted ICI and C&D materials not captured at PRRD facilities or through provincial EPR and stewardship programs are unknown and are not included in the tonnages presented above.

PRRD activities are resulting in a 21% regional diversion rate. However, when accounting for the material collected by private industry under the provincial EPR programs, the corresponding 2019 diversion rate is 29%.

¹⁸ Four Season Waste Composition Study (TetraTech, 2018).

4.4 Overall System Performance 2006 - 2019

Table 4 below presents the annual waste disposal, diversion and generation (i.e. waste captured by PRRD's waste management system) for 2006, 2011, 2016 and 2019, calculated as kg per capita.

Although the waste generation per capita has remained relatively steady around 1,000 kg/capita over the past 14 years, diversion efforts have resulted in a steady decrease in the amount of waste disposed. The diversion rate has increased from 8% in 2006 to 21% in 2019. The increase is attributed to increased diversion services offered to residents as well as improved diversion of yard and garden waste and wood and concrete waste.

Table 4: Annual per capita waste disposal, waste diversion & captured waste (2006-2019)

	Annual Disposal, Diversion & Captured Waste (kg/capita)			
	2006	2011	2016 ¹	2019 ²
Disposal	978	883	744	909
Diversion	81	172	283	247
Captured Waste - Generation	1,059	1,055	1,027	1,156
Diversion Rate	8%	16%	28%	21%

¹ Diversion rate attributed to large quantity of stockpiled lead acid batteries sent for recycling in 2016

² Population count based on BC Stats, Sub-Provincial Population Projections; P.E.O.P.L.E. 2018 (Sept 2018). It does not include transient workers.

5. PROPOSED STRATEGIES

Strategy development for the new RSWMP has consisted of a series of PTAC and COW meetings for the discussion of potential strategies in key topic areas and the selection of preferred strategies by committee members. This section lists the existing and proposed new strategies, largely presented in order of the pollution prevention hierarchy.

The key issues or opportunities behind each proposed strategy are summarized together with the proposed implementation time frame, anticipated capital and annual costs to the PRRD and role and responsibility for its implementation (see Figure 14). The preferred options are shown in the order of priority given by PTAC and COW members. Options / strategies that were regarded as higher priority have been given a shorter implementation period (first five years of implementation). Strategies with lower priority have been given implementation periods beyond 5 years. Some of the implementation time frames may be affected by the global pandemic.

The responsibility refers to who is responsible for the strategy implementation. It identifies if municipal involvement is needed to support PRRD staff.

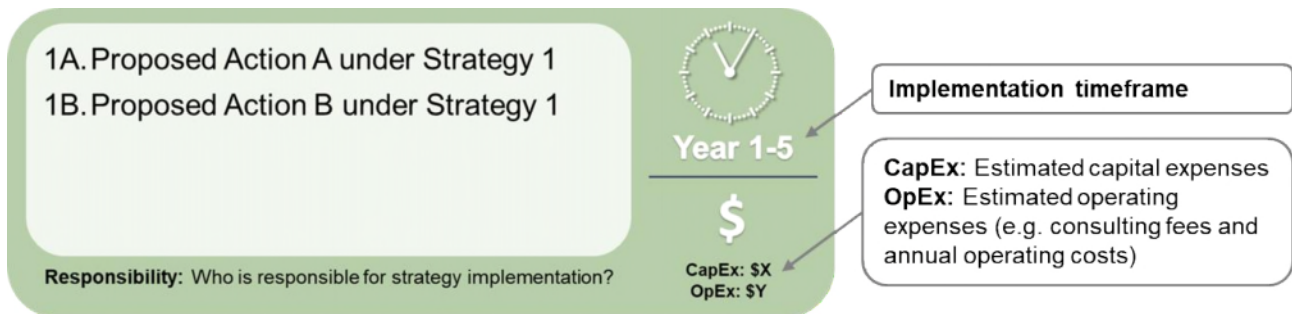


Figure 14: Explanation of strategy infographic

5.1 Waste Diversion

5.1.1 STRATEGIES TO ENCOURAGE REDUCTION, REUSE AND RECYCLING



The PRRD's current reduction and reuse initiatives include:

- Promoting waste reduction, reuse, and diversion via numerous communication channels, such as the use of pRRRdy bird. The communication tool provides simple, everyday actions that residents and businesses can take to help reduce waste.
- Encouraging reuse by having share sheds at most of the PRRD's rural transfer stations.

The development of building material reuse capacity is planned for 2021, when the PRRD will provide a large shed at the North Peace Regional Landfill for the reuse of construction materials. This share shed will mainly target high-value products such as treated lumber.

The PRRD's current recycling initiatives include:

- Managing recycling in the PRRD via Recycle BC or through the RSC.
- Collecting EPR products at PRRD's transfer stations and landfills (often in partnership with stewardship agencies/stewards) or via private recyclers.
- Offering drop-off locations for residents in areas where curbside collection is not offered. They must self-haul to a private recycling drop-off location or to a local PRRD facility.
- Recycling and diversion of bulky waste, land-clearing, construction and demolition waste when received at Tier 1 facilities (e.g. segregated wood, scrap metal, asphalt shingles and concrete)
- Multifamily apartment complexes and the ICI sector must arrange for collection of recyclables via private service providers or bring their recyclables to private facilities.

Six new strategies are proposed to increase reduction, reuse and recycling of waste materials:

#	Strategy	Short-term Priority Years 1-5	Long-term Priority Years 6-10+
1	Lobby for improved EPR programs in the PRRD	✓	
2	Promote and educate on the pollution prevention hierarchy	✓	✓
3	Research agricultural plastics recycling options	✓	
4	Increase waste diversion in the ICI sector through promoting the waste hierarchy	✓	✓
5	Improve collection of hazardous waste and targeted EPR materials	✓	✓
6	Increase diversion of construction and demolition waste through promoting the waste hierarchy	✓	✓

STRATEGY 1: Lobby for improved EPR programs in the PRRD

The Issue: There are currently over 20 provincial EPR programs covering a wide range of material categories, many of which the PRRD accepts at its landfills and transfer stations. Current EPR programs mainly focus on the residential sector and not the ICI sector. For rural and remote communities in the Region, recyclables management could be simplified and made more efficient and more economical if material from the ICI sector is managed together with residential sources, which are currently regulated. Recycling options for the ICI sector, including small businesses, schools, and hospitals, are limited and require PRRD subsidies.

Applicable Guiding Principles

- ♦ *Promote the first 3Rs (Reduce, Reuse and Recycle) with targeted efforts*
- ♦ *Promote zero waste approaches and support a circular economy*
- ♦ *Maximize beneficial use of waste materials and manage waste and divertible materials appropriately*

Specific issues the PRRD proposes raising with the MOE include:

- Need to improve accessibility to EPR materials collection options for rural residents. Only two of the seven member municipalities were eligible for Recycle BC funding for curbside collection of residential packaging and printed paper (PPP).
- Need to expand Recycling Regulation to also cover:
 - packaging and printed paper from the ICI sector,
 - agricultural plastics (bale wrap, baler twine, etc.),
 - agricultural hazardous waste (e.g. pesticides and animal medications),
 - other hazardous materials, such as mercury, diesel fuel, acid, household cleaners, garden products, and some pesticides, which are currently not included as regulated materials,
 - mattresses,
 - single-use plastics¹⁹,
 - construction and demolition materials.

In October 2020, the Canadian Council of Ministers of the Environment announced that it intends to ban or restrict the use of six single-use plastic product categories in 2021. This announcement is a key step in progressing on the Canada-wide Action Plan on Zero Plastic which was released in 2019.

Also in 2019, the BC MOE issued the CleanBC Plastics Action Plan, a policy consultation paper on how the Province of BC intends to address plastic waste. The plan has involved

¹⁹ Single-use plastics are designed to be thrown away after one use and can include for example packaging, convenience items (utensils, straws), etc.

amendments to the Recycling Regulation for “packaging-like” and “single-use” products that will be added to the Blue Box program starting in 2023.

In September 2020, the MOE released an intentions paper for changes to the Recycling Regulation. The MOE is considering regulating more materials, many of which have been identified as priority products by the PRRD (e.g. packaging and paper products beyond residential sources moderately hazardous products and mattresses).

This strategy can include but is not limited to:

- 1A. Lobby for a provincial EPR program for single-use items.
- 1B. Lobby for better service levels for existing EPR materials.
- 1C. Lobby for ICI to be included in current and future EPR Programs.
- 1D. Lobby for inclusion of new materials, regardless of source (residential or ICI), under the Recycling Regulation.

Implement programs at PRRD facilities, where feasible.

Responsibility: PRRD



Year 1-5



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

STRATEGY 2: Promote and educate on the pollution prevention hierarchy

The Issue: The PRRD has limited resources and wants to promote and educate on the pollution prevention hierarchy.

The PRRD wants to promote waste reduction and reuse ideas using some of the readily available campaigns and programs developed by others. There are examples of regional districts promoting waste reduction by hosting, supporting or promoting reuse and repair events or by supporting the establishment of a “makerspace”, such as the one established in Grand Prairie²⁰. The initiatives can be promoted by the PRRD, and if suitable by member municipalities, and non-profit groups.

Applicable Guiding Principles

- ♦ *Promote the first 3Rs (Reduce, Reuse and Recycle) with targeted efforts*
- ♦ *Promote zero waste approaches and support a circular economy*
- ♦ *Maximize beneficial use of waste materials and manage waste and divertible materials appropriately*

The PRRD wants to educate on the benefits of recycling to maintain high public participation. More education may be needed for residents on the cost of recycling in the Region and on ways residents can help to reduce costs. This comes after the cost to the PRRD for managing

²⁰ For more information, visit URL: <https://makegp.org/>.

recyclables has increased significantly over the last two years - the price of recyclables materials has plummeted, and transportation costs have increased.

The PRRD can demonstrate its commitment to the pollution prevention hierarchy by implementing procurement practices that promote reduction and reuse of waste materials and encourage a circular economy, with increased use of recycled materials required in purchased products.

The PRRD will prioritize the initiatives that had strong support during the public consultation.

This strategy can include but is not limited to:

- 2A. Adopt successful waste reduction campaigns used in other regions to target residents.
 - 2B. Equip each share shed with a “share board” to encourage the reuse of bulky items.
 - 2C. Host, organize, and/or support repair activities through such as repair cafés, “maker spaces”, or similar in targeted communities.
 - 2D. Provide clear information on recycling options, including how to segregate materials, what happens to them, and the benefits of recycling.
 - 2E. Educate on the cost of recycling in the Region and ways costs can be reduced.
 - 2F. Adopt a procurement policy that supports the waste hierarchy
- Implement programs, where feasible. Promote and educate on the programs offered.

Responsibility: PRRD with support from member municipalities.



Year 1-10



CapEx: \$n/a
OpEx: \$10,000*

* Annual costs of \$10,000 (advertising, printing costs, supply costs, etc.)

STRATEGY 3: Research options for recycling agriculture plastics

The Issue: Approximately 27% of BC's Agricultural Land Reserve is located within the PRRD and it is an agriculturally intensive region. The use of plastics in agriculture has increased over the last couple of decades. Agricultural plastics are plastic materials used in agricultural production and sales.

A relatively small portion of agricultural plastics are being diverted for recycling (approximately 5% in Canada), largely due to a lack of available recycling options. Based on PRRD's experience, many agricultural plastics are typically contaminated, resulting in low marketability.

Applicable Guiding Principles

- ♦ *Promote the first 3Rs (Reduce, Reuse and Recycle) with targeted efforts*
- ♦ *Promote zero waste approaches and support a circular economy*
- ♦ *Prevent recyclables from going into the garbage wherever practical*
- ♦ *Collaborate with other Regional Districts and develop collaborative partnerships with interested parties wherever practical*

This strategy can include but is not limited to:

- 3A. Continue investigating attainability of recycling agricultural plastics. PRRD will implement pilot when deemed economically feasible.
- 3B. If the pilot demonstrates promising results, implement larger scale recycling of agricultural plastics.

Implement programs at PRRD facilities, where feasible. Promote and educate on the programs offered.

Responsibility: PRRD



Year 1-5



CapEx: \$tbd*
OpEx: \$tbd

** The results of a pilot will help to determine capital and operating costs involved. Costs may be offset by external funding.*

STRATEGY 4: Increase ICI waste diversion by promoting the waste hierarchy

The Issue: ICI waste is only received at the Bessborough, Chetwynd, and North Peace Regional Landfills and makes up approximately 75% of the waste that is received at those sites. ICI MSW, which is currently being landfilled, accounts for the majority of the ICI waste materials (almost half of the waste accepted). The dominant ICI sector also bring many transient workers which add to the high per-capita disposal rate seen in the Region.

The ICI sector already contributes to diverting a range of different waste materials from landfills. However, there is room for improvement, as a large portion of waste that could be diverted are being landfilled. Over recent years PRRD's ICI waste diversion efforts and dialogue has mainly focused on the construction and demolition sector. Going forward, it is also important to reach out to and collaborate with the ICI sector, as this sector contributes a significant portion of the waste tonnages received at PRRD's landfills.

The PRRD could develop an ICI Waste Working Group as needed to collaborate with to find suitable methods to reduce, reuse and divert more waste from the ICI sector.

The 2018 waste composition study showed that compostable organics made up 32% of ICI waste. The study also showed that work camps, which are a large source of ICI waste in the PRRD, have exceptionally high organics diversion potential, with compostable organics representing 52% of the waste stream. The PRRD wants to identify barriers to food donation and develop guidance information for organizations wanting to redistribute food instead of disposing of it.

The PRRD wants to encourage greater ICI waste diversion and provide an effective deterrent for the disposal of recyclable materials by increasing disposal fees for commercial solid waste. The PRRD wants to increase tipping fees for both unsorted/ mixed waste and sorted, however by keeping the fees of sorted (divertible) waste low compared to disposal fees for mixed waste loads, controlled waste, and restricted waste, the PRRD can encourage improved waste diversion of waste and may not cause increased illegal dumping of ICI wastes.

Along with fee increases, the PRRD will increase education efforts to affected stakeholder groups about required waste separation requirements, and upcoming disposal fees.

Applicable Guiding Principles

- ♦ *Promote the first 3Rs (Reduce, Reuse and Recycle) with targeted efforts*
- ♦ *Promote zero waste approaches and support a circular economy*
- ♦ *Maximize beneficial use of waste materials and manage waste and divertible materials appropriately*
- ♦ *Collaborate with other Regional Districts and develop collaborative partnerships with interested parties wherever practical*

This strategy can include but is not limited to:

- 4A. Establish an ICI Waste Working Group to develop an overall ICI waste diversion strategy that identifies specific waste diversion initiatives supported by members as needed.
- 4B. Support or organize a waste reduction forum or workshop for targeted businesses.
- 4C. Develop guidance information for organizations on how to redistribute food to people in need rather than wasting.
- 4D. Increase ICI disposal fees for sorted waste, unsorted waste, controlled, and restricted waste and carry out education and outreach program(s) to implement changes and improve waste diversion.

Implement programs at PRRD facilities, where feasible

Responsibility: PRRD with support from member municipalities.



Year 1-10



CapEx: \$n/a

OpEx: \$n/a

STRATEGY 5: Improve collection of hazardous waste and targeted EPR materials

The Issue: Many hazardous waste materials are covered by current EPR programs. The PRRD prohibits landfilling of a number of hazardous wastes, such as used oil and anti-freeze products, paint, flammable liquids, pesticides, waste gasoline, and electronics.

Large hazardous wastes generators in the Region can engage companies' like Tervita, Green for Life (GFL) and Waste Management to dispose of hazardous waste. However, limited drop-off locations are currently available for many of the hazardous wastes produced by smaller generators. In some parts of the Region, there are also service gaps for hazardous waste disposal options for residents.

The PRRD wants to increase the disposal options by implementing periodic round-up events. Hazardous waste materials to collect at round-up events may include targeted EPR materials, such as lightbulbs and fixtures, smoke detectors and carbon monoxide alarms, electronics, batteries, but potentially also hazardous waste not covered by EPR programs. Round-up events can be a cost-effective way of servicing remote areas with small populations if many materials types can be collected at the same time. In addition, the PRRD wants to investigate the potential to offer permanent drop-off options for hazardous wastes and targeted EPR materials.

Applicable Guiding Principles

- ♦ *Promote the first 3Rs (Reduce, Reuse and Recycle) with targeted efforts*
- ♦ *Promote zero waste approaches and support a circular economy*
- ♦ *Maximize beneficial use of waste materials and manage waste and divertible materials appropriately*
- ♦ *Collaborate with other Regional Districts and develop collaborative partnerships with interested parties wherever practical*

The PRRD is seeking to collaborate with stewardship organizations, such as Product Care, BC Used Oil Management Association, and/or private organizations, such as Tervita, GFL, Waste Management, to support periodic or permanent collection of hazardous waste.

This strategy can include but is not limited to:

- 5A. Identify cost-effective ways of offering mobile or periodic collection of hazardous wastes and targeted EPR materials at locations where service gaps exist. This may include partnering with stewardship or private organizations to support round-up events. PRRD will implement the temporary collection if deemed feasible.
- 5B. Investigate potential partnerships with stewardship organizations to offer permanent drop-off of hazardous wastes and targeted EPR materials at locations where service gaps exist. PRRD will pilot a permanent collection option and establish more permanent drop-off locations if it is deemed viable.

Implement programs at PRRD facilities where feasible.

Responsibility: PRRD



Year 1-10



CapEx: \$tbd*
OpEx: \$100,000**

* The investigation will determine capital costs for a permanent collection and the financial support available from stewardship organizations.

** Cost of round-up event every three years. The frequency will be determined based on the pilot results of permanent drop-off option and success of round-up events.

STRATEGY 6: Increase diversion of construction and demolition waste by promoting the waste hierarchy

The Issue: The 2018 waste characterization study of residual waste disposed at the PRRD's landfills showed that the construction and demolition (C&D) sector contributed 21% of the annual waste tonnages received at PRRD landfills. Although there are limited recycling options within the Region for many prevalent C&D materials such as drywall and carpets, there are still opportunities to divert a large part of the C&D waste from landfilling. For example, the PRRD accepts segregated clean wood waste, which made up almost 19% of the total landfilled C&D waste, and asphalt shingles, which made up almost 12% of the landfilled C&D waste).

Applicable Guiding Principles

- ♦ Promote the first 3Rs (Reduce, Reuse and Recycle) with targeted efforts
- ♦ Promote zero waste approaches and support a circular economy
- ♦ Maximize beneficial use of waste materials and manage waste and divertible materials appropriately
- ♦ Support polluter and user-pay approaches, and manage incentives to maximize behaviour outcomes where practical

This strategy can include but is not limited to:

- 6A. Encourage reduction and reuse of C&D materials.
- 6B. Investigate feasibility of reusing or recycling additional C&D materials and implement pilot when deemed feasible.
- 6C. Increase differential tipping fees and incentives to encourage source separate and diversion of C&D Waste.
- 6D. Provide education on the importance of source separation and diversion of C&D waste.

Implement programs at PRRD facilities, where feasible.

Responsibility: PRRD



Year 1-10



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

**Capital costs relating to the recycling of C&D materials will be determined part of the feasibility assessment.*

5.1.2 STRATEGIES TO INCREASE ORGANICS DIVERSION



The PRRD's current organics diversion initiatives include:

- Accepting yard and wood waste at all three PRRD landfills, Tier 1 Transfer Stations and at the Hudson's Hope and Tumbler Ridge Transfer sites.
- Piloting of windrow composting and vermicomposting.

Other residential composting initiatives include a drop-off location operated by the City of Dawson Creek, annual drop-off events held by the City of Fort St. John, and a composting program operated by the Saulneau First Nation community. A private composter offers in-vessel composting of logging debris.

Two new strategies are proposed to target increased organics diversion in the Region:

#	Strategy	Short-term Priority Years 1-5	Long-term Priority Years 6-10+
7	Establish organics processing capacity in the Region	✓	
8	Support curbside collection of compostable organics in member municipalities	✓	✓

STRATEGY 7: Establish organics processing capacity in the Region

The Issue: Based on the 2018 waste characterization study, compostable organics made up the largest part of landfilled waste; 31% overall. However, the portion of compostable organics is substantially higher than the overall composition in waste originating from the single-family households (44% of the waste) and from work camps (52%).

Applicable Guiding Principles

- ♦ Promote the first 3Rs (Reduce, Reuse and Recycle) with targeted efforts
- ♦ Promote zero waste approaches and support a circular economy
- ♦ Prevent organics from going into the garbage wherever practical

As a temporary measure, biosolids generated from the anaerobic lagoon at PRRD's wastewater treatment facility in Charlie Lake are currently being taken to PRRD's landfill. The PRRD sees an opportunity to treat biosolids using a composting process.

In 2020, the PRRD is piloting composting of cardboard, mixed paper, food waste, and biosolids using a vermicomposting process.

This strategy can include but is not limited to:

- 7A. Pilot small-scale composting processes at PRRD's facilities and establish larger scale processes at suitable sites if pilot is deemed successful and cost-effective.
- 7B. Reassess the feasibility of a large-scale organics processing facility (such as a Regional AD Facility) and how it compares with small-scale solutions.
- 7C. PRRD will implement small-scale composting processes and/or a large-scale organics processing facility if deemed viable.

Implement programs at PRRD facilities, where feasible.

Responsibility: PRRD



Year 1-5



CapEx: \$tbd*
OpEx: \$100,000*

** \$100,000 in consulting fees for planning and engineering in year 2. Capital and future operating costs will be determined based on the pilot results and as part of the feasibility assessments. Funding may offset some costs.*

STRATEGY 8: Support the organics diversion in the Region

The Issue: Based on the public survey and feedback gathered from PTAC and COW, there is an appetite for diverting organic waste from landfills.

Once suitable composting solutions have been identified (refer to the previous strategy), the PRRD can work with the member municipalities to investigate organic waste collection options that fit the selected organics processing solutions.

Applicable Guiding Principles

- ♦ Promote the first 3Rs (Reduce, Reuse and Recycle) with targeted efforts
- ♦ Promote zero waste approaches and support a circular economy
- ♦ Prevent organics from going into the garbage wherever practical

If organics processing capacity is available, this can include but is not limited to:

- 8A Support ICI and residential programs that promote organics diversion in the Region.
- 8B Investigate the feasibility of accepting organics at suitable solid waste sites for on-site processing or transfer to a central facility.

Implement programs at PRRD facilities, where feasible.

Responsibility: PRRD with support from member municipalities.



Year 1-10



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

** Operating costs will be determined based on the assessments. Funding may offset some costs.*

5.2 Energy Recovery

5.2.1 STRATEGIES TO INCREASE ENERGY RECOVERY

There are no current energy recovery initiatives undertaken by the PRRD.

The following two new strategies are proposed to increase energy recovery:



#	Strategy	Short-term Priority Years 1-5	Long-term Priority Years 6-10+
9	Assess suitability of technologies for energy recovery for organics in the Region	✓	
10	Assess suitability of technologies for energy recovery for residual waste	✓	

STRATEGY 9: Assess suitability of technologies for energy recovery for organics in the Region

The Issue: In 2018, when the PRRD was seeking proponents interested in developing an AD facility at the Bessborough Landfill, the two proposals relied heavily on the PRRD's willingness to guarantee the majority of the required feedstock. The preliminary costs appeared to be prohibitively expensive due to high transportation costs and required capital investment, so the AD initiative was placed on hold. The PRRD may want to continue to investigate opportunities to integrate energy recovery opportunities with biosolids management and landfill gas utilization.

Applicable Guiding Principles

- ♦ Promote zero waste approaches and support a circular economy
- ♦ Prevent organics from going into the garbage wherever practical
- ♦ Collaborate with other Regional Districts and develop collaborative partnerships with interested parties wherever practical

This strategy can include but is not limited to:

- 9A. Re-assess option to process organic waste (including biosolids) at a Regional AD facility after small-scale composting pilot results are available. If deemed feasible, pursue AD facility with procurement process to canvas interest from vendors.

If deemed necessary, collaborate with member municipalities to implement bylaw amendments in order to secure organic feedstock for an AD facility.

Responsibility: PRRD and member municipalities.



Year 1-5



CapEx: \$tbd*
OpEx: \$100,000*

* \$100,000 in years 1 and 2 for consulting support. Capital and operating costs will be determined based on the assessment. Funding may offset some costs.

STRATEGY 10: Assess suitability of technologies for energy recovery for residual waste

The Issue: There are some waste materials for which there are currently no viable recycling markets. These include agricultural plastics, carpets, drywall, and other construction and demolition materials. These materials are currently landfilled. If recycling is deemed cost-prohibitive, the PRRD may want to investigate the use of non-recyclable waste materials for energy recovery.

Applicable Guiding Principles

- ♦ Maximize beneficial use of waste materials and manage waste and divertible materials appropriately
- ♦ Collaborate with other Regional Districts and develop collaborative partnerships with interested parties wherever practical

Energy recovery typically becomes more cost effective with economies of scale. When the PRRD is reviewing the feasibility of establishing a Regional Energy Recovery Facility (RERF), the potential to accept waste materials from neighbouring regions/provinces (including Alberta) should also be reviewed. The PRRD will also follow the energy recovery developments in neighbouring northern communities in British Columbia/Alberta that are exploring resource recovery options.

In accordance with the Ministry's guidance on how energy recovery technologies such as waste to Energy (WTE) fit into a SWMP, local governments contributing MSW to a facility must have an approved SWMP that authorizes and/or recognizes the WTE facility to accept and dispose of MSW. If the PRRD determines that a RERF is feasible, it is required to amend Schedule A (List of PRRD's Facilities) to include the WTE facility in the service area. Based on MOE's guide to solid waste management planning, the opening of a facility that is included in a regional district's solid waste management plan, and requires an authorization under the Environmental Management Act, is still regarded as a substantial change to the solid waste management system and it would trigger a full plan (major) amendment. According to Ministry requirements local governments planning to direct MSW to a WTE Facility also require an assessment and comparison of waste management treatment and disposal options. It is suitable for the PRRD to correspond with the MOE to confirm the requirements when assessing a RERF.

This strategy can include but is not limited to:

- 10A. Assess feasibility of establishing a Regional Energy Recovery Facility (RERF) for residual waste with potential to accept waste from neighbouring regions/province. If feasible, solicit interest from potential vendors and establish a process for evaluating and selecting a suitable technology or process.
- 10B. Undertake an assessment and comparison of waste management and disposal options in accordance with Ministry requirements.
- 10C. Consider out-of-region resource recovery facilities as potential future solutions for managing a portion of the Region's waste stream.

Implement energy recovery initiatives where feasible and consider best practices

Responsibility: PRRD



Year 1-5



CapEx: \$tbd*
OpEx: \$100,000*

** \$100,000 in years 1-4 for consulting support (feasibility assessment, planning, public engagement and design). Capital and operating costs will be determined based on the feasibility assessment.*

5.3 Residual Waste

5.3.1 STRATEGIES TO IMPROVE RESIDUAL WASTE MANAGEMENT



The PRRD's current residual waste management initiatives include:

- Accepting garbage at all landfills, transfer stations, transfer sites, Transtor sites and unattended sites in the Region. The collected garbage is hauled to the closest landfill (either North Peace Regional, Chetwynd, or Bessborough).
- Providing spring and fall clean-up events for residents and businesses to clean up their properties and dispose of materials generated.
- Providing homeowners clean-up coupons each year to enable free disposal at all PRRD transfer station sites.
- Operating three landfills in the Region in accordance with Provincial legislation and permits. Capital expenditures for landfill expansion and closure will be done in accordance with the Design, Operations and Closure Plans for each landfill.
- Monitoring of closed waste disposal sites known to the PRRD in accordance with Ministry-mandated monitoring requirements.
- Addressing illegal dumping (Figure 15) through a range of initiatives, including education and promotion of current waste management options, reporting of illegal dumping on Crown land via the RAPP line, supporting community spring and fall clean-ups, and waiving tipping fees for community or non-profit groups (up to \$500) if the waste clean-up is conducted on Crown land.



Figure 15: Public abuse at unmanned transfer station

The following four strategies are proposed to improve solid waste management and prevent illegal dumping:

#	Strategy	Short-term Priority Years 1-5	Long-term Priority Years 6-10+
11	Improve accessibility and efficiency of the solid waste network	✓	✓
12	Monitor the PRRD's three active landfills to continually assess long-term disposal options	✓	✓
13	Develop an illegal dumping strategy	✓	✓
14	Develop an emergency debris management plan		✓

STRATEGY 11: Improve accessibility and efficiency of the solid waste network

The Issue: The PRRD has a vast network of solid waste management facilities and sites that are attended or unattended (unmanned). The majority of costs are associated with hauling, attendant and supervisor services, and bin rentals. Efficiency improvements have already been achieved, for example through the consolidation of many unmanned sites and the replacement with manned transfer stations. Waste materials are already compacted at all Tier 1 and 2 Transfer Stations, except the Dawson Creek Transfer Station, where household garbage is received in roll-off bins. Garbage is not compacted at the unmanned transfer stations and hauling costs from these sites are significant in comparison to hauling of compacted waste from other facilities. There are potential opportunities for improvements in terms of hauling and bin rentals. Attendant and contract supervisor services make up another large cost to the PRRD. As part of reviewing efficiency, the PRRD may also look at options to reduce these costs.

Applicable Guiding Principles

- ♦ *Promote the first 3Rs (Reduce, Reuse and Recycle) with targeted efforts*
- ♦ *Prevent recyclables from going into the garbage wherever practical*
- ♦ *Maximize beneficial use of waste materials and manage waste and divertible materials appropriately*
- ♦ *Support polluter and user-pay approaches, and manage incentives to maximize behaviour outcomes where practical*

Manned facilities can offer a higher level of service, where many types of materials can be accepted for diversion. Manned sites allow for more diversion, more opportunities to communicate with residents on how to segregate waste for increased waste diversion. The PRRD would have the option to collect more EPR materials if the sites are manned. In addition to improving the waste management services provided, the replacement of unmanned sites with manned facilities helps to prevent illegal dumping (refer to strategy 13 for more information on initiatives to prevent illegal dumping). The PRRD has experienced ongoing challenges with public abuse at unmanned sites.

Since 2009 work has been done to consolidate PRRD sites and upgrade existing unmanned facilities to provide a better level of service. On a regular basis the PRRD will review the needs to consolidate and replace unmanned sites with manned transfer stations. In the needs assessment the PRRD must be mindful to strike a balance between providing facilities for easy accessibility and the level of services provided at these facilities.

There are concerns that recycling and garbage disposal is not currently as accessible for rural residents as for residents of the municipalities. Seven member municipalities provide curbside garbage collection, either paid through taxation or utilities for solid waste services. Residents within the PRRD who do not receive curbside collection must self-haul the material to a nearby transfer station or landfill, where residents pay tipping fees. Fees are applied at all landfills and manned transfer stations with the exception of Hudson's Hope Transtor Site and Tumbler Ridge Transtor Site, where residents pay for waste disposal through municipal taxation. PRRD is committed to assess the feasibility of a curbside collection service throughout the Region.

This strategy can include but is not limited to:

- 11A. Regularly review and assess the efficiency of the waste management network and implement changes to improve service levels or when cost savings are identified.
- 11B. Undertake a pilot to improve convenience for solid waste disposal services, such as piloting 24 hr access for free disposal of bagged household garbage at a transfer station and implement at more sites if deemed feasible.
- 11C. Assess the feasibility a curbside collection throughout the Region that is funded by its users.

Implement initiatives where feasible and consider best practices.

Responsibility: PRRD and member municipalities.



Year 1-10



CapEx: \$tbd*
OpEx: \$20,000**

* *Capital costs for the construction of manned transfer stations are already allocated in existing budgets. Capital costs associated with enabling 24/7 access at rural transfer stations are assumed to be determined based on the pilot.*

**\$20,000 for consulting support across years 1-6. Future capital costs will be determined based on the pilot.

STRATEGY 12: Monitor the PRRD's three active landfills to continually assess long-term disposal options

The Issue: The PRRD operates three landfills; North Peace Regional, Bessborough and Chetwynd Landfills.

The Chetwynd Landfill is nearing capacity, with approximately 10 years remaining. The PRRD may be able to extend the landfill life in the short-term (by approximately 2 years), however options for expansion or closure and transfer to another facility needs to be reviewed soon.

The North Peace Regional and Bessborough Landfills have approximately 28 and 42-66 years (or more) of capacity remaining respectively. The PRRD will continue to monitor the performance of the landfills and plan for changes to the current operation as necessary.

Applicable Guiding Principles

- ♦ *Maximize beneficial use of waste materials and manage waste and divertible materials appropriately*

This strategy can include but is not limited to:

- 12A. In parallel with operating the Chetwynd Landfill, complete a review of the options available for long term disposal, as the Chetwynd Landfill is nearing capacity.
- 12B. In parallel with operating North Peace Regional and Bessborough Landfills, continue to monitor and plan for changes if deemed necessary.
- 12C. If any changes to any of the active landfills are deemed necessary, proceed with most suitable option(s) which could include final closure, establishment of a transfer station, continuing operation as a landfill for demolition and land clearing waste, expansion of the landfill, and/or relocation of the landfill to an alternative site.



Year 1-10



CapEx: \$tbd*
OpEx: \$100,000*

Responsibility: PRRD

** \$100,000 in year 5 for review of transfer station and transfer options. Capital and operating costs will be determined based on the options review.*

STRATEGY 13: Develop an illegal dumping strategy in the Region

The Issue: Illegal dumping is an ongoing issue for the PRRD. The Region has many rural areas with significant distances between residents to disposal facilities like transfer stations and landfills. In addition there is also frequent public abuse of unmanned transfer stations.

The PRRD provides seasonal clean-up events as a measure to well as consolidate unattended sites and replace them with attended facilities to prevent illegal dumping. Other continuing initiatives include providing education and promotion of current options to recycle and dispose of waste safely at a waste management facility and optimizing operating hours at transfer stations to discourage illegal dumping.

Applicable Guiding Principles

- ♦ Support polluter and user-pay approaches, and manage incentives to maximize behaviour outcomes where practical
- ♦ Collaborate with other Regional Districts and develop collaborative partnerships with interested parties wherever practical
- ♦ Ensure all waste materials are managed responsibly as technology or local options are developed

The PRRD wants to continue to encourage people to report illegal dumping incidents on Crown Land and support community clean-up efforts.

The PRRD wants to collaborate through an inter-agency working group, which can include representatives from the PRRD, member municipalities and electoral areas, the local Conservation Office, First Nation communities, neighbouring regional districts and the RCMP. An inter-agency working group could be established to identify solutions and mitigation strategies for illegal dumping. An illegal dumping strategy can set out the responsibilities of all parties, actions to take and data reporting requirements to improve tracking, outreach, and

staffing. Work on this initiative could involve conducting a survey to determine the most common materials illegally discarded and the most frequent problem areas. This will provide a basis for types of materials and “hot spots” on which to build an education campaign and clean-up programs.

This strategy can include but is not limited to:

- 13A. Continue to monitor the scope and scale of illegal dumping in the Region.
- 13B. Develop an illegal dumping strategy aimed to improved tracking, identification or problem areas, and/or assessing accessibility to solid waste facilities to reduce the number of illegal dumping incidents.
- 13C. Establish an inter-agency working group, as deemed suitable, to implement the illegal dumping strategy.
- 13D. Lobby the Province to help clarify roles and responsibilities for addressing illegal dumping.
- 13E. Promote public outreach to prevent illegal dumping and how to report occurrences.
- 13F. Continue to support the public with programs to help dispose of waste properly.

Implement strategy, where feasible and consider best practices.

Responsibility: PRRD and member municipalities.



Year 1-10



CapEx: \$n/a
OpEx: \$20,000*

* \$20,000 for consulting support in year 2.

STRATEGY 14: Develop an emergency debris management plan

The Issue: Natural disasters can destroy homes and cause debris that needs to be managed to protect human health, conserve disposal capacity, and minimize or prevent environmental impacts. The PRRD has an emergency committee, which has identified the need to develop an emergency debris management plan. This plan should specifically address emergencies that can significantly influence solid waste quantities. Emergencies can include an animal epidemic, human pandemic, dam failures, fires, floods, or earthquakes.

Applicable Guiding Principles

- ♦ *Ensure all waste materials are managed responsibly as technology or local options are developed*

This strategy can include but is not limited to:

14A. Develop an Emergency Debris Management Plan.



Year 6-10



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

Responsibility: PRRD and member municipalities.

5.4 Solid Waste Management Funding



Over the last few years, a typical operational budget for solid waste management services has ranged from \$11 to \$14 million annually. The 2019 operational budget for solid waste management is approximately \$11 million.

The annual capital budget for infrastructure projects varies between \$2 million and \$7 million, depending on the nature of capital improvements involved. The estimated average is \$4 million per year.

Revenue to fund the solid waste management services comes from:

- Tipping fees
- Taxation
- Sale of recyclables
- Financial incentives paid by stewardship agencies (e.g. Recycle BC)
- Permits and fees
- Grants

Over the past five years the PRRD's funding model has shifted from a heavily tax funded system towards a system based on the user-pay principle with tipping fee funding. For comparison approximately 47% of the system was funded through taxation and 32% through tipping fees in 2015. The corresponding numbers for 2020 were 45% and 30%, respectively. The Regional Board has approved an increase by Consumer Price Index + 1% (3.3%) effective May 1, 2020 across ICI tipping fees for all classifications of waste.

First Nation communities pay a \$50 per household fee in lieu of taxes. These fees are to simulate taxes, as First Nations are not taxed directly by the PRRD. First Nation communities pay all applicable fees at the landfills and transfer stations.

The following two strategies are proposed to ensure a sustainable solid waste funding and cost recovery:

#	Strategy	Short-term Priority Year 1-5	Long-term Priority Year 6-10+
15	Set limits on recycling cost and implement other management methods as necessary		✓
16	Continually assess financial model used to fund the solid waste system	✓	✓

STRATEGY 15: Set limits on recycling cost and implement other management methods as necessary

The Issue: The PRRD wants to place a priority on encouraging stewardship organizations to take more responsibility for recycling in rural communities, as recycling efforts are largely subsidized by the Regional District. To limit future cost increases to provide recycling services, the PRRD is also committed to considering local alternatives to sending collected materials long distances for recycling while still diverting materials from landfills (e.g. composting of cardboard and mixed paper or Waste to Energy).

Applicable Guiding Principles

- ♦ *Ensure all waste materials are managed responsibly as technology or local options are developed*

The PRRD would also investigate setting upper limits for recycling costs, which would vary depending on materials. If the cost thresholds are exceeded, the PRRD would consider alternative options (composting, waste to energy, or landfilling), while still considering the pollution prevention hierarchy. As long as the recycling costs exceed the agreed limits, alternatives to recycling are implemented until recycling costs can be reduced below the agreed threshold.

The PRRD wants to look for help from the Province to ensure the pollution prevention hierarchy is maintained. The PRRD would look to lobby for ways to reduce and/or subsidize recycling costs to remote and rural parts of BC where access to markets is limited and economy of scale is lacking.

The PRRD will continually need to educate residents on the cost of recycling programs, which is also highlighted in Strategy 2.

The upper limits for recycling costs would be revisited and defined every year.

It will be suitable to review establishing cost thresholds when the PRRD undertakes an effectiveness review after five years of Plan implementation. This is also the time when the PRRD can consider the need to establish a regional processing facility for recycling.

This strategy can include but is not limited to:

- 15A. Establish cost thresholds when alternative lower cost options (e.g. landfilling) are pursued until recycling is no longer cost prohibitive.
- 15B. Lobby for the Province to subsidize the cost of recycling when upper limits are exceeded.
- 15C. Educate on the cost of recycling in the Region and on ways costs can be reduced.

Implement cost threshold if deemed feasible.

Responsibility: PRRD



Year 6-10



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

STRATEGY 16: Continually assess financial model used to fund the solid waste system

The Issue: To limit system costs, the PRRD wants to lobby for improved accessibility to EPR materials collection options for rural residents as well as expand the list of regulated materials (refer to Strategy 1). For management of unregulated materials that are not funded by stewardship organizations, the PRRD may need to increase tipping fees and/or raise taxes to sufficiently fund recycling.

Applicable Guiding Principles

- ♦ *Ensure all waste materials are managed responsibly as technology or local options are developed*
- ♦ *Support polluter and user-pay approaches, and manage incentives to maximize behaviour outcomes where practical*

Any new programs or facilities, such as a Regional Waste to Energy facility, will result in increased costs to the PRRD. It is important to forecast these costs and confirm sources of revenue (e.g. tipping fees and taxation) and rates that will be required to fund the system.

MH developed a financial model for the PRRD to help guide potential adjustments to tipping fee rates and tax requisition required to fund the solid waste management system. The model forecasts costs and revenues associated with the entire PRRD solid waste management system over a projection period of 20 years.

The model can be used to operationally assess and plan the cost recovery requirements for the implementation of strategies provided in this Draft RSWMP. There are three broad strategies, which could significantly impact the PRRD's future system financing:

- Revising the tipping fee structure to distinguish between ICI and residential waste, including increasing tipping fees for unsorted waste.
- Waiving of tipping fees for sorted residential waste at transfer stations/landfills and funding disposal through taxation and tipping fees on other materials.
- Potentially establishing a large-scale organics processing facility and/or a regional waste to energy facility.

To limit the burden on taxpayers and to focus on a user-pay approach for larger waste generators, the PRRD is proposing to continually review waste disposal fees. An increase in disposal fees for unsorted wastes will be assessed, in particular relating to the ICI sector. Refer to Strategy 4 for more details. The PRRD will utilize its solid waste fee bylaw to incentivize waste diversion through sorting and segregation materials rather than disposing unsorted garbage. When setting tipping fees in the Region, it will be important to consider those of nearby jurisdictions. If these jurisdictions have lower tipping fees, there is risk of large waste generators and collectors hauling waste out of the region to avoid higher disposal costs.

Rural residents have expressed a concern that they are paying a disproportionate amount for the current system, compared to residents in areas with curbside garbage collection. To limit the burden on taxpayers and to focus on harmonizing fees across the Region, the PRRD is proposing to investigate and pilot the waiving of tipping fees for sorted residential household waste at transfer stations / landfills and fund disposal via taxation. The PRRD could look at the feasibility of offering 24/7 access for free residential disposal at manned rural transfer stations for bagged (small volume) sorted household waste. The intention is for residents to access a hopper/chute where bagged garbage can be disposed after hours. This would not be needed at the Landfills as nearby residents have access to curbside collection services.

Sites offering 24/7 access for free residential disposal would still be open to the public during specified operating hours to accept bulkier materials (wood, metal, bulky waste, tires, etc.) that require source separation that encourages waste diversion. Facility staff have an important role in educating residents on waste diversion options available and which materials are prohibited from disposal.

The waiving of tipping fees for all sorted residential waste would result in an estimated annual tipping fee revenue reduction of \$800,000 - \$950,000, based on the PRRD's financial model for the next 20 years. By making disposal more accessible to all residents, the PRRD can save costs in other areas, including:

- Reducing the spring and fall clean-up events to only one event per year.
- Ceasing the coupon program, which can save approximately \$72,000 per year.

Within the first five years, the PRRD wants to investigate and pilot the waiving of residential tipping fees at transfer stations and landfills. A system-wide implementation will only be completed if deemed feasible based on the pilot.

As a long-term focus (beyond year 5), the PRRD wants to revisit waste disposal fees paid by First Nation communities in lieu of taxes to reflect the drive to harmonize residential disposal rates across the Region.

This strategy can include but is not limited to:

- 16A. Assess cost recovery model to implement tipping fees and taxation that fully funds the solid waste management system.
- 16B. Investigate and pilot the waiving of tipping fees for sorted residential waste at transfer stations and landfills. Implement system-wide if deemed feasible and fund disposal via taxation.
- 16C. Continually review waste disposal fees to harmonize fees across the Region.
- 16D. Incentivize waste diversion by increasing disposal fees on unsorted wastes.

Implement cost recovery options where feasible and consider best practices.

Responsibility: PRRD and member municipalities.



Year 1-10



CapEx: \$tbd*
OpEx: \$30,000**

** Capital costs associated with the piloting of 24/7 access at rural transfer stations are assumed to be accommodated within existing capital budgets for PRRD's facilities. Capital costs for further implementation will be determined based on the pilot results.*

***Consulting fees to investigate and pilot the waiving of residential tipping fees at transfer stations and landfills in year 1 (\$30,000), update funding model in year 4 (\$30,000 and consulting support to review disposal fees paid by FN communities in year 6 (\$30,000). Future operating costs will be determined based on the pilot results.*

6. KEY CONSIDERATIONS FOR DEVELOPING & ASSESSING PROPOSED STRATEGIES

During the planning process, PRRD staff worked closely with the consultant, Morrison Hershfield, and members from PTAC and COW to ensure that all strategies relate directly to the Guiding Principles. In addition, 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 majority of the guiding principles proposed by the Ministry were adopted for the RSWMP development.
- **The potential of a policy / waste management service solution to result in significant waste stream reduction** – the waste composition results from 2018 helped to guide decisions on waste streams that the PRRD should prioritize to reduce landfill disposal.
- **Potential challenges administering policy once introduced** – in developing operational costs the PRRD has considered new staffing requirements.
- **Opportunity for public-private partnerships** – based on input from the PTAC and COW, the PRRD has proposed strategies that encourage partnerships that may be important for specific strategies (e.g. through working groups with specific stakeholder groups).
- **Flexibility to adapt policy to changing circumstances over time** – in developing the proposed strategies, the PRRD has allowed for flexibility to adapt policy if necessary.
- **Risk of failure** – the PRRD has outlined the remaining landfill capacity and understands local constraints and limitations.

Environmental:

- **Linkages to the pollution prevention hierarchy** – the planning process explored potential options in accordance with the pollution prevention hierarchy with particular focus on the 3 Rs (reduction, reuse, and recycling, including composting).
- **Facility discharges to the environment and level of associated environmental risk** – the PRRD wants to ensure that hazardous waste is managed in an environmentally responsible manner and it has prioritized improved drop-off options for hazardous waste in the Region. The PRRD is also committed to monitoring and mitigating discharges to the environment from all PRRD-owned sites.

- **Associated direct environmental benefits** – The PRRD will continue to identify ways to reduce greenhouse gas emissions from the Region's closed and active landfills, and through the recognition that programs that reduce organic material being disposed in the region's landfills could form part of this strategic approach.
- **Associated ancillary environmental benefits** – The proposed strategies include strategies to prevent waste and support the reuse of items, repair events, the use of 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 waste and recycling 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 through the use of working groups to find solutions in collaboration that can benefit many. Partnership opportunities have also been identified with stewardship organizations.
- **Opportunities for increased private sector involvement and benefit to the Region** – the PRRD is proposing to establish an ICI working group to increase private sector involvement.

There are many proposed strategies involving assessments into particular for aspects of the waste management system. All assessments will lead to implementation of any resulting strategies and initiatives that are considered feasible with a strong cost/benefit case. The PRRD is committed to considering environmental, social and economic implications for all feasibility assessments. For cost-benefits assessments the PRRD can consider economic benefits (revenues, employment opportunities), available recycling infrastructure and end-markets for collected materials, transportation costs, 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.

7. RSWMP FINANCING AND ADMINISTRATION

7.1 Estimated Expenditures

Schedule D presents the estimated cost of existing initiatives and by proposed strategies, as well as the monthly costs to homeowners.

All new strategies involving municipal costs will need to be defined and approved by each municipality. Costs provided in this plan are estimated in 2020 dollars and may not reflect actual costs at the time of implementation.

The Plan includes a number of feasibility assessments and reviews that will take place during the Plan implementation period. These reviews may result in new capital costs if the assessments deem a specific initiative as feasible. The capital costs will be identified as part of the reviews and these can be included as part of the five-year effectiveness review or as part of the next SWMP update. Where suitable, the PRRD may decide to obtain approval for capital spending as part of the annual budgets process and proceed with the new initiative within the current five-year period.

7.2 Cost Recovery Mechanisms

The PRRD will continue to use both tipping fees and taxation to fund the implementation of the RSWMP. As indicated in the guiding principles, the PRRD is committed to making the solid waste system costs equitable for residents and businesses, wherever practical, and to focus on incentive-based tipping fees that encourage segregation of materials and waste diversion rather than landfill disposal.

The programs and policies outlined will require the PRRD to commit financial resources in each year of Plan implementation. The standard five-year financial planning model will be applied to the development of financial projections and budgets for the implementation of the Plan, as part of the on-going budget process for the PRRD's solid waste management function.

7.3 Monitoring and Measurements

Implementation monitoring and governance will be supported by a two-committee structure as follows:

- A Solid Waste Committee (SWC), made up of appointed members of the PRRD's Board of Directors.
- A Public Technical Stakeholder Committee (PTSC), made up of representation from member municipalities staff, PRRD waste management staff, PRRD waste management contractors or partners, public agencies such as the Ministry, First Nations representatives within the Region, private and non-profit sectors, industry and institutional representatives and the general public.

The establishment of a committee made up of public and technical representatives is required by the Ministry. The PRRD will finalize a Terms of Reference for the Committee, and recruit members through direct contact, as well as general open invitations. The selected members of the PTSC will be confirmed by the Board of Directors.

Together these Committees will provide advice to PRRD staff and the Board of Directors as appropriate, work to monitor the implementation and effectiveness of the Plan, and they will identify concerns and issues that may arise in the implementation process. PRRD Staff will develop an annual report on the progress of initiatives, which will be used to update the Board. The report will also be used to update the Committees and any other stakeholders, as necessary. The PTSC will meet on a regular basis to discuss and monitor the implementation of the RSWMP and make recommendations to increase its effectiveness.

Progress towards the targets presented in Section 2.1 will be assessed and reported on an annual basis. Annual disposal data will be entered into the Province's waste disposal calculator. The per capita disposal will be measured using the quantity (in tonnes) of solid waste sent for disposal at PRRD's landfills. This quantity will be divided by the estimated or known population as defined by BC Stats Census data and population projections.

After five years of Plan implementation, the PRRD will undertake an effectiveness review and report on the Plan's implementation and effectiveness to date. Schedule D includes the estimated cost to engage a third party to undertake the review on behalf of the PRRD. The review requirements are set by the MOE Guide to Solid Waste Management Planning (September 2016). The review process can identify if there is a need to amend any parts of the RSWMP. Amendments are needed if there are significant changes, for example the inclusion of a WTE facility in the service area or the opening of a new waste management facility that manages wastes currently covered by the existing SWMP.

7.3.1 PLAN FLEXIBILITY

This RSWMP represents the current understanding and approach to the solid waste management challenges being faced by the PRRD. The version of the Plan that is formally adopted will be considered a "living document" that may be amended to reflect new considerations, technologies, and issues.

Costs provided in this RSWMP are estimates and may not reflect actual costs at the time of implementation. Significant programs and infrastructure projects may undergo further assessment, including an assessment of costs and continued community support, by the Plan Monitoring Committee prior to implementation.

The Plan's implementation schedule is intended to be flexible to allow for changes in the Region's response to world markets, pandemics, priorities and available funding. Notwithstanding, the contents of this Plan are subject to legal requirements and, as a result, guidance and the direction from the MOE will be sought with respect to level of flexibility, as appropriate.

If any of the information in the schedules to this plan needs to be amended during the 10-year lifespan of the plan, approval from the Minister may be required and engagement with the public

may be necessary. The requirements depend on the type of change. Unless the change is considered major, in accordance with the guide, a change to a schedule should not require submission of the entire RSWMP for review and approval.

7.4 Dispute Resolution

Given the number of stakeholders and the varying interests addressed in the Plan, the possibility exists that disputes may occur during implementation of the Plan, and through the process of amendments to the Plan that may arise in future. This section establishes a dispute resolution procedure for addressing such issues as disputes arising from administrative decisions made by the PRRD, interpretations of plan activities and services, economics, land tenure, jurisdictional responsibility, or other issues. The structure presented below is intended to resolve disputes in a timely and cost-effective manner.

- The parties having a dispute must make all reasonable effort to come to an equitable agreement without outside intervention, before proceeding to the next step.
- Should the parties determine that an agreement is not within reach, the PTSC and/or the SWC then be utilized as a mediator between the parties. Any member of the PTSC or the SWC directly involved with the parties or in a relationship that may be perceived to be a conflict of interest with regard to the dispute will not be granted voting/motioning privileges, but will remain an active participant in all discussions. All attempts will be made to reach an agreement.
- Should an agreement still not be achievable, the Regional Board will be called upon to act as a mediator. The disputing parties must both agree with referring the dispute to the Regional Board and agree that the Regional Board's decision will be binding.
- Should the Regional Board be unable to resolve the dispute, an arbitrator may be assigned, the cost to be shared equally between the disputing parties. The reporting materials provided to the PTSC, SWC and the Regional Board shall be provided to the arbitrator, who will review the report and make any inquiries he/she feels necessary to resolve the dispute. The arbitrator's decision shall be submitted to the Regional Board in writing, and the dispute will be considered resolved when the arbitrator's decision is approved by the Regional Board and the dissenting parties.

8. PLAN IMPLEMENTATION

8.1 Implementation Schedule

A timeframe for implementing each plan strategy is included in Schedule E.

8.2 Bylaws

Schedule F includes a list of existing bylaws.

SCHEDULE A: List of PRRD Facilities

LIST OF PRRD FACILITIES

Tier 1 Transfer Stations

Facility	Location
Dawson Creek Transfer Station	829 Highway 49, Dawson Creek
Cecil Lake Transfer Station	4484 248 Rd, Cecil Lake
Kelly Lake Transfer Station	280 Kelly Lake Road, Kelly Lake
Rose Prairie Transfer Station	12452 260 Road, Rose Prairie
Tomslake Transfer Station	15093 Old Edmonton Hwy, Tomslake
Prespatou Transfer Station	13139 Altona Road, Prespatou
Wonowon Transfer Station	18868 Highway 97 North, Wonowon

Tier 2 Transfer Station

Facility	Location
Buick Creek Transfer Station	19468 Aitken Creek Rd, Buick Creek
Goodlow Transfer Station	13197 Clayhurst Rd, Goodlow
Moberly Lake Transfer Station	6464 Lakeshore Drive, Moberly Lake
Pink Mountain Transfer Station	24740 Cypress Creek Road, Pink Mountain
Rolla Transfer Station	5207 213 Road, Rolla
Upper Halfway Transfer Station	19337 Upper Halfway Road, Peace River B

Transtor Sites

Facility	Location
Hudson's Hope Transtor Site	20318 Canyon Road, Hudson's Hope
Tumbler Ridge Transtor Site	103 Ridge Road, Tumbler Ridge

Transfer Site

Facility	Location
Mile 62.5 Transfer Site	14106 Dump Road, Charlie Lake

Unattended Sites

Facility	Location (Easting/Northing)	
Milligan/PJ	-120.6183872	56.87858618
Milligan	-120.6201999	56.75088771
Osborn	-120.3683089	56.55180098
Lebell Subdivision	-120.5890371	55.96883769
Upper Cache	-121.5364687	56.34664671
Fellers Heights	-120.5622125	55.63573361
Progress	-120.7166668	55.78069206
Groundbirch	-120.9236287	55.78347712
East Pine	-121.1933681	55.72756945
Lone Prairie	-121.3846209	55.60098954
Sukunka	-121.6210993	55.5081796
Hasler Flats	-121.9632134	55.60986158
Mt. Lemoray	-122.4818917	55.53805572



SCHEDULE B: List of Closed Landfills

CLOSED WASTE DISPOSAL SITES

The following closed waste disposal sites are known to the PRRD:

Site	Location (Easting/Northing)	
Taylor	-120.6450566	56.16030782
Cecil Lake	-120.5130296	56.33494882
Clayhurst	-120.0451135	56.14138338
East Pine	-121.190914	55.72688131
Fellers Heights	-120.5663475	55.6348322
Flatrock	-120.0982521	56.12768461
Goodlow	-120.105988	56.29044845
Mile 62.5	-121.1394222	56.39477957
Mile 98	-121.7370203	56.70778661
Upper Halfway	-122.2745542	56.4896953
Milligan Creek	-120.6222829	56.96055603
Osborn	-120.3515209	56.55343549
Prespatou	-121.0854924	56.92058498
Groundbirch	-120.9222464	55.80148711
Tumbler Ridge	-121.0111371	55.14445904
Sikanni Chief	-122.7278779	57.24488713
Moberly Lake	-121.5984864	55.8354144
Mt Lemoray	-122.4720642	55.53938674
Progress	-120.6918814	55.76631686
Hudson's Hope	-121.9474185	56.02816882
Rose Prairie	-120.9203285	56.50934263
Dawson Creek	-120.1748675	55.75171428
Buick Creek	-121.303282	56.75286841
Lone Prairie	-121.4697797	55.59044063
Kelly Lake	-120.0789746	55.25309651
Sunset Prairie	-122.5323923	57.03294351

**SCHEDULE C: List of Other Operational Waste Management
Facilities in the PRRD**

OTHER WASTE MANAGEMENT FACILITIES IN THE REGION

Recycling Facilities¹

Facility (Ownership)	Location
ABC Recycling	9631 78 St, Fort St John
Chetwynd Recycling & Bottle Depot	4824 - 54th Street, Chetwynd
D.C. Campbell Recycling	925 - 100th Avenue, Dawson Creek
Fort St. John Bottle Depot	10104 93rd Avenue, Fort St. John
Recycle-It Resource Recovery (R3)	10095 - 85 Avenue Fort St. John
Richmond Steel Recycling	9623 78 St, Fort St John
T.R. Bottle Depot	107 Commercial Drive, Tumbler Ridge

Organics Processing Facilities

Facility	Location
Denbow	10407 Alaska Rd, Fort St. John

Waste Management and Disposal Facilities

Facility	Location
Green for Life (GFL)	8831 100 Street, Fort St. John
Tervita Silverberry Treatment, Recovery and Disposal Facility	KM 11.5, Beatton Airport Road, Buick
Waste Management	9412 Sikanni Rd, Fort St John

¹ EPR products are also collected at producer-led return-to-retailer programs (i.e. Shaw, Telus, Bell, London Drugs), which are not included in the list of recycling facilities.

SCHEDULE D: Expenditures for Plan Implementation

Expenditures for Plan Implementation

Existing Revenues and Costs (Current Plan)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
REVENUE										
Requisition	\$(6,427,004)	\$(6,427,004)	\$(6,427,004)	\$(6,427,004)	\$(6,427,004)	\$(6,427,004)	\$(6,427,004)	\$(6,427,004)	\$(6,427,004)	\$(6,427,004)
Grants	\$(600,000)	\$(600,000)	\$(600,000)	\$(600,000)	\$600	\$600	\$600	\$600	\$600	\$600
Recovery of costs	\$(25,000)	\$(25,000)	\$(25,000)	\$(25,000)	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000
Fees and permits	\$(2,639)	\$(2,639)	\$(2,639)	\$(2,639)	\$2,639	\$2,639	\$2,639	\$2,639	\$2,639	\$2,639
MMBC	\$(42,000)	\$(42,000)	\$(42,000)	\$(42,000)	\$42,000	\$42,000	\$42,000	\$42,000	\$42,000	\$42,000
Municipal revenue	\$(10,500)	\$(10,500)	\$(10,500)	\$(10,500)	\$10,500	\$10,500	\$10,500	\$10,500	\$10,500	\$10,500
Recycling	\$(1,000)	\$(1,000)	\$(1,000)	\$(1,000)	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000
General fees and cash short/over	\$(4,170,806)	\$(4,170,806)	\$(4,170,806)	\$(4,170,806)	\$(4,170,806)	\$(4,170,806)	\$(4,170,806)	\$(4,170,806)	\$(4,170,806)	\$(4,170,806)
Total Revenue	(11,278,949)	(11,278,949)	(11,278,949)	(11,278,949)	(10,516,071)	(10,516,071)	(10,516,071)	(10,516,071)	(10,516,071)	(10,516,071)
OPERATING COSTS										
General	\$896,578	\$881,578	\$876,578	\$876,578	\$876,578	\$876,578	\$876,578	\$876,578	\$876,578	\$876,578
Administration and allocations	\$357,737	\$357,737	\$357,737	\$357,737	\$357,737	\$357,737	\$357,737	\$357,737	\$357,737	\$357,737
Landfills and transfer stations	\$6,838,177	\$6,838,177	\$6,838,177	\$6,838,177	\$6,838,177	\$6,838,177	\$6,838,177	\$6,838,177	\$6,838,177	\$6,838,177
Waste reduction	\$2,435,147	\$2,435,147	\$2,435,147	\$2,435,147	\$2,435,147	\$2,435,147	\$2,435,147	\$2,435,147	\$2,435,147	\$2,435,147
Transfer to reserve	\$224,400	\$224,400	\$224,400	\$224,400	\$224,400	\$224,400	\$224,400	\$224,400	\$224,400	\$224,400
Debt long-term principal and interest	\$1,177,436	\$1,177,436	\$1,177,436	\$1,177,436	\$1,177,436	\$1,177,436	\$1,177,436	\$1,177,436	\$1,177,436	\$1,177,436
Sub-total Costs	\$11,929,475	\$11,914,475	\$11,909,475	\$11,909,475	\$11,909,475	\$11,909,475	\$11,909,475	\$11,909,475	\$11,909,475	\$11,909,475
CAPITAL IMPROVEMENTS¹										
Landfills		\$1,200,000				\$1,569,750	\$2,253,090		\$4,030,907	\$2,797,342
Transfer stations ²	\$500,000	\$500,000	\$500,000	\$5,000,000						
Sub-total Costs	\$500,000	\$1,700,000	\$500,000	\$5,000,000	\$-	\$1,569,750	\$2,253,090	\$-	\$4,030,907	\$2,797,342

¹ Capital improvements are paid for by transfer from capital reserves or potential future loans.

² Capital improvements to transfer stations relate to the replacement of unmanned sites with manned PRRD facilities at four locations.

Proposed New Strategies	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
1 Lobby for improved EPR programs in the PRRD										
2 Promote and educate on the pollution prevention hierarchy	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
3 Research agricultural plastics recycling options										
4 Increase waste diversion in the ICI sector through promoting the waste hierarchy										
5 Improve collection of hazardous waste and targeted EPR materials		\$100,000			\$100,000			\$100,000		
6 Increase diversion of C&D waste through promoting the waste hierarchy										
7 Establish organics processing capacity in the Region		\$100,000								
8 Support curbside collection of compostable organics in member municipalities										
9 Assess suitability of technologies for energy recovery for organics in the Region	\$100,000	\$100,000								



Proposed New Strategies		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
10	Assess suitability of technologies for energy recovery for residual waste	\$100,000	\$100,000	\$100,000	\$100,000						
11	Improve accessibility and efficiency of the solid waste network	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000				
12	Monitor the PRRD's three active landfills to continually assess long-term disposal options					\$100,000					
13	Develop an illegal dumping strategy		\$20,000								
14	Develop an emergency debris management plan										
15	Set limits on recycling cost and implement other management methods as necessary										
16	Continually assess financial model used to fund the solid waste system	\$30,000			\$30,000		\$30,000				
	Five year Review of Plan implementation					\$50,000					
Sub-total Costs		\$260,000	\$450,000	\$130,000	\$160,000	\$280,000	\$60,000	\$10,000	\$110,000	\$10,000	\$10,000
Total Expenditure (Current and New)		\$12,689,475	\$2,150,000	\$630,000	\$5,160,000	\$280,000	\$1,629,750	\$2,263,090	\$110,000	\$4,040,907	\$2,807,342
Monthly Cost to Homeowners		\$42	\$7	\$2	\$17	\$1	\$5	\$7	\$0	\$13	\$9

SCHEDULE E: Plan Implementation Schedule

Plan Implementation Schedule

#	Strategy	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
1	Lobby for improved EPR programs in the PRRD										
2	Promote and educate on the pollution prevention hierarchy										
3	Research agricultural plastics recycling options										
4	Increase waste diversion in the ICI sector through promoting the waste hierarchy										
5	Improve collection of hazardous waste and targeted EPR materials										
6	Increase diversion of C&D waste through promoting the waste hierarchy										
7	Establish organics processing capacity in the Region										
8	Support curbside collection of compostable organics in member municipalities										
9	Assess suitability of technologies for energy recovery for organics in the Region										
10	Assess suitability of technologies for energy recovery for residual waste										
11	Improve accessibility and efficiency of the solid waste network										
12	Monitor the PRRD's three active landfills to continually assess long-term disposal options										
13	Develop an illegal dumping strategy										
14	Develop an emergency debris management plan										
15	Set limits on recycling cost and implement other management methods as necessary										
16	Continually assess financial model used to fund the solid waste system										

SCHEDULE F: Solid Waste Bylaws in the Region

SOLID WASTE BYLAWS IN THE REGION

Jurisdiction	Bylaw
City of Dawson Creek	Bylaw No. 4380, 2018
City of Fort St. John	Bylaw No. 2304, 2015
Corporation of the Village of Pouce Coupe	Bylaw No. 961, 2014
District of Chetwynd	Bylaw No. 914, 2010
District of Hudson's Hope	Bylaw No. 982, 2017
District of Taylor	Bylaw No. 812, 2017
District of Tumbler Ridge	Bylaw No. 559, 2009
Peace River Regional District	Bylaw No. 2065, 2013 Bylaw No. 2410, 2020

