



Making a difference...together

Environmental Resource Management

2018 Progress Report

Organizational Overview

The Capital Regional District (CRD) delivers regional, sub-regional and local services to 13 municipalities and three electoral areas on southern Vancouver Island and the Gulf Islands.

Governed by a 24-member Board of Directors, the CRD works collaboratively with First Nations and all levels of government to enable sustainable growth, foster community well-being, and develop cost-effective infrastructure while continuing to provide core services to residents throughout the region.

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Overview & Governance

SOLID WASTE DISPOSAL

The CRD became responsible for solid waste disposal for the region in 1973 when, at the request of the CRD Board, the Province of British Columbia established solid waste disposal as a regional function of the CRD.

In 1975, the CRD acquired Hartland Landfill, which had been operating as a private facility since the 1950s. The facility continued to be operated by a private contractor until 1985, when the CRD assumed direct operation of the site.

In 2008, the privately owned and operated Highwest Landfill was added to the CRD Solid Waste Management Plan. The facility is located in the District of Highlands and primarily manages construction and demolition material.

SOLID WASTE MANAGEMENT PLAN

A solid waste management plan (SWMP) is a legally mandated document by the Province of British Columbia. The original SWMP for the CRD was approved by the Minister of Environment in 1989. There have been two subsequent revisions to the original plan plus eight amendments.

Work on a major revision of the plan began with the appointment of a Solid Waste Advisory Committee in 2018. The new SWMP will set goals and targets to reduce and manage waste and identify strategies and timelines for achieving them.

SOLID WASTE COLLECTION

Collection of residential and commercial garbage and kitchen scraps is conducted by the private sector with the exception of single-family dwelling programs offered by six of the region's municipalities.

The private sector also collects recycling from multi-family buildings and commercial buildings.

The CRD provides region-wide residential recycling through a combination of single-family dwelling curbside collection and depot programs under an agreement with Recycle BC.

ENVIRONMENTAL RESOURCE MANAGEMENT

Environmental Resource Management's (ERM) mission is to efficiently and effectively manage the region's solid waste resources in an environmentally, socially and economically responsible manner.

The ERM division is responsible for municipal solid waste management in the capital region, including waste reduction, recycling programs and operation of Hartland Landfill.

ERM reports to the Parks & Environment Committee, which also acts as the steering committee for the development of the new SWMP.

Communications, Education & Outreach Programs

A number of communications, education and outreach programs are used by environmental educators to support the 5R hierarchy and promote awareness and participation in waste reduction and disposal services, including:

- Curriculum-linked educational workshops and tours for students from kindergarten to grade 12
- Seasonal, research-based public education campaigns and instructive materials
- Active media relations to support public awareness of solid waste programs and opportunities
- Timely and educational social media content

EDUCATIONAL WORKSHOPS & TOURS

Environmental education is of paramount importance to the CRD's waste reduction strategies.

Programs taking place at Hartland Landfill and Hartland Learning Centre allow for place-based learning, providing participants with an interactive experience to create awareness, impart knowledge and inspire behavioral change in our region.

An outreach and community presence, as well as the Infoline, increase educational and informational opportunities and allow for interactions with a wider variety of audiences. Education and outreach occurs through many programs and initiatives.

3R School Programs

The 3R school programs are free interpretive programs and tours offered to grade K-12 students in the region.

Program topics such as That's Not Garbage!, 3Rs Unwrapped and Digging Deeper challenge students to explore our habits and behaviours surrounding waste and discuss ways to generate less waste by practicing the first of the 5Rs (reduce, reuse and recycle).

Classes that visit the Hartland Learning Centre for their programs are also offered the opportunity for a behind-the-scenes tour of the landfill to see where their garbage goes and what is involved in operating a landfill.

In 2018, we delivered 82 school programs:

- 59 programs at Hartland (1,539 participants)
- 23 in-school programs (536 participants)

3Rs Community Programs

These programs are an opportunity for community groups and organizations to learn more about waste management in the region.

Groups come to the Hartland Learning Centre for interactive presentations and a landfill tour or request a CRD speaker to come to them. In 2018, our community programming involved tours and presentations at Hartland, as well as informative displays set up at community events.

In 2018, we delivered 14 community programs at Hartland Landfill to 277 participants.

Technical Tours

Technical tours of Hartland Landfill are offered to groups from industry associations, colleges and universities and government staff.

In 2018, we delivered 17 technical tours of Hartland to 250 participants.



Public 3Rs Programs

In 2018, public 3Rs programs were introduced to offer residents not associated with a school or organized group the opportunity to sign up and tour Hartland Landfill.

Four program dates were opened for registration and filled up quickly. A presentation at the Hartland Learning Centre, followed by a behind-the-scenes tour of the landfill, gave residents the opportunity to learn how Hartland operates, how waste is managed in the region and what diversion opportunities are available.

Program participants were a diverse group with interests ranging from recycling markets and sorting to landfill gas capture and utilization.

In 2018, we delivered four new public 3Rs programs at Hartland Landfill for 84 participants.

PUBLIC EDUCATION CAMPAIGNS

In 2018, the CRD developed and implemented a number of seasonal, multi-medium public education campaigns to promote and provide information in the following areas:

- end markets for recyclable materials
- safe renovation waste disposal
- illegal dumping prevention
- abandoned boat reporting and prevention
- household hazardous waste disposal
- avoidable food waste reduction
- holiday season waste reduction



COMMUNITY OUTREACH & EVENTS

Waste management and recycling is a popular and in-demand topic for CRD residents.

In order to create opportunities for residents to ask questions and learn, displays were set up at more than 35 fairs, festivals, community gatherings, home improvement stores and other community events or locations.

Booths and displays often focus on ways to reduce and divert waste, proper sorting techniques for recyclable materials or more specific topics, such as how to prepare demolition waste and dispose of asbestos.

INFOLINE

The InfoLine is an essential part of education and outreach programs. This service responds to waste reduction, waste management, recycling and general Hartland Landfill inquiries.

An automated voice messaging service (250.360.3030) is available 24 hours a day and inquiries are responded to within 24 hours on weekdays. Waste and recycling information can also be found online at crd.bc.ca/waste or by emailing info@crd.bc.ca.

COMPOST EDUCATION CENTRE

In 2018, the Compost Education Centre (CEC) celebrated 26 years of educating residents about composting, ecological gardening practices and soil conservation. Since its founding in 1992, the CEC has made over 1,774,000 contacts with CRD residents.

Through a contract with the CRD, the CEC offers presentations, workshops, and educational demonstrations both at its demonstration gardens and out in the community. CEC also engages with volunteers, publishes a monthly e-newsletter and fact sheets on a range of related topics, and maintains the CEC Hotline and website.

In 2018, the CEC delivered 157 school programs to 3,667 learners from preschool to grade 12, and facilitated 56 community workshops and learning events on topics including Soil Science 101, Grow Your Own Food, and Composting Basics.

A total of 20,719 residents visited the CEC's demonstration site or participated in an educational community event, while over 380,000 CRD residents communicated with the CEC online, by phone or in person. Additionally, the CEC increased its capacity in 2018 to better reach and serve the rural regions of Sooke and the Gulf Islands.

All CEC educational events are intended to encourage stewardship of the environment and provide residents with the tools and skills needed to compost, reduce waste, grow their own food and conserve soil and water. The CEC continues to support the CRD's kitchen scraps landfill ban through programming that emphasizes accessible education around food waste diversion, both on and off-site, as well as promoting backyard composting and food waste digestion.

MYRECYCLOPEDIA.CA

MyRecyclopedia.ca contains a comprehensive online listing of items—from aerosol containers to zinc—and includes the environmental story behind each item, recycling listings and tips on how to reduce and reuse each item in our daily lives. This tool was developed to encourage sustainable practices and to reinforce the 3Rs of reduce, reuse and recycle. Items listed received 228,000 web visits in 2018.

READY, SET, SORT!

Ready, Set, Sort! is an online waste sorting game where residents can test their knowledge about local recycling opportunities. The game includes 72 items, six bins and five levels of play and can be accessed through MyRecyclopedia.ca. In 2018, there were 5,435 game plays with the most common misunderstood depot items being plastic shopping bags and Styrofoam.

The 5R Hierarchy

The CRD sees waste as a commodity and seeks the highest and best use for these resources by applying the 5R hierarchy of Reduce, Reuse, Recycle, Resource Recovery and Residual Management.

Services range from planning and policy development, bylaw and contract administration to landfill operations. The goal is to extend the life of Hartland Landfill by minimizing waste disposal and maximizing diversion opportunities.



Reduce & Reuse

DIVERSION FUNDING FOR NON-PROFITS

Since 1992, the CRD has provided funding to non-profit organizations involved in recycling clothing and used household goods.

The funding assists with their garbage disposal costs at Hartland, in recognition that some donated used goods are unusable and destined for the landfill. Ten organizations participated in the program in 2018.

HARTLAND REUSABLE MATERIALS PROGRAM

The CRD partners with five organizations for the management of donated items received at the Hartland depot. Goods such as textiles, books and bicycles are redistributed through a variety of networks operated by these non-profit associations.

Recycle

CURBSIDE RECYCLING

Under agreement with Recycle BC, the CRD provided 123,629 single family dwellings with curbside recycling service for packaging and paper products (PPP) in 2018. The CRD curbside program is a successful three-stream recycling model, which ensures the highest quality and value for marketing of the material.

Since the program's inception in 1989, over 468,000 tonnes of recyclables have been collected.

HARTLAND DEPOT

The public drop-off depot at Hartland receives garbage, recyclables and household hazardous waste. Over 80 items from 28 product categories are accepted for recycling. This area is intended for residential quantities and limits vehicle size to 5,500 kg gross vehicle weight.

2018 depot fees:

- Extended producer responsibility products: **free**
- Household hazardous waste: **free**
- Rimmed tires: \$6
- Business recycling: \$26
- Yard and garden material: \$59/tonne
- Garbage, mattresses and box springs: \$110/tonne plus a \$10 bin fee

GULF ISLAND DEPOTS

Residents on Salt Spring Island and the Southern Gulf Islands are provided recycling services through drop-off programs set up at depots in their communities.

The CRD, under agreement with Recycle BC, partners with local non-profit associations for recycling services for PPP at these depots.

In addition to receiving PPP, some depots offer services such as scrap metal and electronics recycling.

PORT RENFREW TRANSFER STATION

Under a local service funded by the community of Port Renfrew, residents and businesses have access to a transfer station for drop off of general refuse, kitchen scraps and recyclables.

EXTENDED PRODUCER RESPONSIBILITY

British Columbia's industry-led product stewardship programs require producers of designated products to take extended producer responsibility for the life-cycle management of their products, including recycling.

The BC Recycling Regulation, under authority of the Environmental Management Act, sets out the requirements for product stewardship in BC. The CRD supports industry-led product stewardship with participation in the following provincial programs:

Beverage Containers (refundable)

Refundable glass, plastic, aluminum, metal and polycoated beverage containers are accepted at the Hartland depot and electoral area recycling depots. Beverage bags and pouches are not included in CRD programs. Refundable beverage containers are also accepted at participating retail stores and private depots.

Electronics, Electrical Products, Batteries & Lighting

Since 2014, the CRD has partnered with seven stewardship agencies for the collection of electrical items at the Hartland depot:

- Encorp Pacific (computers, monitors, printers, TVs, audio visual equipment)
- ElectroRecycle (small appliances, power tools, sewing machines, exercise equipment)
- Call2Recycle (batteries and mobile phones)
- LightRecycle (residential fluorescent lamps and CFL bulbs and lighting fixtures)
- Switch the 'Stat (thermostats)
- AlarmRecycle (smoke detectors)
- Outdoor Power Equipment (metal recycler)

Lead-Acid Batteries

Lead-acid batteries have been accepted at the Hartland depot since 1992, shortly after the BC Lead Acid Battery Collection program was introduced. This first generation program transitioned in 2012 to being managed under the BC Recycling Regulation. Batteries are broken down at smelters into lead, plastic and acid.

Paints, Solvents, Flammable Liquids, Gas & Pesticides

In 1994, the CRD began working with the Product Care Association to provide the region with waste paint collection at the Hartland depot. Since then, the program has expanded to include solvents, flammable liquids, gasoline and pesticides (paint plus) and a paint exchange.

Product care association depots in the region:

- 1 paint plus with paint exchange (Hartland depot)
- 3 paint plus
- 2 paint-only with paint exchange
- 5 paint-only

Pharmaceuticals

The Medications Return Program is promoted regionally through the CRD's InfoLine, website and regional source control program. The CRD works in partnership with the Medications Return Program and the Vancouver Island Health Authority to raise awareness about safe and proper disposal of medications. Through 2018, the CRD continues to have one of the highest medication return rates per capita amongst regional districts in the province.

Packaging & Paper Products

In 2011, the BC Recycling Regulation was amended to add PPP from residential generators. The amendment shifted the financial responsibility for managing these materials to producers starting in 2014. Packaging and paper products are managed through a combination of curbside collection and depot drop-off locations, which are provided locally by both the CRD and the private sector.

In 2018, a total of 17,522 tonnes of PPP was collected through the following CRD programs:

- Curbside Blue Box Program – 15,981 tonnes
- Gulf Island Recycling Depots – 859 tonnes
- Hartland Recycling Depot – 655 tonnes
- Port Renfrew Transfer Station – 27 tonnes



Tires

Tires have been accepted at the Hartland depot since it opened in 1992, in conjunction with the province's Financial Incentives to Recycle Scrap Tires ("FIRST") program. In 2007, this provincial initiative was replaced with a product stewardship program under the BC Recycling Regulation, managed by Tire Stewardship BC (TSBC). TSBC, in partnership with the Bicycle Trade Association of Canada and the local biking community, also offer a voluntary program for the recycling of tires and tubes through bike retailers. Collection of bicycle tires and tubes began at the Hartland depot in 2011.

Used Lubricating Oil, Filters & Containers

The BC Used Oil Management Association manages the product stewardship program that provides for the collection and recycling of used oil, oil filters, antifreeze and containers. The program strives to ensure every drop of used oil and antifreeze, every filter and container, is brought to a collection facility to be properly recycled.

ORGANICS MANAGEMENT

Regional Kitchen Scraps Strategy

In January 2015, a landfill ban on kitchen scraps was implemented, saving a valuable resource, conserving landfill space and reducing greenhouse gas emissions.

Kitchen scraps are typically managed in one of two ways, onsite digestion or collection for transportation to composting facilities in the Cowichan Valley Regional District and on the lower Mainland. Establishment of in-region kitchen scraps processing capacity is being explored.



Compost Facilities Bylaw

The CRD Board adopted the regional composting bylaw in December 2005.

The bylaw regulates the operation of composting facilities to protect public health and the environment. In 2018, there were no licensed facilities under the bylaw.

Yard & Garden Material Landfill Restriction

In 2006, a yard and garden material landfill ban came into effect. A number of private facilities in the area accept the region's yard and garden material.

In 2018, just over 900 tonnes of source-separated yard and garden material was received at Hartland where it was ground and used on-site. The landfill ban excludes invasive, infectious and noxious plants, which are managed at Hartland as garbage through a rate of \$59/tonne in an effort to reduce their proliferation.



HOUSEHOLD HAZARDOUS WASTE

The Hartland depot offers residents one-stop drop-off service for virtually all types of household hazardous waste and is a leading program of its kind in British Columbia. The material is accepted in residential quantities only, at no charge, for recycling (where feasible) or disposal at a hazardous waste management facility.



Residuals Management

The Hartland facility is a multi-purpose site which, in addition to landfill services for general refuse and controlled waste, provides drop off for recycling, compostables and household hazardous waste.

Hartland has received the Silver Landfill Management Excellence Award from the Solid Waste Association of North America, as well as awards for leadership and innovation in gas utilization and best practices for household hazardous waste collection.

The CRD has also received awards for safety initiatives, including the prestigious National Award for Best Safety Week Program in Canada, in which Hartland Landfill played a major role.

LANDFILLING

The site operates under a Design, Operations and Closure Plan, in accordance with an Operational Certificate issued by MOE, as well as the BC Landfill Criteria for Municipal Solid Waste, and the CRD's Solid Waste Management Plan. There is also a provincial authorization in place for asbestos management.

Municipal solid waste is typically landfilled using the advanced terracing method. This technique enables the management of surface runoff and leachate flow, as well as control of long-term settlement. It consists of advancing the filling area with vehicular access provided atop the preceding day's refuse.

A landfill compactor is used to grade and compress refuse while maintaining a desired slope at a constant width. Hartland's compaction rate exceeds 950 kg/m³ and all refuse is covered daily with synthetic tarps and aggregate quarried on-site to cover the side slopes and vehicle access areas.

Controlled waste, such as sewage sludge, condemned food and animal carcasses is landfilled in trenches dug in completed waste lifts and covered daily with chipped wood waste to reduce odours. Asbestos is landfilled in segregated areas of the site and is covered daily with aggregate or soil.

TOTAL REFUSE BY TYPE (tonnes)

TYPE OF WASTE	2017	2018	% CHANGE
General refuse	144,368	146,431	1%
Controlled waste	10,104	10,417	3%
Asbestos*	3,166	3,094	- 2%
TOTAL FOR 2018	157,638	159,942	1%



Recovery

HARTLAND GAS CAPTURE & UTILIZATION

Landfill gas has been captured at Hartland since the 1990s.

In 2012, a site-specific Landfill Gas Management Plan (LFGMP) was approved, which detailed a strategy for capturing landfill gas and meeting collection targets set by the BC Ministry of Environment and Climate Change Strategy (MOE). The Plan includes installation, operation and maintenance of collection infrastructure and routine reporting. As a result, landfill gas collection has increased significantly and greenhouse gas emissions have been reduced by approximately 50% since 2011.

Collection infrastructure continues to be installed in accordance with the LFGMP. In 2018, three different landfill gas models were run to better assess current and future gas generation and utilization potential. The average collection efficiency across the models was 68%, compared to a target of 75%, which is within the estimated ranges in the LFGMP. Target efficiencies are expected to be reached when full build-out is achieved. Staff are continually investigating other landfill gas recovery opportunities.

A CRD-owned generator utilizes captured landfill gas to produce electricity, which is sold back to the power grid.



LANDFILL DISPOSAL RATES

Landfill tipping fees provide a financial incentive to reduce the quantity of solid waste being brought to the landfill for disposal. The tipping fee structure for 2018 included:

- \$110/tonne for general refuse
- \$157-\$500/tonne for controlled waste
- \$254/tonne for bulky waste

LANDFILL MATERIAL RESTRICTIONS

Landfill restrictions have been part of the CRD waste diversion strategy since 1991 and are only implemented when viable and sustainable recycling alternatives exist. Recyclable materials banned from disposal include:

- 1991: drywall
- 1993: corrugated cardboard, white goods, tires, directories
- 1995: scrap metal, aggregate, concrete, asphalt, rubble, clean soil
- 1998: paper fibers
- 2006: yard and garden material
- 2011: EPR products
- 2015: kitchen scraps

CONTROLLED AND DEMOLITION WASTES

Landfilling of certain types of wastes creates potential nuisance, health and safety concerns for staff, or environmental concerns beyond those expected from regular household refuse. Wastes such as asbestos, demolition wastes, animal fecal wastes, or deceased animals require special handling to protect the health and safety of employees and to minimize nuisance, odours and scavenging by birds.

There are four regulated waste types at Hartland: asbestos waste, controlled waste, clean demolition waste (commercial) and renovation waste (residential).

The risks associated with these regulated wastes vary and so each type is managed differently. These wastes require permits and usually an appointment for disposal. The number of permits issued in 2018 increased by 100% compared to the previous three years. This increase is attributed to a strong economy and to new permitting requirements for demolition wastes.

BYLAW ENFORCEMENT

CRD Bylaw 3881, Hartland Landfill Tipping Fee and Regulation Bylaw regulates activities at the Hartland site. CRD bylaw enforcement officers and landfill staff ensure Hartland customers adhere to site regulations.

In 2018, 46 written warnings and 350 enforcement tickets were issued. The majority of enforcement tickets were in relation to the deposit of Recyclable Material (39%), Prohibited Materials (17%), Extended Producer Responsibility Product (14%) and Kitchen Scraps (13%) which combined comprised 83% of the tickets levied.

SAFETY AND LANDFILL FIRES

Landfill fires happen periodically at Hartland. Typically this occurs as a result of improper disposal of household hazardous waste, such as pool chemicals and product stewardship items like electronics with batteries.

Staff and local emergency services personnel respond to fire incidents at the active face following an established fire safety plan.

LANDFILL CAPITAL WORKS

Each year, the CRD invests approximately \$3 million in capital works that cover rock excavation and crushing, leachate and gas management infrastructure, environmental controls, roads and site improvements.

In 1997, Phase 1 of the landfill site was closed and the filling of Phase 2 (Heal basin) was initiated. It is expected that Phase 2 will continue to receive landfill materials until about 2047, at which time it will have reached its current design capacity.

In 2018, a new master filling plan progressed, including analysis and design to better optimize site capacity over the long term, understand aggregate removal/stockpile mass balances, plan progressive closures, gas and leachate collection systems, and more.

Engineering staff achievements for 2018 include:

- project management, supervision, and direction for Hartland Landfilling Operations' heavy equipment services contract
- annual installation of new combined gas/leachate collection infrastructure in the Phase 2 Cell 3 159m lift
- design and construction of a new aggregate stockpile storage area adjacent to the northern extent of the landfilling footprint boundary road
- videoing and flushing of the Heal Basin Micro Tunnel.



SITE RECLAMATION

Since the Phase 1 closure, significant efforts have gone towards site rehabilitation.

A long-standing vision for Hartland Landfill is to restore the land to a condition that will blend in naturally with the surrounding forest. Planting began in 2004 and includes Douglas Fir, Big Leaf Maple and Red Alder, as well as ocean spray, Indian plum and mock orange (all of which are native to the area).

Cell 1 final closure design was completed in 2010, which included a final cover complete with a new wetland sedimentation pond, in addition to gas, leachate and road upgrades. Over 22,000 trees and bushes have been planted over Phase 1 of Hartland Landfill. Annual invasive species removal projects are conducted in these reclaimed areas to encourage native plant species.

LEACHATE MANAGEMENT

Leachate is a liquid that is produced when precipitation comes into contact with decomposing refuse. To minimize the leachate generated on site, impermeable covers are installed over completed landfill areas to divert clean surface water away from becoming leachate. In 2018, extension of a temporary closure system on the North/East Face of Phase 2 Cell 2 was constructed using a linear low-density polyethylene tarpaulin cover system. This temporary closure reduces the total leachate generation area of the landfill.



ENVIRONMENTAL MONITORING

Environmental science officers at Hartland Landfill employ a number of control measures to prevent or reduce potential effects on groundwater, surface water and air. Through 40+ years of engineered controls, groundwater and surface water quality at Hartland Landfill has continually improved. An environmental monitoring, assessment and management program is conducted in accordance with BC Ministry of Environment and Climate Change Strategy requirements. The monitoring program measures water quality at and near the landfill and assesses the effectiveness of control measures.

Groundwater quality monitoring data obtained in 2018 was similar to previous years and indicated that landfill leachate is effectively contained and controlled on site. Leachate quality monitoring confirmed that leachate discharged from the site was in compliance with the CRD's Sewer Use Bylaw, which regulates discharges to the sanitary sewer. Surface water monitoring in 2018 indicated that nearby surface water bodies, Tod Creek, Durrance Creek, Durrance Lake, and Killarney Lake are not impacted by leachate.

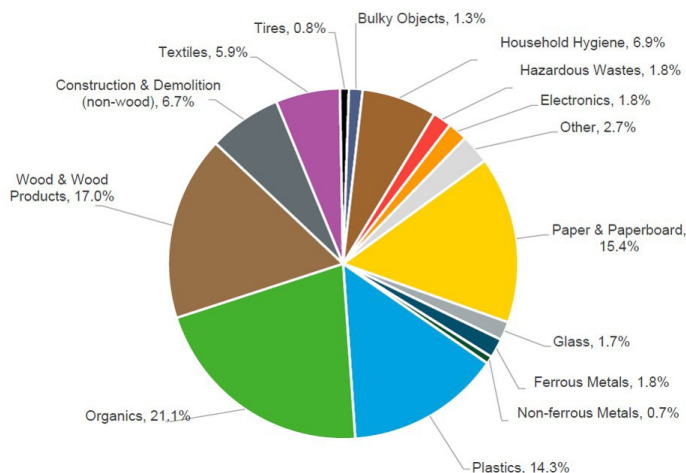
Landfill gas monitoring confirmed that the landfill gas collection system worked effectively to control emissions. Landfill gas infrastructure continues to be installed as part of a long-term gas management plan.

WASTE STREAM ANALYSIS

Since 1990, the CRD has commissioned six studies to assess the composition of waste being landfilled at Hartland. These studies provide valuable benchmark data and analysis for evaluating the success of existing solid waste programs and planning future initiatives.

The most recent analysis took place in 2016. The results indicate a broad regional trend towards decreased per capita waste generation.

Per capita organic waste generation dropped by 37.5%, confirming the successful launch of the 2015 kitchen scraps ban. Per capita paper disposal decreased by 18% and plastics by 5%, while wood and wood products increased by 15%, likely due to more construction activities in the region. All other materials remained relatively consistent compared to the previous study in 2010.



2016 Solid Waste Stream Composition Study Results

Community Support Programs

COMMUNITY CLEAN-UP FUNDING

Since 1997, the CRD Community Clean-up program has been supporting non-profit groups that make visible environmental improvements to their community through organized clean-ups.

Funding provided supports:

- Collection, processing and marketing of recyclables recovered during clean-up
- Container rental for transportation and disposal of non-recyclable material
- Supplies, such as rubber gloves and collection bags

In 2018, the CRD provided funding to 7 community groups.

ABANDONED BOAT PROGRAM

In 2018, the CRD received \$10,400 from Transport Canada's Abandoned Boats Program (ABP) to assess costs associated with testing, removing and disposing of 10 boats in Tsehum Harbour and \$16,900 for seven boats in Sooke.

The ABP fund covers 100% of the assessment costs, and 75% of the removal and disposal costs for approved vessels. For community partners, the CRD provided 25% of the required funding for removal and disposal costs through the ERM Sustainability Reserve Fund. Through this program, the Dead Boat Disposal Society disposed of eight abandoned boats from Salt Spring Island and Cadboro Bay at Hartland Landfill, totalling 179.260 tonnes.

CRD also received \$66,700 from the ABP Education & Awareness fund for a public outreach campaign. This program was launched in 2018 and will continue to 2022.



MARINE DEBRIS PROGRAM

The CRD also provided funding for communities to dispose of marine debris not covered by ABP funding, such as pieces of wharves, floats, flotation, fishing gear, etc. In 2018, 42.970 tonnes of marine debris were disposed of at Hartland through this program.



Financial Management

All costs associated with solid waste disposal and diversion programs in the capital region are funded through tipping and user fee revenues at Hartland Landfill, collection contract revenues, sale of electricity and sale of recyclables.

A sustainable financial business model is essential for the provision of solid waste services.

This form of financing has practical limits as diversion increases and landfill volumes decline.

Long-term financial sustainability of the CRD solid waste function will form a critical part of the new Solid Waste Management Plan.

REVENUES	
Tipping fees	\$18,599,319
EPR programs	\$5,525,887
Power plant	\$666,662
Recycling program revenues	\$1,693,214
Permits, fines and miscellaneous	\$111,532
From reserve	\$350,000
TOTAL FOR 2018	\$26,946,614
COSTS	
Landfill operations	\$5,289,796
Planning	\$522,971
Power plant costs	\$524,559
Debt charges	\$1,404,664
Closure and post-closure fund	\$920,000
Equipment and vehicle fund	\$283,000
Capital spending	\$3,234,000
Community support programs	\$592,211
Hartland diversion programs	\$3,501,310
Curbside recycling	\$5,490,375
EA recycling programs	\$610,830
Leachate	\$554,388
Sustainability reserve	\$4,018,509
TOTAL FOR 2018	\$26,946,614

Recycling Depot Data

Materials collected at Hartland Landfill's recycling depot.

MATERIAL TYPE (TONNES)	
Antifreeze	10.870
Appliances	234.060
Batteries	43.760
Containers (metal, plastic, paper)	47.870
Cooking oil	5.990
Electronics & electrical items	318.490
Fibres (paper, cardboard)	547.620
Foam packaging	13.600
Fire extinguishers	3.180
Food waste	10,446.350
Glass (bottles, jars)	27.670
Household hazardous waste	56.110
Light bulbs, tubes & ballasts	8.670
Mattresses	264.030
Metals	959.460
Motor oil, filters & containers	82.130
Paint, solvents & pesticides	219.350
Plastic (bags, overwrap)	8.590
Plastic (other flexible plastics)	0.820
Propane tanks	21.060
Refundable containers	7.780
Reusable goods	14.310
Tires	76.860
Yard & garden waste	1,068.970
TOTAL FOR 2018	14,541.930

Waste Disposal Data



Year	Population ¹	Hartland Landfill			Tervita Highest Landfill ²	Disposal Rate (kg/person)
		Received	Beneficial Use	Landfilled		
2012	368,935	129,279	n/a	129,279	7,880	372
2013	371,265	123,210	n/a	123,210	13,025	367
2014	372,463	120,942	-1,636	119,306	18,000	369
2015	377,810	114,476	-2,034	112,442	18,000	345
2016	382,645	134,167	-971	133,196	2,056	353
2017	392,046	145,285	-917	144,368	15,000	407
2018	413,406	148,551	-2,120	146,431	10,500	380

¹ BC Stats

² 80% of facility's total disposal in recognition of out-of-region waste being landfilled at site

PER CAPITA DISPOSAL

In 2012, the Province of British Columbia began using per capita disposal rates as the standard solid waste metric and is targeting 350 kg/capita by 2020.

Based on MOE's calculation method, the disposal rate for the capital region was 380 kg/capita in 2018.

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