



C·V·R·D  
Recycling &  
Waste  
Management

# Annual Progress Report: 2008



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## **1.0 EXECUTIVE SUMMARY**

Regional recycling rates reached a historic high of 75% per person in 2007, but declined slightly in 2008 to 71.9%. Overall, approximately 85,000 tonnes of material was recycled within the CVRD in 2008. Per capita recycling volumes reached 1.2 tonnes per person in 2008, an increase of almost 2,000% over 1990 levels.

The proportion of waste going to landfill has declined significantly since 1990, with less than 30% of total waste going to disposal in 2008. However, the overall volume of waste produced continues to grow, while disposal rates have decreased in recent years. Figures show a 46.1% reduction in the per capita disposal rate for 2008 (over 1990 levels). While significant, this figure falls short of the provincially-mandated goal of a 50% reduction in per capita disposal rates.

Although the CVRD has been largely successful in implementing the mandates of its solid waste management plan, a great deal of work remains to be done if the goal of a 50% reduction in per capita waste disposal rates is to be achieved again. Implementation of initiatives described by the solid waste management plan including the introduction of residential food waste collection, addition of new products (such as electronic waste) to recycling programs, development of a new regional recycling depot, better enforcement of existing diversion bylaws, and increased education and communication with residents and the private sector, will be key elements in the CVRD's ability to reduce the volume of waste produced.

## **2.0 INTRODUCTION**

In 1990 the provincial government required all regional districts to develop solid waste management plans, detailing how they would contribute towards the overall goal of a 50% reduction in waste disposal per person by the end of the year 2000 (as compared to 1990 levels). The Cowichan Valley Regional District (CVRD)'s first Solid Waste Management Plan was subsequently developed in October 1990 and received provincial approval later that year.

Since that time, the CVRD's Solid Waste Management Plan has undergone three major amendments as regional approaches to solid waste management have evolved. A significant change in recent years was the adoption, in 2002, of the Zero Waste mandate. In essence, this means that the regional district will direct its efforts towards eliminating waste on as many fronts as possible. Although the goal of Zero Waste may be difficult to achieve in the short-term, adopting this guiding direction in the approach to waste management has allowed the CVRD to make significant gains in terms of diverting waste from landfill.

Adopting the concept of Zero Waste also allows the regional district to look at waste management from a broader perspective, wherein the entire life cycle of a product can be considered. Approaches that allow the waste stream as a whole to be minimized, while viewing residual materials as valuable resources, advance the goal of Zero Waste and help to reduce the volume of material created and/or going to landfill. The most recent amendment to the solid waste management plan, completed in 2006, incorporates Zero Waste as a central tenant of regional solid waste planning, and provides the district with a comprehensive overview of waste management strategies and goals.

A key part of effective solid waste management planning is the ability to track the success of various waste management initiatives and goals. More specifically, a tracking and measurement system that shows the district's progress in reducing waste and implementing planned objectives helps to ensure the success of waste reduction initiatives and the ongoing effectiveness of waste management planning. The following report attempts to fulfill both objectives, the first section providing an overview of the regional district's progress to-date with regard to implementing its solid waste management plan, and the latter section providing a snapshot of the CVRD's status with regard to waste disposal and diversion levels. The report will conclude with an analysis highlighting strengths and weaknesses of the regional district's solid waste management plan implementation, and a discussion of future directions.

### **3.0 METHODOLOGY & LIMITATIONS**

Data used in the preparation of this report is gathered by CVRD staff, on an annual basis, from regional district recycling depots, provincial stewardship program operators, and private recycling companies operating with the CVRD. Data is collected by a combination of the following: analysis of internal shipping and receiving reports, review of annual reports prepared by stewardship program operators, and phone/email surveys of private recycling or disposal companies operating locally. Once collected, data is tabulated and compared to regional population statistics to prepare the figures outlined in this report.

It should be noted that data collected from CVRD depots and provincial program operators is likely to have a higher degree of accuracy than data collected from private recycling companies, although staff attempt to verify data to the greatest extent possible. This is due to the fact that regional district depots and provincial stewardship programs have both staff and infrastructure (such as weigh scales) available to provide more sophisticated volume counts, whereas smaller or more rural operators tend to rely largely on estimations based on the previous year's figures (e.g. approximately 20% more material collected this year over last). Certain tools, such as a requirement that all facilities licensed under the CVRD's *Waste Stream Licensing Bylaw, 2004*, submit monthly material statements, have improved the quality of data received from private facilities. However, it is important to remember that certain factors, such as the addition of a new weigh scale, can influence the accuracy of figures from one year to the next.

For this reason, it is important to consider yearly trends rather than absolute numbers. Furthermore, given the inherent uncertainties in the tracking process, the key figure to consider when analyzing a region's progress on waste reduction is the amount of waste disposed, rather than the amount of waste recycled, as the former is the most rigorous and relevant to the waste reduction goal<sup>1</sup>.

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<sup>1</sup> Recycling Council of British Columbia (RCBC).

## **4.0 SOLID WASTE MANAGEMENT PLANNING**

The following section will provide a broad overview of the CVRD's Solid Waste Management Plan (SWMP) and progress on its implementation. For ease of comparison, this section of the report borrows its structure from the SWMP itself. Appendix A of this report may be referred to for a more detailed implementation timeline for various initiatives described by the SWMP.

### **4.1 Regulations**

In 2008 three bylaws regulated the CVRD's solid waste management system. Bylaw No. 1958 – *Cowichan Valley Regional District Garbage and/or Recyclable Materials Collection Bylaw, 1999* regulates the collection of curbside materials within all CVRD electoral areas. This bylaw was not amended in 2008.

Bylaw No. 2108 – *Solid Waste Management Charges and Regulations, 2000* regulates the operation of all CVRD recycling depots and transfer stations, while also outlining disposal bans and tipping fees. An important part of achieving diversion goals is effective enforcement of the disposal bans outlined in Bylaw No. 2108. Historically, enforcement has often been the responsibility of a seasonally-employed student, and is thus concentrated during the summer months. An increased enforcement presence throughout the year is needed in order to ensure that disposal bans are effectively enforced so as to increase the volume of material diverted from landfill.

Bylaw No. 2570 – *Waste Stream Management Licensing Bylaw, 2004*, regulates the management of all private and public facilities within the CVRD that manage municipal solid waste or recyclable materials. During 2008, six existing facility licences were renewed under the bylaw, while one application for a new facility licence was received. Staff responded in an enforcement capacity to at least eight separate violation incidents during 2008, all of which related to the illegal operation of unlicensed facilities. Each of these violations was successfully resolved on behalf of the CVRD, with one high profile case resulting in a \$10,000 settlement for the regional district. All investigation and enforcement activities were conducted in addition to the ongoing routine monitoring of existing licenced facilities.

Proposed Bylaw No. 2020 – *Landclearing Management Regulation Bylaw* has been in development for several years, and will regulate the open burning of large quantities of landclearing debris. This bylaw is anticipated for adoption and implementation during 2009.

### **4.2 Reduce**

Waste reduction, the first "R" in the 5R management hierarchy, is a key component to the CVRD's approach to waste management. The CVRD relies primarily on education and communication initiatives to reduce the overall waste stream, which means reducing the total volume of material requiring disposal or recycling.

During 2008, two significant gains made in this area include the digitization of the CVRD's *Environmental Guide and Recycling Directory*, and the CVRD educational manual *Earth Issues, Our Lifestyles and the Environment*. Both documents offer extensive tips and information on reducing waste, with the latter manual targeted towards school-aged children, and designed for incorporation into academic lesson plans. Both documents are now available on the newly-redesigned CVRD website, along with information on Zero Waste, composting, air quality etc. Another significant achievement in 2008 was the signing of a contract with the Nanaimo Recycling Exchange (NRE) to provide educational classroom workshops free-of-charge to local schools. The NRE bases its workshops on material found in the *Earth Issues* manual, with topics including Zero Waste, Water Quality, Composting, Consumer to Conserver, Climate Change, and Green Washing. Working with the NRE has provided an excellent tool by which the CVRD can promote messages of reduction, reuse and recycling to homes throughout the region.

#### **4.3 Reuse**

The second "R" in the 5R hierarchy focuses on the reuse of materials. The economic downturn experienced in the latter part of 2008 provided a natural incentive for the reuse of materials as household incomes declined. CVRD initiatives such as the 'free store' offered at the Bings Creek Solid Waste Management Complex and Peerless Road Recycling Depot continued to be very popular with the public and encouraged the reuse of materials with remaining useful life.

#### **4.4 Recycle**

Recycling represents the third "R" in the 5R hierarchy, and also represents the most significant part of the CVRD's waste management strategy. Promotion of recycling opportunities remains a key part of regional waste management; initiatives undertaken in this area during 2008 include a continuation of daily advertisements (through both print and radio) regarding disposal bans and curbside recycling, and ongoing promotion of the free yard and garden drop-off initiative introduced in 2007. During 2008, this initiative resulted in the diversion of over 4,000 tonnes of yard and garden waste from landfill, an increase of almost 10% over 2007 figures.

During 2008 the feasibility of collectively tendering all regional curbside recycling collection contracts was also evaluated. Historically, curbside recycling services between CVRD electoral areas has varied widely, both in terms of service levels and cost to homeowners, with the result that contracts have been tendered separately by electoral area in the past. It was felt that a harmonization of all curbside contracts would result in not only a standardization of services throughout the region, but also a significant cost savings to most home owners. Unfortunately, the feasibility study conducted in 2008 indicated that the collective tender of curbside contracts was not practical at the time due to differing contract expiration deadlines and lack of an overall regional direction. It is hoped that this approach can be reevaluated during 2010, prior to the expiration of current contracts. An evaluation of the potential for integrating residential food waste collection with existing curbside programs is also planned for this time.

Commercial and multi-family residential units make up a significant proportion of waste generators within the CVRD and are typically under-serviced in terms of the availability of recycling and other diversion programs (e.g. composting). As a result, waste generated by these units typically contains a higher volume of recyclable materials than waste generated by single-family dwellings, which tend to be serviced by curbside recycling programs. Although the majority of commercial and multi-family units are within the jurisdiction of member municipalities, it is recognized that the waste they generate becomes the responsibility of the CVRD, and thus the CVRD has a vested interest in improving diversion rates for these units. To this end, further education and enforcement of the disposal bans outlined in Bylaw No. 2108 are needed, as is improved communication between regional district staff, commercial waste haulers, and the owners of commercial and multi-family units.

Two regional recycling depots, plus one recycling depot/transfer station represent a core portion of the CVRD's recycling program. These depots, particularly the flagship Bings Creek facility, are very popular with the public and a highly visible way for the CVRD to promote recycling initiatives. During 2008, the development of "free side" and "paid side" traffic streams at both the Bings Creek facility and Peerless Road Recycling Depot was evaluated and deemed feasible. BC Community Works – Gas Tax Funding was secured to implement these works (in conjunction with overall site upgrades) at the Peerless Road Depot, with works scheduled to begin in 2010.

BC Community Works funding was also received to develop an organics tipping area at the Bings Creek facility, adjacent to the existing tipping floor. However, implementation of this project has been delayed due to operational complications. In the interim, containers for the collection of residential organics have been installed at the Bings Creek facility, allowing both commercial and residential customers to drop off organic material. Residential customers are able to deposit up to five gallons per day of residential organic materials at no charge.

Other recycling initiatives successfully implemented in 2008 include: the bi-annual backyard composter sale, which provides all CVRD residents with an opportunity to purchase a backyard composter at a fraction of retail cost; and ongoing work with industry or non-profit stewardships organizations to increase the range of materials accepted for recycling. Of the recyclable materials currently accepted at CVRD depots, some notable diversion successes include the more than 4,000 tonnes of yard and garden waste, and more than 6,500 tonnes of wood waste, that were diverted from landfill during 2008.

#### **4.5 Recover**

Representing the fourth "R" in the 5R hierarchy, recovery refers to the ability to derive, or 'recover', some value from materials that cannot be reduced, reused, or recycled. These residuals often comprise the bulk of what ends up in a landfill. Today, recovery often implies the use of technology to recover energy from waste.

In 2008, a joint feasibility study conducted with the Regional District of Nanaimo (RDN), examined residual waste management technologies (i.e. gasification, refuse derived fuel, and waste-to-energy) and their applicability within the CVRD and RDN. The study projected a disposal cost of approximately \$100 per tonne if the RDN and CVRD were to combine their waste streams and invest in recovery technology. While this represented a realistic cost for the CVRD, which during 2008 was paying about \$110 per tonne to export waste, it represented a significant cost increase for the RDN, which subsequently decided not to move forward with a recovery facility at this time. The study also showed that the CVRD alone does not possess the economies of scale to justify an investment in new technology, thus the CVRD has continued to export waste to landfill for the time being.

#### 4.6 Residual

The final “R” in the hierarchy refers to the management of residuals, materials for which no higher use can be found. Since 2001 the CVRD has exported its residual waste to an out-of-region landfill, owing to the lack of local disposal options. For several years, waste was trucked to a landfill in Cache Creek, BC, operated by Wastech Services Ltd. The CVRD’s waste export ceiling, imposed by the Cache Creek landfill, was 29,500 tonnes during 2007 and 2008. However, in October 2008 the CVRD redirected its waste away from Cache Creek on account of the landfill nearing capacity, concerns related to future access, and rising costs.

As a result, residual waste from the CVRD is now being shipped to the Roosevelt Regional (Rabanco) Landfill located in Washington State, USA, and operated by Allied Waste Services. Under a three year contract which will expire in 2011, waste is transported from the CVRD Bings Creek facility in intermodal rail containers and barged to the mainland, where it makes the rest of the journey via rail.

This arrangement holds two significant advantages for the CVRD over the previous arrangement with Cache Creek: the combination of trucking, shipping and rail used to transport waste to the Roosevelt Landfill creates less of a carbon footprint than the previous transport arrangement which relied solely on trucking; and, unlike the Cache Creek Landfill, there is greater certainty regarding access. It is important to note, however, that at \$110 per tonne disposal cost, waste export provides a built-in incentive for the CVRD to constantly reduce the volume of waste produced, as less waste shipped means greater savings for regional taxpayers. It is anticipated that several planned initiatives including: the introduction of organics diversion in both residential and commercial waste streams; enhancing recycling opportunities for the commercial and multi-family sector; providing convenient access to regional recycling depots; and the expansion of industry stewardship programs and reduced packaging initiatives, will all help to reduce the volume of waste produced within the CVRD.

This report will now turn to an overview of regional progress with regard to waste management and diversion. Reviewing disposal and recycling trends allows the strengths and weaknesses of the CVRD’s solid waste management plan, and its implementation, to be highlighted. An analysis of these strengths and weaknesses will follow.

## 5.0 WASTE DISPOSAL

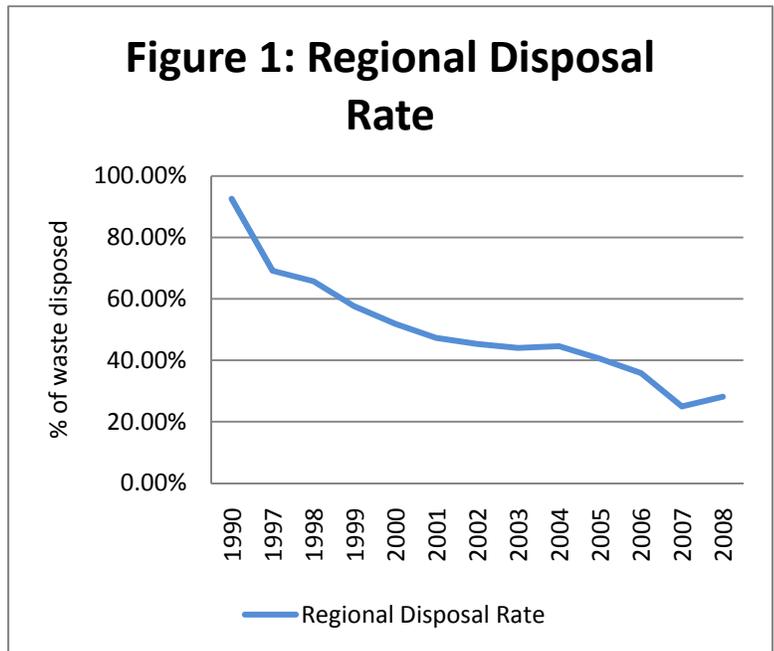
**THE GOOD NEWS...for the Region:** The CVRD, on average, is disposing of far less waste than it did in 1990 (Figure 1). At that time, more than 90% of waste produced was going to landfill; in 2007, less than 30% of waste produced went to disposal.

**...for Residents:** CVRD residents have reduced the amount of waste disposed of, per person, by at least 50% (over 1990 levels) in the years 2000, 2001, and 2002 (Figure 2). Per capita disposal levels have declined from more than 0.75 tonnes per year, to about 0.42 tonnes per year (Figure 3).

The CVRD offers some of the most progressive recycling programs in the country, which enjoy a high rate of public participation. This, combined with a strong local recycling industry, has meant that the volume of waste generated has remained relatively stable in recent years, despite strong economic growth and a steadily growing population (Figure 4).

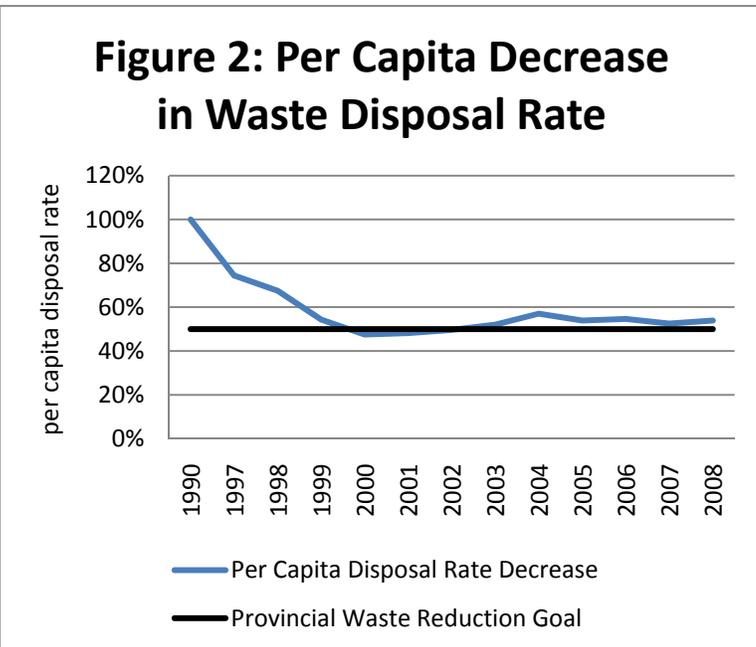
**THE BAD NEWS...for the Region:** Waste disposal rates are no longer declining overall, and in 2008 even increased slightly over the previous year (Figure 1). And despite the overall decline since 1990, almost 30% of all waste produced is *still* going to disposal. While strong housing starts throughout much of 2008

**Figure 1: Regional Disposal Rate**



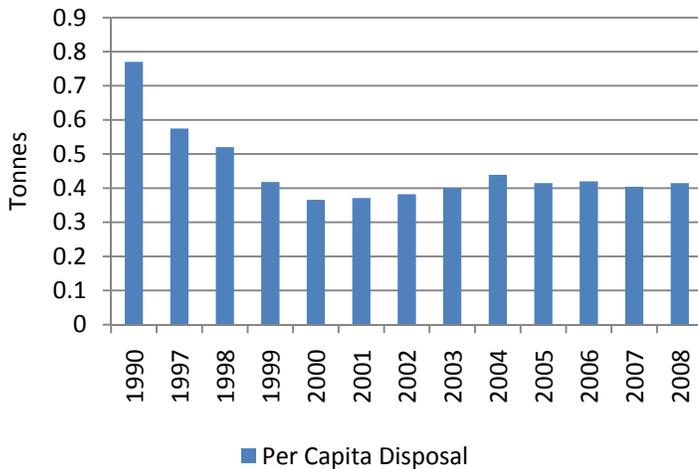
may have played a role in the increase, the general stabilization of rates over the past few years (Figure 4) may also indicate that existing recycling programs have reached capacity and that participation in regional programs such as curbside collection has begun to level-off.

**Figure 2: Per Capita Decrease in Waste Disposal Rate**



**...for Residents:** Since 2000, per capita waste disposal rates have leveled off or risen slightly (Figure 2). This indicates that, despite increasing opportunities to recycle, people continue to produce *more* waste overall rather than *less* waste, even though they are recycling more of it. Significant work remains if the provincial goal of a 50% reduction from 1990 levels is to be achieved again, and the Zero

**Figure 3: Per Capita Waste Disposal**



Waste mandate further pursued.

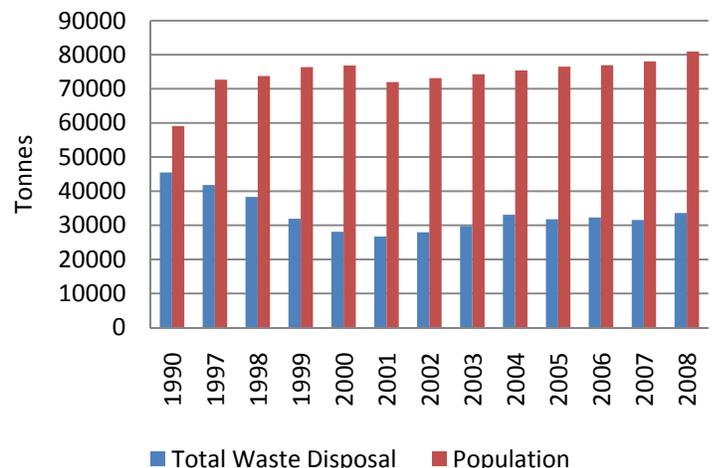
**SOLUTIONS:** Continued education will help new residents of the Cowichan Valley to fully participate in existing recycling programs, while effective enforcement of existing diversion bylaws will also provide an added incentive for current residents to participate in recycling and reduce their waste disposal needs. Education and enforcement initiatives should target multi-family dwellings in order to ensure that residents are able to fully participate in existing recycling programs.

Given the region’s growing population, a continued expansion of recycling programs is also needed if a continued expansion of the

waste stream is to be avoided. Introduction of new programs such as the collection of residential organics at curbside, or expansion of existing programs to collect electronic waste, are two examples of programs that will divert a greater portion of what is currently considered waste. Other initiatives to minimize the waste stream include a continued emphasis on the first two “Rs” of the recycling hierarchy, “reduce” and “reuse”.

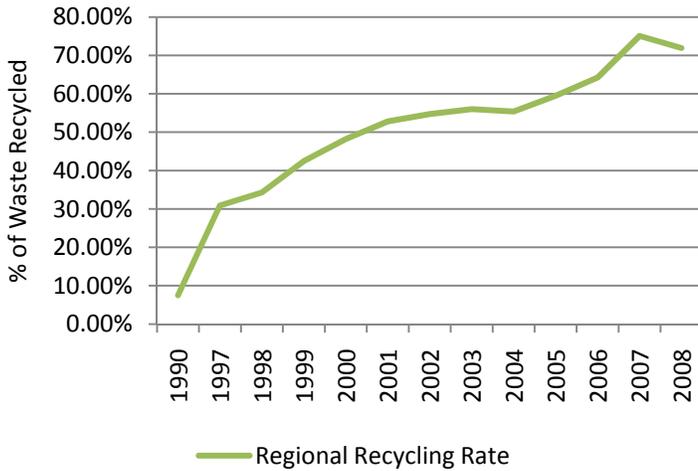
Planned initiatives including expanding the capacity of existing recycling programs, providing recycling options for new products such as electronic waste or organic materials, and targeting all sectors (commercial, institutional, residential) will result in greater opportunities for waste diversion amongst residents and private business. Effective enforcement of waste diversion bylaws will also help to ensure that recyclable materials are not included in the waste stream. The introduction of new recycling programs, such as provincial initiatives that reduce the quantity of packaging used in the manufacture of products will help to combat the volume of waste produced in a consumer-oriented society.

**Figure 4: Regional Waste Disposal**



**6.0 WASTE DIVERSION**

**Figure 5: Regional Recycling Rate**



**THE GOOD NEWS...for the Region:** Regional recycling rates have increased dramatically since 1990(Figures 5 and 6). Thanks to record high commodity prices during 2007 and the first part of 2008, the recycling industry was able to collect and divert more waste than ever before – resulting in diversion levels reaching more than 75% in 2007!

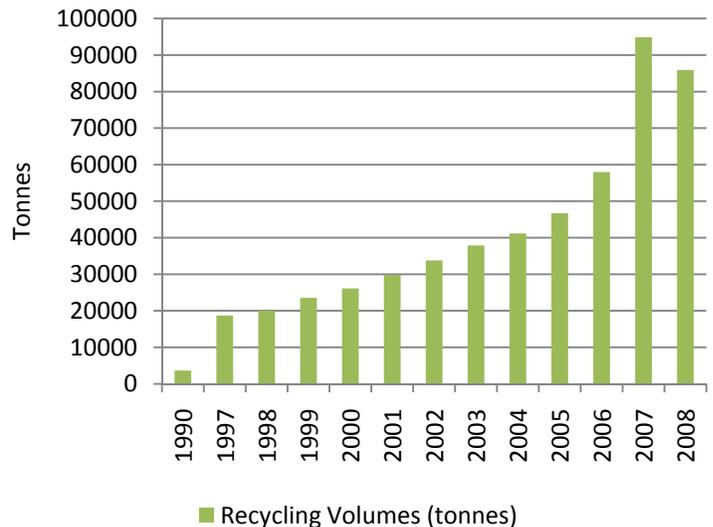
**...for Residents:** CVRD residents are recycling a lot more than they did in 1990, which resulted in per capita recycling rates rising to more than 1.2 tonnes per person in 2007 (an almost 2,000% increase since 1990) (Figures 7 and 8).

**THE BAD NEWS...for the Region:** After

peaking in 2007, regional recycling rates dropped during 2008 to 71.9% (Figure 5), likely due to the global economic downturn and a corresponding decrease in commodity prices. For the local recycling industry, dramatic declines in commodity prices effectively put business on hold, with many operators stockpiling materials until markets improved. Although most recycling programs within the Cowichan Valley were able to continue during this downturn, private operators and recycling contractors saw a significant decline in their revenues. A slowing of activity in all sectors, particularly construction, also reduced the volume of materials being generated – leading to a decrease in both recycling volumes as well as in total waste produced.

**...for Residents:** Despite rapid increases in previous years, per capita recycling levels also dropped sharply in 2008. Again, this decrease can likely be attributed to the global economic downturn that took hold during the latter half of the year, as declining consumption levels and dropping commodity prices led to a decrease in the volume of material entering the recycling stream.

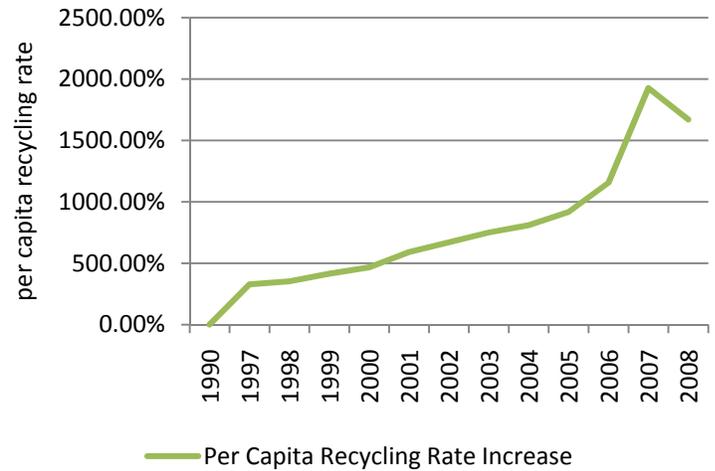
**Figure 6: Regional Recycling**



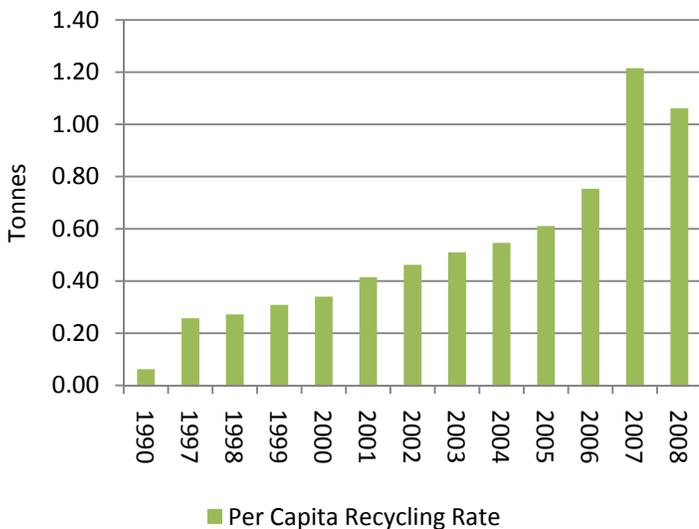
**SOLUTIONS:** Recycling programs will always be at least partially subject to global commodity prices, and thus vulnerable in times of economic downturn. During boom times, a strong focus on recycling initiatives will help to keep diversion levels strong as consumption levels rise along with household incomes.

During down times, there is a natural incentive to reduce and reuse which can result in a decrease to the volume of recyclables entering the regional system. For local governments, a willingness to accommodate private operators where possible, and ensuring that recycling programs remain convenient and low cost, will allow residents to continue good recycling habits. On a broader scale, the volume of materials recycled will continue to grow as the waste stream grows, but only by implementing recycling programs for *new* materials (such as residential organics or electronic wastes) will a larger proportion of the waste stream be diverted.

**Figure 7: Per Capita Recycling Rate Increase**



**Figure 8: Per Capita Recycling**



## **7.0 DISCUSSION & ANALYSIS**

The overall volume of waste disposed by the CVRD has decreased significantly since 1990. However, 2008 figures suggest that this downward trend may have stabilized, and further, that that regional disposal volumes have tended to increase slightly in recent years. These findings are reflected at the per capita level, with figures indicating a slight increase in per capita disposal rates during 2008. These trends are similar to those found in neighboring jurisdictions including the Regional District of Nanaimo and the Capital Regional District. Factors that may have influenced these trends include:

- High saturation levels and strong public participation in existing curbside recycling programs, which have resulted in a gradual leveling-off of the waste reduction achieved. If curbside recycling programs are to continue to play a significant role in reducing both regional and per capita waste, they must expand to accept additional materials, such as food wastes.
- During 2008, housing starts within BC remained strong, despite the beginnings of an overall decline nationally<sup>2</sup>. In the Cowichan Valley, new construction maintained a steady pace for a large portion of the year, although numbers began to decline during the autumn in conjunction with the global economic downturn<sup>3</sup>. As construction and demolition wastes comprise a significant portion of the waste stream (between 15% and 20%<sup>4</sup>), the steady growth in the local housing market for the majority of 2008 may have been a strong contributor to the volume of local waste produced.
- The region continued to experience moderate population growth during 2008, with local populations increasing by about 1.5%<sup>5</sup>. Population growth (and the associated growth in consumption), in combination with the gradual leveling-off of participation rates in curbside recycling programs, also likely played a role in the slight increase to waste disposal rates.

As may be expected, given the regional decline in waste disposal volumes, regional recycling rates have skyrocketed in recent years with rates reaching a high of 75% in 2007, although declining slightly in 2008. The dramatic increases in recycling volumes seen in 2007/08 can likely be attributed to a booming global economy and record high commodity prices (for example, high steel prices led to more than 35,000 tonnes of metal being diverted within the CVRD alone<sup>6</sup>), while the global economic downturn experienced during the latter half of 2008 likely resulted in the corresponding drop in recycling rates.

Nonetheless, regional recycling rates have remained strong through the year at 71.9%. Some factors that have likely influenced this figure, and the slight decline in recycling rates from 2007 to 2008, are discussed below:

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<sup>2</sup> Canada Mortgage and Housing Corporation.

<sup>3</sup> Institute of Chartered Accountants of BC.

<sup>4</sup> Figures based on waste composition study prepared in 2004 for Regional District of Nanaimo by Gartner Lee Ltd.

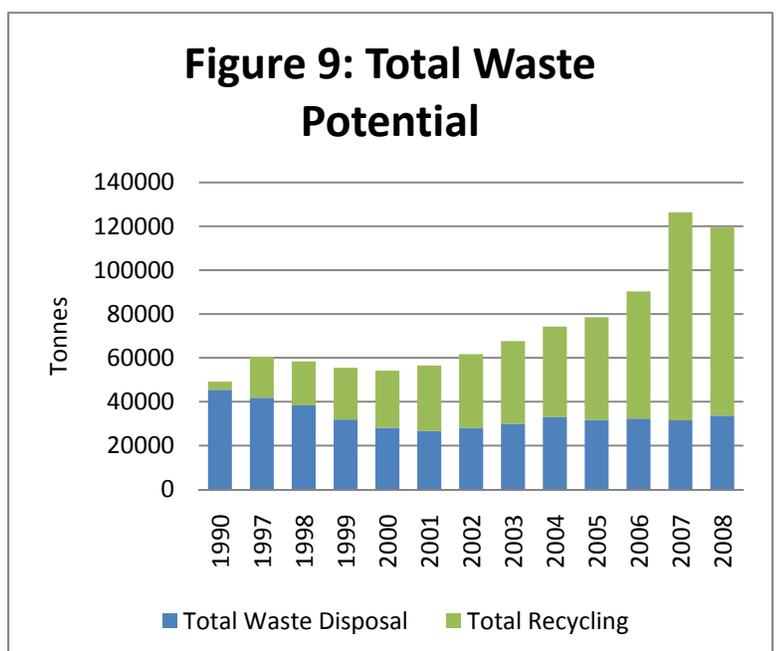
<sup>5</sup> BC Stats.

<sup>6</sup> Estimate derived from CVRD Waste Tracking Database, 2008.

- A strong local recycling industry exists within the CVRD, allowing the regional district to access convenient and relatively low cost recycling programs for many materials.
- High metal prices have allowed the CVRD to fund many of its free recycling programs, encouraging residents to recycle rather than dispose of waste at the relatively high cost of \$130 per tonne tipping fee for garbage.
- The introduction of new recycling programs also helps to maintain high diversion rates, thus the introduction in 2007 of free yard and garden recycling likely helped to push recycling rates higher during that and subsequent years, while also reducing incidents of disposal by way of open burning.
- A residential 'free store' (now offered at two regional disposal facilities) has proven to be very popular with customers, allowing reusable items to be diverted from the waste stream and picked up for free by interested customers.
- During the economic downturn experienced during the latter part of 2008, the CVRD was able to implement several options that allowed regional recycling programs to continue at full capacity, these included:
  - Allowing private recycling facilities to temporarily stockpile materials (until markets improved); and
  - Allowing recycling companies to temporarily defer payments to the regional district.

Together, these initiatives helped regional recycling rates remain strong despite fluctuations in global commodity prices and a steady increase to the region's population. However, more work is needed if diversion levels are to increase for an ever-growing waste stream.

Figure 9 shows regional disposal rates as compared to regional recycling rates. As we can see, recycling rates have increased dramatically in relation to disposal rates in recent years. However, Figure 9 also shows us that, overall, the total waste stream has also increased dramatically in recent years, reaching a historical high of more than 120,000 tonnes in 2007.



Although the CVRD has historically been successful in reducing the amount of waste going to landfill, it is apparent that recycling initiatives will have to be strengthened and expanded if waste disposal levels are to further decrease. The truly telling figure in this analysis is the per capita waste disposal rate (Figure 2). As we can see from Figure 2, per capita disposal rates decreased at least 50% from 1990 levels during 2000, 2001, and 2002, but since that time have begun to rise again. This means that, despite significant increases to recycling rates, people are still producing *more* waste than they used to, thanks largely to increased spending power and the wide availability of consumer goods. If this trend is to be reversed, recycling programs must remain strong and be expanded wherever possible. As described in the first section of this report, increasing recycling rates amongst commercial and multi-family units, while providing accessible and low cost recycling programs for a wide range of materials, are a key focus of the regional district's solid waste management plan. Initiatives planned for upcoming years include the implementation of a residential food waste collections program, the introduction of Provincial stewardship programs for several electronic waste items, and the expansion of commercial organics collection programs.

Education will also play a key role in keeping local diversion rates strong. Educational initiatives should focus on reduction and reuse, the first two "R's" of the 5R hierarchy, in an effort to reduce consumption levels and the waste stream as a whole. Programs designed for school-aged children introduce the concepts of reduction, reuse and recycling at an early age, and provide good avenue by which information can be transmitted back to homes and to the larger family. Working with educational providers such as the Nanaimo Recycling Exchange, and providing the educational manual *Earth Issues* to local groups at no charge, are core aspects of the CVRD's current educational approach to waste diversion. The area will be further expanded in future by providing more educational information online, making increased use of forums such as newspaper and radio to provide information to residents, and targeting key areas (such as multi-family dwellings) with recycling and diversion information.

## **8.0 CONCLUSION**

The Cowichan Valley Regional District has made significant progress with regard to waste diversion over the past several years. The regional recycling rate has increased dramatically, and although it decreased slightly in 2008 over the previous year, is still very high at 71.9%. Waste disposal rates have decreased overall since 1990, although the per capita waste disposal rate is no longer declining, indicating that people continue to produce more, rather than less, waste overall. While progress was made on implementation of the regional solid waste management plan in 2008, the introduction of major new initiatives (such as residential food waste collection) in upcoming years will likely play a significant role in helping to reduce regional waste disposal volumes. Ongoing programs, such as providing education and outreach to local residents and businesses, along with consistent enforcement of waste diversion bylaws, will also help to reduce waste disposal volumes.

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## APPENDIX A: Solid Waste Management Plan - Updated Project Timeline

Year*	Initiative	Status	Comments	Projected Completion
2007	Commission report on feasibility of employing new and emerging technology for residual waste stream	Complete	A report was jointly commissioned with the Regional District of Nanaimo in 2007.	-
	Redevelop west side of tipping area at Bings Creek to accommodate cardboard compactor, free store and hazardous materials	Complete	The hazardous waste building at Bings Creek has been expanded to offer storage for a wider range of items, including product care materials, fluorescent tubes, batteries etc. The expanding building will also accommodate the new free store location. The new cardboard compactor was installed in 2007.	-
	Develop closure plan for Koksilah Road ash landfill	In progress	Staff are currently working with representatives from both Cowichan Tribes and INAC to develop a closure plan for the Koksilah Road ash landfill. It is anticipated that a closure plan and cost-sharing arrangements will be developed over the next several months.	2010
	Initiate development of South-end depot	In progress	Consultation with regional landowners, area directors, architects and other stakeholders continues.	2010
	Initiate planning for upgrades to Peerless Road and Meade Creek depots	Complete	Planning for upgrades to Peerless Road depot has begun and funding secured (see below). Upgrades to the existing Meade Creek depot are not planned as it is hoped that the facility may be relocated to a more centralized area. Relocation of the facility will provide increased ease of use for residents, while reducing travel times and costs associated with servicing.	-
	Identify replacement disposal facility for Cache Creek landfill	Complete	The CVRD has been exporting waste to the Roosevelt (Rabanco) Landfill in Washington State since fall 2008. Staff continue to investigate alternative means of regional waste disposal.	-
2008	Develop closure plan for Peerless Road ash landfill	In progress	CVRD Board Resolution no. 9-313.4 of June 10, 2009 resolved that a loan authorization bylaw for approximately \$1,800,000 be approved for a five year period to cover the cost of ash landfill remediation at Peerless Road, Koksilah Road, and Meade Creek, use of these funds was approved by Alternative Approval Process completed December, 2009. Closure planning continues.	2010
	Redevelop Peerless Road Recycling Drop-off Depot	In Progress	Funding for upgrades to Peerless Road depot have been secured from BC Community Works – Gas Tax funding. Construction will begin once closure plan for onsite ash landfill has been prepared.	2010
	Evaluate feasibility of implementing Environmental Management System	Delayed	Low staffing levels have precluded the evaluation of an Environmental Management System at this time.	2012
	Phase out Multi Bin program	Delayed	Phase out of Multi Bin program has been delayed until the new South-end depot is constructed, in order to prevent an interruption of service to area residents.	2011
	Implement residential food waste collection service	In progress	Implementation of residential food waste collection service has been delayed due to higher than anticipated costs. Program and cost structures will be revisited during 2009/2010 for implementation in spring 2011.	2010
	Develop food waste tipping area at Bings Creek	In progress	Development of a food waste tipping area at Bings Creek has been delayed due to operational complications. However, BC Community Works – Gas Tax Funding has been secured to develop a food waste tipping area in the onsite transfer building; staff are currently attempting to schedule construction around the existing workload. Construction is anticipated to begin within the next several months.	2010

\*Projected year for completion, as per section 2.9 of SWMP, 2006.

## APPENDIX B: Waste Tracking and Recycling Figures

**Table 1: Waste Disposal Figures** (all figures in metric tonnes unless otherwise indicated)

	1	2	3	4	5	6
Year	Population	Disposal to Private Facilities	Disposal to CVRD Facilities	Total Waste Disposed <sup>7</sup>	Per Capita Disposal Rate <sup>8</sup>	Per Capita Disposal Rate Decrease <sup>9</sup>
<b>1990</b>	59,059	11,000	29,500	45,475 <sup>10</sup>	0.770	-
<b>1997</b>	72,691	11,249	30,571	41,820	0.575	25.3%
<b>1998</b>	73,735	10,500	27,823	38,323	0.520	32.5%
<b>1999</b>	76,386	7,747	24,164	31,911	0.418	45.7%
<b>2000</b>	76,820	4,675	23,413	28,088	0.366	52.5%
<b>2001</b>	71,998	4,919	21,780	26,699	0.371	51.8%
<b>2002</b>	73,129	3,060	24,881	27,941	0.382	50.4%
<b>2003</b>	74,260	3,275	26,487	29,762	0.401	48.0%
<b>2004</b>	75,392	5,125	27,987	33,112	0.439	43.0%
<b>2005</b>	76,523	4,225	27,556	31,781	0.415	46.1%
<b>2006</b>	76,929	5,204	27,112	32,316	0.420	45.4%
<b>2007</b>	78,060	3,593	27,948	31,541	0.404	47.5%
<b>2008</b>	80,936	5,328	28,278	33,606	0.415	46.1%

<sup>7</sup> Sum of columns 2 and 3.

<sup>8</sup> Column 4 divided by column 1.

<sup>9</sup> Per capita rate decrease divided by per capita base year rate (1990).

<sup>10</sup> Includes 4,975 tonnes of alternative waste disposal (e.g. backyard burning etc.) during 1990.

**Table 2: Recycling Figures** (all figures in metric tonnes unless otherwise indicated)

	1	2	3	4
Year	Population	Total Recycling <sup>11</sup>	Per Capita Recycling Rate	Per Capita Recycling Rate Increase <sup>12</sup>
1990	59,059	3,661	0.06	0.00%
1997	72,691	18,691	0.26	333.33%
1998	73,735	20,019	0.27	352.50%
1999	76,386	23,566	0.31	414.19%
2000	76,820	26,107	0.34	466.41%
2001	71,998	29,817	0.41	590.23%
2002	73,129	33,769	0.46	669.62%
2003	74,260	37,877	0.51	750.10%
2004	75,392	41,173	0.55	810.20%
2005	76,523	46,730	0.61	917.78%
2006	76,929	57,975	0.75	1156.03%
2007	78,060	94,891	1.22	1926.03%
2008	80,936	85,924	1.06	1669.38%

<sup>11</sup> Figures represent all private, governmental and non-profit recycling.

<sup>12</sup> Per capita rate increase divided by per capita base year rate (1990).

**Table 3: Waste and Recycling Comparison** (all figures in metric tonnes unless otherwise indicated)

	1	2	3	4	5
Year	Total Waste Disposed <sup>13</sup>	Total Recycling <sup>14</sup>	Total Waste Potential <sup>15</sup>	Regional Disposal Rate <sup>16</sup>	Regional Recycling Rate <sup>17</sup>
1990	45,475	3,661	49,136	92.55%	7.50%
1997	41,820	18,691	60,511	69.11%	30.90%
1998	38,323	20,019	58,342	65.69%	34.30%
1999	31,911	23,566	55,477	57.52%	42.50%
2000	28,088	26,107	54,195	51.83%	48.20%
2001	26,699	29,817	56,516	47.24%	52.80%
2002	27,941	33,769	61,710	45.28%	54.70%
2003	29,762	37,877	67,639	44.00%	56.00%
2004	33,112	41,173	74,285	44.57%	55.40%
2005	31,781	46,730	78,511	40.48%	59.50%
2006	32,316	57,975	90,291	35.79%	64.20%
2007	31,541	94,891	126,432	24.95%	75.05%
2008	33,606	85,924	119,530	28.12%	71.90%

<sup>13</sup> Column 4 of Table 1.

<sup>14</sup> Column 2 of Table 2.

<sup>15</sup> Sum of columns 1 and 2.

<sup>16</sup> Column 1 divided by column 3.

<sup>17</sup> Column 2 divided by column 3.