



# Regional Solid Waste Management Plan November 2007

Prepared for:

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## EXECUTIVE SUMMARY

This is the Regional Solid Waste Management Plan (RSWMP) for the Thompson Nicola Regional District (TNRD), prepared through their Plan Review Process. This RSWMP has been developed in accordance with the “Guidelines to the Preparation of Regional Solid Waste Management Plans by Regional Districts” provided by The Ministry of Environment. It also reflects strategies to address the specific areas of concern identified by the TNRD through the Plan Review Process.

### Public Consultation & Stakeholder Involvement in the Process

Public consultation and involvement has played a major role in the Plan Review Process. Integral to the process of engagement and involvement of key stakeholders and the public was the establishment of two Advisory Committees, who have been instrumental in the development of the proposed plan:

- The Public Advisory Committee, made up of volunteer members of the public
- The Technical Advisory Committee, which consists of waste management staff from the member municipalities, waste management businesses and the Ministry of Environment

The Plan Review Steering Committee (PRSC) was also struck by the TNRD Board of Directors at the beginning of the process, and consists of 8 Directors from the TNRD Board. The function of the committees was to provide input and advice for the Solid Waste Management Plan Review, in terms of the proposed programs to be incorporated into the revised Plan, as well as the public engagement strategies employed by the TNRD during the Plan Review Process. The PRSC also oversaw the development of the Plan, and reviewed the recommendations of the two Committees. The PRSC was also responsible for formalizing recommendations arising during the process, for discussion and ratification by the TNRD Board of Directors. Members of these three groups had been involved with the development of the overall plan for the previous two years.

During November 2006, thirteen public Open House events were held throughout the region to provide opportunities for feedback on the proposed options. The TNRD also provided ongoing communications to communities through media and online opportunities. The feedback from the consultation process was incorporated into the review of the Plan.

### Overview of the Plan

The plan is divided into a number of sections that address the elements required to effectively plan for the future of solid waste management in the TNRD. The first sections of the report lay the foundation for how the Plan will be implemented. These sections include:



- A description of the guiding principles that have been developed as the foundation of the Plan;
- Policies that should be implemented to encourage participation in waste diversion programs. These include disposal bans, variable tipping fees and user pay fee structures to be implemented by the TNRD and participating municipalities and businesses.

The next sections focus on the waste management strategies in greater detail. These sections cover the various programs and infrastructure changes that are proposed under the new RSWMP. Programs are grouped into three Phases, based on a prioritization in terms of achievable diversion and cost per tonne, with the most economical strategies that achieve the greatest diversion rates scheduled in the early phases. A description is provided for each diversion program, encompassing the target sector, operational and facility requirements, supporting policies, costs and diversion potential.

Changes to the existing waste transfer and disposal system are also presented in this part of the report, so that these activities are shown to support the waste diversion initiatives covered in the Plan. Further detail on these sections is provided below.

## Guiding Principles

The guiding principles represent the foundation on which the waste management strategy has been developed:

- Support the goal of **30% waste reduction** in the next 5 years measured against 2004 levels
- Programs will follow the **5Rs hierarchy** - reduce, reuse, recycle, energy recovery and residual management
- Commit to **Education and social marketing** programs
- Adoption of a **Zero Waste** philosophy
- Support for **Product Stewardship Programs** and **Extended Producer Responsibility**
- Establish a **User-Pay** approach to program funding
- Carry out **Ongoing Evaluation** of all new programs
- Use Local Government **Policies and Enforcement** to increase waste diversion
- Implement **Criteria for New Programs** to ensure any program that is implemented will be technically sound, economically feasible and acceptable to the public
- Support **Cooperation Opportunities** with Member Municipalities, other Regional Districts, First Nations and Private Sector as appropriate

Zero waste means creating waste reduction programs that maximize recycling, minimize waste, reduce consumption and ensures that products are made to be reused, repaired or recycled. Other Communities that have adopted Zero Waste include Halifax, Toronto, Seattle and Nelson.



## Policies

Policies to encourage waste diversion will be integral to the success of the Plan. The following policies will form the basis for implementation of the revised RSWMP, and will be established by bylaws pursuant to Section 25 of the Environmental Management Act, following the adoption of the Plan;

- **Establishment of User-Pay System policy structure** - In communities with user-pay programs, residents are charged for the collection of waste based on the amount they throw away. The more you recycle, the less you pay! Examples of user-pay systems include disposal quantity limits (currently in Place in Kamloops and Merritt) and weight-based tipping fees
- **Standardization of Disposal Tipping fees** across the TNRD, member municipalities, the private sector and within all those First Nations using TNRD facilities, that agree in writing to follow the terms and conditions of the Plan. Disposal fees will be set over time so as to be consistent with, but not lower than tipping fees in regional districts surrounding the TNRD
- A **Differential tipping fee structure** for certain components of the waste stream will be introduced. This approach has been shown to decrease the disposal to landfill of recyclable materials, and to reduce waste hauling and disposal costs to the private sector.
- The TNRD has identified certain materials as being **prohibited from landfill disposal** due to the elevated environmental and health risks associated with their handling and disposal.
- The **implementation of disposal bans on recyclable materials** has been found to be an effective means of increasing participation in waste diversion programs. Bans would be phased in, beginning with the establishment of the regulatory framework for the disposal ban, likely through a bylaw. This would provide entrepreneurs interested in providing alternative options for diversion programs with some assurance of the TNRD's intent. The disposal ban would only be enforced once the alternative avenue was in place for handling that material and would be supported by education and awareness programs. Residents and businesses would be given time to become accustomed to utilizing the alternatives before progressing to full scale enforcement of the ban.
- **Initiate Waste Stream Management Licensing** - the TNRD will introduce a bylaw which will require each facility and/or business operating within the TNRD that manages, disposes or otherwise handles any part of the MSW stream in the TNRD to secure and comply with the provisions of a waste license.
- **Minimum operating requirements for waste management facilities** will be established for all waste management facilities operating in the TNRD, and will be linked to the licensing process.
- **Importation of Waste** – will be allowed in conjunction with the implementation of a levy that will be used to fund other waste management programs in the Plan. Stringent



conditions may also be imposed, such as the exporting region being required to have similar reduction goals as the TNRD.

- **Establishment of New Facilities and Services** - TNRD will establish a policy to guide the establishment of collection facilities at all new developments in the TNRD outside of municipal boundaries. This policy will ensure that new facilities and services are developed in a manner that is consistent with the provision of a region-wide service in accordance with the overall goals of the Plan, and represents a cost-effective approach to managing waste in new areas.
- **Plan Amendment Process** - as amendments to the Plan may be required from time to time, a plan amendment process has been established for major and minor plan amendments

## Waste Management Strategy Overview

The waste management strategy proposed for the RSWMP combines waste diversion, residuals management and policies to effectively manage solid waste within the region, in support of the 30% waste reduction goal adopted by the TNRD Board of Directors in May 2004.

### Residuals Management Issues

At the present time, the current residuals management system does not provide the necessary framework to implement and enforce the various policies and guiding principles that will be incorporated into the Plan. Specifically, there is currently no ability to:

- Prevent uncontrolled use of the unattended TNRD transfer stations by persons from within and outside the TNRD
- Manage environmental risks and liabilities that could result from the use of the facilities for the disposal of prohibited or banned materials/substances
- Encourage recycling and other waste reduction policies, such as the pay-by-weight policy
- Efficiently manage the collection and hauling of waste from transfer stations to disposal facilities, particularly in the case of roll-off bin transfer stations
- Manage solid waste management costs on a financially sustainable basis
- Achieve the 30% waste reduction goal adopted by the Board of Directors.

As a top priority, the existing network of transfer stations and landfills will be assessed in terms of the location, number and size/capacity of all the TNRD waste management facilities, based on a cohesive set of criteria that considers the system as a whole in terms of operational and financial viability. The TNRD acknowledges that this investigation will likely result in changes to the residual waste management system elements, and that there will be transitional challenges associated with public acceptance of the new approach. However, it is important to recognize that not only do the changes represent a more sustainable financial and environmental picture,



they will also support improved waste management services, and are necessary to allow the TNRD to achieve its 30% waste reduction goal.

### **Waste Diversion Programs**

The programs target waste generated by the Residential, ICI and DLC sectors. These options are in accordance with the sequential hierarchy of reduction, reuse, recycling, recovery, and residuals management. These programs have been prioritized in terms of potential waste diversion achievable and cost per tonne, to provide perspective on the most economical ways to achieve the biggest diversion gains. This prioritization has resulted in the options being grouped into phases for implementation.

**Phase 1** has been identified as being short term, i.e. one to three years after Plan adoption, and will involve the initiation of basic 3Rs services representing the best value programs, as well as the initiation of changes to the current waste management system. Activities in Phase 1 are:

- Establish Waste Reduction & Education Function in TNRD
- Development of Reuse Promotion Program
- Establishment of Differential Tipping Fees & Eventual Disposal Ban on DLC Waste
- Disposal Ban on ICI Paper and Cardboard
- Yard and garden waste ban in the City of Kamloops
- Single Stream Curbside Collection of Recyclables in City of Kamloops
- Single Stream Recyclables Collection from Multi-Family Units in City of Kamloops (if feasible)
- Support for Back Yard Composting and Vermi-composting
- Expansion of Recycling System to increase availability to all TNRD residents
- Collection of Hazardous through periodic events
- Develop New Yard Waste Drop off Facility in Kamloops
- Develop Waste Management System Optimization Plan
- Manage Environmental Risk by Reducing Number of Landfill sites
- Manage Financial and Environmental Liability by reducing number of Transfer Stations
- Develop and implement a user pay based system and tipping fees at all sites for waste disposal
- Develop Transfer Stations to Replace Closed Landfills
- Improvements to selected Transfer Stations to improve service levels and efficiencies
- Consider implementation of Curbside Collection in some areas



- Develop Soil Bioremediation facility at TNRD landfill
- After care of Closed Landfill Sites

**Phase 2** is classified as 4 – 7 years following Final Plan adoption. During Phase 2, additional programs are introduced and Phase 1 activities are continued. Phase 2 offers increased levels of collection service for recyclables and target the yard waste component of the disposed waste stream. Programs identified for Phase 2 are as follows:

- Disposal Ban on ICI yard waste
- Blue Bag (single stream) collection of Recyclables in Municipalities & Electoral Areas
- Yard Waste Drop-off & Composting depots in TNRD
- Single Stream Recyclables Collection for Multi-Family Units in Kamloops if not implemented in Phase 1
- Disposal ban on remaining ICI recyclables
- On-going Improvements to selected Transfer Stations and closure of some transfer stations and landfills, continued from Phase 1
- Aftercare of Landfill Sites Closed in Phase 1

**Phase 3** is defined as 7 - 10 years after Plan adoption, and will involve the continuation of programs initiated in earlier phases, as well as the potential development of new disposal capacity:

- Disposal Ban on ICI Food Waste
- Construction of Disposal Capacity

The beginning and end of each Phase is likely to be flexible in practice, as the TNRD responds to the specific issues associated with Plan implementation. The order in which programs are included in the Phases also reflects the recognized need to undertake preparatory studies and complete other tasks in advance of full program implementation. For the same reason, certain programs straddle two phases, beginning with preparation activities and/or pilot programs in one phase, and continuing to full implementation in the next.

### On-Going Research and Pilot Projects

There will be an on-going need to review various approaches for management of solid waste, and to investigate new and innovative technologies for collection and transfer of waste, waste diversion and disposal. In addition, the policy commitment to accurately measure and report waste flows, as well as track diversion targets and disposal rates, will require allocation of resources to waste audits and other related activities. To this end, solid waste research and feasibility studies will be a baseline activity which will occur in each Phase of the Plan.



Resource allocations and descriptions of specific activities are identified for each Phase. Opportunities for funding will be explored and utilized wherever possible.

### **Future Options**

Finally, other waste diversion and disposal options have been identified for future consideration. It is anticipated that feasibility and preliminary design studies on these options will be undertaken in the earlier phases of the plan, and a determination made as to whether these options should be included in the Plan in the future.

### **Cost Overview**

The associated costs with each phase were estimated to provide general overview of costs for the implementation of the Plan. Many of these costs will be jointly shared between the TNRD and the City of Kamloops, as responsibility for delivery of some programs will be shared. Other programs will be implemented solely in and by the City of Kamloops, with no costs to the TNRD and vice versa.





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## GLOSSARY & LIST OF ACRONYMS

DLC	Demolition, Land-clearing and Construction
FCM	Federation of Canadian Municipalities
GHG	Greenhouse gases
ICI	Industrial, Commercial and Institutional
MOE	Ministry of Environment
MSW	Municipal Solid Waste
ODS	Ozone Depleting Substance
PAC	Public Advisory Committee
PRSC	Plan Review Steering Committee
TAC	Technical Advisory Committee
TNRD	Thompson-Nicola Regional District
RSWMP	Regional Solid Waste Management Plan
Guidelines	Guidelines to the Preparation of Regional Solid Waste Management Plans by Regional Districts





## 1. INTRODUCTION

This is the Regional Solid Waste Management Plan (RSWMP) prepared for the Thompson Nicola Regional District (TNRD), through their Plan Review Process. This RSWMP has been developed in accordance with the “Guidelines to the Preparation of Regional Solid Waste Management Plans by Regional Districts” (Guidelines) provided by The Ministry of Environment. It also reflects strategies to address the specific areas of concern identified by the TNRD through the Plan Review Process.

### 1.1 Plan Review Process

The Plan Review Process reflected the main considerations outlined in the Guidelines document referenced above. To initiate the process, three Committees were formed:

- The Public Advisory Committee, made up of volunteer members of the public
- The Technical Advisory Committee, which consists of waste management staff from the member municipalities, waste management businesses and the Ministry of Environment
- The Plan Review Steering Committee (PRSC) which consists of 8 Directors from the TNRD Board of Directors

The function of the committees was to provide input and advice for the Solid Waste Management Plan Review, in terms of the proposed programs to be incorporated into the revised Plan, as well as the public engagement strategies employed by the TNRD during the Plan Review Process. Input from the committees and the public was channeled via the PRSC as recommendations to the TNRD Board of Directors.

The Plan Review Process encompasses three Stages, as outlined by the Guidelines. Stage 1 involved the evaluation of the existing waste management system, to establish a baseline against which future progress would be measured. Stage 2 consisted of several rounds of review and discussion on the various potential options that the TNRD could incorporate into a revised RSWMP, to determine which waste management options should be included. Public consultation on the selected options proposed by the Committees was undertaken in November 2006. Feedback from this consultation process was summarized and used to make adjustments to the content of the Plan<sup>1</sup>. In addition, the Plan Review Process also incorporated an opportunity for all TNRD member municipalities to provide comments and their priorities with respect to solid waste issues (summarized in Appendix A). Potential opportunities to involve the agricultural and industrial sectors in solid waste management in the region were also explored.

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<sup>1</sup> This information was also presented in the Public Consultation Report, January 2007



## 1.2 Document Structure

This Plan provides a detailed strategy for the management of waste and recyclables within the TNRD. It encompasses various approaches or programs for waste diversion and residuals management, so as to best achieve at least the 30% waste reduction goal adopted by the TNRD Board.

The first sections of the report lay the foundation for how the Plan will be implemented. These sections include:

- A description of the guiding principles that have been developed as the foundation of the Plan;
- Policies that should be implemented to encourage participation in waste diversion programs. These include disposal bans, basic tipping fees, differential tipping fees and user pay fee structures to be implemented by the TNRD and participating municipalities and businesses.

The next sections focus on the waste management strategies in greater detail. These sections cover the various programs and infrastructure changes that are proposed under the new RSWMP. Programs are grouped into three Phases, based on a prioritization in terms of achievable diversion and cost per tonne, with the most economical strategies that achieve the greatest diversion rates scheduled in the early phases. A description is provided for each diversion program, encompassing the target sector, operational and facility requirements, supporting policies, costs and diversion potential.

Changes to the existing waste transfer and disposal system are also presented in this part of the report, so that these activities are shown to support the waste diversion initiatives covered in the Plan.

Supporting information is provided in several Appendices to the Plan. The reader's attention is directed to these appendices, as they provide additional background information on the Plan Review Process and the context in which the Plan has been developed. Supplemental information on technologies recommended as part of the Plan is also provided.



## 2. GUIDING PRINCIPLES

The establishment of a set of guiding principles provides the foundation on which the TNRD's waste management strategy has been developed. The principles identified in the following will apply regardless of the options that are finally chosen for the revised Regional Solid Waste Management Plan.

### 2.1 30% Waste Reduction Goal

In May 2004, the Board of Directors formally adopted a 30% reduction in the per capita quantity of waste disposal to landfill as the overall solid waste management goal for the region. This goal is intended to be achieved in the first five years of implementation of the Plan. This 30% reduction will be measured against the 2004 baseline data for waste disposal, and does not include waste imported into the TNRD from other regional districts. All the programs and policies in the Plan have been selected with the view of achieving and surpassing this goal. This is a significant challenge given that the overall and per capita waste generation rates have increased significantly since 2004, resulting primarily from increased building activity and development in the region.

### 2.2 Education and Social Marketing

Education and social marketing are essential elements to influence behavior, and are therefore critical to the success of a waste management program. The TNRD is committed to supporting a comprehensive education and social marketing approach to waste reduction; all of the options described in this document will include an integral education component. In addition, the TNRD will continue to improve existing waste reduction and awareness programs and will introduce new programs as they become available.

### 2.3 Adoption of the Zero Waste Philosophy

Zero Waste is an overarching philosophy to help guide future decisions about solid waste management. Zero Waste is akin to "Accident Free" or "Zero Tolerance" policies that set an overall tone for how an organization conducts its business. In the context of the Solid Waste Management Plan, this philosophy can guide the approach to managing waste and designing waste management programs, so as to focus on how to reduce and reuse waste.

**Zero Waste maximizes recycling, minimizes waste, reduces consumption and ensures that products are made to be reused, repaired or recycled back into nature or the marketplace.**

Zero Waste goes beyond recycling by taking a "whole system" approach to the flow of resources over their whole lifetimes. This could include redesigning a product to use fewer raw materials, or finding new markets that use waste as an input to a



process, so that the waste becomes a resource rather than a problem. On a personal level, it might mean changing purchasing habits to avoid buying items with excess packaging, avoiding waste before it happens and supporting new product stewardship initiatives.

Zero Waste does not mean that no waste will be produced or disposed of, but that the TNRD will continuously strive to reduce waste disposal by adopting aggressive waste reduction policies. The TNRD recognizes that many communities across BC and Canada have already adopted a Zero Waste goal, and have seen demonstrated results in the reduction of the amount of waste disposal. By adopting Zero Waste as an overall philosophy, the TNRD can focus on reducing waste disposal per capita by increasing awareness and participation in waste diversion programs.

Embracing zero waste in the near future will also allow the TNRD to become more synchronized with the direction of other Regional Districts, as well as the future direction of the province. The TNRD will also support the adoption of a Zero Waste goal at the provincial level.

## 2.4 Support for Product Stewardship Programs and Extended Producer Responsibility

Product Stewardship is a policy approach in which the producer's responsibility for managing the environmental impact of their product is extended across the whole life cycle of the product, from selection of materials and design to its end-of-life. This means that the producers and consumers have financial responsibility for the products from production to final disposal, so that the cost of managing this waste is not borne by Local Government. This approach is also referred to as extended producer responsibility (EPR).

In British Columbia, Product Stewardship is regulated by the Provincial Government, which works with producers to develop stewardship programs for various materials. There are already programs for items such as beverage containers, pharmaceuticals, electronic waste, household hazardous waste, used oil, used tires and lead-acid batteries and other materials. The recently amended Recycling Regulation has updated the structure of some of these programs to make them more effective. Successful lobbying of the Provincial Government to expand the list of products governed by Product Stewardship regulations would mean that even more items could be managed through stewardship programs and diverted from landfill. This in turn will reduce the financial burden for Local Government associated with managing these items. Furthermore, the TNRD will continue to lobby the Provincial Government to ensure that all programs are available equally in urban and rural areas throughout the region.

While locally implemented programs can have significant effects, another effective way to promote reduction and reuse is to encourage provincial and federal programs. To this end, the TNRD will:

- Support the continuation and expansion of product stewardship programs implemented at the provincial and federal levels



- Support extended producer responsibility and Design-for-Environment initiatives that encourage or regulate manufacturers to use recyclable and recycled packaging materials and discourage excessive packaging
- Lobby senior levels of government to implement policy to expand extended producer responsibility programs within British Columbia and Canada, particularly those that focus on packaging waste
- Prepare an annual report to the upper levels of government, which will provide a “report card” like summary on all aspects of EPR pertaining to the TNRD, along with recommendations for improvement
- Continue to participate in the Local Government Stewardship Council, to provide input to the Ministry of Environment on how regional districts would wish to see stewardship programs developed in the province

Until such time as provincially mandated programs are functioning effectively in the region, the TNRD will continue to support recycling events such as Household Hazardous Waste and E-Waste Collection events.

## 2.5 Implementation Criteria for New Programs

Any program that is implemented will be technically sound, economically feasible and acceptable to the public. Programs will focus on following the 5-Rs hierarchy of Reduce, Reuse, Recycle, Recovery and Residuals Management. Any waste management program chosen for implementation will be communicated appropriately to those involved, and further consultation specific to that program and the impacted communities and areas will be carried out if required. To support the implementation of programs, the TNRD may develop and run pilot programs to test major changes outlined in the Plan. The results of the pilot tests will be used to decide if full-scale implementation of that program is feasible.

## 2.6 Continual Evaluation of Programs

On-going evaluation of all Plan programs may be carried out by the TNRD Plan Monitoring Advisory Committee (PMAC). Terms of reference for PMAC can be found in Appendix B. The effectiveness of programs will be monitored and reported to the TNRD Board of Directors. Programs that are not operating successfully will be reassessed by TNRD staff and PMAC and appropriate action recommended to the TNRD Board of Directors. These actions may include amendments to the Plan as needed. The TNRD will also give consideration to the establishment of a Plan Implementation Committee to provide additional oversight and guidance from members of the TNRD Board of Directors on implementation activities.



## 2.7 Support for Cooperation Opportunities

The TNRD recognizes the importance of co-operating in waste management initiatives with its member municipalities, other regional districts, First Nations and the private sector.

### 2.7.1 Co-Delivery of Services with Member Municipalities

The specific needs of individual communities will shape how programs are developed and implemented across the TNRD, with a consideration of potential opportunities for cooperation and/or contract sharing. For example, there will be a need to harmonize the collection and hauling of materials from the municipalities with the TNRD facility schedules, so that the facilities can provide the same level of service to municipalities and surrounding electoral areas. The concern expressed by municipalities that their collection vehicles will fit into TNRD plans for new waste and recycling facilities must be addressed as many municipalities are planning to upgrade their collection vehicles in the near future. There is also a need to ensure that regulatory requirements for processing and covering waste at landfills can be met. On-going liaison with respect to the siting of new facilities, budget impacts and the like will need to be integrated throughout the implementation of the RSWMP.

The potential for sharing waste management services or contracts with both member municipalities and other Regional Districts will be considered. The TNRD recognizes that this will provide greater economies of scale, and potentially reduce the administrative burden of contract management for all the parties involved. The TNRD, as the implementation agency for the Plan, may be best suited to undertake the contract tendering and management process, with input and agreement from the participating municipalities.

The following potential opportunities to share contracts and facilities have been identified:

- Landfill maintenance and/or disposal contract with the City of Kamloops
- Region-wide recycling contracts for various materials from white goods, DLC and metal recycling to blue bag recyclables
- Sharing recycling, collection, and disposal services with municipalities and the private sector
- Inter-Regional Disposal, Diversion and Recycling agreements
- Inter-Regional contracts for such things as wood waste grinding, Ozone Depleting Substance (ODS) removal, composition studies, scrap metal removal, disposal, recycling etc.
- Engineering feasibility studies
- Waste Composition Studies



The TNRD will review contract sharing requirements with involved parties as required, and develop contracts that support fair and equitable sharing of risks and responsibilities between the parties.

### 2.7.2 Policy Alignment

Consideration will also be given to how existing TNRD policies might impact or be impacted by policies of other jurisdictions and member municipalities, and plan amendments may be considered where necessary. This will be supported by the on-going communications between neighboring and other regional districts, as well as opportunities to share resources and expertise to support policy alignment.

### 2.7.3 Cooperation with First Nations

The TNRD recognizes the importance of and welcomes opportunities to continue to cooperate with First Nations in the achievement of the goals of the Plan. It is understood that many First Nations are closing old landfill sites and may wish to send MSW and recyclables to TNRD facilities. Opportunities for cooperation and mutual benefit with First Nations may exist in terms of:

- encouraging open exchange on operating practices at waste disposal sites
- cooperation in development and operation of recycling and disposal facilities
- potential for employment and training opportunities for First Nation members at recycling and disposal facilities
- providing a resource for 3-R and waste reduction education
- continue to offer waste disposal agreements to First Nations, but with agreements based on actual weight of refuse disposed of rather than estimates based on population.
- potential to offer recycling services to First Nations communities

As First Nations develop their own solid waste plans, the TNRD will keep an open dialog with First Nations with the goals of protecting the environment, reducing waste disposal as much as possible, and providing service to all residents in a given area.

### 2.7.4 Cooperation with Private Sector

The TNRD will also look for other potential opportunities to support their waste management goals through innovative partnerships with private sector stakeholders. The programs recommended for implementation in the Plan will require services to be provided, and this represents a number of opportunities for local businesses to become involved in the provision of these services. The TNRD will work with the private sector community to identify services required, and will be open to consider private sector partners that offer practical, financially responsible and viable options for the provision of these services.



## 2.8 Consultative Policy Development & Enforcement

The ***Environmental Management Act Part 3*** grants all Regional Districts considerable legal powers with respect to solid waste management. These powers are granted without limitation, and include the ability of a Regional District to establish bylaws with respect to the fees, types, quality or quantities of municipal solid waste or recyclable material that may be brought onto or removed from a site.

Many of the options for waste diversion that are presented in this document will be supported by policies or bylaws to achieve the waste diversion objectives in the Plan. Regional Districts may also establish different prohibitions, conditions, requirements and exemptions for different classes of persons, sites, operations, activities, municipal solid wastes or recyclable materials, based on sections 25 and 26 of Part 3 of the Act. This Plan also recognizes that the TNRD's mandate under the ***Environmental Management Act*** extends its jurisdiction and authority to solid waste facilities and operations that may be the responsibility of member municipalities, and/or private operators. While it is anticipated that the existing strong relationships between facility operators and the TNRD will result in broad support for the policies proposed, the TNRD may exercise this authority as approved by the Board to ensure that the principles of the RSWMP are adhered to by all facility owners and operators.

The TNRD recognizes that with this authority comes significant responsibility to consult with all affected stakeholders prior to implementation of such policies or bylaws, so as to ensure that all interests can be represented. To this end, the TNRD will be responsible to undertake such consultation as may be required, and to work with the Ministry of Environment to develop consultation plans.

The TNRD will also be responsible for compliance with new policies and bylaws by establishing appropriate enforcement measures. Additional enforcement capacity within the TNRD would be required to achieve this successfully.

## 2.9 User Pay Approach for Program Funding

Solid waste management programs and services provided by the TNRD are currently funded primarily from general taxation, with only a few quantity-based charges in existence. The TNRD recognizes that this predominantly taxation-based fee structure does not support waste reduction goals, as costs are fixed and the true costs of waste management are not apparent to most system users. In addition, where program costs to the user are fixed, there is little financial incentive to change behaviors, e.g. to increase levels of recycling.

To address this issue, the TNRD will focus on establishing programs with fee structures that shift funding responsibility from general taxation towards user pay systems. Appropriate levels



of service and associated costs will be established that create an incentive for waste diversion activities.





### 3. POLICIES

Policies to encourage waste diversion will be integral to the success of the Plan. The TNRD will exercise all rights granted under the provisions of the ***Environmental Management Act*** to effectively manage waste in the region, by establishing bylaws to direct or prohibit waste at specific disposal locations, make provisions for the operation of waste management facilities and services, and to set appropriate disposal fees. As noted above, the development of new policy will include appropriate consultation with affected stakeholders as policies are implemented and enforced. The following policies will form the basis for implementation of the revised RSWMP, and will be established by bylaws following the adoption of the Plan. The TNRD may elect to develop additional policies as needed, and may not be limited to the list below.

#### 3.1 Establishment of User Pay System Policy Structure

Currently, residents pay for waste management services through their property taxes, on an assessment basis. This fixed fee is charged regardless of how much – or how little – waste they generate. In communities with user-pay programs (also known as utility pricing), residents are charged for the collection of municipal solid waste—ordinary household trash—based on the amount they throw away. This creates a direct economic incentive to recycle more and to generate less waste. This system will be adopted in the TNRD.

The user pay concept will also be extended to the commercial and business sector, which will be responsible to bear the costs associated with services this sector is provided. In addition to fostering strong communications with the private sector to support these transitions, the TNRD will utilize bylaw enforcement, and exercise all rights granted under the provisions of the ***Environmental Management Act*** to direct waste to or prohibit waste from specific disposal locations, set appropriate disposal fees and establish reporting requirements.

To support this objective, the TNRD will implement the following policies.

##### 3.1.1 Weight-Based Tipping Fee Structure

A weight-based tipping fee structure will be implemented. This will facilitate charges for waste disposal based on the amount and type of waste being disposed. To support this, the TNRD intends to install weigh scales at waste collection and disposal facilities that will remain in operation, but not at sites that are scheduled for imminent closure.

In the interim, until the infrastructure for weight-based tipping fees is in place, the TNRD will implement a load-based tipping fee, set at levels to encourage waste diversion and prevent waste migration to surrounding regional districts. Fees for disposal of specific items, such as



appliances that require removal of ozone depleting substances and tires with rims and other hard to dispose of material or materials that require special handling will also be imposed.

### 3.1.2 Disposal Quantity Limits

Currently, only the City of Kamloops and City of Merritt have disposal quantity limits in place that restrict the quantity of waste that can be set out for collection. There are no restrictions on the amount of waste that can be disposed per household in the other municipalities or at the TNRD facilities in the electoral areas.

Bylaws to establish disposal quantity limits in the Electoral Areas outside of municipal boundaries will be developed. As much as possible the new system of user fees will attempt to produce parity between taxes and fees charged to municipal and rural persons and businesses and will be a priority task in Phase 1 of the Plan.

Implementation of disposal quantity limits will coincide with cheaper (or free) recycling and waste diversion services, to encourage residents to participate in recycling programs as a means of reducing the cost of waste disposal. It is recognized that the level at which disposal quantity limits are set will be influenced by the types of materials that are being diverted through new diversion programs. As new waste diversion programs are introduced, these limits may be revised downward.

## 3.2 Standardization of Tipping Fees

Tipping fees within the TNRD and in surrounding Regional Districts are currently quite varied, with fees in the TNRD being the lowest, as shown in Table 3-1 below.

**Table 3-1: Tipping Fees in Neighboring Regional Districts to TNRD**

Neighboring Region	Household garbage – per bag	Household garbage – per tonne
Columbia Shuswap	\$1 - \$2	\$60/tonne
Central Okanagan	\$1 - \$2	\$55/tonne; \$10/tonne for sorted wood waste
North Okanagan	\$1 - \$2	\$57/tonne
Squamish-Lillooet	\$0.50 - \$2	\$65 - \$75/tonne
Fraser Valley	\$3 minimum charge/load	\$60 - \$73 at various facilities
TNRD Landfills and Transfer Stations	No charge	No charge Tipping fees of \$31 - \$103/load for DLC waste, which equate to just over \$6 per tonne
City of Kamloops	\$5 per load	\$25/tonne
Owl Road Landfill		\$23/tonne

The TNRD recognizes that the much lower level of tipping fees within the TNRD landfill system is attracting waste from surrounding regions, increasing the cost of waste management to



TNRD residents, especially at facilities near TNRD boundaries or easily accessible from major transportation routes.

In order to address this problem, tipping fees must be consistent across the region and between neighboring regional districts. To this end, the TNRD will:

- Set tipping fees to be consistent with, but not lower than tipping fees set in regional districts surrounding the TNRD. This may involve a gradual ramping up of tipping fee rates according to a set schedule.
- Standardize tipping fees so that they are consistent across the TNRD, member municipalities, the private sector and within all those First Nations using TNRD facilities, that agree in writing to follow the terms and conditions of the Plan. Tipping fees agreed upon with First Nations will be based on weights of waste received, not population. Rental of equipment such as waste collection bins will be governed by rental agreements with applicable First Nations groups as appropriate.

It is recognized that this standardization will need to apply universally, to include landfills operated by others, which may offer host municipalities and areas discounted tipping fees as part of compensation packages. The TNRD will work with these stakeholders to standardize tipping fees in these situations, to provide equal incentive to all residents to comply with the waste diversion programs. Alternative compensation structures may need to be established to address this.

Financial analysis to determine appropriate tipping fee levels will be undertaken, considering cost of waste management programs, annual operations costs and the future costs of management of the waste disposal system.

It should be noted that tipping fees associated with other operations, e.g. compost facilities, will also be part of the standardization efforts.

### **3.3 Differential Rate Structure for Tipping Fees**

A differential tipping fee structure for certain components of the waste stream will be introduced. This approach has been shown to decrease the disposal to landfill of recyclable materials, and to reduce waste hauling and disposal costs to the private sector. The highest tipping fees will be applied to mixed waste, with lower pro-rated fees being established for sorted materials and sorted recyclables. The differential tipping fee structure would be implemented across the regional district at all public and private disposal facilities.

### **3.4 Materials Prohibited from Disposal**

Prohibited materials are those which will not be accepted at any waste disposal facility, usually because these materials are difficult and/or hazardous to handle at collection and disposal facilities, or because alternative methods, such as recycling or composting, exist for handling



the materials. If alternative methods of disposal or stewardship programs exist for a prohibited material, the TNRD may consider development of drop-off locations at existing TNRD facilities provided access and storage capacity is available.

The TNRD has identified the following materials as being prohibited from disposal at existing and proposed facilities due to the elevated environmental and health risks associated with their handling and disposal:

- Hazardous Wastes other than those specifically authorized in the Hazardous Waste Regulation,
- Bulk liquids and semisolid sludges which contain free liquid;
- Liquid or semisolid wastes including septage, black water, sewage treatment sludge, etc.;
- Motor vehicles, white goods, other large metallic objects and tires (these may be accepted at a landfill location for **recycling**);
- Biomedical waste as defined in the document "Guidelines for the Management of Biomedical Waste in Canada" (CCME, February 1992);
- Byproducts, parts and carcasses from slaughterhouses, fish hatcheries, canneries, meat and poultry processing operations and other agricultural operations.
- All agricultural and industrial waste, with the exception of typical MSW such as household, office and lunchroom waste.
- Any item containing ozone depleting substances,
- PCB's,

### 3.5 Establishment of Disposal Bans

The implementation of disposal bans on recyclable materials has been found to be an effective means of increasing participation in waste diversion programs. The recyclable materials banned from disposal at the TNRD disposal facilities will depend on the waste management options chosen for implementation, and will be such that bans will not be fully enforced until an alternative handling option, usually some form of recycling, exists. Bans would be phased in, beginning with the establishment of the regulatory framework for the disposal ban, likely through a bylaw. This would provide entrepreneurs interested in providing alternative diversion services with some assurance of the TNRD's intent. The disposal ban would only be enforced once the alternative avenue was in place for handling that material and would be supported by TNRD education and awareness programs. Residents and businesses would be given time to become accustomed to utilizing the alternatives before progressing to full scale enforcement of the ban.



The list of recyclable materials that will be considered for disposal bans includes: paper and cardboard, blue bag recyclables, yard waste, ICI recyclables including metals and plastics, and DLC recyclables. Disposal bans will be preceded where appropriate by tiered rate tipping fee structures, to gradually shift users to the new approach.

The following materials have been identified by the TNRD as being prohibited from landfill disposal due to their ability to be effectively recycled. The TNRD will implement and enforce disposal bans as practical, alternative recycling facilities or other options become available, accordingly:

- Fuel tanks and steel drums
- Gypsum wallboard
- Electronic and small appliance wastes
- Cooking oils
- Waste automotive and vehicle oils, lubricants, antifreeze and their containers
- Used tires and rims– all sizes
- Propane tanks – all sizes
- Used lead acid batteries and other batteries
- Household hazardous waste including paint, pesticides or other household hazardous wastes, and their respective containers
- Used white goods
- Motor vehicle hulks and other large metallic wastes
- Scrap metal – ferrous and non-ferrous
- Any other material that becomes the subject of a provincially approved product stewardship plan

The TNRD will maintain this list, and may add other materials to this list should this be deemed necessary or as other options become available to divert materials. In the event that an Operational Certificate issued by the Ministry of Environment or any other permit to operate is in conflict with this set of prohibited materials, the TNRD Regional Solid Waste Management Plan shall prevail and be upheld.

### **3.6 Waste Management Facility Authorization**

There are several waste management facilities being operated within the regional district's boundaries by both the private and public sectors. The RSWMP recognizes the existing municipal solid waste management facilities listed in Table 3-2 below. Authorization will need to



be sought for new municipal solid waste management facilities which may be established within the region in the future.

**Table 3-2: List of Authorized Facilities**

Facility Name	Facility Location	Owner	Permit or Operational Certificate	Estimated Annual Disposal Tonnage	Projected Year of Closure
Barriere Landfill	1500 Barriere Lake Road, approx. 8 km east of Barriere	Thompson-Nicola Regional District (Crown land)	Permit PR-2749	4,500 tonnes/year based on 2006 est.	2011 or earlier
Chase Landfill	577 Shuswap-Chase Creek Road, approx. 4.5 km SW of Chase	Thompson-Nicola Regional District (Crown land)	Permit PR-2911	5,000 tonnes/year	2009
Clearwater Landfill	1629 Clearwater Valley Rd, approx. 10 km west of Hwy 5 on Wells Gray Park Rd	Thompson-Nicola Regional District (Crown land)	Permit PR-1788	9,000 tonnes/year	2013 or earlier
Lower Nicola Landfill	2348 Woodward Road, approx. 2 km west of Lower Nicola Rd on Hwy 8	Thompson-Nicola Regional District (Crown land)	Permit PR-4465	14,000 tonnes/year	2016 or earlier
Heffley Creek Landfill	7381 Sullivan Valley Road, approx. 7 km east of Hwy 5 on Tod Mountain Road	Thompson-Nicola Regional District (Crown land)	Permit PR-3447	12,000 tonnes/year	2023 or earlier
Mission Flats Landfill	3095 Mission Flats Road, Kamloops, BC	City of Kamloops	Operational Certificate MR-3328	50,000 tonnes/year	2055 (year at capacity)
Barnhartvale Landfill	Eliza Road, Kamloops, BC	City of Kamloops	Permit PR-4778	5,000 tonnes/year	2013 (as per financial plan from City of Kamloops)
Owl Road Landfill	Valleyview Road Kamloops, BC	Valleyview Enterprises Ltd. (private land)	Permit PR-5910	11,500* m <sup>3</sup> /year (Permit limit)	2016 (as per Piteau Associates DO&C plan, Feb, 1996)
Blackwell Dairy Landfill	Kamloops, BC	EJ Blackwell Holdings	Permit PR-11198 and Permit PR-12290	500 tonnes/year and 2,200 tonnes/year	Unknown
Cache Creek Landfill	Cache Creek, BC	Village of Cache Creek and Wastech Services Ltd. (hold the Crown lease on the land)	Operational Certificate MR-7577	500,000 tonnes/year	2008-2010 (may be extended)



### 3.7 Waste Stream Management Licensing

The TNRD will initiate waste stream management licensing, to be established by bylaw under the powers granted to the Regional District through the *Environmental Management Act*. The intent of the bylaw will be to require each facility and/or business operating within the TNRD that manages, hauls, disposes or otherwise handles any part of the MSW stream in the TNRD to secure a license, and to comply with the provisions of the license. The implementation of a licensing process will support the TNRD's ability to track and report on waste management flows throughout the region, and direct particular materials such as recyclables to appropriate recycling facilities and away from landfill disposal sites.

Minimum requirements will be established for all municipal solid waste management facilities operating in the TNRD, and will be linked to the licensing process. Requirements will be established by bylaw for landfills, transfer stations, depots and processing facilities, and haulers to be implemented consistently across all publicly and privately operated facilities in the TNRD, including those facilities within the TNRD that are managed by external operators. The criteria will also be shared with operators of First Nations facilities, who will be encouraged to adopt these standards for use in their own facilities. Development of waste stream management licenses, minimum operating requirements and specifications and required bylaws will be a priority task associated with Phase 1 of Plan implementation.

### 3.8 Importation of Waste

The TNRD has the option to accept waste from outside of the region, and currently allows the importation of waste under the 1995 TNRD RSWMP. Several regional districts, including Metro Vancouver as the largest exporter of waste from its own region, have sent waste to the Cache Creek/Wastech landfill since the site opened in 1989.

The issue of waste importation was discussed extensively by the Public, Technical and Steering committees during the development of the Plan. All three committees were generally opposed to the concept of waste importation without some form of compensation to the TNRD for allowing waste to be imported from other jurisdictions for disposal within the boundaries of the TNRD. This concept was presented to the general public during the series of Open Houses conducted as part of the public consultation process and met with generally favorable response.

The TNRD Board of Directors adopted a policy to continue to allow importation of waste into the region on condition, as outlined below:

**That the Thompson-Nicola Regional District authorize waste importation subject to stringent waste reduction conditions, operating conditions and implementation of a levy to support Thompson Nicola Regional District solid waste management programs including new technologies.**



It is important to note that the levy to support TNRD solid waste management programs was a key consideration in the Board of Director's deliberations and an important factor in gaining public support within the TNRD. Should circumstances dictate that the TNRD may not implement this levy the importation of waste into the TNRD may come into question.

The "stringent waste reduction conditions" were defined as the "ability to demonstrate commitment to maximize reduction" on the part of the jurisdiction exporting waste to the TNRD. This commitment will be demonstrated by the exporting jurisdiction adopting waste reduction policy that is at least at the same level targeted in the TNRD's RSWMP.

The TNRD recognizes that facilities may be developed within the region aimed at utilizing imported MSW for both disposal and other waste management activities, such as composting. The TNRD will consult with all exporting jurisdictions to negotiate a fair and financially feasible levy.

### **3.9 Establishment of New Waste Management Facilities & Services**

As the population in the TNRD is expected to continue to grow, it is anticipated that new developments will occur both within and outside of municipal boundaries. In order to effectively manage costs and levels of service, the TNRD will establish a policy to guide the establishment of new municipal solid waste management facilities and services associated with new developments in the TNRD outside of municipal boundaries. The policy will apply to the establishment of all new waste management facilities and services, including diversion, collection, recycling, reuse, recovery or disposal of waste.

The purpose of the policy will be to:

- Ensure that any new proposed facilities or services fit within and support the objectives and guidelines of the RSWMP, and are strategically located, developed and funded in such a way to complement the overall waste management infrastructure in the region
- Ensure that any new proposed facilities or services are structured so as to support the 30% waste diversion goal set in the Plan
- Link new facilities or services to the waste stream management licensing process discussed above

To address this issue, the TNRD will work with individual communities, developers and member municipalities to share responsibility for provision of services as appropriate. Where responsibilities are shared, the TNRD will support privately provided services by allowing access to larger transfer stations and/or disposal facilities, to reduce the burden on individual areas to invest in long-haul transportation services.

In cases where developers elect to provide services or facilities directly, any such services or facilities will be required to conform to the provisions of the Plan in terms of disposal bans, limits



on disposal quantities, recycling materials, or other areas as may be identified, so that these operations are aligned with the provisions of the Plan and shall not exempt these developments from taxation by the TNRD for region-wide and/or specific area or Electoral Area programs developed under the Plan. The TNRD may elect to make bylaw provisions that formalize these requirements and the role of developers in the provision of services.

The TNRD will also assist municipalities with their policies and guidelines in this regard, to address new development within municipal boundaries.

### 3.10 Slaughterhouse Waste Disposal Facilities

Slaughterhouse waste is prohibited from landfill disposal as per Section 3.4 of this Regional Solid Waste Management Plan. The TNRD has committed in Section 2.7.4 to cooperate with private industry to support their waste management goals through innovative partnerships with private sector stakeholders. The Canadian Food Inspection Agency has recently made changes to regulations governing disposal of Specified Risk Materials (SRM) and the industry will be faced with considerable hardship to meet the new standards. The TNRD recognizes the vital role of the slaughter industry to economic viability of agricultural operations in the TNRD and recognizes the importance of the agricultural industry in general to the TNRD. The industry has requested the support of the TNRD to try to find answers to help deal with the impacts of these regulation changes to their businesses. The TNRD recognizes that assisting the industry find a viable solution for dealing with their waste may provide a unique opportunity to utilize the facility for diversion of municipal organic waste in Phase 3 of the Plan. The TNRD also prefers a local solution as an alternative to hauling this material to Alberta for processing, thereby reducing vehicle emissions.

Following discussion of this issue at the public, technical and steering committee levels, the committees agreed that disposal of slaughterhouse waste (both SRM and non-SRM waste) should be prohibited at TNRD landfills. The steering committee recommended establishment of a sub-committee to work with the industry to investigate possible value-added solutions for non-SRM material as opposed to disposal. The sub-committee recommended that TNRD should support the industry initiative to develop an in-vessel compost facility that will handle the non-SRM waste by assisting with locating a suitable site for development of the facility.

The recommended method for disposal and destruction of SRM material is incineration and the industry has funding sources available to assist with construction of an incineration facility. The sub-committee recommended allowing the disposal of the residual ash from an SRM incineration facility at TNRD landfills. Based on these discussions, the following policies will apply:

1. Slaughterhouse waste shall be prohibited from disposal at TNRD landfills.



2. The TNRD will assist the industry in locating a suitable site for the development of a compost facility for the disposal of Non-SRM slaughterhouse waste within the region.
3. The TNRD will support the industry's efforts to establish an incineration facility for SRM slaughterhouse waste within the region and will allow the disposal of residual ash at TNRD landfills.

### 3.11 Plan Amendment Process

The TNRD recognizes that from time to time, amendments to the plan may be required, to more accurately reflect changing demands on the waste management system in place in the TNRD.

The guideline that will be used for amending the Plan is outlined in Appendix D. The process is expected to commence with the submission of an Amendment Request, which will provide sufficient information about the proposed amendment to facilitate an evaluation by the TNRD, and the Ministry of Environment. All amendments will require Ministry and TNRD Board approval before formal addition to the Plan.

#### 3.11.1 Responsibility for Costs for Amendments

Where plan amendments are contemplated, the proponent requiring the plan amendment shall be responsible for the costs associated with amending the Plan, including but not limited to:

- Staff time required within the TNRD to process the amendment
- Staff time required within the TNRD to undertake site visits, inspections or other visits with respect to the proposed facility
- Engaging consultants in the preparation of the application to the TNRD to amend the plan, and/or to provide any information deemed necessary for the Board of Directors to make a decision with respect to the proposed amendment
- Planning, conducting and reporting on any public consultation, media advertising or other notification which may be required by the TNRD or the Ministry in the process of amending the Plan
- Any other costs required to complete the plan amendment process, as determined by the TNRD

#### 3.11.2 Regulatory Authority for Amendments

Under the authority of this Plan, and Section 25 of the *Environmental Management Act*, the TNRD may establish the following bylaw:

- A Plan Amendment Application Form



- An application fee for major and minor plan amendment applications, to cover the costs of staff time and resources associated with the processing of the application
- The steps in the plan amendment process outlined in Appendix D

The TNRD will also prepare a guide for applicants, which will outline the procedures that should be followed to initiate a plan amendment, including the provisions with respect to the cost of amending the Plan described above.





## 4. WASTE MANAGEMENT STRATEGY OVERVIEW

The waste management strategy proposed for the RSWMP combines waste diversion, residuals management and policy options to effectively manage solid waste within the region, in support of the 30% waste reduction goal adopted by the TNRD Board of Directors in May 2004.

### 4.1 Waste Diversion Programs

The waste diversion programs identified in the Plan target waste generated by the Residential, ICI and DLC sectors. These options are in accordance with the sequential hierarchy of reduction, reuse, recycling, recovery, and residuals management. These programs have been prioritized in terms of potential waste diversion achievable and cost per tonne, to provide perspective on the most economical ways to maximize diversion gains. This prioritization has resulted in the options being grouped into phases for implementation:

- Phase 1 has been identified as being short term, i.e. zero to three years after Plan adoption, and will involve the initiation of basic 3Rs services representing the best value programs, as well as the initiation of changes to the current waste management system.
- Phase 2 is classified as 4 – 7 years following Final Plan adoption. During Phase 2, additional programs are introduced that offer increased levels of collection service for recyclables and target the yard waste component of the disposed waste stream.
- Phase 3 is defined as 7 - 10 years after Plan adoption, and will involve the continuation of programs initiated in earlier phases, as well as the potential development of new landfill capacity and organic diversion.

The order in which programs are included in the Phases also reflects the recognized need to undertake preparatory studies and complete other tasks in advance of full program implementation. For the same reason, certain programs straddle two or more phases, beginning with preparation activities and/or pilot programs in one phase, and continuing to full implementation in the next. Where appropriate, specific policy tools to support these initiatives have also been identified.

### 4.2 Changes to Residuals Management Systems

The current residuals management system does not provide the necessary framework to implement and enforce the various policies and guiding principles that will be incorporated into the Plan. Specifically, there is no ability to:

- Prevent uncontrolled use of the unattended TNRD transfer stations by persons from within and outside the TNRD



- Manage environmental risks and liabilities that could result from the use of the facilities for the disposal of prohibited or banned materials/substances
- Encourage recycling and other waste reduction policies, such as the pay-by-weight policy
- Efficiently manage the collection and hauling of waste from transfer stations to disposal facilities, particularly in the case of roll-off bin transfer stations
- Manage solid waste management costs on a financially sustainable basis
- Achieve the 30% waste reduction goal as adopted by the Board of Directors.

The TNRD recognizes that major changes must be considered to improve the waste management system, protect the environment, be fiscally responsible, and improve the level of service provided to residents. The following fundamentals will be incorporated into the implementation of the Plan, particularly with respect to the overhaul of the TNRD waste management system:

### **Overall System of Transfer Stations and Landfills**

As a top priority, the existing network of transfer stations and landfills will be assessed in terms of the location, number and size/capacity of all the TNRD waste management facilities, based on a cohesive set of criteria that considers the system as a whole in terms of operational and financial viability.

### **Landfills**

- Environmental risk and liability will be reduced and consequently better managed by reducing the number of landfills. Landfills that are phased out will be replaced by transfer stations or other service delivery methods. A goal of the Plan is to close all TNRD landfills by 2021 or sooner.
- Closure and post-closure monitoring and maintenance costs for each closed landfill will be incorporated into the budget for solid waste management.
- The current system of small, expensive landfills and high disposal cost per tonne must be addressed. This will involve the closure of small landfills and consolidation into one facility meeting current environmental control standards, with the aim of achieving better economies of scale and reducing environmental impacts and liabilities.
- The TNRD will investigate the development of a new landfill or alternative disposal site to manage all its waste that meets applicable criteria & regulations as well as the minimum standards for disposal facilities as stipulated in the RSWMP.



## Transfer Stations

- The high costs associated with the existing transfer station system will be managed through consideration of alternatives to the existing service, and will include consolidation of the number of transfer stations to a more manageable and cost-effective level. Replacement of transfer station service with curbside collection in some locations and upgrades of existing locations to service wider geographic areas more efficiently may be considered.
- No new transfer stations will be developed within the TNRD under the existing Board policy. Any proposed new transfer stations will only be developed through a consideration of the best suitable location with respect to the overall functioning of the network of transfer stations and their interaction.
- Unattended transfer stations with unrestricted access will no longer be developed in the TNRD. All new sites will be staffed and accessible only when the attendant is present. Hours of operation will be established based on local needs and cost constraints. Existing unattended transfer stations will be gradually phased-out and some may be replaced with attended transfer stations.

### Weigh Scales:

- Weigh scales will be installed at all new and upgraded transfer stations and landfills that will remain open (i.e. Heffley Creek and Lower Nicola landfills) so that the pay-by-weight policy can be implemented and enforced

### Hauling Efficiency:

- Hauling efficiencies will be improved through a combination of utilizing technological solutions such as compaction equipment, improved facility design and use of more efficient transportation equipment

It is recognized that these changes to the residual waste management system are significant and there will be transitional challenges associated with public acceptance of the new approach. However, not only do the changes represent a more sustainable financial picture, they will also support improved waste management and diversion, and are necessary to allow the TNRD to achieve its 30% waste reduction goal.

## 4.3 On-Going Research and Pilot Projects

There will be an on-going need to review various approaches for management of solid waste, and to investigate new and innovative technologies for collection and transfer of waste, waste diversion and disposal including a commitment to investigate waste conversion and waste to energy technologies. In addition, the Plan commits to accurately measure and report waste flows, as well as track diversion targets and disposal rates. This will require allocation of



resources for waste audits and other related activities. Solid waste research and feasibility studies and pilot projects will be a baseline activity which will occur in all Phases of the Plan. Resource allocations and descriptions of specific activities are to be identified for each Phase of the Plan.

#### 4.4 Future Options

Finally, other waste diversion options, such as organic wastes have been identified for future consideration. It is anticipated that feasibility and preliminary design studies on these options will be undertaken in the earlier phases of the plan, and a determination made as to whether these options should be included in the Plan in the future.





## 5. PHASE 1 ACTIVITIES

### 5.1 Waste Reduction & Education Function in TNRD

A fundamental component of Phase 1 will be the establishment of a Waste Reduction & Education function within the TNRD. This function represents a “reduction” effort (the first of the 5Rs), and will be an essential component to achieving successful participation in the waste diversion programs that have been recommended. The waste reduction education programs described in the following sections include programs that were planned under the 1996 Plan but were never fully implemented, as well as a number of new programs recommended for inclusion in the Final Plan.

#### 5.1.1 Previously Planned Programs

Several promotional and educational programs were earmarked for implementation in the 1996 Solid Waste Management Plan. For the most part, these programs were not fully executed and will be revisited as options for the Revised Solid Waste Management Plan. Additional resources, including at least one full time staff position are required. Appropriate funding will be allocated to meet the staffing requirements and to develop and deliver the educational programs. The specific initiatives listed in the 1996 plan that will be included in the new Final Plan are:

- Regular production of a Waste Reduction and Recycling Newsletter –This was to be distributed on a twice-yearly basis to all residents in the regional district. The newsletter would have contained information on recycling in the TNRD and included tips on waste reduction and smart shopping. The newsletter was executed, but was not sustained and should be considered for the future. This newsletter could be printed in limited quantities, and also posted on the TNRD website at regular intervals, to avoid excess printing and paper usage for those residents with Internet access.
- Media communication and advertising – Newspaper, television and radio advertising have been used in the past and will continue to be used to gain publicity for various waste recycling initiatives. The focus is to keep waste reduction a priority in people’s minds. The messages should be interesting and varied and will require more resources to continually update the messages.
- Smart Shopper Consumer Awareness Program – Aimed at educating the public by making them aware of how their actions can contribute towards solid waste reduction. This program could also focus on making customers aware of those products that are covered by product stewardship and extended producer responsibility (EPR) programs and make customers aware of the importance of returning these products to the producer for appropriate recycling or disposal.



- Master Composter and Master Recycler Programs – a team of volunteers responsible for educating the public in waste reduction and recycling techniques. The feasibility of this program needs to be further assessed, in terms of available volunteers, but is included in the Plan as a potential option for the TNRD. This initiative could be tied into a new backyard composter program, where volunteers provide advice on the start-up and use of backyard composters. Consideration should also be given to providing this program through the provision of web-based resources if sufficient volunteers could not be identified.
- TNRD Adoption of a Preferential Purchasing Program – TNRD would adopt purchasing policies that favour products made from recycled content such as paper products, motor oil and tires. In-house waste reduction to be enhanced by encouraging the purchase and use of reusable products. Extending the preferential purchasing policy to include products that have minimal environmental impacts during production, products that are easily reused and recycled, or cause minimal environmental impacts upon disposal would enhance the program. The TNRD would also adopt policies to curb Green House Gas (GHG) emissions such as promoting bicycle/pedestrian commuter trails, car pooling incentives, introducing an anti-idling traffic policy and power saving initiatives.
- Waste Reduction Displays – hosting of displays at public events such as spring and fall home shows, recreation shows and fall fairs. This program, which is on-going will be continued and enhanced where possible by providing good quality display units and keeping information up to date.

### 5.1.2 Additional Programs

In addition to those programs that were planned in 1996, the following programs have been identified, through feedback from the TAC, PAC and PRSC committees, and through analysis of activities in other regional districts, as potential programs for implementation in the TNRD.

- Provision of Waste Reduction and Recycling Information to all TNRD residents – This service would involve the use of multiple media to provide information on tips and opportunities for waste reduction, reuse, recycling, composting and disposal of hazardous and special waste within the TNRD. Strategies that will be considered include:
  - Promotion of the provincial Recycling Hotline provided by the Recycling Council of British Columbia, to which additional TNRD-specific information would be provided
  - Web-based recycling and re-use databases which would offer an extension of the level of information currently provided on the TNRD website, and would also serve to avoid the unnecessary generation of paper



- Development of a web-based waste exchange to allow people to list waste items and find useful items at little or no cost
- Printed Recycling Directory and Calendar – an annual publication providing information on all of the waste reduction events planned for the year such as E-waste round-ups, hazardous waste round-ups, garbage collection schedules, and blue bag collection schedule etc. This publication would also be available electronically on the TNRD website
- Illegal Dumping – Illegal dumping of waste continues to occur in the TNRD and has been flagged as an area that needs specific attention. Educational programs and bylaws that discourage illegal dumping are required. Bylaws will be supplemented with financial penalties for offenders if necessary. The RSWMP should include provision of some funding to encourage volunteer clean-up of Crown Land areas. Funds would go towards supplying equipment time and possibly refuse bins for the work, with the volunteers contributing the labour for clean-up. The TNRD will also consider “Adopt a Road” and “Adopt a Wild Area” volunteer programs to keep many of our rural roads and areas litter free as an example – there may be many more.
- Paperless Communications – in so far as is practicable, the TNRD will focus on using paperless methods of getting its message out to residents through the use of the TNRD website, emails, blogs etc. Where paper is required for particular messages/event, recycled content paper will be used and reduction methods such as double-sided printing will be employed in all cases.
- Backyard Burning – the Ministry of Environment has expressed concerns about the high levels of backyard burning of waste in the TNRD, and the associated health and environmental impacts that result, such as the production of harmful gases and byproducts from the burning of plastics and other materials. The TNRD will develop materials to educate residents on the dangers of backyard burning, and provide options for safe and healthy methods of waste recycling and disposal
- Waste Reduction Education in Schools - of critical importance as it not only influences the behaviour of the generation to come, but children also bring a strong message home to their parents. The TNRD will develop teaching modules that will be given to the school districts to include in their programs, and used by teachers and will assist the local school districts in setting-up and initiating the new program. This system has worked well in the Greater Vancouver Regional District. In addition to this the TNRD will add a “Teachers and Kids Page” to the TNRD website, providing ideas for school projects and support for teachers needing information. The TNRD will also explore opportunities to promote school-based environmentally-themed competitions and other school events such as the “Environmental Mind Grind”, a successful program in the Regional District of Central Okanagan and the City of Kamloops.



- Workplace Recycling Information – providing specific information for recycling in the workplace. This will be developed and distributed using a range of media including the TNRD website, advertising, or distributing newsletters that are specifically targeted to a particular business type and will be especially important with the onset of recyclable materials bans in the ICI sector. More information on current practices in the workplace could be obtained by distributing questionnaires. The Industrial, Commercial and Institutional (ICI) sector will be targeted for programs.
- Compost Demonstration Program – this program will be restarted. The previous site located was closed by BC Wildlife Park due to space constraints. An alternative location, such as at community gardens, will need to be identified. A location in the City of Kamloops would be central to the region. The TNRD website will be used to provide supporting information on the compost demonstration program, including tips for householders participating in backyard composting such as different types of composting, where composters can be purchased and their operation. This could be considered as an alternative to the Master Composter program discussed in Section 5.1.1 above.
- Waste Reduction Tracking and Reporting – this will be part of the responsibilities of the Waste Reduction Education function within the TNRD. The regional district is required to provide annual waste management statistics to the Recycling Council of British Columbia, which compiles an annual report for the Ministry of Environment. Communicating waste reduction performance through newsletters and the media will also allow the TNRD to continually share information with the communities, municipalities and other regional districts. There is also a need to track and measure performance of waste management programs with respect to Plan objectives, so as to ascertain whether programs are delivering projected results.
- Information exchange and liaison with other RD's, municipalities, Provincial & Federal agencies – this also will be an important part of the responsibilities of the Waste Reduction Education function within the TNRD. Information sharing on best practices and new policy directions will be important to allow the TNRD to remain current and consistent with neighbouring and other regional districts. This function will also provide information to the Board to set direction for lobbying senior government for greater support on waste management issues.
- Zero Waste Initiatives – as the TNRD considers formal adoption of a Zero Waste goal, there will be a need for specific initiatives to develop an implementation plan for zero waste, and to work with member municipalities and electoral areas to provide greater understanding of the zero waste concept and how it will be applied within the TNRD.
- Promotion of Specific Waste Reduction Events – special events such as semi-annual waste exchange days or “drop n’ shop” locations at some facilities to support waste



reduction will need to be extensively promoted so that the public are aware of the events, and can have the opportunity to participate. The Waste Reduction office will be responsible for the development of promotional materials for these events, as well as advertising, organizing and executing the events.

- Bear Aware Initiatives - because human-bear interactions often have their root cause in improper management of garbage, the current program of information, education and advertising should be continued, and supported by the Plan.

## 5.2 Develop Web-Based Reuse Promotion Program

A TNRD website or stand-alone website will be developed to include a Reuse promotion section to facilitate material exchange. This would allow residents to post items available for reuse in an on-line classified format. Initially, this program might only apply to certain components of the waste stream, e.g. furniture, electronic goods, household items. Diversion could be further increased if the listings were also made available to businesses.

Waste exchange areas will also be established at regional district landfills or other suitable locations throughout the TNRD. This would be a “drop and shop” type location, where residents could exchange items they no longer require with other residents.

This program would divert at least 84 tonnes annually, or 0.1% of waste disposed to landfill. While this does not represent a significant level of diversion, these events create important public awareness building opportunities, and can be utilized by the TNRD to promote the other programs which would deliver greater diversion gains.

Funding for the Reuse Promotion Website could be shared among the member municipalities and the other areas of the TNRD, with costs being off-set further by business sponsorship through the purchase of advertising.

## 5.3 Differential Tipping Fees & Eventual Disposal Ban on DLC Waste

This program would support the diversion of demolition, land clearing and construction (DLC) waste from disposal in landfills by providing financial incentives to utilize suitable recycling alternatives. The TNRD has seen huge increases in the volume of DLC coming into most of the sites. This needs to be addressed through source separation and variable tipping fees.

A tiered rate tipping fee structure for DLC waste would be introduced. A lower tipping fee would be charged for source separated recyclable materials, while a higher fee would apply to mixed DLC waste. Tipping fees will be established at an appropriate level so as to offset the capital and operational costs involved in the program, with some additional funding support coming from taxation if required.

An area for depositing sorted DLC materials for recycling will be established, with a focus on locations at existing Landfill sites, and/or transfer station sites. An area of the selected sites



would be designated and upgraded for DLC recycling activities, with specific space allocated for targeted materials, such as concrete, asphalt, wood, metal, land clearing debris, cardboard and drywall, or other DLC materials identified. Where further processing of materials such as crushing of concrete and shredding of wood waste is required, suitable equipment will be sourced or the service secured by contract. It is recognized that additional contract staff may be required at the sites for supervision of recycling activities and for operation of equipment.

Approximately 32,000 tonnes of DLC waste were landfilled in the TNRD, including Kamloops, in 2004, an estimated 80 percent of which is comprised of materials that can be easily recycled. Based on an assumed capture rate of 65% for all DLC waste in the TNRD, it is estimated that approximately 17,000 tonnes of DLC waste could be diverted from landfill.

#### **5.4 Disposal Ban on ICI Paper and Cardboard**

This program will target the diversion of paper and cardboard from the Industrial, Commercial and Institutional (ICI) sector. In order to enhance paper and cardboard recycling in the private sector, paper and cardboard from the ICI sector could be banned at the region's landfills. It would be up to the private sector to arrange recycling services for the banned materials.

Implementation of the disposal ban will be initiated through an up-front education and awareness "blitz" to inform the ICI sector of the changes. A voluntary compliance transition period will be established, during which time the disposal ban will not be strictly enforced, but persons failing to follow the disposal ban will be provided with reminders and information. This transition period will be followed by full scale implementation and enforcement of the disposal ban. Additional enforcement measures could include spot checks of loads delivered to the landfill sites, penalties for loads containing over a certain amount of the banned material and automatic fines for disposal of banned material at a disposal site.

No additional facility or operating requirements are necessary. Additional paper and cardboard would be processed at existing facilities. Staffing resources will be reviewed at the landfills to ensure loads of materials can be regularly checked at scale houses for banned materials and to enforce penalties for non-compliance, such as double tipping fees.

An estimated 4,900 tonnes per annum of ICI paper and cardboard products could be kept out of the landfill by enforcing the ban.

#### **5.5 Single Stream Curbside Collection of Recyclables in the City of Kamloops**

This program will target the single-family residential sector in the City of Kamloops, and will involve a service for collection of single-stream, commingled recyclables. The City of Kamloops has already carried out a pilot project for recyclables collection (in 2005-6) and plans to go full scale with the project in 2007.



This program has been included in Phase 1 as it is scheduled for implementation in 2008, and would represent additional diversion over and above existing levels. Implementation of this program could result in an estimated 3,375 tonnes of recyclables being diverted from landfill.

## 5.6 Back Yard Composting and Vermi-composting

This program would support the use of backyard composters and/or vermin-composters by residents, to reduce residential food and garden waste from the waste stream. Backyard composters, as the name suggested, are typically used in homes with yards or outdoor space available for their storage. Vermi-composters or worm composters use a more compact design and special worms to facilitate composting in a small space, and are often used in apartment settings with limited or no access to yard space. Vermi-composters would also be made available under the program. In addition to waste reduction, benefits include household production of compost for use on gardens and raised awareness of waste management issues at a household level.

As part of the implementation of this program, the TNRD will determine the number of composters to be purchased and distributed each year and the associated responsibilities, location and logistics for distribution. An intensive education and awareness program will be set up to encourage the use of backyard composters. A location that facilitates the storage and sale of backyard composters will be required. Member municipalities will be encouraged to assist with the distribution of composters as well, to increase accessibility to the program for residents. Existing landfill and transfer station sites may be used where appropriate, with additional duties handled by existing landfill staff. Retail outlets could potentially be used on a fee for service basis.

The TNRD will continue to sell composters at a subsidized (reduced) price to residents and businesses. Revenue from composter sales will come back to the TNRD, and be targeted towards the continued support of the program.

It is estimated that between 100 and 125 kg/household/year of organics could be diverted from landfill through the use of backyard composters. Lower rates of diversion would be expected with the use of vermi-composters as these are only suitable for diverting food waste.

## 5.7 Expanded Recycling System to Increase Availability to All TNRD Residents

This program received very strong support in the regional consultation process and will involve the provision of multi-material or single stream recycling depots or equivalent service at key areas in the TNRD so that recycling facilities are accessible to all residents. The single stream system whereby all recyclables except glass and possibly cardboard are comingled in the same blue bag or bin is a preferred option as this provides the opportunity for better hauling efficiency



through compaction and meshes well with the single stream curbside system proposed for the City of Kamloops. This system will provide recycling facilities for a range of materials, including:

- Old Newspaper (ONP)
- Old Corrugated Cardboard (OCC)
- Office paper
- Mixed paper – boxboard, magazines, books etc.
- Tin cans
- Glass containers other than beverage containers
- Plastic milk jugs
- Mixed plastics (1 through 7)

Depending on the location of the facility and the desired levels of service, recycling services for other materials such as batteries, paint, household hazardous waste or other materials may be included. The TNRD may collaborate with BC Product Care to establish collection events and/or depots. This idea has been labeled in other regions as the eco-depot concept and envisions one location where people can drop-off unwanted items and recyclables. If located at a disposal site then residuals could be dropped-off as well.

Implementation of the recycling depot or eco-depot system will be initiated on a pilot program basis, to allow the TNRD to investigate the suitability of various types of equipment and service delivery models to provide depot-based recycling services to communities in the region. A number of suitable sites across the TNRD and in member Municipalities will be identified. Locations may include TNRD transfer stations or at sites that are more accessible to the public, such as Mall parking lots or similar locations. The recycling depots will likely include the following elements:

- concrete pads for placement of containers and other equipment
- containers or designated areas to collect material to be recycled
- signage so that users can clearly see what materials go where
- suitable parking facilities and road markings to facilitate orderly traffic flow

The TNRD will secure services from a contractor to collect materials from the recycling depots and transfer them to an appropriate processing facility. In general, the depots will be developed with built-in flexibility so that extra capacity can be added as the need arises, whether from TNRD-implemented programs or requirements of private haulers.



The TNRD will also consider other options for facilitating recycling service to be made available to residents, including:

- The use of recycling depots at transfer stations by private companies wishing to provide a recyclables collection service to residents, but who are unwilling or unable to deal with the costs associated with long-haul transportation to recyclables processors. The TNRD would have responsibility for management of the recyclable materials. This approach would provide a business opportunity for entrepreneurs who wished to collect recyclables but did not wish to deal with the uncertainty of markets for recyclable materials. It also helps the TNRD to reach waste reduction goals and provide an increased level of service to its residents.
- The use of single stream recycling and compactor units to improve hauling efficiency and prevent the hauling schedule from being driven by any one particular recyclable commodity. This approach would have good applicability in high density as well as rural and remote areas. Such a program would need to be supported by an aggressive information and education phase prior to system start-up and possibly the provision of blue bags to residents and businesses to get the system started. The single stream recycling system is expected to reduce the number of service visits required and be more cost effective than utilizing separate bins for different materials. The single stream system also provides an easy transition to a curbside collection system in the future.

Participation in the recycling program will be encouraged by creating financial incentives to utilize the recycling options, e.g. small charge applied per bag to dispose of garbage at transfer station but be able to recycle at no charge. The launch of the recycling program will incorporate a rigorous education campaign, with enforcement as appropriate, to encourage householders not to put recyclables in the garbage.

Funding for the recycling program would initially be supported by taxation. The TNRD will explore opportunities to partner with member municipalities to fund services, and will reduce administrative efforts by seeking to establish single contracts that combine service provision to electoral areas and member municipalities. Partnerships with the recycling processor operating in the City of Kamloops and elsewhere will also be explored.

An estimated 6,000 tonnes of the residential waste disposed in the TNRD per annum is made up of materials that could theoretically be recycled. It is estimated that 760 tonnes or more of this could potentially be diverted through the recycling depot system. This estimate is based on collection rates that have been achieved in other communities. Diversion potential could be higher still if the depots were used to accept recyclables from contractors providing private recyclables collection services.



## 5.8 Collection of Household Hazardous Waste

This program will involve periodic round-up events for household hazardous waste to be held in member municipalities and electoral areas. These events would be held up to twice per year in various locations in the TNRD, and would be sustained only until such time as communities have reasonable accessibility to provincially mandated product stewardship programs to handle this material. A suitable location would be chosen for the Round-up events such as existing transfer stations, landfill sites or other location convenient to residents.

This program would be supported by a ban on the disposal of hazardous and E- wastes, to be introduced at all landfills when sufficient alternatives become available.

The TNRD will, in keeping with the guiding principles, continue to support and encourage provincial stewardship programs, and work with stewardship agencies to improve access to services, particularly in rural areas.

The diversion potential for these materials is quite low, at an estimated 100 tonnes per year. However, for environmental reasons, it is extremely important that they are kept out of landfill sites. The highly toxic nature of hazardous waste and the heavy metals content of E- waste can cause serious environmental impacts at a landfill especially where leachate problems exist.

## 5.9 Develop Yard Waste Drop off Facility in Kamloops

This program will involve the construction of an additional yard waste drop-off depot in the City of Kamloops. This program would target the residential sector in the City of Kamloops, with the intent of diverting the approximately 1500 tonnes of residential yard waste, primarily made up of grass clippings, that is disposed at Mission Flats Landfill annually. It is expected that the City's Cinnamon Ridge composting facility will be able to accommodate this additional material; costs have been developed on the basis of this assumption. The diversion of this material corresponds to approximately a 1.55 percent reduction by weight in waste landfilled.

## 5.10 Develop Residuals Management System Optimization Plan

The efficiency of the existing network of transfer stations and landfills will be assessed to consider how best to manage waste in an environmental and financially sustainable fashion considering the needs of the local contributing area. An optimization plan for improving the residuals management system will be developed based on the principles described in Chapter 4. It will identify the requirements and potential changes for each transfer station and landfill, based on environmental, social and financial factors. The needs of each local service area in the system will be determined, including the identification of alternative methods and levels of service. The existing system of transfer stations will be reviewed, through consideration of a range of criteria, including but not limited to:

- waste quantities and types



- suitability of existing sites to accommodate growth/expansion/new diversion strategies
- potential for alternative services, such as curbside collection provided by the TNRD or a private enterprise
- consideration of transportation hubs created by existing road infrastructure and hauling costs
- population distribution, demographics and growth projections
- determination of centre solid waste generation and waste catchment areas
- nature of environmental concerns at existing locations, as well as health & safety issues
- hauling distances to disposal locations, and GHG emissions
- optimal number and location of transfer stations
- compaction requirements
- desired levels and type of service to be provided
- capital and operating costs of delivering the level of service

This assessment will identify which facilities should be consolidated and potentially replaced with alternative waste collection and disposal. Public forums will be held with the communities involved to discuss changes to system prior to implementation. The outcome will be an optimized and upgraded network of transfer stations, along with a plan to implement the alternative service methods identified for those facilities targeted for phasing out.

It is recognized that the review of the residuals management system and optimization plan will include the closure of some sites and the development of new and upgraded facilities for the diversion, collection, recycling and disposal of waste. When complete the system review and implementation schedule will form part of the Plan and will be submitted to the Ministry of Environment for their records, but will not require further approval by the Ministry of Environment or amendment of the Plan.

The optimization plan will be undertaken as early as feasible in Phase 1, so that the determination of which facilities will be phased out will be complete within the first year following adoption of the Plan. This will be a top priority activity for Phase 1. Development of new/upgraded facilities may be initiated in any of the three Phases of the Plan

### **5.11 Manage Environmental Risk by Reducing Number of Landfill Sites**

The TNRD currently operates five rural landfill sites that accepted an estimated total of 47,000 tonnes of waste from the TNRD alone in 2006. This represents an estimated 40 percent increase in the volume of waste sent for disposal to landfill since 2004 and puts the TNRD almost equal to the City of Kamloops in terms of waste disposal tonnages. All TNRD landfills,



including the City of Kamloops landfills and the Owl Road landfill are unlined and rely on natural soil underlying the landfill footprint to attenuate potential landfill leachate. Based on environmental monitoring to date there are indications that leachate may be developing at all five active TNRD landfills. Preliminary sampling of recently installed groundwater monitoring wells at the closed Logan Lake landfill indicate the leading edge of leachate as well and emphasizes the need for post-closure assessment of previously closed landfills. At this time monitoring results indicate that the leachate developing at the TNRD landfills is at a very early stage and leachate plumes have not become fully developed.

Leachate impacts can include contamination of ground and/or surface water, negative impacts on fish and wildlife within the affected area, soil contamination, and greater geotechnical instability associated with the movement of leachate underground. Closing one or more landfills sites with an associated redirection of the waste to remaining TNRD landfills or to a new disposal site, may reduce TNRD exposure to potentially high leachate collection and treatment costs. Leachate production tends to attenuate over time from landfills that are closed with engineered closure systems designed to prevent addition of water into the waste. In addition there are operating cost savings to be realized by improved economies of scale achieved by reducing the number of small landfills.

Priority for landfill closure will be based on remaining landfill life, extent of known environmental impacts, overall residuals management system efficiency and operating costs. Chase Landfill, which is nearing the end of its capacity, as well as the Clearwater and Barriere Landfills, will be targeted as the first landfills to be closed, beginning in Phase 1, followed by the Lower Nicola and Heffley Creek landfills.

Updated operation and closure plans for all landfills operating in the TNRD will be developed following approval and adoption of the Plan. At the discretion of the Ministry of Environment, recommendations from the updated landfill operation and closure plans may also be incorporated in the Operational Certificates and will establish the operating plans for landfills until such time as they are closed. Closure of any landfill site will include at a minimum: final capping of the filled area, drainage works, re-grading of slopes where necessary, installation of monitoring wells and ongoing maintenance and monitoring of the closed sites. Buffer areas will also be necessary at closed sites where leachate impacts have been noted. This may include Crown Land licenses to restrict development in these areas and in some cases purchase of private land. Application for buffer areas from the Province is also in progress and will be completed in 2008.

As the TNRD budget includes annual contributions to a closure fund reserve, some of the landfill closure costs will be covered by funds already accumulated. However, it should be noted that the rate of contribution to the closure fund is currently based on the full life expectancy of all the landfills. Therefore, facilities closed prior to their full life expectancy will incur a funding shortfall. Four landfills are scheduled for closure in the first 10 years after plan approval: Chase, Barriere, Clearwater and Lower Nicola. Heffley Creek is the last anticipated



closure and is anticipated in about year 15 of the plan or earlier if other disposal options become available.

The closure of existing landfills will need to be carefully planned to minimize disruption to the public, to make the transition as smooth as possible for residents and to allow replacement transfer stations to be sited. However, it is important that this activity be initiated early in the Phase 1 planning period, as a number of subsequent waste diversion and residuals management programs will be based on these changes having been implemented.

In summary, the reduction in the number of landfills will be initiated in Phase 1, and continue throughout subsequent Phases as required. Transfer stations will be developed at suitable locations to replace any closed landfills for waste disposal and for drop-off of recyclables at the site. The process to identify new locations, and to incorporate public input in the development of these sites will be commenced as early as possible in Phase 1, and continue into Phase 2 as needed. This will be especially important at Chase where the landfill has a very limited life – about 2 years.

### **5.12 Manage Financial & Environmental Liability by Reducing Number of Transfer Stations**

The waste management system review and optimization will identify transfer stations to be closed or upgraded and the potential for alternative methods of collection. Larger areas will be served by fewer transfer stations that are better managed and offer more recycling opportunities. The closure of any transfer stations will need to be carefully planned to minimize disruption to the public, and to minimize the decline in participation that might arise during the period while residents get accustomed to the new system. However, it is important that this activity be initiated immediately after plan adoption, as a number of subsequent waste diversion programs will be dependent on these changes. This activity is therefore classified as a high priority Phase 1 activity, to be undertaken in the first year of the planning period to compliment the Phase 1 diversion programs. The highest priority is closure or upgrading of all unattended and partially attended sites. Locating and securing land tenure for suitable sites for new transfer stations and transfer stations that are currently too small is a critical step and must be started as early as possible.

### **5.13 Develop Transfer Stations to Replace Closed Landfills**

The TNRD landfill sites identified for closure by the waste management system optimization plan will be replaced with transfer stations at locations to be determined. Three options for the new or upgraded sites will be considered - Class 1, Class 2 or Class 3 sites as outlined in Table 5-1.



**Table 5-1: Transfer Station Classification**

Class of Transfer Station	Description of Facility Type
Class 1	<ul style="list-style-type: none"> <li>• Largest of the 3 types – will be installed at sites with the highest levels and diversity of traffic and large waste volumes</li> <li>• Will replace existing landfills after closure</li> <li>• Designed to accept waste from individual resident drop-off as well as curbside collection vehicles or large commercial haul vehicles</li> <li>• Likely to include waste compaction and reload facilities</li> <li>• Full recycling and waste diversion service</li> <li>• Enclosed in building</li> </ul>
Class 2	<ul style="list-style-type: none"> <li>• Second largest type of facility</li> <li>• Will likely accept residential drop-off waste only, although curbside collection vehicles may be accommodated if required</li> <li>• Similar to the existing “B-train” facilities at Lytton, Clinton and Logan Lake</li> <li>• May have operations within enclosed building, or outdoor facility</li> <li>• Full recycling and waste diversion services provided</li> </ul>
Class 3	<ul style="list-style-type: none"> <li>• Will be similar to existing rural sites, although may be configured to accept both residential drop-off and curbside/commercial collection</li> <li>• Smallest of the 3 types of facilities</li> <li>• Will likely utilize modular containers with some type of compaction</li> <li>• Full recycling services will be provided</li> </ul>

These facilities will be sized to handle the larger waste volumes, as well as accommodate new waste reduction programs such as wood waste diversion and DLC recycling, and existing ones such as scrap metal recycling. Class 1 sites will be used for both residential and commercial loads and also for servicing curbside waste collection vehicles. Class 1 sites will have full recycling, waste diversion facilities and stockpile locations, and may incorporate some of the waste handling technologies discussed above. Table 5-2 contains a list of the locations where Class 1 transfer stations would replace landfills, provides a conceptual description of the facilities, along with some suggestions for improving service to the nearby communities.



**Table 5-2: New Class 1 Transfer Station Sites**

Landfill Site	Future Status	Description of Upgrade
Barriere	Transfer Station	Class 1 – New site - Tipping floor with compactor, waste reduction & recycling Site location required
Chase	Transfer Station	Class 1 – New site - Tipping floor with compactor, waste reduction & recycling Site location required
Clearwater	Transfer Station	Class 1 - New large site, with load-out capacity, tipping floor, compactor and waste reduction facilities New site nearer to Clearwater is preferred.
Lower Nicola	Transfer Station	Class 1 - New large site – load-out capacity with tipping floor and compaction, as well as waste reduction facilities. Site below the existing landfill a possibility
Heffley Creek	Transfer Station	Class 1 – New large site – same as Lower Nicola - Tipping floor with compactor, waste reduction & recycling Site to be near existing landfill, or at other suitable area

A replacement transfer station in the Cache Creek/Ashcroft area will also be required, prior to closure of the Cache Creek landfill. Existing landfill footprints may be suitable for stockpiling and sorting of recyclable materials, but are not considered suitable locations for the new transfer stations, primarily because of settlement issues and maintaining the integrity of final closure systems. The process to identify new locations, and to incorporate public input in the development of these sites will be commenced in Phase 1, and continue into Phase 2. This will be especially important at Chase where the landfill has a very limited life – about 2 years.

### 5.14 Improvements to Selected Transfer Stations

In order to improve the transfer station system it will be necessary to upgrade the remaining sites and construct some new ones in accordance with the system review and optimization plan. These sites will vary on the basis of the quantity of waste and types of customers that the sites will serve, and the waste handling and hauling equipment that will be used.

The upgrading of the remaining Transfer Stations will commence in Phase 1 and continue into Phase 2 of the Plan.

#### 5.14.1 Waste Handling & Hauling Efficiency

Wherever possible equipment that can be readily employed at different sites and provides the most efficient waste handling will be used. Options that will be considered for handling waste include walking floor trailers, compactor units, balers and the use of modular containers, such as roll-off containers or Transtor bins.



Hauling efficiency will also be considered for each transfer station. The direct loading of roll-off containers currently employed at TNRD transfer stations provides no waste compaction before transport, resulting in poor hauling efficiency as light un-compacted refuse is hauled in the heavy 50-yd steel containers over relatively long distances. Measures to improve hauling efficiency by compaction resulting in reduced hauling of heavy containers will be central to the upgrading process, and may involve upgrading existing transfer stations to accommodate hauling with top-loading trailer configurations that facilitate greater compaction by mobile equipment, or installing compactors to condense waste prior to its being loaded for transportation to a disposal site.

#### 5.14.2 Transfer Station Attendants

A goal of the Plan is to provide each transfer station in operation with one or more attendants, who will be responsible for day to day site operation and waste diversion. The attendant's duties will involve dealing with residents, businesses and contractors using the sites, site safety, providing information on disposal and recycling options, weighing loads, collecting tipping fees, and liaising with haulage contractors removing waste from the site. The attendants will also be responsible for site maintenance. Each transfer station will have posted operating hours during which the site will be open for business. Access will only be allowed during open hours and all sites will be fenced and gated to prevent uncontrolled dumping.

Advantages of having this arrangement for operation of the transfer stations are that:

- uncontrolled use of the sites by persons within and outside the TNRD will be eliminated
- the pay-by-weight system can be effectively implemented
- recycling should be enhanced as residents have a resource to assist with finding recycling options
- sites are better managed and kept clean and tidy
- jobs are created in the local community

In terms of operating hours, the needs of the local service areas will be assessed and operating hours set accordingly. For large sites replacing existing landfills, hours of operation will need to accommodate municipal collection schedules and hours of operation will likely be comparable to existing landfill hours. Municipal hauling schedules and site hours of operation must be synchronized. The schedule will be developed in consultation with the community's needs, and will likely utilize a combination of morning and afternoon hours to provide greater flexibility.

#### 5.14.3 Installation of Weigh Scales

Weigh scales will be installed at all transfer stations and landfill sites that are expected to remain as part of the system in the long term, so that incoming loads can be weighed accurately. Tipping fees will be based on the weight of waste being brought to the facility. An



interim volume based fee schedule will be needed until scales are installed or at sites scheduled for closure. The volume based schedule must have rates equivalent to the weight-based fee schedule.

The weigh scale installation includes:

- Load cell – installed to be level with the road
- Scale house – location for the attendant to be during weighing and transactions
- Display unit – digital readout to allow incoming residents to see the full and empty weights of the vehicles and provide weigh slips and computer equipment to track and record all loads with the capacity for direct linkage to TNRD offices.

It is anticipated that one weigh scale can be used for both incoming and outgoing traffic at the smaller, less busy transfer station sites. At larger facilities, a double scale facility may be required to reduce traffic congestion at the facility.

### **5.15 Consider Implementation of Curbside Collection**

Curbside collection of waste is already available to residents in 13 of TNRD's communities, mostly member municipalities including Kamloops and the costs for the collection system are borne solely by municipal residents and businesses. Curbside collection is not part of the current TNRD service, but has been demonstrated to work in both urban and rural areas. Depending on the results of the system optimization review some of the existing transfer stations that are closed may be replaced with curbside collection services provided by the private sector. In some cases the TNRD may consider a separate collection service for some areas that would be a function of the Electoral Areas only. The option of entering into a joint contract with a nearby member municipality to provide the service to an adjacent TNRD Electoral Area will also be explored and may be employed where feasible. Waste would be hauled to the closest landfill or transfer station.

As with any program that requires behavioral change on the part of the public, carefully planned education and awareness building must be undertaken in advance of program roll-out. The TNRD will also undertake specific-community level discussions with residents on the type of curbside service to be provided.

As transfer stations and landfills are phased out, waste initially will be redirected to the remaining landfills and transfer stations and possibly to City of Kamloops landfills. Contingent on the results of the waste management system optimization plan, the consideration of curbside collection services should be initiated early in Phase 1 of the planning period, as it will be necessary to do some immediate detailed planning to determine how the service will be delivered. It is anticipated that this would be done in consultation with the impacted service



areas and communities, so that the public can be involved in determining how best to achieve the transition to the new level of service.

### 5.16 Develop Soil Bioremediation Facility at TNRD Landfill

Soil bioremediation typically involves the treatment of hydrocarbon contaminated soils using bacterial or biological agents to break down the contaminants in the soil. This operation normally occurs at a landfill site, where the soil is segregated into a separate lined cell or area from incoming waste, and is processed on its own. Material handling equipment provided by a soil remediation contractor is typically required to place and turn the soil as treatment progresses. The ability to use existing resources such as access roads, weigh scales and land space are part of the advantage that locating the soil remediation facility at a landfill site provides. Once the soil has been shown to be remediated, it may be used as landfill cover at the site – an often costly component of landfill management if this material has to be hauled in from another location. If the landfill does not require the soil as cover, it can be transported to another location and put to use. Soil bioremediation does not constitute a “disposal” of soil – rather the soil is treated and then can be successfully reused.

The TNRD is one of the few regional districts in the province that does not have such a facility within its boundaries. The advantage of having such a facility means that remediation costs associated with redeveloping contaminated sites can be significantly reduced, as contaminated soils can be treated much closer to their originating location, rather than being shipped long distances to facilities further away.

Soil bioremediation is recognized as a potential revenue stream for the TNRD, based on contractual arrangements between potential operators and the TNRD. Having reviewed the implications of permitting soil bioremediation at a TNRD landfill, the Board of Directors adopted the following resolution:

**That the Thompson-Nicola Regional District Board of Directors allow soil remediation at TNRD landfills for hydrocarbon contaminated soils above CL/IL+ levels but below Hazardous Waste Levels, from within the TNRD and fringe areas, and from outside the TNRD on a case by case basis.**

It should be noted that while this resolution paves the way for soil bioremediation to occur within the TNRD, it does not constitute specific approval for or permission to any company to operate a soil bioremediation facility at any TNRD landfill site. Any such applications will need to be made directly to the TNRD, and will be subject to individual evaluation. It is anticipated that proposals will begin to be received in Phase 1. A suitable landfill site will need to be identified, and the necessary contracts between the contractor and the TNRD negotiated and finalized.



The Plan recognizes the considerable need for a facility that accepts soils contaminated with low levels of non-leachable metals in the TNRD. The concept of disposal of metal contaminated soil at TNRD landfills will be reviewed and a recommendation presented to the TNRD Board of Directors for consideration.





## 6. PHASE 2 ACTIVITIES

### 6.1 Disposal Ban on ICI Yard Waste

This is a policy-based option to enhance existing yard waste composting so that all ICI yard waste is captured. Many of the ICI contractors handling yard waste, particularly landscape contractors, already engage in yard waste composting, such as at the Cinnamon Ridge compost facility. However, there is still an estimated 2,400 tonnes of ICI yard waste disposed to landfill each year. It is believed that much of this waste is institutional, for example a hospital or school might have one large container that contains all types of waste and is then collected for disposal. Of this 2,400 tonnes it is estimated that 65%, or 1,560 tonnes, could be captured for composting.

Implementation of the disposal ban will be initiated through an up-front education and awareness “blitz” to inform the ICI sector of the changes. A voluntary compliance transition period will be established, during which time the disposal ban will not be strictly enforced, but persons failing to follow the disposal ban will be provided with reminders and information. This transition period will be followed by full scale implementation and enforcement of the disposal ban. Additional enforcement measures could include spot checks of loads delivered to the landfill sites, penalties for loads containing over a certain amount of the banned material and automatic fines or higher tipping fees for disposal of banned material at a disposal site.

It is expected that implementation of this disposal ban will be phased, and will be implemented as the alternative composting or other handling option becomes available. As there is existing capacity to handle ICI yard waste through the Cinnamon Ridge Facility in Kamloops, the possibility exists that the disposal ban could be done earlier for the City of Kamloops ICI and residential sectors. The TNRD will also consider making arrangements with the City of Kamloops to allow those electoral areas close to Kamloops to use the City’s yard waste composting facilities or expand into the outlying areas with depots to feed in to the Kamloops system. Alternatively, a satellite drop-off centre could be developed at the Heffley Creek landfill. If this is considered viable, the TNRD will work with the ICI sector to determine the best way to implement the disposal ban, and to determine whether the additional volumes of yard waste could be handled at the existing Cinnamon Ridge Facility, or whether new capacity will be required to compost the additional material.

Development of alternative regional sites to provide this additional capacity, particularly outside of the City of Kamloops, will also be explored. It is recognized that the City of Merritt is one municipality that has expressed such an interest, with a view to also facilitating the co-composting of biosolids from their wastewater treatment facility.



## 6.2 Blue Bag Collection of Recyclables in Municipalities & Electoral Areas

This program would involve the curbside collection of recyclables for single-family residential households in member municipalities and electoral areas where population density makes the provision of the service feasible. It is intended that this service will be provided by the municipalities or contractors where local population densities dictate, initially to single-family households and later multi-family if this proves feasible, as contemplated in Phase 3. Transfer and re-load of materials from collection vehicles to hauling trucks is expected to occur at TNRD transfer stations.

Implementation of this program will be pilot tested in selected communities, to determine the feasibility for full-scale implementation. Lessons learned from the implementation of a similar service in the City of Kamloops will also be utilized to fine-tune program delivery. The roll-out of the program will also be supported by the TNRD with rigorous education programs to advise residents of the changes, the materials that they are able to recycle, and the benefits of participation in the program, such as reduced waste disposal costs.

The provision of this service will be supported by appropriate disposal quantity limits and the other elements of the user pay system policy structure. Disposal bans prohibiting the disposal of recyclables in the garbage stream could also be contemplated to increase the effectiveness of diversion through this program.

If collection rates of 0.2 tonnes/household/year were achieved, then an additional 800 tonnes of waste could be diverted from landfill each year. This represents a 0.8% overall decrease in waste disposal. Implementation in TNRD municipalities and electoral areas will be phased in over time, as they have all indicated interest in improved recycling.

## 6.3 Yard Waste Drop-off & Composting Depots

This program would target the residential sector for diversion of yard waste. Drop-off facilities for yard waste will be offered at TNRD landfills and operating transfer stations. The finished compost may be sold, used for landscaping by member municipalities, or utilized for landfill cover.

It is anticipated that composting will be carried out at one or more of the transfer station or landfill sites which receive the yard waste. While some additional requirements in terms of space allocation, material handling equipment and leachate control will be required, it is expected that this will be less costly than constructing an entirely new facility. This will allow capital investment to be reduced as these sites would already have much of the infrastructure and equipment required. This will also be a good use of landfill footprint areas following closure if no other space is available.

Composting operations will either be operated directly by local government, or by a private operator. By composting only yard waste, operating requirements can be kept at a reasonably



simple and less stringent level because there are fewer issues with odours and reduced regulatory requirements for handling of the material. Any yard waste compost facility must meet the requirement of the Organic Matter Recycling Regulation and the new Code of Practice if applicable.

Co-composting of wood waste and bio-solids will be kept open as an option for the larger municipal centres within the TNRD, i.e. Merritt and Kamloops, where the compost generated could be suitable for landfill and other site reclamation activities.

Participation in yard waste composting programs will be encouraged through a ban on the disposal of residential yard waste in the regular garbage and through a reduction of bag collection limits for residents. At the transfer stations, a lower tipping fee may also be charged for segregated yard waste, to encourage participation.

The financing of a composting facility will either be through the TNRD or may be taken on by private enterprise as described above. If the TNRD were to pay a tipping fee to private enterprise for composting services then a cost that is higher than that of landfilling of waste should be expected. This is because landfill is generally the cheapest available method of managing waste, and often cost analysis does not incorporate future costs, such as finding new land and managing or mitigating environmental liability. To correct this imbalance and stimulate the use of the composting facility, the TNRD will likely need to increase their tipping fees to a level above that of the composting facility, and/or impose a landfill ban on yard waste material.

An estimated 2,300 tonnes of residential yard waste is disposed of to landfill on an annual basis. The diversion of this material corresponds to approximately a 2% reduction by weight in waste landfilled.

#### **6.4 Single Stream Recyclables Collection for Multi-Family Units in Kamloops**

The collection of single stream recyclables initiated in Phase 1 will be expanded to include multi-family units in Phase 2 or sooner. The single stream collection system will include the same types of materials collected under the single-family program implemented in Phase 1. The service will either be provided by the City of Kamloops, or by private contractors, or by a mixed arrangement. A pilot project similar to that conducted for the delivery of the service to single-family residents will be undertaken before the program is rolled out full-scale; this pilot project could begin in Phase 1 with a limited program roll-out to test the effectiveness of the proposed system. Education for residents in multi-family buildings on how the program should be used, and the benefits of participation, will also be incorporated into the program roll-out. It is anticipated that the facilities used to process the recyclables collected from the single-family residential sector would be adequate to process materials collected under this expanded program.

It is estimated that 1,200 tonnes of material could be diverted through the implementation of this program. This represents a 1% reduction in waste disposed to landfill.



## 6.5 Disposal Ban on Remaining ICI Recyclables

Provided that suitable markets are available for remaining ICI recyclables (other than paper, cardboard and yard waste addressed in Phase 1), these recyclables will also be banned from landfill disposal.

Implementation of the disposal ban will be initiated through an up-front education and awareness “blitz” to inform the ICI sector of the changes. A voluntary compliance transition period will be established, during which time the disposal ban will not be strictly enforced, but persons failing to follow the disposal ban will be provided with reminders and information. This transition period will be followed by full scale implementation and enforcement of the disposal ban. Additional enforcement measures could include spot checks of loads delivered to disposal sites, penalties or increased tipping fees for loads containing over a certain amount of the banned material and fines for disposal of banned materials. Differential tipping fees may also be implemented during the transition period.

No additional facility or operating requirements are likely to be necessary, as it is anticipated that ICI recyclables will be processed at existing facilities or by the ICI sector. Staffing resources will be reviewed at the landfills to ensure loads of materials can be regularly checked at scale houses for banned materials and to enforce penalties for non-compliance.

An estimated 5,700 tonnes per annum of ICI recyclable materials could be kept out of the landfill by enforcing the ban.

## 6.6 On-going Improvements to Selected Transfer Stations

The improvements to selected transfer stations outlined in the system review and optimization plan will continue in Phase 2, building on the progress made in Phase 1 and addressing any concerns that arise from the public in relation to the development of these facilities.

## 6.7 Aftercare of Closed Sites

The improved management of environmental risk and liability at the TNRD landfill sites will also focus on post-closure care and monitoring of closed landfills, including landfills closed prior to 2004. Appropriate aftercare procedures will be established as part of the closure plans for the facilities, and will be maintained for both already closed landfill sites and sites intended for closure during Phases 1 and 2. After-closure care includes annual groundwater and/or surface water monitoring, settlement measurement, landfill gas monitoring, and general site maintenance, safety provisions and reporting, so that the closed landfill site is managed in a safe and environmentally responsible manner. The Ministry of Environment requires that all closed landfills are monitored for a period of 25 years following closure.

The TNRD will develop an overall landfill post-closure policy taking into account land use planning activities within electoral areas and municipalities that will become part of the Plan.



This policy will be developed in consultation with the Ministry of Environment, and will identify suitable end uses for the closed landfill sites, following the 25 year-post closure period. From a long-term safety perspective, the policy will also need to address the assignment of a permanent landfill designation after the post closure period for all closed landfill sites. It is expected that this will be a requirement stated in the Operational Certificates issued for the sites. The policy will also make provisions relating to land that is hydraulically down-gradient of both active and closed landfills, such that any areas which show impacts to groundwater as a result of the landfills should be reserved and/or purchased by the TNRD to provide a buffer area for interception and treatment of landfill leachate. Appropriate levels of funding will need to be allocated to the requirements of the policy.





## 7. PHASE 3 ACTIVITIES

### 7.1 Disposal Ban on ICI Food Waste

The implementation of a disposal ban on food waste from the ICI sector will only be considered once a suitable in-vessel composting facility is in place; it is anticipated that this facility would be privately operated. This is considered a Phase 3 activity but could be implemented sooner if a private-sector facility is constructed during Phase 1 or 2. All handling and processing of ICI sector food wastes would be funded by the private sector. Only in-vessel composting technologies will be considered suitable for processing this type of material, in accordance with the provincial Organic Matter Recycling Regulation. Such a facility would require yard waste as well as food waste in order to compost successfully.

Implementation of the disposal ban will be initiated through an up-front education and awareness “blitz” to inform the ICI sector of the changes. A voluntary compliance transition period will be established, when the disposal ban will not be strictly enforced, but persons failing to follow the disposal ban will be provided with reminders and information. This transition period will be followed by full scale implementation and enforcement of the disposal ban. Additional enforcement measures could include spot checks of loads delivered to the landfill sites, penalties or increased tipping fees for loads containing over a certain amount of the banned material and automatic fines for disposal of banned material at a disposal site. Differential tipping fees may also be implemented during the transition period. Staffing resources will be reviewed at the landfills to ensure loads of materials can be regularly checked at scale houses for banned materials and to enforce penalties for non-compliance.

An estimated 3,888 tonnes per annum of ICI food waste could be kept out of the landfill by enforcing the ban.

### 7.2 Construction of New Waste Disposal Capacity

As implementation of the Plan continues, and landfills and transfer stations are phased out and replaced, the development of alternative waste disposal capacity will be required. The TNRD will evaluate the potential options for replacement capacity, which will involve a consideration of the suitability to expand an existing TNRD landfill facility, or develop a new site or use City of Kamloops landfill capacity. The TNRD and the City of Kamloops will also consider the possibility of the closure of all the existing landfills and the construction of a single engineered landfill, particularly if additional environmental impacts are determined at all existing TNRD landfills, which could accelerate their closure. Alternative technologies to achieve disposal may also be considered.

A new facility would be designed to handle 50,000 tonnes/year, which would accommodate the total of the TNRD waste stream including the waste currently going to Cache Creek Landfill. If



the City of Kamloops were to also utilize this facility, the capacity would need to include up to an additional 40,000 - 50,000 tonnes/year that would be disposed by the City of Kamloops. This facility development could be combined with an interim cooperative effort with the City of Kamloops to accept TNRD waste until a regional facility could be developed for all TNRD waste.

Any new landfill developed to address these capacity needs would have an engineered liner system and would meet the provincial Landfill Criteria for an engineered landfill, as well as any additional requirements stipulated in the RSWMP.

The TNRD will carry out a screening exercise to evaluate the existing TNRD landfills as well as other potential sites, to identify a suitable disposal site. If an existing landfill site is selected for upgrade to increase landfill capacity, existing infrastructure will be utilized wherever possible, although any existing site would require significant upgrades to be able to accept the increased waste loading. New access roads, new scales, and a waste receiving and transfer facility would be required so that the public will not have access the active face of the landfill improving site safety and landfill operating efficiency. Land tenure, whether by purchase or lease would also need to be included in the development plan.

Estimating the costs involved in developing new disposal capacity will require more detailed analysis of the site specific conditions than is possible within the scope of the Plan at the current time. Specifics associated with design capacity, technologies utilized and a detailed cost estimate will be required.

The construction of new disposal capacity will be a second-level priority, and therefore undertaken in Phase 3 of the planning period. The siting feasibility study would be initiated in Phase 1, with more detailed planning activities occurring in Phase 2. The option to develop new disposal capacity will be compared to new technologies resulting from the solid waste technologies research undertaken in Phases 1 and 2 as part of the planning exercise.





## 8. FUTURE WASTE DIVERSION OPTIONS

Two main options for waste diversion will be considered for the future – organics diversion and waste-to-energy (WTE).

The logistics associated with the separation and collection of organics from residential and ICI sectors will need to be reviewed. Depending on the outcome of the initial investigation, the diversion of organics could be implemented in the TNRD. As mentioned previously, it is anticipated that the composting facility would be developed and owned by the private sector.

The development of a waste-to-energy or conversion technology facility by the TNRD is not considered economically feasible at this time, however the TNRD will continue to monitor and stay current with WTE technologies and progress with respect to development of WTE facilities in other jurisdictions or by the private sector. The TNRD will produce an annual update on new and improved disposal technologies. This option would represent the fourth “R” – resource recovery – in the 5Rs hierarchy, and should therefore be implemented only after other waste diversion strategies that focus on the first 3Rs – reduction, reuse and recycling – have been maximized. Further details on the potential technologies involved in these two options can be found in Appendix E.





## 9. COST SUMMARY

The cost summary table on the following page reflects the estimated annual costs for the next 10 years for changes to the current waste management system and implementation of new Plan initiatives. Some costs will be jointly shared between the TNRD and the City of Kamloops, as responsibility for delivery of some programs will involve pooling of resources and efforts. In addition, other programs will be implemented solely in and by the City of Kamloops, with no costs to the TNRD and vice versa. The costs represent only one scenario of many possibilities that will be determined in more detail as the Plan is implemented. While these estimates are based on 2006/7 conditions, it is recognized that these costs will need to be updated in the coming years to reflect current conditions. This will be done in the context of the TNRD's annual budgets and Financial Plans.





**Table 9-1: Phase 1 Cost Summary**

<b>TNRD Solid Waste Management Costs - 10 Year Estimate</b>					
<b>Assumptions</b>					
Close TNRD Landfills - 1 every 2 yrs					
Transfer stations phased out over time to 16 remaining with option to do alternative collection					
City of Kamloops costs shown separately, although there is some overlap on the RSWMP initiatives					
<b>TNRD Estimated Costs</b>	2008	2009	2010	2011	2012
Landfills					
Maintenance & Operations	\$2,732,409	\$3,176,291	\$3,444,572	\$3,402,843	\$3,426,900
Capital costs and improvements	\$2,862,713	\$1,450,750	\$2,190,250	\$2,918,050	\$945,200
Transfer Stations					
Maintenance & Operations	\$2,435,042	\$2,703,831	\$3,171,115	\$3,781,686	\$4,407,100
Capital costs and improvements	\$519,500	\$2,077,000	\$3,222,500	\$2,253,000	\$1,491,400
Alternate Collection systems - may be done by private contractors	\$0	\$21,100	\$120,140	\$205,572	\$288,700
Recycling System					
Capital costs - other than existing sites	\$141,000	\$189,000	\$87,000	\$0	\$0
Operating costs	\$335,604	\$316,518	\$310,653	\$299,663	\$288,100
RSWMP Initiatives	\$378,000	\$479,000	\$508,500	\$563,500	\$494,500
Administration Cost	\$1,200,000	\$1,200,000	\$1,200,000	\$1,200,000	\$1,200,000
<b>Total</b>	<b>\$10,604,268</b>	<b>\$11,613,489</b>	<b>\$14,254,730</b>	<b>\$14,624,315</b>	<b>\$12,542,200</b>
Revenue Estimate	\$2,500,000	\$2,500,000	\$2,500,000	\$2,500,000	\$2,500,000
<b>Net Cost - TNRD only</b>	<b>\$8,104,268</b>	<b>\$9,113,489</b>	<b>\$11,754,730</b>	<b>\$12,124,315</b>	<b>\$10,042,200</b>
<b>City of Kamloops Estimated Costs</b>					
Landfill Closures – Barnhartvale					\$900,000
Landfills - Mission Flats					
Capital improvements	\$470,000	\$470,000	\$470,000	\$470,000	\$470,000
Operation	\$1,100,000	\$1,200,000	\$1,200,000	\$1,200,000	\$1,200,000
Transfer Station - Barnhartvale					
Capital				\$150,000	\$700,000
Operation					\$150,000
Landfill closure & post closure costs	\$80,000	\$80,000	\$80,000	\$80,000	\$80,000
Diversions/recycling Initiatives	\$4,459,000	\$2,631,635	\$2,612,860	\$5,644,552	\$2,934,200
<b>Total Kamloops Costs</b>	<b>\$6,109,000</b>	<b>\$4,381,635</b>	<b>\$4,362,860</b>	<b>\$7,544,552</b>	<b>\$6,434,200</b>



## PLAN ADMINISTRATION

It will be necessary to develop and document procedures for the administration of the Plan. Procedures with respect to convening of committees, terms of reference for committees, and other administrative requirements will be required. In many cases these can be adapted from existing Regional District procedures, and/or the existing 1995 Plan or other regional district plans.

### 9.1 Measurement and Reporting Standards

The TNRD will adopt a standard recognized methodology to measure, record and report waste flows in order to measure the waste reduction results and to benchmark performance against the 30% waste reduction goal. The TNRD will review established methods such as the method outlined in the Federation of Canadian Municipalities Solid Waste Handbook, or a provincially established methodology, if one is developed. The methodology outline shown in Appendix F provides the overall approach that will be applied.

The TNRD will encourage its member municipalities to adopt this same method for waste tracking and reporting, so that results can be standardized across the region and with other regional districts. Should other municipalities or regional districts be required to report waste diversion statistics to the TNRD, any such reporting should meet these standards.

Where appropriate the TNRD will also utilize other measures for waste management, such as waste composition studies conducted according to the procedures developed by the Canadian Council of Ministers of the Environment (CCME), or other appropriate guidelines. Such waste composition studies will be undertaken every 3 – 5 years, based on the programs in operation at the time and budgeted for accordingly. It is suggested that waste compositions studies be conducted in years 3, 7 and 12 of the Plan.

### 9.2 Plan Review

The TNRD will initiate a review of the Plan periodically over the life of the Plan, beginning 5 years after the date of plan approval. This will allow 4-5 years worth of data to be available, thereby providing a reasonable period of time to effectively measure performance of existing programs. The level of detail of the review should reflect the extent of change that has occurred since the previous review, i.e. more in-depth review should occur where significant changes have been implemented. A review period of this frequency will also reduce the administrative burden associated with reviewing the Plan.



### 9.3 Financial Planning

The TNRD is required to prepare a Five-year Financial Plan each year, which identifies expected revenues, expenditures and means of cost recovery for the solid waste management services and programs to be provided. This financial planning exercise also allows the TNRD to identify new programs proposed for implementation in future years.

The budget for implementation of the programs of the RSWMP will be incorporated into the TNRD's annual solid waste management budget, based on costs estimated in the Plan and updated from time to time as actual costs become known more accurately.

