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THOMPSON-NICOLA REGIONAL DISTRICT

TNRD

The Region of BC's Best

REGIONAL SOLID WASTE MANAGEMENT PLAN 2018

SPERLING HANSEN ASSOCIATES

- Landfill Engineering
- Landfill Gas Management
- Solid Waste Planning
- Environmental Monitoring
- Landfill Fire Control

April 4th 2018 SHA PRJ16-048

Mr. Jake Devlin, P.Eng
Director of Environmental Services
Thompson-Nicola Regional District

RE: Thompson Nicola Regional District Solid Waste Management Plan Review
Draft Solid Waste Management Plan

Dear Mr. Devlin,

This document presents a Regional Solid Waste Management Plan that has been completed by Sperling Hansen Associates (SHA), together with Maura Walker Associates (MWA) and Jan Enns Communications (JEC). This plan has been completed in accordance with the Ministry of Environment's *A Guide to Solid Waste Management Planning*.

This report is organized into six sections as follows: 1) Introduction and Overview, 2) Background, 3) Goals, Strategies and Actions, 4) Finance and Administration, 5) Plan Implementation, and 6) Plan Schedules. The Regional Solid Waste Management Plan has been completed based on Regional Advisory Committee meetings, Steering Committee meetings, work carried out by SHA and MWA, and public and stakeholder consultation completed by the Thompson-Nicola Regional District between November 2016 and March 2018.

We trust this report covers the requirements for your Regional Solid Waste Management Plan.

Please contact us if you have any questions about this report.

Yours truly,
SPERLING HANSEN ASSOCIATES

Dr. Tony Sperling, P.Eng.
President

North Vancouver Office
8-1225 East Keith Road, North Vancouver, British Columbia, V7J 1J3
Phone (604) 986 7723 Fax (604) 986 7734

Kamloops Office
1332 McGill Road, Kamloops, British Columbia, V2C 6N6
Phone (778) 471 7088 Fax (778) 471 7089

www.sperlinghansen.com

Table of Contents

GLOSSARY

Disposal	Landfilling
Diversion	Activities that divert waste materials away from disposal as garbage to alternatives such as recycling or composting. Does not include combustion of garbage to produce energy.
DIY	Do It Yourself
DLC	Demolition, landclearing and construction
EPR	Extended producer responsibility
Generation	The sum of all materials discarded that require management as solid waste, including garbage, recycling and composting. Does not include organic waste composted at home.
GHG	Greenhouse gas
HHW	Household hazardous waste
ICI	Industrial, commercial and institutional (does not include heavy industry)
MMBC	Multi-Material BC (residential recycling product stewardship organization)
MOE	BC Ministry of Environment
MRF	Material recycling facility (recycling processor)
ODS	Ozone depleting substance (e.g. CFCs)
Organic Waste	Kitchen scraps, food waste, yard and garden waste
Plan	Regional Solid Waste Management Plan
PPP	Printed Paper and Packaging
TNRD	Thompson Nicola Regional District
RSWMP	Regional Solid Waste Management Plan

1. INTRODUCTION

In British Columbia, regional districts develop solid waste management plans under the provincial Environmental Management Act that are long term visions of how the regional district would like to manage its solid wastes in accordance with the pollution prevention (5 R) hierarchy. This plan will be renewed on a 10- year cycle to ensure that it reflects the current needs of the regional district, as well as current market conditions, technologies and regulations.

The Thompson-Nicola Regional District (TNRD) initiated an update of its 2008 Regional Solid Waste Management Plan (RSWMP or Plan) in 2016. This document is a revised version of the original plan approved by the province in 1995. The history of the planning process is discussed further in Section 1.3.

This document represents the most recent amendment of the TNRD's Regional solid waste management plan and once approved by the Province (along with any approval conditions), becomes a regulatory document for solid waste management and serves to guide solid waste management related activities and policy development in the TNRD. In conjunction with regulations and operational certificates that may apply, this plan regulates the operation of sites and facilities that make up the region's waste management system (Section 2.5 covers Existing Facilities in the Region).

1.1 Guiding Principles

The principles guiding the development and implementation of this plan are illustrated in Table 1-1.:

Table 1-1 - TNRD Guiding Principles

1.	Promote zero waste approaches and support a circular economy
2.	Promote the first 3 Rs (Reduce, Reuse and Recycle)
3.	Maximize beneficial use of waste materials and manage residuals appropriately *to the region.*
4.	Individuals and firms are enabled to make environmentally sound choices about the generation and management of solid waste through provision of appropriate information, including user-pay and market-based incentives wherever possible
5.	Prevent organics and recyclables from going into the garbage wherever practical
6.	Collaborate with other regional districts wherever practical
7.	Develop collaborative partnerships with interested and *affected* parties to achieve regional targets set in plans
8.	Level the playing field within regions for private and public solid waste management facilities

These guiding principles are based on those established by the Province in the new *Guide to Solid Waste Management Planning (*September 2016*)*, except for revisions adopted by the Regional Solid Waste Management Plan Review Advisory Committee (RAC) at their first meeting held on February 14, 2017.

The RAC added "*to the Region*" to the end of the 3rd guiding principle to add stronger language to the need to manage residuals appropriately based on the resources available; expanded the 4th guiding principle, and adjusted the 7th guiding principle to add *affected* parties.

1.2 Pollution Prevention Hierarchy and Targets

This plan adopts the 5 R pollution prevention hierarchy (see Figure 1-1 below). Strategies to address each tier in the hierarchy are laid out in Section 3 below.

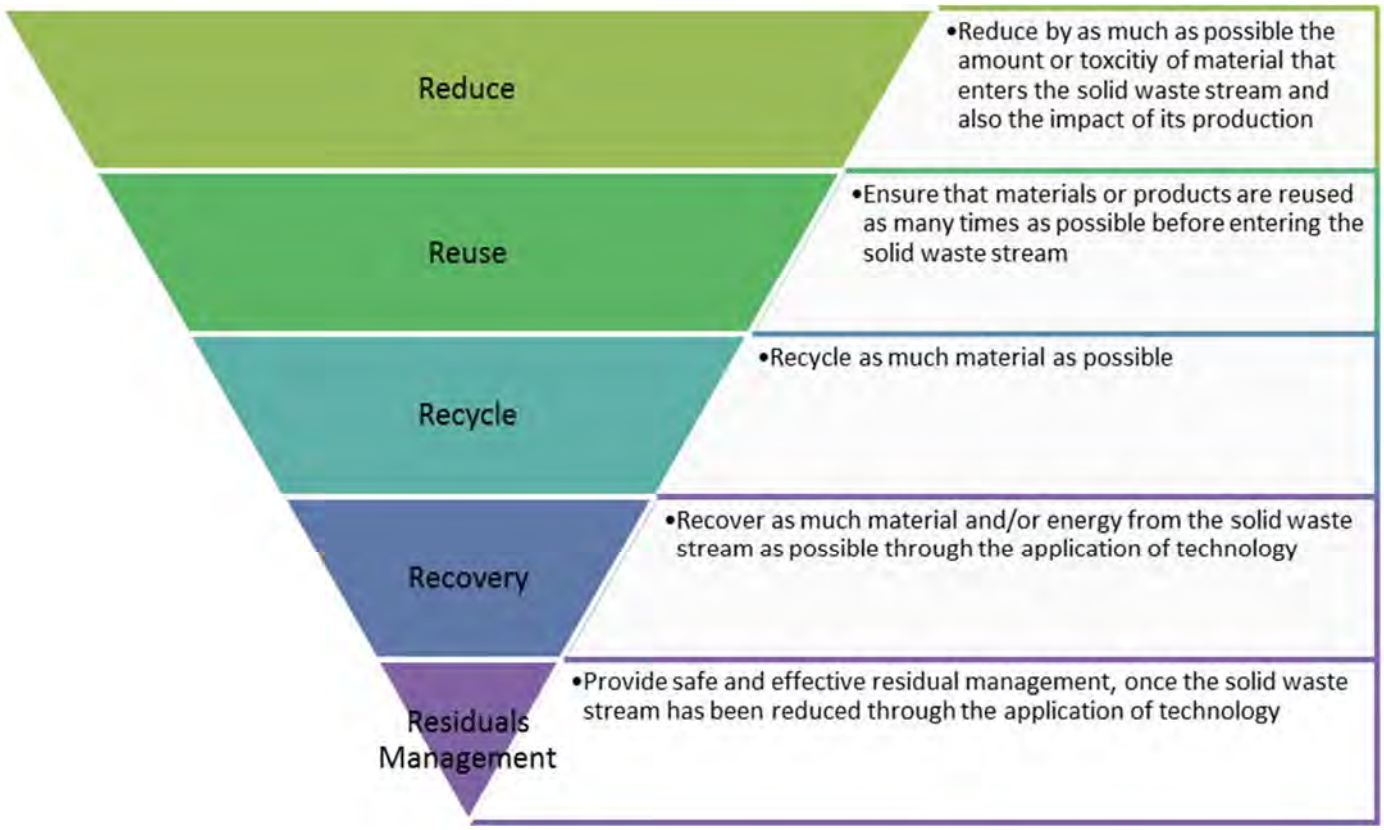

Figure 1-1 - Pollution Prevention Hierarchy

The Plan's strategies and actions are laid out in Section 3, and are divided into diversion initiatives (reduce, reuse, recycle) and residual management initiatives. Based on the anticipated implementation schedule and estimates for how these initiatives will reduce the amount of municipal solid waste (MSW) sent to landfill, the following targets were established: Implementation of the Plan over its 10-year timeframe is expected to reduce the TNRD's annual per capita disposal rate from 614 kg in 2016 to:

- 560 kg per person by 2023 (5 years into the plan)
- 500 kg per person by 2028 (10 years into the plan)

1.3 Updating the Plan

The current planning process was initiated in 2016. Schedule A includes the planning technical reports and the public consultation report.

Participants in the planning process included:

- Plan team: TNRD staff, City of Kamloops staff and consultants Sperling Hansen Associates, Maura Walker and Associates, and Jan Enns Communications coordinated the planning process, participated directly in the development of technical reports and conducted the consultation with interested parties.
- TNRD Steering Committee: reviewed documents that resulted from the planning process and provided direction to staff and consultants.
- Public and Technical Advisory Committee(s): were combined early in the planning process to create a Review Advisory Committee (RAC) which reviewed information associated with the planning process and provided input to staff and the Board. The RAC committee included members of the public, industry stakeholders, and First Nations.
- Interested parties (including the public): were kept informed during the plan development and participated in consultation opportunities to provide input to the plan team and Board.

The process to review the plan has been conducted in three phases as indicated in Figure 1-2 below.

The first phase consisted of the establishment of the Regional RSWMP Review Advisory Committee (RAC) as well as an assessment of the current solid waste management system and a status report on the implementation of the 2008 Plan. Phase 1 also included a concurrent communication and consultation program consisting of a community survey and RSWMP web page.

The second phase consisted of a review of options to address the region's future solid waste management needs and the selection of preferred options as well as a financial analysis. Throughout all phases, stakeholder consultation and communication was carried out.

The third phase consisted of public and targeted stakeholder consultation. The consultation phase took place between October 23rd and February 16th 2018 and is summarized in the Consultation Report which can be found in Schedule A.

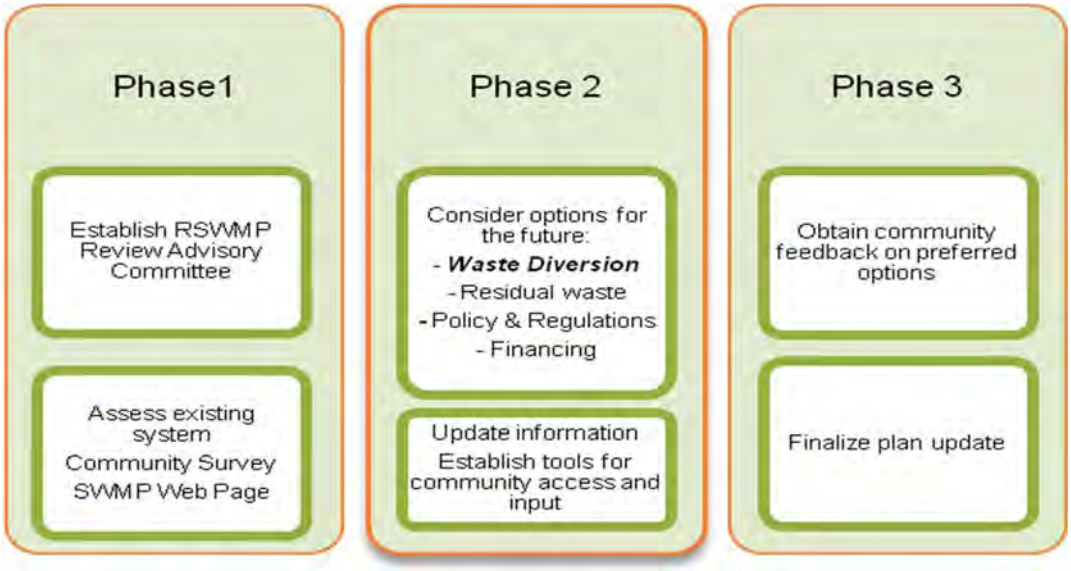

Figure 1-2 - Plan Review Process

Several reports, as listed below, were prepared by the consultants to assist the RSWMP Advisory Committee with their discussions and workshops. These documents are available on the TNRD website and are attached in Schedule A.

- Stage 1 Report (Existing System)
- Opportunities for Waste Reduction and Diversion
- Residual Waste Management – TNRD Landfill Economic Analysis
- Solid Waste Policies, Bylaws and Enforcement
- Financial Implications of Proposed Solid Waste Management System Changes to the TRND and City of Kamloops

1.4 Key Drivers

The key drivers for developing this plan were identified as part of the Phase 1 Existing System Assessment and reviewed and confirmed with the RSWMP Review Advisory Committee at their first meeting on February 14, 2017. The key drivers were:

- Opportunities to increase waste diversion in the ICI (industrial, commercial, institutional) sector
- Opportunities to increase diversion from the Construction and Demolition sector (C&D)
- Opportunities to increase organic waste diversion
- Opportunities to support waste diversion through education, communication and consultation

These diversion opportunities are regarded as opportunities to reduce the amount of waste going to landfill, as well as opportunities to develop new, local economic activity that can take advantage of the secondary resources made available through the actions listed in this Plan.

2. BACKGROUND

2.1 Plan Area

The TNRD is located in the southern central interior of British Columbia. It is bound by the Columbia-Shuswap, North Okanagan, and Central Okanagan regional districts to the east, the Okanagan-Similkameen and Fraser Valley regional districts to the south, the Squamish-Lillooet Regional District to the west, and the Cariboo and Fraser-Fort George regional districts to the north.

The district covers approximately 45,000 square kilometers (which makes it the 8th largest regional district in BC) and consists of eleven municipalities and ten electoral areas as indicated in Figure 2-1.

2.2 Population

Every regional district in BC has unique characteristics and the TNRD is no exception. The TNRD covers a large geographic area with a population density of 3 people per square kilometre. 83% of the population resides within incorporated municipalities, 12% in electoral areas and 5% in First Nation land reserves, as seen in Table 2-1. The population data shown in Table 2-1 is based on the 2016; in the table, "R" represents rural communities (unincorporated) or electoral areas, "U" represents the urban population in incorporated communities and municipalities, and "FN" represents First Nation populations. By far, the greatest number of people reside in the municipality of Kamloops with 90,000 residents (68% of the total population), which is also the main business centre of the area.

Given that garbage generation is a function of population, geography and level of economic activity, the TNRD may be described as having two distinct waste sheds – Kamloops with its growing urban population, high level of economic activity and consequently higher garbage generation rate, and the rest of the region with a stable, more rural population, less economic activity and consequently a lower rate of garbage generation.

This geographic, population and economic distribution has influenced the structure of the municipal solid waste management system in the TNRD. Although the TNRD is mandated by the province to develop a solid waste management plan for the entire regional district, plan implementation is primarily the responsibility of the TNRD and the City of Kamloops, with lesser involvement by the smaller municipalities through curbside collection programs.

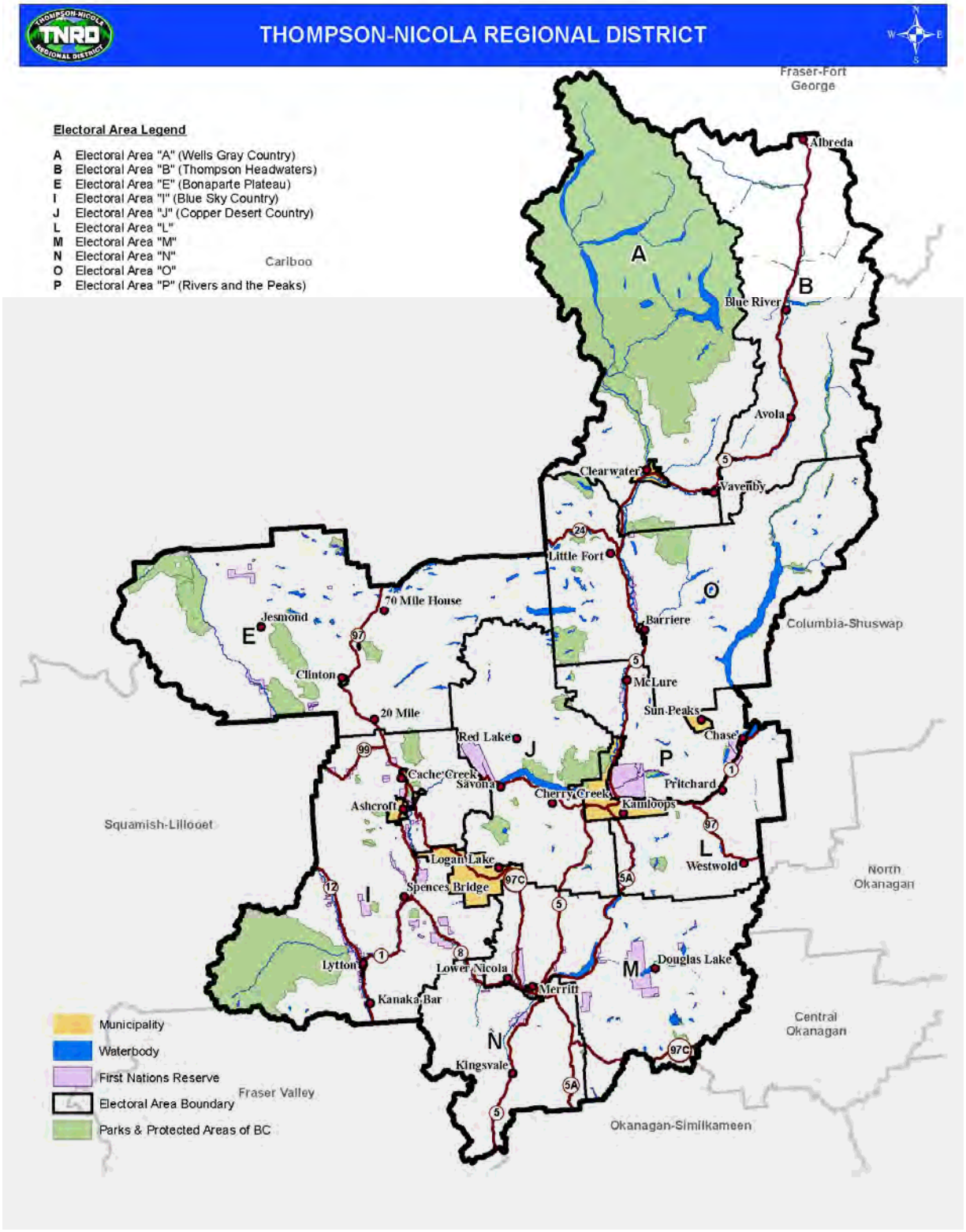

Figure 2-1 - Map of the Thompson-Nicola Regional District

Table 2-1 - TNRD Population Data (2016 Census)

Population Statistics in Thompson-Nicola Regional District							
Source: Statistics Canada							
		Community	Sq. Km.	Homes (occupied)	People per home	Population 2016	% of Total
Thompson-Nicola Regional District			44,447.71	55,504	2.31	132,663	
Electoral Area A	R	Wells Gray Country	7099.19	710	2.10	1,493	1%
	U	Clearwater	55.68	1,021	2.28	2,331	2%
Total Area A						**3,824**	**3%**
Electoral Area B	R	Thompson Headwaters	5136	122	1.91	233	0%
Total Area B						**233**	**0%**
Electoral Area E	R	Bonaparte Plateau	665.01	525	2.08	1,094	1%
	U	Clinton	8.00	327	1.96	641	0%
Total Area E						**1,735**	**1%**
Electoral Area I	R	Blue Sky Country	5,740.80	561	2.25	1,262	1%
	U	Ashcroft	50.90	755	2.06	1,558	1%
	U	Cache Creek	10.25	468	2.06	963	1%
	U	Lytton	6.54	121	2.06	249	0%
	FN	Skeetchestn	80.14	117	2.50	293	0%
	FN	Bonaparte	7.06	44	2.75	121	0%
	FN	Kanaka Bar	1.27	17	4.18	71	0%
	FN	Siska	0.63	31	2.90	90	0%
	FN	Skuppah	0.13	4	1.25	5	0%
	FN	Lytton	32.49	4	2.50	10	0%
	FN	Cooks Ferry				N/A	
	FN	Shackan	25.52	30	2.13	64	
	FN	Nicomen	7.30	20	3.15	63	0%
Total Area I						**4,749**	**4%**
Electoral Area J	R	Copper Desert Country	3,294.50	683	2.31	1,580	1%
	U	Logan Lake	325.33	941	2.12	1,993	2%
Total Area J						**3,573**	**3%**
Electoral Area L	R	Electoral Area L	1,917.22	1266	2.33	2,955	2%
	FN	Adams Lake	27.85	164	2.96	485	0%
	FN	Neskonlith	24.77	75	3.16	237	0%
Total Area L						**3,677**	**3%**
Electoral Area M	R	Thompson-Nicola M	3,854.82	753	2.12	1,598	1%
	U	Merritt	24.82	2983	2.39	7,139	5%
	FN	Lower Nicola	49.44	231	2.91	672	1%
	FN	Coldwater	24.00	113	2.81	318	0%
Total Area M						**9,727**	**7%**
Electoral Area N	R	Thompson-Nicola N	2,346.81	336	2.27	762	1%
	FN	Nooaitch		43	3.30	142	0%
	FN	Upper Nicola	106.88	121	2.50	302	0%
Total Area N						**1,206**	**1%**
Electoral Area O	R	Thompson-Nicola O	5,392.05	596	2.22	1,323	1%
	U	Barriere	10.77	787	2.18	1,713	1%
	FN	Simpcw First Nation	N/A	N/A	N/A	243	0%
Total Area O						**3,279**	**2%**
Electoral Area P	R	Thompson-Nicola P	159.6	1534	2.39	3,672	3%
	U	Chase	3.77	1089	2.10	2,286	2%
	U	Sun Peaks	41	290	2.12	616	0%
	U	Kamloops	299.23	36814	2.45	90,280	68%
	FN	Tk'emlups te Secwepemc*	136.85	1382	2.19	3,021	2%
	FN	Whispering Pines/Clinton	5.04	18	3.28	59	0%
Total Area P						**99,934**	**75%**
		Total Urban Population				**109,769**	**83%**
		Total Rural				**15,972**	**12%**
		Total First Nations				**6,196**	**5%**
		Other First Nations				**726**	**1%**
		Total RD *				**132,663**	

***Note: The population presented is based on data available from the 2016 Census.**
The Tk'emlups te Secwepemc First Nation manages waste at the Mt. Paul landfill.
The TNRD has MTSA's with 17 First Nation Communities, as outlined in the table above.
Population data for additional First Nations communities in the TNRD is not specifically outlined in the above table, but is estimated in the section "other First Nations".

2.3 Plan History

The TNRD's original Regional Solid Waste Management Plan was approved by the Province in 1995 and was last updated in 2008. The waste management strategy adopted in the 2008 Plan combined waste diversion, residuals management and policies to effectively manage solid waste within the region, in support of the 30% waste reduction goal (compared to 2004 levels) adopted by the TNRD Board of Directors as part of the 2008 Plan. The guiding principles adopted in the 2008 Plan are illustrated in Table 2-2.

Table 2-2 - Guiding Principles in the 2008 RSMWP

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

Based on these principles, the 2008 Plan included policies that should be implemented to encourage participation in waste diversion programs. These included disposal bans, variable tipping fees and user pay fee structures to be implemented by the TNRD and participating municipalities and businesses.

Plan implementation was divided into three phases: Phase 1 (one to three years after Plan adoption) consisted of 20 separate actions that involved initiation of 3Rs services as well as implementation of changes to the current residual waste management system; phase 2 (four to seven years after Plan adoption) consisted of 7 programs offering increased levels of collection service for recyclables and the addition of yard waste drop-off sites in the City of Kamloops; and phase 3 (seven to ten years after Plan

adoption) which involved the continuation of programs initiated in earlier phases, as well as development of new waste disposal capacity for the region.

The 2008 Plan also recognized that the residual management system at the time did not provide the necessary framework to implement and enforce the various policies and guiding principles adopted in the Plan.

Specifically, at the time of plan development there was no ability to:

- Prevent the uncontrolled use of unattended TNRD (rural) transfer stations from within and outside of the TNRD;
- Manage environmental risks and liabilities that could result from the use of facilities for the disposal of prohibited or banned materials/substances;
- Encourage recycling and other waste reduction policies, such as pay-by-weight policy (which requires scales);
- 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; and,
- Achieve the 30% waste reduction goal adopted by the Board of Directors.

These inefficiencies in the residual management system, particularly the lack of scales at all sites, prevented the TNRD from measuring their 30% waste reduction goal from 2004 levels due to the absence of accurate waste disposal data at that time. Consequently, improving the existing network of transfer stations and landfills became a top priority of the 2008 Plan.

The following is a summary of the implementation status of the 2008 Plan.

Reduction

A user pay system has been adopted with tipping fee levels set sufficiently high to encourage diversion practices, especially for clean wood and asphalt roofing. Although material bans have been adopted in TNRD's Bylaw 2465, full implementation and a roll-out of an education and enforcement program has not been completed to date. This has been identified as a high priority for the TNRD as a next step towards waste reduction.

Diversion / Recycling

Numerous municipalities in the TNRD have adopted the highly efficient single stream blue bag system for recyclable material diversion at the curb - including the City of Kamloops. In communities without curbside collection, single stream recycling is offered at all transfer stations in the Regional District.

Stewardship services engagement was a high priority in the 2008 RSWMP. Currently, the TNRD has succeeded in partnering with 12 of 13 Stewardship agencies at its Eco-Depots. These stewardship partnerships provide TNRD residents with widespread opportunities to divert materials in a convenient "one-stop-drop" set-up.

The only stewardship program that is currently not engaged at the TNRD's Eco-Depots is Recycle BC. In early 2017, Recycle BC announced that it will be supporting the City of Kamloops residential recycling program. The TNRD and its member municipalities are currently in discussions with Recycle BC with the intent (subject to Board review and approval) of also becoming part of the Provincial program which provides financial support for packaging and printed paper recycling.

Residuals Management

Following the 2008 plan, the closure of three smaller landfills and numerous small transfer stations has resulted in a more efficient system for the TNRD. In total, the TNRD operates 28 facilities where residents can take their municipal solid waste, including full service Eco-Depots, smaller transfer stations, and two MSW landfills. This does not include the City of Kamloops operated landfills (three), yard waste drop-offs (three) or recycling depots (three). Scales have been installed at all major Eco-Depot sites and landfills.

2.4 Existing System – Roles and Responsibilities

Table 2-3 illustrates the organizations in the TNRD that contribute to municipal solid waste management. The two major system operators are the City of Kamloops and the TNRD for the rural areas of the region, with lesser involvement by smaller municipalities through curbside collection programs.

2.5 Existing System – Programs and Facilities

Diversion Programs

Table 2-4 provides an overview of the current waste diversion system operated by the City of Kamloops and the TNRD for residential, Industrial, Commercial, Institutional (ICI) and Construction and Demolition (C&D) wastes in the regional district. As shown, the TNRD and the City of Kamloops successfully provide widespread opportunities for diversion and recycling to residents in the Region.

As mentioned previously, Recycle BC.(formerly Multi-Material BC) announced in February 2017 that it will be supporting the City of Kamloops' residential recycling program for printed paper and packaging (PPP). This will include payment made to the City for the curbside collection program of PPP. Additionally, Recycle BC will take over responsibility for processing the recyclables.

Table 2-3 - Roles and Responsibilities in theTNRD Solid Waste System

Who	Roles in Solid Waste Management
Federal government	• Provides waste management assistance to First Nations through Indian and Northern Affairs Canada (INAC)
Provincial government	• Various ministries have regulatory authority related to waste management
Regional district (Board and staff)	• Develops plan to provide big picture oversight of waste management in the region • Through plans and plan implementation (including bylaws), works to meet waste disposal goals and targets and ensures that communities have access to waste management services that are environmentally sound and cost effective • Ensures that legislative and policy requirements are followed, including monitoring and reporting • Operates rural TNRD landfills and provides collection services to some municipalities and electoral areas • Supports Product Stewardship programs in jurisdiction
Municipalities (council and staff)	• Provide collection services for solid waste and recycling • Make bylaws dealing with waste collection • Municipal enforcement officers part of enforcement team
First Nations	• Provide waste management services • Many participate in TNRD waste management services through Municipal Type Service Agreements'.
Product stewardship producers and agencies	• Ensure reasonable and free consumer access to collection facilities • Collect / process stewarded products • Coordinate local government delivery as a service provider where applicable • Provide and / or fund education and marketing • Provide deposit refunds to consumers (where applicable) • Monitor / report on key performance indicators such as recovery rates
Private sector involved in waste management (e.g., haulers, facility operators, contractors)	• Provide recycling and waste management services and own / operate facilities • Service multi-family residential buildings, commercial and institutional sources, and construction, demolition and land clearing sectors
Residents and businesses	• Responsible for carrying out proper waste reduction, recycling and disposal activities

Table 2-4 - Waste Diversion Programs in the TNRD and City of Kamloops

Residential Waste	ICI Waste	C& D Waste
City of Kamloops System • Single stream (mixed) automated curbside collection of recyclables for all single family and 95% of multi-family households • Ban on grass clippings in curbside garbage • Yard waste drop-off sites • Stewardship materials and yard waste are accepted at most City disposal sites	***City of Kamloops System*** • Private collection services available for the collection of cardboard. The City provides cardboard collection service for roughly 25% of business sector • Recyclables accepted at disposal sites • No disposal bans on ICI paper and cardboard • No disposal bans on yard waste at disposal facilities	***City of Kamloops System*** • C&D waste accepted at disposal sites • Differential tipping fees to encourage source separation of metal, wood, drywall, concrete and asphalt shingles. • No disposal bans
TNRD Operated System • All residents have access to single stream recycling; either through curbside collection (provided by municipalities) or at a recycling depot. • In addition, Blue bag / blue bin recyclables, stewardship materials and yard waste are accepted at most TNRD facilities. • Disposal ban on cardboard, glass, mixed waste paper, containers, plastic packaging, product stewardship material, scrap metal (currently not enforced).	***TNRD Operated System*** • Disposal ban on cardboard, glass, mixed waste paper, containers, plastic packaging, product stewardship materials, scrap metal (currently not enforced)	***TNRD Operated System*** • C&D waste accepted at disposal sites • Differential tipping fees to encourage source separation of metal, wood, concrete and asphalt shingles • Disposal ban on cardboard and metal not enforced

Residual Management

As discussed in Section 2.3, improving the existing network of transfer stations and landfills was a top priority of the 2008 Plan. This has been the focus of plan implementation since adoption in 2008.

Municipal solid waste in the region can be directed for management to any authorized site or facility identified in the plan. TNRD operated sites or facilities are listed in Table 2-5.

The TNRD operates 10 Eco-Depots, 18 Transfer Stations and 2 Landfills. Additionally, the City of Kamloops owns and operates three landfills, while two additional private landfills and one First Nations controlled landfill exist within the region.

A list of landfill facilities within the TNRD include:

- Lower Nicola Landfill (TNRD owned and operated)
- Heffley Creek Landfill (TNRD owned and operated)
- Mission Flats Landfill (City of Kamloops owned and operated)
- Kamloops Resource Recovery Center (City of Kamloops owned and operated)
- Barnhartvale Landfill (City of Kamloops owned and operated)
- Blackwell Dairy Landfill (Privately owned and operated)
- Tk'emlups te Secwepemc Landfill (First Nations Landfill)
- Cache Creek Landfill (Wastech Services Ltd.) – Closed as of December 2016
- Cache Creek Landfill Extension (Belkorp Environmental Services Inc.) – Under Construction.

Table 2-5 - TNRD Operated Facilities and Locations

Facility Name / Location	Facility Type	Location
Agate Bay	Transfer Station	5505 Adams West FSR
Aspen Grove	Transfer Station	7925 Merritt Princeton HWY 5A
Black Pines	Transfer Station	8900 Westsyde Rd.
Blue River	Eco-Depot	5889 Blueberry Rd.
Brookmere	Transfer Station	5818 Brookmere Rd.
Clearwater Eco-Depot	Eco-Depot	290 Clearwater – 100 mile FSR
Clinton Eco-Depot	Eco-Depot	5 Boyd Pit Rd.
Cache Creek	Transfer Station	882 Campbell Dr. W
Eagan Lake	Transfer Station	8385 Eagan Lake Rd.
Heffley Creek Eco-Depot	Eco-Depot and Landfill	7381 Sullivan Valley Rd.
Knutsford	Transfer Station	1590 Beresford Rd.
Lac Le Jeune	Transfer Station	5445 Meadow Creek Rd.
Little Fort	Transfer Station	4580 Sandhill Rd.
Logan Lake	Eco-Depot	9261 Highway 97C
Loon Lake	Transfer Station	1691 Loon Lake Rd.
Lower Nicola Eco-Depot	Eco-Depot and Landfill	2348 Woodward Rd.
Louis Creek Eco-Depot	Eco-Depot	4077 Agate Bay Rd.
Lytton	Eco-Depot	2040 Lytton-Lillooet Rd.
Paul Lake	Transfer Station	1945 Pinantan-Pritchard Rd.
Pritchard / South Thompson Eco-Depot	Eco-Depot	1595 Martin Prairie Rd.
Savona	Transfer Station	1320 Industrial Way
Spences Bridge	Transfer Station	9549 Hwy 8
Sun Peaks	Transfer Station	1320 Industrial Way
Tranquille valley	Transfer Station	10005 Tranquille Criss Creek Rd.
Vavenby	Transfer Station	3125 Allingham Rd.
Westwold	Transfer Station	6365 Westwold Station Rd.
70 Mile Eco-Depot	Eco-Depot	3061N Bonaparte Rd.
Ashcroft Recycling Depot	Recycling Depot	Railway Ave.
Cache Creek Recycling Depot	Recycling Depot	1125 Old Cariboo Rd.
Chase Recycling Depot	Recycling Depot	Art Holding Memorial Arena
Merritt Recycling Depot	Recycling Depot	Main St.

2.6 Cache Creek Landfill

Municipal solid waste in the region may be directed for management to any new site or facility contemplated by this plan. The Cache Creek Landfill Extension is included in this plan and will be considered as a disposal location for the TNRD once it is operational.

Up until the landfill's closure, the TNRD hauled waste from its western electoral areas to the Cache Creek Landfill. As of December 2016, the landfill has been closed and no longer accepts waste. A new landfill, located adjacent to the existing/closed Cache Creek Landfill, has received all of its necessary approvals and operating authority and is under construction; this landfill is currently called the Cache Creek Landfill Extension. An Operational Certificate was issued to Belkorp Environmental Services Inc. (BESI) in late 2016 for the Cache Creek Landfill Extension, however, at this time construction of the Extension is not yet complete. The new landfill is anticipated to open in 2018. The TNRD has begun negotiations with BESI for use of the Cache Creek Landfill Extension. The negotiations will determine the amount of waste, and from which areas in TNRD waste will be sent to the Cache Creek Landfill Extension.

2.7 Waste Importation

The TNRD currently has the option to accept waste from outside the region and has historically accepted waste from several regional districts at the Cache Creek Landfill. As per the 2008 RSWMP, the TNRD Board of Directors adopted a policy to allow importation of waste into the region, on the condition as follows:

> **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.**

Although the Cache Creek Landfill is now closed, a letter of understanding exists between the TNRD and BESI regarding an importation levy on any waste brought in to the Cache Creek Landfill Extension.

2.8 Future Strategies and Ongoing Solutions

SRM Management Facility

Specified Risk Material is defined as the cattle tissue that can harbor the infective agent known as prion which causes Bovine Spongiform Encephalopathy (BSE or Mad Cow Disease). Currently, there are limited disposal options for abattoir / slaughter waste in the TNRD; and no practical disposal options for SRM waste. It is the TNRD's intent to support industry efforts to develop a strategy for dealing with all abattoir / slaughter waste, including SRM waste. This may include industry efforts to establish a SRM management facility in the region, or other possible solutions.

Agricultural Plastic Recycling

During public consultation, interest was expressed in developing a strategy to deal with agricultural plastics – such as silage bags and bale wrap. The TNRD will work with industry stakeholders to determine if there is a market available for the plastic film and if a centralized collection facility would be feasible. Additionally, the TNRD may consult with neighbouring regional districts to develop a management strategy for this waste.

Economic Development

The TNRD will continue to encourage economic opportunities and development in the Solid Waste Management sector.

2.9 Waste Generation and Characterization

Provincial Target

The Ministry of Environment measures regional district solid waste management system performance in terms of disposal rate and not diversion. Measuring waste diversion has been problematic given the variability between regional districts regarding the definition and measurement of diverted materials.

In 2013, the Ministry of Environment (MOE) developed the BC Waste Disposal Calculator to provide more reliable and consistent data on MSW disposal by regional districts, and to assist in determining the Province's progress toward zero waste.

As stated in Section 1.2, the MOE has established a target to lower the provincial MSW disposal rate to 350 kilogram per person per year by 2020.

Regional Performance

Based on disposal data reported by the TNRD, a total of 79,566 tonnes of MSW was disposed in the TNRD in 2016. This includes waste from all TNRD, municipal and private landfills except for the Mt. Paul Landfill which services the Tk'emlups te Secwepemc First Nation as well as residents in the community of Sun Rivers (Kamloops). The 2016 waste disposal rate for the TNRD, calculated from the aforementioned tonnage and population data from the 2016 Census, is 614 kg per capita. This represents the average disposal rate for the entire TNRD. Please note the disposal values presented in this report have changed since the Stage 1 Report, due to further refining of waste disposal data.

The waste disposal rate has been broken down further into the City of Kamloops managed system and the remainder of the TNRD system (rural TNRD), as seen in Table 2-6. The rural TNRD disposal rate is lower (531 kg per capita) than the disposal rate for the City of Kamloops (650 kg per capita). Because the City of Kamloops makes up nearly 70% of the Region's population and has a notably higher disposal rate, there is greater potential to divert waste away from disposal (and thereby reduce per capita disposal rates) in the City as compared to the rest of the regional district.

Table 2-6 - 2016 Per Capita Disposal Rate

	Population	Waste Disposed (MT)	Waste Disposal Rate (kg per person)
TNRD Only System (Excluding Tk'emlups te Secwepmc)	39,362	20,886	**531**
CoK Only System (Excluding Tk'emlups te Secwepmc)	90,280	58,680	**650**
Total TNRD System (Excluding Tk'emlups te Secwepmc)	129,642	79,566	**614**

The Province provides per capita disposal data for each BC regional district, with the most recent data being provided for 2015. This comparative data is provided in Figure 2-2. As shown, the disposal rate for the TNRD is greater than the provincial average disposal rate. However, as indicated in Figure 2-3, when compared to adjacent regional districts, per capita disposal rate in the TNRD is not out-of-line with regional districts with similar geography and population density.

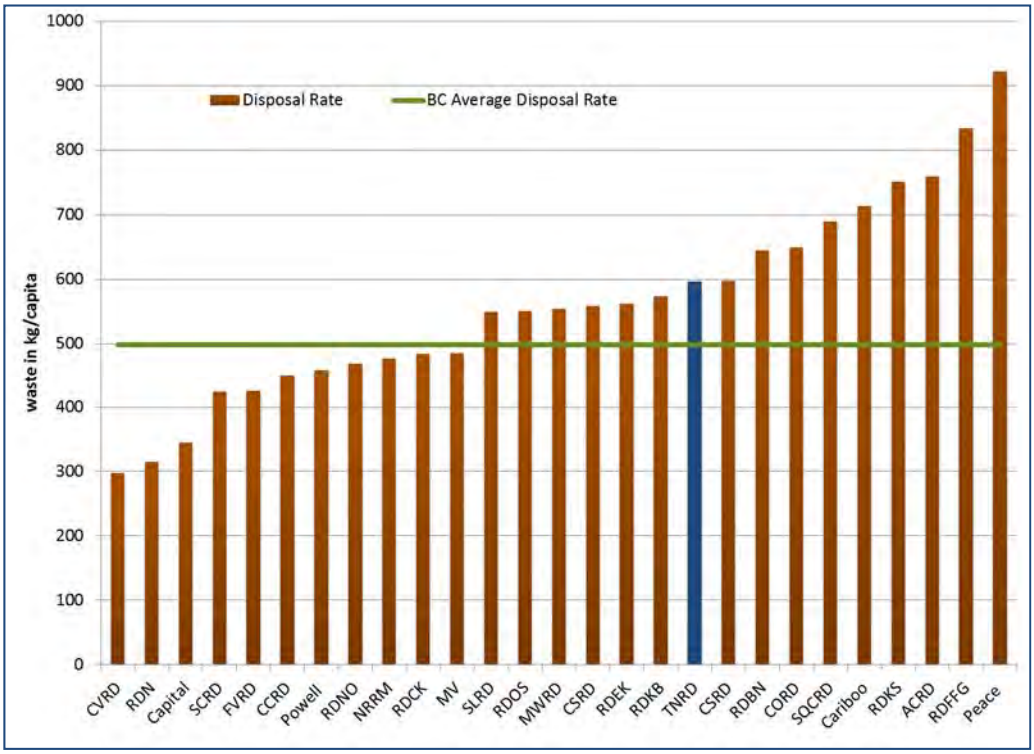

Figure 2-2 - 2015 Regional District Disposal Rates (as per Environmental Reporting BC)

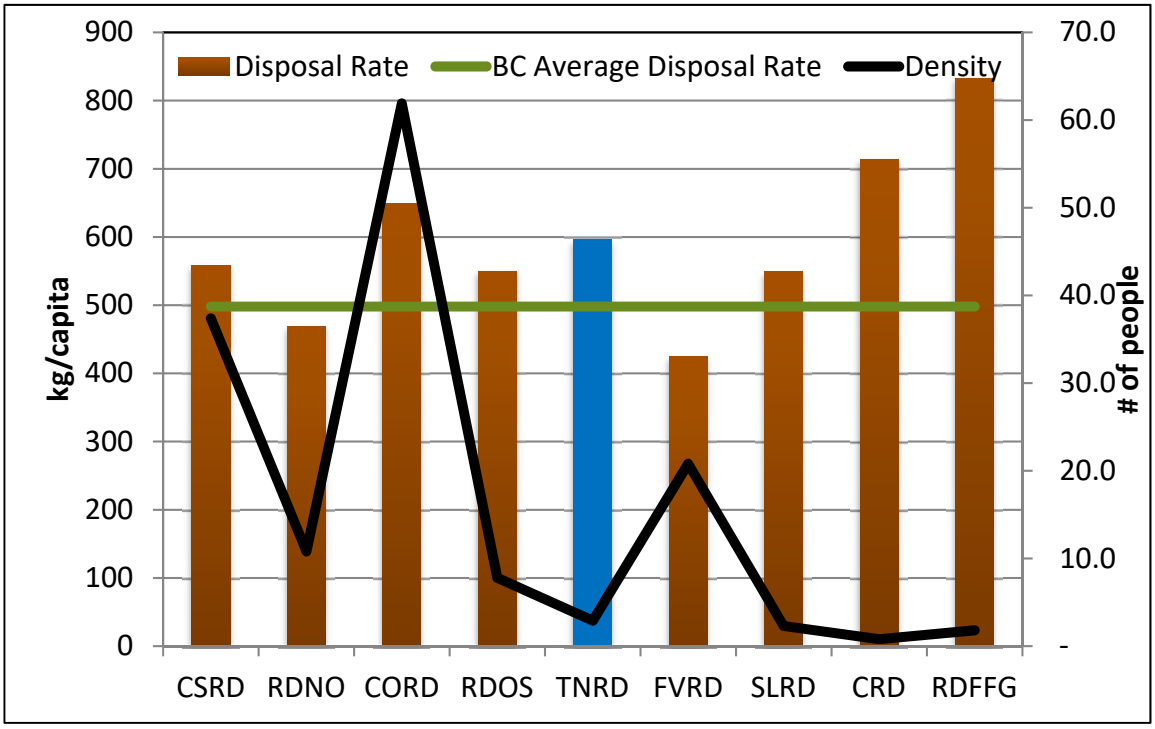

Figure 2-3 - Disposal Rate and Density in Adjacent Regional Districts

Waste Characterization

The most recent waste characterization study completed for the TNRD was in 2011 and consisted of six landfills and two transfer stations. The pie-chart shown in Figure 2-4 illustrates the estimated proportion of the various waste materials landfilled.

The data from this study indicates that the category with the highest composition is organic food waste, which accounted for more than a quarter of the total waste stream by weight. The wood category represented the next largest category of waste, representing 18% of the waste stream. The third highest contributor to the waste stream was Paper Products and Paper Packaging, accounting for 15%. Demolition and construction waste (DLC) accounted for 12% and plastic packaging accounted for 7%. The remaining materials represented less than a quarter of the overall waste stream.

Although the data is slightly outdated, at over five years old, the results of this study indicate that a significant amount of what is currently landfilled could potentially be composted, recycled, or managed through Extended Producer Responsibility programs.

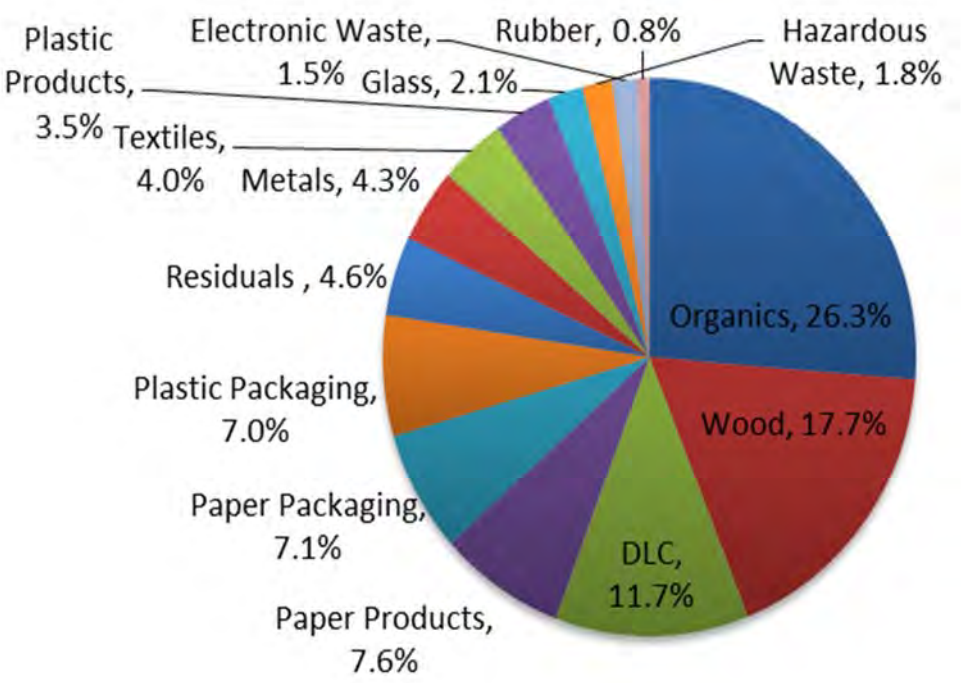

Figure 2-4 - TNRD Waste composition proportions from Waste Naught BC waste characterization study (2011).

This waste characterization data, combined with waste disposal rates, informed the development of the key drivers for plan development as discussed in Section 1.4.

Again, the key drivers were:

- Opportunities to increase waste diversion in the ICI (industrial, commercial, institutional) sector
- Opportunities to increase organic waste diversion
- Opportunities to increase diversion from the Construction and Demolition (C&D)
- Opportunities to support waste diversion through education, communication and consultation

Addressing these key drivers are the goals of this solid waste management plan.

The strategies and actions identified to address these goals are discussed in the following Section 3.

3. GOALS, STRATEGIES AND ACTIONS

To address the goals and strategies outlined in the planning process, a number of proposed action items were considered and consulted on. The action items were divided into two main categories: Diversion Initiatives and Residual Waste Management Initiatives. Additionally, future strategies to provide waste management solutions have been considered. Within these categories, solid waste management system changes that are addressed include:

Diversion Initiatives:

- ICI Diversion
- Construction and Demolition Waste Diversion
- Organic Waste Diversion
- Promotion and Education
- Extended Producer Responsibility
- Household Hazardous Waste Collection
- Bylaws
- Illegal Dumping

Residual Waste Management Initiatives:

- Conversion of Heffley Creek Landfill to Construction and Demolition only landfill
- Closure of Barnhartvale Landfill

Future Strategies and Solutions

- Establish Specified Risk Material Management Strategy
- Agricultural Plastic Waste

Action items associated with the aforementioned categories are outlined in the following section, as well as cost estimates for implementing each action item. The cost estimates do not include the cost of additional staffing requirements; however, any additional staffing requirements required to implement the Plan's actions are outlined in the Financial Implications memorandum included in Schedule A and are summarized in Section 4. The cost estimates are based on best available cost information and are shown in 2017 dollar values.

As indicated in the Implementation Schedule section, the timeline of implementation, and priority of initiatives has been developed as follows: first priority – increase ICI diversion (2019-2020), second priority – increase Construction and Demolition waste diversion (2021-2022), third priority – increase organic waste diversion (2023-2026).

As discussed throughout this report, while all goals of the RSWMP apply to all municipalities within the Thompson-Nicola Regional District, some of the action items outlined in the following sections apply only to the City of Kamloops – or are shared responsibilities between the City of Kamloops and the Regional District – to maximize effectiveness and efficiency of the plan. Many of the initiatives will have the greatest effect in the City of Kamloops due to the large population base that lives in the City. Further, as outlined by the disposal data, the City has the largest opportunity to increase diversion and decrease disposal rates.

3.1 Increase Recycling in the ICI Sector

Action items that will achieve diversion goals in relation to increasing recycling in the ICI sector are outlined in the table below. Further, a cost estimate is shown.

Actions	Cost Estimate
1. Continue to apply differential tipping fees to encourage source separation of recyclable/recoverable components of the waste stream.	**No New Cost**
2. Implement disposal bans on recyclable materials. It is recommended that the TNRD and City of Kamloops develop a coordinated approach to implementing disposal bans on recyclable materials utilizing the following 4 steps: I. Regulate – update facilities bylaw to include disposal bans on recyclable materials in the garbage stream: • It is recommended that the first phase of disposal bans include: recyclable cardboard, paper, metal, and products and packaging regulated under the BC Recycling Regulation (i.e. EPR products) • The next phase of disposal bans may include: yard waste, clean wood waste, asphalt shingles, mattresses • Recyclable material bans should only apply to facilities where recycling options are locally available II. Collaborate – meet with stakeholders (haulers, processors and generators) to define the timeline for implementation, enforcement protocols, tolerance levels (of banned material in a load) and support requirements (i.e. education and communication). III. Educate – create and implement a communications plan for informing all potentially affected stakeholders. Potential tools include: • Mail out to generators • Advertising • Media materials • Brochures/posters/flyers • Infraction Notices IV. Enforce – Establish enforcement mechanisms, train all affected staff, establish mechanism for infraction tracking and follow up.	**TNRD** $10,000 per year for two years **City of Kamloops** $10,000 per year for two years

3. Assist haulers to encourage more/better recycling by their customers Develop consistent signage and messaging for use on collection containers. It is recommended the TNRD will take the lead on this initiative, which will benefit all relevant member municipalities (including the City of Kamloops).	**TNRD** $14,000 over 5 years
4. Require recycling collection services at all ICI locations To reinforce the disposal bans, municipalities can enact a bylaw that requires all business that generate recyclable materials to have an in-house recycling program. This would require ICI generators to have a recycling collection service, or that they self-haul their recycling to a recycling facility. The City of Kamloops has a similar requirement already in place for multi-family buildings. It is proposed that City of Kamloops implement this requirement and their bylaw and approach could be a model for other municipalities in the TNRD to consider. The TNRD would promote this approach to other member municipalities (as appropriate).	**City of Kamloops** $10,000
5. Space allocation in ICI and multi-family developments The City of Kamloops applies space allocation guidelines for garbage and recycling collection containers to proposed new multi-family developments to ensure that recycling is considered in the design of new buildings and property. The City is looking to establish similar space allocation requirements for ICI developments. Like the above recommendation, these City requirements can be a model for other TNRD municipalities to consider and the TNRD could promote these space guidelines to the other member municipalities (as appropriate).	**No New Cost**
6. Increase ICI sector awareness of diversion opportunities To ensure that businesses are aware of local diversion opportunities, disposal bans and any local mandatory recycling requirements, the TNRD and City of Kamloops will endeavor to "spread the word" utilizing on-line tools and liaising with the ICI sector at events and/or business association meetings. Again, it is assumed the TNRD will take the lead in developing branding and communication materials, which will benefit all relevant municipalities	**TNRD** Develop communication materials - $20,000 On-going Communication $5,000 annually

3.2 Increase Diversion of waste generated by Construction and Demolition Activities

Action items and cost estimates to achieve diversion goals relating to Construction and Demolition (C&D) waste are outlined in the table below:

Actions	Cost Estimate
1. Develop a C&D Waste Diversion Strategy It is recommended that the TNRD develop a C&D waste diversion strategy in collaboration with industry stakeholders including the construction and demolition industry, the Canadian Home Builders Association Central Interior, haulers of C&D waste and municipal staff in the waste management and permitting departments. Approaches and tools to be considered include: a. Reviewing tipping fee structures to ensure that the fees are effective at encouraging source separation of recyclable and recoverable materials b. Implementing disposal bans on recyclable and recoverable materials c. Developing consistent signage on collection bins d. Mandatory solid waste management plans for large projects e. Variable permit fees that strongly favor deconstruction over demolition f. Encourage green/LEED developments, which minimize waste during construction, by offering discounted development fees g. Consider accepting source separated materials only at specific waste management sites in the Kamloops area h. Communicate with C&D waste generators in regards to the benefits of source separation of wood waste and other recyclable materials, and where these materials can be delivered i. Collectively issuing a request for services such as wood waste grinding or for end users (like cogeneration) to see if the provision of larger volumes can reduce the per tonne cost j. Developing industry-specific educational curriculum	**TNRD** $10,000 per year for two years **City of Kamloops** $10,000 per year for two years
2. Develop a C&D Waste Management Toolkit It is recommended that the TNRD develop a C&D Waste management toolkit for construction, demolition and renovation projects that would: a. Provide information on local waste management requirements and available services and facilities b. Help contractors identify which waste materials can be diverted c. Provided as a hand-out as part of getting a building permit d. Made available for Do-It-Yourself-ers(on-line, at building supply stores, at building permit desks, at disposal facilities)	**TNRD** Develop Toolkit: $5,000 Update Toolkit: $2,500 every three years

3. **City of Kamloops Wood Waste Diversion** One of the key opportunities to explore for a C&D waste management strategy is wood waste diversion in the City of Kamloops. With an enhanced focus on wood waste diversion, it is anticipated that about 5,000 tonnes of clean wood waste could be diverted from the City of Kamloops Landfills annually. Avenues and markets that may be explored for beneficial use of wood waste, including composting, use at local industrial sites, and energy recovery.	**City of Kamloops** Estimated Annual Cost $300,000

3.3 Reduce the amount of Organic Waste Landfilled

Action items that will achieve diversion goals in relation to organic waste diversion are outlined in the table below:

Actions	Cost Estimate

1. **Outside the City of Kamloops, prioritize organic (biodegradable) waste *reduction* over collection and centralized processing through employing some or all of the following tools:**
• Encourage at-home organic waste management through:
  • Backyard composting
  • Digesters
  • Grasscycling
• TNRD will establish a pilot project within one community to test the effectiveness of reduction as a tool to reduce organic waste disposal.
• Based on the outcomes of the pilot, TNRD and City of Kamloops (CoK) will promote the most effective tools regionally.
• All municipalities will be encouraged to review curbside collection requirements to ensure that they encourage minimal disposal of divertible organic waste (curbside container limits, restrictions on yard waste).
• The promotion of on-site management of organic waste will be linked with WildSafeBC education initiatives.
	TNRD
	
	Pilot Program $10,00 per year for two years
	
	Region Wide Reduction Campaign $25,000 per year for two years

2. **Develop food waste processing capacity in Kamloops**	**City of Kamloops** Unknown Cost

3. Assuming organic waste processing capacity is established for Kamloops, the proposed actions to be taken to ensure the composting facility receives organic waste feedstocks are as follows: a) Establish a residential organic waste collection service for the City of Kamloops b) Encourage ICI organic waste diversion in Kamloops The ICI sector is potentially the largest source of organic waste and the City will need to ensure that tools are employed to drive ICI-generated organic waste to the facility rather than to the landfill as garbage. The possible tools to be employed include: • Implementing disposal bans • Offering cart-based collection service for small ICI generators • Establishing a mandatory organic waste collection requirement for ICI generators of organic waste • Promotion **c)** Developing consistent signage for use by haulers and generators	**City of Kamloops** Collection and Processing $650,000 per year **City of Kamloops** $10,000 per year for two years
4. Consider processing and collection options for Sun Peaks It is proposed that the TNRD look into options for the management of organic waste generated at Sun Peaks. This includes the potential use of Kamloops' processing capacity (if in place) or development of low-tech composting at Heffley Creek landfill. This process would include consultation with local area businesses and resident associations	**TNRD** Composting Feasibility Study and Community Consultation $15,000

3.4 Increase Promotion and Education

Most of the above noted new initiatives will require significant engagement with participating stakeholders to ensure the new program, policy, or service is a success. The action items and cost estimates to achieve these goals are outlined in the table below.

Actions	Cost Estimate
1. Increase the TNRD's capacity to undertake promotion and education The need to increase TNRD's staff capacity to undertake solid waste-related communication and education was identified early in the planning process. It is recommended that one full-time person be hired to focus on solid waste management-related promotion and education (P&E). This person's role would be to: • Undertake general communications regarding waste reduction and reuse for the region • Educate residents and businesses in regards to TNRD's current waste management services • Develop and implement the promotion and education associated with ICI diversion, C&D waste diversion and organic waste diversion • Manage the zero waste education program for schools • Liaise with member municipalities in regards to their promotion and education efforts and needs, aiming to improve effectiveness and cost-efficiency across the region. Similar promotion and education efforts will be needed in the City of Kamloops to undertake the initiatives listed in this Plan. Existing staff with public education duties will fulfill this role on behalf of the City.	**TNRD** One full-time staff person required. No additional program costs required. Staffing costs have been accounted for in Table 4-1 and Table 4-3.
2. Coordinate and collaborate with other local governments (Municipalities, First Nations) for promotion and education The TNRD will aim to engage member municipalities and First Nations in a process of coordinating solid waste related P&E to improve effectiveness and cost-efficiency of P&E efforts across the region. These engagement efforts will be an opportunity to share ideas, discuss outreach tools, and become informed on regional and local initiatives (e.g. disposal bans) that will need to be communicated to the public.	Additional staffing (included above)
3. Develop annual P&E plans It is recommended that TNRD and the City of Kamloops prepare annual promotion and education plans for solid waste management that support existing programs, policies and services. These plans will be integral to the launch of new initiatives. The development of an annual plan will ensure adequate resources are allocated throughout the year to undertake critical initiatives.	**TNRD** $5,000 Annually **City of Kamloops** 5,000 Annually

4. Establish a Zero Waste Education Program for Schools The TNRD will establish a Zero Waste Education Program for Schools in the TNRD. It is anticipated this service would be contracted out and made available to schools throughout the TNRD. Program materials prepared by other regional districts could be used to develop program content for the TNRD.	**TNRD** 20 Workshops $10,000

3.5 Increase and Maintain awareness to and participation in Extended Producer Responsibility Programs

Action items to achieve these goals relating to maintaining and increasing awareness to and participation in Extended Producer Responsibility programs are outlined in the table below.

Actions	Cost Estimate
The TNRD and City will continue to provide EPR collection services at many of their waste management sites to provide a convenient "one stop drop" for residents. Note that not all EPR programs will be available at all TNRD and City sites. Private sector collection sites, such as bottle depots and return-to-retail, will continue to play a critical role in the collection of EPR-designated products. The following additional actions to encourage improved and expanded EPR services in the TNRD are also recommended: • Lobby the provincial government and BC Producer Responsibility Organizations (stewardship agencies) to financially compensate collectors to a level that is commensurate with the level of service provided. Currently, a number of programs underfund or provide no funding to collectors. • Support EPR initiatives that encourage or regulate manufacturers to use recyclable and recycled packaging materials and discourage excessive packaging. • Lobby senior levels of government to expand EPR, particularly for the ICI component of packaging and printed paper (PPP). • Continue to participate in the BC Product Stewardship Council: • Encourage the Council to provide an annual report to the Province and Union of BC Municipalities, which will provide a "report card" on all aspects of EPR pertaining to servicing the interior and northern regional districts, along with recommendations for improvement.	**No New Cost**

3.6 Encourage Proper disposal of Household Hazardous Waste

To encourage proper disposal of Household Hazardous Waste (HHW), the City of Kamloops and TNRD will participate in the following actions:

Actions	Cost Estimate
It is recommended that the City and TNRD create a permanent HHW drop off depot in Kamloops to replace annual collection events in this area. This will ensure year-round access to proper disposal of non-EPR HHW and will increase the convenience of disposal of these products (thereby decreasing the likelihood of them ending up in the garbage) for the largest population centre in the regional district. Collection events will continue to be held in areas where EPR collection sites for HHW are not available.	New Operating **TNRD** $100,000 **City of Kamloops** $100,000

3.7 Improve Effectiveness of Existing Bylaws

The TNRD and the City of Kamloops both have bylaws in place pertaining to solid waste management, including disposal bans. To improve the effectiveness of these bylaws, the following action items are suggested:

Actions	Cost Estimate
To improve the effectiveness of solid waste bylaws, it is recommended that the TNRD and member municipalities review and update their solid waste bylaws with an aim to create consistency in terminology and to reflect the intentions in the updated solid waste management plan. In the vicinity of Kamloops, the bylaws governing the TNRD and City facilities should aim for consistency regarding disposal bans and tipping fees.	**No New Cost**
It is recommended that the TNRD, in consultation with member municipalities, consider the need for waste stream management licensing or codes of practice bylaws once disposal bans and other diversion initiatives are in place.	**No New Cost**

3.8 Reduce prevalence of Illegal Dumping

TNRD and many other local organizations have been actively tackling illegal dumping for several years. To continue to reduce the prevalence of illegal dumping, the following actions are recommended:

Actions	Cost Estimate
Continue to support community clean-up efforts through waiving of tipping fees.	**No New Cost**
Continue to clean up illegal dump site and forward reports of illegal dumping to the Ministry of Environment.	**No New Cost**
Collaborate with the Ministry of Environment to develop a region-wide illegal dumping strategy that can better harness the collective resources available in the region. This strategy may include the following actions: o Conduct a survey to determine the most common materials illegally discarded and the most frequent locations, providing a basis for types of materials and "hot spots" on which to build an awareness campaign and clean-up initiatives; o Conduct targeted outreach campaigns if/when specific "problem" groups can be identified; o Establish a reporting mechanism where residents and outdoor groups can report dumping location, to be targeted for contracted / volunteer cleanup; o Establish local area task forces to deal with problem areas; o Post signs at frequent illegal dumping sites to inform area users about reporting and prosecuting dumpers; and o Post cameras at frequent illegal dumping sites with an aim to provide evidence of dumping perpetrators; o Establish enforcement capacity.	**No New Cost for strategy development**

In order to develop an effective illegal dumping strategy, the TNRD will engage with affected stakeholders including: municipalities, forestry companies, First Nations, BC Hydro, utility companies, and back-country user-groups. Additionally, to address concerns of area residents, specific focus will be paid to communities in Barnhartvale area in the event the landfill closes.

3.9 Increase Efficiency of Residual Waste Management in the TNRD

Three main changes to the Residuals Management System are recommended, as outlined in the table below. A detailed cost analysis for the changes to the residuals system was presented in the April 7th 2017 **Residual Waste Management – TNRD Landfill Economic Analysis** memo seen in Schedule A.

Actions	Cost Estimate
Convert Heffley Creek Landfill to C & D only site: - It is recommended the Heffley Creek Landfill be converted to a Construction and Demolition only landfill site in 2018. At that time, Municipal Solid Waste will continue to be accepted at all transfer stations and Eco-Depots; however, no MSW will be landfilled at the Heffley Creek site. MSW previously destined for Heffley Creek will be hauled to Mission Flats or the Cache Creek Landfill Extension instead. The TNRD will determine the disposal location of the transferred MSW based on the best overall value to the TNRD (considering hauling costs and tipping fees). - The change to C & D only will reduce annual tonnage at the site and drastically reduce annual costs to the TNRD, while maintaining landfill airspace for the future.	**TNRD** Annual Cost Savings $106,000
Accept increased MSW Tonnages from TNRD at Mission Flats Landfill - The City of Kamloops will likely incur increased Capital and Operating costs if additional TNRD tonnage is received at the Mission Flats Landfill; however, this will be offset by increased tipping fee revenue.	**City of Kamloops** Projected Annual Cost Savings $287,000
Close the Barnhartvale Landfill - Closure of the site will reduce financial and environmental liability to the City of Kamloops - Greater environmental controls are in place at Mission Flats landfill than at the Barnhartvale Landfill - The small amount of waste previously landfilled at the site is expected to be disposed of at other local facilities - Curbside waste collection services will remain in place - The City of Kamloops will consider maintaining a yard waste drop-off facility in the east end of Kamloops in the event the Barnhartvale Landfill Closes.	**City of Kamloops** Closure Cost $1,350,000 Net Annual Post Closure Savings $181,000

3.11 Pursue Future Strategies and Ongoing Solutions

The TNRD will support industry efforts to develop solutions to waste disposal and recycling needs. Some of the strategies and solutions considered include:

Actions	Cost Estimate
Specified Risk Material Management Strategy - TNRD will work with industry representatives and other agencies and stakeholders to develop an industry strategy for dealing with SRM waste. The intent is to support industry efforts to establish a SRM management facility within the region, or other possible solution(s).	**No New Cost**
Agricultural Plastic Recycling - The TNRD will work with industry stakeholders to determine if there is a market available for agricultural plastics, such as silage bags and bale wrap, and if a centralized collection facility would be feasible.	**No New Cost**
Economic Development - The TNRD will continue to encourage economic opportunities and development in the Solid Waste Management sector.	**No New Cost**

3.12 Ensure Ongoing Monitoring and Measurement

It is recommended that the TNRD establish a Plan Monitoring Advisory Committee with a mandate to monitor the implementation of the Plan, evaluate its effectiveness, and advise the regional district regarding the Plan's on-going implementation. On an annual basis, Regional District staff would compile data that reflects the status of the Plan's implementation and progress toward waste reduction targets. This data would be provided to the Plan Monitoring Advisory Committee.

Actions	Cost Estimate
Establish a Plan Monitoring Advisory Committee with a mandate to monitor the implementation of the plan, evaluate its effectiveness, and advise the regional district regarding the Plan's on-going implementation.	**No New Cost**
Continue to compile data annually on all of the residual disposal activities in the regional district, including residual waste handled by the public sector and the private sector, for reporting to the BC Ministry of Environment's on-line disposal calculator.	**No New Cost**
Five years into the implementation of the Plan (in 2024), the TNRD should carry out a review of the plan's implementation and effectiveness.	**TNRD** $20,000
It is proposed that a multi-season waste composition study on the residual waste management stream be conducted at year 5. The Cost will be shared between TNRD and City of Kamloops	**TNRD** $20,000 **City of Kamloops** $20,000

3.14 Resulting Diversion Potential

The recommended actions have the potential reduce the amount of solid waste disposed in the TNRD by approximately 15,000 to 21,000 tonnes per year, as shown in Table 3-1 - Estimated Diversion Potential. This would reduce the quantity of waste landfilled by 19 to 26% and reduce the per capita amount of waste landfilled from 613 kg per year to between 455 to 505 kg per year. These numbers represent an overall estimate for the entire region. Diversion estimates are seen in Table 3-1 - Estimated Diversion Potential.

Table 3-1 - Estimated Diversion Potential

	Estimated Disposal Reduction Potential
ICI Diversion	2,893-4,050 tonnes
C&D Waste Diversion	4,808 – 6,731 tonnes
Organic Waste Diversion	7,166 – 10,033 tonnes
Total	**14,867 – 20,814 tonnes**

This diversion will largely be derived from:

- Diverting commercially generated cardboard and paper to recycling through the implementation and enforcement of disposal bans
- Diverting wood waste to alternative markets
- Implementing collection of residential food waste in Kamloops
- Establishing mechanisms to drive commercial organic waste generated in the Kamloops area to an organic waste processing facility (once the facility is operational).

It's recognized that even the most effective programs do not achieve 100% diversion of targeted waste materials (e.g. commercial cardboard, residential food waste), consequently, the diversion estimates reflect a potential capture rate of 50-70% of the estimated quantity of the waste materials that are targeted for diversion in this plan.

4. FINANCE AND ADMINISTRATION

As reflected throughout this plan, financial implications of the proposed solid waste management programs have been outlined for both the TNRD and the City of Kamloops. Funding to implement the actions identified in this RSWMP is provided by residents and businesses through municipal taxes and tipping fees. The following breakdown is based on best available information at the time of the RSWMP's development.

Table 4-1 below, outlines the expenditures associated with each new program, as well as an implementation schedule (seen as highlighted cells) for the TNRD. Staffing implications for each of the action categories have also been included as the number of full time equivalents (FTE) required. The total estimated new staffing requirements for the TNRD, as shown in Table 4-1 range from 2-3 FTE's. Because the TNRD has the capacity to fund approximately 1.5 FTE's within the existing budget, the average additional staffing requirement between 2018 and 2028 will be 0.88 FTE's. The annual financial costs for implementing the RSWMP's action items and the additional staffing requirements for the TNRD range from a cost savings of $106,600 to a maximum expenditure of $139,600 between 2018 and 2028. The net average annual expenditure for the TNRD is $91,660 per year. The total 11 year expenditure is approximately $1,008,000.

The total annual expenditures from these programs have been incorporated into the TNRD's Financial Plan, as seen in Table 4-2 - TNRD Financial Plan below. As shown, existing annual expenditures for the TNRD's solid waste system are between 10.7 and 13.5 million dollars per year. The TNRD's solid waste system is funded mostly through taxes. Because of this, the implications of the RSWMP will be seen as a difference to the requisition required each year.

Table 4-3 outlines the financial implications of the actions identified in this RSWMP to the City of Kamloops. As shown, the annual costs range from a cost savings of $287,000 to an annual cost of $696,148. It is important to note that the residual management expenditures which will be incurred during the closure of the Barnhartvale landfill already exist in a "Closure Fund" for the landfill; therefore, this expenditure will not result in increased tax requisition form Kamloops residents. The closure expense has been distributed over two years.

The net average additional annual cost for the City of Kamloops is $385,500 with an approximate total expenditure of $4,225,000 between 2018 and 2028. These costs include the salary costs for the average annual additional FTE requirement (0.88 FTE per year). Additionally, between 2018 and 2024, the maximum total additional annual cost (excluding landfill closure) for the City of Kamloops is $45,000. Greater financial implications are seen in 2024 with the implementation of organics collection in the City. The capital costs for developing food waste management capacity in Kamloops have not been included as this cost is unknown.

The financial implications from Table 4-3 have been inserted into the City of Kamloops' Financial Plan, as shown in Table 4-4. For the purpose of this RSWMP, the revenues shown are assumed to be the same as 2017 revenues; future revenue projections are not available due to recent changes in the City of Kamloops' rate structure and the acquisition of the KRRC. As shown, existing annual expenditures for the City of Kamloops Solid Waste Collection are between 9.8 and 11.6 million dollars.

As seen in Table 4-4, The City of Kamloops' solid waste system is more heavily funded on tipping fees than is the TNRD system. The estimated additional revenue that will be received from the TNRD's tipping fees is reflected in the "costs for Residuals Management" category.

Table 4-1 - Estimated New Expenditures for the TNRD Solid Waste Management System

Estimated NEW Solid Waste Management Expeditures for the TNRD											
Proposed Change	Cost and Implementation Year (Action shown by highlighted cell)										
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
DIVERSION INITIATIVES											
ICI Diversion (top priority)											
1. Continue to apply differential tipping fees		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2. Implement disposal bans on recyclable materials		$ 10,000	$ 10,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
3. Assist haulers to encourage recycling by their customers			$ 8,000		$ 4,000		$ 2,000				
4. TNRD to encourage munis to implement mandatory ICI recycling				$ -							
5. TNRD to encourage recycling space allocation in ICI and multi-family developments				$ -							
6. Promote ICI diversion opportunities			$ 20,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000
New Staffing Requirements (FTE)		0.50	0.50	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
CD Diversion (second priority)											
1. Develop a CD waste diversion strategy				Consult	$ 10,000	$ 10,000					
2. Create CD waste management toolkits for contractors and DIYers					$ 5,000			$ 2,500			$ 2,500
New Staffing Requirements (FTE)				0.50	0.50	0.50	0.25	0.25	0.25	0.25	0.25
Organic Waste (third priority)											
1. Promote organic waste *reduction*									$ 25,000	$ 25,000	
(a) Establish a pilot project with one community						Design	$ 10,000	$ 10,000			
4. Consider processing and collection options for Sun Peaks							$ 15,000				
New Staffing Requirements (FTE)						0.50	0.50	0.50	0.50	0.50	0.25
Promotion and Education (key component of above priorities)											
1. Increase Capacity to undertake P& E		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2. Coordinate and collaborate with other local governments for P&E			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
3. Develop annual P&E plans		$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000
4. Establish a Zero Waste Education Program for Schools			$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000
New Staffing Requirements (FTE)		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
EPR											
1. Encourage improved and expanded EPR services		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
New Staffing Requirements (FTE)		0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
HHW											
1. Establish permanent HHW depots		$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000
New Staffing Requirements (FTE)		0.25	0.25	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Bylaws											
1. Update solid waste bylaws with an aim for consistency (focus on Kamloops area)		$ -									
2. Assess the need for facility licensing or codes of practice bylaws						$ -					
New Staffing Requirements (FTE)		0.25	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.00
Illegal Dumping											
1. Continue clean-ups and supporting community initiatives		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2. Establish a region-wide illegal dumping strategy		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
New Staffing Requirements (FTE)		0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Summary of Diversion Initiatives											
Total Estimated New Costs for Diversion Initiatives	$ -	$ 115,000	$ 153,000	$ 120,000	$ 139,000	$ 130,000	$ 147,000	$ 132,500	$ 145,000	$ 145,000	$ 122,500
Total Estimated New Staffing Requirements for Diversion Initiatives	0.00	2.20	1.95	2.05	2.05	2.80	2.30	2.30	2.30	2.30	2.05
RESIDUAL WASTE MANAGEMENT INITIATIVES											
Residuals Management											
1. Convert Heffley Creek into DLC only Landfill Site	-$ 106,606	-$ 106,606	-$ 106,606	-$ 106,606	-$ 106,606	-$ 106,606	-$ 106,606	-$ 106,606	-$ 106,606	-$ 106,606	-$ 106,606
3. Develop SRM Management Strategy		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
4. Develop Agricultural Plastic Strategy		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
New Staffing Requirements (FTE)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Summary of Residual Waste Initiatives											
Total Estimated New Costs for Residuals Management	-$ 106,606	-$ 106,606	-$ 106,606	-$ 106,606	-$ 106,606	-$ 106,606	-$ 106,606	-$ 106,606	-$ 106,606	-$ 106,606	-$ 106,606
Total Estimated New Staffing Requirements for Residuals Management	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PLAN MONITORING AND MEASUREMENT											
1. Establish Plan Monitoring Advisory Committee		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2. Report annually to the BC Disposal Calculator		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
3. Five-Year Plan Effectiveness Review							$ 20,000				
4. Waste Composition Study						$ 20,000					
New Staffing Requirements (FTE)		0.10	0.10	0.10	0.10	0.20	0.50	0.10	0.10	0.10	0.10
Summary of Plan Monitoring and Measurement											
Total Estimated New Costs for Plan Monitoring and Measurement	$ -	$ -	$ -	$ -	$ -	$ 20,000	$ 20,000	$ -	$ -	$ -	$ -
Total Estimated New Staffing Requirements for Plan Monitoring and Measurement	0.00	0.10	0.10	0.10	0.10	0.20	0.50	0.10	0.10	0.10	0.10
STAFFING IMPLICATIONS											
Total Estimated New Staffing Requirements (A):	**0.00**	**2.30**	**2.05**	**2.15**	**2.15**	**3.00**	**2.80**	**2.40**	**2.40**	**2.40**	**2.15**
New staffing portion that can be funded from existing program budgets (B):		1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
New staffing portion that can requires operating budget increase (A-B):		**0.80**	**0.55**	**0.65**	**0.65**	**1.50**	**1.30**	**0.90**	**0.90**	**0.90**	**0.65**
Average 10-year staffing requirement		0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Summary of Staffing Implications											
Annual Cost for 0.88 FTE		$ 79,200	$ 79,200	$ 79,200	$ 79,200	$ 79,200	$ 79,200	$ 79,200	$ 79,200	$ 79,200	$ 79,200
FINANCIAL IMPLICATIONS OF ALL											
Total Estimated New Costs for Diversion Initiatives	$ -	$ 115,000	$ 153,000	$ 120,000	$ 139,000	$ 130,000	$ 147,000	$ 132,500	$ 145,000	$ 145,000	$ 122,500
Total Estimated New Costs for Residuals Management	-$ 106,606	-$ 106,606	-$ 106,606	-$ 106,606	-$ 106,606	-$ 106,606	-$ 106,606	-$ 106,606	-$ 106,606	-$ 106,606	-$ 106,606
Total Estimated New Costs for Plan Monitoring and Measurement	$ -	$ -	$ -	$ -	$ -	$ 20,000	$ 20,000	$ -	$ -	$ -	$ -
Cost Implications of Staff Requirement	$ -	$ 79,200	$ 79,200	$ 79,200	$ 79,200	$ 79,200	$ 79,200	$ 79,200	$ 79,200	$ 79,200	$ 79,200
TOTAL	**-$ 106,606**	**$ 87,594**	**$ 125,594**	**$ 92,594**	**$ 111,594**	**$ 122,594**	**$ 139,594**	**$ 105,094**	**$ 117,594**	**$ 117,594**	**$ 95,094**
Net-Average Annual Expenditure											**$ 91,667**
11 year Expenditure											**$ 1,008,339**

Table 4-2 - TNRD Financial Plan

TNRD 2017 - 2021 Financial Plan Environmental Health Services - Solid Waste Management	2016	2017	2018	2019	2020	2021
Existing Program Expenditures						
Total Operating Expenditures	$ 12,277,149	$ 11,994,582	$ 9,858,747	$ 10,015,267	$ 10,187,611	$ 10,397,898
Total Capital Expenditures	$ 1,314,000	$ 1,252,500	$ 979,000	$ 709,000	$ 684,000	$ 1,044,000
Subtotal Existing Expenditures	**$ 13,591,149**	**$ 13,247,082**	**$ 10,837,747**	**$ 10,724,267**	**$ 10,871,611**	**$ 11,441,898**
New Program Expenditures						
Total Estimated New Costs for Diversion Initiatives			$ -	$ 115,000	$ 153,000	$ 120,000
Total Estimated New Costs for Residuals Management			-$ 106,606	-$ 106,606	-$ 106,606	-$ 106,606
Total Estimated New Costs for Plan Monitoring and Measurement			$ -	$ -	$ -	$ -
Cost Implications of Staff Requirement			$ -	$ 79,200	$ 79,200	$ 79,200
Subtotal New Expenditures			**-$ 106,606**	**$ 87,594**	**$ 125,594**	**$ 92,594**
Total Expenditures	**$ 13,591,149**	**$ 13,247,082**	**$ 10,731,141**	**$ 10,811,861**	**$ 10,997,205**	**$ 11,534,492**
Revenue						
Requisition	$ 7,725,000	$ 7,725,000	$ 7,725,000	$ 7,725,000	$ 7,725,000	$ 7,725,000
Contracts/Tipping Fees	$ 2,386,668	$ 2,440,000	$ 2,340,000	$ 2,375,000	$ 2,525,000	$ 2,525,000
Grants/Gas tax funds						
Interest revenue	$ 7,500	$ 7,500	$ 7,500	$ 7,500	$ 7,500	$ 7,500
Misc Revenue/Op. Reserve			$ 765,246	$ 616,767	$ 614,111	$ 1,184,398
Transfer from TCA surplus						
Prior year's surplus	$ 3,471,981	$ 3,074,582				
Total Revenue	**$ 13,591,149**	**$ 13,247,082**	**$ 10,837,746**	**$ 10,724,267**	**$ 10,871,611**	**$ 11,441,898**
NET Cost Implications	$ -	$ -	**-$ 106,605**	**$ 87,594**	**$ 125,594**	**$ 92,594**

Table 4-3 - Estimated New Solid Waste Management Expenditures for the City of Kamloops

Estimated NEW Solid Waste Management Expeditures for the City of Kamloops											
Proposed Change	Cost and Implementation Year (Action shown by highlighted cell)										
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
DIVERSION INITIATIVES											
ICI Diversion (top priority)											
1. Continue to apply differential tipping fees		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2. Implement disposal bans on recyclable materials		$ 10,000	$ 10,000								
4. Require recycling collection services at all ICI locations			$ 10,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
5. Establish mandatory space allocation in ICI and multi-family developments		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
New Staffing Requirements (FTE)		0.50	0.50	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
CD Diversion (second priority)											
1. Develop a CD waste diversion strategy				Consult	$ 10,000	$ 10,000					
2. Continue to distribute a CD waste management toolkit to contractors		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
3. City of Kamloops Wood waste Diversion to Co-gen Facility			$ 300,000	$ 300,000	$ 300,000	$ 300,000	$ 300,000	$ 300,000	$ 300,000	$ 300,000	$ 300,000
New Staffing Requirements (FTE)				0.50	0.50	0.50	0.25	0.25	0.25	0.25	0.25
Organic Waste (third priority)											
1. Promote organic waste *reduction (through TNRD)*									$ -	$ -	
2. Develop food waste composting capacity in Kamloops						Unknown					
3. Once composting capacity is established for Kamloops:											
a) Establish a collection service for the City of Kamloops						Design	$ 650,000	$ 650,000	$ 650,000	$ 650,000	$ 650,000
b) Encourage ICI organic waste diversion in Kamloops							$ 10,000	$ 10,000			
New Staffing Requirements (FTE)						0.50	0.50	0.25	0.25	0.25	0.25
Promotion and Education (key component of above priorities)											
2. Collaborate with other local governments for P&E		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
3. Develop annual P&E plans		$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000
New Staffing Requirements (FTE)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HHW											
1. Establish permanent HHW depots		$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000
New Staffing Requirements (FTE)		0.25	0.25	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Bylaws											
1. Update solid waste bylaws		$ -	$ -								
New Staffing Requirements (FTE)		0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Illegal Dumping											
1. Participate in the development of a regional illegal dumping strategy		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
New Staffing Requirements (FTE)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Summary of Diversion Initiatives											
Total Estimated New Costs for Diversion Initiatives	$ -	$ 115,000	$ 425,000	$ 405,000	$ 415,000	$ 415,000	$ 1,065,000	$ 1,065,000	$ 1,055,000	$ 1,055,000	$ 1,055,000
Total Estimated New Staffing Requirements for Diversion Initiatives	0	1.00	0.75	0.85	0.85	1.45	1.35	0.85	0.85	0.85	0.85
RESIDUAL WASTE MANAGEMENT INITIATIVES											
Residuals Management											
1. Convert Heffley Creek into DLC only Landfill Site (Revenue from Tipping)	-$ 287,211	-$ 287,211	-$ 287,211	-$ 287,211	-$ 287,211	-$ 287,211	-$ 287,211	-$ 287,211	-$ 287,211	-$ 287,211	-$ 287,211
2. Close Barnhartvale Landfill		$ 479,159	$ 479,159	-$ 181,841	-$ 181,841	-$ 181,841	-$ 181,841	-$ 181,841	-$ 181,841	-$ 181,841	-$ 181,841
New Staffing Requirements (FTE)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Summary of Residual Waste Initiatives											
Total Estimated New Costs for Residuals Management	-$ 287,211	$ 191,948	$ 191,948	-$ 469,052	-$ 469,052	-$ 469,052	-$ 469,052	-$ 469,052	-$ 469,052	-$ 469,052	-$ 469,052
Total Estimated New Staffing Requirements for Residuals Management	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PLAN MONITORING AND MEASUREMENT											
1. Participate on the Plan Monitoring Advisory Committee		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2. Report annually to the BC Disposal Calculator (via TNRD)		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
3. Five-Year Plan Effectiveness Review (in collaboration with TNRD)							$ -				
4. Waste Composition Study (in collaboration with TNRD)						$ 20,000					
New Staffing Requirements (FTE)		0.00	0.00	0.00	0.00	0.10	0.25	0.00	0.00	0.00	0.00
Summary of Plan Monitoring and Measurement											
Total Estimated New Costs for Plan Monitoring and Measurement	$ -	$ -	$ -	$ -	$ -	$ 20,000	$ -	$ -	$ -	$ -	$ -
tal Estimated New Staffing Requirements for Plan Monitoring and Measurement	0.00	0.00	0.00	0.00	0.00	0.10	0.25	0.00	0.00	0.00	0.00
STAFFING IMPLICATIONS											
Total Estimated New Staffing Requirements	0.00	1.00	0.75	0.85	0.85	1.45	1.35	0.85	0.85	0.85	0.85
Average 10-year staffing requirement	0.88										
Summary of Staffing Implications											
Annual Cost for 0.88 FTE		$ 79,200	$ 79,200	$ 79,200	$ 79,200	$ 79,200	$ 79,200	$ 79,200	$ 79,200	$ 79,200	$ 79,200
FINANCIAL IMPLICATIONS OF ALL											
Total Estimated New Costs for Diversion Initiatives	$ -	$ 115,000	$ 425,000	$ 405,000	$ 415,000	$ 415,000	$ 1,065,000	$ 1,065,000	$ 1,055,000	$ 1,055,000	$ 1,055,000
Total Estimated New Costs for Residuals Management	-$ 287,211	$ 191,948	$ 191,948	-$ 469,052	-$ 469,052	-$ 469,052	-$ 469,052	-$ 469,052	-$ 469,052	-$ 469,052	-$ 469,052
Total Estimated New Costs for Plan Monitoring and Measurement	$ -	$ -	$ -	$ -	$ -	$ 20,000	$ -	$ -	$ -	$ -	$ -
Cost Implications of Staff Requirement	$ -	$ 79,200	$ 79,200	$ 79,200	$ 79,200	$ 79,200	$ 79,200	$ 79,200	$ 79,200	$ 79,200	$ 79,200
TOTAL	**-$ 287,211**	**$ 386,148**	**$ 696,148**	**$ 15,148**	**$ 25,148**	**$ 45,148**	**$ 675,148**	**$ 675,148**	**$ 665,148**	**$ 665,148**	**$ 665,148**
Net-Average Annual Expenditure											**$ 384,207**
11 year Expenditure											**$ 4,226,273**

Table 4-4 - City of Kamloops Financial Plan

City of Kamloops Financial Plan Program: Solid Waste Collection and Disposal	2016	2017	2018	2019	2020	2021
Existing Program Expenditures						
Total Existing Expenditures	$ 9,861,023	$ 10,032,320	$ 10,926,888	$ 11,249,273	$ 11,402,233	$ 11,558,252
Subtotal Existing Expenditures	$ 9,861,023	$ 10,032,320	$ 10,926,888	$ 11,249,273	$ 11,402,233	$ 11,558,252
New Program Expenditures						
Total Estimated New Costs for Diversion Initiatives			$ -	$ 115,000	$ 425,000	$ 405,000
Total Estimated New Costs for Residuals Management			-$ 287,211	$ 191,948	$ 191,948	-$ 469,052
Total Estimated New Costs for Plan Monitoring and Measurement			$ -	$ -	$ -	$ -
Cost Implications of Staff Requirement			$ -	$ 79,200	$ 79,200	$ 79,200
Total New Program Expenditures			-$ 287,211	$ 386,148	$ 696,148	$ 15,148
Total Expenditures	**$ 9,861,023**	**$ 10,032,320**	**$ 10,639,677**	**$ 11,635,421**	**$ 12,098,381**	**$ 11,573,400**
Revenue						
Fees, rate, and sales of service	$ 10,201,000	$ 10,811,000	$ 10,811,000	$ 10,811,000	$ 10,811,000	$ 10,811,000
Total Revenue Generated	**$ 10,201,000**	**$ 10,811,000**	**$ 10,811,000**	**$ 10,811,000**	**$ 10,811,000**	**$ 10,811,000**
Net Cost Implications	**-$ 339,977**	**-$ 778,680**	**-$ 171,323**	**$ 824,421**	**$ 1,287,381**	**$ 762,400**

5. PLAN IMPLEMENTATION

5.1 Implementation Schedule

A timeframe for implementing each plan strategy and action is shown through highlighted cells in Table 4-1 and Table 4-3 above. Further, the implementation schedule is summarized in Table 5-1.

As outlined in Section 4, additional staff will be required in order for the TNRD and the City of Kamloops to implement the plan strategies.

The implementation schedule will be reviewed in line with the TNRD and City of Kamloops' annual budget cycle. The plan monitoring advisory committee will provide input into any amendments to this schedule and the TNRD will notify all affected parties on amendments to the schedule.

5.2 Annual Reporting

It is recommended that TNRD continue to compile data annually on all of the residual disposal activities in the regional district, including residual waste handled by the public sector and the private sector, for reporting to the BC Ministry of Environment's on-line disposal calculator.

In addition, the TNRD will prepare an annual report to the Regional District Board and provide links on the TNRD website to reports provided to the Board in relation to the Plan. Topics that will be included in the report include:

- Programs delivered each year and how they support the waste management hierarchy, especially the first three Rs (reduce, reuse, recycle)
- Economic development related to solid waste management in the region
- Challenges or opportunities identified by the plan monitoring advisory committee
- Monitoring data for closed sites
- Compliance activities
- Landfill gas capture and reuse
- Spills, leaks and leachate collected at facilities
- Wildlife interactions and control measures

5.3 Five Year Effectiveness Review

As discussed in Section 3.12, the TNRD will carry out a review and report on the Plan's implementation and effectiveness in 2024. A link to the report will be provided on the TNRD's website. The review may include:

- Overview of all programs or actions undertaken in first five years to support the Plan goals and targets, including status and implementation costs for each.
- Description and forecasted budget for programs or actions not yet started and status, including explanations for delays or cancellations of Plan components.

- Five-year trend information for waste disposal per person.
- Five-year trend of greenhouse gases emitted and avoided, if available.
- Any significant changes that might impact the solid waste management system over the next five years.

In advance of the 5-year review noted above, it is proposed that a multi-season waste composition study on the residual waste management stream be conducted at year 5. If appropriate, the waste composition study should be conducted again, in advance of the next RSWMP update to assess the success of current waste diversion programs and policies and identify opportunities for additional diversion.

5.4 Plan Amendments

This plan represents the current understanding and approach to the solid waste management challenges being faced by the TNRD. The plan is a "living document" that may be amended to reflect new considerations, technologies and issues, should they arise.

Due to changing circumstances and priorities that may evolve over time, and with the input of the plan monitoring advisory committee and interested parties, all major actions identified in the Plan will be reviewed for appropriateness before implementation. This will generally occur on an annual basis. The Plan's implementation schedule will be flexible enough to reflect the availability of technologies that may arise over time, as well as the potential changes in regional issues and priorities. In addition, it will also take into account the financial priorities of the TNRD its member municipalities and other partners, the availability of funding to undertake Plan activities, and the availability of contractors and service providers.

Table 5-1 - Implementation Schedule

2019-2020	**TNRD and City of Kamloops:** • Implement disposal bans on recyclable materials • Develop an annual promotion / education plan, and coordinate/collaborate with other local governments • Establish permanent HHW depots • Update bylaws with an aim for consistency in the Kamloops area **TNRD:** • Promote ICI diversion opportunities • Assist haulers to encourage recycling by their customers • Establish a zero-waste education program for schools • Convert Heffley Creek to C & D Only Site • Establish a Plan Monitoring Committee • Begin working on a region-wide illegal dumping strategy **City of Kamloops:** • Require recycling collection at all ICI locations • Establish mandatory space allocation in ICI and multi-family developments • Close Barnhartvale Landfill
2021-2022	**TNRD and City of Kamloops:** • Begin development of a C & D waste diversion strategy • Begin working on a region-wide illegal dumping strategy **TNRD:** • Encourage municipalities to implement mandatory ICI recycling • Encourage recycling space allocation in ICI and multi-family developments • Create C & D waste management toolkits for contractors and DIYers • Establish a Plan Monitoring Committee
2023-2024	**TNRD and City of Kamloops:** • Conduct a waste composition study • Prepare a Five-year Plan Effectiveness Review **TNRD:** • Design and implement an organic waste reduction pilot project Assess the need for facility licensing or codes of practice bylaws • Develop food waste processing capacity
2025-2026	**TNRD and City of Kamloops:** • Promote organic waste reduction • Consider organic waste processing and collection options for Sun Peaks **City of Kamloops:** • Design and implement organic waste collection service • Encourage ICI organic waste diversion

6. PLAN SCHEDULES

Schedule A: Plan Reports & Consultation Report

Provides links to planning technical reports and the public consultation report.

Schedule B: Plan Monitoring Advisory Committee Terms of Reference

Provides draft Terms of Reference for the Plan Monitoring Advisory Committee (PMAC).

Plan Schedules

Schedule A

Schedule A for the TNRD RSWMP can be found on the Thompson-Nicola Regional District's webpage.

Schedule B

DRAFT

TNRD Regional Solid Waste Management Plan – 2018
Plan Monitoring Advisory Committee (PMAC)
Terms of Reference

(a) Introduction

The purpose of the Terms of Reference is to ensure that committee members are aware of expectations and commitments of committee members. Specifically, members should be aware of the monitoring role of the Plan Monitoring Advisory Committee (PMAC).

The purpose of the Plan Monitoring Advisory Committee (PMAC) is to monitor and advise on the implementation and effectiveness of the ten year Regional Solid Waste Management Plan (plan). The tasks of PMAC include:

- Reviewing the current status of the Regional Solid Waste Management Plan initiatives based on reports and presentations provided by TNRD staff,
- Reviewing information related to implementation of the plan, including waste quantities, populations, and diversion rates.
- Advising the TNRD on matters involving monitoring and implementation of the Regional Solid Waste Management Plan through minutes and recommendations from Plan Monitoring Advisory Committee meetings.
- Advising on each major plan review which will occur every five years,

(b) Authority

The Plan Monitoring Advisory Committee makes recommendations to the Board through the Solid Waste Management Committee. The Board is the final authority on decisions.

(c) Membership

The committee shall consist of no more than nine (9) members appointed by the TNRD Board. Membership shall include representation of the various interests as follows:

- Chair (1) or alternate from the TNRD Solid Waste Management Committee (non-voting)
- 1 member of staff from the City of Kamloops
- 1 representative from area First Nations
- 3 representatives of the private sector waste management industry
- 3 members of the general public and/or environmental community

Memberships are for two-year periods, and may be renewed for up to two additional terms. (Membership should be staggered for two-year terms.)

(d) Meeting arrangements

- The Chair and Vice-Chair are elected annually from amongst the voting membership.
- The committee will meet at least once annually or at the call of the chair. Meetings will take place at the TNRD Boardroom unless otherwise specified. Members are expected to attend in

person unless arrangements are made to participate by phone or online (e.g., via Skype).

- Quorum shall be a minimum of 50% plus 1
- Staff will prepare agendas in consultation with the Chair and Vice-chair. Agendas will be distributed to committee members via email and posted on the TNRD website.
- Staff are responsible for taking minutes. The minutes and recommendations are then forwarded to the Solid Waste Management Committee.
- All committee members are equal and have equal opportunity to contribute at meetings, and must respect the opinions of others.
- Members are encouraged to work collaboratively and to be committed to reaching consensus where possible, taking into account the best interests of the community. Any members unable to agree with the decision may have their objections noted in the minutes.
- Members who miss three consecutive Committee meetings may have their membership revoked at the Board's discretion.
- In any proceeding, members must declare any real or perceived conflict of interest. The member involved should excuse themselves from proceedings that relate to the conflict unless explicitly requested to speak, on a majority vote to do so. Any subsequent information provided by the member will clearly be identified in the minutes as coming from a source perceived to be in a conflict of interest.
- Regular communications between meetings is by email or other acceptable form of electronic communication.
- Members of the public may observe meetings but will not have voting rights or speaking rights unless invited to speak by the Chair.

(e) Resources and budget

TNRD provides the meeting space and any refreshments.

Funds for any projects are from the Solid Waste Management Plan budget and subject to normal budgetary review and approvals.

Participation in the committee is voluntary and there is no remuneration for members' time. Travel assistance, if required, is provided for members travelling far distances to meetings, following the TNRD travel guidelines.

(f) Reporting

Draft minutes of PMAC meetings will be circulated via email to committee members once prepared. Those minutes will appear on the next PMAC agenda for adoption.

Draft minutes will be provided to the Solid Waste Management committee after each PMAC meeting for information and discussion and then to the Board for decision making as necessary.

(g) Review

The Terms of Reference will be reviewed every second year and updated as required. Changes to the Terms of Reference must be approved by the Board.