Lower Nicola Indian Band
Residual Waste Improvement Strategy

Prepared by:
Land Forest People Consulting Ltd.
1076 Verdier Avenue
Brentwood Bay, BC
V8M 1E6

May 30th, 2020

Executive Summary

This report is a product of the second phase of LNIB solid waste management planning that began in early 2019. At that time the initial investigation into their system identified problematic communal bins and unsustainable service delivery costs as the two main issues with LNIB's residual waste system. Different operational improvement options, and their estimated implementation costs, were examined at that time. This report is a continuation of that investigation.

In this report we investigate two potential options: Option 1 is to replace all communal bins with an upgraded analogous model; Option 2 is to upgrade only institutional, commercial and industrial (ICI) bins with an analogous model and implement curbside service for residential residual waste. Option 2 is strongly recommended because it is significantly more cost-effective, simpler to implement, and offers users an enhanced and more convenient service.

We researched specifications and compared two different types of communal bins: one steel, one poly. While both are a significant upgrade to existing bins, we believe the steel model made by Steel Container Systems, Inc. (SCS) better suits LNIB's purposes, primarily because it features the lowest access side height. Access height was identified as one of the issues with the existing communal bins in 2019, both for users and for workers. The steel models are also slightly less expensive. The 2-yard size is recommended because of the issue of access height.

Residual waste management costs LNIB approximately $11,000 annually, nearly 40% of the total cost of solid waste management. Implementing an annual user fee, as other jurisdictions do, is crucial to LNIB being able to continue to provide high-quality solid waste management services to the community. A survey of municipalities across BC showed that our proposed user fee of $175 is in line with other jurisdictions, and is in fact at the lower end of the range we found.

Ultimately, we make four recommendations to improve LNIB's current residual waste management system:

- Upgrade existing ICI bins with an analogous model, and residential bins with a curbside model;
- Implement an annual user fee of $175, and reassess once capital costs have been recouped;
- Renegotiate *Independent Service Agreement* appropriate to new level of required services; and
- Contact ISC for specific information regarding funding eligibility prior to adopting any other recommendations.

Table of Contents

List of Tables and Figures

1.0 BACKGROUND

In 2019 the Lower Nicola Indian Band (LNIB) received support from the First Nations Land Management Resource Centre (FNLMRC) to undertake a comprehensive study of solid waste management on LNIB lands. The goal of the project was to improve the existing solid waste management system to better meet the needs of the community and the environmental and financial goals of LNIB.

There were four stated goals of the 2019 project:

- Reduce the volume of solid waste produced by the community;
- Divert as much material as possible from the residual waste stream;
- Eliminate inappropriate waste disposal on LNIB lands; and
- Reduce the financial burden of solid waste management on LNIB.

Deliverables from the 2019 project consisted of three documents – the *Issues Characterization Report*, the *Solid Waste Management Plan* (SWMP), and the *Solid Waste Community Education Report*. These documents describe potential resources and detail a number of recommendations for environmental and financial improvements that could be made to the current system.

The SWMP identified problematic communal bins and unsustainable service delivery costs as the two primary issues with the current residual waste management system. While community feedback in 2019 indicated that members are generally satisfied with the current system and level of service, there was also recognition that the current bins can be greatly improved. There was some support for instituting an annual user fee, particularly if it meant an increase in the level of service.

Four operational improvement options were considered for the residual waste stream in 2019. Ultimately, three were rejected because the initial research suggested that their relatively high costs were too great compared to any savings they could generate. The following actions comprise the final recommendation as proposed to LNIB:

1. Upgrade the ten[1] Industrial, Commercial and Institutional (ICI) collection bins with an improved steel model;
2. Move residential collection from distributed communal bins to curbside collection using new animal-proof bins;
3. Implement a $175 annual user fee per household; and
4. Renegotiate the *Independent Service Agreement* with the independent collection contractor to ensure LNIB realizes any cost savings.

The implementation of an annual user fee is crucial to making this recommendation feasible for LNIB, and was a significant factor in the rejection of the three other options. Given community feedback,

[1] The ten ICI bins identified in the 2019 report were as follows: Economic Development office, Band School, Band Office, Health Centre, Shulus Community Arena, Fire Hall, Shulus Community Hall, Scw'exmx Child and Family Services Building, Elders Building, Rocky Pines Community Centre. Updated information on the number and location of ICI bins may be found in section 5.0

implementing the user fee is only a consideration with this option because it is in conjunction with an upgrade to residential services.

In November 2019 LNIB received additional funding from the FNLMRC to build on the various recommendations that came out of the 2019 project and further advance LNIB's goals with respect to solid waste management. In this report, we investigate the recommendation detailed above, as well as an option that was previously rejected: an upgrade to existing infrastructure without moving to curbside residential collection. Our findings with respect to each option are discussed in section 6.0; we make our recommendations in section 7.0.

2.0 LEGISLATIVE CONTEXT

Ordinarily, residual waste on Indian Reserves is governed by the *Indian Act*, specifically by the *Waste Disposal Regulations'* permit system for waste disposal, storage, and burning. Outside of Indian Reserves in British Columbia, residual waste is regulated under the Provincial *Environmental Management Act*, which is far more robust with respect to the management of solid waste compared to the *Indian Act*.

As a signatory to the *Framework Agreement on First Nation Land Management*, LNIB have opted out of those sections of the *Indian Act* that govern land management on Indian Reserves. LNIB brought their *Land Code* into force in 2016, and have since made efforts to pass additional legislation. The following acts are either in force or under development at the time of writing:

- The *Lower Nicola Indian Band Zoning By-law, 1994* (to be repealed and replaced by the *Land Use and Zoning Law*)*;*
- The *Lower Nicola Indian Band Property Assessment Law, 2009;*
- The *Lower Nicola Indian Band Property Taxation Law Amending Law, 2009;*
- The *Subdivision, Development and Servicing Law* (under development);
- The *Land Use and Zoning Law* (under development);
- The *Enforcement Law* (under development);
- The *Allotment and Custom Interests Law* (under development);
- The *Environmental Management Law* (under development);
- The *Business Licence Law* (under development).

As a First Nation operating under *Land Code*, LNIB is governed by neither the provincial *Environmental Management Act*, nor the *Indian Act* on matters relating to solid waste. Residual waste is instead rightfully governed and regulated by the LNIB *Environmental Management Law*, which is currently under development. The LNIB Environmental Management Policy and Procedures works in conjunction with the legislation as a guide for LNIB staff to implement and administer LNIB's solid waste management program.

The *Environmental Management Law* is not yet enacted; however, it has been drafted to address residual waste management. It will:

- Prohibit anyone from disposing of recyclable or compostable material in the residual waste stream;
- Obligate anyone disposing solid waste to use the appropriate local disposal facilities; and
- Prohibit littering and unsightly land.

3.0 CURRENT STATE

3.1. OPERATIONS

LNIB contracts a community member to deliver residual waste collection and disposal services under an *Independent Service Agreement*. On behalf of LNIB, the contractor collects and disposes of approximately 174 tonnes of residual waste annually from 94 communal bins in which members dispose of their residual waste at their discretion. All residual waste is taken to the nearby Thompson-Nicola Regional District (TNRD) Lower Nicola Eco-Depot where it is tipped for a fee. Disposal fees and the use of the Eco-Depot is subject to the *Solid Waste Reduction, Recycling, and Disposal Agreement* between LNIB and the TNRD.

As detailed in the 2019 *Issues Characterization Report, t*he communal residual waste bins are problematic for a number of reasons:

- The plywood bins are susceptible to rapid degradation, requiring near constant repair. The contractor performs these repairs at this home using his own tools.
- The bins are not animal proof and are susceptible to damage by wildlife such as bears, coyotes, and cats. Habituating wildlife to garbage on LNIB lands has other adverse consequences, including for members' safety.
- The lid can be heavy and awkward to lift for Elders and other users, and its position on top of the bins means it must be cleared of snow in the winter.
- The lack of holding receptacles inside the plywood bins results in loose waste collecting at the bottom of the bins, which must be cleaned out regularly.
- While the front wall of the bin is the shortest of the four sides, it is high enough to make depositing waste potentially difficult for Elders and other users, and collection difficult for workers.
- The design necessitates workers climbing directly inside the bins to clean out accumulated loose waste.

A more detailed description of LNIB's residual waste management may be found in the 2019 *Issues Characterization Report* and *Solid Waste Management Plan*.

3.2. FINANCES

The 2019 project found that solid waste management cost LNIB approximately $29,000 in 2017-2018. Costs are only expected to increase due to LNIB's increasing population, increasing disposal fees imposed by the TNRD, and other associated costs such as insurance and fuel. We estimate that approximately $11,000 of the 2019 total is associated with collecting and disposing of residual waste, as detailed below in Table 1.

Table 1 - Estimated Cost of Solid Waste Management and Residual Waste Management on LNIB Land

Costs (*Indicates 80% recoverable under MTSA)	
Tipping fees (2017-18) 174 tonnes @ $80/tonne	$13,920.30*
TNRD annual fee (2018) 570 residents @ $60/resident	$34,200.00*
Residual waste services (RDS contract)	$47,078.00*
Total residual waste costs	**$95,198.30***
Estimated Revenue	
Interdepartmental Transfers 114 Rental Units @ $50[2]	$5,700
Other interdepartmental transfers[3]	$2,500
MTSA Recovery	$76,158.64
Total residual waste revenue	**$84,358.64**
Total Estimated Cost of Residual Waste Management	**$10,839.66**

[2] LNIB Housing department contributes $250/rental unit for three services: snow removal, water, and solid waste removal. In the 2019 *Issues Characterization Report*, it was assumed that $100/rental is applied to solid waste. Here was have assumed that 50% of that is applied to residual waste.

[3] In the 2019 *Issues Characterization Report*, it was assumed that $5,000 in other interdepartmental transfer applied to solid waste. Here again we have assumed that 50% of that is applied to residual waste.

4.0 OPPORTUNITIES AND CHALLENGES

Success in this project can be defined in terms of both environmental and financial outcomes, and the two are linked. Any amount of reduction or diversion from the residual waste stream translates into savings for LNIB in reduced tipping fees.

This report represents only one element of LNIB's efforts to improve the solid waste management system overall. It is delivered in conjunction with other work aimed at mitigating illegal dumping, investigating the opportunity for a compost facility on LNIB lands, and educating and engaging the community on different aspects of solid waste. All of these elements, including their costs, savings, and potential environmental outcomes, should be considered collectively.

While we foresee two main challenges facing LNIB in implementing changes to improve the current residual waste management program, there are a few things that LNIB can do to mitigate these challenges.

Table 2 - Challenges and Opportunities

Challenge	Opportunity
Financial: • LNIB must secure the necessary funds to make the upgrades recommended in this report.	Potential Funding: • While confirmation of funding opportunities is outside of our scope, ISC funding may be available. • The 2016 federal budget allocated $409 million over five years for improvements to solid waste on reserve, to be delivered through the First Nations Waste Management Initiative.
Community Reluctance: • We anticipate some resistance from users to introducing a new user fee. Survey respondents in 2019 expressed concern about user fees being a burden to some users, and that the introduction of a user fee could lead to an increase in illegal dumping.	Reputation and Relationships: • The community views the LNIB solid waste management service as well-run and are quite happy with it; LNIB enjoys a good working relationship with the TNRD, who run a high-quality disposal facility nearby. • Continual efforts should be made to build on these established relationships, and may be leverage both to mitigate any reluctance from the community associated with a new user fee. • LNIB may consider structuring the user fee to accommodate different financial realities. Options include allowing monthly payments (of $14.58 at $175 annually), or a sliding scale according to users' ability to pay. Community Education and Engagement: • Deliverables for this project include a Community Engagement and Education Plan and related resources and materials. • Consistent messaging and communication of the benefits associated with changes to residual waste management, as well as the rationale for implementing them, should help to mitigate resistance in the community. • As discussed in section 5.4, an annual user fee of $175 is in line with other jurisdictions, and is on the lower end of the range in places we surveyed. Any payment alternatives that LNIB chooses to adopt, such as monthly payments or a sliding scale, should also be communicated. Illegal Dumping Mitigation • We do not believe that the introduction of a user fee will drive illegal dumping behaviour as the fee will apply across all households without exception. It cannot be avoided by engaging in the practice of illegal dumping. • Tools and strategies to reduce illegal dumping are detailed in the *Illegal Dumping Mitigation Strategy*, delivered in conjunction with this report.

5.0 DISCUSSION

In this section, we discuss the considerations that will inform our recommendations in section 7.0:

- Potential communal bin models we have sourced from two different providers, and the pros, cons, and other considerations associated with each;
- The number and location of existing ICI bins, as well as the number and location of necessary replacement bins;
- The number, type and cost of various residential bin model options;
- The appropriateness of the annual user fee compared to other jurisdictions; and
- Implementation considerations.

5.1. COMMUNAL BIN MODELS

The current communal bins hold approximately 2.3 cubic yards. We have researched two different types of analogous bins (poly and steel) from two suppliers, each of which is available in 2-, 3-, and 4-yard models with different features.

To summarize, the following issues with the current plywood bins identified in 2019 were:

- The material is subject to degradation in the elements;
- The lid is unsecured against animals, snow accumulations, and can be heavy and awkward to lift for some users;
- Their design and lack of holding receptacles mean that loose waste accumulates at the bottom of the bin, which workers must regularly clean out by climbing inside the bin; and
- The height makes access difficult for some users.

<u>EnviroWirx (Canada) Bins Features and Specifications</u>

The poly EnviroWirx 2-yard front load poly slant lid model is shown below in Figure 1. EnviroWirx model specifications are summarized in Table 3, and a full description of features and specifications may be found online at https://www.envirowirx.com/resource-menu.

Figure 1 – EnviroWirx 2-yard front load poly slant lid

Table 3 - EnviroWirx Bins Features and Specifications

	EnviroWirx (Canada) Ontario 1.800.663.2803 www.envirowirx.com		
Material	Poly		
Style	front load poly slant lid		
Size	**2-yard**	**3-yard**	**4-yard**
Dimensions	80”w 49”h 41”d	80”w 53”h 49”d	80”w 55”h 59”d
Load Rate	1,000 lbs	1,500 lbs	2,500 lbs
w/o casters	$1,025.86	$1,175.39	$1,513.64
Unit Weight	270 lbs	365 lbs	445 lbs

Steel Container Systems Inc. (SCS) Bins Features and Specifications

Two steel SCS models, the front load poly slant lid and the front load metal slant lid with swinging door, are shown below in figure 2. SCS model specifications are summarized in Table 4, and a full description of features and specifications may be found online at https://scsinc.ca/product/sloper-front-load-container/.

Figure 2 – SCS front load sloped poly lid (L) and front load sloped metal lid with swinging door and optional hinged full-length lock bar (R)

Table 4 - SCS Bins Features and Specifications

	Steel Container Systems Inc. (SCS) Nanaimo/Burnaby 1.877.727.7833 www.scsinc.ca		
Material	Metal		
Style	Front load poly slant lid		
Size	**2-yard**	**3-yard**	**4-yard**
Dimensions	70”w 32”h 34”d	70”w 41”h 42” d	70”w 40”h 56”d
Load Rate	n/a	n/a	n/a
w/o casters	$ 972.78	$1,173.08	$1,244.75
w/steel lid	$988.05	$1,310.99	$1,260.02
w/swing door	$1,776.11	$1,976.41	$2,048.08
Unit Weight	515 lbs	605 lbs	715 lbs

Improved Features Over Current Bins

1. Material

   The EnviroWirx model’s poly material is 30% lighter than metal, low maintenance, and will not corrode. The SCS models are painted with two coats each of corrosive-resistant primer and enamel paint, but presumably will eventually be susceptible to rust.

   Conclusion: EnviroWirx has a slight advantage when it comes to material and maintenance, but both are a significant improvement over the existing plywood models.

2. Lid Design

   There were three issues identified with the current lids: they are unsecured against animals, their position on top of the bin collects snow, and they are heavy and awkward to lift for some users. The optional hinged locking bar offers some protection against access by smaller animals, and both models are available with this feature. Only the SCS models are available with a bear proof lid. Both features come at an additional cost. For the SCS models, the lockbar is an additional $42 per bin, and the bearproof lids range from an additional $1,000 for a single lid to $1,300 for two.

   The SCS models are available with a swinging access door on the front side, which is a helpful feature for those users who find lifting the top lid difficult. Swinging doors may affect the placement of some bins, and collection receptacles inside the bins may be necessary to prevent spillage. Again, this feature is available at an additional cost, as shown in Table 4.

   Both the EnviroWirx and SCS models are available with a poly lid, which is approximately 30% lighter than metal, making for easier access by elders and children.

3. Access Height and Accumulation of Loose Waste

The height of the access side on LNIB's current bins varies somewhat, but is in the range of 32" to 36", based on the bins we measured. The height of the access sides on the SCS models are all significantly lower than their EnviroWirx counterparts, as summarized in table 5.

Table 5 - Comparison of Communal Bin Access Side Heights

	2-yard	3-yard	4-yard
EnvrioWirx	49"	53"	55"
SCS	32"	41"	40"
Difference	**17"**	**12"**	**15"**

The SCS 2-yard is the only model that does not have a significantly higher access side than the current bins.

The optional swinging door on the SCS models may also help with access for those users who find the current bins difficult to access, and would allow workers to keep the bins free of accumulated loose waste without having to climb inside.

Other Considerations

4. Price

Comparable base models (i.e. without additional features) are similarly priced, with the SCS models being slightly lower in every case. Note that delivery costs are not included in these figures.

Table 6 - Price Comparison of Comparable Communal Bin Models

	2-yard	3-yard	4-yard
EnvrioWirx	$1025.86	$1179.35	$1513.64
SCS	$972.78	$1173.08	$1244.75
Difference	**$53.08**	**$6.27**	**$268.89**

Conclusion: SCS is slightly less expensive, but price differences will be more or less significant depending on how many communal bins are replaced. As an example, LNIB would save approximately $5,000 replacing 94 2-yard bins with the SCS model over the EnviroWirx. Additional features such as lock bars, bear-proof lids, and swinging doors will also affect the final price.

5. Collection Method

Collection method, both now and in the future, must be considered when choosing a bin model. Unlike the SCS models, the EnviroWirx bins are only designed to be compatible with the forks on front-load collection trucks, and are therefore not available with swinging doors. LNIB do not currently have a front-load collection truck, but may be able to purchase one with funding from ISC in the future.

Conclusion: Collection is currently done by hand, which makes the SCS bins more attractive due to the lower access side height and swinging door option (which comes at an additional cost). If LNIB were to purchase a front load truck at some point in the future, the lower access side height is still advantageous, but the additional cost of the swinging door is likely not. The number of communal bins that are replaced will likely factor strongly in the decision to purchase a front load truck, as there will be less incentive if residential bins are replaced with curbside models.

6. Placement

   While all ICI bins are located on solid ground, a number of communal bins in residential areas are placed on top of two beams that span a ditch. This poses a potential issue for replacement poly or steel bins. Manufacturers will need to advise on how to mitigate this issue, if necessary.

5.2. NUMBER AND LOCATION OF ICI BINS

The location of the ten ICI bins at the time of the 2019 project was unconfirmed, but was assumed to be one 2-yard bin in each of the following ten locations: Economic Development Office, Band School, Band Office, Health Centre, Shulus Community Arena, Fire Hall, Shulus Community Hall, Scw'exmx Child and Family Services, Elders Building, Rocky Pines Community Centre.

We have since confirmed there are now eleven ICI bins at seven locations, which differs from the information presented in 2019. Five locations have one 2-yard bin and three locations have two 2-yard bins. At these three locations, we are not recommending replacing the two 2-yard bins with one 3- or 4-yard bin because the access side height on the larger bins is an issue. We have identified one additional ICI location where it would be appropriate to locate a new bin.

Table 7 shows the location and number of current ICI bins, the required replacement bins, and the location for a new bin.

Table 7 - ICI Bin Locations

Location	Number of existing 2-yard bins	Number of 2-yard replacement bins
Economic Development Office/Shulus Community Hall	2	2
Band School	2	2
Shulus Community Arena	2	2
Health Centre	1	1
Elders Building/Cookshack	1	1
Education Trailer	1	1
Fuel Station	1	1
Band Office	0 (uses nearby bin)	1
Rocky Pines Community Centre	1(recently installed)	1
Total	**11**	**12**

5.3. RESIDENTIAL BINS

As with communal bins, collection method must be considered when choosing a residential bin model. There are two basic models of residential bin: those suited to manual collection, and those that are designed specifically to be collected by an automated mechanical arm.

Manual Collection

Residential residual waste collection at LNIB is currently done by hand, and is transported using the contractor's modified pickup. A rear load garbage truck, should LNIB choose to purchase one, would be suitable for manual collection.

If manual collection is to continue, then any number of widely available residential bins would be suitable. A number of models are available from Canadian Tire and Home Hardware, two retailers that are located nearby in Merritt, in the $15.00 to $40.00+ range depending on the size and features such as wheels and locking lids.

Automated Collection

LNIB do not have a truck for automated residual waste collection at this time, and repurposing the automated recycling truck is not a practical option. Should LNIB wish to purchase a new truck in order to move from manual to automated collection, then specifically designed residential bins will be required. At this juncture we cannot know exact specifications, but it appears that suitable models may be available from local retailers and range in price from approximately $90.00 - $115.00.

Container Size

Based on survey of several municipalities in BC, and taking into account such factors as collection frequency and presence or absence of a kitchen scrap composting program, we conclude that a 120L container should be sufficient for smaller households (i.e. 1-3 people), while 240L is likely sufficient for most single family households (i.e. 4-6 people). Some larger households may require 360L.

Most families could be outfitted with a residential bin for under $40 (120L) or $80 (240L).

Figure 3 – Typical residential residual waste bin sizes and household suitability

Image: Copyright 2019, City of Richmond

Number of Residential Bins

LNIB services 256 homes, however, we recommend that the one 8-plex located on Yap Skim Drive be serviced by a communal bin. Collection container size guidelines from the City of Ottawa[4] indicate that a 2-yard bin would be appropriately sized for this building.

256 housing units – 8 units using communal bin = 248 residential bins required.

5.4. User Fee

Solid waste management on LNIB lands is subject to a *Municipal Type Service Agreement* with the federal government, which covers 80% of eligible costs associated with delivering this service. Despite this funding stream, solid waste management costs LNIB approximately $30,000 annually, an amount that is unsustainable in the long term. Like municipalities that rely on taxes and user fees in order to deliver services, LNIB must seek revenue in order to continue delivering solid waste services.

[4] Recommended 0.231 cubic yards per unit, rounded up

A sample of annual garbage collection fees from municipalities in BC are listed below in Table 8. Where there is data associated with the year the fee came into force, it is indicated in parentheses. In some municipalities, residents may purchase a bin of their own choosing, provided it meets certain size or design criteria. The collection fees for a sample of those areas is listed in the far-right column.

Table 8 - Survey of Residual Waste Collection Fees in Municipalities in BC

MUNICIPALITY	80L	120L	180L	240L	360L	Own Bin
Victoria*[5]	$195.63	$222.39	$262.56	$444.78 (2 dwellings) $586.89 (3 dwellings)	-	
Burnaby*	-	$25	$75	$140	$385	-
Nanaimo* (2018)	-	-	-	$165	$165	-
Merritt (2016)	-	$272.56	-	$395.22	-	-
Kamloops (2015)[6]	-	$78 (+$7)	$105 (+$8)	$130 (+$10)	$208 (+$12)	-
Coquitlam* (2020) [3]	-	$251	$333	-	$471	-
White Rock*	-	-	-	-	-	$333
Abbotsford*	-	-	-	-	-	$220
Langley*[3]	-	-	-	-	-	$198
Hope (2020)	-	-	-	-	-	$322[7]
AVERAGE	**$195.63**	**$169.79**	**$193.89**	**$255**	**$307.25**	**$268.25**

**denotes bi-weekly residual waste collection*

It is clear from this sample that $175 annually is reasonable when compared to other municipalities across BC, and is in fact at the lower end of those we surveyed. LNIB may wish to consider implementing a monthly payment option, or a sliding scale in order to accommodate users for whom the annual fee would cause financial hardship.

The maximum amount that LNIB can expect to collect annual in user fees is summarized in Table 9 below:

Table 9 - Annual User Fee Revenue

Housing Type	Number of Units	Amount Paid Collected	Additional Fee	Total Collected
Rental	124	$12,400	$9,300	$21,700
Non-rental	132	$0	$23,100	$23,100
Total	**256**	**$12,400**	**$32,400**	**$44,800[8]**

[5] Includes removal of green waste (kitchen scraps and yard trimmings)
[6] The additional fee in parentheses is for the rental of the bin itself.
[7] Includes garbage, recycling, yard waste, organics and glass.
[8] LNIB may consider not implementing the additional $75 for residents of the 8-plex, as they will not receive curbside service. In this case, the total annual fee collected by LNIB will be $44,200

6.0 OPTIONS

In this section we undertake further consideration of two different options developed in 2019, one was a recommendation at that time, and the other one was rejected due to cost. The second option is being put forward again with a modification: the introduction of an annual user fee.

Option 1 is to upgrade all existing bins with an analogous model. Option 2 is to upgrade existing bins with an analogous model only at ICI locations, and residential communal bins with individual curbside models. Both options include instituting a new annual user fee.

6.1. OPTION 1: UPGRADE ALL EXISTING BINS WITH ANALOGOUS MODEL

This option would see LNIB replace all 94 communal bins with 95 comparably sized communal models. The additional bins are located at the Band Office.

Table 10 - Cost Estimates for 95 ICI and Residential Replacement Bins (exclusive of delivery costs)

		Sample Bin Models[9]		
Bin Size	**Number Required**	**SCS**	**EnviroWirx**	**SCS Swing Door**
2-yard	95	$92,414.10	$97,456.70	$168,730.45

The financial cost of this option ranges from over $90,000 for base model bins up to nearly $170,000 or more, depending on additional features. In this case, it may make sense to purchase a new front loader collection truck rather than outfit all bins with swinging doors.

Annual user fees total $44,800; $30,000 of which covers LNIB service delivery costs. It would take between approximately six and twelve years for the remaining $14,800 to cover the costs of upgrading all 94 bins, without taking into account interest or carrying costs.

6.2. OPTION 2: UPGRADE EXISTING ICI BINS WITH ANALOGOUS MODEL, AND RESIDENTIAL BINS WITH A CURBSIDE MODEL

This option would see LNIB replace only the existing 11 ICI bins with 12 analogous models. The remaining bins for residential use will be replaced with new curbside bins for single family homes, duplexes, and fourplexes. A large communal bin is recommended for the 8-unit housing complex on Yap Skim Drive.

We anticipate that this option will receive more support from the community, as it is a significant upgrade in service for users. Members will likely appreciate the convenience of disposing of their household waste in their own bin rather than in a communal bin that may be in some state of disrepair, and located at some distance from their home.

Cost estimates for replacement ICI bins are listed below in Table 11.

[9] Poly lid, without casters or hinge locks

Table 11 - Cost Estimates for 13 ICI Bin Replacements

		Sample Bin Models[10]		
Bin Size	**Number Required**	**SCS**	**EnviroWirx**	**SCS Swing Door**
2-yard	13	$12,646.14	$13,336.18	$23,089.43

Information regarding the size of individual households is not readily available, either from census data or ISC. Therefore, in order to estimate the cost of outfitting all LNIB homes with residential curbside bins, we have had to make some assumptions.

The 2015 LNIB Community Profile indicates that at that time there were 700 residents in 225 households on LNIB lands, which equates to just over 3 people per household. While we can use this to approximate an average today, we cannot know the spread or standard deviation of household size. We have therefore calculated two different scenarios, based on different assumptions, as illustrated in Table 12. In each case, we estimate the total cost for curbside residential bins to be less than $20,00.

Table 12 - Cost Estimate for 248 Curbside Residential Bins

	Assumptions				
	Proportion of Households <3 members (1x120L)	**Proportion of Households 4-6 members (2x120L)**	**Proportion of Households >6 members (3x120L)**	**Number of 120L Bins Required**	**Total Cost**
Scenario 1	1/3	2/3	0	413	**$14,455**
Scenario 2	1/4	1/2	1/4	496	**$17,360**

In this option, we have assumed that LNIB will purchase the residential bins for residents, rather than directing residents to select and purchase their own, as other municipalities have done.

The total cost to upgrade all ICI residential models ranges from approximately $27,000 to approximately $40,000. The final cost will depend on the communal bin features chosen, and the number of residential bins required based on household size.

Annual user fees, less operational costs of $30,000, would cover the costs of Option 2 within approximately two to three years.

It should be noted that this option presents potential operational savings that are not possible with Option 1. LNIB may choose to offer biweekly curbside residual waste collection, as do many of the municipalities we surveyed, particularly if a community-wide composting program is also successfully implemented.

[10] Poly lid, without casters or hinge locks

Implementation Considerations

The following are some aspects of implementation that will need to be considered and planned for prior to making any decisions, or implementing any changes:

- Administration associated with implementing the user fee.
- Costs and human resources associated with the removal and disposal of the old plywood bins. Tipping fees for 94 existing bins are estimated at $240[11].
- Costs and logistics associated with the delivery, storage, and distribution of new communal bins and new residential curbside bins, if required.
- Communication with members about these and other aspects of implementing these changes.

[11] Six sides of 4x4 plywood, estimated 30lbs. per side = 180 lbs. per bin. Tipping fees are $80/tonne.

7.0 RECOMMENDATIONS

Recommendation	**Implement Option 2: Upgrade existing ICI bins with an analogous model, and residential bins with a curbside model**

Option 2 is strongly recommended, for several reasons.

First, and perhaps most importantly, the cost of implementing Option 2 is significantly less than Option 1. Further, it represents a service upgrade for residents and is in line with feedback from the community that the introduction of a user fee accompanies an upgrade to their residual waste service. The introduction of a user fee is likely to be met with less resistance for this reason. Lastly, implementing Option 2 is likely to be simpler than Option 1, as the logistics of sourcing smaller curbside bins locally are assumed to be more manageable than sourcing large bins from elsewhere in the province or country.

The 2-yard steel SCS model is recommended, primarily due to its relatively low access side height and its price point compared to other models.

Recommendation	**Implement an annual user fee of $175, and reassess once capital costs have been recouped**

As in 2019, we confirm our recommendation to institute a $175 per household annual user fee. This amount is reasonable when compared to a sampling of municipalities across BC.

As described in section 3.2, solid waste management currently costs LNIB approximately $30,000 annually, and many of the costs associated with delivering this service are increasing. Implementing an annual user fee of $175 would allow LNIB to recoup all of their service delivery costs, plus a surplus that could be applied to the costs associated with implementing the recommendations made in this report. Timelines to recover the costs associated with the options presented range from less than three years, to potentially as much as twelve years.

Once implementation costs have been recouped, LNIB may choose to reassess the amount of the user fee to make sure it is appropriate based ongoing operating costs at that time.

Recommendation	**Renegotiate *Independent Service Agreement* appropriate to new level of required services**

In 2019 it was recommended that LNIB renegotiate the Independent Service Agreement such that LNIB, rather than the contractor, realize any costs savings. Should LNIB implement the recommendations in this report, that recommendation may no longer suit the circumstances. We therefore recommend LNIB renegotiate the *Independent Service Agreement* with the collection and disposal contractor to ensure that the services are appropriate, particularly with respect to curbside residential collection.

Recommendation	**Contact ISC for specific information regarding funding eligibility prior to adopting any other recommendations**

All of our recommendations are made on the assumption that no funding is available. Should LNIB qualify for funding from ISC, or any other source, it may impact our recommendations, particularly appropriate of the amount of the annual user fee.

8.0 SOURCES

https://www.sac-isc.gc.ca/eng/1491490781609/1533647730166

https://wasteadvantagemag.com/whats-the-best-type-of-garbage-truck-to-own/

Solid Waste Collection Design Guidelines for Multi-Use Residential Development, City of Ottawa, October 2012

Land
Forest
People®