Nanaimo Recycling Exchange Society

2022 ICI Diversion Project Final Report

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NRES ICI Diversion Project 2022 Report

Nanaimo Recycling Exchange Society (NRES) was awarded \$45,500.00 to complete the 2022 ICI Diversion Project, using data from the 2020 Waste Audit project and from ongoing 2021 projects. The NRES completed waste audits for 15 ICI participants in 2020. Waste Audit plans and post-audit services designed to address gaps were provided in 2021, with addition of new pilots with 3 of the participants to further research and develop Best Practice Models for the sectors.

The 2022 project proposal included completion of pilots, developing and implementing Best Practice Models using Problem Based Learning with sector participants, and completing Best Practice Models. The 2021 RDN funding was reduced to approximately 70% of the NRES proposed budget, which resulted in adjusted deliverables reported at project end. The 2022 RDN funding was reduced to 45% of the NRES proposed budget and deliverables were adjusted. The NRES fulfilled commitments to complete pilots with sector participants regardless of funding shortfall.

Proposed Deliverables

Specifically, Nanaimo Recycling Exchange proposed to

- . complete extended and successive pilot/testing programs,
- . develop and deliver six industry-specific best practice models,
- . provide education, training, and assistance to implement best practices across six ICI sectors,
- . provide targeted (not sector-specific) education to businesses struggling to keep EPR waste out of ICI streams.

Please note: Some re-cap information is included in this report to connect 2020 and 2021 data with 2022 outcomes. Diversion tonnages from previous years are not reported, but stand as pilot results. The 2022 report underscores previous statements that few simple or single responses will capture and address the complex and heterogeneous needs for ICI transition to a circular economy. This report alights at the crossroads of long-standing practices outliving their impact, and new paradigms that need new systems.

Adjusted Deliverables

Nanaimo Recycling Exchange Society proposed budget totalled \$99,00.00. The project was approved for \$45,500.00, which is 45% of the proposed budget. For this reason, project deliverables were adjusted.

Report on Project Deliverables

Complete pilot testing projects

Tectonica Management—the Unbuild to Build Story

After completion of the deconstruction phase of the Tectonica project, Tectonica requested NRES support to help implement their diversion plan for construction phase of their project. As noted in earlier pilot initiatives, "help" implement became implement, both because of lack of knowledge (internal and incoming trades) and existing services, and because of staff shortage.

As a Registered Charity, NRES is able to provide CRA Official Donation Receipt for income tax purposes. This is an important incentive for companies to choose deconstruction. The last step of deconstruction was to value the products donated in order to provide the receipt. Because there is no authoritative body to value deconstruction materials for such purposes, each item donated from deconstruction was valued according to resale prices set at the receiving reuse outlet.

NRES developed the plan for construction diversion. On-site source separation stations were provided for separation and diversion of construction products to reuse, and to test pilot plastic recycling. In addition, NRES engaged the Tectonica management team in problem-based learning, resulting in several on-site solutions for diversion; for example, end-cuts and other waste lumber on site were to be re-purposed on site as feature walls and landscaping products. On-site reuse of lumber from the Unbuild continued as footings and foundations were completed for each phase of construction.

Construction was scheduled for completion in May, 2022. Site worker introduction to the program occurred during scheduled orientations as new trades started work, and usually weekly after that to educate specifically about separation categories, contamination, and potential for on-site reuse. As on-site and community reuse was prioritized over recycling, NRES engaged the community using social media by offering free materials for pick up from the site. It is noted that DIY market for construction reuse is more viable than commercial reuse or resale. For that reason, all products were made available to the community from the site if and when safety permitted (see Appendix A: Source Separation on Construction Site—Reuse).

Some reported uses of materials in the community included **Lumber Wrap used for** Truck bed linings, Garden and compost covers, Landscape fabric, Growth suppressant on small farms. Shed roofing

Wood end cuts used for

Week-end projects like dog houses Raised garden bed projects Small patio furniture Some for firewood Small framing projects Shelving

Small farm materials

ABS pipe for outdoor water systems Lumber and wrap for building repair and roofing

Recycling of ABS, PVC, and lumber wrap was sorted and separated into colour and size categories for recycling at the Vancouver Island plastic processor. A mega-bag station was constructed for on-site collection of these products (see Appendix B: Source Separation at Construction Site--Recycling).

The smaller hauler model was used to transport paper, OCC, metal, and container plastic recycling to Church Road.

The project was challenged beyond a point of completion by post-pandemic labour shortages, which caused a change to site management. It was difficult for new site management to learn and monitor the diversion project while working at warp speed to catch up and complete the construction project. As new labour

rotated through the trades, and the trades rotated through the site, consistency of education, mentoring, and monitoring was eventually lost from the project. Once this was gone, old habits, rain and mud, and overall industry boom time-pressure burn-out ruled the day.

At the same time, construction material costs were rising, and Tectonica and trade managers were instructed to keep and reuse their stock, especially high cost products, in house. Tectonica had also experienced financial savings from reuse of the deconstruction material, and learned how important it was to have materials pre-sorted, clean, and accessible for reuse. The penny had also dropped for some other trades and workers, and they could see the purpose of having internal reuse policy and SOPs for waste. Then the site flooded and that ended the pilot.

Regardless of progress made, new site management ordered a bin for mixed waste. As noted in previous reports, these pilots hang by a thread when they are going well. One change of management, and some inclement weather, and the looming default to easier and cheaper garbage model is welcomed like a lost friend see (Appendix C: Post Pilot Practice).

During the difficulties at the construction site, trade workers were not able to keep the plastics products clean, and this further challenged NRES ability to have it recycled as post-industrial grade. At the same time, the plastic processor was signaling doubt about ability to test pilot the plastics scheduled for delivery. In the end, the processor was unable to assume costs and time loss of recycling and marketing low-grade waste stream plastics from the site.

Some observations were made by NRES as the project unraveled: some workers carried on storing, separating, and reusing materials without mandate to do so. In general, the longer workers had been with the project, the more inclined they were to keep materials for "just in case" not yet known purposes. Other workers continued to separate products and place them in totes or mega bags. New or more transient workers were not observed to be sorting or separating left over materials unless their company managers required it.

NRES had begun preliminary work developing the Deconstruction Best Practice model until it was reported that the RDN had engaged Synergy to provide a deconstruction report and model. As budget constraints adjusted NRES deliverables from 6 to 3 Best Practice modes, NRES abandoned that particular model so as not to duplicate work provided to the RDN.

Agricultural Plastic (Bale Wrap) Recycling:

After establishing linkage with the Vancouver Island plastic re-processor, whose business model included only post-industrial plastic, NRES engaged the processor (reluctantly) in a product testing pilot using waste stream bale wrap in 2021.

The 2021 diversion project reported 1mt of bale wrap from 11 farms. Plans were made in to expand the pilot, both in volume and products, to include construction plastic such as coloured ABS and PVC, as well as lumber wrap from the Tectonica site.

Days before a scheduled collection from farms with more plastic, NRES was informed the pilot had to be postponed for a month. The processor was having difficulties with lost time from frequent template changes between post-industrial and waste stream plastic. As it turns out, costs for processing the product were high, and although the processor had the will, the business did not have financial reserves to subsidize the expenses and lost time. Low-grade waste stream plastic has a narrow and tenuous market penetration, with

existing glut of global low grade plastic, the risk was proving too high. After several more post-poned collection dates, NRES suspended the program and notified farmers.

In an attempt to save the pilot, NRES connected Cleanfarms with the Vancouver Island plastic processor to discuss potential of partnership for providing local recycling of bale wrap. The benefits for Cleanfarms would have been both cost and footprint reduction of shipping products off island. It was proposed that Cleanfarms could extend government pilot funding to help with costs of recycling. Cleanfarms expressed no interest in partnering with mechanical recycling sites.

NRES further engaged the processor in developing a plan to apply for RDN ZWRF funds to recycle both agricultural plastics, and test pilot recycling of construction plastic. As with most Zero Waste recycling, such programs will never be cost recovery, and the RDN criteria rubric would down-grade the application and leave the pilot once more underfunded.

All farmers holding collected agricultural plastic sent it to landfill, unfortunately with no shortage of comment such as, "We knew this would happen." NRES also knew it would happen: RDN rubric rewards eventual self sufficiency, but the reason the zero waste fund was recommended in 2018 was precisely because recycling of some products will never be cost recovery. Expecting otherwise in current recycling markets paves the road to 90% garbage, and that is the result of this pilot.

After hearing of our bale wrap project Cheryl McClay, Regional Manager of South Vancouver Island/Coast Region, Ministry of Jobs, Economic Recovery and Innovation. contacted NRES suggesting we contact CoN Economic Development office about existing funding for such projects. CoN Economic Development Officer was contacted June 30, 2022, with no response.

This current state of plastic recycling is why elimination of plastic is key. NRES started preliminary research into models and funding for traditional silage buildings, and provided a preliminary model to a local MLA that presented it to the Ministers of Agriculture and Environment. As farmers and food security gain importance, there could eventually be support.

Farmers across the board are looking for ways to eliminate plastic from all farm use as silage, bale wrap, and growth suppressant because they have learned it degrades into their soil, which is their livelihood. Anecdotally, farmers reported frustration with historical lack of support from local and provincial government.

NRES/CESA Recycling support for Reuse

In 2020, NRES performed a waste audit for Friends of Haven Reuse. Subsequent 2021 post audit support highlighted a barrier common to most reuse facilities that indicated further pilot study. NRES designed a pilot and in late 2021, NRES and Canadian Electrical Stewardship Association (CESA) implemented the pilot to provide EPR recycling support to Friends of Haven thrift store, and 8 additional reuse facilities.

Pilot Recap: Reuse facilities receive donations of products that would normally be recycled at end of life through consumer EPR programs at recycling depots; however, by virtue of the donation to a thrift store, donated products become property of the business and no longer qualify for EPR recycling.

If the product isn't sold, the reuse business then incurs cost and inconvenience trying to recycle or otherwise dispose of the items: employees were making multiple trips sneaking the products into EPR streams at local depots or further donating where possible to community societies in need. Some reuse facilities reported

staff spending up to 50% of time trying to do the right thing with unsold donations. Many of these products were jumping stream from the intended residential recycling stream to commercial metal recycling streams, and, in the end, to garbage streams. Yet, the consumer has paid the eco-fee to EPR at point of purchase to cover the cost of recycling that product.

The pilot was designed to

- a) provide recycling of unsold CESA products at reuse facilities at no cost through EPR channels, and
- b) track CESA products diverted to reuse.

These targets were achieved, as reported in the NRES 2021 report.

Further analysis of pilot data and support provided to the reuse sector in 2022 revealed additional outcomes. Reuse facility managers reported that on-site recycling for CESA products also increased and incentivized diversion to reuse in three ways:

- 1. sorting staff can forward more products to testing and cleaning stations rather than diverting straight to garbage,
- 2. staff has more available time for the testing, cleaning, disassembly, re-assembly, matching lids and cords, high-grading components, necessary for resale,
- 3. staff can accept more accessories, and make more complete sets to sell.

These activities are the heart and soul of successful reuse outlets. The increased diversion to reuse also resulted in decreased disposal to landfill.

Unforseen, yet serendipitous observations were noted. The apparent interchangeability between recycling and reuse that drives the public to treat reuse as the new one-stop drop presents a new opportunity. At the recycling depot, mega-bags are full of "end-of-use" products that are not at "end-of-life." When a product goes in the bag, that's it. It is now being recycled in the EPR system, using funds from eco-fees.

When products are taken to reuse, they may be at end-of-use or end-of-life. But, at the reuse facility, every item can be screened for potential extension of life. It sounds simple, but providing support to reuse frees up staff time and resources, as noted above, to examine the mass of drop-offs and divert more products to reuse instead of the automatic recycling from the depot, or landfilling of unexamined donations at reuse.

NRES recommended to CESA that the pilot be expanded to test generalizability of data and potential to increase extension of life by virtue of diversion to reuse until end of life. NRES and CESA will be exploring reuse opportunities highlighted from this data in 2023.

In addition to data directed to CESA, the pilot also highlighted potential for reuse facilities to act as community hubs for circular economy growth in the RDN.

Because the public now uses reuse and recycling facilities interchangeably, without conscious decision making according to the pollution prevention hierarchy, mass drop-off of "donations" far outstrip shopper numbers and needs. As noted with CESA products, some of the excess is recycled, some is re-distributed, but most is landfilled. An important target would be to develop circular economy systems that would exhaust all reuse potential for this material before recycling or landfill is considered. These results indicate opportunity to develop the sorting and diversion capacity of reuse facilities into community distribution hubs for circular economy growth. Mainstreaming/increasing procurement of reuse is key to this target. Further NRES research noted underutilization of reuse in the ICI sector, and potential for increased collaboration with reuse facilities in areas of

• business start-up procurement (furniture and equipment),

- office supplies (consistently over-supplied to reuse) procurement,
- take-out food services could transition to reusable dishes and utensils (typical oversupplied at reuse facilities),
- supply of rags cut from towels (consistently over-supplied to reuse).

This is by no means an exhaustive list, but demonstrates potential for businesses to save money, reuse facilities to increase revenue, and for a community to prevent waste.

That being said, limiting community reuse to thrift store activity greatly limits potential to reduce waste. Current supply chain prices and constraints are a motivation for community self-sufficiency using circular economy hubs.

Local potential for business-to-business reciprocities were highlighted in waste audits and pilots. Noted areas of potential were

- Retail offering excess packaging to other retail or shipping businesses.
- ICI compost to Farm and back to ICI as food (as demonstrated by Nanaimo Innovation Academy Food Kitchen and Morgan Creek Farm). Many local and organic farms won't use Convertus compost it is considered to be low grade and toxic from plastic residuals.
- Construction companies providing
 - o farmers and landscapers with lumber wrap for use as tarps and growth suppressant,
 - o farmers with excess lumber for repairs or shed construction

Reuse in general, and reuse facilities report barriers to survival, much less expansion to circular economy roles for reasons such as

- reuse in general is not mainstream,
- lack of promotion to emphasize reuse as more important than recycling,
 - "Reuse is better than recycling. We work hard to get this stuff reused but we don't get any benefits or services and the stuff ends up in the landfill,"
- lack of promotion for local government and ICI to procure from reuse,
 - "CESA should tell people to buy second hand and not just donate,"
- lack of services for excess donations to reuse
 - I do everything to keep it out of garbage, using partners, donating things back and forth, give it away, sell it less than half price, drive all around town trying to recycle it, donate to drives churches, charities...save and store stuff for donation drives, donate to other nonprofits...until someone throws it out."
- reuse is expected to carry on without training to manage changed role
 - "we are running recycling depots without proper training"
 - lack of resources for repair, or upcycling if repair not possible
 - "storing and testing is expensive"
- lack of education in community (reuse, public, ICI) about circular economy opportunities
 - "we need to get recognition of how we are helping the environment. If we don't get help, it's all going in the garbage. We can't keep up."

These barriers indicate where support is needed.

At the very least reuse facilities need messaging support, and should have budget allocation through the Solid Waste Management Plan budget to promote reuse before recycling and reuse procurement.

The Beacon Multi-Family Residence

The 2020 Beacon waste audit builds on previous work NRES completed with the Beacon in 2015, and their current successful diversion practices. The Beacon waste audit plan recommended some fine-tuning, with education about EPR recycling to keep EPR packaging out of the ICI waste stream. Other than such fine tuning, recycling and organics collection continue to divert large amounts from Beacon garbage.

Increased diversion is one measure of success, but moving pollution around the planet hasn't reduced pollution. Waste elimination and reduction to achieve sustainability require new strategies. The Beacon has chosen to work on Reduce and Reuse options.

In 2021, NRES provided research and education support to help the Beacon implement their waste audit plan. NRES has provided the Beacon with an additional plan to reduce packaging, support local farm to table procurement options, increase on-site refill programs, with adjunct education about refusing single use, short use, and toxic products and packaging. As previously noted, simply providing information isn't enough to change paradigms.

Reuse to many people means donating items to a thrift store. Full stop. Even though residents knew reduce and reuse was the next major venture, sowing every seed on the most basic level was needed to expand understanding and potential for reuse as a systems approach.

NRES implemented a problem based learning module to help Beacon strata and residents expand their experience with reuse, and explore ways to implement reuse systems in multi-family residences. Learning was accomplished through the research and networking with strata council about potential areas for reduce and reuse, and shared at an Education Day for residents of the Beacon/Gabriola/Newcastle M/F neighbourhood in June.

After being invited to lunch many times when exploring or planning strategy for the Education Day, the theme of "Eating Lunch helps with Climate Change" was developed. Centralized food procurement and delivery, specifically from local regenerative farms was prioritized as a high impact option for everyday multi-family life that reduces plastic packaging pollution from grocery stores, and food miles carbon footprints. Other pieces of the reuse and reduce puzzle were developed: local reuse and refillery businesses were invited to participate, and media presentations and demonstrations allowed residents to see reduce and reuse in action in their building.

The presentations were enlightening for many: "Oh, Beeswax instead of plastic? Look. Aren't those worms so cute. I can put that on my patio? We have a share space for books, is that what you mean? So I could have a carpet cleaner without owning one? I can use that jar instead of recycle it. I can buy all that and have no packaging. Is that the idea? I've never thought of where groceries come from."

Building on prior knowledge is important for effective adult learning and coaching. The planning process and demonstrations allowed some to recognize aspects of reduce and reuse similar to conserver behaviours they grew up using. This brought enthusiasm and story telling to further embed the concepts. For some demographics reduce and reuse is nostalgia: there was a day when people conserved and shared out of

necessity, and people remember a community purpose of those days which can transfer to purposes of reducing climate change today. Whatever it takes.

Some follow up to the Education Day included a power point "Summer Series" offered for Beacon internal communication and provided on NRES facebook page (see ppt. Attachment: Farm Food Facts).

The Beacon pilot provided fodder for a Best Practice model because of application to often problematic waste management from multi family residences. In addition, everyday life solutions, especially local food procurement solutions, have widespread application in the community.

Big Wheel Burgers

The take-out food business creates significant packaging and food service waste. Big Wheel Burger (BWB) was recruited as a waste audit participant to highlight their compostable take-out products as a model available for fast food businesses. The 2020 BWB waste audit confirmed sustainable practices and high diversion.

BWB has a sustainability model and brand inextricably linked to their compostable food service packaging. Given public response to global plastic pollution, and pressure to reduce pollution from packaging in general, it is not surprising to find businesses looking for compostable alternatives to plastic. The compostable industry is in high gear developing and marketing such alternatives. The downside is that many products sold as "Certified Compostable" simply do not compost in many municipal composting facilities. Convertus Circular Waste BC, the RDN organics composting facility, has confirmed this is the case with Big Wheel compostable plastic take-out containers and utensils.

To their credit, BWB has made efforts to ensure their practices are sustainable: Victoria BWB management has toured Fisher Road composting facility, and was satisfied that the process at Fisher Road would fully compost their materials: they had no reason to expect different results from the Convertus facility in Nanaimo. Nonetheless, Nanaimo managers were surprised and disappointed to learn that 1/3 of their take-out service products are being screened and sent to landfill from the Convertus site. This research into capability to manage BWB products at Convertus was done jointly by NRES and Convertus, and confirmed by Convertus. Nonetheless, this after the fact information brought to BWB from NRES was not welcome.

As noted in waste audits, in absence of over-arching harmonized messaging from the local government authority, the NRES simply can't be the messenger that de-mystifies recycling, composting, green-washing, diversion, the pollution prevention hierarchy, waste haulers, the waste system, and every oxo/bio plastics federal and provincial intention paper that affects ICI sustainability decisions.

And, there is no explaining a system that

- promotes use of compostable plastics,
- accepts compostable plastic in green bins destined for the composting facility,
- accepts compostable plastic at a facility that can't compost it, and
- screens and sends compostable plastic to landfill from the facility, but
- doesn't inform the public.

Because BWB had done their best to research and develop sustainable practices using environmental consultant services, NRES presented as a threat to the BWB brand rather than an ally to the business. This reaction affected subsequent ability to help them implement changes. Since that time, limitations of municipal compost systems to manage compostable plastic have become public knowledge, and CleanBC has

recommended bans for compostable plastics by 2024. The opportunity passed for NRES to provide timely help to BWB.

BWB and take-out food take out services provided fodder for Best Practice model not only to de-code pollution prevention within a context of multiple fast-moving provincial and federal initiatives to eliminate single use plastics often used by take-out, but also to provide the information needed to help take out food services avoid non-sustainable compostable plastic and other single-use alternatives.

Little Star and Well-beings Daycare Facilities

Well Beings daycare was recruited for waste audit in 2020 to document some of their best-practices for other daycares in the RDN. Little Star daycare was included at the request of RDN Board Directors who had been contacted to rectify a gap in services noted when previously residential-type of curbside services provided to the daycare were cancelled to ensure compliance with RDN's Recycle BC contract.

Daycares have no significant tonnage to divert, but even minimal waste hauler charges for recycling and garbage are cost prohibitive to the industry. For this reason, eliminating waste is more helpful than practices meant to increase diversion

Well Beings daycare manages EPR waste correctly, for example, by sending residential packaging that comes from the home, back to the home. Little Star mismanages Recycle BC products as commercial recycling. Garbage continues to be an issue for both daycares, as any large bin service is too costly. Little Star daycare staff transports garbage to an affiliated daycare that has commercial garbage and recycling bins. Well Beings engages in many practices to avoid garbage, but uses residential services when needed. Neither has access to information or services to make their business sustainable.

It is fair to say that an opportunity was missed in 2020 when Little Star Daycare contacted local government offices for solutions to their waste problem. The daycare was looking for same services to be restored, which was impractical, but also entirely lacking understanding about actions required to eliminate waste, reduce all unsustainable practices and adopt sustainable practices required to get on the road to 90%.

As noted in previous reports, when the NRES arrives at an ICI site with education and solutions, after repeated attempts by the host to get service or solve a problem, people are far from being "all ears." Frustration and resistance sets the tone, and information is not heard—even when the solution saves time and money. From an adult educational perspective, such resistance is not surprising, but repeated lost opportunities highlighted a gap of timely, community education that

- is rooted in ReThink to eliminate waste, then Reduce and Reuse,
- de-couples progress from recycling and waste hauling,
- introduces circular economy theory,
- encourages new models of community circular collaborations and reciprocities, and
- provides a backdrop of common knowledge for the community.

Both Well Beings and Little Star Daycare provided fodder for a Best Practice plan for Daycares. As garbage, remains problematic for all daycares, mostly in the form of diapers, NRES engaged extensively with

- Well Beings and other daycares
- VIHA Licensing Officers
- Happy Island Diapers

- Alsco Linens
- VI Refillery

to develop a reusable diaper service model specifically for daycare providers that integrates with home service. The model can apply to other group users such as multi-family residents. In addition, exploration with VI Refillery promoted increased potential for reuse in the SME sector.

The Daycare Best Practice plan was developed because of high interest from the sector to introduce a road map to eliminate garbage and introduce reuse options.

• "There is no information to tell us what to even do with the waste, let alone waste reduction" In addition, high demand for daycare services creates opportunity.

• "With CC spaces in high demand, I think right now is a good time to start the switch to a reusable diaper service."

Develop and deliver 6 Best Practice models

Adjusted deliverables allowed for development and delivery of 3 Best Practice models (see Best Practice models attachments).

Provide education to implement best practices across ICI sectors

Education and Coaching

Problem based learning was applied during pilots. Each pilot was initiated to address knowledge and service gaps, which are significant in areas of Reduce and Reuse. Where no knowledge existed, sustainability and pollution prevention theory was introduced. Where no service exists, extensive research into sustainable solutions was necessary. When no system, or system template, exists to implement the new knowledge and solutions, various responses were observed and recorded,

- "tell me what to do, and I'll pay,"
- "no one else in my world is doing this,"
- "there's no money in this. Do you have funding?"
- "Can you come back? Can we do this again?"

Maybe bit of a light goes on, and maybe one step is taken, but it's difficult to interpret the result,

• "I did what you told me, but I don't know. I can't check anywhere when I go looking for more things to do. I clicked on Get Involved but there's nothing there for businesses. How do I know what's right?"

As noted, adult education specifically depends on prior knowledge but prior knowledge of take-make-waste is embedded in our culture, and competes with the reduce and reuse paradigm and ways of life that don't seem to have much reward for all the effort. Unlearning shopping to save the planet is not an easy sell.

There is opportunity to educate the sector. Some seeds have been planted, albeit in a drought with no water and hungry birds lurking.

Provide targeted education to keep EPR out of ICI

NRES provided targeted education to businesses such as Regard Coffee. While attempting to recruit Regard Coffee services to provide refill and reuse services for the Beacon, NRES noted collected packaging.

• "our packaging is Flexible Plastic and accepted at the Recycling Depot. Isn't that what we're supposed to be doing?"

After learning that commercial waste isn't accepted in depot EPR programs, and about RecycleBC management of flexible packaging, the responses were,

"did I miss something somewhere...online? I looked everywhere. Why don't I know this? Is this information online where is this information?"

The outcome at Regard coffee was elimination of flexible plastic packaging for coffee beans. The packaging was replaced with refillable, and eventually recyclable at curbside as a container, HDPE. A new service model is to invite people to sit down and have a coffee from a washable porcelain cup, rather than default to takeout practice. In addition, correct separation has been implemented for staff and customers.

Observations from Pilots

- 1. Reuse is underutilized. That sounds simple, but maybe better stated as reuse is not understood enough to be utilized, and the systems and infrastructure for reuse (beyond thrift stores) do not yet exist.
- 2. The concept of Reuse remains limited to the business of thrift stores.
- 3. ICI participants mostly do not view their business, or other businesses, as reuse networks.
 - a. Reduce and reuse options were seldom considered unless NRES suggested or created the model in a pilot.
 - b. Businesses conform to single-use paradigm thinking, and continue to seek single-use alternatives to avoid using products such as plastic.
- 4. Belief that recycling is sustainable and accessible hinders progress to reduce and reuse.
- 5. Neither business-to-business nor business-to-customer systems for reuse (refill, re-purpose,) exist for business to simply adopt.
- 6. ICI participants continue to give up.
- 7. NRES was often the first to inform participants about regulations, waste systems, options, correct practice, waste, and sustainability. This hindered uptake of new information.
- 8. ICI continues to struggle in an environment that leaves them to just figure it out. From waste audits to pilot completion, NRES encountered "We want to do better. Just tell us what to do," to "we did the research and we spent the money and we get continual audits and you're telling us this now?" Acting as the sole messenger for either scenario is not sustainable.

Barriers to Sustainable Solutions

The 2021 identified waste hauler practices as barriers to diversion. Haulers continue to be barriers for all reasons noted in the 2021 NRES ICI Diversion Project Final Report. In addition, haulers are barriers to reuse and reduce practices that undermine the profit models of waste management.

Anecdotal research about hauler activity in 2022 revealed practices such as "we offer bins for separating or single mixed bins at 3X the price. Business right now is flat out, everyone chooses the mixed bin and we can barely keep up to that." And, reports that, "we just don't have that many bins to give everyone the option" highlight barriers to waste reduction.

Construction pilot data noted that activity at C and D waste service sites hasn't changed. Heavy materials such as lumber, rubble, metal and asphalt are high-graded to achieve diversion tonnages, while gyproc, wood products, TV's, household EPR, plastic, and mattresses go in the top loader with garbage to US or local landfills. One site owner didn't know about upcoming Waste Hauler Licensing, while another prepares for levies as a cost of doing business. If costs go up, prices go up.

Reuse systems don't exist. There are no pop-up reuse systems. Reuse systems are created from a 360 awareness of need, availability, potential use of materials and products, and innovation. Someone has to

make the connections. The systems are created, often by accident. The farmer that goes to the coffee shop to refill the reusable cup happens to see burlap sacks which could cover his beehives for the winter. The farmer tells other farmers and other coffee outlets and a system of systems begins and now must be maintained by the users. It's the opposite of shopping, and completely unfamiliar to most ICI participants.

General Conclusions

- 1. The conclusion is business will be Business-as-Usual until the reuse and circular systems exist.
- 2. Reuse requires holistic education that includes harmonized community education that serves residents and businesses.
- 3. The question of who leads the way to innovation still remains. There is still too much waste and confusion while everybody waits for bylaws to fix the problems.
- 4. Reuse infrastructure that would benefit ICI and the community today awaits development.

Recommendation

1. Allocate ZWRFunds to create the systems needed for reuse.

Appendix A

Source Separation at Construction Site—Reuse

Lumber stacked for reuse



Wash station made from demolition materials



Lumber and end-cuts stacked under lumber wrap tarps and ready for reuse



Lumber wrap tarps ready for pick up



Selected products ready for pick-up.



Appendix B

Source Separation at Construction Site—Recycling

Green PP and Nylon Strapping



PVC Orange



ABS Black



Source Separation Station



Appendix C

Post-Pilot Practice

