

SD43's 4-Bin Waste Diversion: 1 year later

A look into moving Riverside
Secondary towards a Zero-
Waste future.

MAY 2020

Career Life Connections 12
Ms. Durand, Section One
Riverside Secondary
Jon Szto



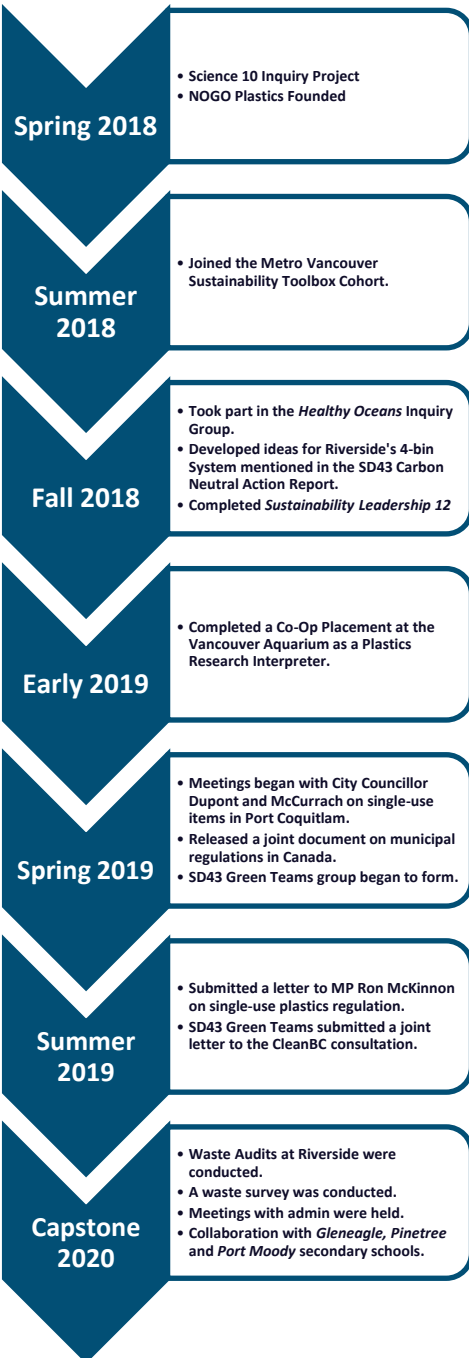
**NOGO
PLASTICS**
reducing waste, because
our tomorrow matters.

Contents

Personal Introduction	3
Introduction to Waste Reduction.....	4
All about it.....	4
A Look Across the District:	5
A Look at The Users:	5
Identifying Inefficiencies:	6
Eyes on Solutions:.....	7
Waste Audit Data:.....	8
Shoreline Litter Composition in Port Coquitlam:.....	11
Moving Forward:	13

Personal Introduction

Growing up, spending time by the Coquitlam River quickly became tradition for my friends and I. Countless memories were created and lived on the rocky riverbed. Over the years, environmental deterioration became apparent as the cracks between the rocks were quickly filled with **plastic fragments** and **disposable packaging**.



Entering Grade 10, I was given the opportunity to conduct a research project on **single-use items** in our community in Science 10. [NOGO Plastics](#), the early initiative to break down complex concepts of single-use plastics was created to raise awareness around peers.

The project quickly became a larger campaign to regulate single-use plastics at the municipal level. The document *Municipal Regulations on Single-Use Plastics across Canada* was created and presented to local City Councillors Laura Dupont and Nancy McCurrach.

Since then, I've had the chance to learn about plastics' effects to our ecosystems with the *Vancouver Aquarium* as a Plastics Research Interpreter, take part in the *Healthy Oceans Inquiry Group* at Metro Vancouver's *Sustainability Toolbox* and collaborate with Green Teams from *Gleneagle, Pinetree* and *Port Moody Secondary*.

This Capstone Project was the cumulation of experiences and research from my time at Riverside Secondary.

Introduction to Waste Reduction

All about it...

Riverside's 4-Bin System was first introduced on School District 43's [2018 Carbon Neutral Action Report](#) with the goal of *"implementing a standardized 4-bin Recycling System throughout the District."*¹

The project was assured that *"(SD43) will continue to monitor and ensure this change is well adopted throughout 2019."*

This project broadly overviews the efficiencies, as well as the challenges the program has faced one year after its' initial rollout at Riverside Secondary.

Here's What Happened:

- Environmental Club Student Representatives from Gleneagle Secondary, Pinetree Secondary and Port Moody Secondary were consulted.
- Environmental Club Staff Members from Riverside Secondary were consulted.
- A general waste audit was conducted on 3 waste diversion stations at Riverside Secondary every Monday and Thursday in December 2019.
- A survey was conducted in several Riverside Secondary classes – with a total of 94 respondents.

¹ https://www2.gov.bc.ca/assets/gov/environment/climate-change/cnar/2018/sd/final_sd43_2018.pdf

A Look Across the District:

Schools in the district like Pinetree, Gleneagle, and Port Moody Secondary have all modified their bin labelling in one way or another, courtesy of their Green Teams. Some opted to strive for waste education, while others decided to modify the incorrect labelling.

From a verified source, SD43's District Energy Manager claimed that our district was being fined for high rates of recycling contamination. Such problems were encouraged with incorrect labelling, inconvenient placement, and a lack of focus on school-related waste disposable information.

The 4-Bin Waste Diversion program was publicly introduced in the 2018 Carbon Neutral Action Report¹ published by the Coquitlam School District, and implemented through a former District Energy Manager. The process included consultation with school administrators.

A Look at The Users:

Understanding the audience is crucial to creating efficient waste diversion systems. With a target audience of youth aged fourteen to eighteen, a waste audit and survey conducted as a part of this project helps identify a specific target in the future.

Quick Numbers:

- **6.53/10** was the rating for information and labelling provided on the bins and in-class.
- **32%** (30 of 94 respondents) Rated their knowledge on waste-diversion a **5 or lower** out of 10.
- **23%** (22 of 94 respondents) Felt that our bins were not labelled well.
- **Landfill Waste** followed by **Compostables** were rated as the most produced waste category for students.



Identifying Inefficiencies:

The 4-Bin waste diversion stations were implemented at Riverside with very little introduction, and incorrect signage. Confusion was present with both staff and students. In a survey conducted as a part of this project, the information and labelling provided for the stations received a **6.53/10**.

Garbage and paper-only bins were removed from classrooms, and replaced with “Mixed Recycling” bins, which induced confusion and incentivized waste contamination for students. Green Teams at Gleneagle and Pinetree identified this issue early on and replaced the signage, and introduced paper-only bins for classrooms, incentivizing a trip to the stations for proper waste sorting.

When Riverside students were asked “*Are there any additional comments / suggestions / concerns you're thinking about that would improve Riverside's 4-bin system?*” **36 percent** or **20 of 56 comments** were related to improving the poor bin labelling or mixed recycling bins inside of classrooms.

The confusion was well understood, as SD43’s bins accept metal, glass, and coffee cups in their signage – clearly inconsistent with *Waste Connections of Canada*, SD43’s waste management company’s guidelines.

As a result, SD43 experienced challenges with high levels of waste contamination across the district. In a verified source, SD43’s current District Energy Manager expressed concerns of fines from Waste Connections of Canada as a result of high levels of waste contamination.

Overall, the 4-Bin Stations were introduced with little to no introduction, incorrect signage, and inconvenient placement. Students were confused and the Coquitlam School District is receiving fines for poor waste management.



Waste Connections of Canada’s Recycling Acceptance Guidelines

Eyes on Solutions:

Riverside Secondary has enormous opportunity as a leader in inquiry, innovation, and technology. To bring Riverside Secondary, and the Coquitlam School District towards a Zero-Waste future, Riverside and SD43 must consider:

- **Re-labelling ALL bins.**

- Signage was a point of confusion for staff and students, and the Mixed Recycling bins do not accurately reflect *Waste Connections of Canada's* acceptance guidelines.
- Signage should reflect **students'** waste production (Fast Food packaging, specifically *Tim Hortons, Starbucks, McDonald's*, and paper from school.)

- **Introducing Paper-Only Bins into classrooms.**

- Focuses on school-produced waste (paper.)
- Catalyzes a single point to focus on recyclable content.
- Encourages students to visit a waste-sorting station where more options are available.
- Addresses schools' highest source of waste contamination.
- An action supported by Riverside Secondary's head caretaker.

- **Initiating a waste-reduction campaign, as well as a waste-diversion campaign.**

- Promote waste diversion habits
- Investment into reducing SD43's waste contamination fines.
- Promote sustainable living for students.
- Opportunity to address the **32%** of students who rated their knowledge on waste sorting a 5 or lower.
- Promotes community citizenship.

- **Introduce requirements for product end-of-life planning on all resources entering the classroom.**

- Provides students with clear instructions.
- Reduces un-needed waste of resources.
- Reduces over-consumption.
- Encourages reflection on full product life cycle.

Waste Audit Data:

Data should be noted that:

- Weights include the bin itself (8lbs)
- “Upstairs” refers to the sorting station across from Horton’s room.
- “Office” refers to the sorting station outside of Durand’s room.
- “Foyer” refers to the sorting station in the foyer, by the Library’s windows.

Images of the Waste Audit are publicly available at:

<https://myriverside.sd43.bc.ca/jonathans2016/files/2020/05/CLC12-Waste-Audit-Images.pdf>

28-Nov-19	Weight (lbs)
Upstairs:	
Organics	9
Mixed Recycling	10
Landfill	10
Office: (Organics, Mixed Recycling emptied every Friday)	
Organics	10
Mixed Recycling	9
Landfill	9
Foyer:	
Organics	10
Mixed Recycling	9.5
Landfill	10
02-Dec-19	Weight (lbs)
Upstairs:	
Organics	11
Mixed Recycling	9.5
Landfill	10
Office:	
Organics	10
Mixed Recycling	9
Landfill	8
Foyer:	
Organics	10.5

Mixed Recycling	10
Landfill	8.5

05-Dec-19 Weight (lbs)

Upstairs:

Organics	9
Mixed Recycling	9
Landfill	10

Office:

Organics	8
Mixed Recycling	10
Landfill	9

Foyer:

Organics	9
Mixed Recycling	8
Landfill	9

09-Dec-19 Weight (lbs)

Upstairs:

Organics	9
Mixed Recycling	9
Landfill	10

Office:

Organics	8
Mixed Recycling	10
Landfill	9

Foyer:

Organics	9
Mixed Recycling	10
Landfill	9

13-Dec-19 Weight (lbs)

Upstairs:

Organics	8.5
Mixed Recycling	9
Landfill	9

Office:

Organics	8
Mixed Recycling	10
Landfill	9

Foyer:

Organics	9
Mixed Recycling	9
Landfill	10

16-Dec-19 Weight (lbs)

Upstairs:

Organics	11
Mixed Recycling	10
Landfill	10

Office:

Organics	8
Mixed Recycling	9
Landfill	8

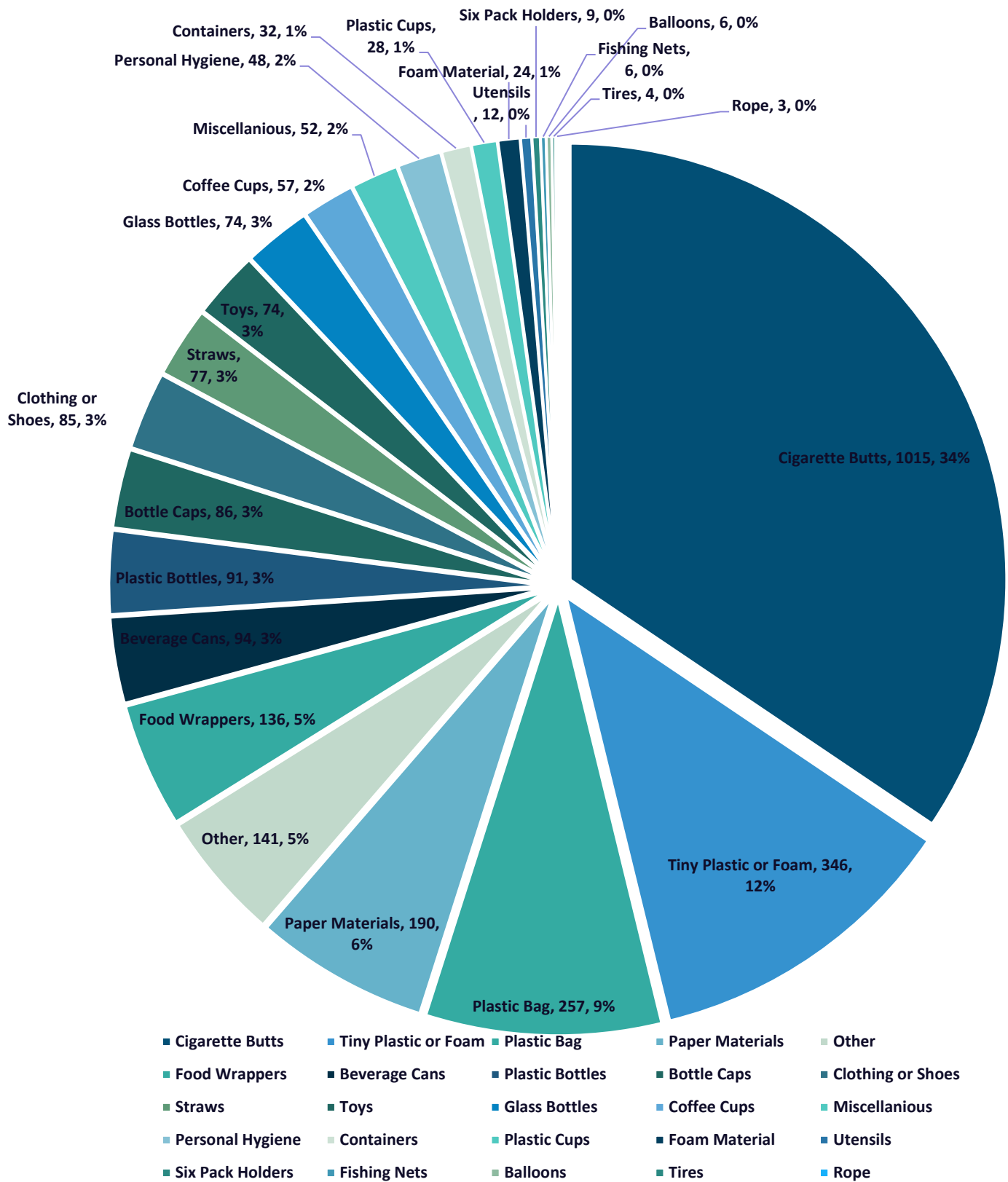
Foyer:

Organics	9
Mixed Recycling	9
Landfill	9

Shoreline Litter Composition in Port Coquitlam:

Shoreline Litter Composition in Port Coquitlam was analysed from public data available on <https://www.shorelinecleanup.ca/>, a citizen-led initiative by *Ocean Wise*. This data was included to acknowledge Riverside Secondary's proximity to the Coquitlam River, and to include waste trends in the community.

Item	Coquitlam				Total
	Coquitlam River @ Reeve St. Park	Coquitlam River @ McAllister Ave. Ped. Bridge	Coquitlam River @ Patricia Ave.	Hyde Creek Education Centre and Hatchery	
Fishing Buoys, Pots, or Traps	0	0	0	0	0
Rope	0	0	0	3	3
Tires	3	0	0	1	4
Balloons	0	0	0	6	6
Fishing Nets	4	0	0	2	6
Six Pack Holders	3	0	2	4	9
Utensils	0	0	5	7	12
Foam Materials	0	6	2	16	24
Plastic Cups	0	0	11	17	28
Containers	5	0	10	17	32
Personal Hygiene	8	5	29	6	48
Miscellaneous Packaging	4	0	26	22	52
Coffee Cups	17	2	8	30	57
Glass Bottles	0	3	5	66	74
Toys	10	2	62	0	74
Straws	14	5	16	42	77
Clothing or Shoes	23	7	43	12	85
Bottle Caps	25	7	26	28	86
Plastic Bottles	21	30	3	37	91
Beverage Cans	23	40	20	11	94
Food Wrappers	10	20	38	68	136
Other	16	0	78	47	141
Paper Materials	14	125	17	34	190
Plastic Bag	33	0	53	171	257
Tiny Plastic or Foam	24	50	110	162	346
Cigarette Butts	154	375	220	266	1015



Moving Forward:

The SD43 4-Bin recycling program was implemented with little consideration for its' primary users: students and staff. As a result, SD43 is being penalized for high rates of recycling contamination.

Moving forward, the Coquitlam School District and school administrators have enormous opportunity to engage students and staff in a community that recognizes the importance of waste diversion and reduction.

This can be done through the proposals brought forward on page 7, recognizing the waste audit results on page 8. The waste audit performed provides insight into highly thrown out items, including fast food packaging and coffee cups.

Engaging students in waste reduction and diversion habits reduces costs for the school district, promotes ecologically sustainable living habits, and boosts community citizenship. Resources are available at a municipal, regional, and provincial level to support such initiative.

These actions will help reduce the impact on the Vancouver Landfill, a site running at capacity since 2016.

This project was completed as a part of Career Life Connections 12 in May 2020, with the help of mentor-teacher Claudia Durand, and the Metro Vancouver Youth4Action team.

Any questions or comments on this project can be addressed to Jonathan Szto at 132-jszto@sd43.bc.ca and more projects can be viewed at <http://myriverside.sd43.bc.ca/jonathans2016/>.