Executive Summary

Bi-Annual Waste Audit
2018-2019 2nd Semester

nscc Sustainability

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Nova Scotia Community College
Executive Summary

Annual Waste Audits for 2018 -2019
Academic Year- 2nd Semester

By
NSCC Facilities Management

Report Date: May 17, 2019

1 INTRODUCTION

In March and April 2019, Nova Scotia Community College (NSCC) Facilities Management completed Waste Audits at 16 buildings, representing 13 campuses. The objectives of the waste audits were to:

- Determine composition and quantities of waste being generated;
- Collect annual data for measuring the effectiveness of waste management systems; and,
- Identify areas for improving waste management systems and strategies.

1.1 Scope of Work

The following scope of work was completed as part of the Waste Audit:

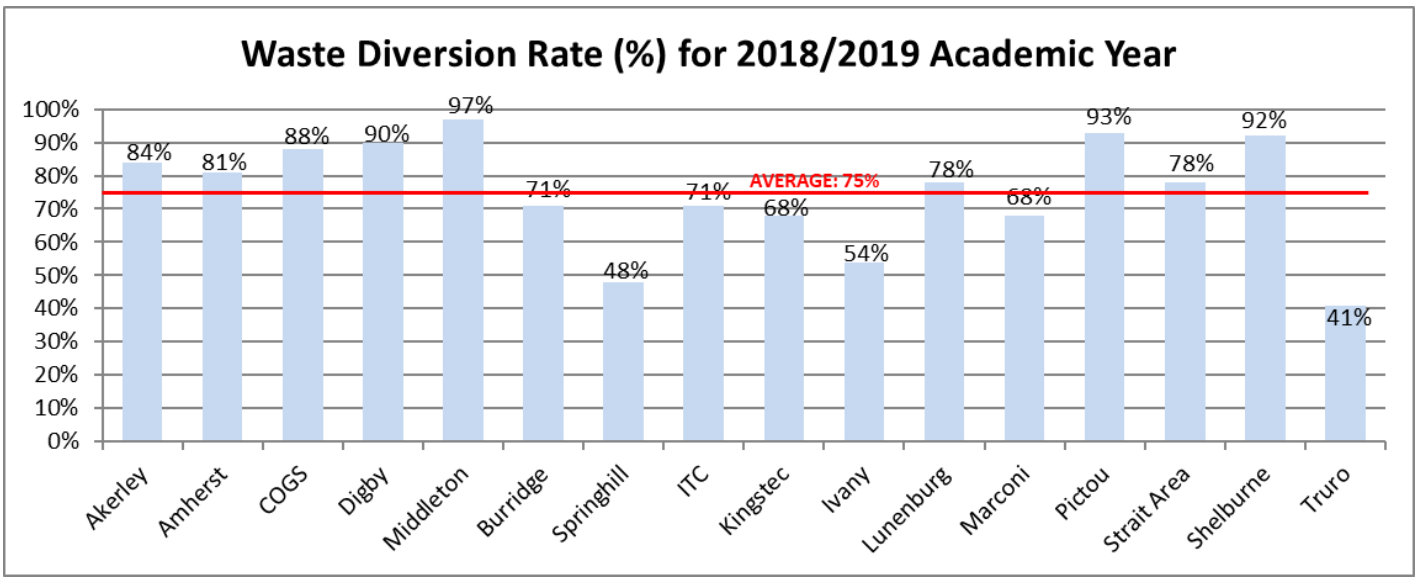
- Coordination with NSCC facilities management staff to ensure that each campus held a quantity of waste prior to the site visit, that would be representative of the waste generated over at least a 12-hour period;
- Completion of a quantitative audit of the primary campus waste streams (landfill waste, compost and recycling) to determine the current Waste Diversion Rate (WDR), Waste Capture Rates, and Waste Reduction Rates.
- Determination of an "optimum" Waste Diversion Rate (oWDR), based on accurate sorting of waste streams; and,
- Preparation of written reports for each campus with findings and general recommendations for the waste management programs at each site.

The following campuses were audited by NSCC:

Building	Location	Facility Manager	Audit Date	Building Area (ft^2)	Student Population
Burridge	Yarmouth	Faren Surette	3/26/2019	122,850	414
Shelburne	Shelburne	Faren Surette	3/26/2019	51,736	63
Lunenburg	Bridgewater	Adam LePage	4/11/2019	140,388	333
COGS	Lawrencetown	Kelly Hutton	4/4/2019	58,700	146
Middleton	Middleton	Kelly Hutton	4/4/2019	115,000	146
Digby CLC Site	Digby	Kelly Hutton	4/4/2019	21,952	47
Kingstec	Kentville	Glen Machan	3/27/2019	197,591	791
Cumberland	Springhill	Graham Allen	3/12/2019	52,796	201
Amherst CLC Site	Amherst	Graham Allen	3/12/2019	39,864	140
Pictou	Stellarton	John McDavid	3/15/2019	195,671	672
Truro	Truro	Glenn Taylor	3/28/2019	267,000	756
Marconi	Sydney	Stuart MacDonald	4/10/2019	233,427	1118
Strait Area	Port Hawkesbury	Lorne MacDonald	3/6/2019	170,708	605
Ivany	Dartmouth	Darrell Stevens	3/14/2019	391,383	2471
Akerley	Dartmouth	Andrew Church	4/3/2019	281,867	865
ITC	Halifax	Robbie Isner	4/2/2019	273,094	1006

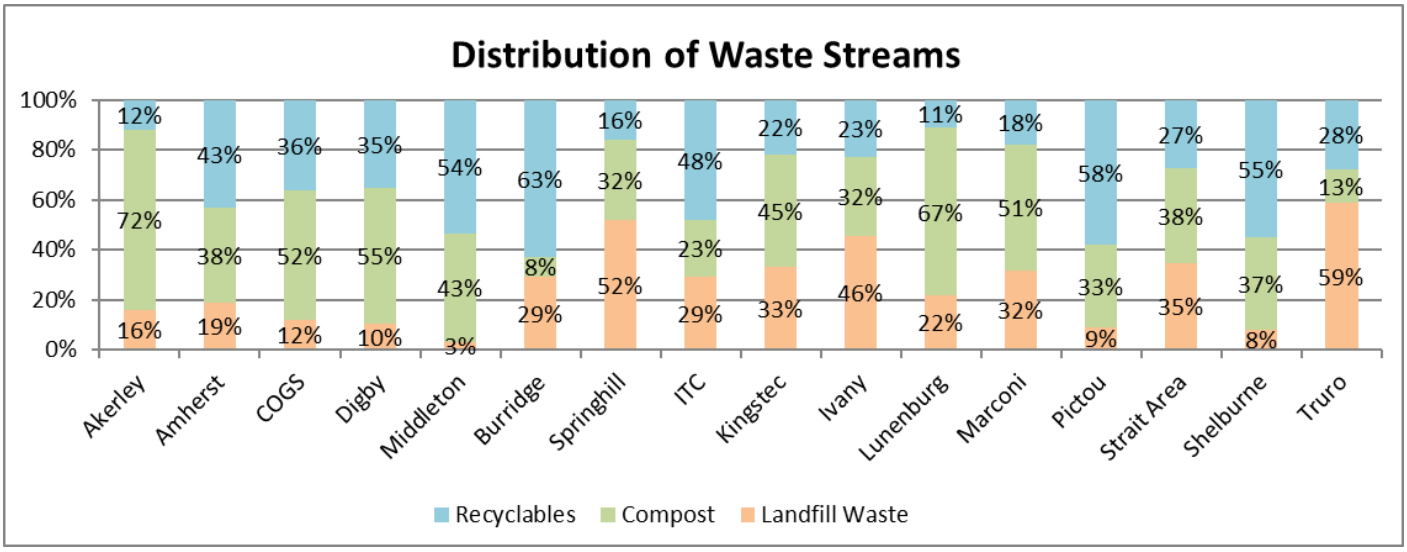
2 RESULTS

A summary of the overall Waste Diversion Rates, projected annual quantities, and relative composition of waste collected from the various campuses is included in Appendix A. The following sections include discussions and charts to illustrate the main findings of the audits.



2.1 Waste Diversion Rates

A Waste Diversion Rate (WDR) was calculated for each audited campus, which represents the proportion of waste that is diverted away from the landfill, through recycling and composting. As shown in the Waste Diversion Rate Chart, the WDRs ranged from a low of 41% (Truro Campus) to a maximum of 97% (Middleton Campus). The average WDR for all campuses is approximately 75%.

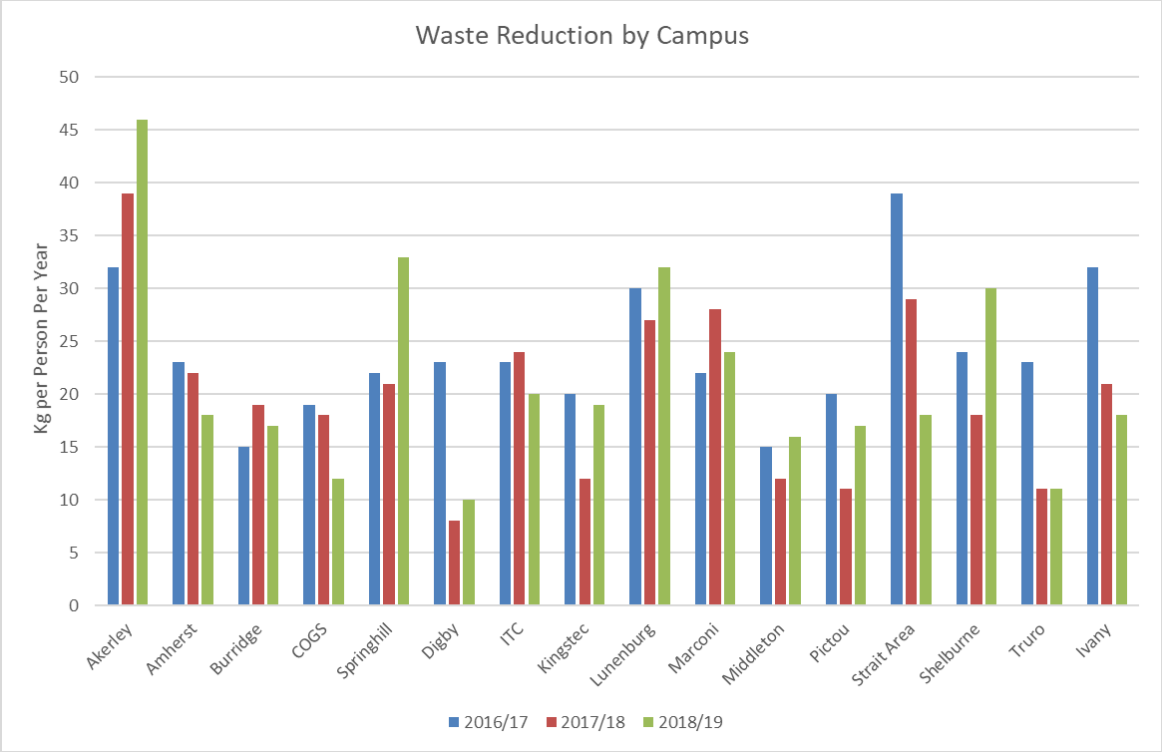


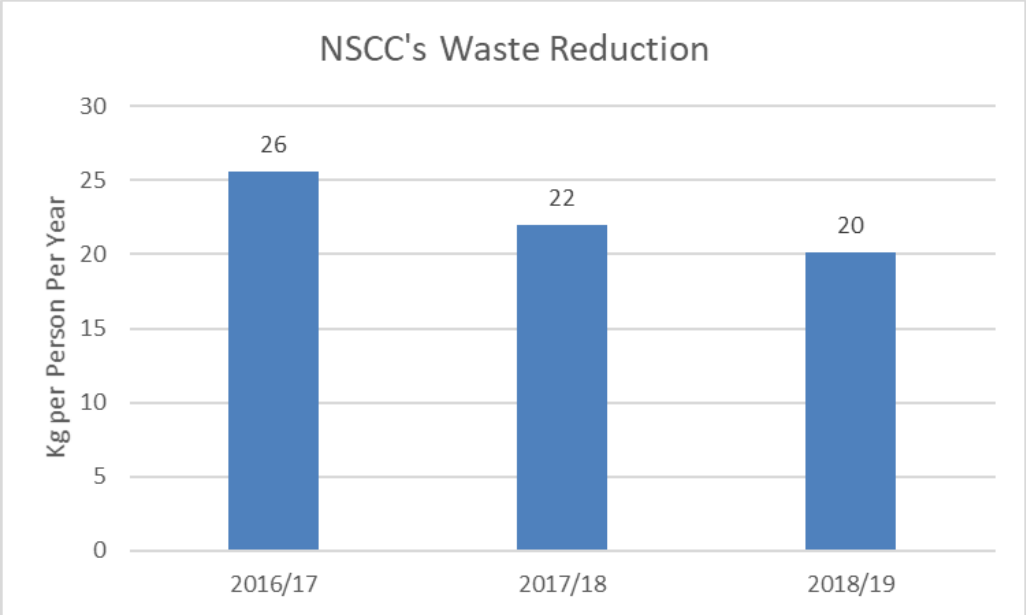
The above chart illustrates the breakdown of the waste profile into its primary waste streams

(compost, recycling and landfill). Note that the current WDR equals the total of the compost and recycling waste streams.

2.2 Waste Reduction

Waste reduction is measured in kilograms of waste disposed of annually by building occupants. The calculations are derived from total student and staff population divided by the total annual waste disposed of during the current academic year. Each campus was assessed individually and the college as whole.

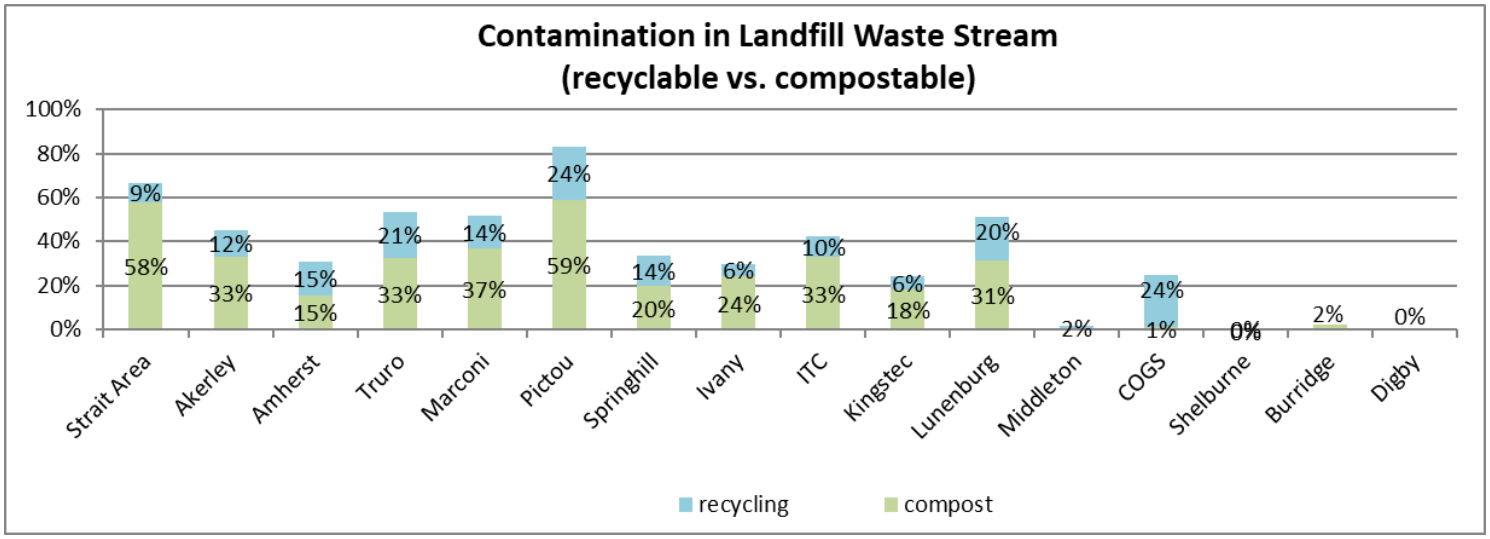




2.3 Contamination Levels

The accuracy of NSCC's current waste sorting practices has been evaluated by measuring the amount of contamination present in each of the waste streams. The following chart illustrates the amount of contamination found in the landfill waste stream. Contamination in this case represents the quantity of waste material that should have been diverted into the recycling or composting waste streams.

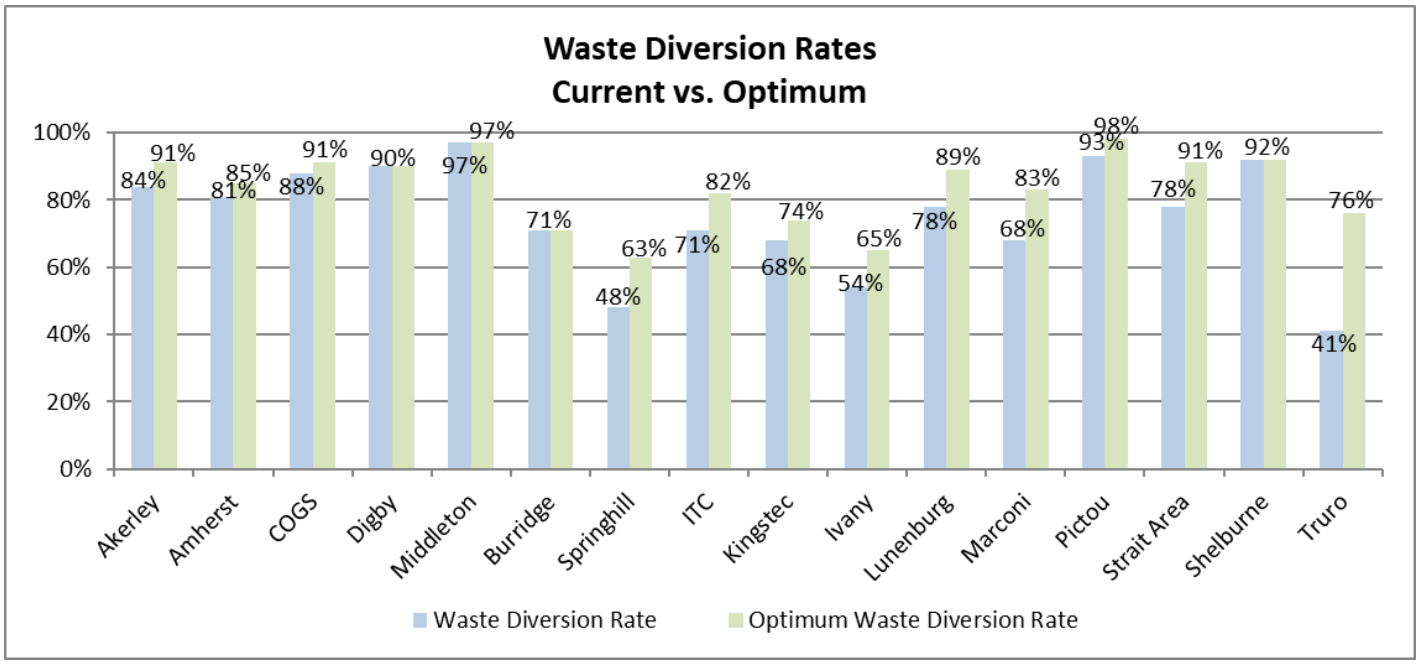
The Digby, Burridge, Middleton, and Shelburne Campuses reported the lowest contamination levels in their landfill waste streams. It should be noted that these campuses routinely perform secondary sorting of their wastes prior to ultimate disposal. The campuses with the highest levels of contamination in their landfill waste stream included: Pictou, Strait Area, and Truro.



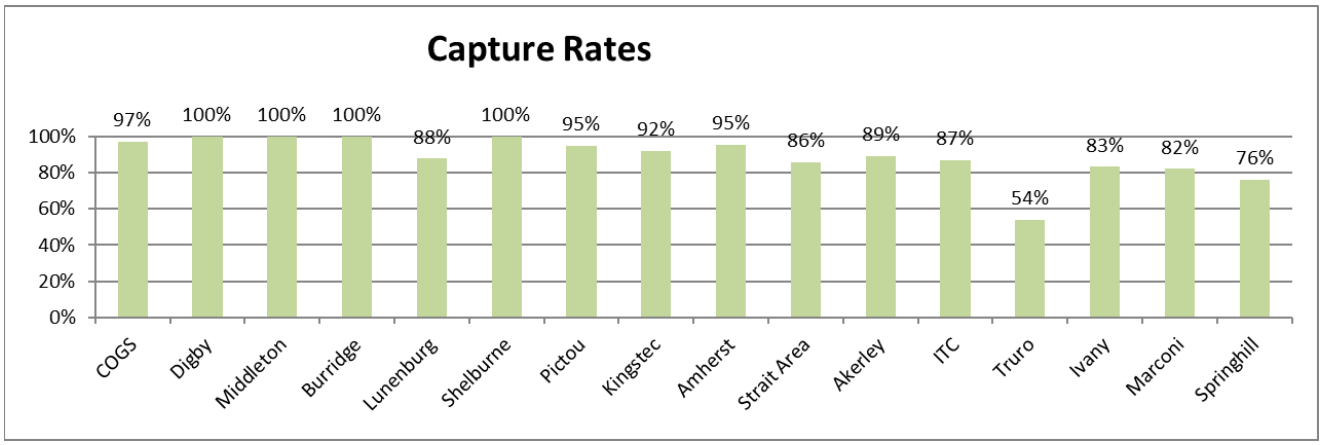
2.4 Opportunities for Improvement

In addition to reducing overall volumes of waste generated at each campus, waste management practices can be improved by increasing the sorting accuracies of their waste streams. This will decrease contamination levels and increase the Waste Diversion Rates.

As presented in Appendix A and on the following chart, "Optimum" Waste Diversion Rates (oWDR) have been calculated for each building, which represent targets that could be achieved based on 100% accurate sorting practices. The oWDRs range from 63% to 97% and are reflective of the types of waste generated at different buildings, as well as the diversion opportunities that exist in various geographical regions (e.g., some regional waste facilities accept disposable drink cups as compost, others do not).



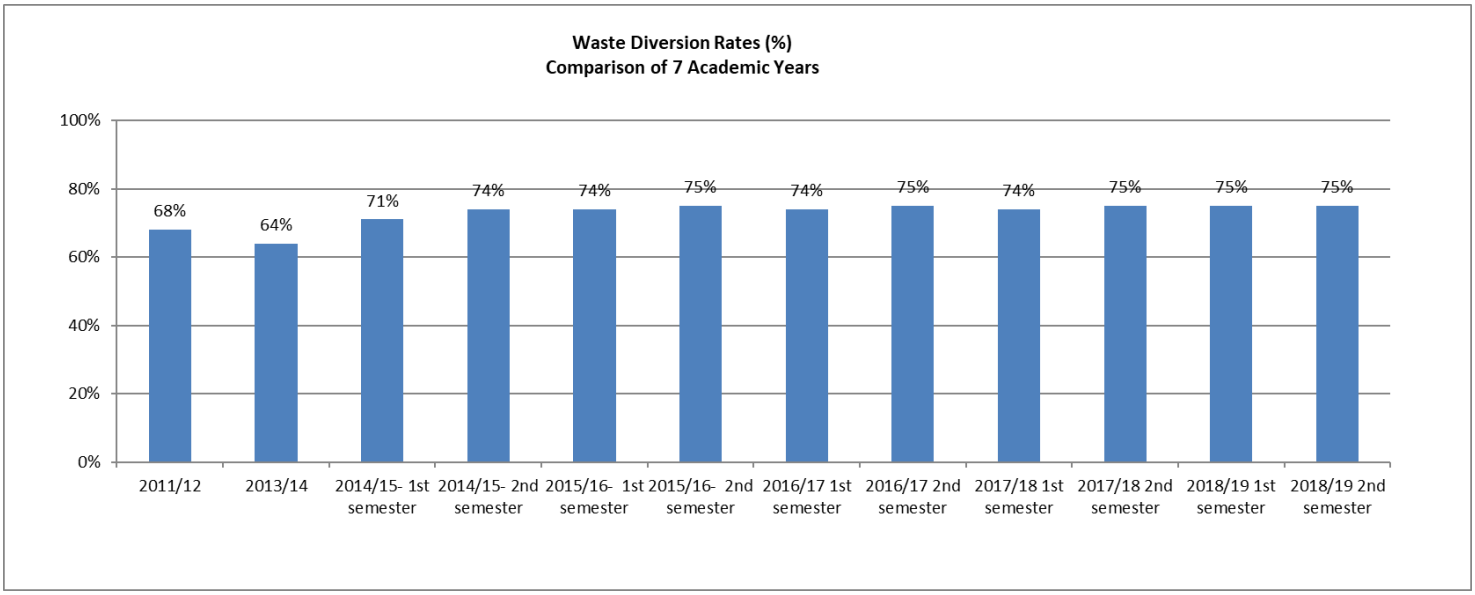
The Capture Rate is a comparison of the optimum waste diversion rate (oWDR) and the waste diversion rate (WDR). By dividing the WDR by the oWDR a percentage is determined. Where the oWDR is the maximum diversion that campus can achieve, this shows how accurate the campus' sorting is. As illustrated in the following chart, the greatest opportunities for improvements exist at the following sites: Truro and Springhill.



3 COMPARISON WITH PREVIOUS AUDITS

The following section summarizes the results of the recent waste audits in comparison with the previous surveys conducted by WSP Consulting in 2012 and 2013 and NSCC in the following academic years.

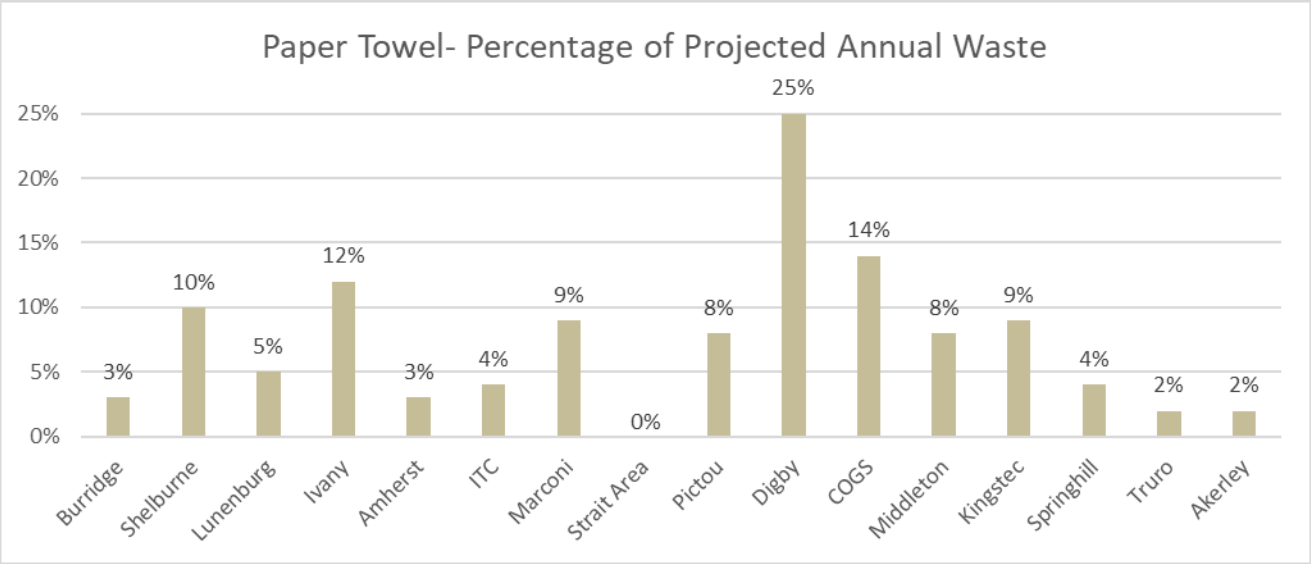
As illustrated in the following chart, there has been an increase of the overall waste diversion rate since the 2013/14 academic year. An increase in waste diversion rate since the 2014/15- 1st semester audit was observed at five campuses (Akerley, Amherst, Marconi, Pictou, and Strait Area), while a decrease was observed at three campuses (Kingstec, Lunenburg, and Truro). Diversion rates remained relatively unchanged at eight campuses (COGS, Digby, Middleton, Burridge, Springhill, ITC, Ivany, and Shelburne). The average WDR for all NSCC sites has increased from approximately 64% during the 2013/14 audit to 75% in the current audit.



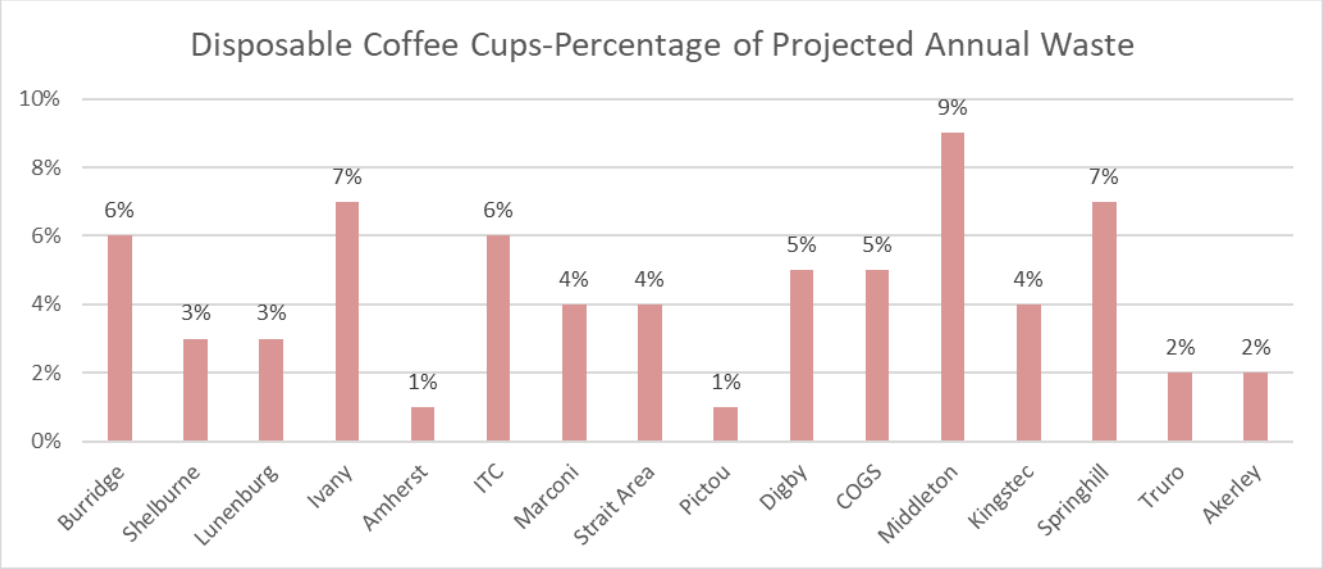
4 QUANTITIES OF PAPER TOWEL AND COFFEE CUPS

Paper towel and disposable coffee cups make up a significant portion of NSCC's waste stream. An average of 7% of the total projected annual waste of NSCC was calculated to be paper towel and 4% of it was calculated to be disposable coffee cups.

The following chart illustrates what percentage of the audited waste at each campus was paper towel.



The following chart illustrates what percentage of the audited waste at each campus was disposable coffee cups. Coffee cups are a large portion of NSCC's waste.



5 CONCLUSIONS

NSCC is committed to waste reduction and sustainable operations, and this is evident in all of its campuses. Recycling and composting programs are active and additional waste diversion programs have been implemented at some of the campuses (e.g. on-site composting, re-use of wood scraps, sawdust and compost being donated to local farms, etc.).

Waste Diversion Rates (WDRs) calculated for all campuses combined averaged at 75%, ranging from 41% to 97%. Improvements are possible at many of the campuses, although, in general, it can be stated that NSCC's waste diversion rate is high.

6 RECOMMENDATIONS

Based on the findings of the 2018-2019, 2nd semester Waste Audit, several recommendations have been made for each campus that was audited by NSCC. These are described in detail in the individual campus waste audit reports. The summary recommendations are organized according to Education, Policy or Infrastructure Initiatives.

6.1 Education

Improvements in education and awareness should be the primary area of future focus. As with previous audits the main recommendation is to educate the students every year. Each campus should have outreach methods to educate the students on proper usage of the sorting stations. Examples include having the staff discuss waste practices with their students, have a booth during orientation week, and stationing staff or students at the sorting stations during certain times in the day. As the students are the main users of the sorting station (and many campuses cannot adopt a secondary sorting program) the students need to use the sorting stations effectively.

6.2 Policy

Policy-related recommendations include the following: reviewing the waste management practices of contractors and suppliers, completing detailed reviews of waste hauling and waste billing practices, and introducing procedures focused on reducing items consistently miss-sorted by students and staff.

6.3 Infrastructure

In terms of infrastructure improvements, recommendations are presented that relate to contractor pickup procedures (i.e., increased number and/or labelling of collection bins), on-site composting, and paper towel disposal. Sorting stations should be organized with clear and concise signage at eye-level. The sorting station signage should have photos of common items found at each particular campus.

Appendix A

Results Summary

Appendix A - Summary of Results - NSCC 2018/2019 Annual Waste Audits

	Audit Summary			Projected Annual Quantities (kg)				Waste Stream Distribution			Contamination Levels		
Campus	WDR	Audit Quantity	Annual Multiplier*	Total	Landfill	Compost	Recycling	Landfill	Compost	Recycling	Landfill	Compost	Recycling
Burridge	71%	26	157.5	4,136	1,203	340	2,592	29%	8%	63%	1.60%	0.00%	0.00%
Shelburne	92%	20	157.5	3,141	249	1172	1,720	8%	37%	55%	0.00%	0.00%	0.00%
Lunenburg	78%	80	153.75	12,331	2,672	8,287	1,371	22%	67%	11%	51.10%	0.29%	2.30%
COGS	88%	24	153.75	1,811	215	941	655	12%	52%	36%	24.40%	0.16%	0.00%
Middleton	97%	31	153.75	2,383	75	1,033	1,275	3%	43%	53%	2.00%	0.00%	0.00%
Digby	90%	13	150	626	64	343	219	10%	55%	35%	0.00%	0.00%	0.00%
Kingstec	68%	97	157.5	15,353	4,996	6,911	3,446	33%	45%	22%	24.10%	1.40%	5.70%
Cumberland	48%	21	165	3,524	1,832	1,129	564	52%	32%	16%	33.60%	1.80%	7.54%
Amherst	81%	24	172.5	4,112	776	1,566	1,769	19%	38%	43%	30.80%	1.10%	5.20%
Pictou	93%	78	153.75	11,999	793	4,207	6,999	7%	35%	58%	83.00%	0.90%	0.00%
Truro	41%	38	159.75	12,912	7,202	1,553	3,438	59%	13%	28%	53.50%	3.16%	1.50%
Marconi	68%	185	151.5	28,012	8,939	14,150	4,924	32%	51%	18%	51.50%	0.47%	19.20%
Strait Area	78%	98	150	14,736	3,246	2,055	9,435	22%	14%	64%	66.50%	5.23%	11.80%
Ivany	54%	220	168.75	74,358	33,932	23,578	16,848	46%	32%	23%	30.00%	1.30%	11.70%
Akerley	84%	382	165	63,040	9,963	45,566	7,511	16%	72%	12%	45.30%	0.26%	10.70%
ITC	71%	97	153.75	14,978	4,357	3,481	7,140	29%	23%	48%	42.40%	6.70%	0.00%

*Notes: * annual multiplier calculated based on an approximate number of days in the year when the school is occupied by a "full-time" student population WDR = current Waste Diversion Rate*