



# Seneca College

Waste Program Overview | Successes, Lessons, & Projections

**Seneca**

# Agenda

The background of the slide is a photograph of a modern building with a facade of wood slats and glass windows. In the foreground, large, three-dimensional red letters spell out the word 'Seneca'. The letters are mounted on a concrete base. The building's facade features vertical columns with names written on them, such as 'MKWA', 'ZIBBAKDOKE', and 'WIKWIKONNE'. The overall scene is brightly lit, suggesting a sunny day.

1. Waste & Sustainability at Seneca College
2. Program Overview & Audit Results
3. The Path Forward | Strategy, Framework
4. Key Projects
5. Lessons Learned & Challenges
6. Discussion



## **Purpose of today's session...**

Share our best practices, lessons,  
and open a discussion to push the  
industry forward and reduce our  
collective footprint



# Sustainability at Seneca

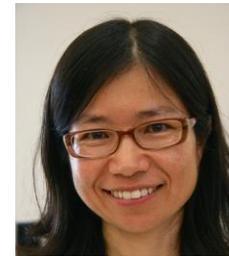
Sustainability is a core value for Seneca College, formalized in the Seneca Au Large strategic vision

- **2020:** Established the Office of Sustainability (SoS)
- **2021:** Published the Seneca Sustainability Plan
- **2022:** Built the SoS team and began working towards goals

## Meet Our Team



**Don Forster**  
Director



**Wai Chu Cheng**  
Academics



**Paula Echeveste**  
Community



**Courtney Hayes**  
Operations



# Sustainability at Seneca

## Principles of Sustainability

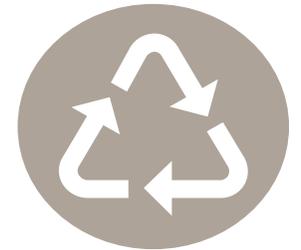
The guidelines for embedding sustainability into our decisions and actions



Innovation & Leadership



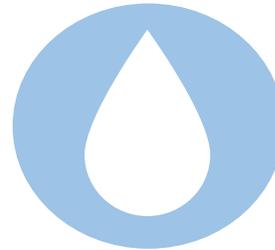
Energy & Emissions



Waste



Community



Water

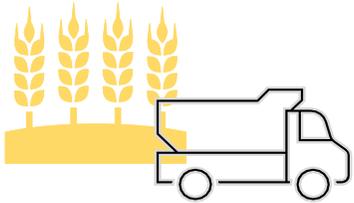


Ecological Integrity



# Waste | Seneca's Perspective

Effective waste management programs mitigate risk while actualizing opportunities



Wasted Life Cycle



Diversion



Regulatory



Financial



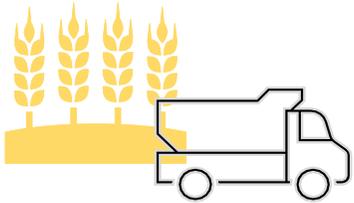
Impact



Reputation

# Waste | Seneca's Perspective

Effective waste management programs mitigate risk while actualizing opportunities



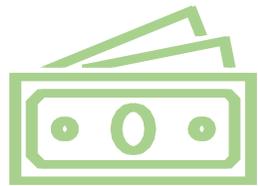
Wasted Life Cycle



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Regulatory



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Impact

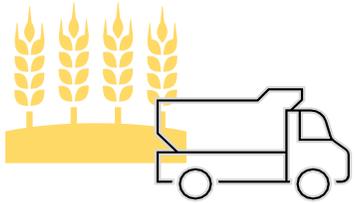


Reputation

What you see here are risks, but do you see the opportunities?

# Waste | Seneca's Perspective

Effective waste management programs mitigate risk while actualizing opportunities



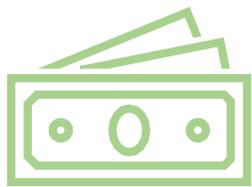
Sustainable  
Supply Chains



Diversion



Proactive Change Makers



Cost Reduction &  
Value Capture



Global Impact  
Reduction



Competitive Advantage  
& Culture Change

What you see  
here are risks, but  
do you see the  
opportunities?

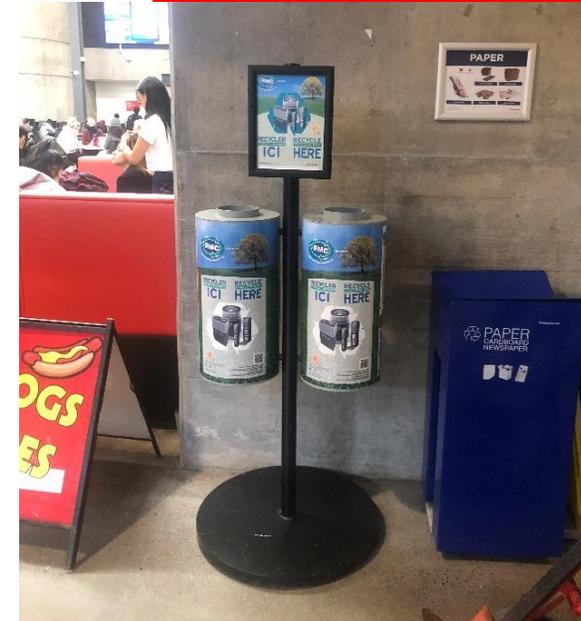


# Seneca College Waste Program

# Waste Streams

## Available Streams

- Waste
- Mixed recycling
- Paper products
- Organics
- Batteries
- E-Waste
- Clothing
- Cleaning product bottles
- Construction waste
- Hazardous materials
- Program specific programs



# Waste Streams - Organics

The Macerator



The Rocket



Totes





# Our Performance

## 2021-2022 Waste Audit Results

# Audit Results | Recycling Equivalents

What does **196,740 pounds** of recycling equate to?



By recycling paper and cardboard, we have saved **628** mature trees from being cut down.

The paper recycled in the past year would have saved enough water to fill **206,280** water cooler bottles.



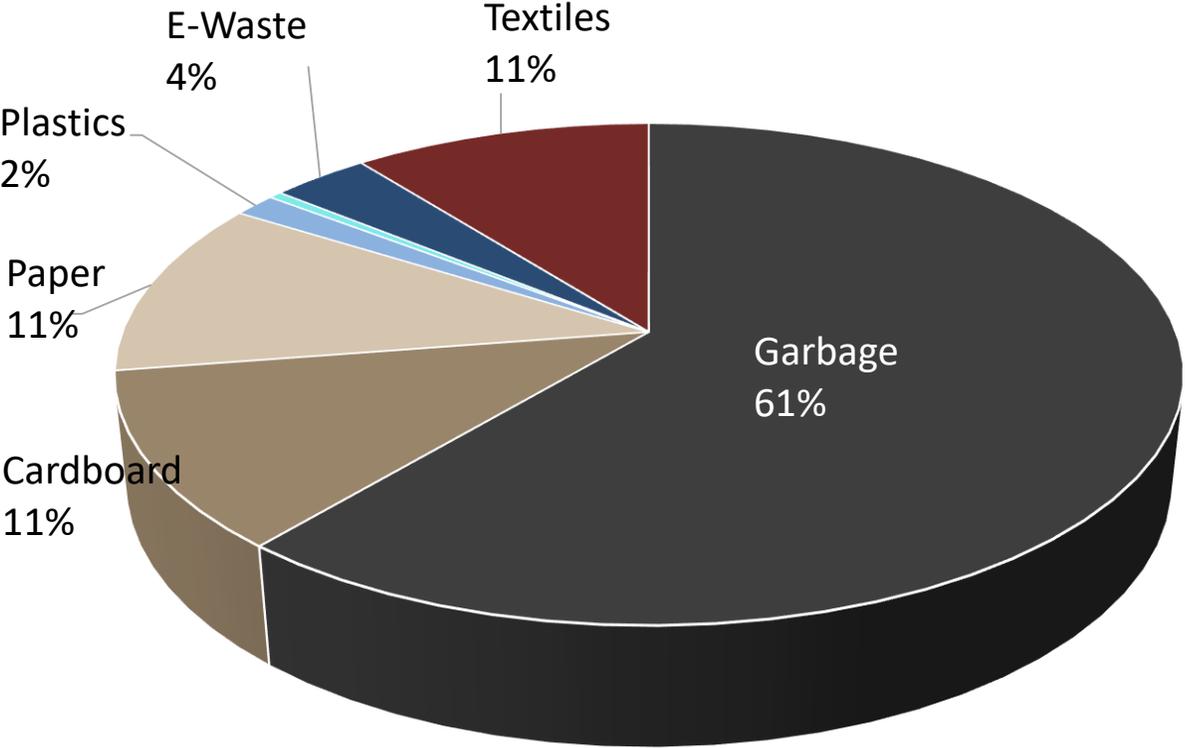
The total material diverted from landfill this year is equivalent to the weight of **43** electric sedans.

Enough plastic bottles were recycled this year to produce **6,249 XL** polyester t-shirts



The aluminum cans recycled in the last year saved enough energy to power a **17 watt energy efficient light bulb** for **210 years**

# Audit Results | Performance



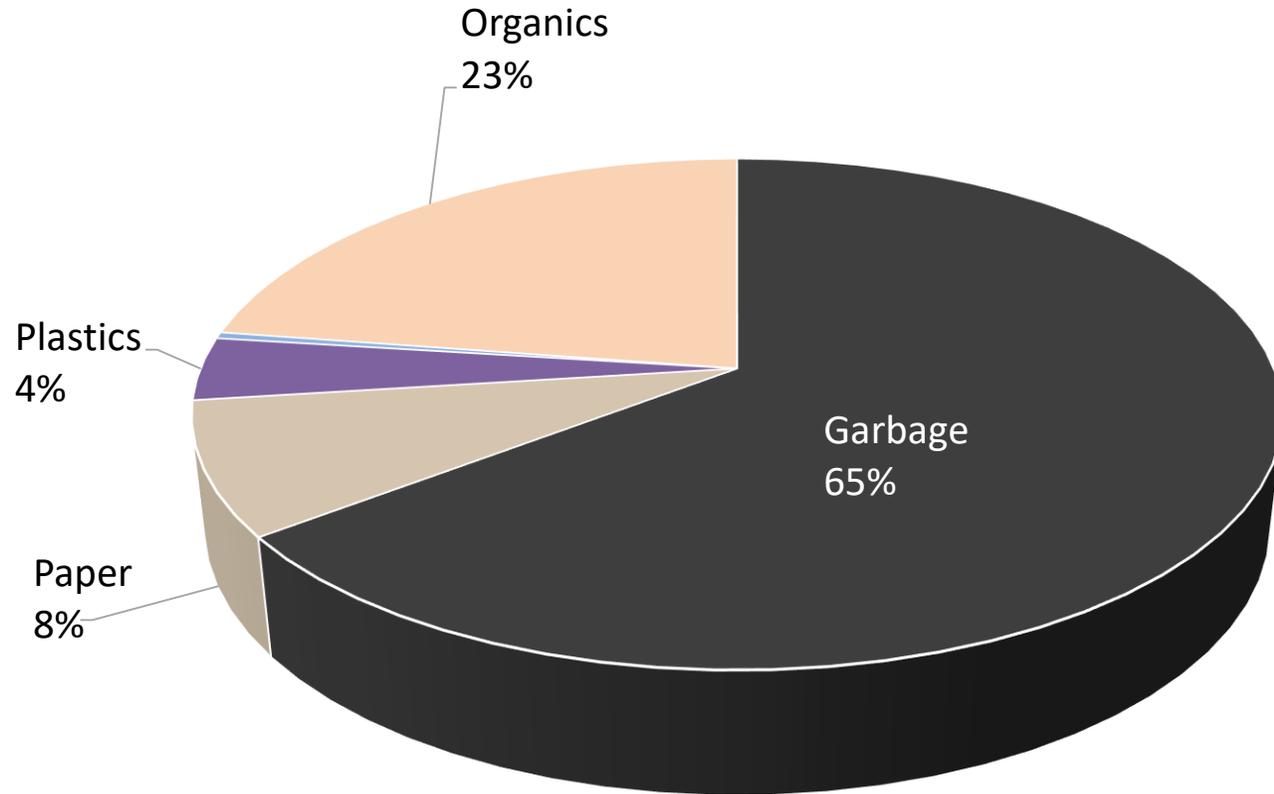
**Diversion Rate 43.3%**

How much does Seneca divert from landfill by recycling?

**Capture Rate 68.2%**

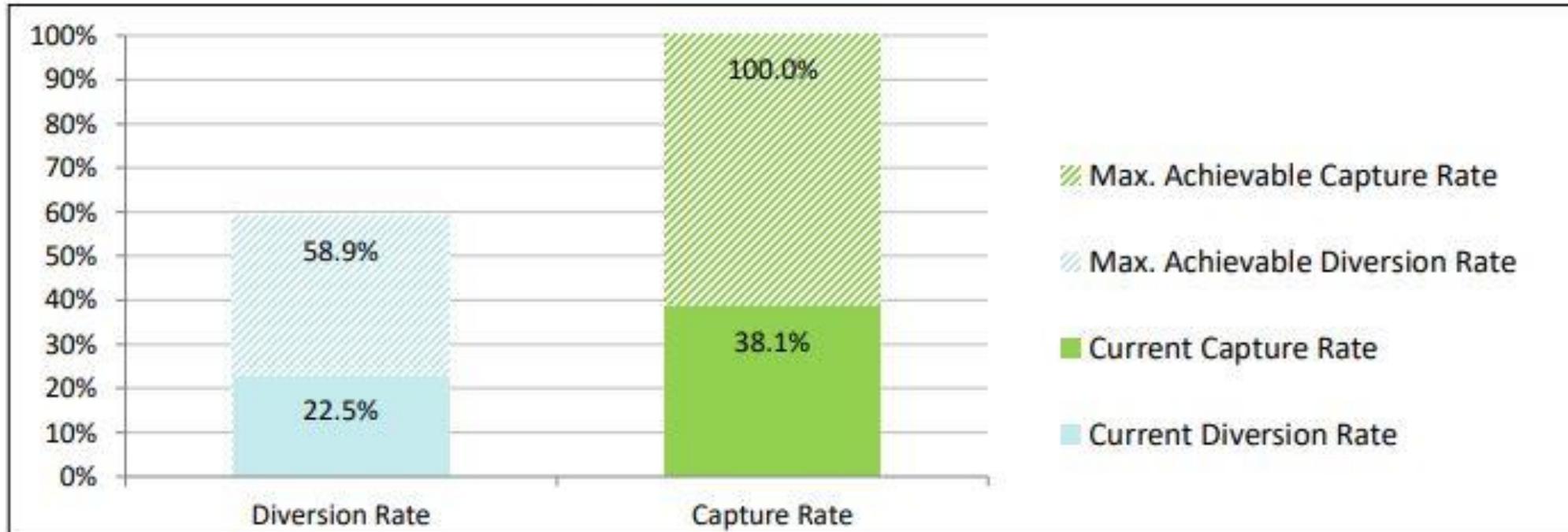
How well does Seneca put recyclables in their appropriate bins?

# Audit Results | Landfill Stream

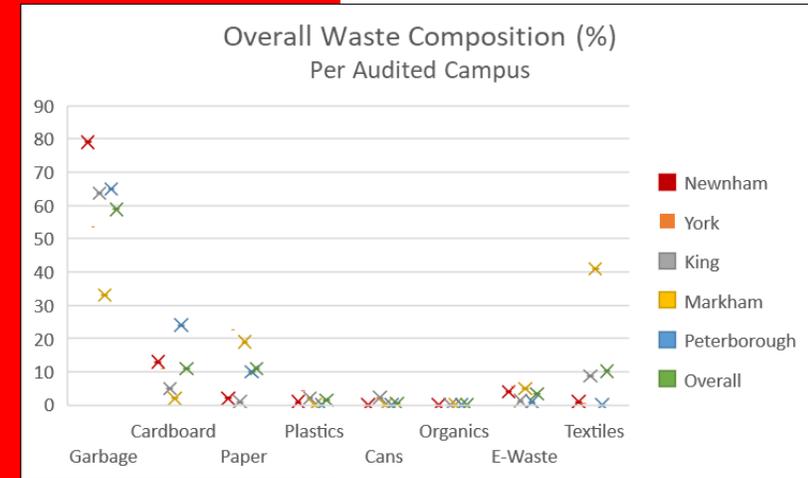
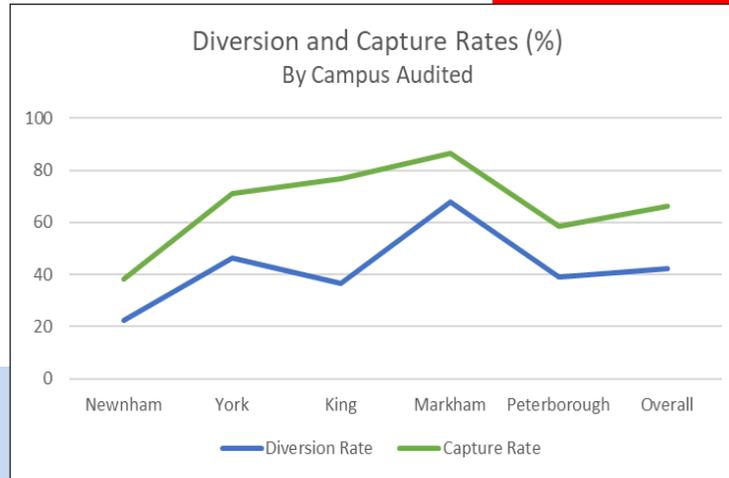
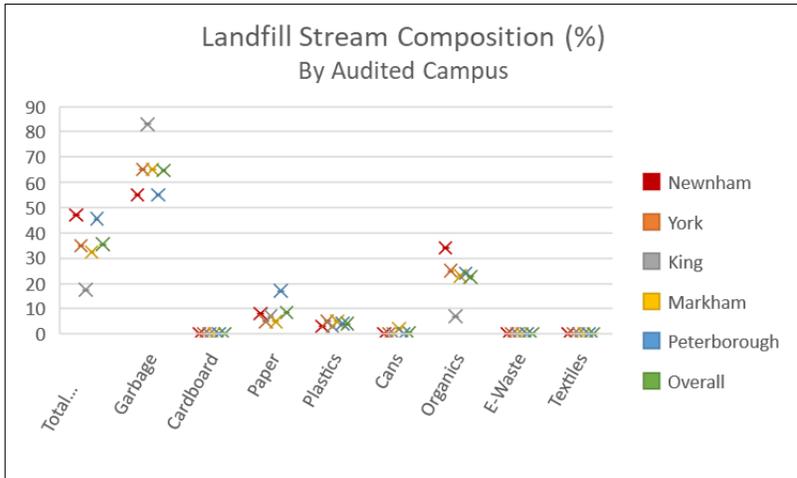


35.44% of our garbage is recyclable materials

# Audit Results | Opportunities



# Audit Results | A Deeper Look





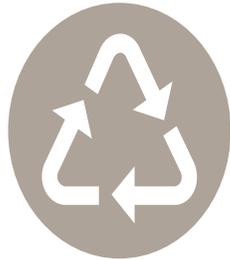
# The Path Forward

# Waste Strategy | Overview



## Innovation & Leadership

- Encouraging innovation in haulers, vendors, and partners
- Proactive approach to regulations (single-use plastics, organics)
- Adopt best practices and strive for continued improvement



## Waste & Recycling

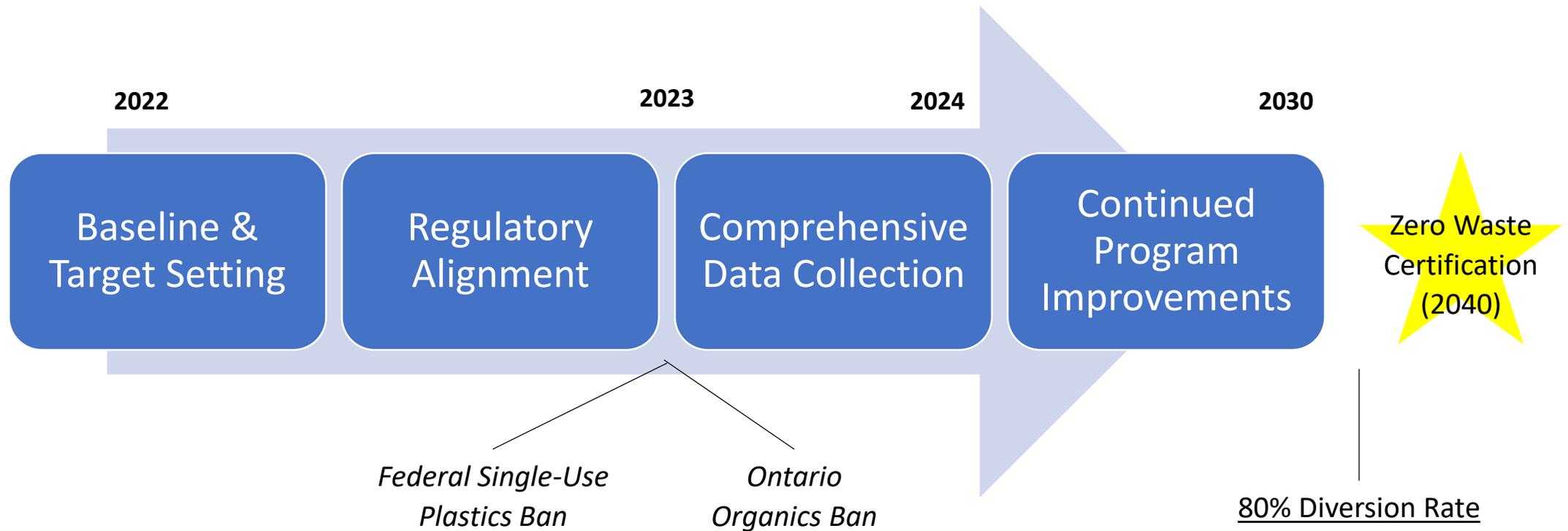
- Waste reduction as a priority
- Increase capacity for recycling
- Circular & sharing economies

## Strategic Goals

- Elevate Seneca's STARS rating
- Embed waste into campus culture
- Alignment with single-use plastics ban
- Alignment with the organics ban
- Transition away from all plastic beverage containers beginning in 2022
- **80% diversion rate at all campuses by 2040**
- **70% capture rate at all campuses by 2030**
- **30% reduction in overall waste by 2030**



# Waste Strategy | Overview



# Waste Strategy | Framework

## Waste Management Framework

### Infrastructure & Design

- Waste collection and disposal bin volume and quantity
- Signage placement
- Collection and disposal organization
- Area design in building process

### Management

- Assessments
- Stream selection
- Waste hauler relations
- Waste program monitoring and feedback collection
- Waste data collection and reporting
- Program improvements
- Policy updates i.e., procurement

### Communication & Education

- Signage design
- Waste related events, initiatives, etc.
- Staff and student training
- Promotion of the recycling program and/or environmental achievements



# Waste Strategy | Annual Improvement Cycle



## Key Projects

- Waste program assessment
- Waste integration
- Specialty stream inventory
- Waste program surveys
- Waste & recycling training
- Single-use plastics reduction (food service)
- Investigate further recycling & upcycling programs

## Key Materials to Address:

- Organics
- Single-use plastics
- Fine paper
- Coffee cups
- Dishware and utensils
- Furniture



# Seneca

## Key Waste Projects



# Policies and Procedures

Sustainability Policy

+

Waste Programs

+

Procurement Policy

+

Impact Statements

=

Formal integration of waste and related data collection in project design and decision making



# Sustainable Procurement Policy

## How the Procurement Policy Addresses Waste

- 1 Prohibiting the purchase of key materials i.e., single use plastics unless demonstrates no feasible alternatives
- 2 Requirements for material categories like electronics, cleaning supplies, furniture, paper, and food & beverages
- 3 Requires purchasers to demonstrate that waste reduction was part of decision making including reuse
- 4 Waste related factors embedded into vendor scorecards / RFP's, including incentives for innovation and circular models
- 5 End of life considerations; waste management has to be determined at purchasing stage to properly dispose of materials

# Sustainability Impact Statements

Answering the question: **How can I make sure my projects or decisions are sustainable?**

The SIS form is a checklist of considerations to take to ensure its design, implementation, and ongoing operations are sustainable.

Projects must demonstrate compliance with required components and that sustainability has been sufficiently considered in project design, including prior to reaching out for grants.

## Projects that will require the submission of a SIS form:

- Capital project over \$1,000,000
- Is not solely a procurement decision
- Is determined to significantly impact one or more areas of sustainability or has otherwise been determined a project of significant for sustainability



# Sustainability Impact Statements

## Waste

Inventory of all waste to be generated on site and the associated management procedures to appropriately dispose and recycle each material, including reuse opportunities?

- Yes
- No

Prioritize the use of recycled and/or recyclable products:

- Yes
- No
- N/A

Will the site be using compost and/or mulching of on-site landscape waste?

- Yes
- No
- N/A

Waste reduction measures taken:

- Yes
- No



## Environmental Impact

*The environmental factors of the project influenced by procurement, operations, and maintenance.*

### Energy

\*Building-level or project specific data for energy demand/consumption?

- Yes
- No
- N/A

\*All energy and water consuming equipment/products will be required to be third party verified as energy efficient i.e., ENERGY STAR or equivalent:

- Yes
- No
- N/A

Installation or purchase of renewable energy or purchase of carbon offsets?

- Yes
- No
- N/A

Implementation of energy demand and emission reduction measures i.e., technological and behavioural?

- Yes
- No
- N/A

Implementation of light pollution reduction measures:

- Yes
- No
- N/A



# Single-Use Plastic Container “Ban”

## Why?

- Taking a proactive approach to future regulations
- Reducing the impacts of plastics from production to end of life
- Strengthen our position as sustainability leaders
- Inspire further change in the industry and our culture.

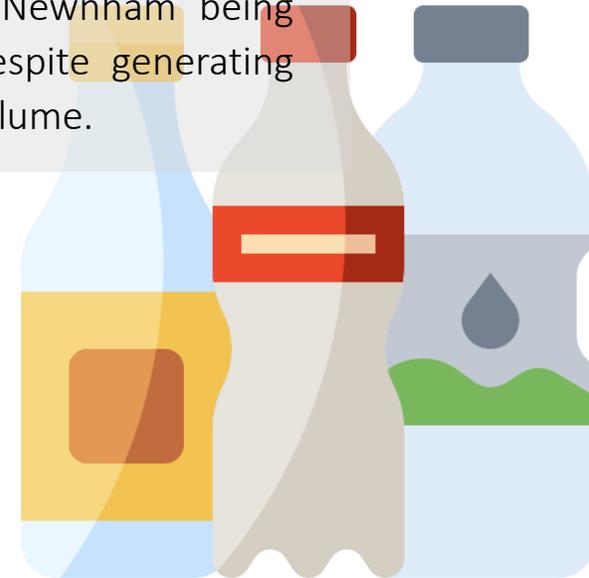
## What to Expect?

- No standard water bottles available (Sept. 2022)
- Limited amounts of larger water bottles offered in cafeteria
- A switch from plastic to aluminum cans for pop beverages

## Looking to the future

- Working with vendors to remove water bottles etc.
- Reusable container programs, refillable stations, and upcycling programs

Clear plastic beverage bottles e.g., water bottles, made up 10.4% of Seneca’s overall garbage stream, The capture rate for this material was an average of 41.3%, with the highest at King with 60% and Newnham being the lowest at 6% despite generating relatively the same volume.



# Muslin Textile Recycling

## The Problem

- Consistent generation of textile waste on campus
- Limited to no capacity for textile scrap recycling globally
- Limited upcycling opportunities given the size

## Potential Projects

- Mushroom growing medium project
- Beeswax covers for campus honey
- On campus textile processing equipment

## Opportunities

- Help solve the global textile recycling issue by being early adopters of innovative technologies
- Further partnerships with organizations and colleges
- Offer exciting living lab and applied research opportunities



# Sustainable Printing Initiative

## Why?



**Diversion:** Looking at the waste audit results for Newnham campus, fine paper has a capture rate of 22%



**Procedural & Cost Efficiency:** There are roughly 400 of 900 printers having not been utilized since the approval for their removal in 2017. Print demand has drastically reduced, exacerbated by the pandemic, thus availability should reflect demand.



**Culture Change:** Seneca is both responding to and supporting the culture shift towards more environmentally conscious students, staff, and community.

The removal is expected to result in a savings of \$529,000 annually

## What has been done?

1. Reducing the number of printers by 77%, leaving at least one printer available on each floor and building
2. 15 of the 91 student facing printers will be removed
3. Double sided and black & white is set to default
4. Ongoing monitoring for print volumes

# Upcoming | Seneca CIRCLE

## Seneca Centre for Innovation in Circular Economy

- Extension of Seneca Innovation
- Centre for research and a hub for circular projects
- Grant application phase
- Anticipated establishment in Spring 2023
- Proposed to be located on King Campus but support projects across the college



# Key Challenges

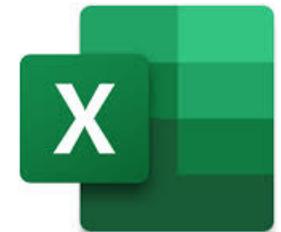
**Compostables**



**Contamination**



**Data Collection**



# Key Challenges | Contamination

## Issue

- Liquids in mixed recycling
- Plastics and containers in organics
- Garbage in recycling

## Potential Causes

- Size of receptacle openings
- Signage
- Time required to remove packaging
- Acceptance criteria for compostables

How do you reduce contamination?



# Key Challenges | Compostables

## Issue

- Biodegradable vs. compostable
- Acceptance criteria for compostable products
- Imbalances in composters of wet vs. dry materials

So, you have ensured you only purchase certified compostable materials and included signage around bio-plastics, but you still have nowhere to put them!

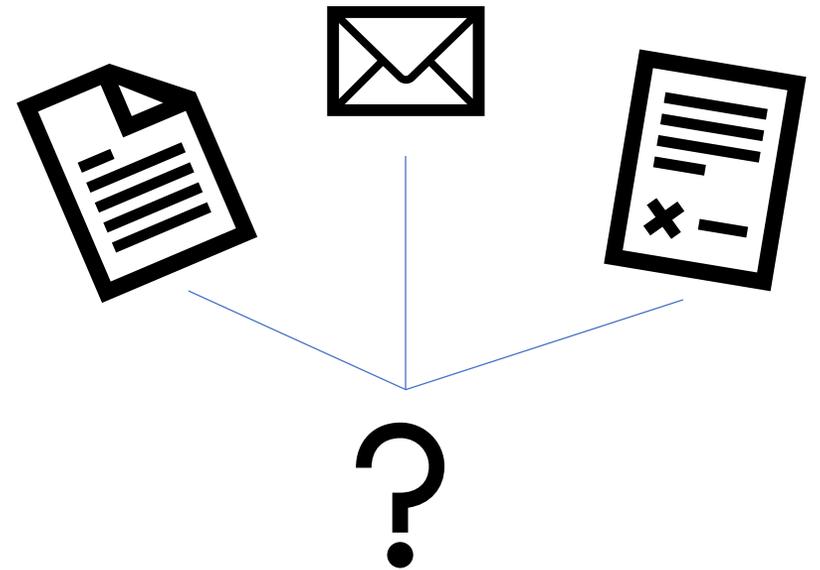


How do we divert these from landfill in spaces that have limited opportunity for dishware?

# Key Challenges | Data Collection

## Issue

- Limitations to capturing all programs across the college
- Receiving data in various forms i.e., invoices, construction log forms, hauler summaries, emails
- Gaps in data collection
- Audits not reflecting all waste generated and streams



Are there any tools or processes available to simplify data collection? Internal audits?

# Questions and Discussion

- Do you have any questions about Seneca's waste program?
- Do you have any waste related issues we may share?
- Do you have any ideas on how we could improve?
- Are there any opportunities we may be missing, or potential projects we can work on together?

# Thank you



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# Seneca