Niagara Region | Growing Better Together

Technical Memo 4

Comparative Scan of Peer Municipalities

Niagara Region // December, 2023

Executive Summary

This technical memorandum provides an overview of unique policies, practices, programs and by-laws utilized by municipalities across Ontario to support their waste management programs and that the Regional Municipality of Niagara (Niagara Region) might consider during the development of its new Waste Management Strategic Plan (WMSP). Waste diversion targets and current performance are discussed along with key performance indicators (KPIs) applicable to operations and diversion activities. Niagara Region's typical comparator municipalities include the cities of Hamilton, London and Ottawa, Simcoe County and regional municipalities of Durham, Halton, Peel, York and Windsor-Essex. Other municipalities, such as the City of Toronto, are discussed where applicable.

Key Take Aways

The transition of traditional recycling programs to Individual Producer Responsibility (IPR) systems combined with growing concerns over climate change and sustainability is causing municipalities to shift the focus on their waste management services. Municipalities are trending away from finite waste diversion targets and aligning their waste management policies with broader corporate vision statements such as zero waste, zero Greenhouse Gas (GHG) emissions, and sustainability and circular economy goals. While traditional waste collection and diversion activities will continue, departmental level initiatives are focusing on actions that can be taken to support these corporate goals such as fleet electrification and green procurement.

Significant effort is being expended by many of Niagara Region's peers to develop new educational materials and partnerships with other agencies to promote a broad range of waste avoidance, reduction, and reuse initiatives. Particular emphasis is being placed on food waste, textiles, and electronics as key areas of concern. Collection policy continues to move towards clear bags with supporting by-laws and/or stringent bag limits to encourage diversion. This trend is supported by a growing awareness of, and tailored response to, special needs groups such as medical waste exemptions.

The transition to IPR based diversion systems is also causing many municipalities to revisit their waste management policies and services directed towards affected groups. Many are considering how these changes will affect groups such as commercial businesses or how to address potential program gaps in servicing areas such as public spaces. As noted in Technical Memo 5: Trends in Alternative Technologies, many municipalities are looking at how to leverage new technologies to reduce costs and improve services as part of their ongoing efforts at continuous improvement.

Birett & Associates

December, 2023

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List of Acronyms

BIAs: Business Improvements Areas

C&D: Construction and Demolition

GHG: Greenhouse Gas

GPS: Global Position System

HSP: Household Hazardous and Special Waste

IPR: Individual Producer Responsibility

KPIs: Key Performance Indicators

LAMs: Local Area Municipalities

NGO: Non-governmental Organization

RNG: Renewable Natural Gas

RPRA: Resource Productivity and Recovery Authority

WMSP: Waste Management Strategic Plan

Table of Contents

1 Introduction

Municipalities across Ontario deploy a broad range of policies, programs and practices to address their waste management regulatory obligations as well as the unique needs of their local residents and businesses. Niagara Region is comprised of 12 local area municipalities (LAMs) forming a distinct mix of urban and rural communities. As a result, aspects of Niagara Region can be reflective of urban regional municipalities such as Durham Region, Windsor-Essex, City of Ottawa, Simcoe County, and Waterloo Region as well as large urban municipalities such as Halton Region, Peel Region, York Region, City of Hamilton, City of London and City of Toronto.

2 Unique Policies, Practices, Programs and By-laws

Waste management is an ever changing field with the industry's understanding of best practices constantly being challenged and evolving to meet new circumstances. With the impending transition of Ontario's Blue Box Program to an IPR system, many municipalities have been re-examining their waste diversion efforts. In fact, Statistics Canada reported that in 2020, over one quarter (27 per cent) of municipal organizations were already factoring climate change adaptation into their decision making process for solid waste infrastructure.[1] Many are now exploring opportunities to address broader climate change considerations through the development of waste avoidance strategies and circular economy initiatives. Others are pursuing initiatives and policies to address new and growing waste trends as identified in Technical Memo 2: Waste Generation Trends and Technical Memo 3: Demographic Trends. Additional operational changes such as sizing of storm water ponds will also need to be considered to ensure they meet new climate change realities.

2.1 Food Waste Initiatives

With the introduction of the Food and Organic Waste Policy Framework, see Technical Memo 1: Federal and Provincial Policy and Legislative Review for more information, many municipalities have made significant efforts to develop food waste avoidance programs and improve the performance of their existing Green Bin programs.

In most cases, these municipalities have sought to foster effective working relationships with, and promote the efforts of, their local food banks and related not for profit (i.e., non- governmental or NGO) organizations. Others have formalized partnerships with

[1] Canada's Core Public Infrastructure Survey: Solid waste and asset management, 2020 (https://www150.statcan.gc.ca/n1/daily-quotidien/221028/dq221028b-eng.htm)

local food networks. Examples include York Region's The Good Food Program and the City of Toronto's Urban Harvest program.[2,3] Many municipalities, such as the City of Toronto, have also formalized food waste reduction strategies which encompass outreach programs and include distribution of information to educate residents and local business about the benefits of food waste avoidance.

2.2 Reuse Initiatives

Over the past two decades municipalities have developed a broad range of 'reuse' opportunities. Typically, these types of initiatives involve setting up reuse centres or goods exchange opportunities at their drop off depots, Community Environmental Centres and special events. In essence, residents and staff set aside gently used, durable goods in buildings onsite for other residents to take free of charge. While not broadly promoted, many municipalities continue to offer used paint and stains collected through their Household Hazardous and Special Waste programs to residents free of charge.

Other communities like Durham Region and the City of Guelph, organize swap events either at community sites or on specific days where residents can set out items at the ends of their driveways for others to take such as in the City of Toronto.[4,5] Typically, these events are planned for the day(s) preceding large item or regular garbage collection dates so that unclaimed items could be removed to prevent by-law compliance and littering issues. The City of Niagara Falls already hosts two such events each year.

With the increasing focus on development of circular economy initiatives and availability of social media platforms, many municipalities have formalized relationships with a range of NGOs to expand their reuse options. Examples include York Region's promotion of repair cafes, City of Guelph's ReCycle bike reuse program and City of

[2] Less food waste is good for you and the planet (https://www.york.ca/newsroom/campaigns-projects/good-food)
[3] Community Reduce & Reuse Program (https://www.toronto.ca/services-payments/recycling-organics-garbage/long-term-waste-strategy/waste-reduction/community-reduce-reuse-programs/)
[4] Goods Exchange Weekends in Guelph (https://guelph.ca/living/environment/garbage-and-recycling/goods-exchange-weekend/)
[5] Secondhand Sunday promotes waste reduction, sustainability in Toronto (https://toronto.citynews.ca/2022/09/24/secondhand-sunday-promotes-waste-reduction-sustainability-in-toronto/)

Burlington's lending library.[6,7,8] Toronto, in particular, supports a broad range of unique sewing and bike repair hubs and sharing and reuse spaces.[9] These initiatives are part of Toronto's broader Long-Term Waste Management Strategy and support the Toronto Strong Neighbourhoods Strategy. For instance, Toronto's Zero Waste Hub established in 2018 is a grassroots NGO that works with established local organizations and green groups to help promote waste reduction education, awareness and opportunities. Others, such as the City of Barrie, have more formal relationships with local NGO's to coordinate curbside textile collection programs and divert construction and demolition (C&D) waste to groups like Habitat for Humanity.[10]

The introduction of Extended Producer Responsibility legislation (as more fully described in Technical Memo 1: Federal and Provincial Policy and Legislative Review) will reduce the role of municipalities in managing traditional residential recycling programs (e.g., Blue Box recycling). As a result, the role of municipal governments in developing, promoting and, otherwise supporting reuse focused initiatives, such as reuse cafes and swap events, is expected to become increasingly important and should be considered as an important option for Niagara Region's WMSP.

2.3 Strategic Initiatives

Municipalities across the province have also actively been developing climate change, sustainability and circular economy initiatives.[11] These efforts range from developing high level strategies such as Toronto's "Strategy for a Circular Toronto" and goals through to more tangible actions such as the City of Guelph's establishment of its Climate and Circularity Solutions Hub or York Region's Circular Economy Initiatives

[6] Repair Café (https://www.york.ca/newsroom/campaigns-projects/repair-cafe)
[7] ReCycle your bike, or get a used bike free (https://guelph.ca/living/environment/garbage-and-recycling/bike-reuse-program/
[8] Lending Library (https://www.burlington.ca/en/community-supports/lending-library.aspx)
[9] Community Reduce & Reuse Program (https://www.toronto.ca/services-payments/recycling-organics-garbage/long-term-waste-strategy/waste-reduction/community-reduce-reuse-programs/)
[10] Curbside Collection (https://www.barrie.ca/services-payments/garbage-recycling-organics/curbside-collection)
[11] Circular Economy Roadmap (https://www.york.ca/media/105151/download?attachment)

Fund.[12,13,14] Some initiatives are more targeted such as the County of Wellington and City of Guelph's joint effort to develop a circular food economy.[15]

Climate change strategies and sustainability planning exercises have become an integral part of municipal strategic planning efforts.[16,17] Tracking of greenhouse gas emissions from waste management operations is becoming a standard expectation of municipal governments. While this work is not particularly innovative, municipalities are increasingly looking at innovative ways to reduce their waste management related carbon footprint. Municipalities like the City of Guelph are already actively selling carbon offset credits on the open market as a revenue source.[18] Others have offered the rights to emissions credits as part of contractual agreements in return for more favourable pricing.

As discussed in Technical Memo 5: Trends in Alternative Technologies, the trend for large municipalities in Canada, especially in light of recent Federal and Provincial grants, subsidies and policy as related to environmental stewardship would indicate that electrification is the pathway that is most supported today for fleets. There is also significant interest in the production of electricity and renewable natural gas (RNG) from landfill gas and anerobic digestion of food and organic waste. Collection of pet waste from parks and processing through anaerobic digestion, as discussed in Section 2.5 Public Space Initiatives, is an example of these efforts. Arguably, some of the more interesting work in this regard is the potential to use existing wastewater treatment capacity, where available, to manage certain organic wastes such as pet and food waste as further described in the aforementioned memo.

Several municipalities are also looking for ways to support their corporate circular economy policies by utilizing electricity or RNG produced within their waste

[12] Strategy for a Circular Toronto (https://www.toronto.ca/services-payments/recycling-organics-garbage/long-term-waste-strategy/working-toward-a-circular-economy/strategy-for-a-circular-toronto/)
[13] New initiative strengthens link between circular economy and actions to address climate change (https://guelph.ca/2022/10/new-initiative-strengthens-link-between-circular-economy-and-actions-to-address-climate-change/)
[14] Circular Economy Initiatives Fund (https://www.york.ca/newsroom/campaigns-projects/circular-economy-initiatives-fund)
[15] Smart Cities Booklet (https://guelph.ca/wp-content/uploads/SmartCities_Booklet.pdf)
[16] Climate Change Action Plan (https://www.york.ca/media/108131/download)
[17] Sustainability Plan https://www.thunderbay.ca/en/city-hall/sustainability-plan.aspx
[18] Sustaining our Future (https://guelph.ca/city-hall/budget-and-finance/city-budget/2022-and-2023-city-budget/strategic-priorities/sustaining-our-future/)

management operations to subsidize their fleet fuel requirements.[19] Others are actively pursuing development of green procurement policies and supporting initiatives. In 2019, for example, Durham Region eliminated the provision of bottled water in their headquarters. Other municipalities are pursuing the elimination of single use cutlery, dishware and containers in their operations in support of the new federal legislation. The City of Markham, as an example, has a Zero Waste food services policy.[20] Municipalities such as the Cities of Calgary and Thunder Bay have procurement policies in place to support sustainable, environmental, First Nations and inclusivity goals.

Niagara Region has already been active in responding to the issue of climate change through actions such as updating its Energy Conservation and Demand Management Plan, including climate related objectives in the Niagara Official Plan and more.[21]

2.4 Policy and By-law Initiatives

Waste management policy is constantly evolving as municipalities strive to improve their waste diversion efforts. It plays a key role in encouraging public participation in such efforts as well as directing public use of programs and services.

After over 30 years of trial and error, it has become increasingly clear that biweekly garbage collection is the single most successful driver of waste diversion program participation. Combined with weekly organics (Green Bin) collection, it is an accepted best practice. Use of bag limits and similar mechanisms to control set out quantities are almost equally important and widely used across Ontario.

However, there are concerns that bag limits can impose an unintentional hardship on larger families and those with children in diapers or elderly residents with incontinence issues or undergoing out-patient treatment. Nevertheless this has not been identified as an issue in Niagara. Careful consideration of local community needs is necessary, as was done when Niagara Region made the decision to move to every other week collection combined with its current bag limit. These challenges have led a number of

[19] Turning Waste into Renewable Natural Gas (https://www.toronto.ca/services-payments/recycling-organics-garbage/solid-waste-facilities/renewable-natural-gas/)

[20] Zero Waste Policy Food and Catering Services (https://www.markham.ca/wps/wcm/connect/markham/2415854f-c9df-47e2-867a-6549e1c68b2f/zero-waste-policy-food-and-catering-services.pdf?MOD=AJPERES&CONVERT_TO=url&CACHEID=ROOTWORKSPACE.Z18_2QD4H901OGV160QC8BLCRJ1001-2415854f-c9df-47e2-867a-6549e1c68b2f-mvd8De9)

[21] Climate Change in Niagara (https://www.niagararegion.ca/culture-and-environment/climate-change/general/default.aspx)

communities to consider moving towards clear bags to address this concern.[22] This strategy is typically combined with by-law amendments either banning disposal of recyclables or, less commonly, by making participation in diversion programs mandatory (e.g., in multi-residential settings as a condition of receiving municipal collection service).[23] Irrespective of which option is used, there is a clear requirement for, and cost associated with, by-law enforcement that must be considered in order for a clear bag program to be effective. The long-term viability of clear bag programs is also potentially under scrutiny as more and more municipalities move to automated cart based collection. As detailed further in Technical Memo 5: Trends in Alternative Technologies, automated cart based collection offers several benefits over manual collection. Niagara Region should consider this option when reviewing service levels for the next collection contract or as part of WMSP.

The use of municipal waste management by-laws to ban designated recyclables and other divertible materials from collection and/or landfill has also gained momentum as of late. This approach can be implemented independently of initiatives to adopt clear bag programs. While challenging to enforce, municipalities are increasingly using collection bans as educational tools. The City of North Bay, like many other municipalities, has implemented bans on the collection and landfill disposal of corrugated cardboard, electronics, appliances, tires, grass clippings, household hazardous waste, textiles and mattresses in an attempt to divert as much waste as possible from their landfill.[24] To be effective, bans must be resourced appropriately including provision of additional dedicated by-law enforcement, increased customer service staff and additional promotion and education of the public. These ongoing efforts can have a material impact on community budgets and need to have the full support of council to remain effective.

As noted in Technical Memo 1: Federal and Provincial Policy and Legislative Review, the Province is also considering banning food and organic waste from landfill and municipalities across the province are already putting plans in place to comply with this potential requirement. If passed, there could be budget implications to Niagara Region including the need for a full communications strategy and potentially additional by-law enforcement requirements. Other municipalities such as the Cities of Toronto and Surrey (British Columbia) have implemented strategies and by-laws to target single use plastics in support of the related federal initiatives.

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[22] Clear Bag Garbage Program Toolkit (https://thecif.ca/projects/documents/748-Clear-Bag-Toolkit.pdf)
[23] Recycling Collection (https://www.orillia.ca/en/living-here/recyclingcollection.aspx)
[24] Waste Diversion Strategy (https://pub-northbay.escribemeetings.com/filestream.ashx?DocumentId=22926)

2.5 Public Space Initiatives

With the transition of Ontario's Blue Box Program to an IPR model, producers will become responsible for the provision of recycling in open spaces such as public parks (see Technical Memo 1: Federal and Provincial Policy and Legislative Review for more information). Municipalities will retain responsibility for provision of recycling services in public spaces such as municipal buildings. Consequently, many municipalities are revisiting the types and level of waste management services they are providing in these varied environments.

The introduction of smart technologies into the field of waste management has allowed municipalities to optimize collection systems in areas like Business Improvement Areas (BIAs) and parks through the use of solar powered compactors and Wi-Fi monitoring systems (see Technical Memo 5: Trends in Alternative Technologies for more information).[25] The City of Guelph, for example, encourages residents to use the Guelph map application 311GIS to report litter or waste concerns in city parks. Residents can tag a location where they notice a full garbage can so that Guelph staff will send a cleanup crew.[26]

Many municipalities are also expanding their public space services to capture organics such as pet waste.[27] Others, like the City of Markham, offer recycling options and provide recycling services at targeted sources of litter such as community mailboxes.[28]

Below grade storage systems are gaining popularity in parks and public spaces such as BIA's and campuses across Ontario as a way to minimize container footprint and reduce issues such as odours and pests.[29,30] Contamination remains a key issue in public spaces and extensive work has been done by various agencies to identify better

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[25] Bigbelly Compactors in Downtown Kingston (https://member.downtownkingston.ca/en-ca/memberhub/bigbelly-compactors-in-downtown-kingston)

[26] Comparative Scan of Municipal Strategies, Practices and Initiatives EXECUTIVE SUMMARY (https://engage.ottawa.ca/12201/widgets/55201/documents/33166)

[27] Dog Waste Pilot Program (https://www.mississauga.ca/projects-and-strategies/city-projects/dog-waste-pilot-program/)

[28] Keeping Markham Beautiful (https://www.markham.ca/wps/portal/home/neighbourhood-services/recycling-garbage/community/zero-waste-for-schools/01-keeping-markham-beautiful)

[29] Waterloo to Turn Dog Poop into Power (https://www.hamiltonnews.com/news-story/7251597-waterloo-will-turn-dog-poop-into-power/)

[30] https://www.earthbin.com/case-studies

practices to mitigate this issue.[31]

2.6 Unique Collection Services

Municipalities have historically relied on curbside collection to deliver cost effective and convenient waste management services to the public. Depot and drop off services have been used to supplement these core services by providing an option for quantities of waste that exceed set out limits and materials that cannot be easily managed at the curb.

With the changing population demographics, as described in Technical Memo 3: Demographic Trends, municipalities are increasingly tailoring depot and curbside services to address specific needs. Household hazardous and special waste (HSP) for instance has traditionally been managed through depot based collection. Despite this cost effective approach, several municipalities including the City of Sudbury and City of Toronto provide appointment based collection services known as a Toxic Taxi.[32,33] This particular service can be costly relative to the net environmental benefit. Further study of current capture rates of this waste stream and of the community's needs and priorities is warranted before considering this option. Greater advocacy efforts by municipalities to ensure producers of HSP materials are funding such services is also recommended.

Others provide curbside diaper, battery, electronic and bulky waste collection in addition to base curbside and depot services subject to their community's needs.[34]. As the population ages, it is expected that municipalities may need to consider expanding curbside collection programs to capture key waste streams such as textiles and electronics.

2.7 Promotion, Education and Engagement Initiatives

Arguably, one of the biggest areas of change in the industry continues to be with public communications. As producers take on a greater role in the management of waste,

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[31] Public Spaces (https://thecif.ca/centre-of-excellence/collection/public-space-and-signage/)/

[32] Waste Wise (https://www.greatersudbury.ca/live/garbage-and-recycling/waste-wise/#!rc-cpage=wizard_material_list)

[33] Household Hazardous Waste (https://www.toronto.ca/services-payments/recycling-organics-garbage/household-hazardous-waste/)

[34] Electronics Collection (https://www.simcoe.ca/SolidWasteManagement/Pages/Electronicspercent20Collection/electronicscollection.aspx)

there will be a significant need for public education on changing roles and responsibilities, new programs and changing service levels both during program transition and in subsequent years. Additionally, as municipalities focus on broader issues like waste avoidance, climate change and sustainability, public engagement will become crucial to achieving strategic targets. These efforts are highlighted by examples such as the Love Food Hate Waste Campaign and the City of Toronto's Climate Action Support initiatives.[35,36]

Increasingly, municipalities are having to deploy a broad range of tactics and strategies to appeal to, and educate, the growing range of demographic groups as identified in Technical Memo 3: Demographic Trends. Municipalities are now providing communications services across the full range of social media platforms while still supporting traditional communications channels (e.g., newsletters, television and websites).[37] Increasingly, they are making use of smart technologies and applications to deliver information with options ranging from waste wizard apps and global positioning system (GPS) sourced real time information through to interactive on-line public engagement strategies.[38,39]

Special events are commonplace in most municipalities and are a key form of community based outreach. Several guides are available on how to operate these events to minimize waste and operate them in an environmentally sustainable manner.[40] Numerous municipalities are also offering virtual and physical workshops and 'ambassador' programs supported by informational tool kits to engage various audiences on topics ranging from waste diversion in multi-residential properties, through to sustainable living practices and targeted initiatives such as single plastic replacement

[35] The National Zero Waste Council is proud to be working with the following leading organizations. (https://lovefoodhatewaste.ca/about/campaign-partners/)
[36] Climate Action Support (https://www.toronto.ca/services-payments/water-environment/live-green-toronto/climate-action-support/)
[37] Conserving Water (https://www.regionofwaterloo.ca/en/living-here/conserving-water.aspx)
[38] Waterloo Region's new Waste Whiz app, video aim to boost recycling awareness (https://www.therecord.com/news/waterloo-region/2019/10/22/waterloo-region-s-new-waste-whiz-app-video-aim-to-boost-recycling-awareness.html)
[39] Why more municipalities are putting radio-frequency tags on garbage bins (https://www.cbc.ca/news/canada/edmonton/more-municipalities-putting-radio-frequency-tags-garbage-1.5716251)
[40] Waste Diversion Handbook (https://guelph.ca/wp-content/uploads/SpecialEventWasteDiversionHandbook.pdf)

options for local businesses.[41,42,43] Multilingual communications and cultural and inclusivity initiatives are becoming key components of municipal waste management services.

Adequate financing for these many initiatives is a key part of ensuring success. The City of Toronto, for example, budgeted approximately $6.89 per household in 2023 for promotion, education, enforcement, community outreach and environment days.[44] Many municipalities report budgeting over $2 per household for communications in advance of the impending Blue Box transition process.[45]

3 Key Performance Indicators

Waste processing and disposal services have historically used weight based measurements for everything from invoicing through to performance measurement. Not surprisingly, waste diversion performance has also historically been based on the quantity of waste diverted as measured by weight. Over the years a broad range of Key Performance Indicators (KPIs) have been developed which typically focus on waste diversion, tonnes of waste managed and program costs. Common examples include:

- Total Tonnes Generated and by Material Type
- Total Tonnes Recycled and by Material Type
- Total Tonnes Landfilled and by Material Type
- Total Tonnes Diverted and by Material Type

Public facing KPIs typically refine these base indictors to consider weight or cost per household or per person and are usually supplemented by addition customer service indicators such as complaint or inquiry calls, hits on web sites, etc. Internal operational KPIs tend to be much more granular and focus on cost or efficiency parameters such as staff time per unit of activity or service levels. Examples include:

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41 Master Composter Recycler (https://www.halifax.ca/home-property/garbage-recycling-green-cart/education-outreach/master-composter-recycler)

42 3Rs Ambassador Program (https://www.toronto.ca/services-payments/recycling-organics-garbage/apartments-condos-co-ops/3rs-ambassador-program/)

43 Single-Use Item Reduction Strategy (https://vancouver.ca/green-vancouver/single-use-items.aspx)

44 2023 Budget Notes Solid Waste Management Services https://www.toronto.ca/legdocs/mmis/2023/bu/bgrd/backgroundfile-231166.pdf

45 Birett and Associates, interview with B. Whitelaw, Whitelaw and Associates, May 25, 2023.

- Landfill Fill Rate
- Landfill Capacity
- Program Costs by Activity
- Capture Rate by Material
- Residue Rate
- Contamination Rate
- Processing Loss Rate
- Equipment Run Time
- Calls Handled per Staff
- Queue Line Weight Times
- Workplace Injury Rates

3.1 Trends in Waste Management Related KPIs

With the ongoing transition of waste diversion programs to IPR models it is anticipated that municipalities will find it increasingly difficult to obtain accurate data specific to producer diversion efforts in their communities. Many municipalities are therefore pivoting to focus on other metrics that are more meaningful and within their control. Most are endeavouring to develop targets and KPI's that support corporate climate change and sustainability goals. Examples include:

- Waste Disposal – Total tonnes of waste disposed per household
- Organics Diversion – Tonnes of organic waste diverted per household
- Emissions Reduction – Tonnes of CO_2E emissions
- Resident Awareness – Number of enquiries and program compliance levels
- Resident Satisfaction – Number of complaint and enquiries calls

These basic KPIs are commonly supplemented by:

- Segmenting performance for single family and multi family households;
- Segmenting performance by program or activity;
- Monitoring program participation; and
- Estimating waste reduction efforts where practical.

Residential awareness tends to be most effectively measured through public survey which can be cost prohibitive to obtain statistically valid data and are normally only done periodically (i.e., every 3-5 years). Similarly, many municipalities undertake annual waste composition studies of their collected waste to accurately assess the performance of their programs over time. These studies are extremely valuable data sources but typically cost over $60,000 per annum depending on their scope.

3.2 Target Setting

Over the past two decades many governments and municipalities have trended towards the use of aspirational goals such as “zero waste” and “zero Greenhouse Gas emissions” rather than setting finite targets. This trend is, in part, because of the many technical and financial challenges faced in setting and achieving specific targets. For example, in March 1989, the Ministry of the Environment announced diversion targets of at least 25 per cent of Ontario’s solid waste from disposal facilities by 1992, and at least 50 per cent by the year 2000.[46] In reality, it took almost two more decades before the goal of 50 per cent diversion was effectively achieved (i.e., 49.7 per cent in 2017) and even then, only for residential waste generated in the province.[47,48]

Aspirational goals, by comparison, are intended to serve more to highlight the sense of importance placed by a municipality or agency on a subject rather than binding an organization to a specific timeline. While there are still many examples of municipalities with specific waste management related targets, there is a growing trend towards focusing on reporting progress in achieving broader vision statements as shown in Table 1.

[46] Hon. Ruth Grier, Speech at the Annual Conference of the Recycling Council of Ontario, October 15, 1990.

[47] 2017 Datacall Report (https://rpra.ca/wp-content/uploads/RPRA-2017-Datacall-Report-Final-Revised-Jan-2018.pdf)

[48] Ontario missing waste diversion targets, running out of landfill space (https://www.wasterecyclingmag.ca/landfills/ontario-missing-waste-diversion-targets-running-out-of-landfill-space/1003285951/)

Table 1: Peer Municipalities Waste Diversion Targets and Related Goals

Municipality	Diversion Targets and Related Goals
Durham	70 per cent - no specific date; Corporate GHG emission reduction targets: 5 per cent by 2015; 20 per cent by 2020; 80 per cent by 2050.
ESWA*	60 per cent diversion target by 2019.
Halton	Diversion of 5 to 11 per cent landfill by 2030; Corporate target of net-zero GHG emissions prior to 2050.
Hamilton	65 per cent by 2021; Net zero greenhouse gas emissions by 2050.
London	60 per cent by 2022; Net-zero community GHG emissions by 2050.
Ottawa	Zero waste goal adopted as part of Solid Waste Master Plan.
Peel	75 per cent by 2034; Zero waste from residential sources.
Toronto	70 per cent by 2026; Overarching goal of zero waste and a circular economy.
Simcoe	62 per cent diversion target by 2020; 77 per cent diversion target by 2030.
York	2031 targets: 15 per cent reduction of green bin material; 5 per cent reduction of yard waste; 5 per cent reduction of other waste streams; 5 per cent reduction in garbage through reuse; 5 per cent increase in material diverted from landfill; 90 per cent diversion from landfill; 60 to 80 per cent of metals captured from residual waste. Net-zero greenhouse gas emissions target by 2051.

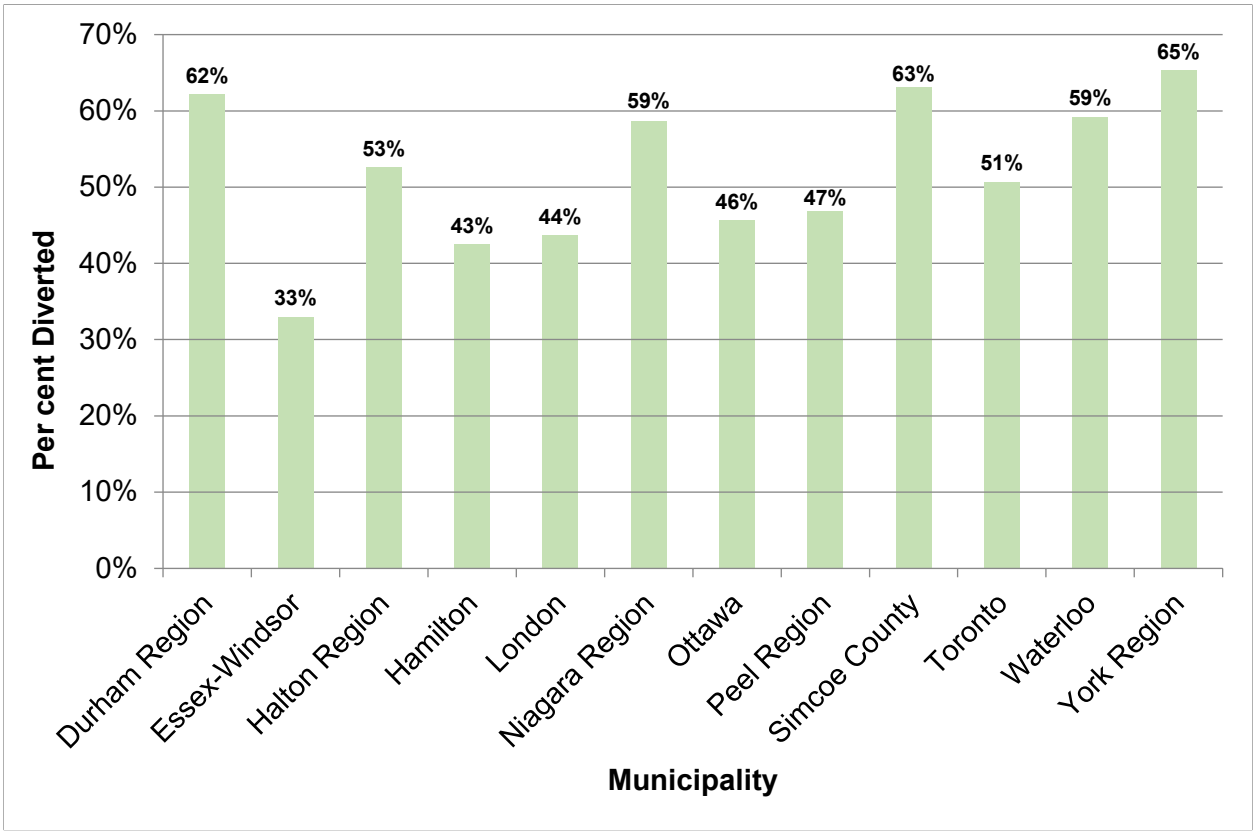
*Essex Windsor Solid Waste Authority

4 Comparative Performance

Based on the most recent provincial data published by the Resource Productivity and Recovery Authority (RPRA), and as shown in Table 2, Niagara Region's diversion performance is comparable to higher performing peer municipalities. Of the 12 municipalities considered in this comparative review, only three reported higher diversion rates than Niagara Region. These municipalities also reported spending an

average $11.33/tonne more than Niagara Region on their diversion programs. However, one municipality had lower overall costs.[49] This fact suggests the expenditure of additional funds is not the source of the reported higher diversion rates.

Table 2: Comparison of Niagara Region's Performance to Peer Municipalities (2021 RPRA Diversion Rate)



A comparative review of the core waste diversion services offered by the three municipalities in question suggests Niagara Region's curbside services and service levels are comparable, as shown in Table 3. In fact, Niagara Region offered higher service levels and stronger collection limit policies than some of the municipalities in question. These observations suggest there is no obvious service gap supporting the performance difference.

[49] Read the 2021 Datacall Report (https://rpra.ca/2023/03/read-the-2021-datacall-report/)

Table 3: Comparison of Top Performing Municipalities Services

	Durham	Simcoe	York	Niagara
Biweekly Garbage	Y - 4 bag limit	Y - 5 bag limit	Y - Set out limits vary by lower tier municipality	Y - 2 bag limit
Weekly Blue Box	Y	Y	Y	Y
Weekly Green Bin	Y	Y	Y	Y
Yard Waste	April to early Dec; Christmas tree collection in Jan	April to early Dec; Christmas tree collection in Jan	April to early Dec; Christmas tree collection in Jan	Year round weekly collection
Bulky Items	Varies by lower tier municipality - by appointment or collected on garbage day	Call in	Varies by lower tier municipality - included in curbside garbage within set out limit and/or with purchased disposal tag	Call in - four item limit
Scrap Metal	Call in	Depot only	Varies by lower tier municipality - call in and depot	Depot only
Porcelain	Call in	Depot only	Depot & bulky collection	Depot & bulky collection
E waste	Call in	Annually	Depot only	Depot only
Batteries	Curbside twice per year	Curbside annually	Depot only	Depot only
Textiles	Depot only	Curbside annually	Depot only	Depot only
Household Haz Waste	Depot only	Depot only	Depot only	Depot only

Closer examination of the generation rates of the top performing municipalities, as shown in Table 4, reveals that Niagara Region has a higher diversion level than Durham and York Regions. However, the latter two municipalities have significantly lower total residential waste generation rates. This variance is believed to be a function of the

demographic and program differences between Niagara Region and the other regions. For example, in some communities, commercial waste may be co-collected with residential waste inadvertently skewing waste generation levels. Simcoe County's higher diversion rate is attributed to its higher capture of residential C&D materials.

Table 4: Comparison of Top Performing Municipalities Generation and Diversion

Municipality	Residential Waste Generated (Kg/Cap)	Residential Waste Diverted (Kg/Cap)
Durham	355	221
Simcoe	469	296
York	331	217
Niagara	451	265

5 Conclusion

Niagara Region offers a broad range of waste reduction and diversion services that are comparable to that of its peer municipalities. Its waste diversion efforts are also consistent with that of top performing municipalities in the province. This review did not identify any obvious service gaps between the services and service levels offered by Niagara Region and its peers.

Review of the selected peer municipality's waste management programs did, however, reveal several interesting trends in program design and focus. As traditional recycling programs continue to be transitioned to IPR systems in Ontario, municipalities are increasingly focusing their efforts on waste avoidance, reduction and reuse options. This shift in focus is reflected in a conscious move away from traditional waste diversion targets and towards broader aspirational goals. It is also reflected in a shift towards broader educational and NGO partnerships as well as corporate initiatives to support climate change goals and development of local circular economies. As noted in Technical Memo 3: Demographic Trends, greater emphasis is being place on growing waste streams such as textiles and electronic waste as well as commercial waste such as construction and demolition materials.

Consideration should be given to reviewing Niagara Region's current efforts to divert these priority waste streams to ensure they can meet resident's projected needs. Niagara Region's role in developing, promoting and supporting waste avoidance, reduction and reuse initiatives should also be examined as options for development as part of its WMSP. Current by-laws, policies, KPIs and procedures should be examined

to ensure they are aligned with, and supportive of, corporate climate change and other goals. Niagara Region should examine opportunities to pursue automated cart-based collection and the use of alternative fuel sources for its collection fleets when the current contract comes to an end. Niagara Region should also consider engaging in further advocacy work to encourage the province to ensure producer responsibility programs for materials such as HSP are offering sufficient levels of service to meet residents' future needs.