

Technical Memo 6

Public Drop Off and Disposal System Review

Niagara Region // December, 2023



Executive Summary

This technical memorandum provides a high level review of the Regional Municipality of Niagara's (Niagara Region) existing disposal capacity, disposal technologies, and advises of any potential opportunities to optimize usage of assets and/or minimize costs.

Key Take Aways

Niagara Region owns and operates two (2) existing landfill/drop off depots (Humberstone in Welland and Niagara Road 12 in West Lincoln), as well as one (1) residential drop off depot only (Bridge Street in Fort Erie). In addition, Niagara Region contracts with Walker Environmental Group to provide drop off depot access and disposal capacity at their privately owned and operated landfill in Thorold. These disposal sites are strategically located across Niagara region to service the greater population base.

According to Niagara Region's 2022 Landfill Capacity Review, the two (2) existing landfill sites have sufficient disposal capacity for the next 25 to 40 years based on current incoming tonnage. As a result, there is no need for any immediate action to be taken to obtain additional waste disposal capacity.

Technical Memo 7: Financial Review provides an overview of the current financial model that is used to fund Niagara Region's Waste Management Services Division. It includes an assessment of the Division's ten year financial forecast and provides recommendations for consideration to ensure the long term sustainability of Niagara Region's waste management programs.

Niagara Region's three (3) drop off depots utilize open top roll off bins for residents and small Industrial, Commercial and Institutional (IC&I) contractors to place the majority of waste streams inside. A potential opportunity to optimize the usage of these assets and minimize costs could be to replace these open top roll off bins with compactor bins. Compactor bins would allow for increased waste disposal capacity and reduce the frequency of trips required from the depot to the landfill site, thereby reducing greenhouse gas emissions associated with waste hauling activities from these sites.

Birett & Associates

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1 Introduction

Niagara Region owns and operates two (2) existing landfill/drop off depots (Humberstone in Welland and Niagara Road 12 in West Lincoln), as well as one (1) residential drop off depot only (Bridge Street in Fort Erie). In addition, Niagara Region contracts with Walker Environmental Group to provide drop off depot access and disposal capacity at their privately owned and operated landfill in Thorold. These disposal sites are strategically located across the Niagara region to service the greater population base.

2 Humberstone Landfill/Drop Off Depot, Welland

The Humberstone Landfill/drop off depot in Welland operates Monday to Friday, from 8:00 a.m. to 5:00 p.m., and Saturday and all statutory holidays from 8:00 a.m. to 4:00 p.m. The site is closed on Sunday, Christmas Day and New Year's Day. These operating hours appear to provide sufficient opportunity for residents and IC&I contractors to dispose of their waste. As a result, no further changes are required to these operating hours at this time.

The Humberstone drop off depot utilizes a number of open top roll off bins for residents and small IC&I contractors to place a majority of the waste streams inside. Consideration could be given to replacing some of the open top roll off bins with compactor bins with priority being given to materials being shipped off site. Compactor bins improve shipping capacity, reduce infiltration of precipitation into collected waste, reduce bin switch outs and shipping off site and associated greenhouse gas emissions.

An expansion of the Humberstone landfill site was approved through an MECP Environmental Assessment in 2019. According to Niagara Region's 2022 Landfill Capacity Review, there was approximately 2,074,397 tonnes of remaining disposal capacity, using Niagara Region's compaction ratio of 900 kg/m³. Based on Humberstone landfill's current annual disposal rate, this site will provide disposal capacity for approximately the next 25 years based on current incoming tonnage.

3 Niagara Road 12 Landfill/Drop Off Depot, West Lincoln

The Niagara Road 12 Landfill/drop off depot site operates Tuesday to Friday, from 8:00 a.m. to 5:00 p.m., and Saturday and all statutory holidays (unless the holiday falls on a Monday), from 8:00 a.m. to 4:00 p.m. It is closed Sunday, Monday, Christmas Day and New Year's Day. These operating hours appear to provide sufficient opportunity for local residents and IC&I contractors to dispose of their waste. As a result, no further

changes are required to these operating hours at this time.

The Niagara Road 12 drop off depot utilizes a number of open top roll off bins for residents and small IC&I contractors to place a majority of the waste streams inside. As noted in Section 2, consideration could be given to replacing some of the open top roll off bins with compactor bins with priority being given to materials being shipped off site given the potential to reduce shipping costs and related greenhouse gas emissions.

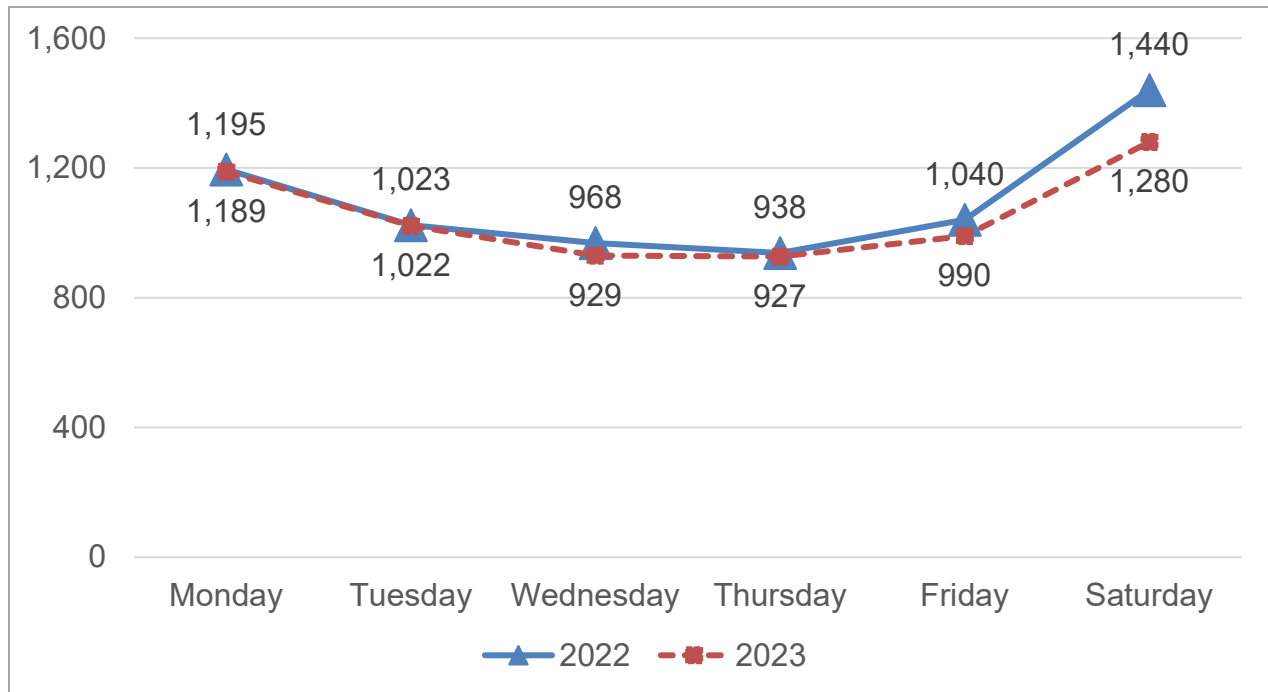
According to Niagara Region's 2022 Landfill Capacity Review, there was approximately 682,518 tonnes of remaining capacity for waste, using Niagara Region's compaction ratio of 900 kg/m³. Based on Niagara Road 12 landfill's current annual disposal rate, this site will provide disposal capacity for approximately the next 40 years.

4 Bridge Street Residential Drop Off Depot, Fort Erie

The Bridge Street Landfill site was closed for landfilling operations on July 1, 2016. The residential drop off depot operates Monday to Friday, from 8:00 a.m. to 5:00 p.m., and Saturday and all statutory holidays from 8:00 a.m. to 4:00 p.m. The drop off depot is closed on Sunday, Christmas Day and New Year's Day. These operating hours appear to provide sufficient opportunity for residents to dispose of their waste.

It should be noted that a review of the depot's hourly traffic volumes suggests the hours of operation at this location could be optimized with minimal negative impact on customer service. Graph 1 shows that traffic volumes are highest Saturdays and Mondays as is common of depot operations across Ontario.

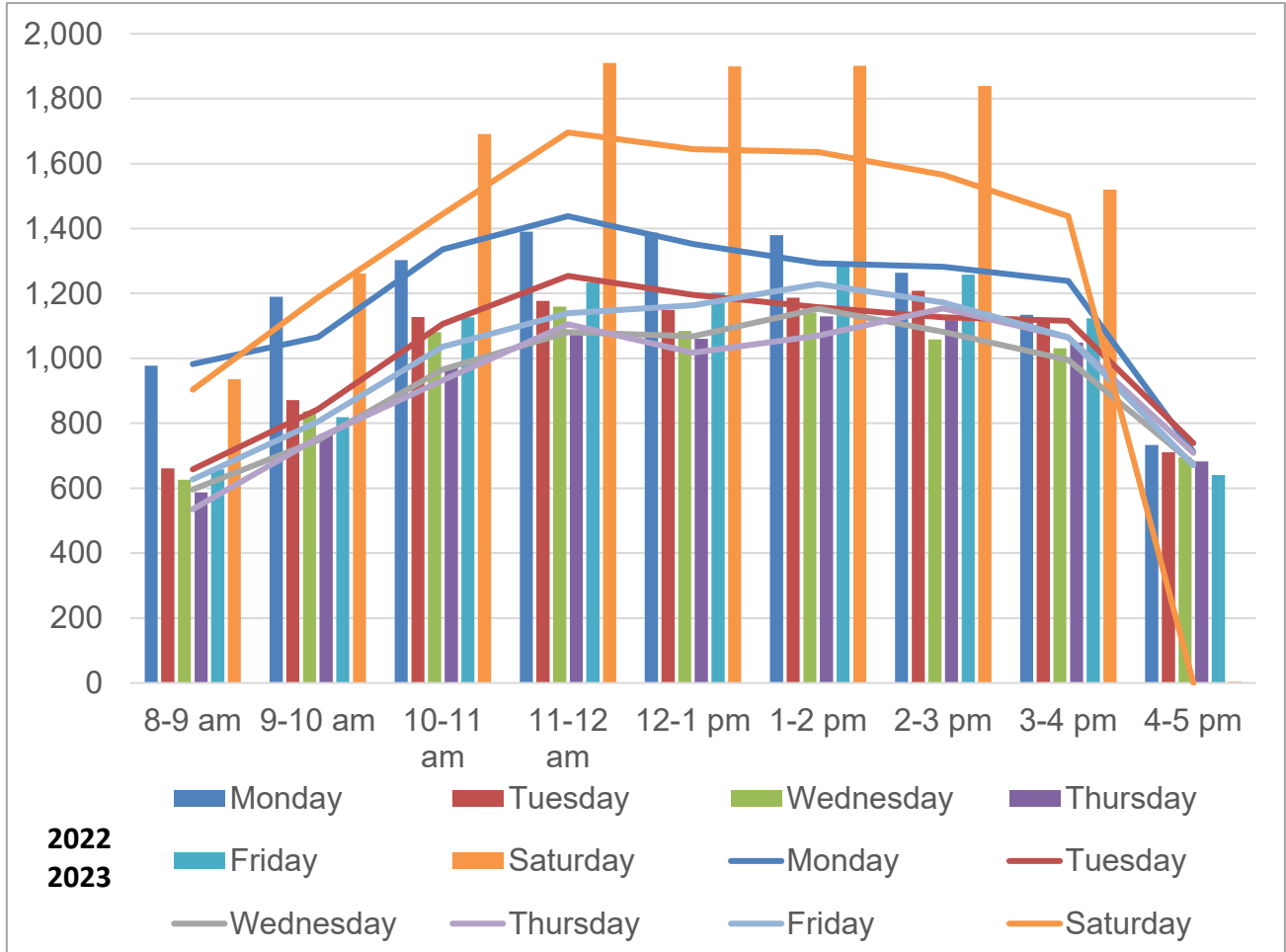
Graph 1: Bridge Street Depot Activity by Day (2022 vs 2023)



Graph 2 also shows that traffic volumes typically peak between the hours of 10:00 a.m. and 3:00 p.m. inclusive, with the exception of Saturdays. In light of these facts, consideration should be given to reducing the depot’s hours of operation by closing the depot on Wednesdays and/or Thursdays and reducing the hours of operation to

10:00 a.m. to 4:00 p.m. Tuesday to Friday. In many communities across Ontario, smaller sites such as the Bridge Street public drop off depot also run reduced hours during the winter months and extended hours into the evenings during the summer months to accommodate seasonal traffic changes. Further consideration of such amendments to Niagara Region’s site operations may be warranted.

Graph 2: Bridge Street Depot Activity by Day and Time (2022 vs 2023)



It is also worth noting that the Bridge Street residential drop off depot utilizes a number of open top roll off bins for residents and small IC&I contractors to place the majority of the waste streams inside. Consideration could be given to replacing some of the open top roll off bins with compactor bins. Compactor bins would allow for increased material storage capacity on site and reduce the frequency of trips required to the Humberstone landfill for disposal.

5 Longer Term Considerations

Niagara Region’s landfill and drop off depot operations appear to be reasonably optimized such that there is no immediate need or opportunities for improvement beyond the potential to fine tune hours of operations at its public drop off depots. Niagara Region staff have also been active in testing various approaches to reduce the usage of daily and midterm cover materials. To ensure Niagara Region continues to make best use of its waste management infrastructure, consideration should be given to

undertaking an optimization study of its sites with priority given to the Humberstone Landfill operations and Bridge St public drop off depot.

As noted in Technical Memo 7 - Financial Review, Niagara Region receives significant quantities of excess soil at below market pricing. Consideration should be given to setting a pricing policy that balances local residential and IC&I disposal needs with the value of the lost capacity while encouraging larger developers to pursue available alternatives wherever practical. In general, a review of Niagara Region's pricing structure for its sites should be undertaken periodically to ensure they continue to balance priorities such as full cost recovery with the need to provide cost effective alternatives, encourage diversion and consider fees charged at local alternatives such as the Walker Industries Landfill.

It is recognized that during the planning period of Niagara Region's Waste Management Strategic Plan, new technologies are expected to become available that may offer benefits over landfill as a waste disposal option. As noted in Technical Memo 7 - Financial Review, consideration should be given to setting aside funds in Niagara Region's Waste Management Services Division financial model, over the next five to 10 years, to undertake a further assessment of new and emerging technologies and to potentially initiate an Environmental Assessment process, if warranted. Similarly, Niagara Region will need to ensure sufficient funds are set aside to ensure its landfilling operations continue to comply with new landfill gas emissions legislation as noted in Technical Memo 1 - Legal Review.

The current hours of operation of Niagara Region's public drop off depots appear to be adequate to meet current needs. Niagara Region should continue to monitor vehicle traffic levels to ensure site operations meet residential needs and, where appropriate, consider modifying site hours of operation and layout to accommodate population growth. Space constraints at locations such as the Bridge Street drop off depot may warrant future capital investment to improve traffic flow and/or automate services.

6 Conclusions

Niagara Region has an established network of public drop off depots and landfill operations located strategically throughout the region. Niagara Region has ample landfill capacity and its existing facilities are projected to meet the needs of its residents and local businesses for the near future. Consideration should be given to exploring opportunities to reduce daily cover usage, establish policies for managing excess soil received at the sites and optimize hauling between sites through the use of compaction. Consideration should also be given to reviewing the various depot hours of operation for cost savings opportunities. In the coming years, Niagara Region should continue

monitoring depot utilization rates to determine if program changes or further capital investments are warranted. Consideration should also be given to monitoring the development of alternative disposal technologies for options that would support Niagara Region's climate change priorities.