

# Non-residential Waste Diversion in Historic Neighbourhood: A Case Study of The Exchange District in Winnipeg, Manitoba

## Executive Summary

This project explores non-residential waste diversion services in the Exchange District of Winnipeg, Manitoba. The research examines the potential for partnerships opportunities and governance initiatives in the city of Winnipeg. The research also examines practices in the province of Nova Scotia and two American cities to understand the challenges they faced to increase diversion in their industrial, commercial and institutional (ICI) (non-residential) sectors. The project provides insight into current waste management practices in the Exchange District by discussing relevant policies.

The research also explore challenges faced by various local stakeholders involved in the waste business through semi-structured interviews. The research leads to several recommendations that may help improve the offered services. Mandatory participation of business of the Exchange District into recycling and composting programs, pilot organics program specific to the restaurants, increasing the number of bulk bins in the neighbourhood and landfill ban on compostable are the recommendations from the research.

## Research Purpose

The purpose of this research is three-fold: first, this research explores different perspectives on the current practices of waste management on the part of industry experts; second, this research analyze the information collected from experts and investigate secondary sources about how other cities across Canada and U.S are providing a waste diversion for non-residential sector; third, this research provides recommendations about how to improve the services based on identified issues, challenges and analyses from the collected data.

## Research Questions

The research questions that will guide the project are:

1. How do municipalities in Canada and the US adapt to new methods of waste diversion in non-residential neighbourhoods?
2. What are the current waste diversion facilities and services in the Exchange District?
3. What waste diversion services are working well in the Exchange District, and what could be improved?

## Research Methodology

In order to answer the research questions, three main research methods tools used in this project, and the approach to the data analysis was qualitative in nature. The primary sources of data collection included semi-structured interviews with key informants, review and analysis of secondary sources (e.g., government reports and previous studies on similar projects), and site visits. These tools will provide answers to the research questions.

### Biases and Limitations

The research presented in this paper has few biases and limitations. First, I did my summer internship with the City of Winnipeg - Water and Waste Department and this research is inspired by some of the previous work on environmental-related topics. This bias also helped me in moving forward with the research as I developed my interest after working on three different projects during my internship. One of the projects I worked on for two months was the pilot organics project by the City of Winnipeg. This project motivated me to move forward with this research. Limitations of this project include dependence on the interview participant as a primary source of data.

## Findings

The graph on the right shows that as the residential sector waste diversion is on the rise in Canada, the non-residential sector is struggling. The non-residential waste diversion is an easy target but challenging to study as a variety of businesses are involved, and the composition of waste is not precise. This argument is applicable in the case of the Exchange District, Winnipeg, as a non-residential sector in the neighbourhood that offers a variety of businesses. Targeting one waste stream can prove to be Winnipeg is amongst the high consumption cities producing large amounts of waste, which causes socio-economic and environmental problems.

The area of interest for this capstone is the Exchange District, located centrally in Winnipeg. It is a designated National Historic Site by the Canadian government, which makes it unique from the other neighbourhoods in Winnipeg. The neighbourhood is home to a variety of businesses, restaurants, and most of the land use in the Exchange District is commercial and institutional. The front end and back lane collection of waste in the Exchange District are different from other neighbourhoods because the infrastructure is old, and collection techniques are new.

### Existing Services

The picture below shows one of the restaurants in the area and recycling carts in the back lane. Many such restaurants in the area experience the problem of insufficient bins. Currently, the City of Winnipeg provides 240-litre recycling carts

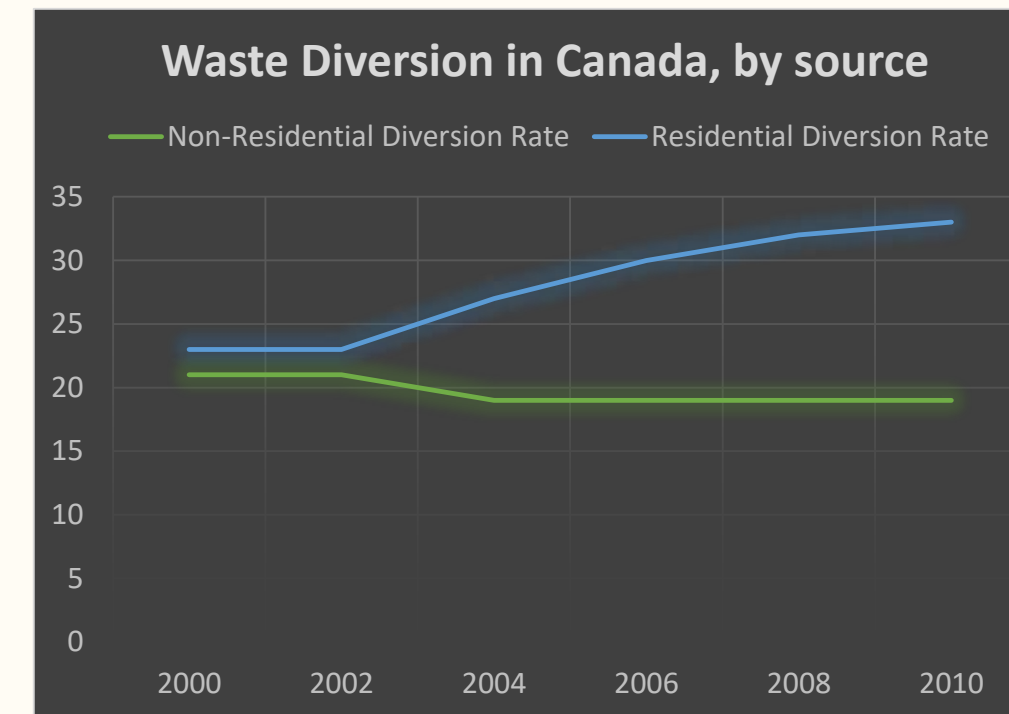
### Commercial Contracts

It is evident from the pictures (see Fig. 8) there are multiple bins for one commercial building. The participant further added that the biggest problem with a waste diversion in the Exchange District is the volume limit assigned to the entire taxable address and not units within that address. In Canada, the core mandate of most municipalities is to provide service for residents. Commercial collection is the only stuff that can fit in the residential contracts. Under these contracts, commercial properties are added as individual addresses like residential property.

### Real Estate Constraints

The issue of real estate constraints has been brought up by many participants in the Exchange District. The area is historic and developed in the early 1800s, so some roads and back lanes are not proportionate to the trucks used by the haulers today. Both haulers and the building owners face the real estate issue while managing the waste.

The picture on the right depicts bulk bins on the collection day, which is every Friday for the Exchange District. The bins are rolled out for the trucks to come in and collect the waste. This is another issue that was commented on both by the businesses in the area and the haulers. The businesses must roll the bins for the whole day on Friday as there is no fixed timing for the collection. While cleaning the recycling bulk bins which remain outside, the service providers found needles and diapers and all kinds of stuff that should not be in recycling. It is also unsafe to clean the bins with this level of contamination



Waste Diversion in Canada, Statistics Canada (2018)



Exchange District, Winnipeg (Pictures by the author, 2020)



Recycling bins outside non-residential buildings (Pictures by the author, 2020)



Space Constraint in the Exchange District (Pictures by the author, 2020)



Bins Rolled Out on Friday for Collection (Pictures by the author, 2020)

## Analysis

### Source Separation

Source separation has emerged as a significant solution from the literature review and the findings as an essential step in any diversion program.

### Organics Program

Introducing a compost program is a necessary strategy in the Exchange District, in my opinion. It is clear from the findings that the restaurant owners and businesses want to pay for the services of organics. Having an organics program in the neighbourhood would divert waste from the neighbourhood.

### Infrastructure and Facilities

Infrastructure includes recycling and composting facilities, trucks, bulk bins, and regular carts to manage waste. The City of Winnipeg has a material recovery facility that processes most of the city's recyclables. The City also provides composting services at Brady road resource management facility, which runs a successful leaf and yard waste program for the residential sector. These facilities are an essential part of the waste management system in the City.

### Bulk Bins

Map shows the location of the bulk bins that I recorded during the site visits. The map depicts two buffers around the bins of 20 metres and 50 metres, which give an idea of the area under each bin. Since there are no standards and the volume generated in each part of the Exchange District is different, the map provides some insights to the figures based on my assumption

### Education and training programs

The literature review points towards the fact that education and training are an integral part of the waste diversion. Proper training is vital for the businesses in the area, pedestrians passing by, and residents of the neighbourhood.

## Recommendations

### Organics Program

The first recommendation is that the Exchange District should have a source-separated organics program. Organic waste includes a broad range of materials, so an approval list must account for the acceptance of materials specific to the Exchange District. This is important because the different buildings in the area produce various streams of waste.

### Increase the number of bulk bins

The second recommendation would be to increase the number of bulk bins in the Exchange District.

### Landfill ban of compostable

The third recommendation is to initiate steps for the landfill ban of compostable at the Brady Landfill.

### Contracts

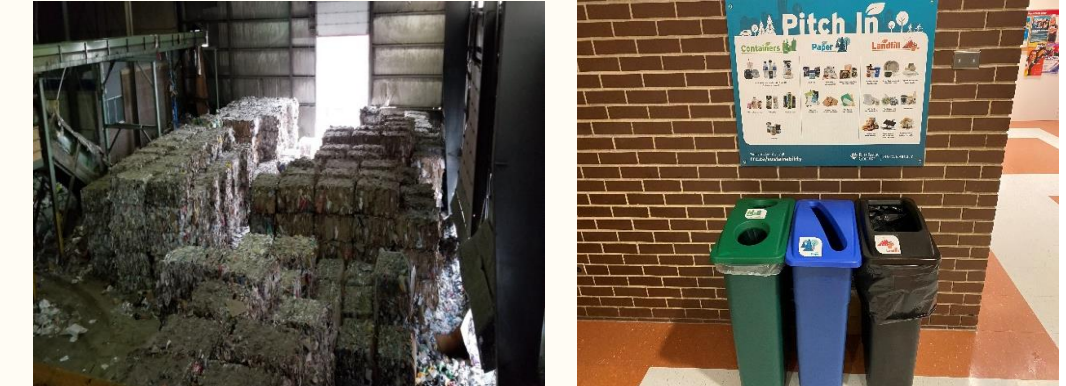
The fourth recommendation is generalizing the term waste diversion for the businesses in the Exchange District. The City can sign a contract with the business and the haulers, which would provide standard rates and a mandatory requirement to report the waste data.

### Mandatory participation

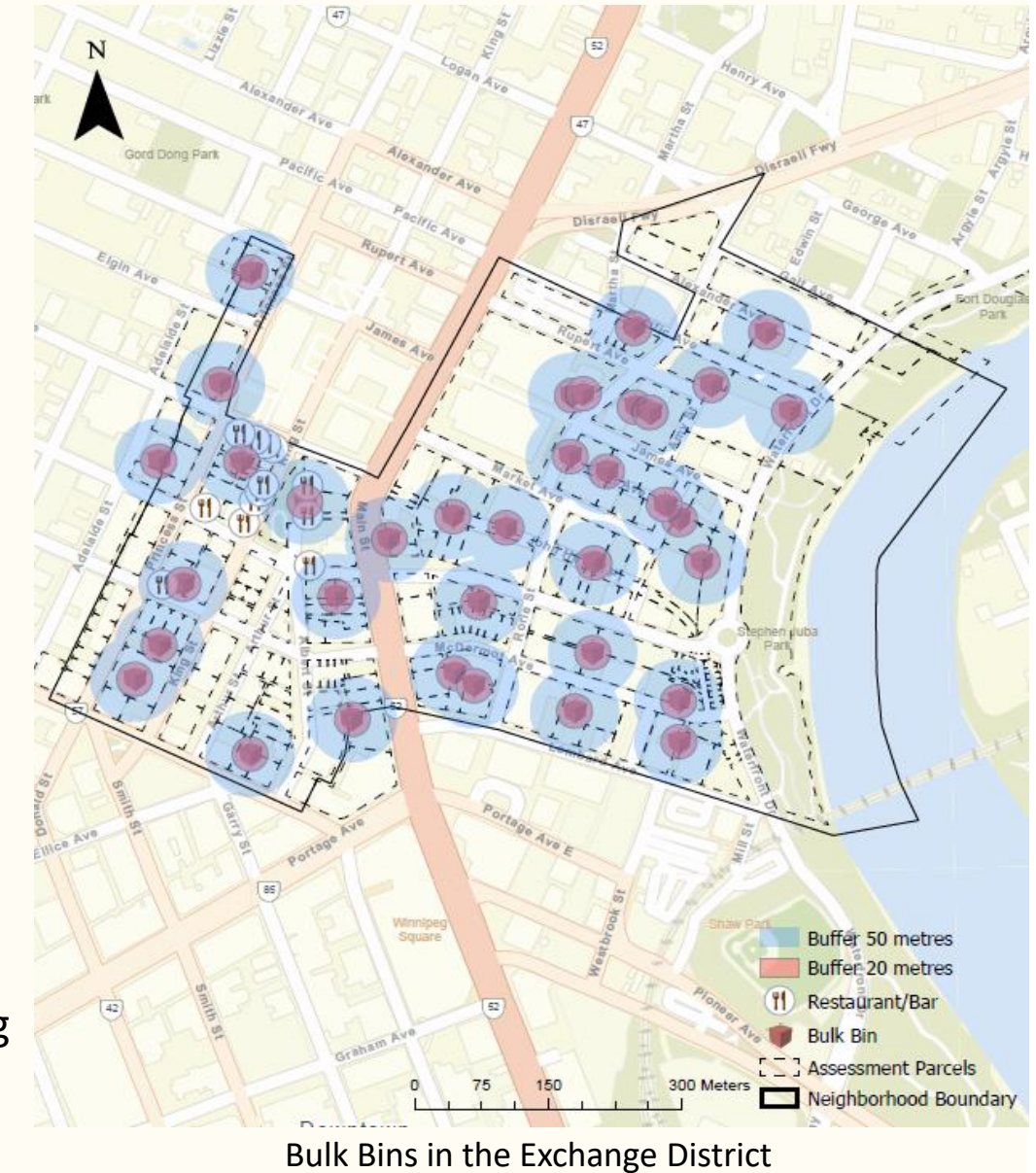
The fifth recommendation would be to enforce mandatory participation rather than voluntary involvement.



Outdoor sorting bins in Singapore and Indoor sorting bins in Red River College, Winnipeg



Material Recovery Facility, Winnipeg (Picture by the author, 2019) Information Poster and Bins (Picture by the author, 2019)



Bulk Bins in the Exchange District

