

Streetscape Pilot Projects 2014 / 2015



Multi-Material BC, 230-171 Esplanade West,
North Vancouver, BC V7M 3J9

Introduction

As part of its program plan commitment, Multi-Material British Columbia (MMBC) initiated a series of pilot projects to study the feasibility of packaging and printed paper (PPP) streetscape bins. Pilot projects conducted in 2014 and 2015 involved composition audits to understand the quality and quantity of PPP collected in streetscape recycling receptacles.

PPP easily becomes contaminated when mixed with non-PPP materials (e.g., organics and other non-packaging materials), which can affect their ability to be sorted and ultimately recycled. Finding a more effective approach to having residents properly recycle PPP in streetscape bins outside their homes will help improve the opportunity for PPP capture and recycling.

Between 2014 and 2015, MMBC conducted two pilot studies with streetscape locations in North Vancouver, Richmond and Penticton. Results from the first two pilots indicate that streetscape PPP is highly contaminated with organics and other non-packaging items because most residents are not placing PPP, and only PPP, in the appropriate bins. In addition, many recyclable materials are not recovered because they have been deposited in the garbage bin. A third, nine-month long pilot is planned to begin in summer 2016.

What is a Streetscape?

Streetscape venues, as defined in Section 3.3. of the MMBC Program Plan, refer to municipal property that is not industrial, commercial or institutional property and comprises of the following:

- Sidewalks which are municipal property, which adjoin buildings in an urban commercial area and which are used for pedestrian traffic;
- Plazas or town squares which are municipal property and which are available to the public; or
- Parks which are municipal property.

2014 Highlights

In 2014, MMBC conducted the first pilot project during a two-week period in three communities: North Vancouver, Penticton and Richmond. The intention of this preliminary study was to develop a baseline understanding of the quantity and quality of PPP collected in the appropriate receptacles and the levels of contamination in streetscape PPP. Waste material was collected from containers that were already in place in each of the three communities. The collected samples indicated that many materials were being placed in the wrong material-specific streetscape bins, resulting in cross contamination of PPP materials and heavy PPP contamination by garbage and organics.



2015 Highlights

In 2015, MMBC revisited the same three communities, North Vancouver, Richmond and Penticton, for a two-week period and sampled a total of ten types of streetscape bins. The

streetscape bin samples were of different designs and configurations in order to determine what bin type was the most effective in collecting non-contaminated PPP.

A variety of different bin selection types were tested:

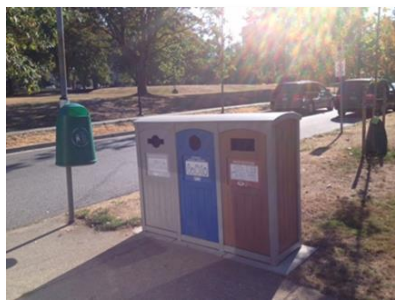
Type 1: Garbage, Containers, Fibres

- 3 “Emily Carr UAD Metro Vancouver” bins in all three cities
- 3 unchanged garbage bins in Richmond and North Vancouver



Type 2: Garbage, Containers, Fibres, Encorp

- 1 unit with new design in North Vancouver
- 3 units with updated signage + Encorp bin in North Vancouver and Richmond



Type 3: Garbage, Containers, Encorp

- Two units in Richmond

Type 4: Garbage, MMBC Single-Stream, Encorp

- 5 units (MMBC single-stream, Encorp) + garbage in Penticton
- 4 units of MMBC single-stream + Encorp + garbage in Penticton

Type 5: Garbage, MMBC Single-Stream

- One (garbage bin + MMBC single-stream) in North Vancouver and Richmond

“Emily Carr UAD Metro Vancouver” bins:

In 2014, Metro Vancouver asked research and design students of Emily Carr University of Art + Design to research resident recycling habits outside their homes and design

waste bins based on what encourages people to recycle. The result was the newly designed “Emily Carr UAD Metro Vancouver” bins. MMBC was pleased to be a test partner for these receptacles.

Definitions:

Encorp bins: These streetscape bins are distributed by [Encorp Pacific](#) and used to collect empty beverage deposit containers.

Multi-stream: Residents sort their recyclable materials in separate receptacles for fibres and for containers.

Single-stream: Residents put their recyclable fibres and containers all in the same collection container.

In a waste composition study, the collected streetscape bin samples were sorted and classified into material categories. Recycling and garbage samples from one hundred single-family households and six multi-family dwellings in each of the three cities participating (e.g., apartment buildings) were also collected for the study. This allowed MMBC to compare the residential waste stream PPP accuracy rates (i.e., consumers placing their waste in the appropriate bin) with the streetscape PPP accuracy rates.

What We’ve Learned So Far

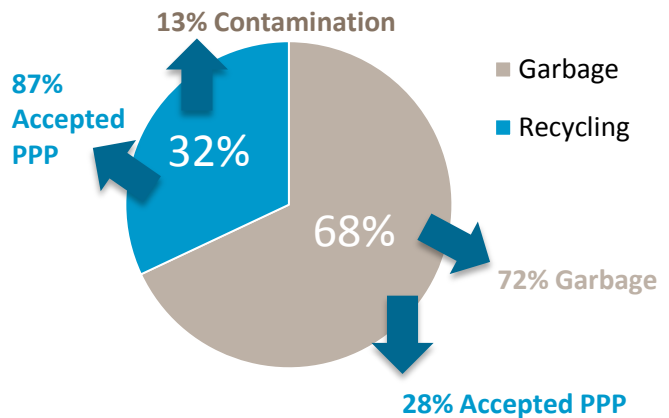
Based on the first two pilots, MMBC has determined that due to high contamination of the streetscape PPP, that material should not be collected with residential PPP. Residential PPP contamination rates are lower than streetscape, indicating residents are much better at recycling properly in their homes. Unfortunately, streetscape PPP remains highly contaminated with organics and other non-PPP contamination, posing an additional challenge to effectively recovering recyclable material.

The data collected by the pilot projects suggests multi-stream streetscape receptacles will help increase PPP quality and reduce contamination compared to single-stream streetscape stations. Accuracy rates were lowest in Type 3 (single stream) bins, while the overall accuracy and capture rates were highest in **Type 1 (multi-stream)** bins.

In summary, the combined data from 2014 - 2015 indicates that:

- Overall, streetscape PPP is highly cross-contaminated;

Breakdown of Materials Collected (2015)



- The recycling container type influences contamination levels: the use of colour keys and icons, as well as the visibility of the recycling stations, were factors in the quantity and quality of PPP collected;
- Collection of plastics improved in 2015, possibly due to new signage and new bin design;
- Fibre-only containers have low contamination and the majority of collection is newspapers; and
- In both years, multi-stream collection performed better than single stream collection recycling stations.

Looking Ahead – 2016 Streetscape Pilot Project

The preliminary pilot projects in 2014 and 2015 ran over a two-week timeframe in order to get a base audit and understanding of PPP quantity and quality in streetscape receptacles. In 2016 and 2017, MMBC will be partnering with the City of Vancouver to conduct a longer nine-month streetscape study within a high density, high foot traffic environment: the City of Vancouver’s West End neighbourhood. The longer collection time combined with a larger sample size will provide valuable data to help determine if streetscape PPP collection accuracy rates can be improved, and contamination decreased, over time.



Additionally, MMBC will be using the longer study timeframe to see if consumer recycling behaviour can be shifted and improved over time, with a focus on recycling coffee cups and other containers. 2015 data indicated fibre-only containers have comparatively low contamination rates and are primarily newspapers, which indicates that over time residents learned how to accurately recycle this material based on a simple icon standing in for fibres. One aim of the 2016 project is to achieve similar results with recycling coffee cups and other drink cups at these test West End streetscape stations.

The main objectives of the study are to:

- Increase diversion of solid waste disposed in the public realm;
- Communicate, reinforce and support waste diversion behaviors with a focus on recycling;
- Identify opportunities and challenges with on-street recycling systems to determine the best course of action;
- Balance operational needs with diversion goals; and
- Align the pilot with MMBC’s residential collection program in the community.

The streetscape pilot project also aligns with the City of Vancouver’s Greenest City Zero Waste objectives.

The pilot study will include: multi-stream PPP collection of fibres and containers; integrated garbage and organics collection; a consumer engagement strategy in conjunction with promotion and education materials; as well as data collection to assess accuracy, capture rates and contamination.