



Center  
for Zero  
Waste  
Design

# Put Waste to Work: Vibrant Streetscapes and Open Dining

March 2023

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# Project Overview

We analyzed the impacts of current waste management on [Vanderbilt Avenue, Brooklyn](#) between Atlantic Ave and Park Place, which becomes an Open Street on weekends from April to November.

Activities included:

- **Surveys** of residents, businesses and visitors
- **Litter Bin Audits** analyzing the contents of the street corner litter bins
- **Visual Surveys** to assess waste set-out issues and building typologies
- **Waste Quantities** calculated through bag counts and use of the Zero Waste Design Guidelines waste calculator.

In developing recommendations we pulled from [Circulate](#) and [Contain](#) strategies from our [Put Waste to Work](#) vision plan.

Some of our recommendations are implementable immediately, and others require the city to move forward with plans for commercial waste zoning and waste containerization.

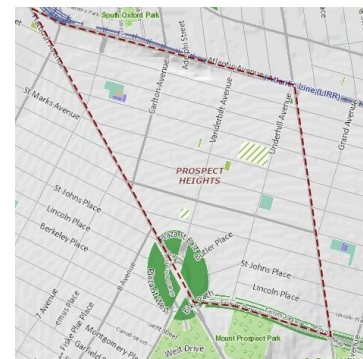


# Collaborators

The Center for Zero Waste Design (CfZWD) worked closely with [Prospect Heights Neighborhood Development Council](#) (PHNDC), to better understand the challenges and impacts of current waste management. PHNDC sponsor the Vanderbilt Avenue Open Streets program under an agreement with the New York City Department of Transportation (DOT).

PHNDC shared their priorities and the current context, including the planned street redesign project by the DOT. They also distributed the survey, and connected us to the groups who manage the waste on Vanderbilt Ave - ACE New York, Open Street volunteers and the City Cleanup Corps.

We participated in two PHNDC meetings, as well as two neighborhood Livable Streets Committee to present and discuss the project.



# Observations and Findings

Surveys

Litter Bin Audits

Visual Observations and Building Waste Typologies

Waste Quantities

# Surveys

Surveys enabled us to better understand waste from the perspective of residents (21 responses) businesses (6 responses) and visitors (17 responses).

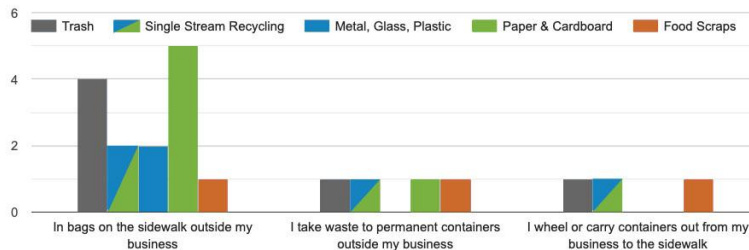
## Business Survey Insights

- Most businesses set out their waste in bags on the sidewalk
- Few businesses separate food scraps

## Visitor Survey Insights

- Trash setout and litter did affect visitor experience of the neighborhood, but individuals noted it was not significantly worse or better than other neighborhoods
- The most common suggestion for improvement was to containerize waste, followed by putting the waste on the street rather than sidewalk, and more public recycling bins.

## Businesses: How and where do set out your trash and recycling?



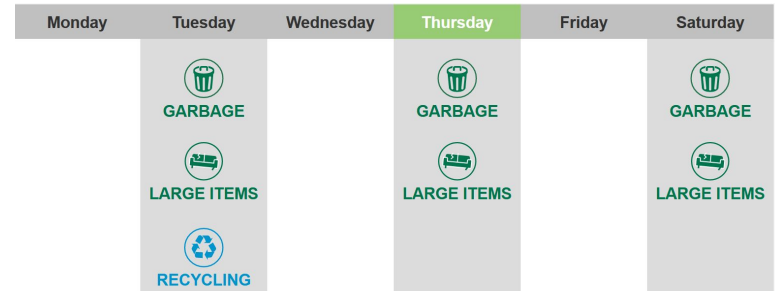
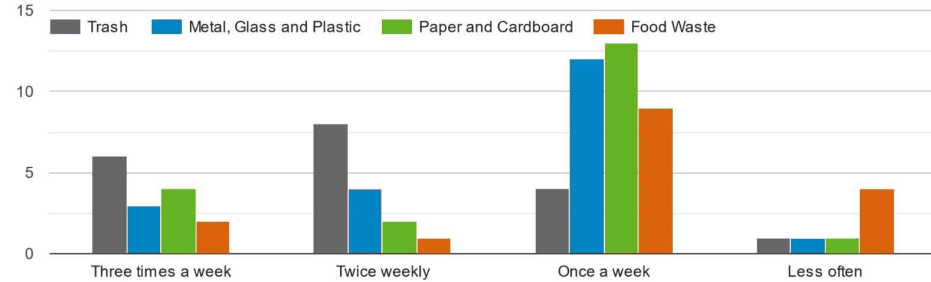
# Surveys

## Resident Survey Insights

- Most residents take their waste out from their apartments once a week
- The most common complaint from residents was a lack of convenient options to drop off food waste
- The second most common complaint was trash and litter on sidewalks

**For reference:** DSNY collects residential trash three times per week and recycling once a week.

## Residents: How often do take out your trash and recycling?



# Litter Bin Audits

Litter bins are positioned at the corner of each block.

During Open Street weekends, various groups - **ACE**, **City Cleanup Corp** and **Open Street volunteers** remove full bags from the bins, tie them up and leave alongside the litter bins for collection by **DSNY** or **Parks Department**.

We took **6 litter bags** from different corners after an Open Street weekend and did an audit to see what they contained.





# Litter Bin Audits

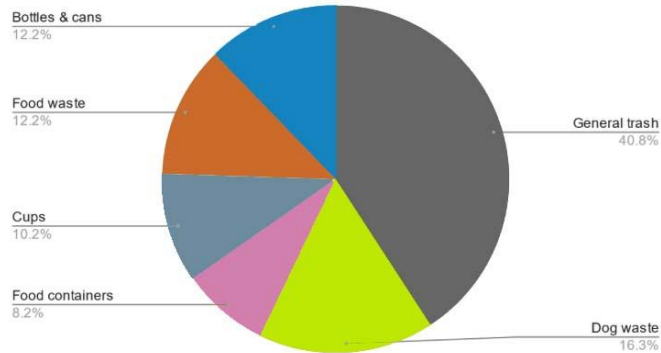
In the litter bin audit, each bag was weighed then emptied and separated into the following categories:

- Mixed trash (food soiled paper bags, assorted packaging)
- Dog waste
- Cups (single use)
- Takeout Containers
- Food Waste
- Bottles & Cans



# Litter Bin Audits

## Litter Bin composition by weight



## Observations:

- **Disposable cups (81), dog waste, and takeout containers (40)** were most prevalent
- There was **less food waste and food containers** than expected, likely because this ends up in residential or commercial bins.
- Cans and bottles amounts were low, likely because canners had already collected them, which we observed several times



Bags are collected frequently during Open Street weekends, but still impact the sidewalk

# Visual Observations: Disposable Food Serviceware

We conducted a visual survey of food-service businesses along Vanderbilt to assess the use of disposables and reusables for in-house or outdoor dining on the Open Street.

## Reusables for On-Street Dining

Some businesses provide reusable serviceware for in-house and on-street dining.

## Mixed Reusables and Disposables

Some businesses use reusable cups and plates for in-house dining but disposables for on-street dining and take-out.

## Disposables Only

Some businesses appear to have switched to disposable items for COVID-safety concerns.



All reusables for outdoor dining



Mixed Reusables and Disposables



This business uses reusable food and drinkware inside, but disposables outside



Switch from reusable to disposable cups for water in-house during COVID.

# Building Waste Typologies

Vanderbilt Open Street is six blocks long from Atlantic Avenue to Park Place

We observed that the buildings fell into 4 typologies, each with different challenges and opportunities:

1. **Walkups with Storefronts** - a retail storefront (typically a small business store, cafe, bar or restaurant) with 2-3 stories of apartments above.
2. **Residential Walkups** - 3 or 4 story residential buildings with apartments on each floor
3. **Large Residential** - 550 Vanderbilt is the only large residential building, comprising 17 stories, 278 apartments and 3 commercial storefronts
4. **Commercial Only:** McDonalds and Foodtown are one-story buildings



Overview of Vanderbilt Open Street indicating Building Waste Typologies

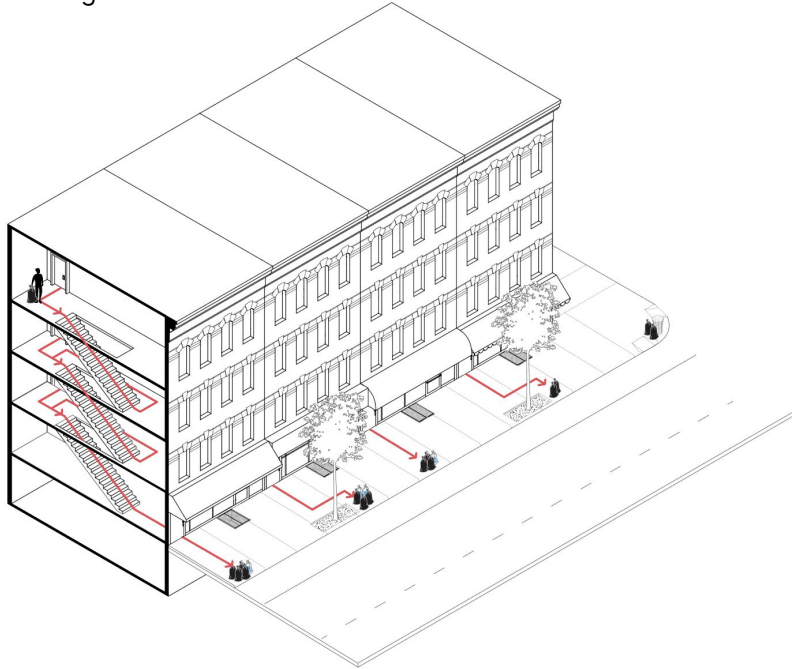
# 1. Walkups with Storefronts

Most of the Open Street has this type of building; pictured below is the east side of the block between St Marks & Bergen Street, which has 42 apartments and 11 storefront businesses



# 1. Walkups with Storefronts: Residential Waste Movement and Issues

With little space for communal bins, most residents take trash and recycling from their apartments directly to the curb, in flimsy kitchen bags.



Residential waste bins detract from the appearance of storefronts



Trash bags alongside sidewalk cafe



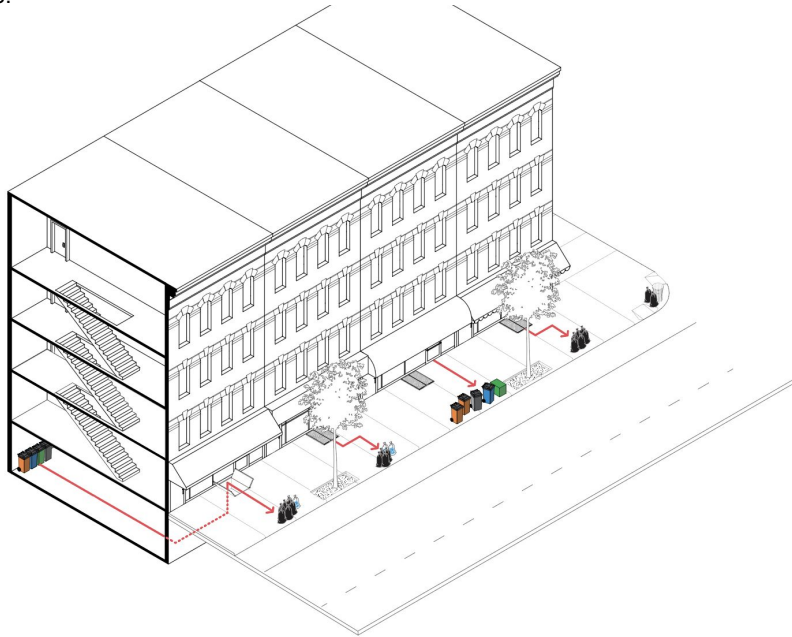
Flimsy kitchen bags get easily torn



Residential waste blocking curb

# 1. Walkups with Storefronts: Commercial Waste Movement and Issues

Businesses store their waste in the cellar or ground floor and bring up through a sidewalk hatch, or through the storefront entrance. They may set out the waste for collection in bags or bins.



Trash can impact the sidewalk dining experience



Bags are torn open by vermin



Some businesses put trash in bags, others put food waste in bins



Spilled food waste from restaurant that sets out in bags

## 2. Residential Walkups

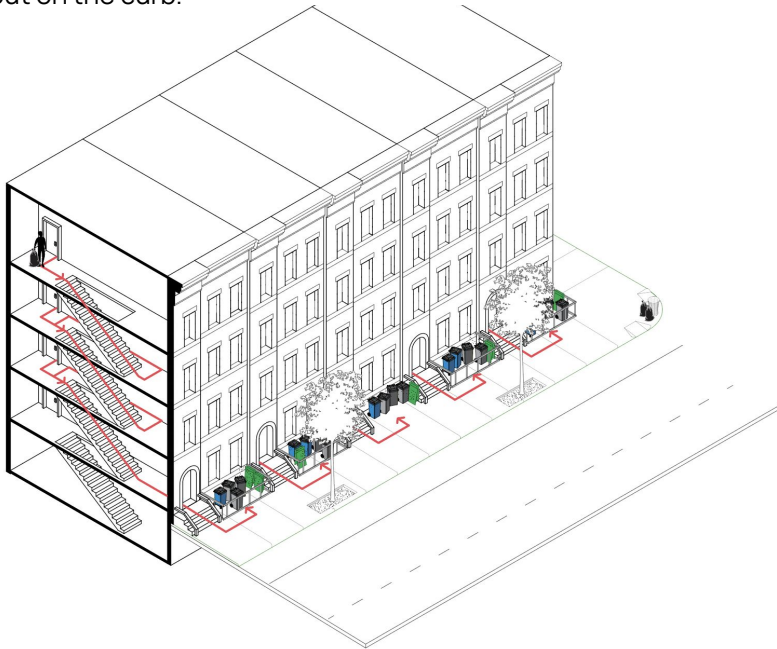
There are some walkup buildings which have residential units on the ground floor rather than storefronts. Most of these are on the west side of the block pictured below between St Marks & Bergen Street. This block has 42 apartments and 1 storefront business on the corner.





## 2. Residential Walkups: Waste Movement and Issues

Most buildings store waste bins in the front yard, allowing residents to take out trash and recycling from their apartments on any day. Typically the bags were taken from the bins and set out on the curb.



Even with residential bins, bags are set out on the curb



Waste takes up the entire front yard, with no space for planters or other uses



Even when there are many bins provided, it is tough to keep cardboard neat.



Waste in front yard areas can be unsightly, and likely causes odors for residents in ground floor apartments.

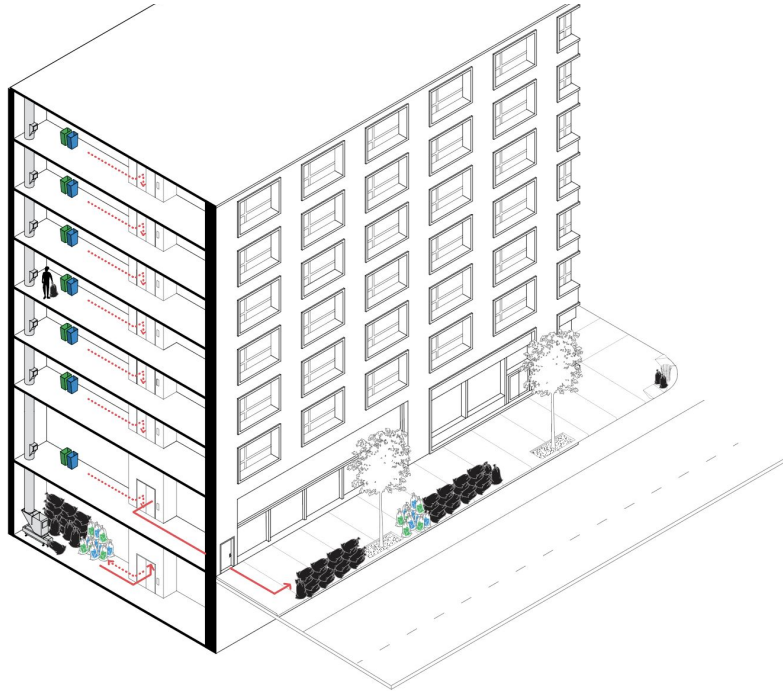
### 3. Large Residential

550 Vanderbilt, between Pacific and Dean Streets, is the only large residential building in the Open Street. At 17 stories, it has 278 apartments and 3 commercial storefronts. Waste is currently brought out of a service entrance on Pacific Street in wheeled hampers and bags are set out on the sidewalk on Vanderbilt.



### 3. Large Residential: Waste Movement and Issues

In large residential buildings, staff manage waste, storing it in the basement, and bringing to the curb in wheeled hampers. Staff pile bags on the sidewalk - typically 20-40 bags per waste type.



Typical trash set out on collection day



Metal, glass, and plastic set out



Big piles of bags on the street encourage litter



Cardboard and paper set out

## 4. Commercial Only: Waste Movement and Issues

There are two buildings on Vanderbilt that are commercial only - McDonalds and Foodtown.

In Foodtown waste is stored in a 2-CY wheeled bin, with additional bags, in a storage area behind a roll-gate to the sidewalk. After hours it is set out on the sidewalk for collection.

McDonalds has a large parking lot with a waste enclosure within it, and the commercial hauler drives into the lot to empty the containers within the enclosure.



2 cubic yard bin overflowing, with many additional bags and boxes set out for collection (4pm)



2 cubic yard bin in parking lane the morning after collection (11am)

# Quantity Estimates

## Residential Waste

Data was estimated by a bag count. This was compared to projections from the [Zero Waste Design Guidelines Calculator](#).

## Commercial Waste

Data from the surveys was limited by the small number of responses. Visual surveys were difficult to conduct, because pickup times vary per business and can be very late. We relied on bag and bin counts done on multiple nights and early mornings.

## Litter Bin Waste

This was estimated by averaging bag counts on over one weekend, and through conversations with ACE workers and Open Street volunteers



Residential



Commercial



Litter Bin

# Proposed Solutions

## Current Solutions

Zero Waste Business Initiative

Public Space Recycling

Residential Food Waste Collection

## Future Solutions

Contain all Waste

# Proposed Solutions

**Solutions and Recommendations** are divided into **current solutions**, and **future solutions** which can be advocated for, but require action by the city.

## Current Solutions

- Zero Waste Initiatives for Businesses
- Public Space Recycling
- Residential Food Waste Private Collection

## Future Solutions

- Containerization of all Vanderbilt's waste

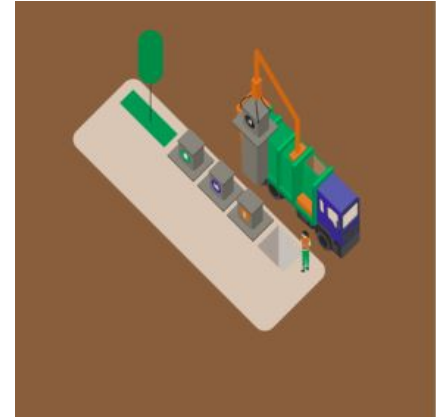
The CfZWD used two major **Put Waste to Work** strategies **Circulate** and **Contain** to make recommendations.

## Circulate

- Encourage reusables over disposables for in-house dining and take-out
- Encourage food donation

## Contain

- Containerize all waste - litter bins, residents and commercial businesses - for all **recyclable daily waste streams** including **food scraps** and **public space recycling**.



# Zero Waste Initiatives for Businesses

PHNDC could organize a Zero Waste event to educate and incentivize businesses to participate in initiatives such as:

## In-house reusable serveware and packaging

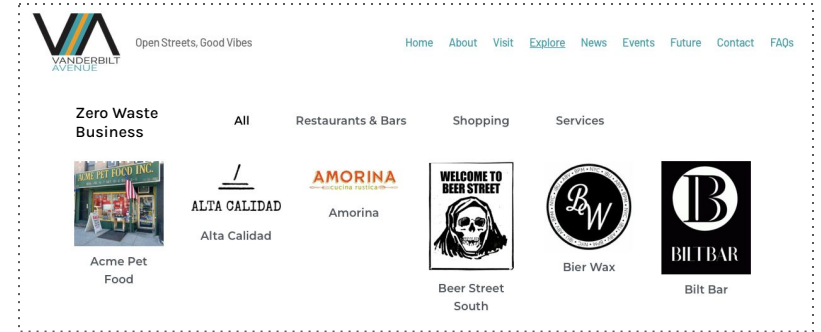
- Eliminate single-use tableware for dine-in
- Offer draft beer, wine, or soda
- Investigate returnable packaging for deliveries

## Reusable containers for take-out

- Taking part in reusable takeout and cup programs
- Allowing visitors to fill water bottles in-store

## Reduction and separation of food waste

- Reducing disposal of unsold food through “Too Good To Go” or similar, and donation of surplus food, such as to local community fridges.
- Separation of food scraps as well as recycling
- Offering different portion sizes to reduce food waste



These businesses can be highlighted on the [Vanderbilt Avenue website](#) can highlight with a separate webpage to showcase the initiatives undertaken.



# Reusable Container and Cup Programs

Reusable takeout container cup programs would allow businesses to use reusable containers that could be returned to any other participating business on the street.

Businesses typically **save money** compared to buying disposable containers and cups.

**Cup Zero** provides reusable **takeout cups** for hot and cold drinks to eliminate single use cups, the most common item we found in the litter bin survey.

**DeliverZero** is the only **reusable takeout container service** in NYC. It would allow food outlets to accept each other's returns and reduce waste from takeout and delivery.

During Open Street hours, **temporary bins** could be set up for reusable returns, which could be collected by Cup Zero and/or Deliver Zero, who both provide a washing service for businesses without on-site dishwashing.



Cup Zero



Cup Zero App



Deliver Zero



Deliver Zero App

# Public Space Recycling

Public space recycling bins are typically **contaminated** with trash and food waste, which results in them being **collected with refuse**.

With **good signage** and **transparent bags**, temporary recycling bins could be managed by the open street volunteers. A space to store the recycling before DSNY Tuesday morning collection would be required. Alternatively, the street could submit a request to DSNY to collect recycling litter bins at the end of the weekend.

Residents could also advocate for local councilmembers to use discretionary funding to supply permanent public space recycling bins.



Temporary litter bin option on wheels



Temporary litter bin option with stand



“Silver Bullet” public space recycling bins available for councilmember funding



New “BetterBin” litter bins for trash and recycling



# Future Solutions - Containerization

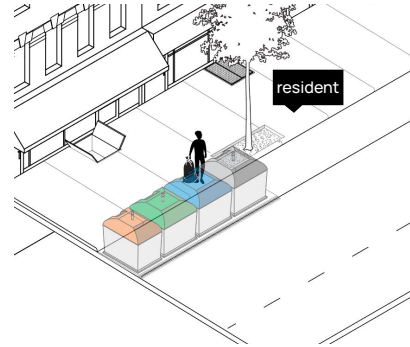
We have looked at the space required to containerize all of the waste on Vanderbilt Avenue, from residents, businesses and litter bin waste.

## Residential and Litter Bin Waste:

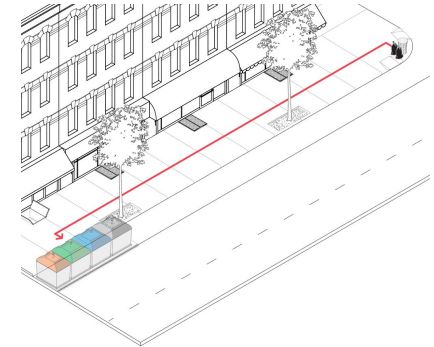
- Shared waste bins in the parking lane can accommodate all of the residential and litter bin waste from walk-up buildings.
- For the large residential building, wheeled bins can be staged in the parking lane or brought straight to the truck.

## Commercial Waste:

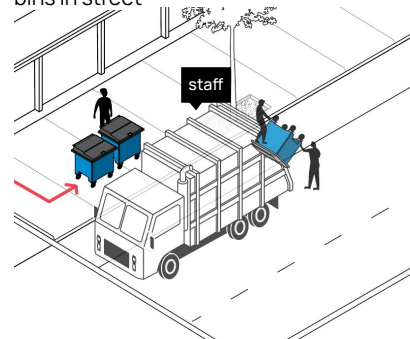
- Upcoming implementation of [DSNY's commercial waste zoning plan](#) will be a good time for businesses to put together a shared hauler contract, and to agree to use wheeled bins for all waste streams.



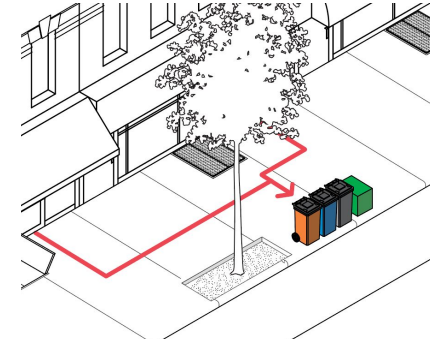
Low Density: Residents bring to shared bins in street



Litter bin bags to shared containers

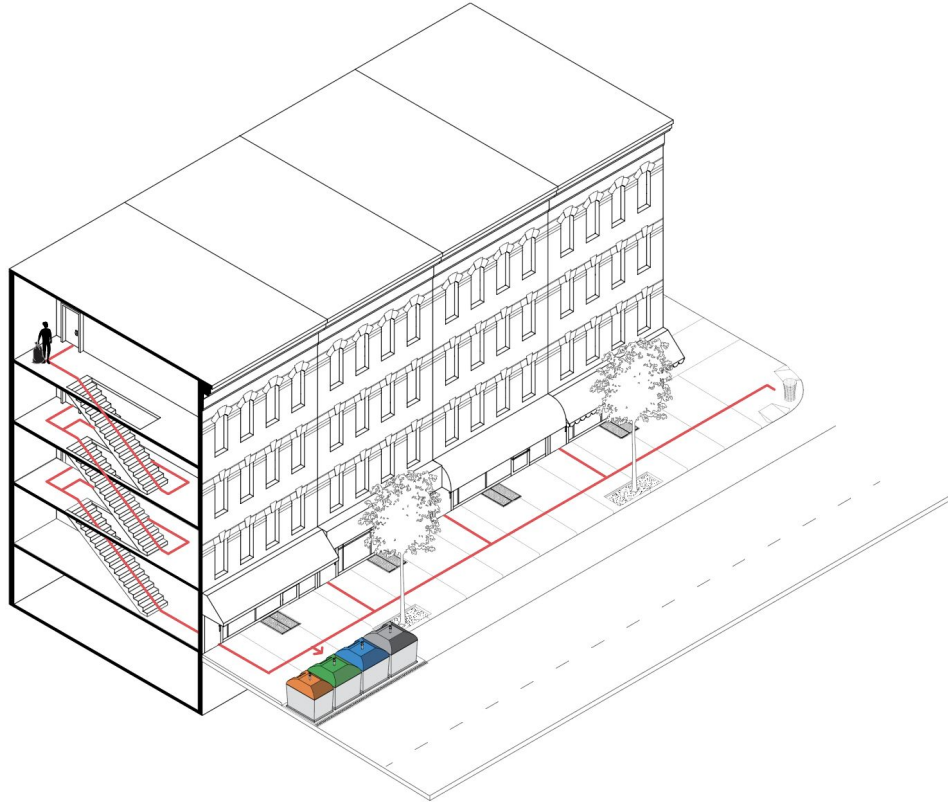


Staff bring wheeled bins directly to the DSNY truck



Commercial Waste is set out in 2 wheeled bins

# 1. Walkups with Storefronts: Shared Containers for Residential and Litter Bin Waste



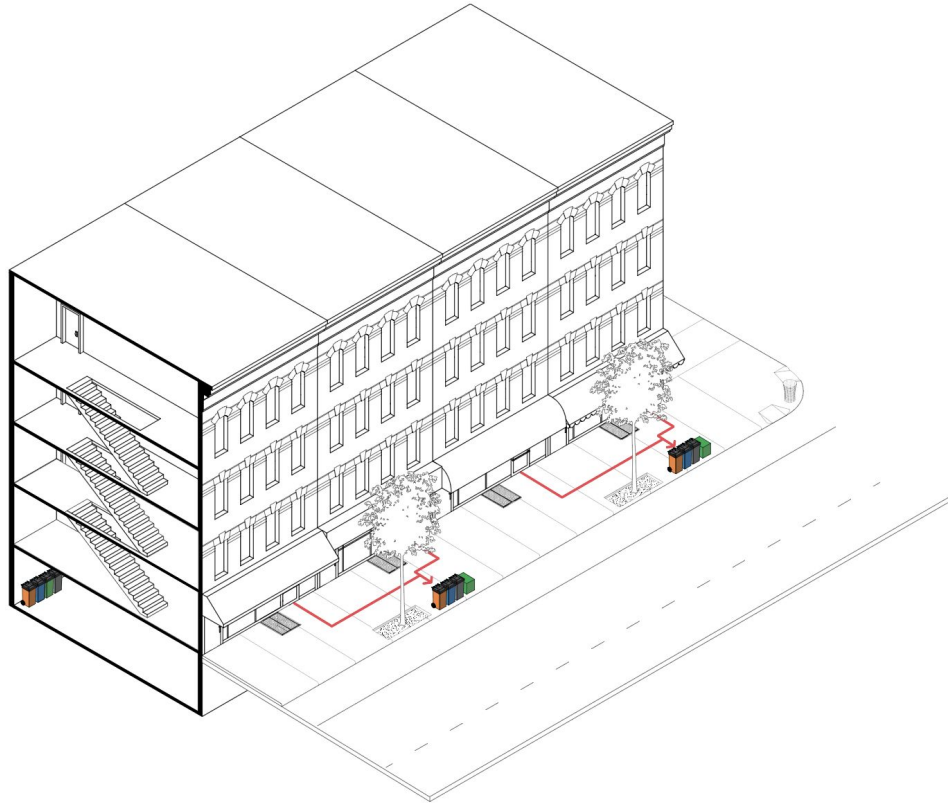
Shared containers for residential waste within the street can have controlled access to ensure use by residents and those servicing litter bins.

We calculated that for most blocks of walkup buildings, with current DSNY collection schedule, one set of shared 1.5 cubic yard (CY) containers would be sufficient on each side of the block. Some blocks would require either more frequent collection, larger containers (like the 3 CY containers illustrated here), or 2 sets of containers per block.

## Advantages

- Residents can take out waste at any time
- No bags on sidewalks or alongside litter bins
- Reduced rats and litter
- Improved sidewalks

# 1. Walkups with Storefronts: Commercial Bin Groups



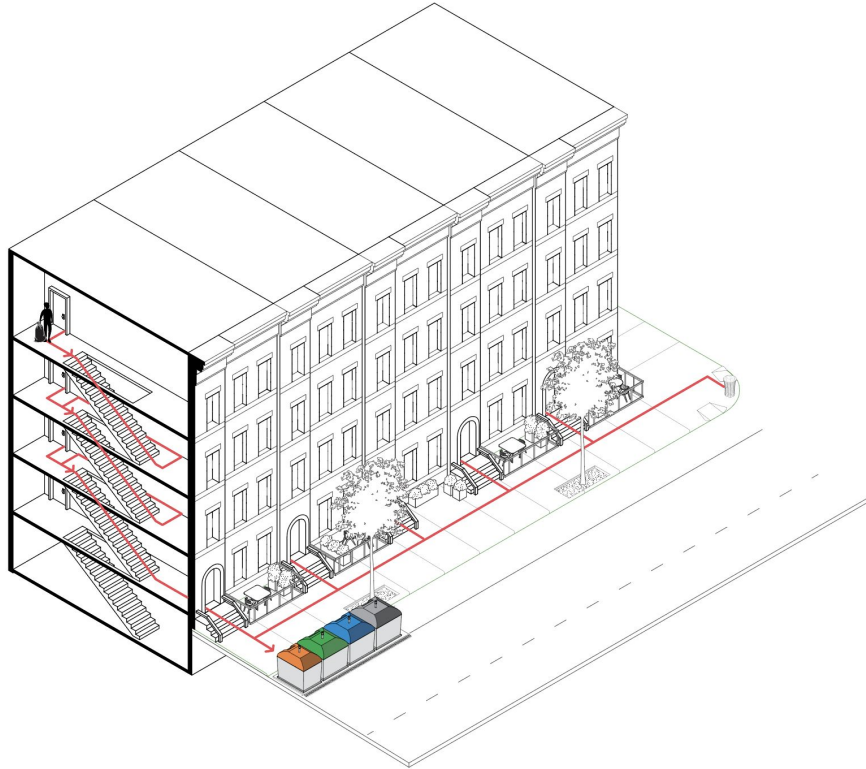
Businesses along the whole open street corridor could all use one waste hauler, which would be easier to do once the City's plan for commercial waste zones is implemented.

With one hauler, waste bins could be consolidated in a few groups along each block. Or the businesses could work with the hauler to install a clean curbs enclosure in the street, keeping sidewalks clear, and allowing the hauler to make one stop per block.

## Advantages

- Reduced hauler truck traffic
- Reduced costs for most businesses, especially for food waste.
- Reduced impact on sidewalks

## 2. Residential Walkups: Shared Containers for Residential Waste



The same type of shared bins used for residential walkups with storefronts can be used for all residential walkups.

### Advantages

- No need for a resident / part time super to manage shared bins, buy bags, and set out waste on sidewalks
- Front yards can be reclaimed for planters or areas for residents to sit outside
- No waste odors for ground floor residential units

# Waste Quantities: Shared On-Street Containers

## Volume Estimates - Residential and Litter Bin Waste

Lower occupancy blocks, eg between St. Mark's Ave & Prospect Pl (40 units)

Volume per collection in cubic yards (CY)	Trash	MGP	P&C	Org
Residential Observed	2.2	1.0	1.0	0
Litter Bin observed	1.5			
Residential Calculated	2.5	2.1	2.0	0.15

Hoist lifted containers have 2.5-3.5 CY per container, so **one group of containers for each side of the block** would be sufficient to contain the waste from the walkup residences and litter bins.

The wheeled bins within enclosures shown are 1.4 CY each, so would either need to double DSNY's collection frequency or have two groups of containers per blockface.

All of the higher occupancy blocks could be serviced with one group of hoist lifted containers at double DSNY's typical collection frequency, or two groups of containers at current collection frequency.

### Residential Calculation Assumptions:

- DSNY current collection schedule (3x a week trash, 1x a week recycling and future organics)
- 90% for cardboard, 75% capture for other recycling, and 25% for organics
- Average 2.5 persons / dwelling unit



# Shared Containers with Wheeled Bins

This view shows an enclosure with 4-wheeled bins (1.4 CY) inside for refuse and recycling streams, and a 2-wheeled bin (64 gallon) for organics.

DSNY could add a hoist to existing trucks ( $\pm$  \$12,000/truck) to pick up the wheeled bins housed in these shared enclosures, as well as those which could be used by large buildings.



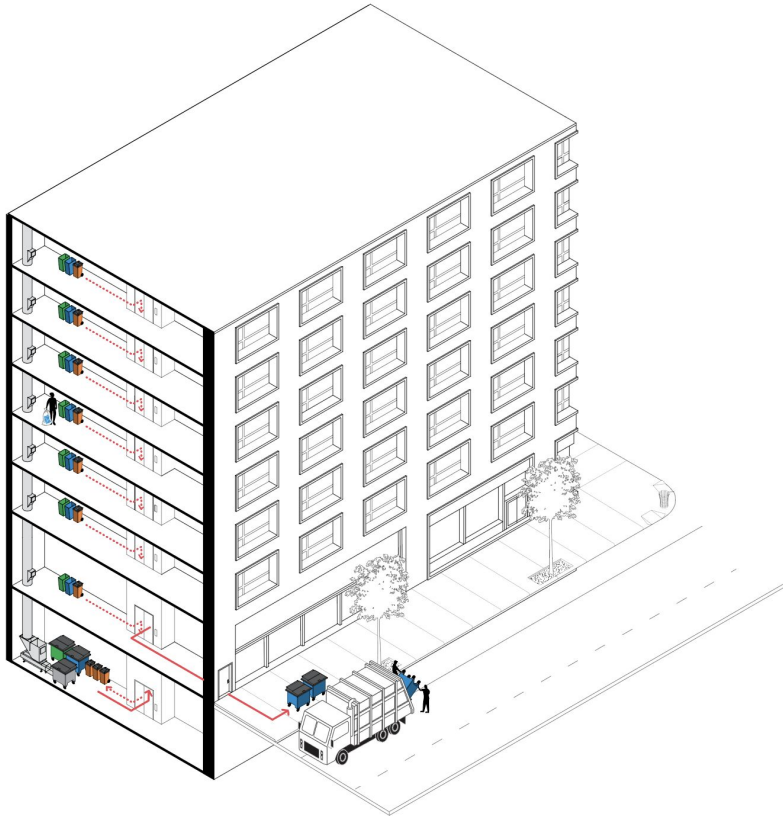
# Shared Containers with Dedicated Trucks

This view shows hoist-lifted containers, sized 4CY for Trash and Recycling streams and 2CY for Organics. These similar to those in the image below, in Paris.

With an updated truck fleet, DSNY could pick up stationary containers. NYCHA are piloting hoist lifted containers with a dedicated truck.



### 3. Large Residential: Wheeled Bins



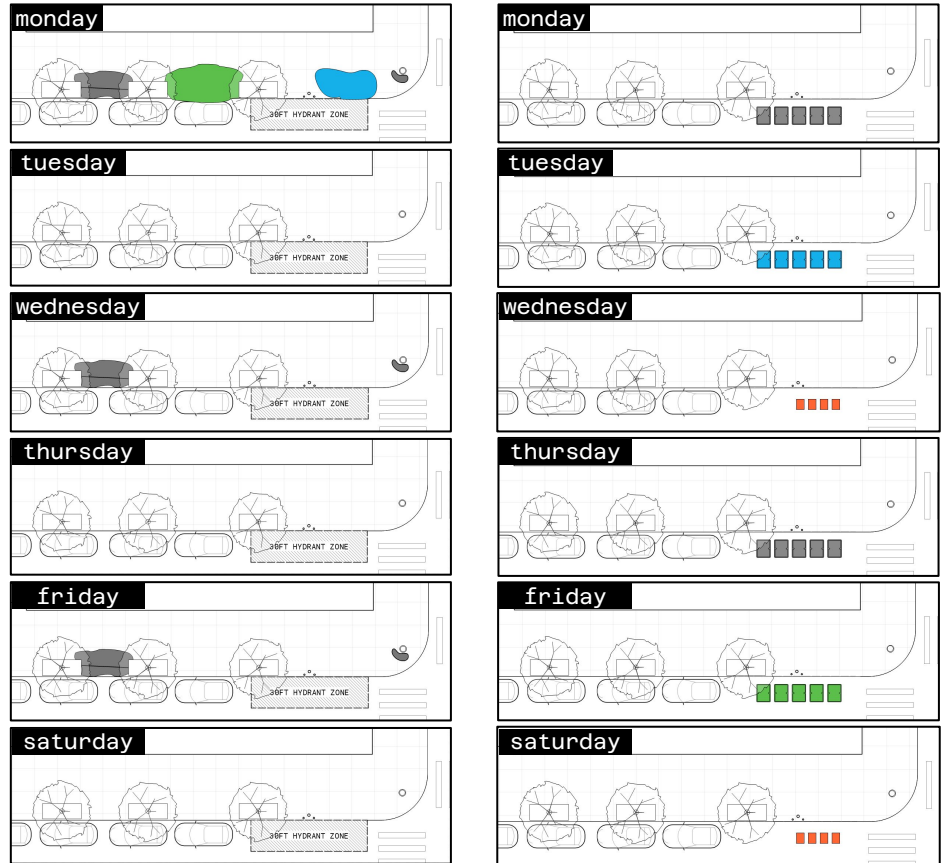
Large buildings have too much waste to fit in a shared container. Waste is already managed by building staff who use wheeled containers to transfer bags of waste from storage space to the curb. Instead of putting bags into a container then emptying out onto the street, the staff can wheel containers to a staging space on the street, or directly to meet the truck.

#### Advantages

- Building staff do not need to transfer bags from chute to hamper to curb
- Eliminates large piles of trash and recycling bags
- Reduces rats, litter and labor for staff to clean sidewalk.

### 3. Large Residential: Wheeled Bins

Volume per collection in cubic yards (CY)	Trash	MGP	P&C	Org
Residential Observed	8.2	10.3	13.6	0
Residential Calculated	3.9	14.4	13.9	1.07
# wheeled bins /collection	4.5	5.2	5.0	3.4



By adjusting collection days, the same area of the curb lane can be used for staging wheeled bins of different streams on different days.

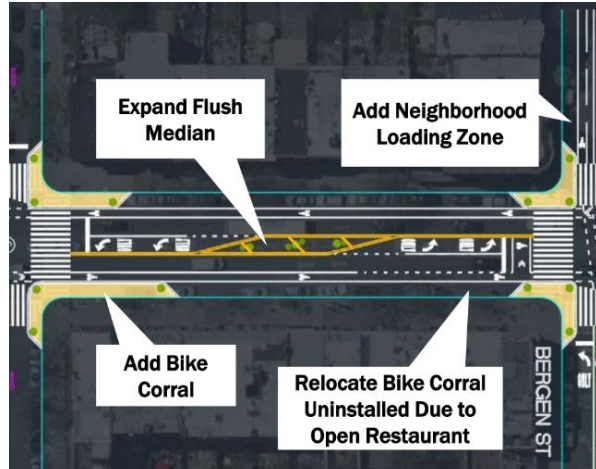
Residential Calculation Assumptions:

- 90% for cardboard, 75% capture for other recycling, and 50% for organics
- Average 2.5 persons / dwelling unit
- All streams are compacted at 50% except organics (can use a wheeled bin compactor or baler for recycling)
- 1.4 cubic yard wheeled bins used for trash and recycling, 64 gallon for organics

# DOT Street Design and Curbside Management

DOT is planning changes to Vanderbilt Ave, including adding bike corrals, loading zones and planters to daylight corners.

Shared waste containers can be integrated into DOT's street design alongside other curbside uses, such as loading and bike storage.



Bike Corrals



OONEPOD bike storage on Vanderbilt

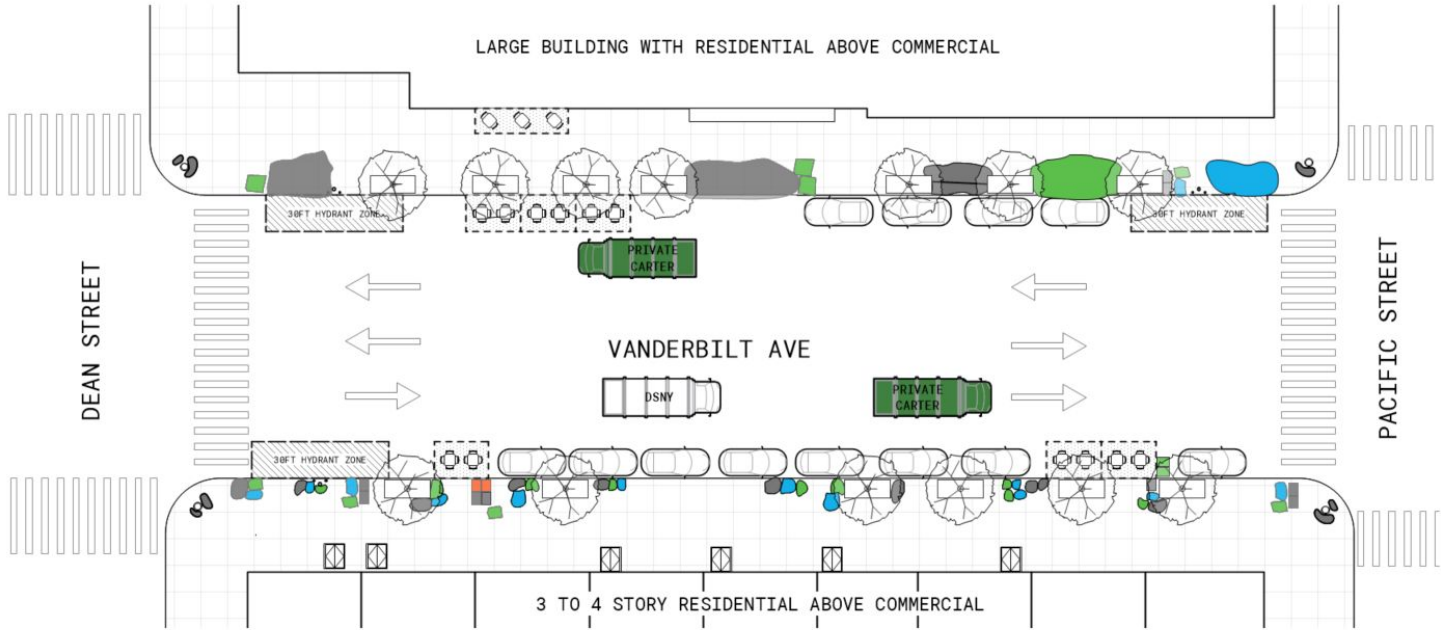


Neighborhood Loading Zone

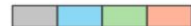


Hoist Containers in Paris

# Current Curbside Area used for Waste Set-out



## EXISTING



Commercial Waste, on sidewalk for 6-10 hours

20%

length of sidewalk taken up by commercial waste

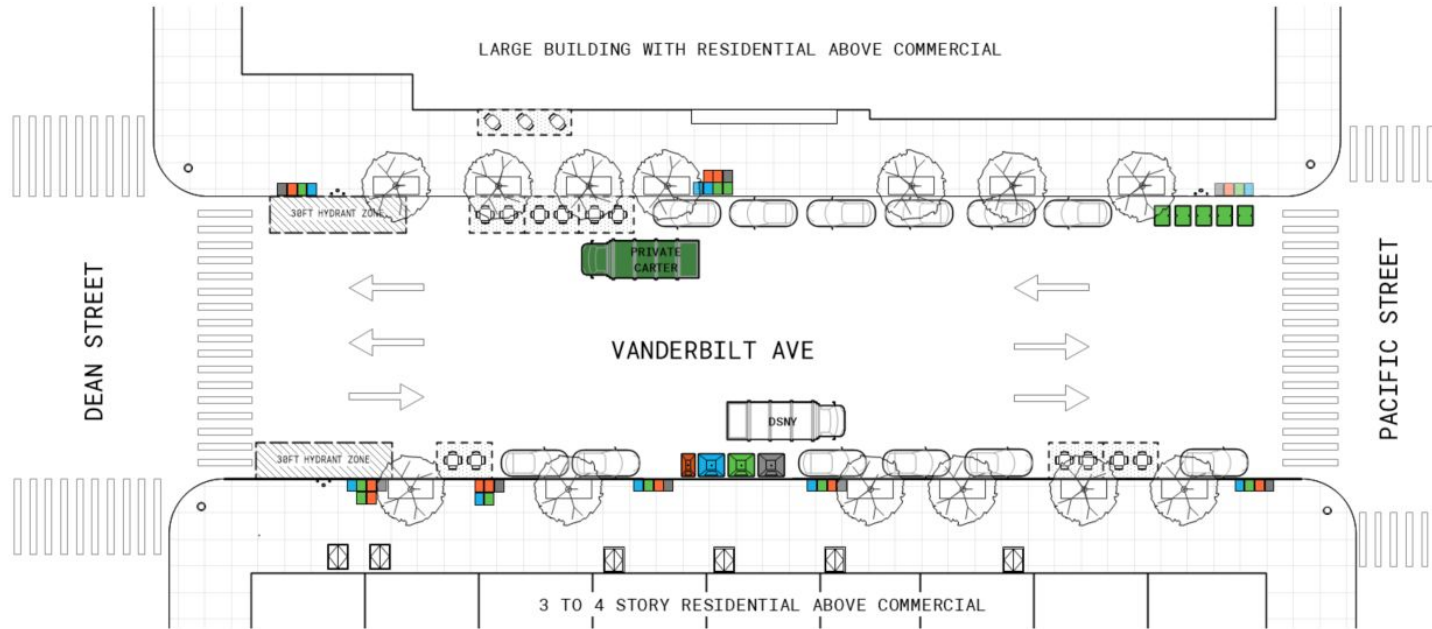


Residential Waste, on sidewalk for 12-16 hours

25%

length of sidewalk taken up by residential waste

# Curbside Area needed for Waste Containers



## PROPOSED

- Residential Waste, Temporary Wheeled Bins  
different stream every day
- Residential Waste, Permanent Enclosures
- Commercial Waste, on sidewalk for 6-10 hours



To learn our advocacy campaign; **Put Waste to Work** advocacy campaign for **Vibrant Streetscapes, Green Jobs and Healthy Neighborhoods**, please visit [putwastetowork.org](https://putwastetowork.org) and sign up [here](#).



Contact: [Admin@CenterforZeroWasteDesign.org](mailto:Admin@CenterforZeroWasteDesign.org)