

# Requirements for Scheduled Special Collections Activities

## Overview

The Sanitation Department runs two special collections activities: Mattress and Bulky Item Pickup. These services have the following in commonalities:

- The city is divided into a set of zones
- Each zone has a set pickup day/days, determined by a recurring schedule
- Each zone/day combination has a limited number of items
- Pickups are completed by contractors, who receive their schedule from the city via daily emailed dispatch reports, which contain a list of addresses, the items to be collected and other relevant information
- The schedules will have exclusions and exceptions
- A public facing web form will allow for users to book pickup from dates where there is availability
- A public facing web form will allow users to cancel booking
- Various reporting is required, but this will be managed internally, once the data is delivered to COB staff.

## Phased Delivery

COB will build this Special Collections capabilities in phases.

- In Phase 1 we will build and release the mattress collection scheduling features. Full requirements for Mattress Collection are included in this document.
- In Phase 2 we will implement Bulky Item collection.. This document will note how Bulky Item pickup differs from Mattress collection so that the software can be architected to accommodate both services. But the full implementation of Bulky Item pickup is outside the scope of this deliverable.

## Desired Development Stack

[TBD]

## Handoff Expectations

COB will rely on a contractor or vendor to create the software, but we expect to be able to maintain and add features to the software after the initial implementation. Therefore we expect handoff to include:

- Well commented code
- Advice on local development environments
- Suggested testing and deployment practices

Some number of support hours will be included in an engagement to ensure all of the above is operating as expected.

## Mattress Collection Requirements

### General Requirements

- User-facing elements should meet WCAG AA standards.
- COB should have ability to apply translations easily (we maintain most pages in 10 languages)
- Languages would be auto-selected based on users settings
- Everything created for this project should work well on all common device sizes

### Address and Zones

The City of Boston maintains a database of roughly 350,000 addresses within the City. For the purpose of Mattress Collection, the City of Boston is divided into 3 Geographic Zones (Zone 1, Zone 2, Zone 3) and each address is associated with a Zone

COB will supply our developer with a database/CSV of all 350,000 addresses. Each row will be a single address and will note the following:

- AddressID (we call this SAM ID internally)
- House number
- Apt number
- Street
- Neighborhood
- Zip
- Mattress Zone
- Bulky Item pickup zone
- DPW District
- Whether the address is qualified for mattress collection\*
- Whether the address is qualified for bulky item collection\*
- Other fields that may be useful in future iterations

*Note that qualification for a service is based on citywide rules regarding size of a building or the purpose of an address (commercial vs. residential).*

For the launch of the Mattress Pickup service we will assume that the address database is static after import. In the future, this data will be synched with a COB service created and maintained in ESRI/ArcGIS. Updates will be likely available via a REST Service and can be synced on a scheduled job.

## Items to Collect

When residents create an appointment for mattress collection, they will need to note the items to be collected. At launch these will include

- Twin mattress
- Twin box spring
- Double mattress
- Double box spring
- Queen mattress
- Queen box spring
- King mattress
- King box spring

For each item, an administrator should be able to note the weight. (This is for future reporting. Note that the list of items for the bulky item pickup service will be more extensive.)

## Schedules and Limitations

By default, Mattress Collection will occur Mon-Fri.

- For each day no more than 70 total items can be collected in each zone (note that the limitation is not based on the number of stops)
- An administrator will have the ability to change the number of items that can be picked up in a zone on a given day (e.g., On May 8 100 items can be picked up in Zone 1)
- Pickup can be canceled for holidays and other interruptions in service.
- A booking cannot not be made after 12:00pm for the following day

Additionally mattress pickup is limited in the following ways:

- Addresses that do not qualify for Mattress collection cannot book pickup
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## User Interface 1 – Booking form

To facilitate Mattress Collection booking, we will build a web form that will be embedded within a boston.gov page. This may be done via iFrame or embedding a <script> tag or other means.

The Booking form will have multiple parts.

### Part 1 – Address lookup

The user will start by entering an address:

- This will be an autocomplete form; as the user types the suggested addresses become more specific
- The autocomplete will employ best practices for responsiveness/timings
- User cannot enter an address freehand

- The user can only proceed with the form when they have selected an address from the suggested items

#### Part 2a) – If the address is not qualified for pickup

If the address is not qualified for pickup, the user will see a message that pickup cannot be scheduled at this address and not the likely reasons (Large building, commercial building). This message will likely include a link to form where the user can ask Sanitation to investigate the address.

#### Part 2b) – If the address has exceeded the number of pickups allowed in the calendar year.

If the address has reached the maximum number of items allowed at an address, a message will be given noting this. The user will not be able to proceed.

#### Part 2c) If the address is qualified and the pickup limit is not exceeded

The user will be presented with a list of the items that can be scheduled (mattresses, box springs). The user can choose the number of items of each.

- The user cannot select more than the annual limit
- The user cannot select more than the annual limit minus the number of items already collected in the calendar year
- After specifying the number of items, the user can proceed by clicking a button

#### Part 3) Date selection

The user should then be presented with the soonest dates that:

- Match the mattress pickup zone for the address
- Does not include the following day if it is after 12:00 pm
- Have availability equal to or more than the number of items the user has indicated
- NOTE: If the user goes back in the form and edits the number of items to be collected the available dates will need to refresh
- After choosing a date the user can proceed.
- Note: date availability will be determined by information committed to the database

#### Part 4) Input form

The user will be presented with a form:

- Name (text, not required)
- Email (text, required, validated for email shape)
- Phone (optional)
- Notes (textarea, 250 chars max)
- Checkbox confirming the mattress will be on the street by 6:00 am the day of pickup

- Checkbox confirming the mattress is not soiled
- Button is active when required elements are validated and checkboxes are checked

#### Part 5a) Error checking Form

On submission of part 4, the application should ensure that the zone still has capacity on the given day. If not an error message should be presented and the user should be sent back to choose an available date.

#### Part 5b) Confirmation Screen

On successful submission of a form, the user will be presented with a confirmation message, noting the Date and number of items to pick up. There will also be a link to a cancellation screen.

### User Interface 2 – Cancellation form

A cancellation form will be presented to any user with the proper link. It is assumed the link will be a standard boston.gov URL with an appointment's primary key in the querystring. The querystring should therefore not be guessable (UUID or other complex code).

The form will include:

- Name
- Address
- Items
- Date of pickup

(Note that the cancellation form will also be used by internal users (contact center, for example to cancel a pickup for a user who calls into 311).

#### Email Notifications

Upon successfully booking (or within an hour thereafter), the user will receive an email that includes the booking information noted above as well as a link to the cancellation screen.

The user will receive an additional notification with the same information a day prior to the scheduled pickup.

Note that after a cancellation, the capacity for the date and zone should be added back to the availability. Cancellations should be recorded in the database, noting the date and time of the cancellation.

## Administrative/Reporting Interfaces

COB does not wish to have developers build administrative or reporting interfaces for us. We will build these through low-code tools or by running scripts against the database. To facilitate this we will need to understand the database structure and queries that will facilitate administrative needs. These include:

- Changing the number of items that can be picked up for a give zone on a given day or over a range of days
- Editing/adding/deleting the items to be picked up or their weight
- Ability to get all appointments booked after a specific day/time or within a date range.

Values should include:

- Appointment ID
- Address ID
- Full address
- Street address
- Neighborhood
- Zip
- Zone
- DPW District
- Date booked
- Date of pickup
- Total number of items
- Listing of items (array)
- Canceled (y/n)
- Date of cancellation

## Additional Requirements for Bulky Item Collection

Bulky item collection will have many of the same characteristics as mattress pickup, but have a few key distinctions:

- There will be 9 zones (zones will be noted in the address database)
- Pickup schedules will be more complex.
  - A zone will be tied to a specific day of the week for pickup (e.g., Zone2 gets pickups on Wednesday)
  - On holiday weeks, the date of pickup may change; for example, if a holiday is on a monday, all pickups mon-fri will shift one day, to tues-saturday. If a holiday is on a Wednesday all pickups Wed-Friday will shift one day
- Limitations will be based on total weight rather than number of items