CLEAN Software

User Guide

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CLEAN Management Console Overview

Cloud-Connected Platform for Smart Waste Management

CLEAN Management Console Software is the cornerstone of the Bigbelly Smart Waste & Recycling System, providing full visibility into an entire operation. This is the centralized location from which the system is managed and operational analysis can be done. It includes a set of tools for system setup, management, monitoring, and optimization from either a web-based software or mobile app.

Smart stations communicate real-time status directly into the CLEAN Management Console. Auto-generated email, text, and online notifications indicate which stations need to be collected to drive increased productivity while eliminating overflows and unnecessary collections. Users can optimize collection routines, measure and benchmark operations, and realize location based waste patterns (volume, fill rate, collection activity) across a Bigbelly smart waste fleet.

- Centralized Dashboard with Real-Time Collection Requirements & Metrics
- Real-Time Station Status Based on Percent Fullness and Age
- Auto-Generated Notifications Trigger Collections Exactly When Needed
- Reliable and Easy-to-Use Web-Based Software; No IT Setup Required
- Exportable Data & Reports for Easy Download and Integration
- API to Push System Data to Centralized Dashboards
- Suite of Reports to Analyze and Benchmark Waste & Recycling Operations Over Time
- Measure and Report on Recycling Diversion Rates per Waste Stream
- Customizable Asset Management & Role-Based User Administration
- Anytime, Anywhere Access via Mobile App for iOS and Android Devices

CLEAN Mobile App Overview

The CLEAN Mobile App informs and guides collection staff in optimizing operations on-the-go. The app provides real-time station collection readiness status and service alerts; filtering and group functions make it easy to focus on the stations that need collection or service. Download **CLEAN Mobile** for iOS and Android, and login in with your CLEAN username and password.

Download on the App Store

GET IT ON Google Play

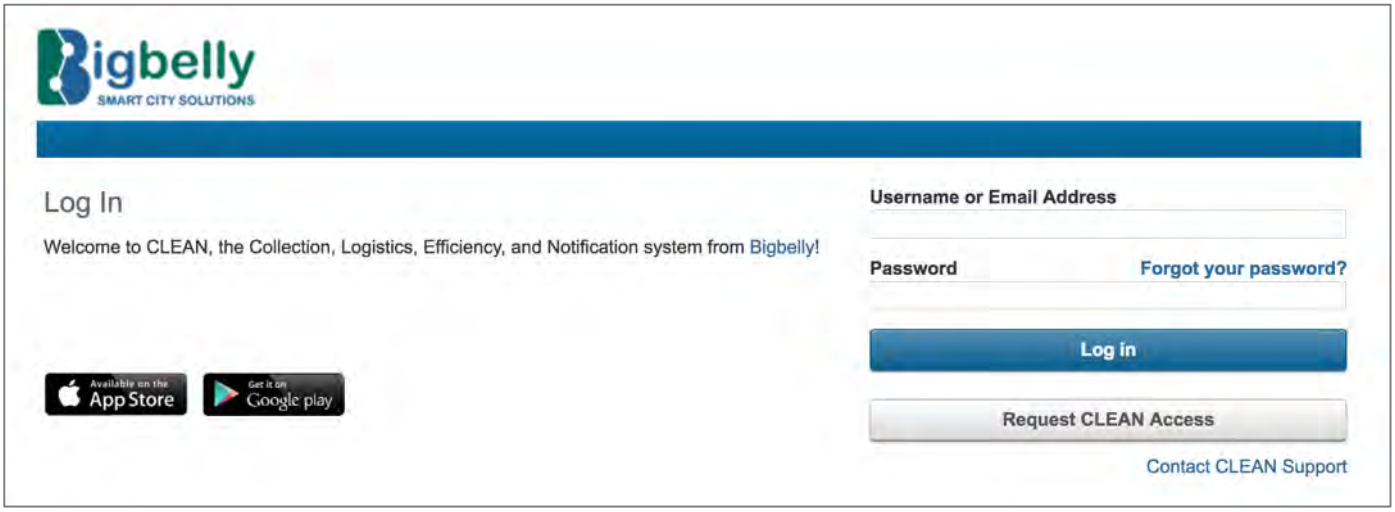
iOS App Store
https://itunes.apple.com/us/app/cleanmobile/id530771826?mt=8

Google Play Store

https://play.google.com/store/apps/details?id=com.bigbelly.cleanmobile

Logging in to the CLEAN Web Portal

- During the initial setup, Bigbelly will help create your CLEAN account users…
- A CLEAN welcome email will be sent to those individuals including:
  - Username
  - Temporary password
  - Link to Access CLEAN (https://clean.bigbelly.com/)
- Upon first log in, CLEAN will ask for your username and temporary password. It will then prompt you to change your temporary password to a personal password. *Reminder: All passwords are case sensitive.*



Logging in to the CLEAN Mobile App

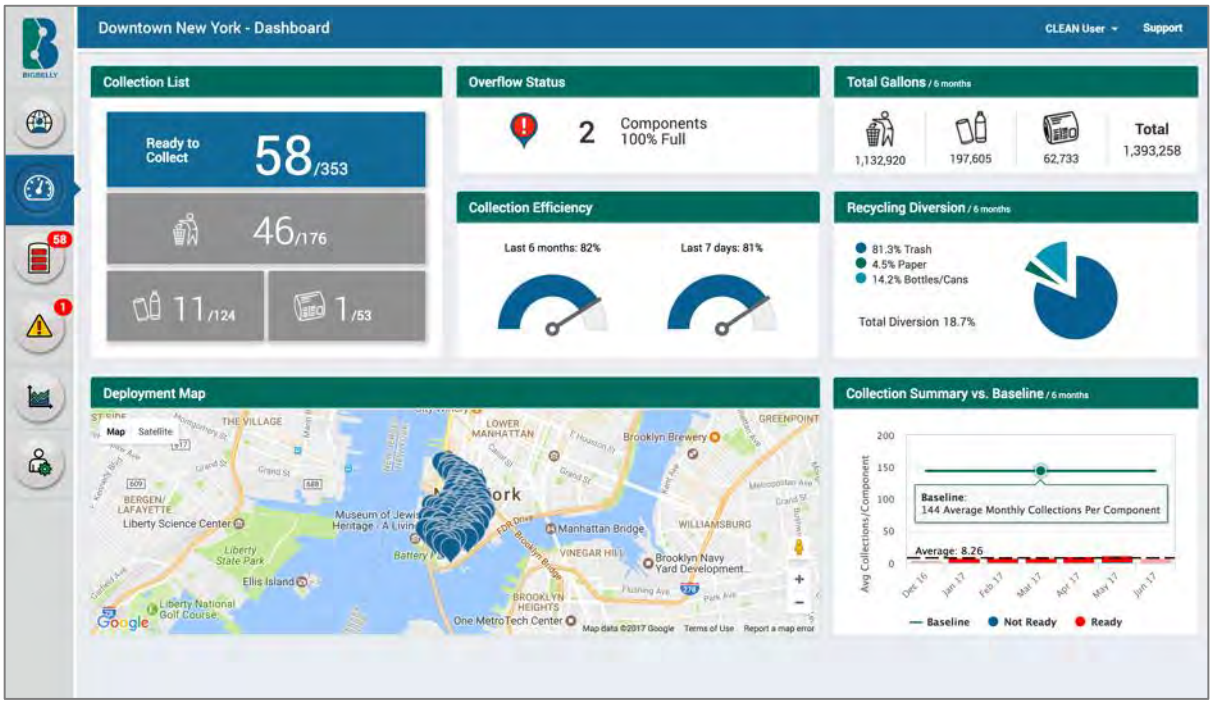
- Logging into the Mobile App requires the same CLEAN username and password as the web portal.
- Your first CLEAN log in with the temporary password from your welcome email must be completed in the Web Portal, not the Mobile App.

Pro Tip: *Select the checkbox for 'Remember Me' to save time from logging in each time you use the app.*

Pro Tip: *Make sure your phone is updated with the latest version of CLEAN Mobile, and you have enabled access to your camera for the app (see your phone's System Settings).*

CLEAN Dashboard

The CLEAN dashboard provides real-time fleet status, collection requirements, and highlights key metrics.



What is on this page?

- This is a summary page specific to your current active, 'in service' deployment. Modular widgets display a variety of information regarding your Bigbelly smart waste and recycling fleet.
- The **Collection List** (top, left) quantifies the number of components which require collection.
- The **Overflow Status** (top, middle) alerts on how many stations are at risk of an overflow (100% full).
- **Total Volume** collected and **Recycling Diversion** (top, right) display values for these common metrics.
- Are you optimizing collections with the system? **Collection Efficiency** (middle) is calculated as the percentage of collections made when a component is ready for a collection vs. when it has remaining capacity.
- **Deployment Map** (bottom, left) pinpoints every stations' location as determined by the onboard GPS.
- The **Collection Summary** (bottom, right) displays a month-by-month activity report of total collections per month, average collections per month per component, and before-Bigbelly baseline number of collections.
- Red Notification Bubbles on the Navigation Bar indicate the total number of components across a fleet requiring collection (fullness page icon), or under active alert (alerts page icon).

Taking Action:

- Collection List: Identify the number of components which need to be collected per waste stream.
- Overflow Alert: Identify the number of components that are 100% full (potential overflow) and need immediate collection.
- Efficiency Metric: Are you optimizing your collection routine? Always aim for at least a 70% efficiency rating! Two different time frames enable you to assess how the recent operations compare to a longer-term average.
- Total Volume, Recycling Diversion, and Collection Summary give you a snapshot of data for a given timeframe. Access the full set of reports to further analyze operations.

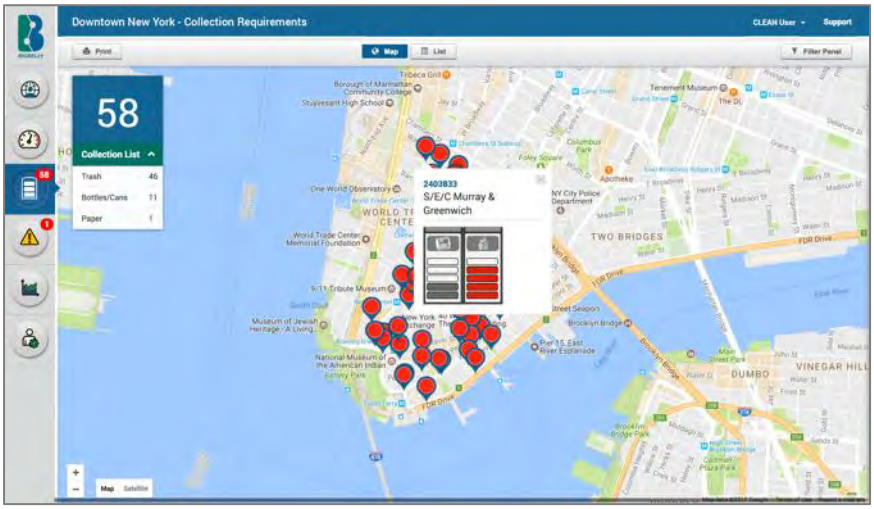
***Pro Tip**: Want to display a different time frame? If you'd like a different view than 6 months' worth of data, adjust your view by clicking on your name, navigate to User Preferences, and select a 3, 6, 9, or 12 month views.*

Fullness Information Page & Collection List

CLEAN's Fullness Information page delivers the real-time fullness level for an entire Bigbelly deployment. Individual station fullness status will match the LED lights on the front of the stations on the street.

What is on this page?

- This **Fullness Information** page indicates which stations in a fleet require collection.
- By default, CLEAN will help you focus only on stations requiring action!
- Components can be '**Ready for Collect**' for four reasons:
    1. Fullness Threshold Met (fullness indicated in 20% increments)
    2. Overflow Risk (100% Full)
    3. Age (Days) Since Last Collection
    4. Active Alert Where Fullness Cannot Be Determined
- Use the **Filter Panel** (top right corner) to filter the collection view. Filter options include 'ready for collection' reason, waste streams, or groups/locations to show only the desired stations. Use the **Print** button (top left) for a print-friendly or **Export** button for a CSV version of your view (map with markers, or detailed list) based on applied filters.

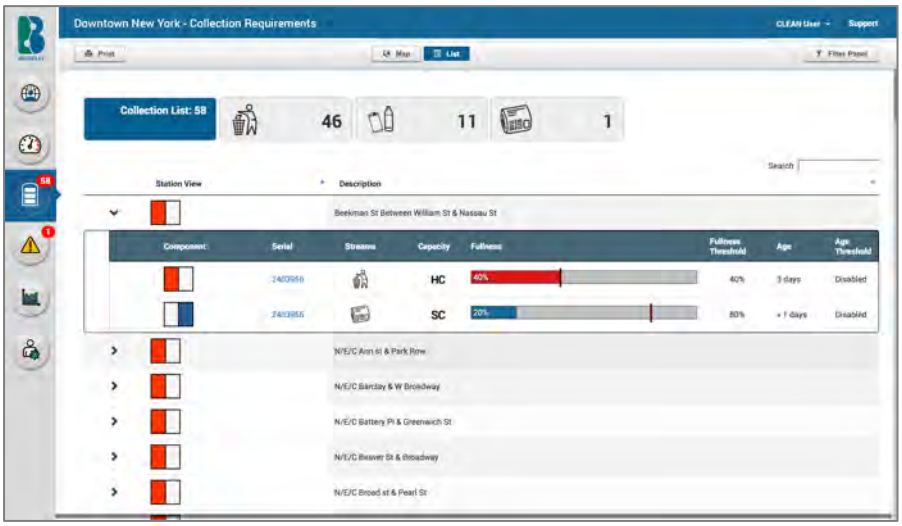


The **Map View** displays map markers with icons to identify a station that is 'Ready to Collect'. The reason for collection is indicated by the icon within the map marker. See the next page for examples. Click on the map marker for the 'as seen on street' view for station details (serial number, description, waste stream, etc.) and fullness level depicted.

Toggle between Map and List views by clicking the buttons at the top, middle.

The **List View** displays the same information as the Map view, but in a table. Each station that is ready to collect is displayed with the component triggering collection highlighted in red.

Click the down arrow in the left-most column to open station details. This view provides additional component details such as capacity, fullness and age thresholds, and age since last collection (if activated). Click the serial number to navigate to the Station Details Page.



Taking Action: When to Collect

The Bigbelly smart waste and recycling system tells you exactly when to collect each station in your fleet. Customers who make a meaningful change in operational routine take advantage of both increased capacity and real-time notification of which stations need collection. **There are FOUR ways to know when stations are ready for collection:**

1. CLEAN Website	2. Notifications	3. CLEAN Mobile App	4. Station LEDs

1. Determine what needs to be collected on the **CLEAN Website**

1. Log into CLEAN
2. Use the **Dashboard** page to get a quick count of how many components are 'Ready to Collect' or at 'Overflow Status'
3. Look for a **Red Notification Bubble** on the Fullness Information icon
4. Navigate to **Fullness Information** page and check the **Map** for:
    a. Stations that have met Fullness Threshold
    b. Stations with Potential Overflows
    c. Stations that have met Age Threshold
    d. Stations under Alert where Fullness cannot be determined
5. Click the **List** View for a more detailed report

*Pro Tip: Use **Print** or **Export** (top left) for a print-friendly or CSV version to take on-the-go!*

2. Determine what needs to be collected via **Notifications (Email & SMS)**

Set up auto-generated notifications to tell collection crews exactly what needs collection, exactly when needed. Notifications can be set up for receipt either by email or SMS, on a regularly scheduled basis or immediately as needed. See Notifications section of this CLEAN User Guide for additional information about notifications.

3. Determine what needs to be collected on the **CLEAN Mobile App**

1. Log into the Mobile App
2. Navigate to Fullness Information (icon in top right) - This will have a Red Notification Bubble with the number of stations that need to be collected.
3. Click the List View for Location Descriptions

4. Determine what needs to be collected via **LEDs**

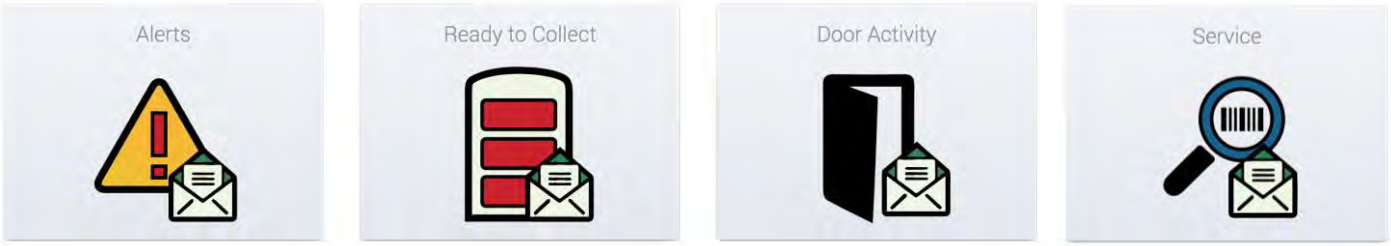
Each stations' fullness status is reported on the LED lights on the front of the stations. Since the station reports its real-time status into CLEAN, stations flashing red LEDs will appear in your collection list in CLEAN.

Flashing RED? Collect Now!
Flashing GREEN? Not Ready to be Collected!

Pro Tip: Make collections when stations are 'Ready for Collection' (reached fullness or age since last collection thresholds) to optimize your collection efficiency in an effort to reduce cost and take full advantage of the CLEAN Management Console.

System Notifications

Set up auto-generated notifications to tell collection crews exactly what needs collection, exactly when needed. Notifications can be set up for receipt either by email or SMS, on a regularly scheduled basis or immediately as need.



What is on this page?

- **Existing notifications** are displayed with description, type, frequency, send-time, recipients.
- To **edit a notification,** click the pencil icon in the rightmost "Actions" column. To **delete**, click the 'x'.
- Users can turn ON/OFF an existing notification without deleting it. To **activate a notification**, click the checkbox in the leftmost column. To **deactivate**, click to uncheck.
- **Create a new notification via an easy wizard** (top left) - Set up email or SMS notifications to indicate when stations are ready for collection, need maintenance, or to provide door-opening activity.

How To: Create Notifications

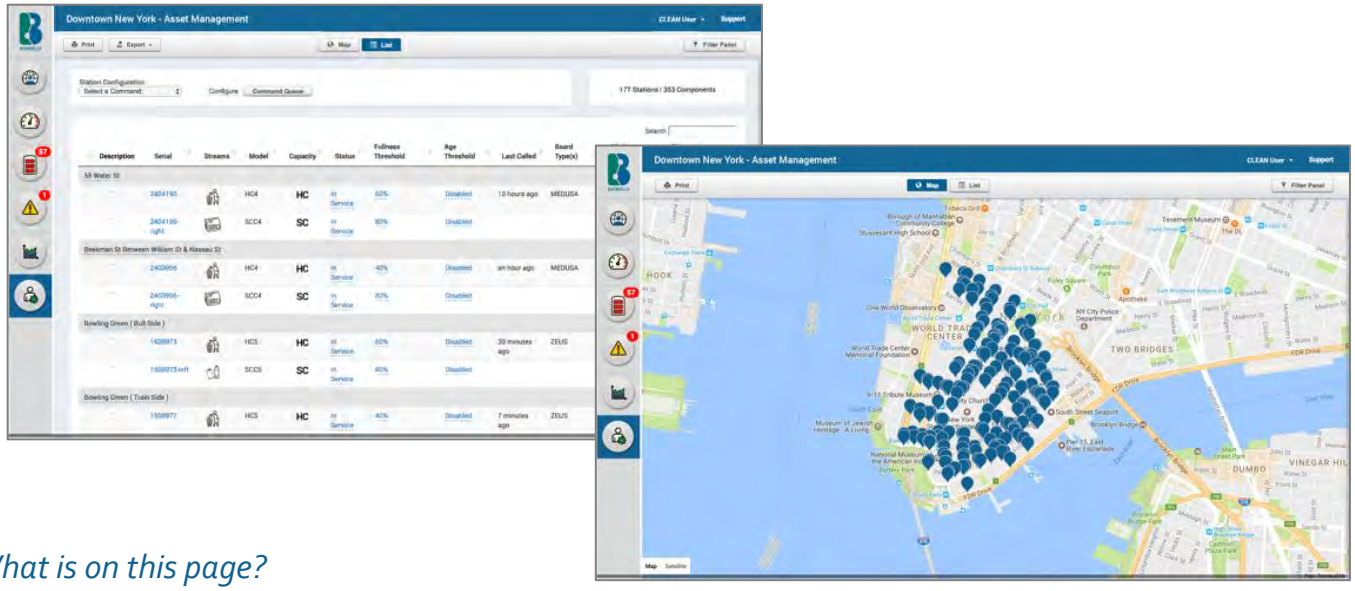
1. Log into CLEAN
2. Click the **Administration** icon
3. Click on the **Notifications** icon
4. Click the **'Create a New Notification'** button (top left)
5. Choose and click which type of Notification you would like to set up…
    a. **Alerts**: Notifies recipients if, when, and which stations are under an active maintenance alert including which type of alert and how long that alert has been active.
    b. **Ready to Collect:** Notifies recipients which stations are 'Ready to Collect' based on reaching a fullness or age threshold, or are under alert where the fullness cannot be determined.
    c. **Door Activity:** Notifies recipients of door opening activity at a station, group, or fleet level.
    d. **Service Tool:** Notifies recipients when a photo or note has been added to a station via the mobile app.
6. Follow the seven-step wizard for each notification set-up. Detail the user provides include recipient(s) (email or email-to-SMS), description, notification schedule, group filtering, etc.

Pro Tip: *'Account Administrator' user types are the only CLEAN users which have the rights to add and update notifications.*

Pro Tip: *SMS text notifications can only be set up at an 'Immediate' Frequency. Once "Immediate" is chosen, the SMS check box appears on the set-up wizard page. When adding recipients to an SMS notification, you must compose their mobile number as an email (for example: the Verizon phone number 617-123-4567 is 6171234567@vtext.com). Each carrier has their own email-to-text address that can be easily searched online.*

Asset Management

The Account Assets page in CLEAN provides the master overview of the components in a Bigbelly deployment.



What is on this page?

- The Account Assets page is where you **manage the inventory of your Bigbelly smart waste and recycling fleet**. Both **Map** and **List** views display an account's 'in service' assets (components) by default.
- Assets are **itemized in a table in the list view**. Each station location is sorted by 'Description' field by default; each station will include the components located there with a summary of details. Assets are pinpointed on the **Map view** based on each components' reported location via stations' onboard GPS.
- **Collection thresholds** can be edited (per station or in bulk) for fullness and age since last collection.
- The **filter panel** (top right) allows users to filter their view of the Account Assets page by waste stream, component types, station status, groups, etc.
- The **total number of stations and components in a fleet** ('in service' count by default, changes with filters) is displayed in the top left corner. Use the **search field** to search and sort assets. Search by serial number, description, stream, capacity, etc.

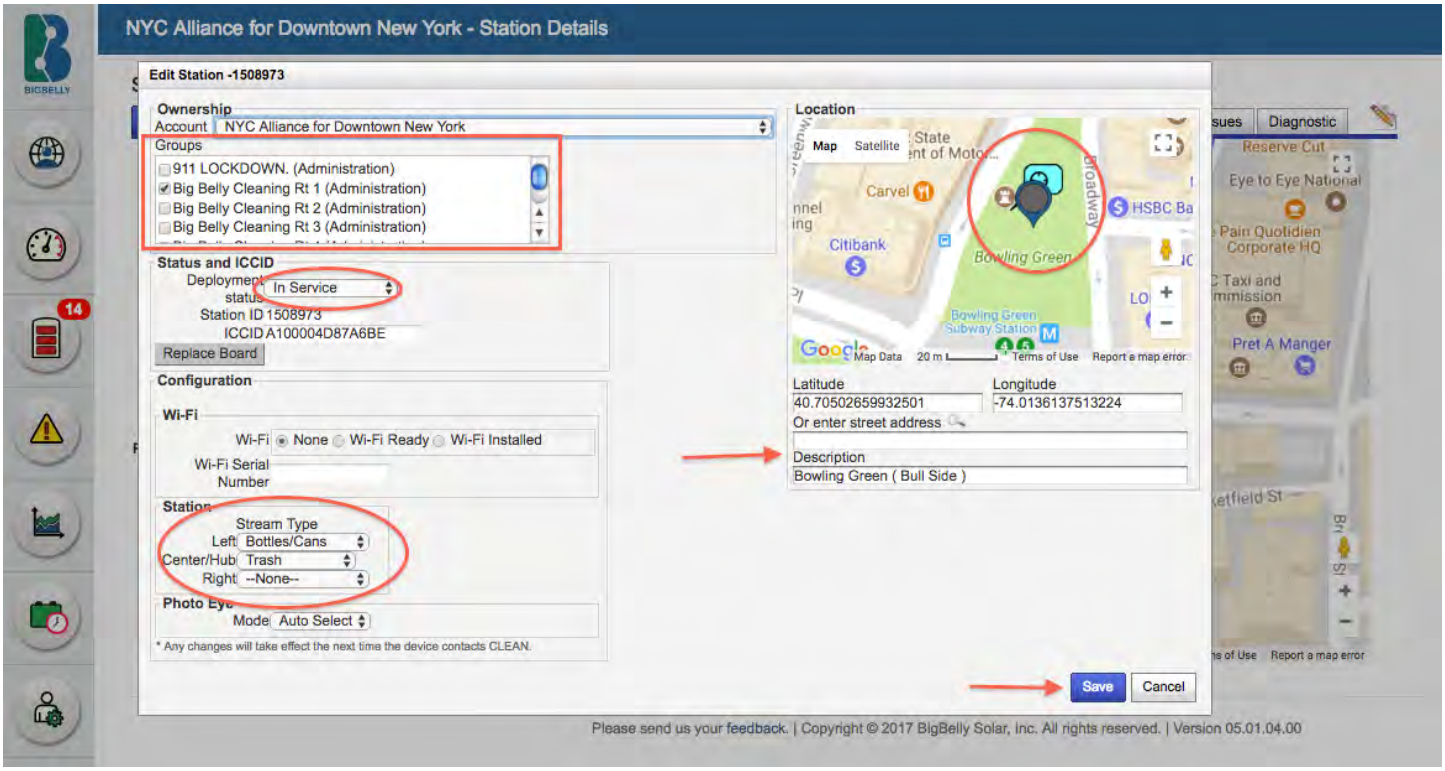
Taking Action:

- **Manage Inventory**: Set up, Edit, or Remove components and details.
- **In-line edit key station details and settings**: Including location description, status, fullness and age thresholds.
- Click on any station serial number to navigate to the **individual station detail page** for more in-depth information.
- **Print or Export** (top left) a deployment list either in map or list view. Applied filters will carry over to the printed page or CSV.
- Select components (via checkbox) to select a station command (ex: 'Force GPS Check' or to select Photo Eye).
- **How To: Bulk Edit Settings (List View) -** Click the checkboxes to the left of desired station serial numbers to select multiple components to edit at once. To select all stations in view, click the checkbox at the top of the table, leftmost of the 'Description' column. Whenever more than one component is checked off, two new buttons appear at the top of the page: **Bulk Change Fullness and Bulk Change Age.** Select desired threshold to change, click button, update the settings from dropdown, and press save.

Pro Tip: *Pull your Account Asset data into Excel – Click the 'Export' button (top left) in List View to download all data in view. A CSV will be generated and download automatically!*

How To: Set Up Stations

1. Click the Administration icon
2. Click on the Assets icon
3. Click the Filter Panel button
4. Click the Filter By Status row to see the dropdown options
5. Check off the Manufactured status row and uncheck the 'In Service' status
6. Click Apply at the top of the Filter Panel
7. Click the Serial Number link for the station you would like to set up (A new internet tab will open)
8. Click the Edit Station Button (Pencil & Paper Icon) on the right side of the page
9. Fill out the necessary fields
    a. Check off the group(s) the station should be associated with (If applicable)
    b. Click the Deployment Status drop down menu to move the station into "In Service"
    c. Update the station configuration (If Applicable). Note: A double station companion is always on the left.
    d. Click, hold, drag and drop the Gray Pin on the map to the install location. Note: Use the Blue GPS Bubble as a reference, but be aware that the GPS marker is not 100% accurate
        i. If no GPS Marker is available, you may enter the GPS coordinates (In Decimal format) or enter the Street Address and then click the Magnifying Glass icon.
    e. Enter the Location Description
10. Click Save

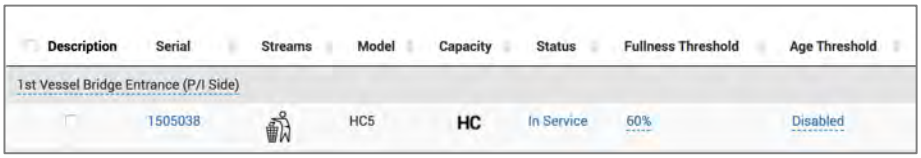


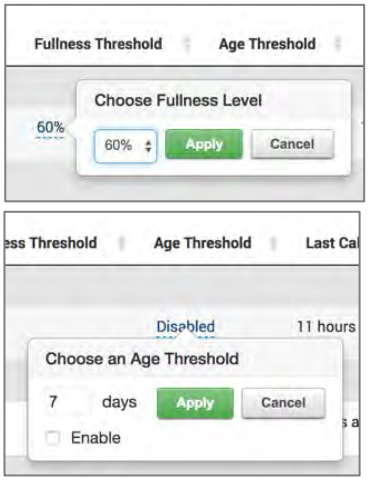
How To: Edit Station Details

Depending on what station information you would like to edit, you can either in-line edit on the main asset page, or follow the same steps under the "How To: Set Up Stations" section above. Information that you can in-line edit on the Account Assets page will have a blue dotted underline. Click once to open editable fields.

Station information that you can in-line edit:

1) Location Description
2) Status
3) Fullness Threshold
4) Age Threshold





How To: Customize Fullness and Age Thresholds

1. Click the Administration icon
2. Click the Assets icon
3. To edit the **Fullness Threshold**:
   a. Click the Fullness Threshold (%) in the component's row
   b. Choose the desired percentage fullness from the dropdown
   c. Click Apply button to save
4. To edit the **Age Threshold**
   a. Click the Age Threshold in the component's row
   b. Click the "Enable" checkbox to activate, then enter the number of days (only round digits accepted)
   c. Click Apply button to save

How To: Reset Station Data

1) Click the Administration icon
2) Click on the Assets icon
3) Find the station serial number that you would like to edit
4) Using the In-line editing feature under the Status column, change the station's status to Manufactured (Moving it to Manufactured will clear all previously collected data)
5) Find the station serial number again under the Manufactured status and move it back to In Service at the new install location

Pro Tip: *Want to edit multiple stations' thresholds at once? Click here for How To: edit in bulk.*

How To: Set Up Multi-Compactor Stations

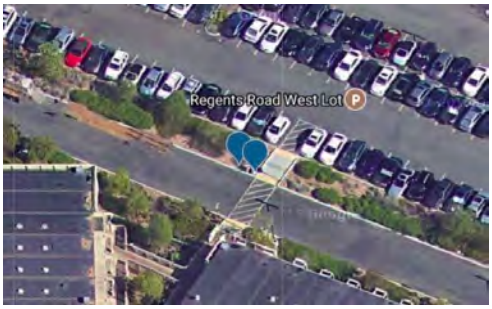
There are two ways to set up these types of station; Using the CLEAN Website and using the CLEAN Mobile App.

CLEAN Website: When setting up multi-compactor stations on the website, each station serial number must be set up separately because compactors have their own electronics board and communication chip.

1) Start in your Global Overview page
2) Select the CLEAN Account with the stations you want to set up
3) Click the Assets Icon
4) Use the search function on the right side of the page to find the serial numbers (Separate the serials with commas, no spaces)
    i. If the Serial numbers do not appear, use the Filter panel to include Manufactured Status stations.

b. Click Apply. Your serials should then appear

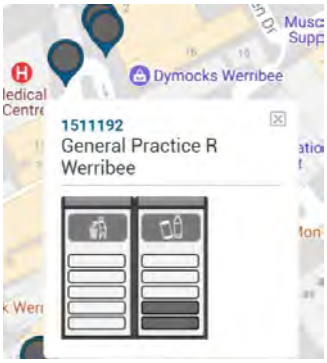
5) To set up the first compactor, follow Steps 8-11 from the *How To: Set up Stations* Section of the CLEAN User Guide (Page 10)
6) To set up the second compactor follow the same *How To* steps, but when placing the location pin on the map, try to place it directly next to the first location.



CLEAN Mobile App: When setting up multi-compactor stations on the Mobile app's install tool, you are able to set up both compactors together at one map pin placement.

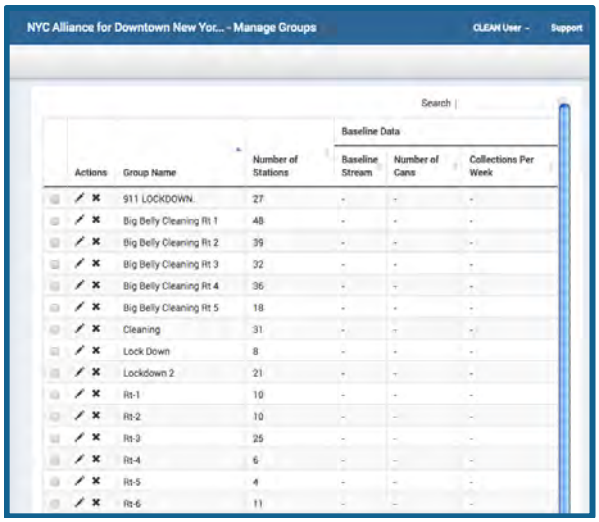
1) Open the CLEAN Mobile App
2) Select the CLEAN Account with the stations you want to set up
3) Click the Install Tool icon
4) Follow Steps 1-6 from the *Taking Action: Using the Mobile App's Install Tool* Section of the CLEAN User Guide (Page 24)

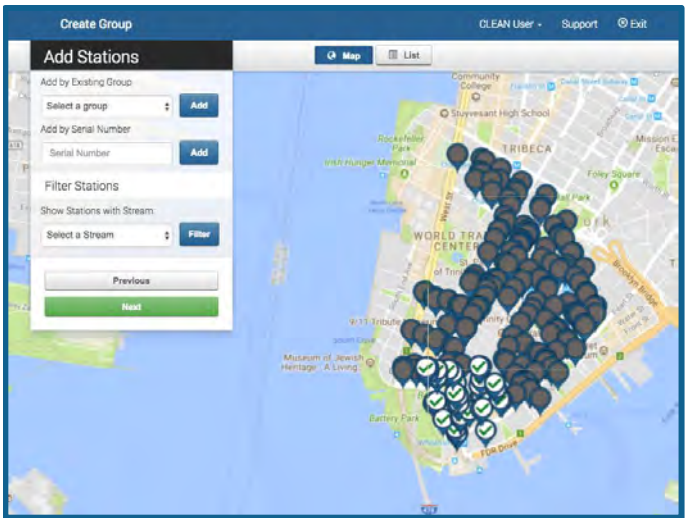
Note: Setting up a Duo station on the CLEAN mobile app will look different on the maps than if you set them up on the CLEAN website. This is because the Mobile app sets up both stations at the same GPS coordinates. For example, when you click the station pin on the Fullness Information Page, you will see the fullness status on both components, but only one station serial number will appear.



Group Administration

The Groups Administration tool provides a listing of all groups of stations in a CLEAN account. Groups are commonly used to divide routes and neighborhoods of a municipality, areas of college campuses, public transit routes or stops, store branches for retailers, contracted collectors by area, etc. There is no limit to how many groups you can have.





What is on this page?

- The Manage Groups Administration page provides the ability to create new, edit or delete existing account groups.

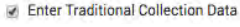
Taking Action:

- **Create and manage groups** for your Bigbelly deployment. Consider how you want to organize your deployment: streets, downtown, individual parks, campus locations, collection or cleaning routes, etc.
- To create a group you need to add a name, users and select the components.
- Groups can be used throughout CLEAN notifications, reports, and collection details to filter data and views.

How To: Create Groups

1. Log into CLEAN
2. Click the **Administration** icon
3. Click on the **Groups** icon
4. Click the 'New' button (top left)
5. Follow the four-step wizard for each group set-up. Details the user provides are the group name, traditional collection data, users, and the components.

How To: Add 'Traditional Collection' Baseline Data

1. Log into CLEAN
2. Click the Administration icon
3. Click on the Manage Groups icon
4. Click the 'New' button (top left) or Edit an existing Group by clicking the pencil icon
5. Enter a Group Name
6. Click the "Enter Traditional Collection Data" Check Box 

7. The Baseline Data field will pop up. Fill out the necessary Data (Waste Stream, Number of Cans, Collections Per Week)
8. Click Save

***Pro Tip**: It is critical to enter your before-Bigbelly baseline data in order to fully analyze savings with the Bigbelly smart waste system! This enables you to quantify collection reduction and associated savings.*

User Administration

Users are the individuals who receive log in credentials to CLEAN. Bigbelly includes role-based user administration to provide relevant CLEAN access to different members of your team. Customers have unlimited CLEAN user licenses and account credentials valid for both web and mobile apps.

What is on this page?

- The **User Administration** page displays a list of all registered users that have been created for a given account. This table includes a summary of information for each user: name, username, email address, phone number, and last log in timestamp data (log ins from website only). **Managing Users** includes Set up, Edit, or Remove users and their details.
- CLEAN offers **role-based user administration** with the following **User Types***:

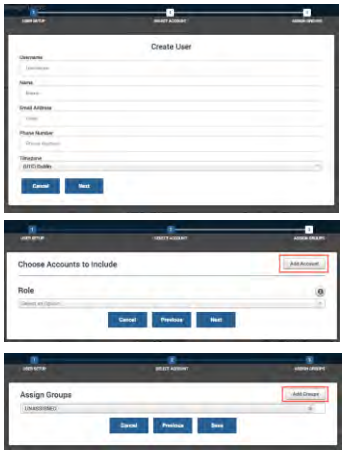
Role Permissions

Role	Multi- Account	Admin	Dashboard	Fullness	Alerts	Reports	Inventory	Support
Account Administrator	✔	✔	✔	✔	✔	✔	✔	✔
Service	✔	–	✖	✔	✔	✖	✔	✔
User	✔	✖	✖	✔	✖	✖	✖	✔
Dispatcher	✔	–	✔	✔	✔	✔	✔	✔
Distributor	✔	✔	✔	✔	✔	✔	✔	✔
Support	✖	✖	✖	✖	✖	✖	✖	✔

- Click the pencil icon to the left of each user to edit personal details, time zone, and associated groups.
- Click the checkbox next to each user to individually or bulk delete user(s).

How To: Create New Users

1. Log into CLEAN
2. Click the Administration icon
3. Click the Manage Users Icon
4. Click the 'New' button (Pop-up window will appear)
5. Enter the following details: Username, Name, Email Address, phone number, time zone
6. Click 'Save' (Page 2 will appear)
7. Choose the Account and User Role
8. Click 'Save' again (Page 3 will appear)
9. Remove/Add Groups for the User to see
10. Click 'Save'



How To: Edit Existing User Information

1. Navigate to the Manage Users Page
2. Click the pencil icon next to the User that you would like to edit (Pop-up window will appear). You cannot edit your own information. Any changes to your account must be done in the User Preferences page (see page 15).
3. Edit User information details: username, name, email address, phone number, time zone; add user to additional accounts (if applicable), change user role; add or remove groups from user visibility.

How To: Reset Passwords for Existing Users

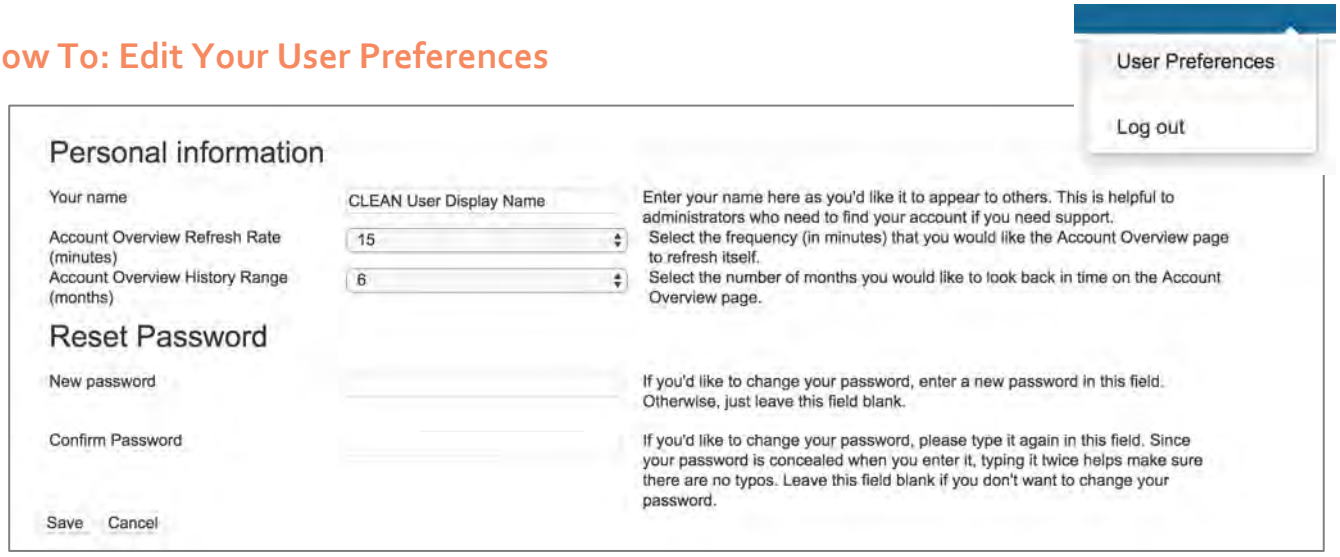
1. Navigate to the Manage Users Page
2. Click the circular icon next to the User that you would to reset the password for
3. A pop-up message will confirm that you would like to reset – Click 'Yes'
4. An email will be sent with a temporary password to initiate reset of personal password

How To: Delete Users

1. Navigate to the Manage Users Page
2. Click the checkbox next to the User(s) which you would like to delete from CLEAN
3. Click 'Delete' button at the top of the page
4. A pop-up message will confirm that you would like to delete – Click 'OK'

Note: When a user is deleted, the associated email address will no longer receive notifications.

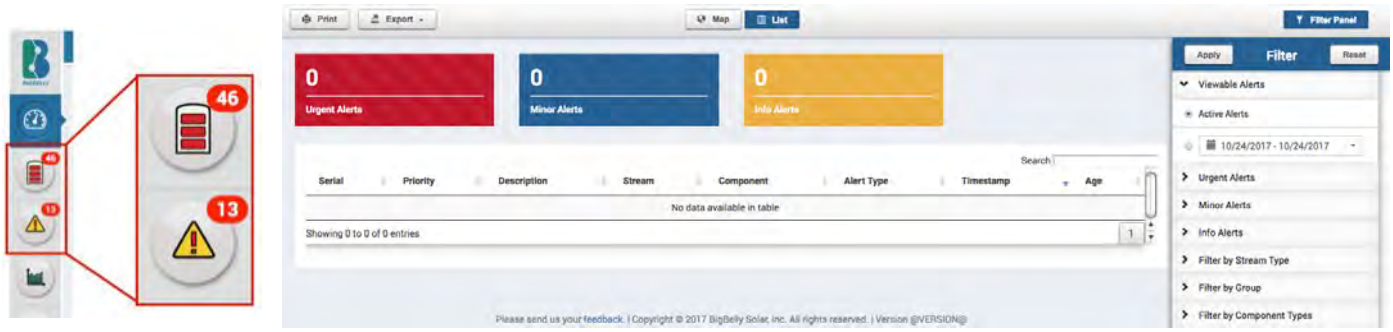
How To: Edit Your User Preferences



1. Log into CLEAN
2. Click on your Name (top right corner in blue heading)
3. Click **User Preferences** in the dropdown
4. Select the field(s) to edit – Either type or select from drop-down options for:
    a. 'Your Name' = Display name (shown in the top right corner when you are logged in to CLEAN)
    b. 'Account Overview Refresh Rate' = Rate at which Dashboard page refreshes
    c. 'Account Overview History Range' = Number of months shown for long-term data on Dashboard
        i. Select from 3, 6, 9, or 12 months
5. Click 'Save'

Alerts & Maintenance

CLEAN includes a real-time maintenance alert center for an entire Bigbelly deployment.



What is on this page?

- The **Alerts Page** is a centralized location that lists any active alerts in the fleet, sorted by alert urgency. The total number of active alerts is also displayed in a **Red Notification Bubble** on the Alerts icon of the left-hand navigation. Users can view alerts via **List** (default) or **Map** views. **The Bigbelly System has three types of maintenance-based Alerts:**
    - **Urgent Alerts**: Serious issues that require immediate attention. Impact core function of the system.
    - **Minor Alerts**: Less serious issues that need to be addressed before it impacts system function.
    - **Informational Alerts**: Not a serious issue impacting function but something that may need attention.
- If there are any components under alert, each will be displayed in the table with key alert details.
    - 'Station' Serial Number & 'Description' indicate which component is under alert.
    - 'Alert Type' matches the complete set of alerts listed on the left filter panel.
    - 'Age' tells users how long the alert or warning has been active.
- A **Filter Panel** (right) allows you to select which alert types you would like to view.
    - By default, the Alerts Page will load all Alert types.
    - The number of active alerts in the Alert Category bucket is noted at the top of the screen.
    - Users may also filter by Waste Stream, Timeframe, Component Types and Groups to view details relevant to their use.
- Use **Print** button (top left of map or list panel) for a print-friendly version of your view (w/ applied filters).
- Use **Export** button (top left of map or list panel) to export your list to PDF/CSV or map to PDF.

Pro Tip: *Click the 'Alert Type' field (blue text with underline) for any active alert to open an alert technical support document for an explanation and troubleshooting steps. These documents are also available at any time in the CLEAN Support Portal.*

Taking Action:

- Take note when there is a red notification bubble over the Alerts Page icon on CLEAN web portal or mobile app.
- Set up Alert Notifications to send an email when a maintenance alert becomes active. Click directly from the email notification to CLEAN web portal to learn more and take action.
- Keep up with any active alerts – Do not let them linger, as it may compromise core station function.
- Contact Bigbelly Customer Service (or your local Bigbelly Distribution Partner) for hardware and technical support, after using the self-help documentation available.

Security Management

For high profile public space events, Bigbelly offers a complete security package for your system.

What is on this page?

- The Bigbelly Security System consists of two components: (1) the Security Management Module within CLEAN that enables operations to set up and manage security events and (2) manually installed Security Plates that restrict physical access to stations. When active, CLEAN alerts authorities via email or text if a station is breached. The system saves operational time and costs by eliminating the need to remove stations during special events.
- The **Security Management** page displays an overview of all scheduled, active, or previous security events. This tool allows users to secure individual stations, groups, or full deployments for a selected period of time during a high-security public space event.
- The Security Management Module provides the following functionality via an easy-to-use set up wizard:
    - **Event Creation:** Create and easily add or delete stations from a security event via interactive map
    - **Event Scheduling:** Stations are automatically placed into and removed from Secure Mode based on the specified event start and end time
    - **Security Notifications:** Alerts and Notifications can be sent to any staff or law enforcement personnel
    - **Security Dashboard:** Easily monitor and manage security events directly within CLEAN

How To: Create A Security Event

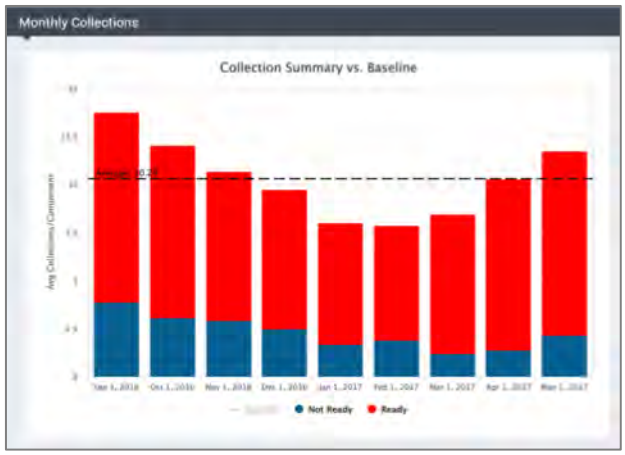
To begin securing stations, create a new event by clicking the 'New Event' button at the top of the page. This will lead you through an easy-to-use set up wizard including the following steps:

1. Enter a name for the event, select users involved and to be notified in case of a system breach, select the timeframe of the event, and add when the prep work will begin for locking down the physical stations.
2. Add stations to be locked down by either: (1) clicking desired pinpoints on the map, (2) selecting a group(s) of stations, or (3) selecting individual station serial numbers. Note: A blue map marker represents a station added to the secured list
3. Selected stations will be added to the security event. It is important to note each stations' status and any alerts before scheduling your event. Finalize and schedule the event by clicking the green 'Create Event' button.
4. Security Event details can be edited on the Security Management page after creation.

Pro Tip: *Bigbelly is here for you! We recommend that you consult with the Bigbelly Team when using the Security Management tool. We will help you properly set up the event to ensure it is activated during scheduled time. Contact us in advance: cedept@bigbelly.com.*

Report: Collection Summary

The Collection Summary Report displays average number of collections per component and the station collection readiness status at the time of collection.



What is on this page?

- The **Collection Summary vs. Baseline bar chart** presents the average collections per component (per day, week, or month depending on timeframe selected) and the ratio of readiness status at time of collection (Ready for Collection = Red, Not Ready for Collection = Blue). Hover over each bar to see the average collections per component per readiness status.
    - The **black dotted line** displays the **average collections per component**, calculated for report timeframe.
    - The chart loads by default with the **Baseline** data displayed as a green line to showcase the comparison of 'Before-Bigbelly' collections vs. Bigbelly collections with a smart waste system.
    - Users can **toggle baseline data On/Off** by clicking the baseline legend below the chart.
      Note: If the account does not have a Baseline, we strongly recommend that you add one. Without a baseline, this chart will load without the comparison (legend will be grayed out).

- The **Efficiency** pie chart (top right) indicates the ratio of total Ready / Not Ready collections (i.e. Optimized vs. Not Optimized) during the report timeframe. Hover over chart areas for total collections per readiness status.
- The **Collection Reasons** pie chart (bottom right) displays the total number of collections during the selected timeframe, and ratio of collections made per reason (Ready - Fullness, Ready - Alert, Ready - Age, Not Ready).
- The **Filter Panel** contains settings to filter collection data by desired timeframe, waste streams, or groups. The bar chart in the report will change between daily/weekly/monthly views based on the timeframe selected. Use the **Print** button (top left) for a print-friendly, or **Export** button for a CSV version of your view based on applied filters.
- It is important to note **timeframe changes** when dates are changed (in dark gray top bar and the bar chart):
    - Report timeframe fewer than 30 days = **Daily Collections** (1 bar per day)
    - Report timeframe between 31 days and 6 months = **Weekly Collections** (1 bar per week)
    - Report timeframe greater than 6 months = **Monthly Collections** (1 bar per month)

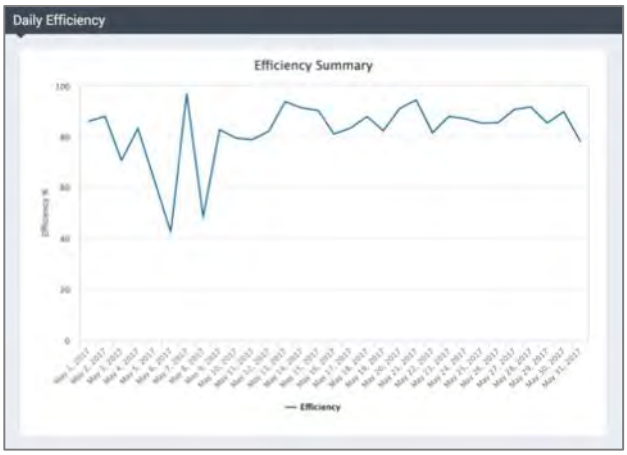
Analyze & Take Action:

- How much have you reduced collections since deploying Bigbelly?
- Can you reduce your average collection per component by collecting when 'Ready to Collect'?
- Does optimized system use differ between groups or waste streams?
- Do you experience seasonal fluctuation for collection activity that you need to plan for?

***Pro Tip:** The more red you see, the more efficient you are, and the more optimally you are using the system!*

Report: Collection Efficiency

The Collection Efficiency Report displays data related to the efficiency metric – a measurement of optimized use.



What is on this page?

- Efficiency is the calculated percentage of collections completed after the station reports that it is ready to be collected. **Two key system features contribute to optimized use**: (1) using the full capacity that the smart stations offer, and (2) using the real-time data & notifications to collect stations when they are ready. Stations that meet either fullness or age (when enabled) threshold are considered ready for collection and contribute to your efficiency metric.
- The **Collection Efficiency line chart** presents the collection efficiency (per day, week, or month depending on timeframe selected). Hover over the line chart to reveal the data (shown as a percentage).
- The **Efficiency** pie chart (top right) indicates the ratio of total Ready / Not Ready collections (i.e. Optimized vs. Not Optimized) during the report timeframe. Hover over chart areas for total collections per readiness status.
- The **Collection Reasons** pie chart (bottom right) displays the total number of collections during the selected timeframe, and ratio of collections made per reason (Ready - Fullness, Ready - Alert, Ready - Age, Not Ready).
- The **Filter Panel** contains settings to filter efficiency data by desired timeframe, waste streams, groups. The bar chart in the report will change between daily/weekly/monthly views based on the timeframe selected. It is important to note the timeframe changes in the dark gray top bar when changing the filters / report dates. Use the **Print** button (top left) for a print-friendly version, or **Export** for a CSV version of your view based on applied filters.

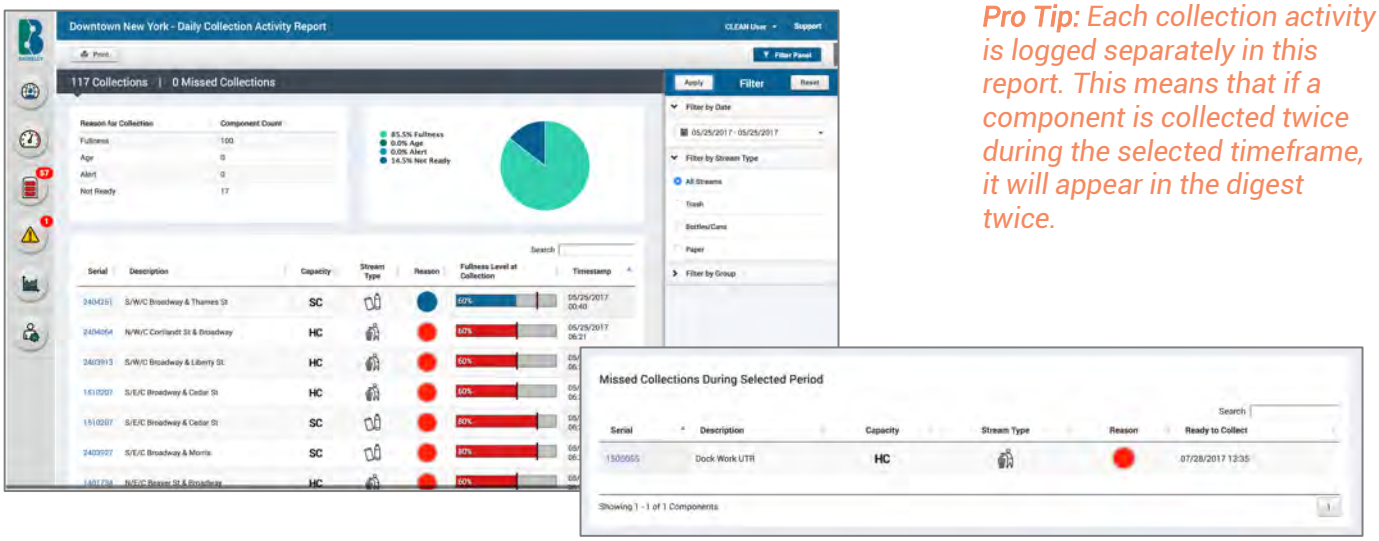
Pro Tip: *The Bigbelly system's operational gains are very much based on successful implementation of Bigbelly-driven collection practices: leveraging extra capacity coupled with cloud connection to know when to collect.*

Analyze & Take Action:

- Has your efficiency score improved over the selected timeframe? A trend of increasing efficiency showcases system adoption and implementation of Bigbelly smart waste system best practices.
- Do trending efficiency scores differ between groups or waste streams? Do any collectors need training?
- How can you raise your account's efficiency score? Collect your fleet only when needed (when stations are ready). Are you using Service Mode during service visits to ensure those are not counted as collections?
- How are current routines comparing to longer-term averages? Keep an eye on your efficiency on the Dashboard!

Report: Daily Collection Activity

The Daily Collection Activity Report details collection information for a selected timeframe - collections made & missed.



Pro Tip: *Each collection activity is logged separately in this report. This means that if a component is collected twice during the selected timeframe, it will appear in the digest twice.*

What is on this page?

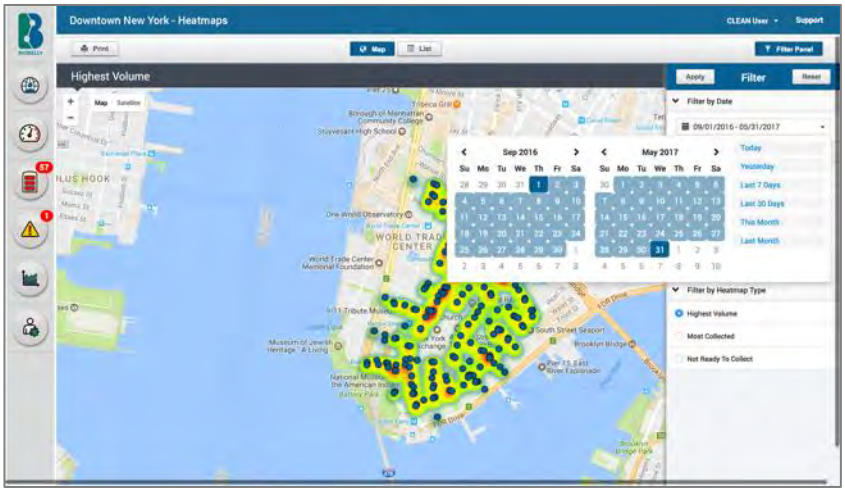
- The **summary bar** in dark gray at the top of the page details the **total number of collections** and total number of missed 'ready to collect' stations during the report timeframe.
- Collection activity **summaries** (top) provide aggregate collection count and display per 'reason for collection.'
- The main section of this page displays a **tabular digest with all collections completed during the timeframe**.
    - Stations (via serial/description) that were collected,
    - Component characteristics: capacity and waste stream,
    - Fullness level at time of collection (compared to fullness threshold),
    - Reason at time of collection (Ready - Fullness, Ready - Alert, Ready - Age, Not Ready),
    - Collection timestamp.
- **Missed collections** (stations that were 'ready for collection' during the timeframe, but not collected) are displayed at the bottom of the page.
- The **Filter Panel** contains settings to filter efficiency data by desired timeframe, waste streams, groups. The bar chart in the report will change between daily/weekly/monthly views based on the timeframe selected. Use the **Print** button (top left) for a print-friendly version, or **Export** for a CSV version of your view based on applied filters.

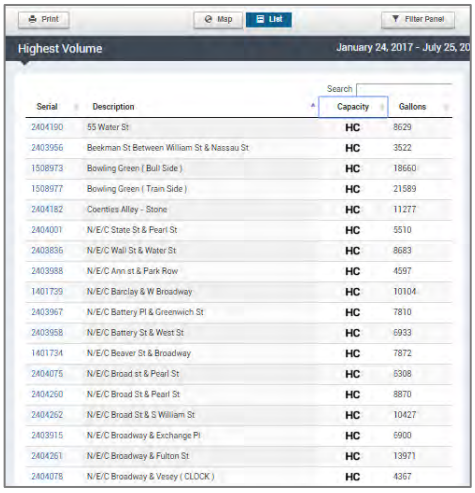
Analyze & Take Action:

- Leverage this as an operational report to track collection operations. Use the data to understand how efficiently collections are being made, and how labor hours are being used.
- Do you spot any unnecessary collections? These are collections noted in blue – Not Ready to collect!
- Compare the fullness at the time of collection vs. the fullness threshold. How far above or below the threshold were stations when collected?
- If a collection was made when fullness level was far higher than the fullness threshold, use the Collection Response Time report to understand how long it's taking your staff to respond.

Report: Heatmaps

The Heatmaps Report details three sets of historical collection information during a specified timeframe.





What is on this page?

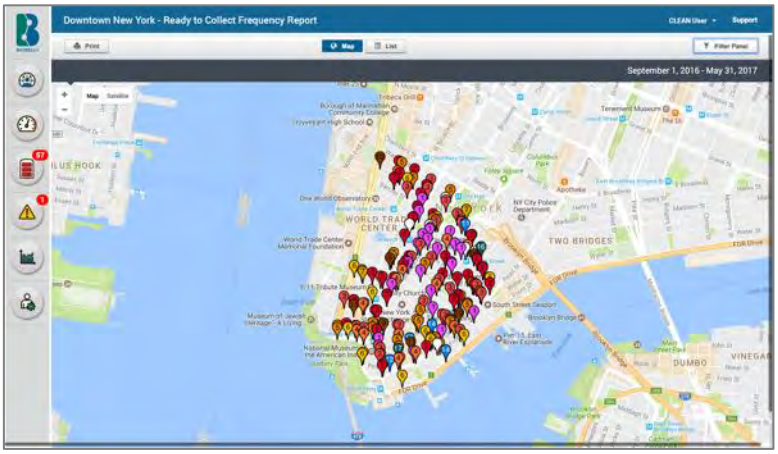
- The **Heatmaps** report is a 3-in-1 report that provides a powerful visualization of historical data gathered from the fleet on the street. It enables you to understand and analyze the data gathered from physical station collections logged in the Bigbelly system. It visualizes three different datasets (select type in Filter Panel):
    1. **Highest Volume**
    2. **Most Collected**
    3. **Most Premature Collections ('Not Ready to Collect').**
- The **'Map'** view (default view) focuses on trends for a holistic analysis. It visualizes the footprint and showcases valuable insights into the fleet's public space waste volumes and collection habits.
    - Locations that are highlighted in red have a higher volume of waste (or collection frequency, or premature collections before ready) relative to other locations in the deployment. Locations highlighted in yellow/green have the lower volume of waste (or collection frequency, or premature collections).
    - Use the zoom functionality to focus in on an area for more detail, or zoom out to see the bigger picture.
    - The heatmapping resets based on the geographic area shown in the zoom frame.
- The **'List'** view displays a table of the data set from which the map is rendered. Based on the type of heatmap selected, the table details each station location, capacity, total volume collected / total # of collections.
- The **Filter Panel** contains settings to filter heatmap volume or collection data by desired timeframe, waste streams, groups. Use the **Print** button (top left) for a print-friendly version, or **Export** for a CSV version of your view based on applied filters.

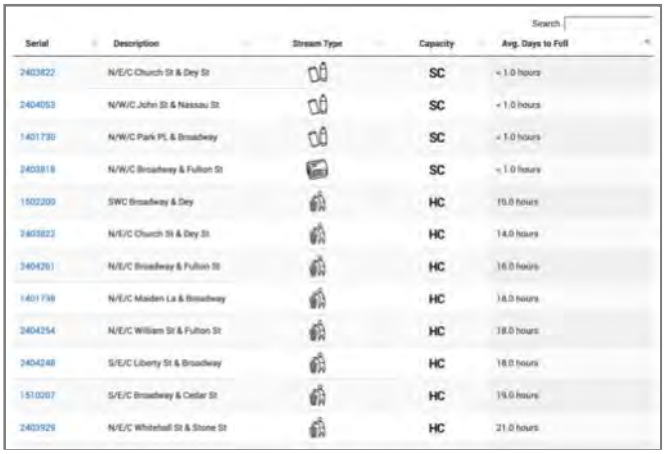
Analyze & Take Action:

- How do your volumes/collection frequency compare with capacity deployed at a given location?
    - Higher volume locations might need additional compactors to balance the volume of waste.
    - Lower volume locations might be candidates to redeploy standard capacity components.
- Do the high and low traffic areas of your fleet match your expectations?
- In which areas can collection routine can be further optimized? These are highlighted by premature collections (red areas on map / highest number of collections in list when 'Not Ready to Collect' heatmap type selected).
- Analyze peaks in collections and capacity needs that may shift with seasonal trends.

Report: Ready to Collect Frequency

The Ready to Collect Frequency Report details the average time it has taken for a component to be ready for collection.





What is on this page?

- The **Ready to Collect Frequency** report indicates the fill rate (average number of days until full). The report captures the fill rate / frequency to reach collection readiness for every component in a fleet.
- The default **Map** view pinpoints all station locations with a map marker. The number within the marker indicates the **number of days it takes for the station to reach its 'Ready to Collect' threshold**. For stations with multiple components, the number in the map marker represents an average fill rate of all components within that station.
- The '**List**' view displays a table of the data set from which the map is rendered. This details each station location, stream type, capacity, and the key metric: **Average Days to Fill.**
- The **Filter Panel** contains settings to filter frequency to reach collection readiness data by desired timeframe, waste streams, and groups. Filter by **Fullness Frequency** (days) to refine report for desired use. Use the **Print** button (top left) for a print-friendly version, or **Export** for a CSV version of your view based on applied filters.

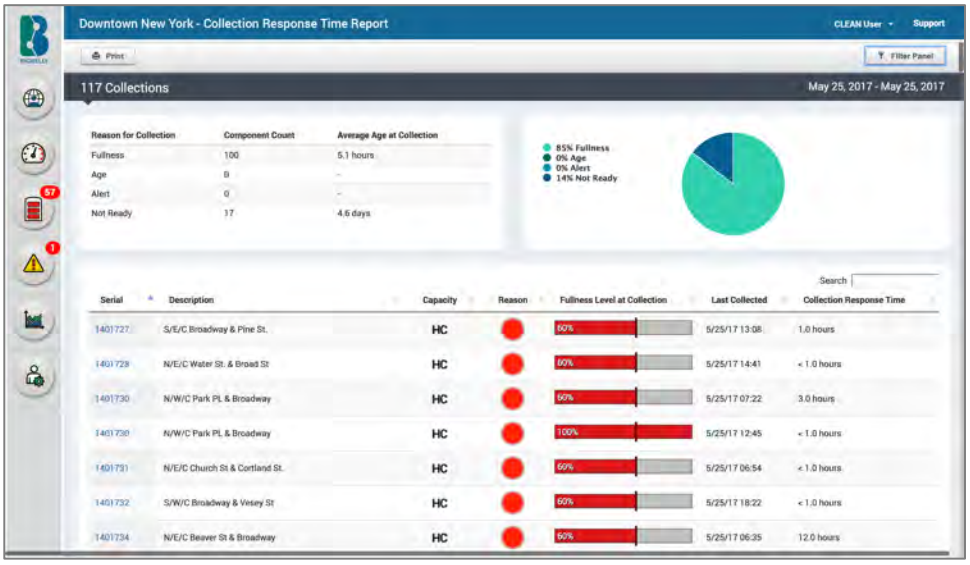
Analyze & Take Action:

- How can you use this data to assist with route planning and optimization? The average fill rates can assist in predicting which stations will require collection on a typical off-day (weekend, for example) and can be picked up in advance to prevent any overflow risk.
- Use this report in tandem with the Heatmaps Report to optimize collection activity and allocate resources.
- Do you have the correct capacity in each location? For example, is a Standard Capacity (SC) station filling up every day and thus collected every day? Perhaps this is a candidate to be replaced with a High Capacity (HC) station which would only need to be collected every three or four days!

Pro Tip: *The frequency to fill data is only as good as your optimized system use. The data will be most accurate when stations are collected when they have reached the threshold for 'ready to collect.' The average fill rate data does not reflect collections made before a station is 'ready to collect'!*

Report: Collection Response Time

The Collection Response Time Report provides collection information regarding elapsed time a station or component remained at a specific fullness event (Fullness threshold, Age based) before being collected.



What is on this page?

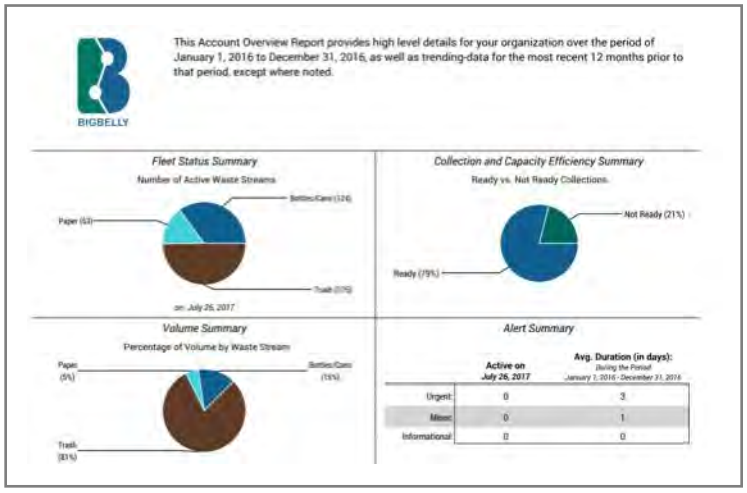
- The **summary bar** in dark gray at the top of the page details the **total number of collections made** during the selected report timeframe.
- Collection activity **summaries** (top) provide aggregate collection count and average age at time of collection for each 'reason for collection' (Ready - Fullness, Ready - Alert, Ready - Age, Not Ready) in the table and pie chart.
- The main section of this page displays a **tabular digest with all collections completed during the timeframe**.
    - Stations (via serial/description) that were collected,
    - Component characteristics: capacity,
    - Reason at time of collection (Ready - Fullness, Ready - Alert, Ready - Age, Not Ready),
    - Fullness level at time of collection (compared to fullness threshold),
    - 'Last Collection' timestamp,
    - Collection Response Time (elapsed time at a specific fullness event before being collected).
- The **Filter Panel** contains settings to filter efficiency data by desired timeframe, collection reason, waste streams, and groups. Use the **Print** button (top left) for a print-friendly version of your view based on applied filters.

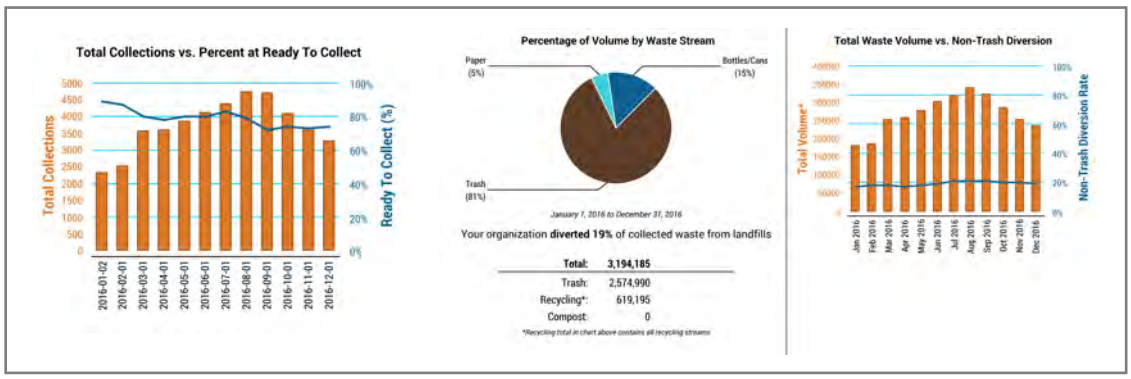
Analyze & Take Action:

- How quickly after stations reach 'ready to collect' are they being collected? Analyze the averages for the timeframe in the activity summaries, then dig in further by filtering the data table as necessary.
- Sort the data table by 'Collection Response Time' (click that phrase to sort). Pinpoint collections that have higher-than average ages (compared to average in summary at top). These may result in heavier bag weights or higher likelihood for overflow. Filter further by group to determine if any trends exist among collection groups.
- Lengthy collection response time? Create or adjust notifications to immediately or regularly send/receive an email or SMS when stations are ready for collection. CLEAN's tools can help!

Report: Account Overview

The Account Overview Report is a downloadable PDF report detailing an at-a-glance account snapshot featuring historical and aggregate data points for a specified time period as well as trending data for selected timeframes.





What is on this page?

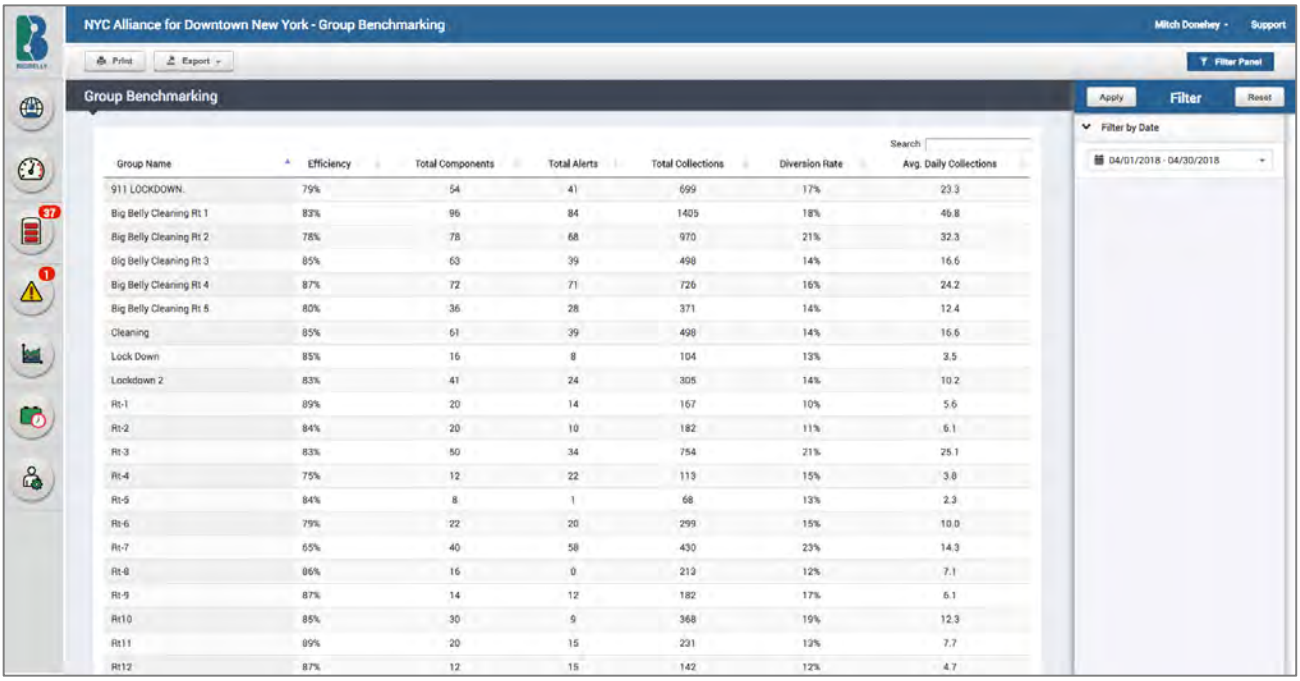
- The **Account Overview** Report offers a snapshot of your Bigbelly operations for a selected timeframe. This PDF report makes it easy to share with relevant stakeholders to show activity, progress and results. Select your desired timeframe: Last 30 Days, Last Month, Last 90 Days, Last 3 Months, Year to Date, Last Year.
- This multi-page PDF report includes a fleet status summary (waste streams and active devices), volume and recycling diversion details, collection and optimized use/efficiency summaries, and system alert summaries

Analyze & Take Action:

- Set a reminder to download the Account Overview Report every month, or every quarter! This overview allows you to monitor the progress of your account over time, at-a-glance. Use it to determine where you want to dig deeper into other reports to analyze collection, volume, or efficiency trends across groups.
- Print and share this with other stakeholders that may not be involved in the day-to-day operations of your Bigbelly system for an at-a-glance view of the impact of using a smart waste solution!

Report: Group Benchmarking

The Group Benchmarking Report is a downloadable PDF & CSV report detailing a snapshot of each group in an account, showing their Efficiency, Total Components, Total Alerts, Total Collections, Diversion Rate, & Avg. Daily Collections.



What is on this page?

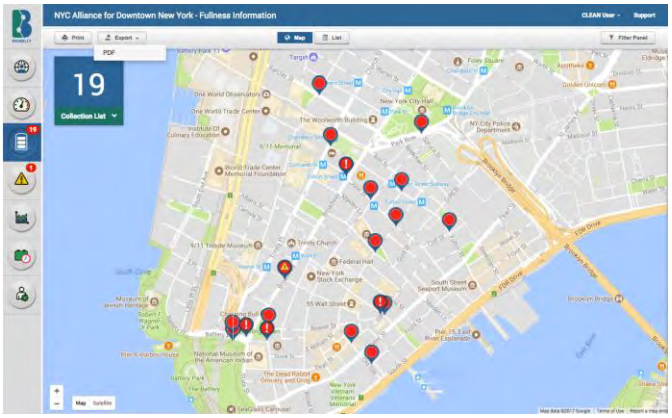
- The **Group Benchmarking** Report offers a snapshot of each one of your groups' Bigbelly operational performances for any selected timeframe. This is the quickest and easiest way to show operational metrics and compare each group.
- View the Collection Efficiency of each group during your selected time period. The Collection Efficiency is the calculation of the percentage of collections users make on 'Ready to Collect' status.
- This report shows the total number of Components in each group. This includes all components (HC, SCC, SCH).
- The total number of Alerts that have been opened during the time period you have selected. This doesn't mean the Alerts are still open. You can check which Alerts are still open by going to the Alerts page and filtering the data by group.
- The Total Collections shows how many times all the stations in each group have been collected.
- The Recycling Diversion Rate is also viewable on this page. The Diversion Rate is the percentage of waste material diverted from the landfill and trash processing facilities
- The Average Daily Collections in this report is different from what is shown in the Collection Summary report. This shows how many total collections on average are made each day. Not the average number of collections that occur per component per day.

Analyze & Take Action:

- Use this Report to manage each one of your groups, and analyze their performances for comparisons, trends, etc.

Export Feature

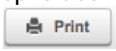
Use the feature to export table data through CSV, maps and reports to PDF, and charts to JPG images.

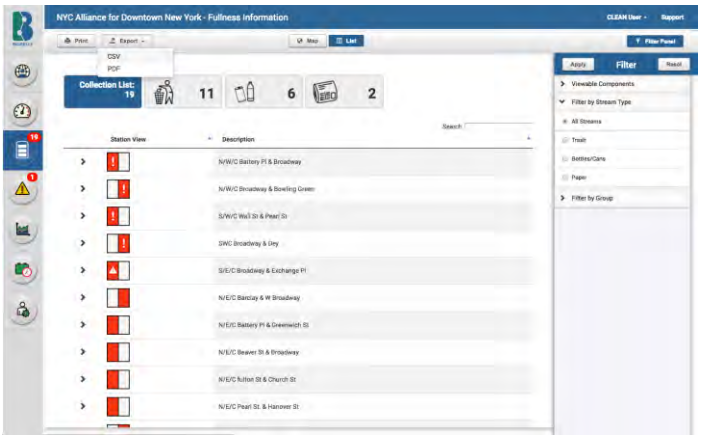


PDF export is available on the following pages:

- Fullness Page
- Asset Page
- Daily Collection Activity Report
- Heatmap Report
- Collection Response Time Report
- Group Benchmarking Report

The Collection Summary Report, Ready to Collect Frequency Report, and the Alerts Page can be downloaded as PDFs by pressing "Print" in the top left corner of the page.





CSV export is available on the following pages:

- Fullness Page (List View)
- Asset Page (List View)
- Daily Collection Activity Report
- Heatmap Report (List View)
- Ready to Collect Frequency Report (List View)
- Collection Response Time Report
- Group Benchmarking Report

JPG export is available on the following pages:

- Collection Summary Report
- Collection Efficiency Report

*Export each chart individually.

Tips for Bigbelly Distributor Users

This section will help explain areas of the CLEAN software that can be changed to help manage their team as well as their customers' deployments.

How To: Create a New CLEAN Account

1) Start in your Global Overview page
2) Click the Administration icon
3) Click the Manage Accounts icon
4) At the top of the page will be a "Create Account" button.
5) A Pop up window will appear where you must fill in the new account details
    a. Type an Account Name
    b. Uncheck the "Connect Customer" box
    c. Leave priority as "Unknown"
    d. Fill in all customer Address fields
    e. Choose the customer's Time zone
    f. Change Volume units to "Liters"
    g. You do not need to edit the Collection Time Threshold at "6 Hours"
    h. You do not need to edit the GPS Alert setting
    i. Fill in all Primary Contact information fields
    j. You do not need to edit the Default Station Configuration settings.
6) Click Save

How To: Change Account Volume Measurement Preference (Gallons vs. Liters)

1. Start in the Global Accounts Page
2. Navigate to the Manage Accounts Page (access for Account Administrators and Distributors only)
3. Click the pencil icon next to the Account that you would like to edit (Pop-up window will appear)
4. Click the dropdown next to 'Volume Units' and select either Gallons or Liters
5. Click 'Save'

How To: Move Stations to Another CLEAN Account

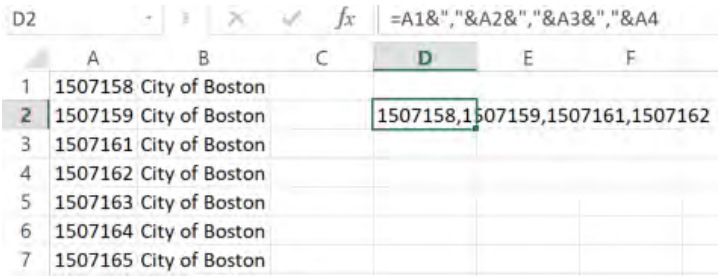
1) Find the Station serial number you would like to edit
2) Click the Station serial number link (A new internet tab will open)
1) Click the Edit station button (pencil and paper icon) on the right side of the page. (A Pop up window will appear)
3) Look for the Account line at the top left side of the new window
4) Select the new account from the drop down box (You will only be able to select an account that is assigned to your User Role)
5) Click Save

How To: Assign Multiple CLEAN Accounts to a User role

1) Start in the Global Overview page
2) Click the Administration icon
3) Click the Manage Users icon
4) Find the User you want to edit and click the Edit User button (pencil and paper icon)
5) Click the Assign Account Button
6) From the "Account" Drop down list, select the CLEAN Account you would like to add to the User's visibility.
7) Keep the User's Role as a Distributor
8) Click "Save."
9) Click "Save" one more time

How To: Search Multiple Station Serial Numbers from Different CLEAN Accounts

1) Start in your Global Overview page
2) Click the Administration icon
3) Click the Assets Icon (All In Service stations from your assigned CLEAN accounts will appear)
4) Use the search function on the right side of the page to find the serial numbers (Separate the serials with commas, no spaces)
5) If you need to organize many serial numbers from an excel file, you can use the following formula: =Cell1**&","&**Cell2**&","&...**



Mobile App

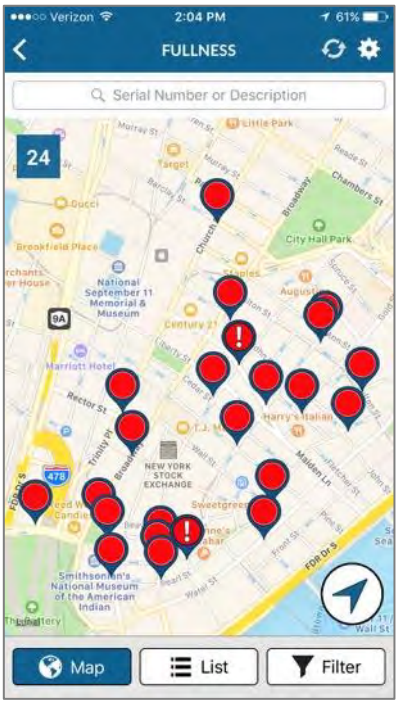
The CLEAN Mobile App (available for Android and iOS devices) puts the most actionable items and real-time fleet data at your fingertips and directly on your smartphone.

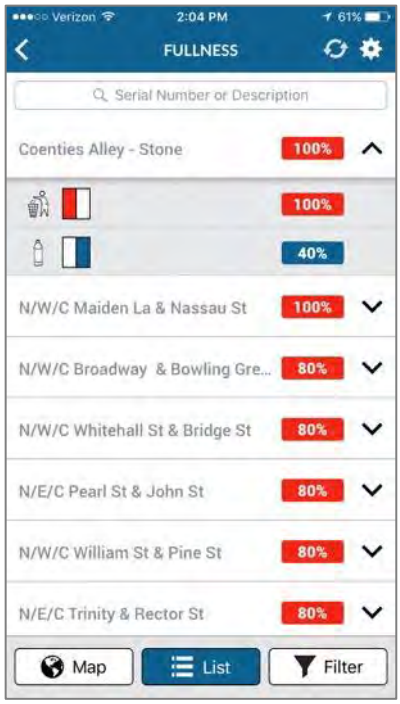
Collection List

- The **Collection List tool** offers both a Map and List view which display stations in your fleet that need to be collected as well as abbreviated station details. Click a map marker in the Map view to see component-level 'as-seen-on-street' view. Click the location description in List view for the same info.

  See the Collection List section for more information on when to collect.

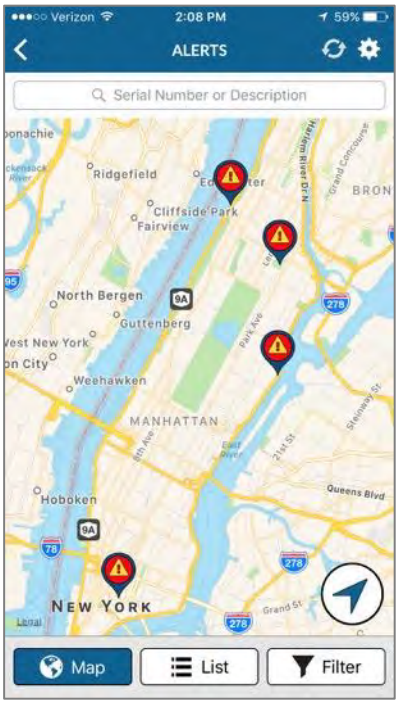
- Click the **GPS navigator button** when you are on-the-go to re-center the map right around you, and easily locate stations that need collection in your proximity.
- Click on a station then click the **directions button** to open the Maps app and get directions to the station.
- Apply the **Filter** to sort the Collection List by waste stream, group, and collection readiness reason.

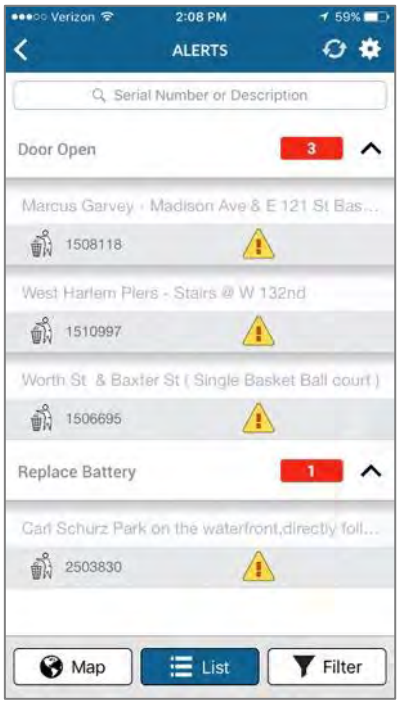




Alerts

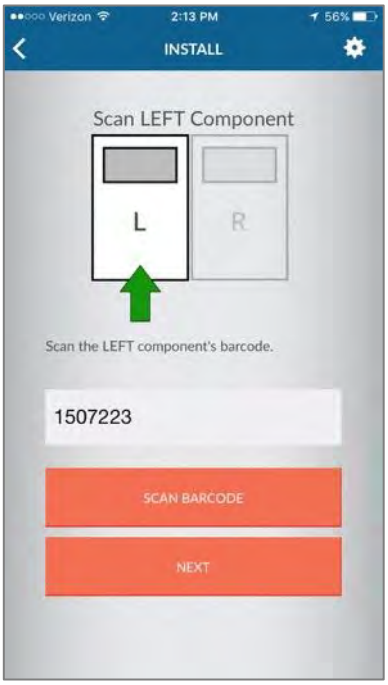
- The **Alerts tool** offers both a Map and List view to determine which stations in your fleet are under active alert and need to be serviced. Click on the map marker in Map view, or location description in List view to show additional alert types and details.
- Click the **GPS navigator button** when you are on-the-go to re-center the map right around you, and easily locate stations that need service in proximity.
- Apply the **Filter** to sort by alert type (urgent, minor, informational), waste stream, or group.





Install Tool

Use the CLEAN Mobile App's Install Tool to quickly get your new stations set up in CLEAN.

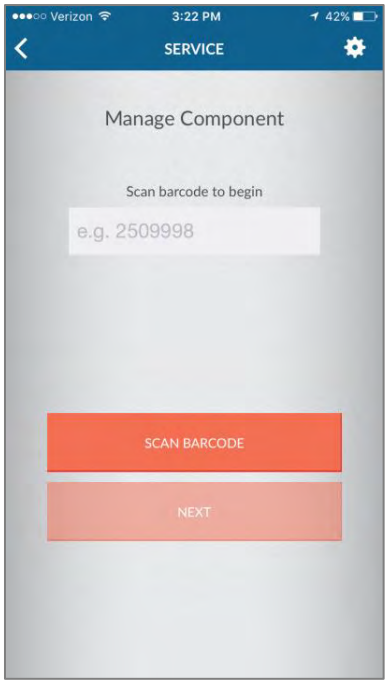


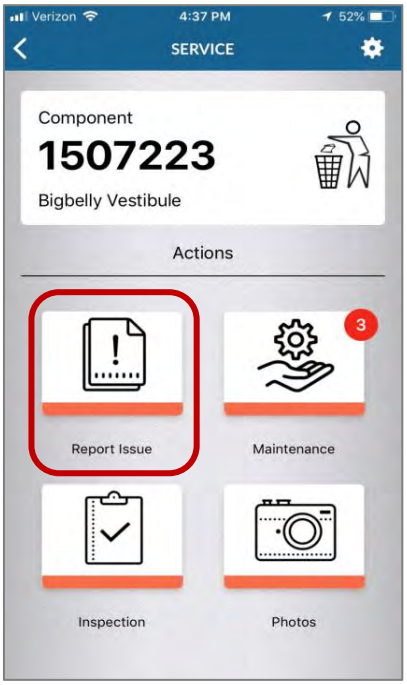
Taking Action: Using the Mobile App's Install Tool

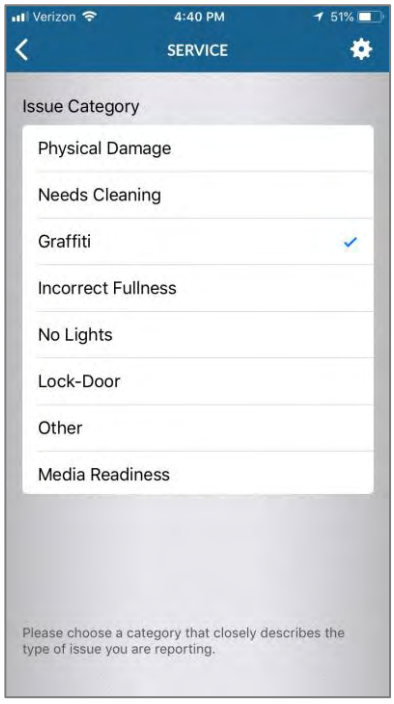
1. Log into the CLEAN Mobile App
2. Click on the Install Tool icon
3. Select the station configuration (number of components)
4. Either scan the barcode on the component (allow access to phone's camera), or type the station serial number
5. Select the waste stream of the component
6. Select the GPS location
7. Enter a location description and add a photo if necessary
8. Select a group for the station
9. Repeat as necessary for the number of components at the station location

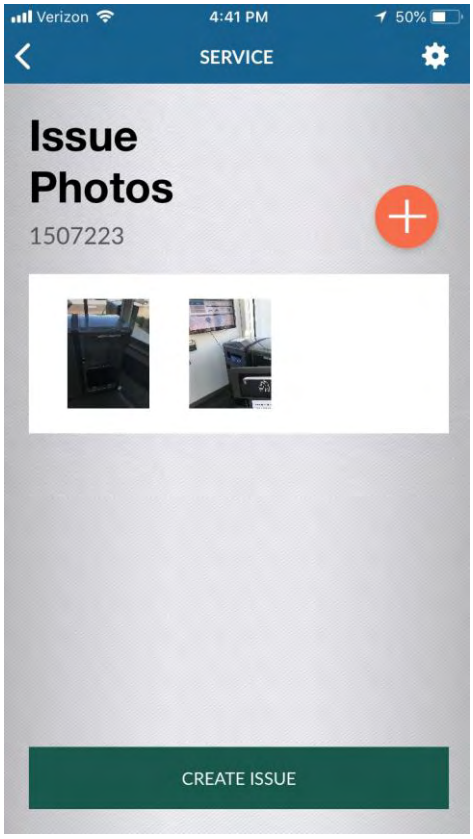
Service Tool – Report Issue

Take a picture or add a note to a component while servicing a station, and have them immediately uploaded to CLEAN.







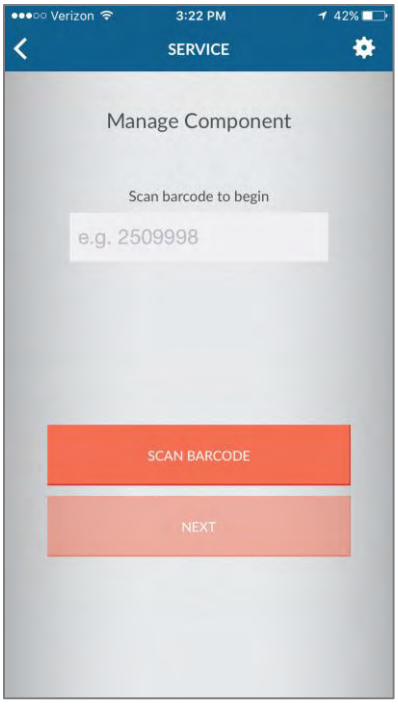


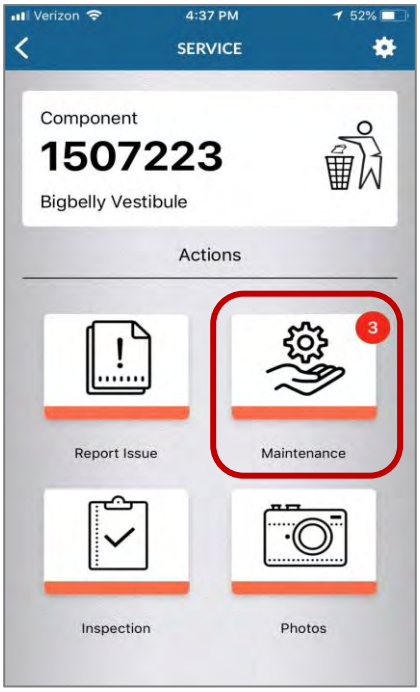
Taking Action:
Using the Mobile App's Report Issue Tool

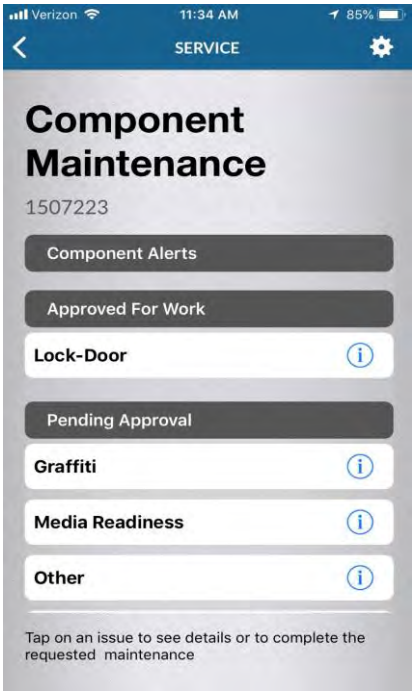
1. Log into the Mobile app
2. Click on the Service Tool Icon 
3. Type in the Station's Serial Number or scan the barcode on the station
4. Choose the Report Issue option
5. Add Notes to your station
6. Click on the Issue Category below the notes
7. Select the type of issue that is happening on the station (Note: this list of issues scrolls down)
8. Add a photo of the station. You may enter more photos by clicking the + button in the top left of the screen.
9. When finished click the green "Create Issue" button at the bottom
10. Log into CLEAN, click on the serial number in your Assets page, and go to the "Service" tab to view the note and photo

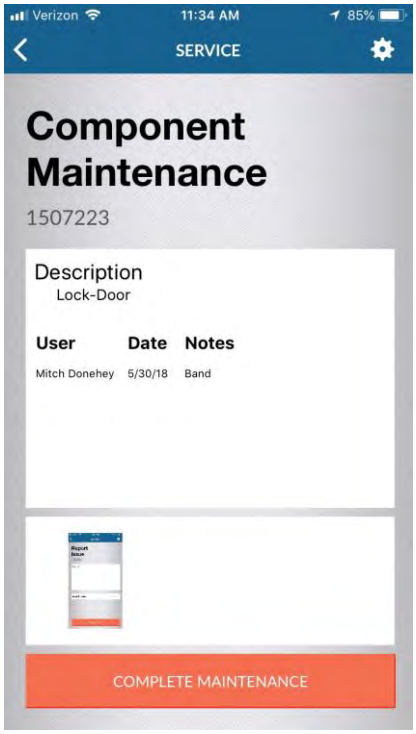
Service Tool – Maintenance

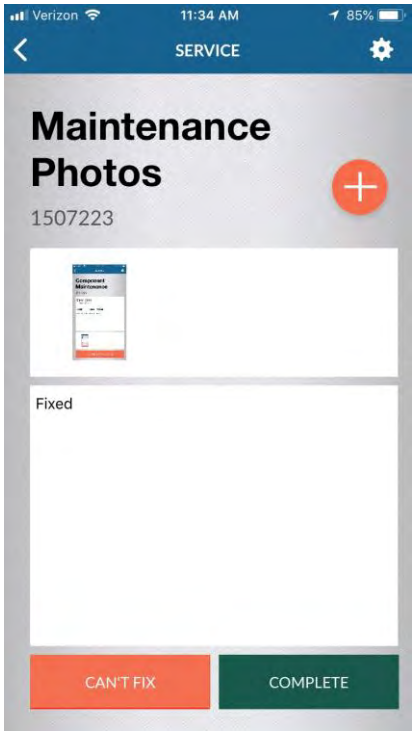
Take a picture or add a note to a component while servicing a station, find the Alerts a station has, which Alerts are approved for work, and what is pending approval.









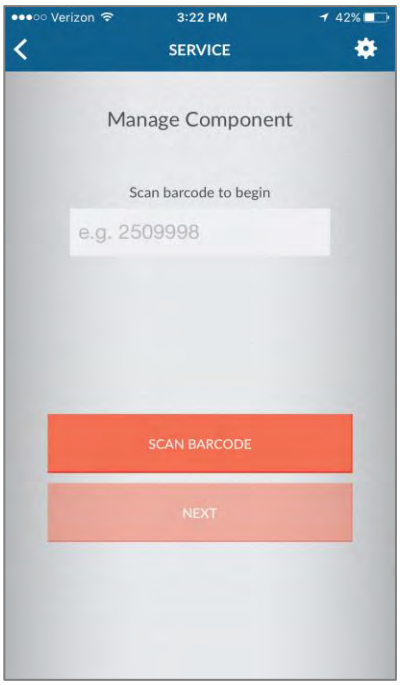


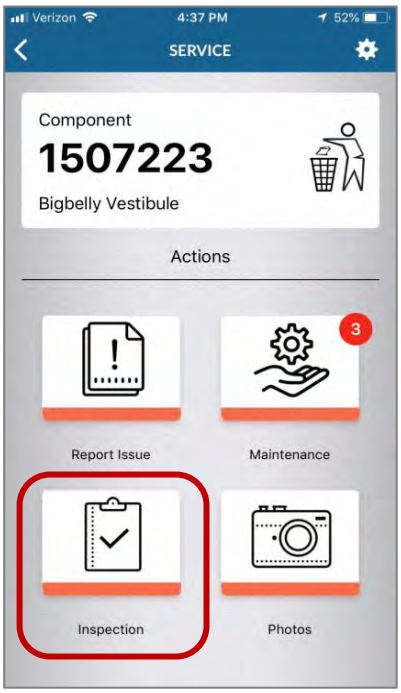
Taking Action: Using the Mobile App's Maintenance Tool

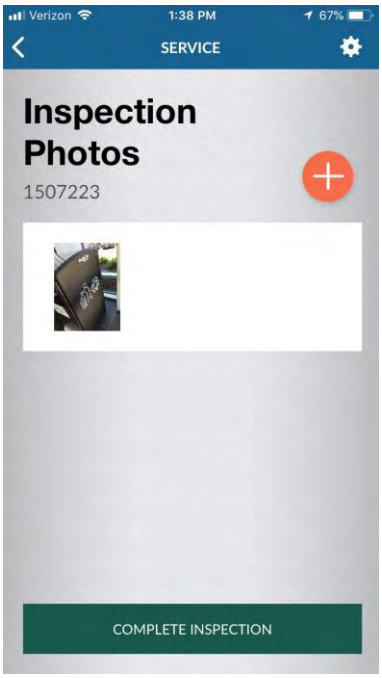
1. Login to the Mobile App
2. Click on the Service Tool Icon
3. Type in the Station's Serial Number or scan the barcode on the station
4. Choose the Maintenance option
5. Select the work that has been approved for service
6. Press the complete maintenance button at the bottom
7. It will ask you to add a photo, choose an existing photo in your camera roll, or take one. You may enter more photos by clicking the + button in the top right of the screen.
8. Add in your notes
9. Click Complete or Can't Fix at the bottom
10. Log into CLEAN, click on the serial number in your Assets page, and go to the "Service" tab to view the note and photo

Service Tool – Inspection

Take a picture or add a note to a component while inspecting a station, and have them immediately uploaded to CLEAN.





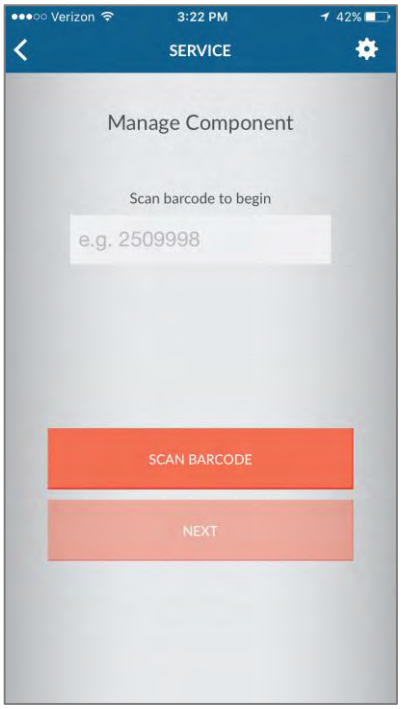


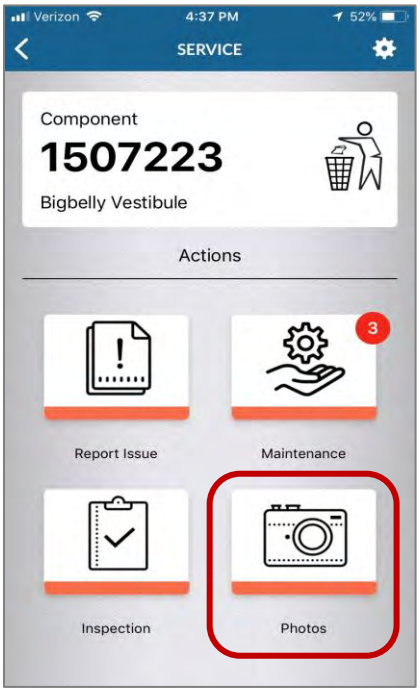
Taking Action: Using the Mobile App's Inspection Tool

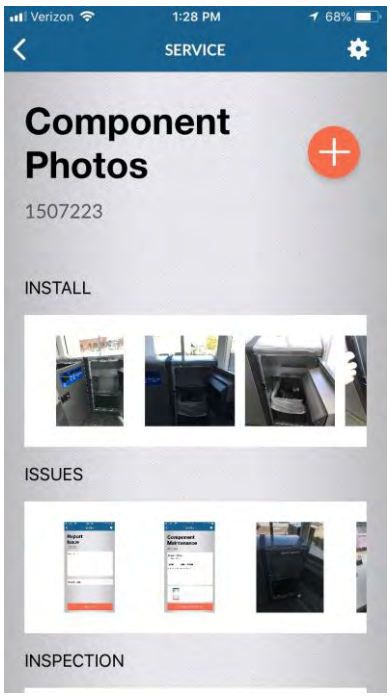
1. Login to the Mobile App
2. Click on the Service Tool Icon
3. Type in the Station's Serial Number or scan the barcode on the station
4. Choose the Inspection option
5. Add your notes
6. Click Add Photo. Choose an existing photo in your camera roll, or take one. You may enter more photos by clicking the + button in the top right of the screen.
7. Click the Complete Inspection at the bottom
   Log into CLEAN, click on the serial number in your Assets page, and go to the "Service" tab to view the note and photo

Service Tool – Photos

Take a picture or look at the older photos posted at a station, and have them immediately uploaded to CLEAN.







Taking Action: Using the Mobile App's Photo Tool

1. Login to the Mobile App
2. Click on the Service Tool Icon
3. Type in the Station's Serial Number or scan the barcode on the station
4. Choose the Photos option
5. Review the Photos that have been uploaded, scroll to see all (Install, Issues, Inspection, Photos)
6. Add more photos and notes by clicking the + button in the top right of the screen.
7. Click Add Photo. Choose an existing photo in your camera roll, or take one.
8. Log into CLEAN, click on the serial number in your Assets page, and go to the "Service" tab to view the note and photo

CLEAN API

The CLEAN API allows for specific data to be pulled from CLEAN by third party applications. Each API user is allowed 3,000 requests per day and after 3,000 requests all future requests are blocked until the next day.

Use the CLEAN API to create powerful integrations and display Bigbelly smart waste data in third-party systems for your smart city, campus, or facility.

The cloud-based CLEAN platform is the central data system of the Bigbelly smart waste system. Stations communicate with CLEAN to determine fullness, collection readiness, functional status, and more. System data can be viewed in in the web portal, mobile app, auto-generated notifications, and can now be programmed into third-party applications using the API. The smart waste data set can be integrated into outside systems for a holistic view of your smart operations.

The API extends the Bigbelly system functionality and provides a data feed for customers looking to develop data-backed, centralized platforms. The REST-based API gives you read access to your smart waste data to display the data in other systems.

Bigbelly's API enables flexible querying of data stored in the CLEAN software platform to the display of smart waste data in third-party programmed applications. Developers can write integrations using the CLEAN API to transmit selected data updates as they occur at the stations and in CLEAN. The API allows customers to transmit CLEAN data to other platforms and create a functional integration quickly and easily. **Customers can query data including...**

- Account Assets - Station Location, Description, Profile
- Status - Station Fullness Status & Collection Readiness
- Collection List - Station Ready to Collect
- Collection Summary for specified timeframe
- Alerts on the Account and Component levels
- Collection Frequency, Fill Rate, and Volume Metrics
- Collection Efficiency Metrics
- Filtered by groups, current and historical timeframes

The API is available to all Bigbelly customers as part of their CLEAN License. CLEAN API is available to account owners upon request; please contact cedept@bigbelly.com to request an API user type and authorized key. Programming by development or IT group is required to integrate CLEAN data via the API into customers' third-party applications. We have updated documentation and a sample website that can be used to help customers integrate the new API into their system.

Additional Resources:

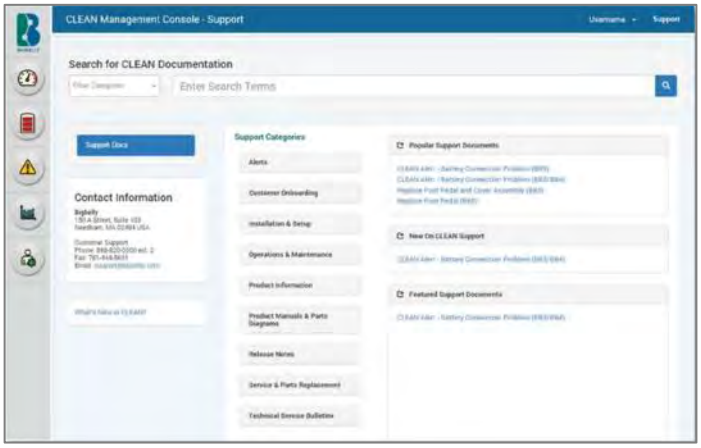
Learn more about the API use cases and integrations: https://info.bigbelly.com/clean-api

Learn more about the technical API capabilities: https://clean.bigbelly.com/support.jsp?docId=485

Bigbelly Support Portal

The Support Portal: a single destination for all product support needs.

What is on this page?



- The Support Portal provides easy-to-use access to the full breadth and depth of the Bigbelly System support knowledgebase.
- Find content via three methods: filter by category, search by keyword, and browse by topic.
- The Support Portal uses dynamic page content and refined document viewing to provide relevant documentation whether users prefer to enter a search query then refine by category, or browse by these topics:
    - Alerts
    - Best Practices & FAQ
    - Customer Onboarding
    - Installation & Setup
    - Operation & Maintenance
    - Product Information
    - Product Manuals & Parts Diagrams
    - Release notes
    - Service & Parts Replacement
    - Technical Service Bulletins
- Popular, New, and Featured documents are also called out for a quick reference to noteworthy Bigbelly System support documentation.
- Users can also find the Bigbelly Customer Support Team contact information on the Support Page in the event they require the help of a knowledgeable product expert in troubleshooting to resolve any questions or issues.

Pro Tip: *Use the search function and familiar key words if you are not sure what you are looking to locate.*

Additional Support from Bigbelly

CLEAN Software Questions / Training and Onboarding
Email: CEdept@bigbelly.com

Parts Quotes / Orders
Phone: 888-820-0300 ext. 2 Fax: 781-444-5651 Email: parts@bigbelly.com

Technical Support
Hours: M-F, 7AM – 6PM EST
Phone: 888-820-0300 ext. 3 Fax: 781-444-5651 Email: support@bigbelly.com

CLEAN Management Console & Bigbelly System Glossary

- **Account Administrator**: Individual CLEAN user role with access to all pages in CLEAN; Ability to add/edit users, reset passwords, set up stations; All other administration capabilities related to editing the CLEAN account
- **User**: Individual CLEAN user role with access to Fullness Information page
- **Service**: Individual CLEAN user role with access to Fullness Information, Alerts, and Account Assets pages
- **Dispatcher**: Individual CLEAN user role with access to Dashboard, Fullness Information & Reports Pages (except Daily Activity & Account Overview)

- **Administration Group:** Standard group option: Used for organizing a deployment by location, operations, etc.
- **Collection Group:** Provides the ability to add baseline data which is incorporated into the "collection summary report"
- **Baseline:** Shows average weekly collection with the Bigbelly system in comparison to before Bigbelly collections

- **Green Fullness Level:** Indicator that station does not need to be collected yet
- **Red Fullness Level:** Standard level for Bigbelly stations where waste should be immediately collected
- **Real-time status:** Live data reported directly from stations and displayed in CLEAN

- **Collection Efficiency:** The calculation of the percentage of collections users make on 'Ready to Collect' status
- **Fullness Threshold:** The maximum percentage of waste you would like a station to hold before collection
- **Age Threshold:** The maximum age since last collection you would like a station to wait before collection

- **Age:** How long an alert or warning has been active, as well as how long the station has been at a collection readiness status
- **Route Time:** How long it takes for waste collectors to collect all waste from their deployments
- **Travel Time:** How long it takes for waste collectors to travel between each collection
- **Diversion Rate:** The percentage of waste material diverted from landfill and trash processing facilities

- **Fleet/Deployment:** All the Bigbelly stations installed for an account
- **Trash:** Any form of discarded matter that is not recyclable
- **Hopper:** Top compartment of a Bigbelly that is opened to dispose trash
- **Generations:** The evolution of Bigbelly stations (Currently 3, 4, and 5)

- **Troubleshooting:** A way to solve a serious matter or problem, specifically within a company
- **Urgent Alerts:** Serious issues requiring immediate attention
- **Minor Alerts:** An alert triggered by the Bigbelly that is a less serious maintenance issue that must be addressed
- **Informational Alerts:** An alert triggered by the Bigbelly that is less serious, yet something to be aware of

Bigbelly Smart Max

Built on Bigbelly's fundamentally better bin, the Smart Max is a 150-gallon (570 L) capacity, compacting bin that is CLEAN™ connected - ideal for geogrpaphically spread-out deployments, or where collections reduction is important. The Smart Max can be deployed standalone or in combination with any other Bigbelly bin type to form a multi-stream kiosk.

With its fully-enclosed Hopper disposal interface, the Smart Max is uniquely equipped to keep waste contained and out of sight, even from trash pickers. The integrated compactor provides 5-10x greater capacity compared to traditional waste bins and is designed for high-waste volume locations.

The Smart Max is equipped with sensors that monitor and report fullness level, collection activity, bin status, and GPS location. All information is communicated to Bigbelly's CLEAN™ Management Console and CLEAN™ Mobile, enabling streamlined and measurable waste management operations. The built-in LEDs on the front of the bin also indicate fullness status. The bin can be solar-powered for outdoor use or AC-powered for indoor use.

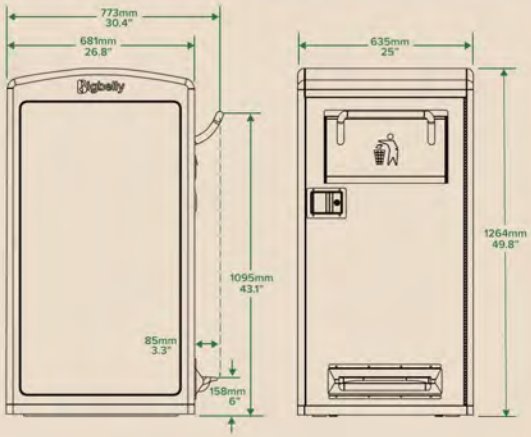
Waste Interfaces and Streams

Hopper, Chute, or Open Disposal Interface
Waste, Single-Stream Recycling, or Compost

Hopper Disposal Interface with Foot Pedal

Chute Disposal Interface with Foot Pedal

Technical Specifications



Overall Machine Dimensions

- Height: 49.8" (1264 mm)
- Width: 25" (635 mm)
- Depth: 26.8" (681 mm)
- Handle Height (ADA Compliant): 43.1" (1095 mm)
- Weight: 270 lbs (122 kg)
- Shipping weight: 300 lbs (136.08 kg)
- Bin Volume (Hopper or Chute): 32 gal (120 L) compacted trash; approx. 150 gal (568 L) uncompacted trash.
- Bin Dimension: 24" x 20.4" x 21.65" (609 mm x 518 mm x 549 mm)

Disposal Interface Dimensions

- Hopper Opening: 16.5"W x 5"H x 8"D (419 mm x 127 mm x 203 mm)
- Chute Opening: 16"W x 5.5"H x 15"D (406 mm x 140 mm x 381 mm)

Bigbelly

Bigbelly Smart Max

- FULLY ENCLOSED
- CLEAN™ CONNECTED
- FULLNESS INDICATOR
- COMPACTOR

Technical Specifications - Continued

Bigbelly Smart Max Features

- Bigbelly's fully-enclosed Hopper disposal interface, standard on Smart Max bins, eliminates visible waste, rat and pest access, windblown litter, and prevents strewn litter caused by trash picking. The Hopper incorporates a 70° dump angle which reduces waste disposal jams.
- Fully-automated and microprocessor-controlled, the Smart Max communicates its information and status to Bigbelly's CLEAN™ Management Console and CLEAN™ Mobile via a built-in telecom data link.
- Embedded sensors detect fullness level, overflows, Hopper activity, and front door openings. The bin's location is established and monitored by onboard GPS.
- LED indicators on the front of the Smart Max display readiness to collect status (fullness level or age of waste), machine status, and error codes.
- Unique built-in compaction technology delivers 5-10x compaction ratio due to superior compaction penetration (ram travels to 9" from bottom of bin).
- The integrated Foot Pedal provides hands-free use.

Safety Features

- CE marked
- Hopper disposal interface provides a physical barrier between the user and the compacting mechanism
- Soft-open Hopper response with use of Foot Pedal
- Interlocked access doors protect users and service personnel
- Collection door automatically locks when closed
- No pinch points, sharp edges or corners

Durability

- Weather-resistant, UV-stabilized polyester powder-coat finish on all exterior parts
- Electronic components temperature range of -40°F to +185°F (-40°C to +85°C)
- Fully weatherized; in the event of a flood, the bin can withstand:
  - Up to 20" (508 mm) of water without harming the electronics
  - Up to 36" (915 mm) of water with only minor damage to electronics

Materials

- RoHS compliant
- Galvanized sheet metal steel interior and exterior construction
- Heavy-duty, recycled plastic side panels for dent and scratch resistance
- Leak-proof interior bin made of low-density polyethylene (LDPE) plastic

Power and Electronics

- Average operation uses less than 3 Wh energy per day, ensuring performance in any location, including in shade and under cloud cover
- Patented Skip-a-Cycle™ energy management technology protects against battery damage
- 28 Ah sealed lead acid, maintenance-free, extended life battery with insulation for optimized performance (average lifespan 5-8 years)
- Solar panel (up to 40 W)
- Solar panel protected by polycarbonate bubble
- Self-powered unit requires no wiring

Options and Accessories

- Chute disposal interface
- Custom Graphic Wraps, Message Panels, and Stickers
- Wheeled Interior Lift Bin (bar and comb styles)
- AC Adapter for indoor use
- Bigbelly ACS (Access Control System) for keyless access control
- Ashtray and Stub-out Plates
- Remote Lock for Chute disposal interface
- Security Management System with Physical Plates
- Odor Mask

Summary of the Products

provided by

Emz-Environmental Technology And PEL Waste Reduction Equipment

Table of Contents

A. emz-environmental technology

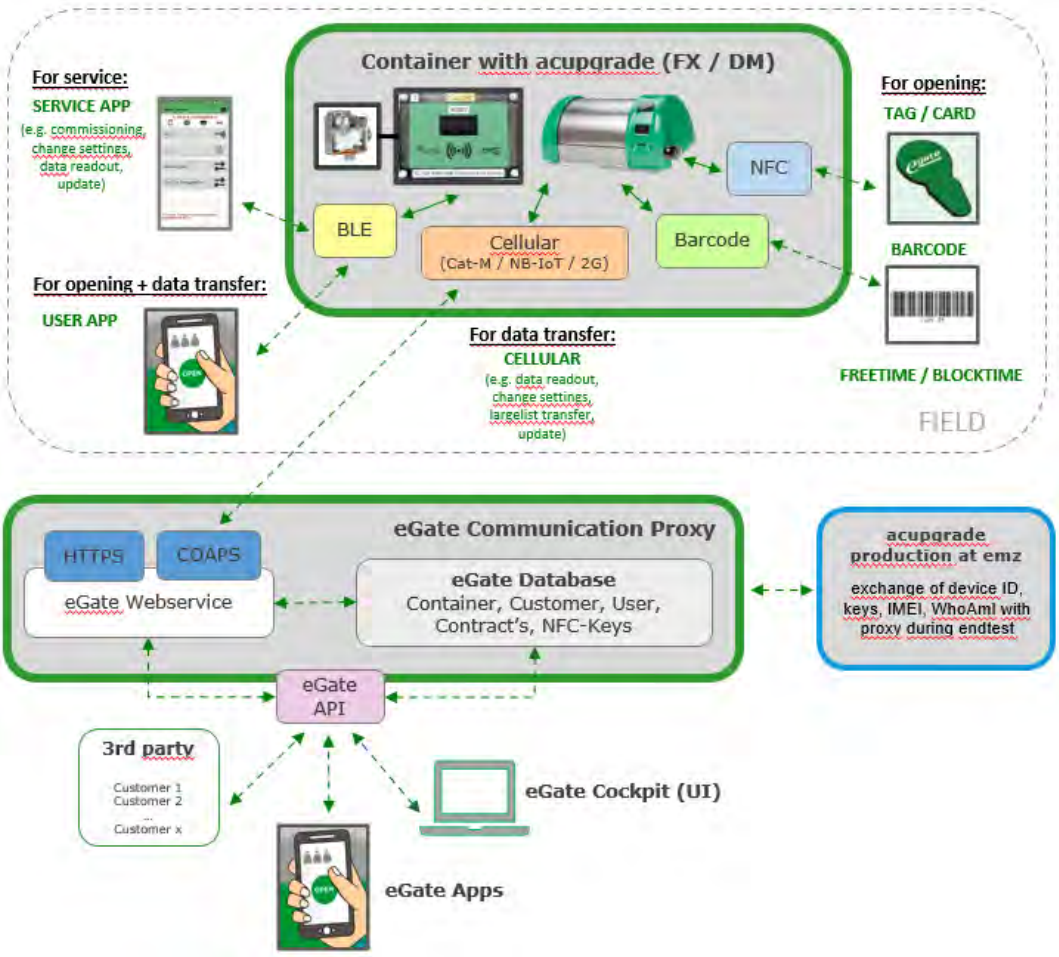
1. Project Overview:

- The products of emz-environmental technology and Partners aims to develop digitalized waste management systems and to enhance the capabilities of access for residents, commercial Customers and public facilities and to support the waste management of the City of Houston, TX/GOVMVMT Purchasing Cooperative.

Requirements for Smart Waste	emz offering
Summary of System Specifications:	
Unlimited software licenses for both desktop and mobile devices.	**YES**
Custom configuration of sensor-equipped, compacting and/or non-compacting, multi-stream waste/recycling/compost stations.	**YES**
On-site hardware installation, system setup, training, and onboarding.	**YES**
Annual multi-point station inspection and comprehensive cleaning.	**YES**
Automated system monitoring via automated system diagnostics and alerts.	**YES**
Hardware parts warranty for full-service term (including battery).	**YES** **2 years**
Customer support via hotline and trained Field Service Professionals; and	**YES**
Ability to support enhanced, additional functionality and technology over time.	**YES**
Software and Hardware Specifications:	
The proposed system will be a web-based system with dashboard capabilities that provide real-time status on every device in the network of collection stations.	**YES**
Generate historical reports and analytical tools including collection frequency charting, "heat mapping" and daily reporting mechanisms.	**YES**
Have the ability to measure collection activity versus known historical data.	**YES**
Deliver actionable data, providing real-time and historical data that will determine if trash needs to be emptied.	**YES**
The ability to remotely adjust setting.	**YES**
Provide GPS location services.	**YES**
Have the capability for asset management, track and manage inventory.	**YES**

Provide remote diagnostic alerts.	**YES**
Have email notification capabilities.	**YES**
Hardware and software must have the capacity to be updated or upgraded.	**YES**
Have the capability to create and specify groups, routes or geographies within a system so areas can be compared to one another.	**YES**
Have the ability to set up users and limit their access to specific stations and/or capabilities.	**YES**
Have a mobile app available for android and iOS.	**YES**
Hardware Specifications should include:	
Each collection unit must be modular with one bine for the collection of trash, and the other bin for the collection of recyclable materials.	**YES**
Each unit must be able to communicate bi-directionally with remote diagnostic and reprogramming capabilities.	**YES**
Communications to the units will be managed over mobile and cellular data networks.	**YES**
Each station must have an external fullness indicator.	**YES**
Each trash collection unit should also include an option for foot pedal designed for hygienic concerns, for those users reluctant to touch the handles which open the lids of trash units, at customer request.	**YES**
It is required that each large capacity collection unit approximately holds up to the following quantities: 50 gallons of non-compacted waste 150 gallons of compacted waste Up to 50 gallons of non-compacted recyclable material 150 gallons of compacted recyclable material.	**YES**
ADDITIONAL COMMENT	
Compactors will be delivered with Access Controls	**YES**

2. System overview:



3. Access Control System:

- The **DX-Series** offers a cost-sensitive approach with data communication via Bluetooth and the User App.
- No need for a SIM-Card and savings on the related telecommunications cost
- Use with various Locks for different bin/cart sizes.
- Ensures energy autonomy of at least 2 years, resistance to vandalism and extreme temperatures, and compliance with cybersecurity standards

OVERVIEW



Characteristics	DX3	DX5	DX7
User access	App	App + Smart Card	
User interface	Smartphone	Smartphone/LED	
Suitable container	Stationary, 4-wheel bins, metalhousing, aboveground container, underground/ semi-underground	Underground / semi-underground	Stationary, 4-wheel bins, metalhousing, aboveground container
Environment level[1]	IP65	IP65	IP67
Reader	-	External	Internal
Compatible smart cards[2]	-	NFC 13,56 MHz (ISO15693 / ISO14443A)	
User identification	Via App access	Region code (blacklist)	
Data transmission[3]	No SIM BLE transmission		
Transmission frequency[4]	Nearly just in time		
Power source	Battery internal		
Lock	Compatible with all emz locks		
Emptying/lifting detection[5]	-		If requested
Directives	Comply with 2006/42/CE, 2004/108/CE, 2002/95/CE (RoHS) and 2001/95/CE		
Additional features[6]	GNSS independence from transmission protocols Fully integrated with egate cockpit		

HIGHLIGHTS

Bluetooth modul
access device via smartphone

Flexible access list
offers dynamic control

Data security
end-to-end encryption by access token via the egate digi App

ADDITIONAL SERVICES

egate user App	egate service App	egate cockpit
allows access for users available for iOS and Android	support and maintenance for service technicians available for Android	cloud based saas platform for management and accounting

NOTES

1 IP67 standard referred to the device housing / 2 ISO 15693 are cards from Texas Instruments programmed with a region code of emz (blacklist). ISO 14443A are cards from Mifare DesFire (blacklist) / 3 No cellular module on board; communication done via user smartphones / 4 Online bookings (smartphone) come nearly just in time to egate cockpit; Offline bookings (Smart Card) will be stocked on the device until the next smartphone booking happens / 5 By implementing an air filter, the IP security level decreases / 6 The GPS position of the device is given by the smartphone

Based on the specific use case the DX-series could be installed in various bins and carts with the according locks.

4. Fill Level Sensor:

- A dual ultrasonic/time of flight system ensures accurate measurements under extreme conditions, integrated with the emz access control system and the emz Cockpit portal.
- Integration with Bluetooth connectivity to the FXA-Series for real-time insights in the portal.

OVERVIEW



Characteristics	SWB-300	SWB-301	SWB-300+
Container	Suitable for all types of container		
Connectivity	Narrowband-IoT Bluetooth LE	LoRaWAN Bluetooth LE	Narrowband-IoT Bluetooth LE LTE – M 2G
Battery	2x Lithium Ion AA 3.500 mAh		2x Lithium Ion A 8.000 mAh
Level Measurement	Ultrasound Time of Flight		
Locating	No		Radio Cells GNSS WIFI – Sniffing BLE Beacon
Information	Fill Level Temperature Fire Warning		Fill Level Position (Indoor & Outdoor) Temperature Fire Warning
Dimensions	118x57x31 mm (LxWxH)		118x57x38 mm (LxWxH)

HIGHLIGHTS

Better data quality
more concrete data available

Compatible with all products of FXA series
integration with Bluetooth connectivity
to FXA for real-time insights

One data management software
consolidating container data for access control and fill level management in one platform

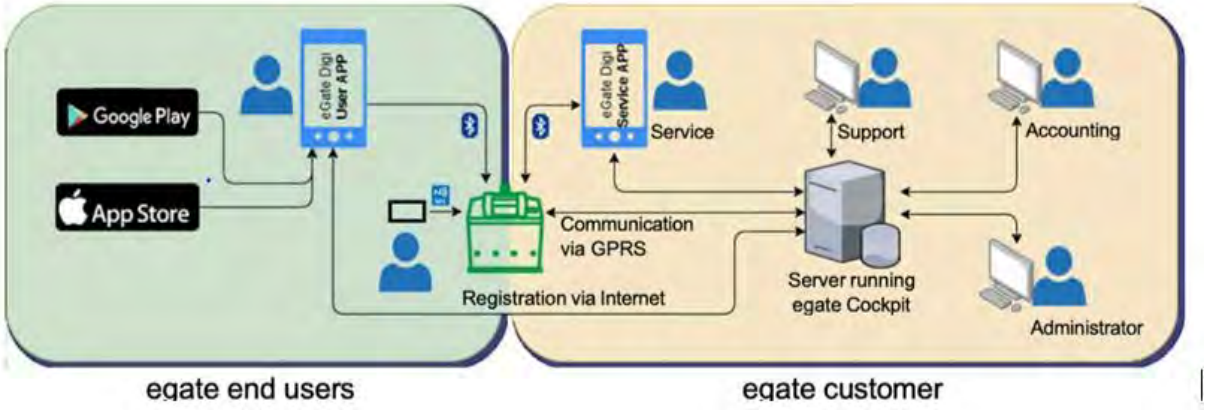
ADDITIONAL SERVICES

egate cockpit

cloud based saas platform for management and accounting

5. Software - emz egate web-based Portal "Cockpit"

- Includes access control systems and (optional) fill level sensors for waste containers, RFID/NFC readers, a
- The web portal supports management and accounting, and a mobile app for service crews and one mobile App for users of the waste bins/carts.
- Manages user access to waste bins and carts, provides reports for the governmental administration and integrates with a mobile app for individual users.



- All system data is accessible through **a secured API gateway** with encryption, mirroring the content visible on the web portal interface (referred to as the Cockpit)
- 3rd party systems have the capability to employ, retrieve, and retain vital data and values for subsequent processing.
- The solution guarantees a minimum uptime of 95% when operational without scheduled maintenance windows, or 99.5% when maintenance windows are incorporated, strategically positioned outside regular working days (Saturday and Sunday).

6. Technical Specifications & Capabilities of the system (device, lock, web-based portal, App)

- **The products emphasize the integration of advanced technology and robust infrastructure to improve waste management efficiency and sustainability of the City of Houston, TX/GOVMVMT Purchasing Cooperative with the opportunity to integrate the collected within various 3rd party systems like e.g. ERP, APP, management systems.**
- Ensures resistance to vandalism and extreme temperatures, and compliance with cybersecurity standards.
- The solution has an **energy autonomy >2 years**; at 100 daily openings and at least 1 (one) data transmission per day from the container. This is supported by an emz energy audit.

- The emz solution provides a **state-of-the-art complete access control** and fill-level system containing an electronic device and sensors in the container operating a locking system for a chute or hatch to open the container. The device has an integrated cellular communication system to connect to the SaaS egate cockpit platform. All user access and electronic devices are managed from here.
- **Each activity and action of a user is registered and stored** on our cloud system.
- The solution fully supports the usage of the emz user-app to open the bin/cart and give statistical and other information to the user. The app also enables user messages to the cockpit.
- All access devices have sensors to detect the state of the system (open, close)
- The level sensor is connected to the main electronic device for data exchange.
- Each electronic device will be delivered with a printed unique ID and an additional sticker (high quality waste environment resistance) both with QR codes for easy registering.
- **The reader is protected with a cover to protect against vandalism.** The system is mounted in such a way that unauthorized access and/or disassembly situations are reduced.
- The reader is protected with a cover to **protect against vandalism**. The system is mounted in such a way that unauthorized access and/or disassembly situations are reduced.
- **The systems are designed to withstand a temperature range between -22˚F - +158˚F.** The systems are protected by a configurable temperature protection mode (e.g., System always open if temperature is lower than -4˚F).
- The system can provide all historical data (transactions made) to the Customer or a 3rd party of their choice.
- The system is updated regularly to the latest security standards for encrypted communication and password storage.
- The platform communications are secured with appropriate data encryption mechanisms and ensures web access. A standard REST API is available via HTTPS.
- The IT solution is accessible via a web browser, without the need to install additional components.
- Authentication and encryption protocols are used to ensure the security of the application and information.
- The authentication system can be connected secured to the system of the Council via API.
- **Passwords are stored in an unrecoverable form ("hash") following the recommendations of NIST 800-63, following hash functions (SHA2, SHA3), jumping and stretching (PBKDF2).**
- **User accounts are protected** by two-way, multi-factor authentication.
- Users of the solution can change their password through an automated procedure that does not involve the offeror or supplier ("self-service").
- The hosted systems are managed by Google trusted platform securing all security updates can be installed in the shortest possible time (max. 2 months).
- The software solution has the capability of hierarchical access, for the possibility of generating aggregate reports to the local authorities. The configuration is done remotely and changes executed in real time.
- The solution offers the possibility to distinguish containers according to the type of waste (residual, bio, plastic/metal, paper/cardboard, glass), of grouping containers to eco-islands and allows adding one or more Smart Containers to an eco-island:

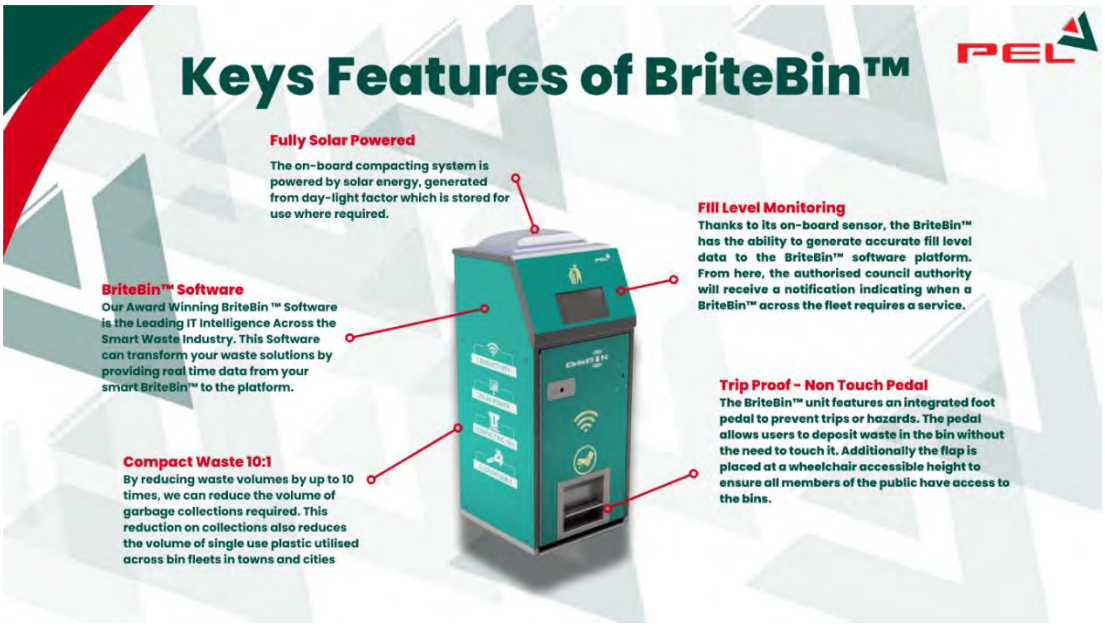
- The solution **enables automatic blocking of access to a certain bin/cart** when the degree of filling of the containers has reached a predefined capacity level. The fill level sensor is linked to the container via BLE communication to activate the automatic blocking.
- The electronic devices on the bin/cart will communicate daily with the IT application, when a system doesn't communicate, it will generate a malfunction/non-communication alert.
- The solution will separately count access to each type of container of a given card, with time stamp.
- Card reading is contactless and doesn't need action to wake the system up from sleep-mode. Access to a certain container will be counted only if the reading/approval of the card is followed by the complete opening of the latch or drum/hatch. Other events that do not lead to counting will also be recorded (but not counted) (e.g., the latch could not (fully) be opened).
- The data transmission from the containers is done with a GSM module. The SIM cards are standard size and can be exchanged upon request.
- The cost of data transmission is included for the entire warranty period (2Y) of the products.
- In case of a predefined alert mode (certain filling level or another event), the electronic device actively sends an alert to the egate cockpit. Multiple possibilities can be configured to warn specific groups or people (e.g., by e-mail)
- Fill thresholds can be configured automatically, or from the provided solution, for each individual container. Each emptying of containers is recorded in the software application.
- The solution allows the generation of reports to aggregate the number of openings depending on the type of user and bin/cart.
- The software application installed on the minicomputers of the containers ("**firmware**") will be able to be updated through the same communication channel as the data, a process called **Over-The-Air Update ("OTA")**.

B. PEL Waste Reduction Equipment

1. Compacting and Non-Compacting BriteBins™

- BriteBin™ available with and without Compactor
- available for bins **32 / 64 / 95** US.liq.**gal.**
- the waste or recycling cart has to ordered separately from the cart provider.
- compact waste ratio 10:1
- optimize waste collection / designed for efficient emptying.
- external LED light showing fill level.
- **Wheelchair accessible height** / disability friendly
- Trip proof integrated pedal
- No public access to compactor mechanism
- Anti-vandal
- BriteBins™ Software monitoring as Standard

2. BriteBin ™ Solar Bin - smart, solar powered, compacting litter bin



- **Zero running costs**
- Operating Voltage 12V DC, Noise 59db, **Operating temperature -40˚F up to 149˚F**

3. BriteBin™ Electropak - electrically powered, compacting, smart litter bin.

Similar to the **BriteBin ™ Solar Bin** but with electrically powered compactor.
Use case **for indoor facilities** like e.g. shopping malls, stadiums, event locations.

4. Optional features for BriteBin™

- Emergency phone charging
- Emergency lighting
- Motion opening sensor
- Air monitoring
- Dog litter bags
- **Various opening options**
  - **Hopper opening**
  - **Flap opening**

5. BriteBin™ Software solution – Operations & Route Planning & Optimization

- BriteBin™ Software solution operates wirelessly through the cloud. It generates real-time data transmitted across SigFox, GSM, NBIoT, and LTE-M networks.
- BriteBin™ software processes the data received, and issues an alert via email, SMS or push notifications to the appropriate authority when a bin needs to be emptied.
- Data management dashboard which displays real-time fill level readings and the operational status of each individual bin. This dashboard is accessible on mobile, desktop computer and tablet.
- Integrated BriteBin™ sensor is mounted to the interior of the unit.
- BriteBin ™ Software **Benefits:**
  - **Route Optimization**. – Waste collection routes can be planned more efficiently due to knowing which bins are full and need immediate attention, reducing unnecessary stops and saving fuel.
  - **Reduced Collection Frequency & Reduced Emissions** – Bins are only emptied when they are full, reducing the frequency of collections and lowering operational costs as well fewer vehicle emissions.
  - **Trend Analysis** – Collect data over time to understand waste generation patterns, helping in planning and resource allocation.
  - **Bin Utilization** – Monitor the usage of different types of bins (e.g. recycling, general, compost) to ensure proper utilization and identify the need for additional bins in high-usage areas.
  - **IoT ecosystem** – Integrate with other smart city Apps or web-based portals via API for holistic urban management e.g. emz egate Cockpit.

6. Manufacturer's Warranty

- PEL Waste Reduction Equipment provides a **two-year (24 months) manufacturer's warranty** including spare parts and labor with each PEL32/64GSSBFD BriteBin™. Under the terms of the warranty, Municipality shall not be responsible for any parts for the repair of the units during the warranty period if the call-out is related to a product defect. The warranty includes spare parts related to the repair of units during the warranty period . All replacement parts are provided with a 24-month warranty from the date of installation.
- Please note: the **24-month inclusive warranty is subject to a maintenance contract** being in place and the BriteBin™ being maintained as recommended in the operator manual. Additional warranty available on request.
- In the event of an emergency break-down, a PEL Waste Reduction Equipment **24/7 helpdesk available via phone** - contact details for this resource will be displayed on the bins installed under the terms of this tender. A PEL Waste Reduction Equipment engineer will be available for emergency callouts should it not be possible to resolve the problem via the helpdesk. This engineer will be available to repair any faults that are covered by warranty with all repairs to bins covered under warranty free-of-charge to Municipality. All scheduled service calls will occur within Municipality hours of operation and those hours will be detailed within the joint implementation plan, which agreed with the Municipality on award of the tender. However, a PEL Waste Reduction Equipment engineer will be onsite at the Municipality site within 24 hours to Recommend the repairs and the bin(s) in question will be returned to full service within 24 hours. Additionally, **PEL Waste Reduction Equipment will hold two (2)** PEL32/64GSSBFD units in stock and available to Municipality **for immediate substitution** should a unit in the field fail and there is an urgent need for an immediate replacement.
- PEL Waste Reduction Equipment **commit that all spare parts will be delivered** to the address specified by Municipality **within 24 hours** from receipt of such a request.
- Please note: **Warranty does not cover vandalism or damage to the BriteBin™caused by negligence on behalf of Municipality or its employees**. Call-outs to unscheduled events such as the above will incur a charge (to be agreed)per visit plus cost of any parts required to reinstate the BriteBin™ to working order.
- Scheduled service calls will occur within Municipality's hours of operation – hours will be detailed within the joint implementation plan, which agreed with the Municipality on award of the tender. In the event of an emergency breakdown there is a 24/7 helpdesk available via phone and a PEL Waste Reduction Equipment engineer will be available for emergency call outs should it not be possible to resolve the problem via the helpdesk.

7. Training on BriteBin™

- Municipality staff (Managers, Supervisors, Operators etc.) managing the BriteBin™fleet will receive comprehensive training on the BriteBin™software solution either via webinar format or at two (2) half day face-to-face training sessions at a time and location convenience for the council. Administrator training will include accessing the software on various devices, setting assigned alert profiles, route planning, fill-level monitoring and interrogating the software to produce appropriate reports for decision-making purposes. Administrators will also receive

training on the mobile application and its optimum use in the field. Additional training via webinar will be available by arrangement with Municipality on a as need-basis.

- **Municipality staff** (Managers, Supervisors, Operators etc.) **managing the BriteBin™**fleet will **receive comprehensive training on the BriteBin™software solution** either via webinar format or at two (2) half day face-to-face training sessions at a time and location convenience for the council. Administrator training will include accessing the software on various devices, setting assigned alert profiles, route planning, fill-level monitoring and interrogating the software to produce appropriate reports for decision-making purposes. Administrators will also receive training on the mobile application and its optimum use in the field. Additional training via webinar will be available by arrangement with Municipality on a needs-be-basis.
- **All Municipality Staff collecting** the PEL32/64GSSB **BriteBin™will receive operational training** on the correct use of the product at a practical training session delivered by PEL Waste Reduction Equipment. The training will encompass the correct servicing (loading and unloading the wheelie bin from the bin), basic operational checks on the foot pedal, aperture and loading door to ensure correct operation and early potential fault detection.
- **Operator training** will also include a demonstration on **how users can access the software** on the various devices via the mobile application and how to use the functionality of the app to optimize the efficiency of the collection service. Data available includes actual fill levels, bin location and status, number of bins in collection route and facility to provide deals on any issues encountered whilst servicing the bins on the route
- **All** Municipality staff **will be requested to complete a training record as proof of training**, which will be shared with the Council. Additional training will be provided should this need arise from the council.
- PEL Waste Reduction Equipment will provide a full and comprehensive set of workshop and operator manuals, technical bulletins and updates for the PEL32/64GSSB BriteBin™upon request by Municipality – these documents are also available to download should the Council prefer this option.

8. Maintenance of BriteBin™

- **The design of the BriteBin™ minimizes the maintenance requirements** for the product. All guards on the PEL32/64GSSB compaction unit are manufactured from corrosion resistant galvanized steel. The unit rolls are produced with sealed-for-life bearings to maximize in-service longevity of the system. The compaction unit itself can be removed from the PEL32/64GSSB via the upper service door thus making maintenance easier and, in the unlikely event of a failure, the compaction unit replacement can be replaced in less than 20 minutes. Additionally, the PEL32/64GSSB is functional when undergoing maintenance and be used by the public during this process.
- The sturdy design, the quality of the components, the manufacturing practices and the hard-wearing finish of the BriteBin™ imparts a long lifespan to the product and by default, the product's minimal maintenance requirements. However, **to insure continual in-service life, PEL** Waste Reduction Equipment will **recommend one scheduled preventative maintenance** visits per annum to all BriteBin™ products supplied under the terms of this contract. The maintenance check list would include the following:

- Solar panel function check
- Full inspection of the chassis and body
- Electrical circuit & connections checks
- Compaction pressure check
- Safety sensor / Door switch / Flap sensor checks
- bin-fill level sensor accuracy check
- Battery voltage / charging checks
- Software/Firmware updates

- This **preventative maintenance** regime will **ensure a long lifespan** for the product whilst on location. The process will minimize any out-of-service time for BriteBin™ **and reduce potential inconvenience to both Municipality and bin users**.
- Should Municipality require a maintenance visit outside of the warranty period, the PEL Waste Reduction Equipment engineer team will be available to meet this requirement. In this situation, 90% of faults or service call-outs will receive a site visit within 18 hours to reinstate the BriteBin™and the remaining 10% will receive a site visit within 24 hours to resolve the problem. All such service calls will occur within Municipality hours of operation as above.
- All maintenance will be recommended by the PEL Waste Reduction Equipment qualified engineering service team and scheduling will be planned in advance with Municipality.

9. Cleaning of the BriteBinTM

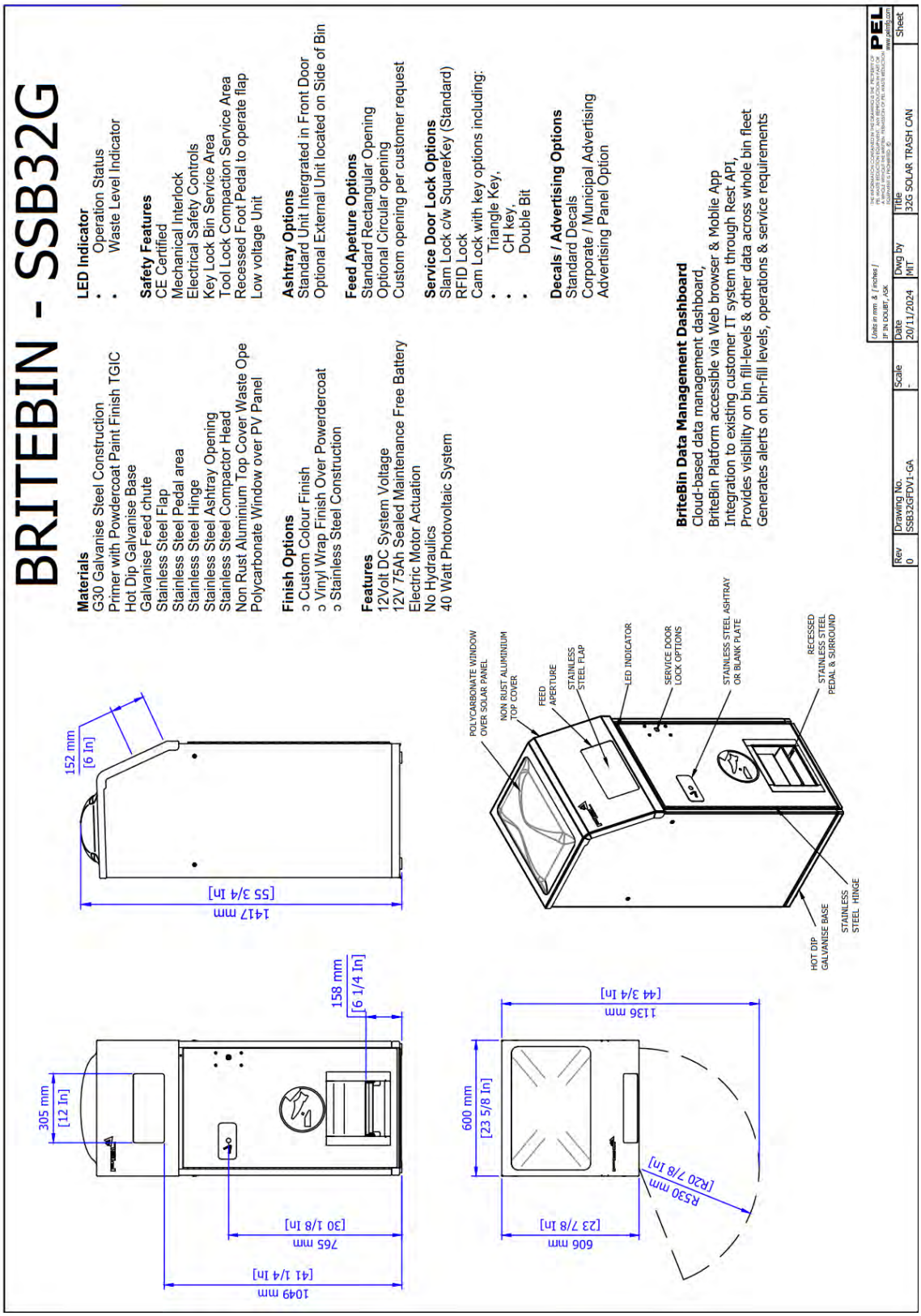
- **Two annual cleaning visits per bin will be scheduled** over the contract duration. The external and internal surfaces of each BriteBin™will be cleaned along with a visual inspection to insure full working condition. Costs for two annual cleaning visits are included within the maintenance costs as detailed in cost appendix.
- **Any defects identified during the cleaning visit will be rectified and reported** to the BriteBin™platform. Municipality will access to all maintenance records on the BriteBin™platform.

C. Offering and Pricing

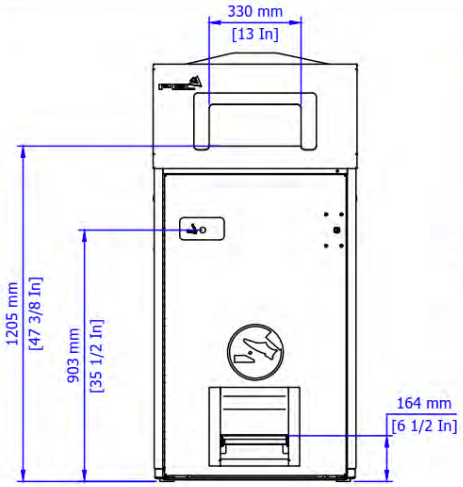
No.	Item	Price per Unit
1	**PELssbfd32 Smart compacting bin (32 gallon):** BBSFD BriteBin Solar32 gallon, Ral color 7024. Bolting down and levelling kit, QR label inside, fire detection system, Slam close door lock, internal wheelied bin; 32 gallon 2 Wheeled cart; Ashtray internal; Handles for Flap; Extension of warranty; Software and SIM Card; Front vinyl; Side and rear vinyl; RFID card opening of emptying door; LED Light; 20 sound modules.	
2	**PELssbfd64 Smart compacting bin (64 gallon):** BBSFD. BriteBin Solar 64 gallon, Ral color 7024. Bolting down and levelling kit, QR label inside, fire detection system, Slam close door lock, internal wheelied bin; 64 gallon; 2 Wheeled cart; Ashtray internal; Handles for Flap; Extension of warranty; Software and SIM Card for 24 months; Front vinyl; Side and rear vinyl; RFID card opening of emptying door; LED Light; 20 sound modules.	
3	**PEL32G Non compacting with flap and pedal (32 gallon):** Non compacting 32 gallon, Ral color 7024. Bolting down and levelling kit, QR label inside, close door lock, without internal wheelied bins; Fill level sensor; Handles for Flap; Extension of warranty; Software and SIM Card; Front vinyl; Side and rear vinyl; RFID card opening of emptying door; LED Light.	
4	**PEL64G non compacting with flap and pedal (64 gallon):** Non compacting 64 gallon, Ral color 7024. Bolting down and levelling kit, QR label inside, Slam close door lock, without internal wheelied bins; Fill level sensor; Handles for Flap; Extension of warranty; Software and SIM Card; Front vinyl; Side and rear vinyl; RFID card opening of emptying door; LED Light; 20 sound modules.	

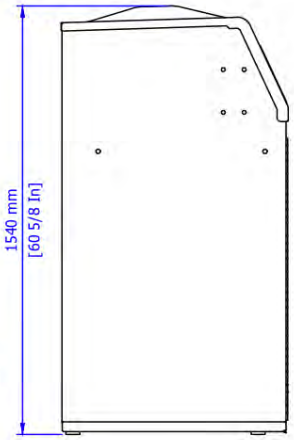
1) Payment is due within 30 days of invoice date
2) Custom duties are included.
3) Volume discounts are negotiable.
4) Minimum order is 15 bins.
5) Software licenses / data management quoted with unlimited licenses.
6) (a) Data management is included for an initial period of 24 months (b) thereafter $-- per unit, per year.
7) Installation and services are included.
8) Access control, remote service, data management and web-based portal are included in all bins.

D. Miscellaneous & drawings



BRITEBIN - SSB64G





Materials
G30 Galvanise Steel Construction
Primer with Powdercoat Paint Finish TGIC
Hot Dip Galvanise Base
Galvanise Feed chute
Stainless Steel Flap
Stainless Steel Pedal area
Stainless Steel Hinge
Stainless Steel Ashtray Opening
Stainless Steel Compactor Head
Non Rust Aluminium Top Cover Waste Ope
Polycarbonate Window over PV Panel

Finish Options
ɔ Custom Colour Finish
ɔ Vinyl Wrap Finish Over Powdercoat
ɔ Stainless Steel Construction

Features
12Volt DC System Voltage
12V 75Ah Sealed Maintenance Free Battery
Electric Motor Actuation
No Hydraulics
40 Watt Photovoltaic System

LED Indicator
- Operation Status
- Waste Level Indicator

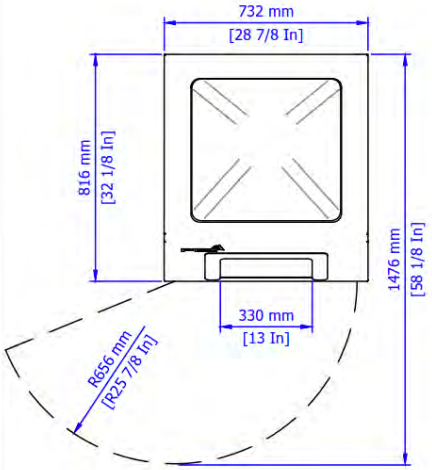
Safety Features
CE Certified
Mechanical Interlock
Electrical Safety Controls
Key Lock Bin Service Area
Tool Lock Compaction Service Area
Recessed Foot Pedal to operate flap
Low voltage Unit

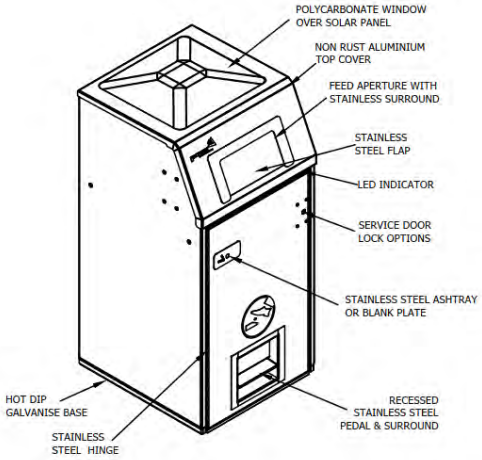
Ashtray Options
Standard Unit Intergrated in Front Door
Optional External Unit located on Side of Bin

Feed Apeture Options
Standard Rectangular Opening
Optional Circular opening
Custom opening per customer request

Service Door Lock Options
Slam Lock c/w SquareKey (Standard)
RFID Lock
Cam Lock with key options including:
- Triangle Key,
- CH key,
- Double Bit

Decals / Advertising Options
Standard Decals
Corporate / Municipal Advertising
Advertising Panel Option





BriteBin Data Management Dashboard
Cloud-based data management dashboard,
BriteBin Platform accessible via Web browser & Moblie App
Integration to existing customer IT system through Rest API,
Provides visibility on bin fill-levels & other data across whole bin fleet
Generates alerts on bin-fill levels, operations & service requirements

Units in mm & [inches]
IF IN DOUBT, ASK

PEL
www.pelmfg.com

Rev	Drawing No.	Scale	Date	Dwg by	Title	Sheet
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