Eliminating the Waste in Waste Collection™

Reduce CO2 emissions whilst Controlling Public Space Waste Collection Costs

The BigBellySolar **Smart Grid for Waste & Recycling™** *system dramatically lowers the operating costs, fuel consumption and greenhouse gas emissions associated with the waste collection process - by up to 80%.*

Distributore ufficiale per l'Italia

During last decade Municipal officials addressed numerous challenges in the collection of residential waste

- Deployment of modern solutions – Underground/semi-underground network, including notification systems
- Development of waste segregation (stations or wheeled bins)

has conducted to:

Reduction of collection costs (without reducing service levels)

- Increased visibility & control over operations
- Becoming more environmentally sustainable

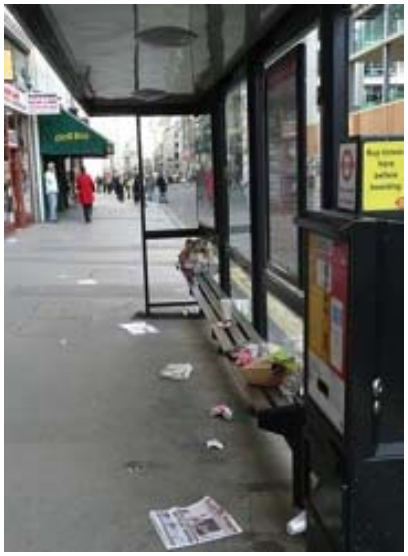
- In the meanwhile, methods and tools applied to public space waste collection have not much evolved.

The full “system costs” of trash collection can be surprisingly high

Average annual collection costs (€ per trash bin per year)

City Streets
€1400

Parks
€1,265



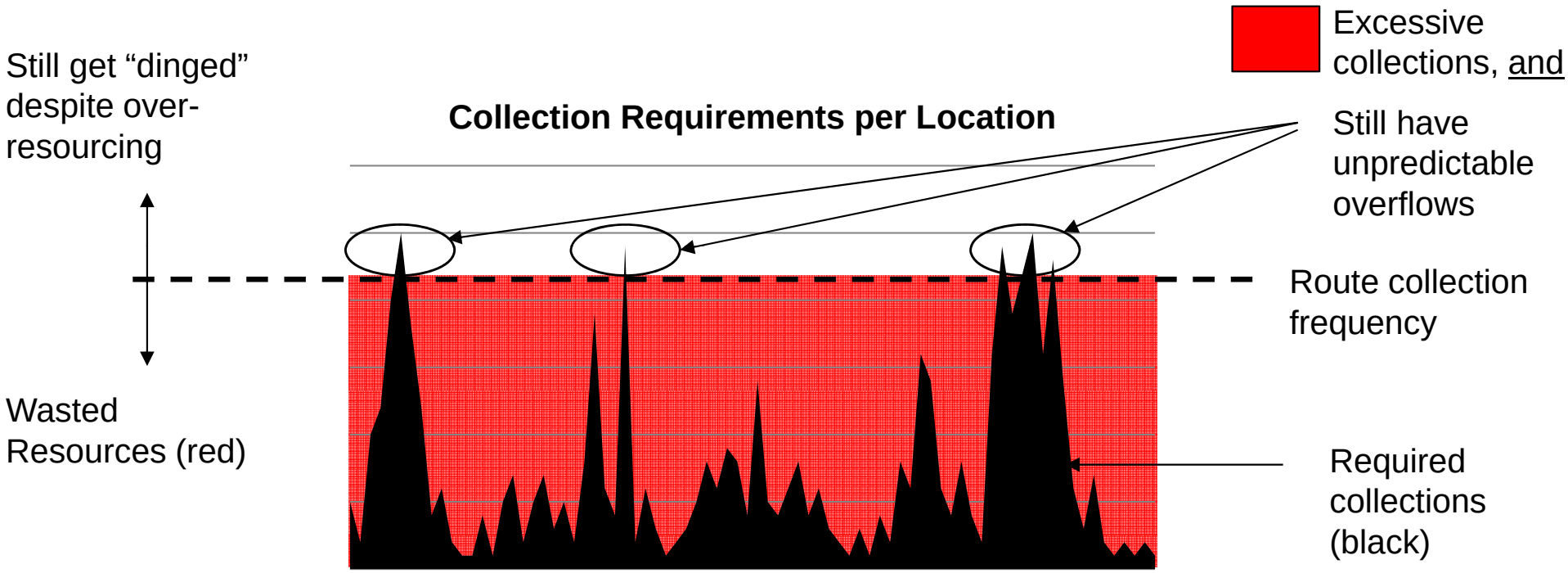
Transit Stops
€1,320

Colleges
€1,165

Route length/density - Vehicle costs - Fuel - Collection frequency - Staff costs

Note: Based on BigBelly Solar collection cost analyses

Q: How'd it get so expensive?
A: Without information, overflow & litter risks are (mostly) buffered by over-resourcing



… and the situation on the ground changes over time
(seasons, events, development, etc.) – creating more uncertainty

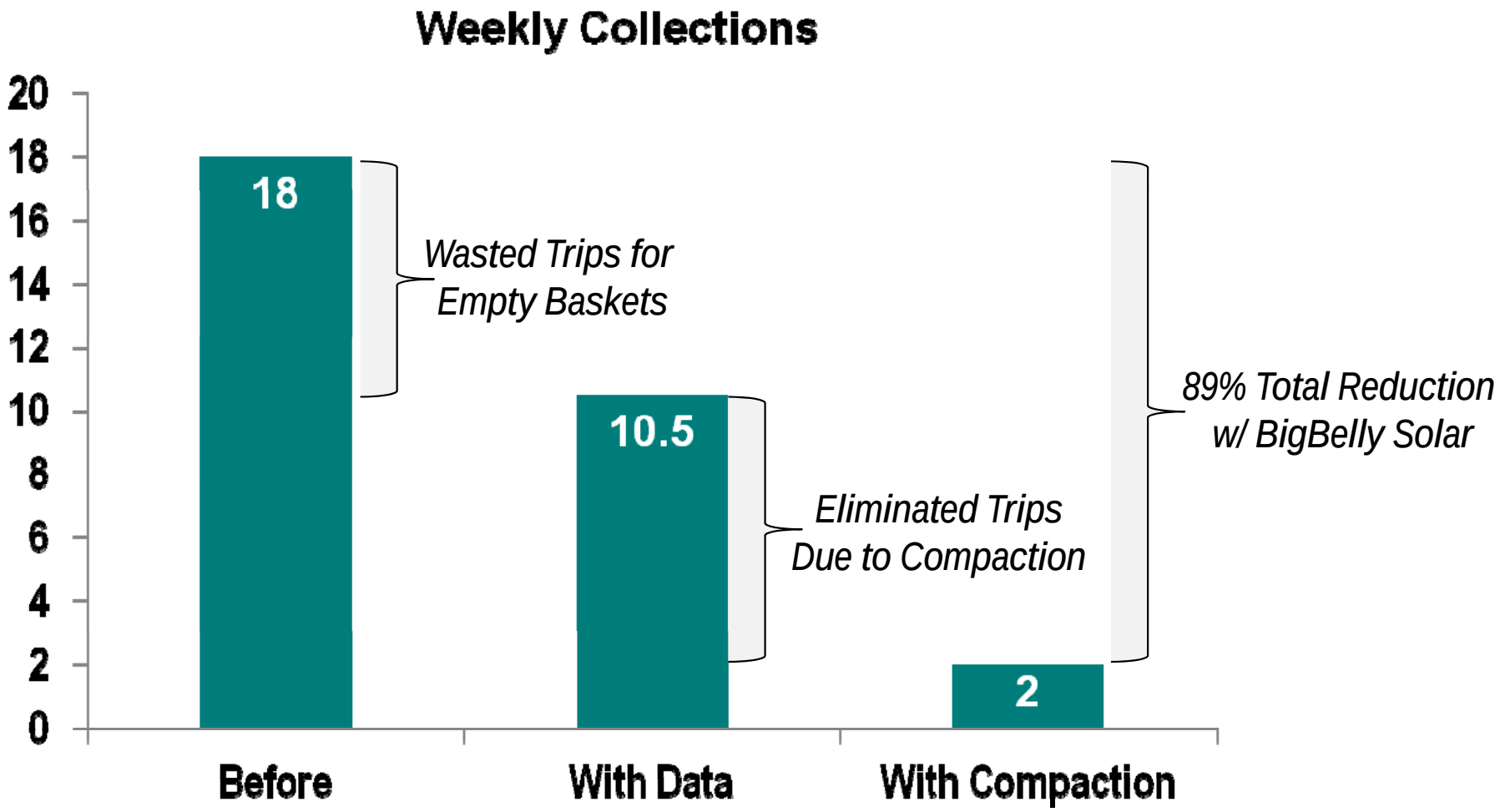
Smart Grid for Waste & recycling™ provides a greener solution for the untapped domain of Public Waste

- Increase public space recycling
- Spend significantly less money on trash collection
- Visibly reinforce your commitment to sustainability … and engage your citizens
- Maximize the efficiency and flexibility of your resources

- ……Overall, a Smarter city

Reducing Collections with Data & Compaction

Case Study: Densely Populated Urban Environment
Winter 2010-11



The System

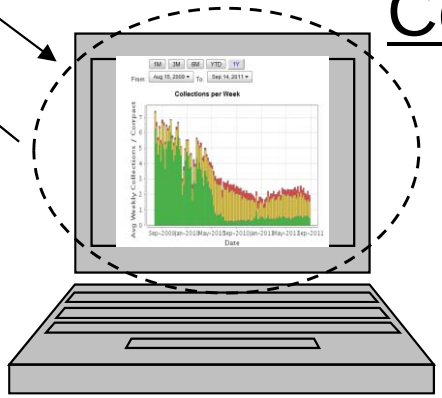
Command Center

Support

Analysis
Reports
Insights
Transparency
Auditing

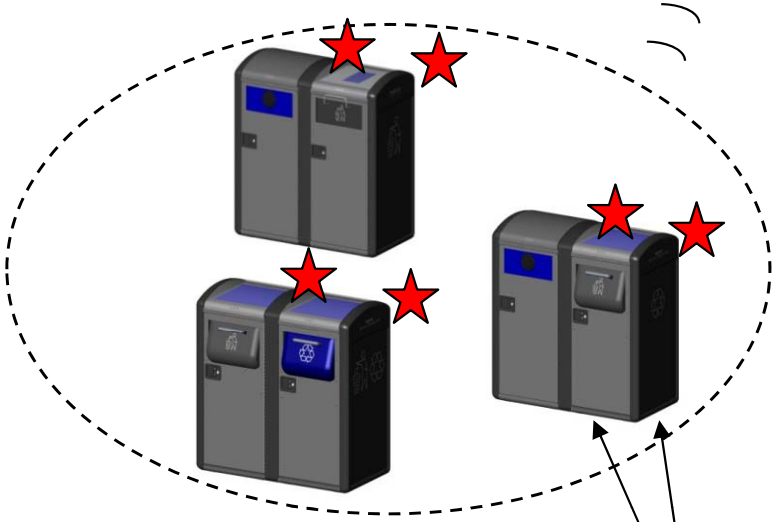
Management Console

Remote
Settings
Inventory
Mgmt



Commands

Data



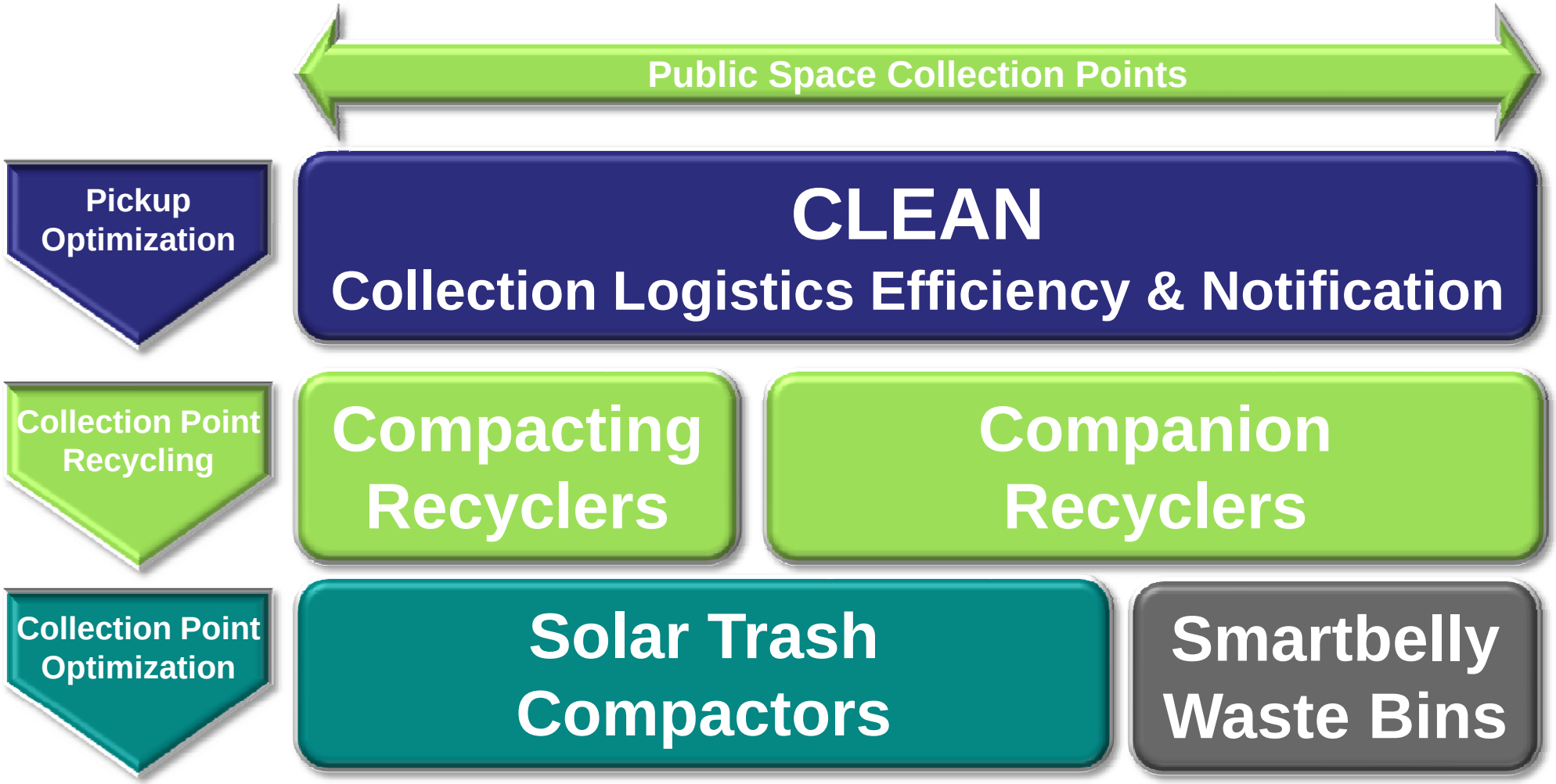
Stations

Components

Software Service permeates the entire System, including:

- *The Management Console, driven by data stored and analyzed in the Command Center*
- *The functions of the Stations, based on data analyzed and commands given by the Command Center*
- *Software helpdesk support*

Smart Grid for Waste & recycling TM



“A Solution for Every Corner”

- A mix and match family of stations and components to match your specific needs – volumes, stream mix, etc.

BigBelly SOLAR COMPACTOR
BigBelly COMPACTING RECYCLER
SmartBelly FOR WASTE
SmartBelly FOR RECYCLING

With active software service contracts required to enable information management and core station functionality (e.g., compaction, sensing and communications)

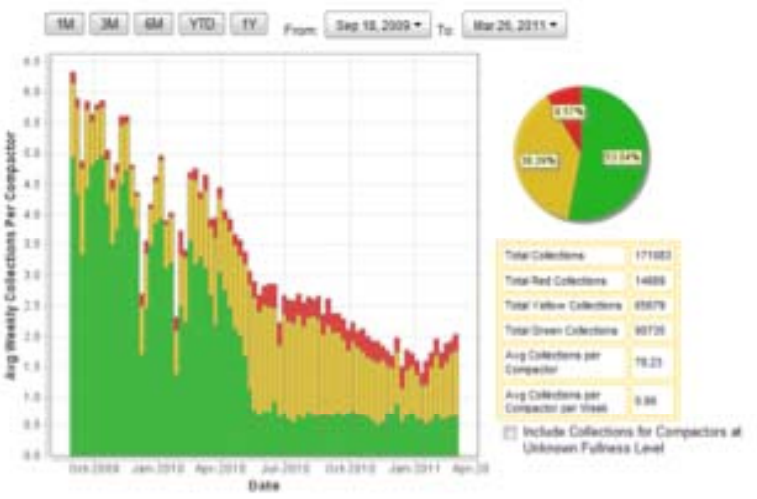
We enable you to **optimize** public waste collection

Solar compaction & information reduces required collections by 70-80%

- Large capacity increase in same footprint
- Eliminate overflows

CLEAN provides a management console

- Use data to optimize routes, collection frequency and staffing
- Central visualization of “network” status
- Audit results



Why Parks commissioners endorse BigBelly

- Positively impacts sustainability plan in a highly visible way
- Enclosed BigBelly design eliminates overflow litter (& associated pests)
- Attractive design with customizable messaging/aesthetics
- Resource efficiencies

Why sustainability directors see BigBelly as a key tool in their green toolbox

- Higher recycling performance
- Supports multiple recycling streams
- Actively engages community in more sustainable behaviors
- Highly visible use of renewable energy
- Reduces collection vehicle traffic, fuel use and then CO2 emissions

How BigBelly helps Operations directors bring greater focus to their top priorities

- Free up staff hours for higher priorities, such as street cleaning
- Software provides means for auditable results
- Software alerts for any activity spikes in waste activity – don't need to send out vehicles to know what is going on
- Recyclables revenues offset some department costs

Why Develop Public space recycling?

Developping public space recycling creates numerous benefits for your municipality

- Demonstrate consistency with your practices regarding household waste
  - Reduce tipping fees by diverting recyclable material from the waste stream
  - Create additional revenue by selling off recyclables
- Change citizen recycling habits throughout your municipality to encourage recycling regardless of location
- Bring sustainability initiatives into everyday life

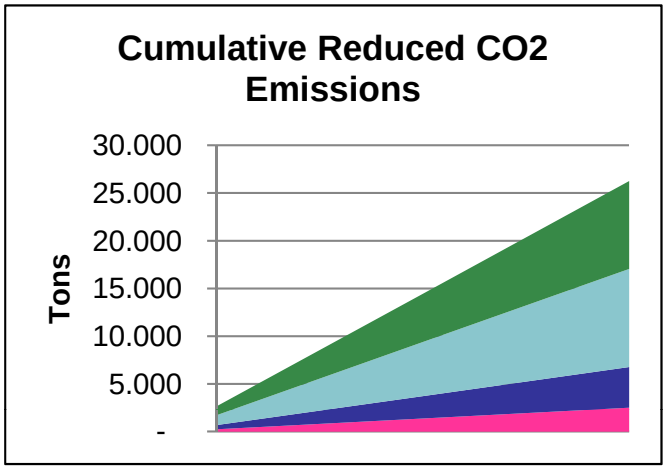
The substantial cost efficiencies created in waste collection with BigBelly can be used to fund the launch/expansion of public space recycling

Your city, Your case study

There is no one-size-fits-all, off-the-shelve solution.

Zero Cost Collection Study

- BigBelly Solar will work with you to identify potential routes for optimization
  - What is the current collection frequency?
  - What area and capacity are you servicing?
  - What are the current recycling options?

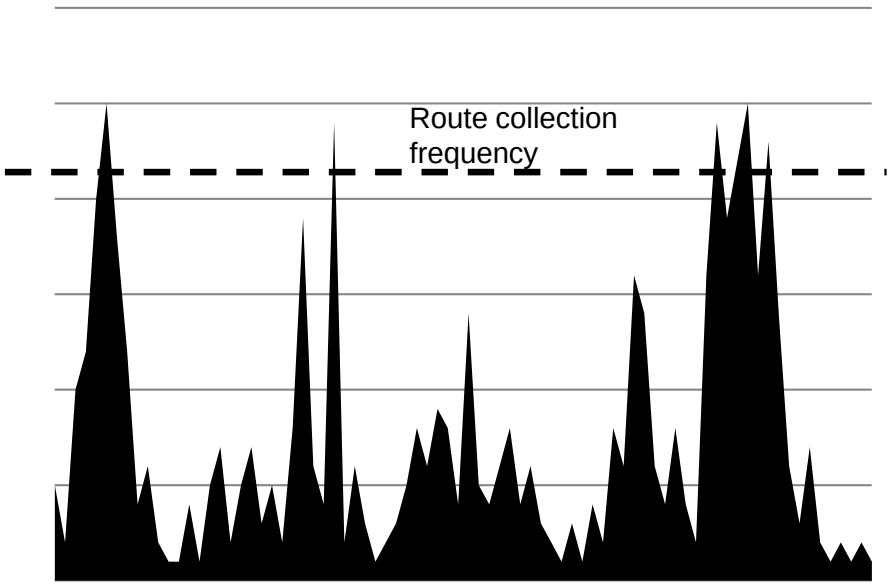


Customer Business Case Development

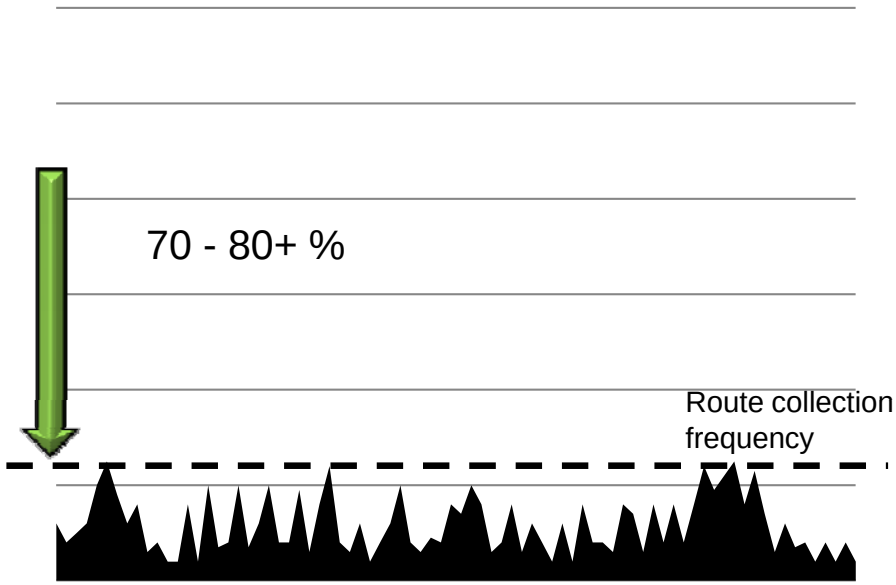
- BigBelly Solar models potential solutions
  - Stations numbers & locations
  - Collection frequency reduction options
  - Financial & environmental ROI analysis

Leveraging the power of the BigBelly Solar *Smart Grid for Waste & Recycling* ™ to dramatically improve operations performance

Collection Requirements per Location (Before)

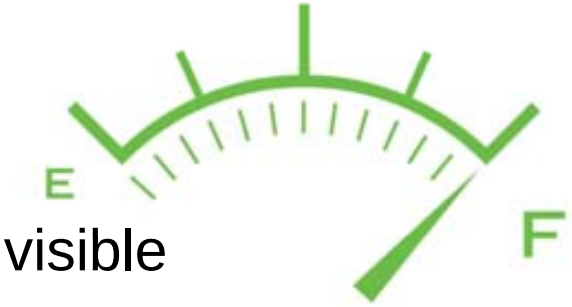


Collection Requirements per Location (After)



Reduced overall collection levels - AND - shaved off peaks (overflows)

As a Conclusion



- Smarter city = Greener + Savings
- Your sustainability commitment can become highly visible
- Your savings can fund recycling in public space

- We are ready to work jointly your own city business case

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BigBelly SOLAR

EURVEN
COMPACTING
AND RECYCLING TECHNOLOGY

Benefits case study: Philadelphia

	Before		After, with BigBelly Solar
Trash cans	700	→	• 500 BigBelly solar compactors • 210 single-stream companion recyclers • CLEAN wireless monitoring software
Shifts per week	3	→	1 (including overtime elimination)
Pickups/can/week	17	→	3
Dedicated staff	33	→	9

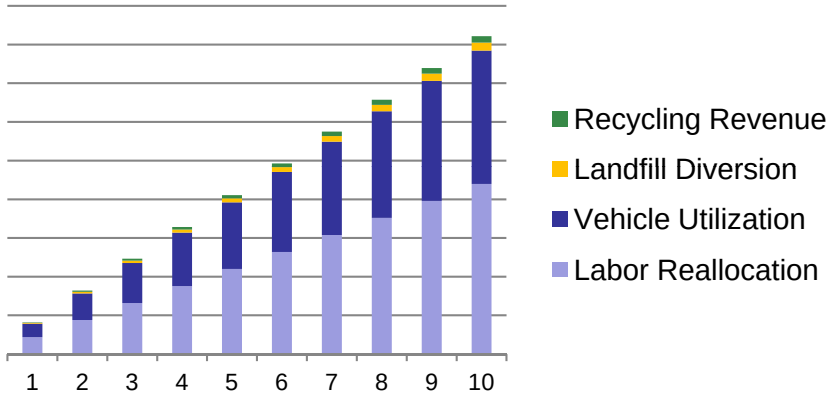
"The solar compactors have been an instant hit and a win-win for everybody. The Mayor is thrilled and we have seen a noticeable difference in so many areas including litter reduction, and increased recycling in the use of the bins."-**Carlton Williams** Deputy Commissioner, Streets and Sanitation, City of Philadelphia

$900,000 Year 1 cash savings;
$13M projected over 10 years

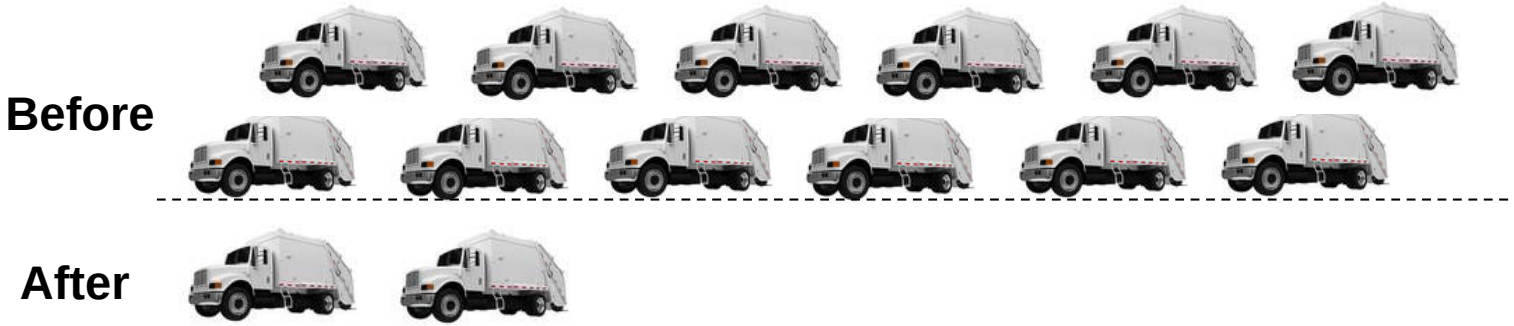
Mayor Nutter

The BigBelly Solar system ROI

- Calculating the value of a BigBelly Solar system deployment consists of multiple elements:
  - Reduced fuel consumption
  - Reduced vehicle wear
  - Work content freed up
  - Reduced landfill volume
  - Increased recycling revenue



- On average, municipal customers are able to reduce their public space collections to a few times per week



Some of BigBelly Customers

Europe

- Dublin
- Trinity College, Dublin
- National Uni. Of Ireland, Galway
- Bournemouth
- Cambridge
- Nottingham
- Copenhagen
- Odense
- Lyngby
- Malmoe
- University of Gronningen
- Salzburg
- Salzburg Airport
- Innsbruck
- Klagenfurt
- Vienna
- Basel
- Luzern
- Winthertur
- Frankfurt
- Chiemsee
- Strasbourg
- Billiere
- St Mande
- St Germain en Laye
- Parc de Thoiry

North America

- Philadelphia
- Baltimore
- Boston
- Boston University
- Bronx Zoo
- Cambridge
- Chicago
- Cincinnati Parks
- Ma. Dept of Conservation and Recreation
- Central Intelligence Agency
- Los Angeles
- Indianapolis Parks Lockheed Martin
- San Jose Airport
- Pasadena
- Vancouver
- West Point
- Ma. Bay Transit Authority

Components of the BigBelly System

CLEAN (Collection Logistics Efficiency And Notification) wireless software

- Fullness and collections status
- On-demand from any browser

Solar compactors

- 5:1 compaction
- Collections reduced up to 80%

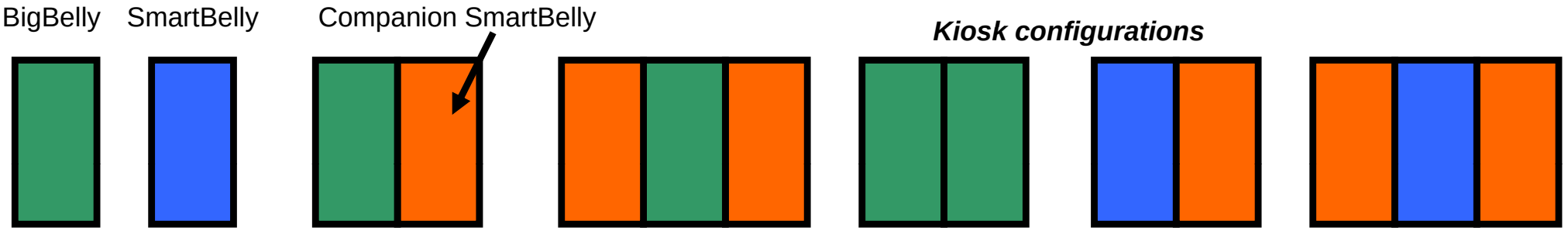
Companion recyclers

- Increased recycling rates
- Reduced cross-contamination

The Family of "Waste Stations"

Black = Trash
Blue = Recycling
Green = Organics

	Waste	Single Stream	Bottle/Can	Paper	Organics
BigBelly Compactor	HOPPER	HOPPER	✗	✗	✗
SmartBelly	FLAP	HOLE	HOLE	HOLE	FLAP



Station Configuration Examples

BB4 Waste + BB4 Recycling

Smart Belly Recycler + SmartBelly Waste

SmartBelly Recycler + BB4 Waste

Contatti:

Per avere informazioni sul prodotto

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