



Going Automated for a Safe and Productive Collection Program

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- Most municipalities and haulers are faced with the following challenges:
 - Reducing Injuries & Workers' Compensation claims
 - Hiring and Retaining Employees
 - Reducing Absenteeism
 - Reducing Operating Costs
 - Increasing Material Diversion Rate
 - Cleaner Better Looking Neighborhoods
 - “Going greener”





**Refuse & Recyclables Collection
is the only municipal service
that can be improved
while generating savings.**

HOW?

By implementing automated collection.



A collection system consisting of **specially**-designed **wheeled carts** and refuse and/or recyclables **collection vehicles** equipped with **automated arms**.

Residents place these carts in **designated spots** on the **curb side**.

Then a **single operator** picks up and dumps the carts using an articulated arm, controlled from **within the cab**.

Higher Productivity Increased Efficiency
Increased Workers' Safety

Designated spots on the curb side





Collection with an automated unit ensures workers' comfort, safety and productivity





- According to data collected by Wastec, 18% of all refuse collection vehicles sold in North America in the last 12 months was Straight Frame Side loaders.
 - Today's market analysts, show that this trend is picking up and will reach 35% within the next 5 years.
 - *For every manual (side loader) collection unit, two automated side loaders are sold*
- In general one automated unit can replace 2 manual units on the same route



- Compared with other industries, “refuse and recyclable material collectors” show for the **fifth-highest** fatality rate in North America: **40.7**
- In 2006, Injury data for the solid waste industry are:
 - The **overall injury rate was 6.5** for waste management and remediation services.
 - The **rate for waste collection was 7.5.**
 - The **rate for waste treatment and disposal was 6.2**

Note: Statistics from the U.S. Department of Labor
These rates are per 100 full-time employees



Fatalities – Municipal Solid Waste Management (Private and Public sectors)

	2004	2005	2006
Collection	34	43	40
Landfills	7	15	8
Transfer Stations	3	5	5
MRFs	4	9	4



- **Decreasing collection operational costs**

- Decreased **injury** and **workers' compensation**

- *“When we ask operators to push, pull or lift, they are straining already sore muscles. Automation is a safer way of picking up the waste, and it will be reflected in how much less a fleet will pay in workers' compensation or suffer from lost days due to injuries. That translates into a lot of savings.”*

Paul Jenks, Veolia/Onyx

- Decreased **turnover of work force**, increased fleet **productivity**, decreased employee **absenteeism**
- Increased number of **households serviced per day**

- **Increasing diversion rates**



- **Driver Retention** is Increased
 - Improves the quality of life for operators
 - On a basic level, drivers don't return home at the end of the day smelling as bad, and often suffer less body aches
 - Move from being a “garbage picker” to a “solid waste collection operator”
 - More “brain” than muscles is needed
- **Pool of Drivers Increases** - **More women** become automated collection truck operators
 - Santa Cruz and South San Francisco in CA
 - Miami-Dade County, FL
 - Sante Fe, New Mexico
 - BFI Canada, Montreal, QC
 - Irving, TX
 - *“Automation opens up collection jobs to women, which can help companies deal with driver shortages. You don't have to be the 300-pound guy who can lift a water heater over his head.”*
ProStar Waste, TX



- **Reduced litter** and unsightly set-outs in serviced areas
- Increased number of **recycling collection days** per month
- Enhanced **community satisfaction** and perception with public works
 - More service for each “tax dollar spent”

Converting from this...



or this...



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and this...



- Messy Streets on Set-Out Day: Torn Bags, Overturned Cans, Blown Garbage and Unwanted odors
 - All of which Attract Animals
- Makes you chase your Garbage Can Lid that is ALWAYS tossed several feet away from the can
- Garbage Cans are difficult to lift and carry to and from the curb
- Back Breaking Work for the Refuse Collectors
- Workers are exposed to injury and serious infections
 - Working in ALL Weather Conditions

To this.....



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Or to this.....



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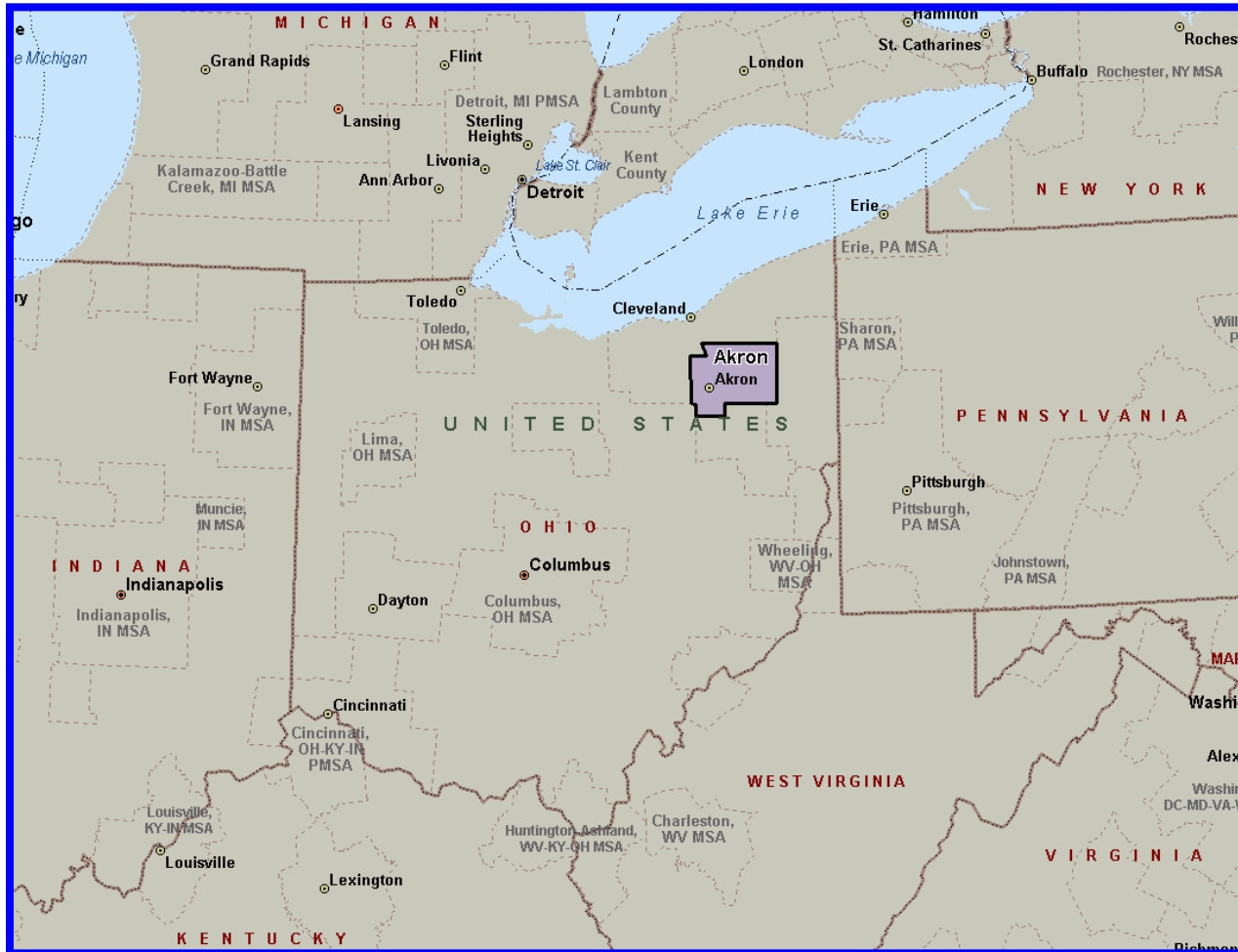


“Going Automated”: before and after

City of Akron, OH



- 62 square miles, with 68,000 homes





	2001	2002	2003	2004	2005
Average Number of Employees	75	76	71	76	78
Total Number of Injuries	58	72	53	51	78
BWC Medical Only Claims	31	31	18	25	26
BWC Lost-time Claims	13	11	12	11	16
Lost Work Days for New Injuries*	713	385	737	426	387
Total Number of Lost Work Days**	945	545	898	857	536

44% of the retirees did it on disability!

*Injuries occurred in current calendar year.

**Reflects lost work days that resulted from injuries which occurred in current calendar year and previous years.

Note: (1) Transitional Work Program implemented 10/2004.
 (2) Automated trash pick-up implementation began 7/06.

	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>
BWC Medical Costs¹	\$100 574	\$46 419	\$94 505	\$54 637	\$106 271	\$157 669	\$74 922
BWC Compensation²	\$191 884	\$65 527	\$105 389	\$51 123	\$61 952	\$60 547	\$30 992
BWC Reserves³	\$137 376	\$15 807	\$135 090	\$12 616	\$29 552	\$316 167	\$83 150
COA Wage Continuation⁴	\$7 030	\$3 732	\$45 422	\$26 074	\$66 923	\$28 829	\$34 813
TOTAL COSTS:	\$436 864	\$131 485	\$380 406	\$144 450	\$264 698	\$563 212	\$223 877

¹ Payments to medical providers directly charged to City of Akron

² Compensation for lost work paid by BWC and directly charged to City of Akron

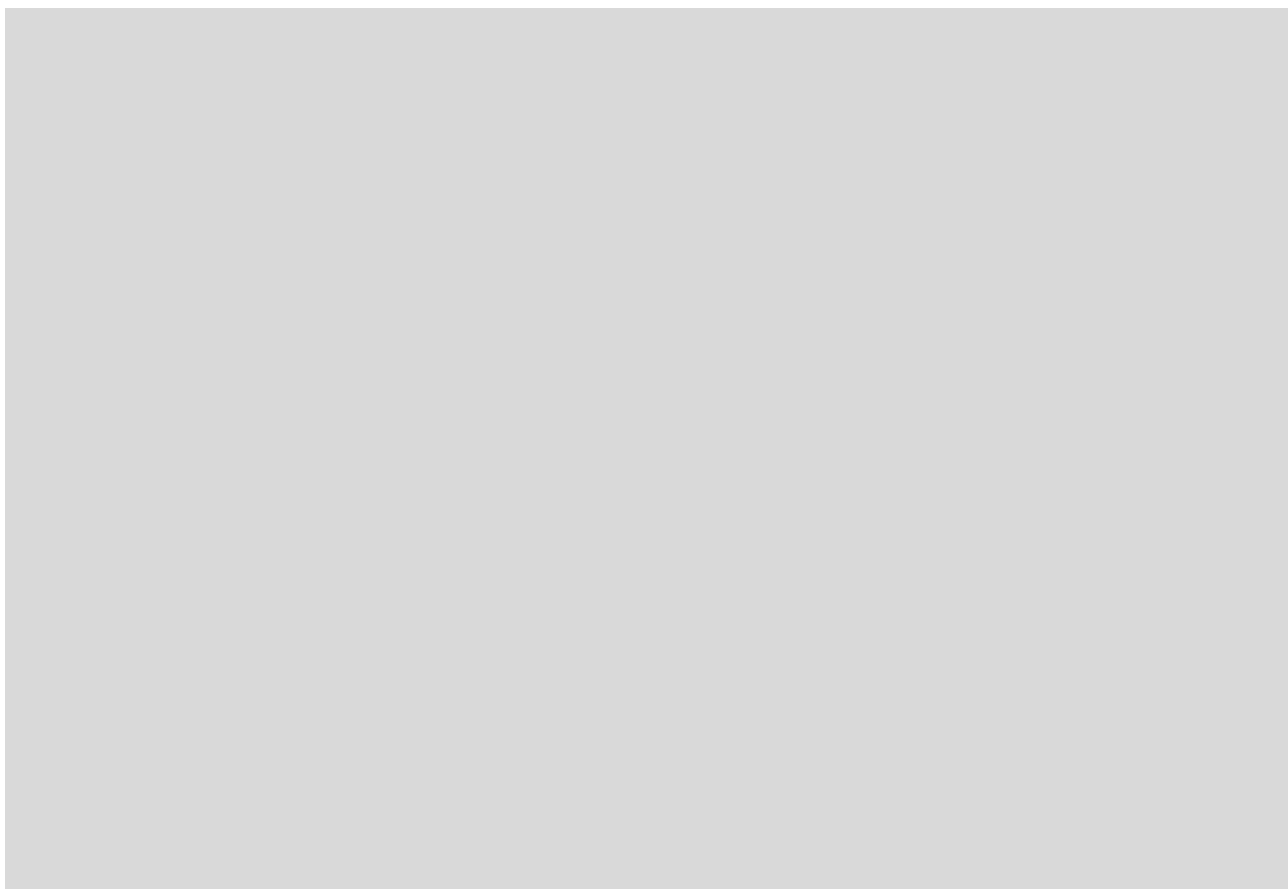
³ Actuarially calculated reserves necessary to fund future claims expenses

⁴ Direct payroll expense in form of "Injury Leave"

Note: All BWC costs are as of 6/30/2007



“Going Automated”





- 18 automated units implemented in less than 1 year
 - At first 15 routes were set up; now down to 12
 - 3 out of 5 recycling collection routes are automated



A year after “going automated:

1. *“We’re disappointed for not doing this sooner”*

- i. However it is paramount to have the right people at the right time; otherwise it is “pulling teeth” and the project never gets to be launched
 - 2 1/2 years were needed to turnover the collection program

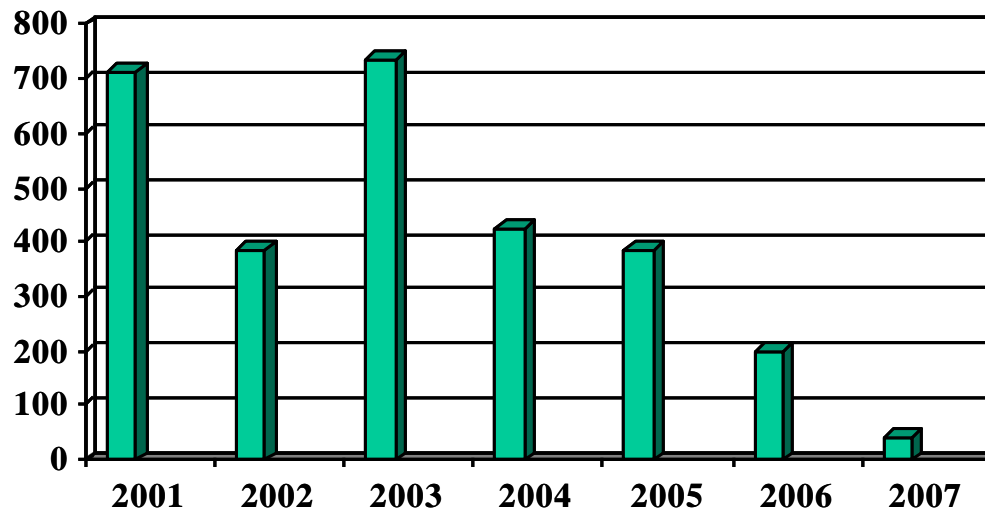


2. *“It is the hardest new program we’ve implemented”*
 - i. Getting 120,000 carts out in 5 months:
 - a. Must prepare high quality database of customers to improve delivery
 - ii. Educating the public is crucial
 - a. A well orchestrated communication plan must be produced, especially for the elderly
 - Today, those who showed the most resistance are now the biggest advocates for automation
 - iii. Convincing the City Council
 - a. City of Akron was most fortunate that’s its mayor was very progressive; he became the biggest catalyst



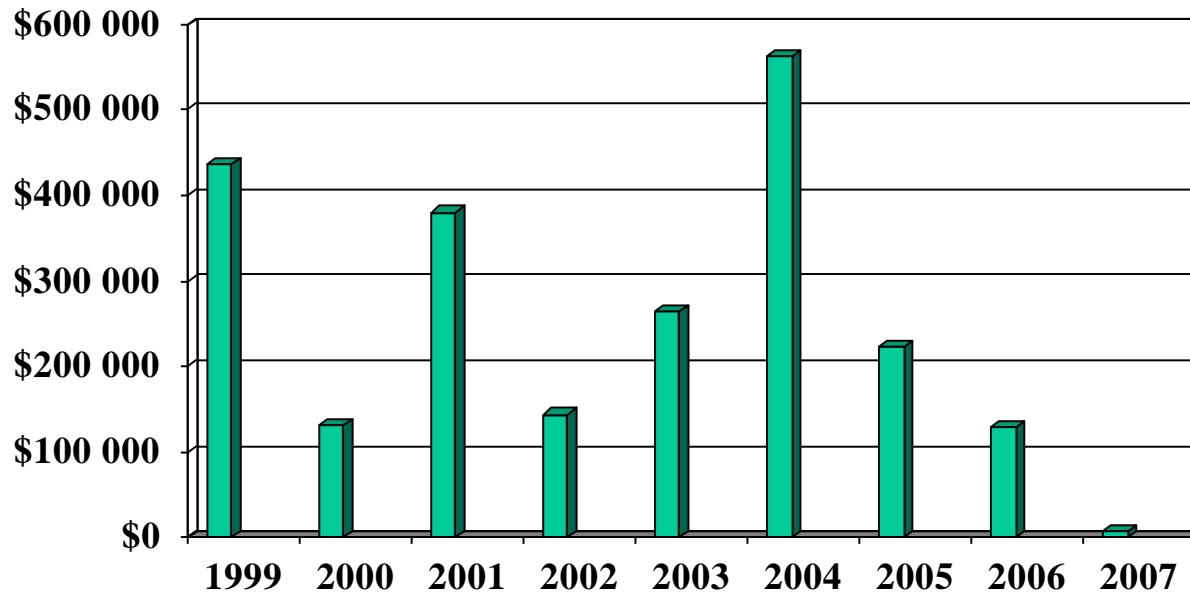
3. *“It is the most fruitful program we’ve ever implemented”*

Lost Days due to Injury





Workers' Compensations





- 15% reduction in operational costs
- 49% recycling participation rate from 23%
- Less numbers of trucks than manual pick up
- Great looking neighborhoods

“There will be a lot of critics that say that their City cannot “go automated”... but it happens everywhere... if WE can make it happen here, everyone can do it too!”



A serious process



- The cost of an automated truck fleet with carts, training operations and mechanics staff, stocking parts; inventory management, and collecting those difficult and hard to reach routes, **are far outweighed by the benefits introduced by employing only one person per vehicle**
- Every municipality surveyed demonstrated that the **number of employee injuries was drastically reduced, customer service was enhanced, and neighbourhoods never looked better:**

STILL, going automated is a serious process

Disadvantages of Automated Collection



- **Upfront Costs**

- More expensive equipment (Trucks and Carts)
 - *But fleet size is typically reduced because of increased productivity*
 - *Most cart manufacturers offer financing programs and pilot project programs that can be quite advantageous*
 - *Municipalities also have the choice of making the carts mandatory or not*

- **Maintenance**

- Maintenance costs reported to be higher because of increased hydraulic complexity
 - *But fleet size is typically reduced, so fewer vehicles are usually maintained*

- **Customer Training**

- Fully-automated systems rely on customers placing containers in accessible locations
 - *A well set educational campaign and short term benefits such as neighborhood appearance are key*



SWANA[®]

SOLID WASTE ASSOCIATION
of North America





- **Driver/operator**

- He has no one to talk to, but he is doing 30 to 40% more work and covering 15 mi
 - *Investing in a CD/radio system*
 - *Allowing for communication with fellow operators*
 - *Name of operator on doors of truck (belonging)*
 - *No injury/accident = Quarterly cash incentive*
- Conversion to automated collection can be rough on employees who have put in 15 or 20 years service
 - *But at the same time, those 50-year-old drivers can now see their career going to retirement [with automated collection]*
 - *Well set training works wonders!*

Automation Program: 10 Key Steps to success



1. Collect and validate all **pertinent data** related to your current system and its costs
 - a. Existing equipment performance (tonnage, pickup rate, etc)
 - b. Personnel proficiency
 - a. Number of workers assigned to each vehicle
 - b. Costs associated with injury, absenteeism and turnover
 - c. Street and neighborhood layout
 - a. Some difficult to reach places are perceived to be impossible to automate
 - d. Travel time to and from disposal sites
 - a. The number of stops achieved in a working day per route can vary significantly from city to city, and from as low as 400 to as many as 1,200
2. **Review** elements of 'going automated' **and compare** results
3. Obtain **participants' consensus**
 - a. City council
 - b. Public Works and workers
4. Set **objectives: basis of Project Management**

Automation Program: 10 Key Steps to success



5. Elaborate **type of collection**

- a. Single
- b. Two-stream
- c. Three-stream



6. Choose the **appropriate unit** that will support your “reality”

- a. Chassis , Hopper, Payload, Lifting arm, longevity and resale value
 - a. *Make sure to list ALL your constraints: typical **weather** conditions, town **geography**, etc*
 - a. *There exist a wide choice of lifting arms to address these!*
 - b. *Drivers and mechanics should be involved in the decision making: Ergonomics, truck maintenance, training,*
 - c. *The fleet should be same year, make and model for more proficiency of all employees involved in the program*



7. Optimize wheeled cart options

- Style: Standard, split
 - Beware of cross-contamination
 - *One-pass system allows for much less contamination*
- Design, stability, durability, construction, impermeability, flexibility, cost, manufacturer
 - Quantity of carts:
 - Rule of thumb: 4 to 1
 - Who should buy the carts?



Automation Program: 10 Key Steps to success



8. Consult and question data banks or fellow automation users
9. Elaborate public education campaigns
 - a. An automated collection program is only as effective as its weakest component: Communication
 - b. Changing a waste collection system often generates resistance from the residents
 - a. Need for a strategy to communicate the benefits
 - a. Ahead of time to help ensure a smooth transition to a new collection program

Addressing the fears towards proposed changes



- Common concerns:
 - An expectation that the reduction in costs should translate into tax cuts, lower collection charges, or some other form of customer rebate;
 - “Ugly monster” carts being hard to maneuver, especially for elderly or physically disabled residents;
 - Not having enough room for all of a household's refuse in a single cart;
 - Displacement of workers;
 - Questioning why a system that “works fine” should be changed

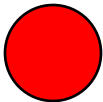


- Informative letters from City Hall
- FAQ leaflets and brochures that coax residents
 - *"Just push it to the curb and we'll take it from there" are great for starters*
- Posters hung in local recreation centers, libraries and other public meeting sites
- Calendars
 - Made in participation with some organization
 - Promoting the new program
 - Informing residents of collection days in their neighbourhood
- Ads in local papers
- Trash Collection Guides and reminders in billing invoices

Assembling the wheeled carts



- Hiring the local scouts or other group to put all the carts together (wheels, body and lid) is another way of **having people adopt the cart system**
 - Scouts can also help the elderly bring their carts curb side
- The newly distributed carts can also include a **note**:
"Please give this new curb side collection service a 30-day trial. If it doesn't meet your expectations, call XXX-XXXX. Let's make this automated trash collection program work, together!"

Spraying a  at the curb side where the cart should be placed is a great way to train residents!

Operators play an important role in the new program



- While on their routes, drivers will place “Oops” tags to residents whose carts are misplaced or contain inappropriate materials
 - These “Oops” tags have the applicable brochure attached explaining how to correct the mistake
 - Usually one tag is enough to get them to comply



- They are a **big part** of the new automated trash collection program's **implementation** and **continued success**
- It is imperative to team up to **answer** phone calls and **assist** customers while making adjustments to the new program
 - Junior college students can be hired to participate in an eight-week evening training program along with Sanitation Department staff
 - *Some municipalities had an average of 1,500 to 2,000 calls per day*
 - *After the initial 6 months, the calls went down by 75%*
 - *After that, most calls become requests for basic information or to clarify instructions.*

Automation Program: 10 Key Steps to success



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10. Ensure a **solid training program** for all participants

1. Operators
2. Mechanics
3. Fleet managers
4. Residents






Thank you!

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