



# Practical Programs to Increase Recycling in Bristol

Bristol Town Council Workshop

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# Increase Recycling To: Meet Current State Goals

In 2008, the RI General Assembly mandated that cities & towns reach a 35% recycling rate, 50% diversion rate.



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# How Is My City or Town Doing?

## How is My City or Town Doing?

### Recycling, Composting, and Waste Diversion in Rhode Island



At RIRRC, we use data to help municipalities measure their program's success in a few different ways. On the following page you will find a chart listing all of RI's 39 municipalities. Municipalities are grouped with others that are similar in program size and type. This allows for a fair comparison of how your city or town is doing, compared to others like it.

#### The three categories are as follows:

1. Municipalities serving 10,000 households or more, through a curbside collection program.
2. Municipalities serving less than 10,000 households, through a curbside collection program.
3. Municipalities serving households through a transfer station, with limited or no curbside collection, and the option for residents to hire a private trash hauler.

#### The chart shows four different measures of success:

1. **Tons of Trash Sent to Landfill per Household Served in Program:** This figure expresses how much trash is generated and landfilled, on average, by each household the municipality serves.
2. **MRF Recycling Rate:** This is our simplest measure of recycling, which divides the total tons of common recyclables (materials placed in your bins at home) sent to RIRRC's Materials Recycling Facility (MRF) by the total of these tons plus the tons of trash delivered to RIRRC for landfilling. RIRRC automatically collects both of these numbers when your city or town's trucks cross our scales. By law, all municipal recycling and trash must be delivered to RIRRC.  
*Simple example: If a city brought 30 tons of recycling and 70 tons of trash, then  $30 / (30+70) = .3$  or 30%.*
3. **Mandatory Recycling Rate:** This measure is similar to the one above, but also includes other materials on the Rhode Island Department of Environmental Management's (RI DEM) Mandatory Recyclables List. In addition to bin recycling, this rate includes leaf and yard debris composted at RIRRC or elsewhere, as well as clothing and other metals reused or recycled elsewhere. We divide these tons by their total plus the total tons of trash delivered to RIRRC for landfilling.
4. **Rate of Overall Material Diversion from Landfill:** This measure expands on the previous one even more, by adding in all other materials that are diverted from the landfill for reuse or recycling. It includes special wastes such as tires, mattresses, clean wood, clothing and shoes, books, motor oil and filters, cooking oil, etc., not on the RI DEM's list. We divide these tons by their total plus the total tons of trash delivered to RIRRC for landfilling.

#### The State of RI has set a two-part goal for its 39 municipalities:

§ 23-18.9-1: Beginning July 1, 2012 every city or town that enters into a contract with the Rhode Island resource recovery corporation to dispose of solid waste shall be required to recycle a minimum of thirty-five percent (35%)\* of its solid waste and to divert a minimum of fifty percent (50%) of its solid waste.

\*RI Municipalities commonly measure this against their Mandatory Recycling Rate.

#### How Can I Help My City Improve its Recycling and Diversion?

RIRRC provides many free services to RI residents, businesses, schools, and community groups. You can also visit our website, [www.rirc.org](http://www.rirc.org), and use these keywords (including the /) after our URL for more information:

Find Your DPW	/contacts	Event Recycling	/events
What Goes Where?	/Atoz	Group Tours	/tours
Hazardous Waste	/ecodepot	Presentations	/talks
Compost Bins	/compost	Field Trips	/fieldtrips
Give & Get Stuff	/tree	MacWan Visits	/visits
Waste Assessments	/assess	Curriculum	/teachers

## 2011 MUNICIPAL WASTE MANAGEMENT DATA BY COLLECTION PROGRAM SIZE AND TYPE

	Tons of Trash Sent to Landfill per Household Served in Program	MRF Recycling Rate	Mandatory Recycling Rate	Rate of Overall Material Diversion from Landfill
<b>≥ 10K households served curbside</b>				
Coventry	1.06	21.5%	30.3%	30.7%
Cranston	0.88	22.4%	35.7%	36.0%
Clumberland	1.30	19.9%	36.2%	36.4%
East Providence	0.83	24.7%	48.2%	48.5%
Johnston	*	12.2%	18.3%	18.7%
Newport	0.92	22.9%	35.7%	36.0%
North Providence	0.69	21.4%	27.8%	28.5%
Pawtucket	0.61	20.0%	27.6%	31.1%
Providence	0.94	14.6%	18.0%	18.2%
Warwick	0.93	26.0%	46.1%	46.3%
West Warwick	0.96	21.0%	31.1%	31.4%
Woonsocket	0.68	23.7%	31.6%	33.0%
<b>≥ 10K Curb. AVG.</b>	<b>0.92</b>	<b>20.2%</b>	<b>32.2%</b>	<b>32.9%</b>
<b>&lt; 10K households served curbside</b>				
Barrington	0.97	27.1%	46.6%	49.3%
Bristol	*	17.7%	17.7%	23.5%
Burrillville	0.83	22.6%	28.9%	30.2%
Central Falls	0.72	20.3%	22.4%	22.9%
East Greenwich	1.02	28.5%	36.5%	38.2%
Foster	1.15	21.7%	21.7%	22.6%
Lincoln	1.23	21.5%	27.1%	27.7%
Middletown	0.56	40.8%	52.3%	53.5%
North Smithfield	0.61	30.6%	36.6%	37.2%
Scituate	0.59	22.1%	24.6%	25.3%
Smithfield	0.72	24.8%	38.0%	38.4%
Tiverton	1.03	28.6%	54.6%	54.9%
Warren	0.65	25.2%	28.9%	40.2%
<b>&lt; 10K Curb. AVG.</b>	<b>0.69</b>	<b>25.6%</b>	<b>33.7%</b>	<b>35.7%</b>
<b>Transfer station / independent curbside collections</b>				
Charlestown	0.41	33.6%	42.4%	44.1%
Exeter	0.69	23.6%	25.9%	26.6%
Glocester	0.66	31.1%	34.3%	36.6%
Jamestown	2.24	25.9%	27.4%	28.1%
Little Compton	1.08	26.7%	30.9%	36.5%
Narragansett**	*	16.9%	22.8%	42.3%
New Shoreham	*	23.1%	31.6%	46.4%
North Kingstown	1.32	29.4%	33.5%	36.4%
Portsmouth	1.07	30.0%	40.3%	44.2%
Richmond	*	23.3%	23.3%	24.7%
South Kingstown**	0.42	42.6%	60.6%	63.1%
West Greenwich	1.51	20.6%	24.6%	26.1%
Westerly/Hopkinton	0.95	23.8%	35.4%	48.7%
<b>T-Station/Ind. AVG.</b>	<b>1.06</b>	<b>27.0%</b>	<b>32.5%</b>	<b>38.8%</b>
<b>STATE AVERAGE</b>	<b>0.95</b>	<b>22.1%</b>	<b>32.8%</b>	<b>32.8%</b>

\*\* SK & Narragansett agree to split shared numbers at 51% SK and 19% Narragansett for the purpose of calculating rates.

\* Data on number of households served unavailable

Total Tons of Trash Landfilled / Reported Number of Households Served
Total Tons of Bin Recyclables / Above Numerator + Trash Tons
Total Tons of Bin Recyclables + Leaf & Yard + Clothing + Metals / Above Numerator + Trash Tons
Total Tons of All Materials Kept Out of Landfill via Recycling, Composting & Reuse / Above Numerator + Trash Tons



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# How Has Bristol Done Since 2008?

	CY2009	CY2010	CY2011	CY2012 PROJECTED
<b>Refuse Landfilled / HH served</b>	1.10	1.07	1.09*	1.14
<b>MRF Recycling Rate</b>	16.9%	16.5%	17.7%	17.5%
<b>Mandatory Recycling Rate</b>	40.5%	16.6%	17.7%	28.4%
	Reported 3350 tons LYW	Reported 0 tons LYW	Reported 0 tons LYW	LYW has been reported: 1360 tons
<b>Diversion</b>	43.7% Delivered 681 tons C&D	23.2% Delivered 705 tons C&D	23.5% Delivered 589 tons C&D	29.5%  C&D now landfilled; 8 tons prior to change



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## In Comparison to Other Curbside <10K HH?

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- Comparing Bristol FY12 *Projection* to FY11 Data:
- Not affected by LYW figure:
  - 2<sup>nd</sup> of 13 in Refuse Landfilled / Household Served
  - 13<sup>th</sup> of 13 in MRF Recycling
- Affected by LYW figure:
  - 9<sup>th</sup> of 13 in Mandatory Recycling
  - 8<sup>th</sup> of 13 in Overall Diversion



# Increase Recycling To:

## Save Financial Resources

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- Tip fee avoidance: \$32 refuse v. \$0 recycling
- *(Over-the-cap tip fee avoidance: \$54 v. \$0)*
- Profit-share / ton delivered to MRF
- Tip Fee Rebate
  - \$32/ton if recycling\* between 0%-23.99%
  - \$31/ton if recycling\* between 24%-29.99%
  - \$30/ton if recycling\* between 30%-34.99%
  - \$29/ton if recycling\* 35% or greater

\*MRF recycling rate



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# How has Bristol Saved?

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- Tip fee avoidance: \$32 refuse v. \$0 recycling
  - Tipped 1574 tons at \$0 v. \$50,360 in FY12
- Over-the-cap tip fee avoidance: \$54 v. \$0
  - None; Tipped 7212 of 7230 tons in FY12

- Profit-share per ton delivered to MRF

	FY2009	FY2010	FY2011	FY2011	FY2012
Profit Share	\$0	\$11,215.00	\$29,467.89	\$33,743.38	TBD

- \$0 saved from tip fee rebate (7/13 got it)



# What Have Other Municipalities Done to Increase Recycling/Diversion & Save?

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- No Bin, No Barrel
- Pay-As-You-Throw
- Automated Collection w/ Carts
- Increasing Bulky/Special Waste Recycling
- Promoting Food Scrap Composting
- Using RIRRC's Education Programs



# No Bin, No Barrel

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- No recycling bin? No trash pickup.
- Guarantees total, minimum participation
- 14 municipalities; > half of those w/ curbside pick-up service
- Complete a route survey to gauge participation first



# No Bin, No Barrel

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## Challenges:

- Multi-family units / Condos
- Adequate Public Notice
- Bin Supplies / Distribution
- Bin(s) put out less than full
- Bin(s) pulled back too early
- Resident feels they have no recycling (rare complaint).

## Benefits:

- Every household obtained ***the means*** to recycle
- Every household was given the ***information needed*** to recycle
- Every household was held to the same ***consequence***-no favoritism!



## RI Communities With No Bin, No Barrel

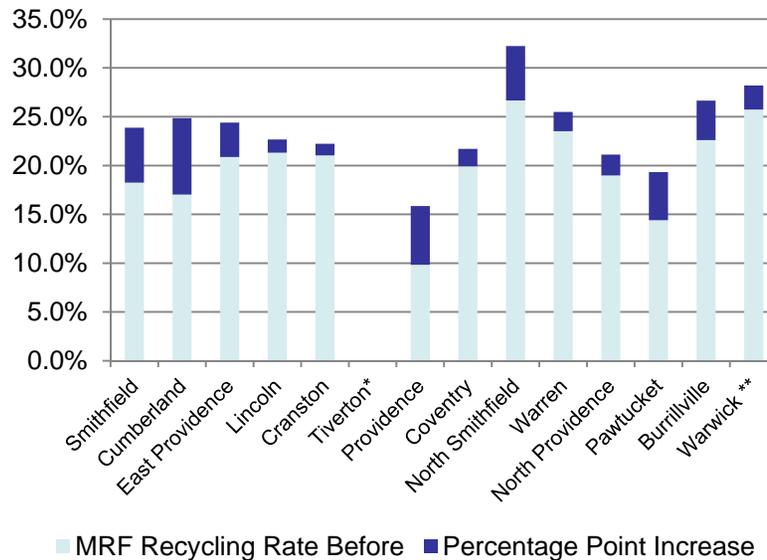
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- Smithfield
- Cumberland
- East Providence
- Lincoln
- Cranston
- North Providence
- Burrillville
- Providence
- Coventry
- Tiverton
- North Smithfield
- Warren
- Pawtucket
- Warwick



# Results: 1 Year Pre- vs. 1 Year Post-

### Increase in MRF Recycling Rate



RANGE: 1.2 Pt. Jump (Higher Participation Initially) –  
7.8 Pt. Jump (Lower Participation Initially)

	Disposal Fees Avoided
Smithfield	\$11,406.08
Cumberland	\$32,274.56
East Providence	\$11,234.88
Lincoln	\$2,360.64
Cranston	\$12,318.72
Tiverton*	\$6,216.96
Providence	\$120,805.12
Coventry	\$14,218.56
North Smithfield	\$7,803.20
Warren	\$3,268.48
North Providence	\$4,240.96
Pawtucket	\$38,949.12
Burrillville	\$5,677.44
Warwick**	\$32,197.35

**Increased recycling tons also result in increased profit-share, when there is a profit.**

**MRF Recycling > 24% results in a tip fee rebate.**



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# Pay-As-You-Throw

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- When minimum participation is not the issue, but lack of maximum recycling is
- Trash is a utility: financial incentive to increase recycling and diversion
- 24 cities/towns charge for at least some bulky waste, including Bristol
- 14 go beyond to include some refuse...



# Pay-As-You-Throw Methods in RI:

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- **At the Transfer Station:**
  - By excess weight: Newport, Warren
  - By weight: New Shoreham, Coventry
  - By bag/tag: NK, SK/Narragansett, Westerly/Hopkinton, Charlestown
- **Curbside:**
  - By excess bag/tag: Central Falls, North Smithfield
  - By all bags/tags: Middletown, Tiverton



# Pay-As-You-Throw

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## Challenges:

- Perception that current program is “free”
- Concern that the same service will cost more \$
- Perception that it will inevitably lead to illegal dumping
- Min. 6 months to implement

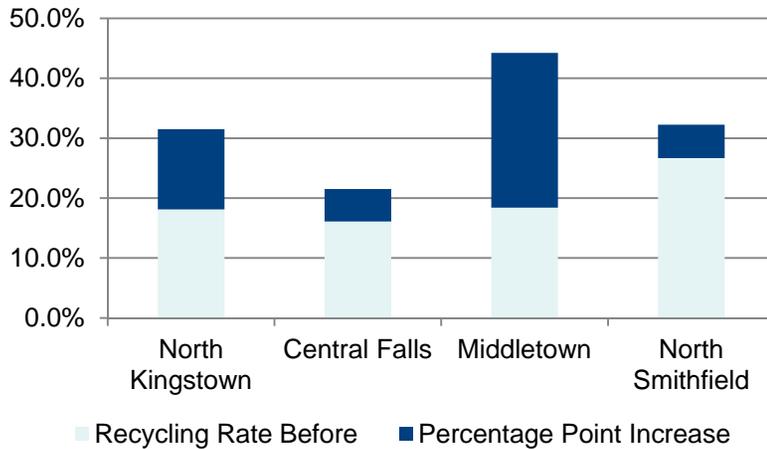
## Benefits:

- Personal financial incentive strong motivator of behavior change
  - The > program costs rolled into the bags/tags, the more personal control.
  - Promotes more than recycling; promotes diversion.



# Results: 1 Year Pre- vs. 1 Year Post-

**Increase in MRF Recycling Rate**



RANGE: 5.5 Pt. Jump (Average Partial PAYT) –  
 13.4 Pt. Jump (Full PAYT) –  
 25.8 Pt. Jump (Full PAYT, Intro to Curbside)

	Disposal Fees Avoided
North Kingstown	\$31,683.84
Central Falls	\$5,363.20
Middletown	\$36,135.68
North Smithfield	\$7,803.20
Tiverton	\$5,453.12

**Increased recycling tons also result in increased profit-share, when there is a profit.**

**MRF Recycling > 24% results in a tip fee rebate.**



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# EPA SMART Benefit Evaluation Tool

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- SMART BET (Saving Money and Reducing Trash Benefit Evaluation Tool) is designed to help community waste managers decide whether unit-based pricing for solid waste management is the right model for their municipality.
- <http://www.epa.gov/osw/consERVE/tools/payt/tools/smart-bet/>



# Recycling Collection Automation

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- Semi-Automated/Fully Automated Lift
- Automated Recycling:
  - **RI Communities Pre-Recycle Together: 3**
    - Warwick, Woonsocket, Middletown
  - **RI Communities Post-Recycle Together: 4**
    - Burrillville, NK, Providence, Cumberland
  - **RI Communities Considering/Bidding: 5**
    - EP, Pawtucket, Central Falls, Smithfield, EG



# Curbside Recycling Collection ...

<http://www.epa.gov/waste/conserve/tools/localgov/economics/collection.htm>

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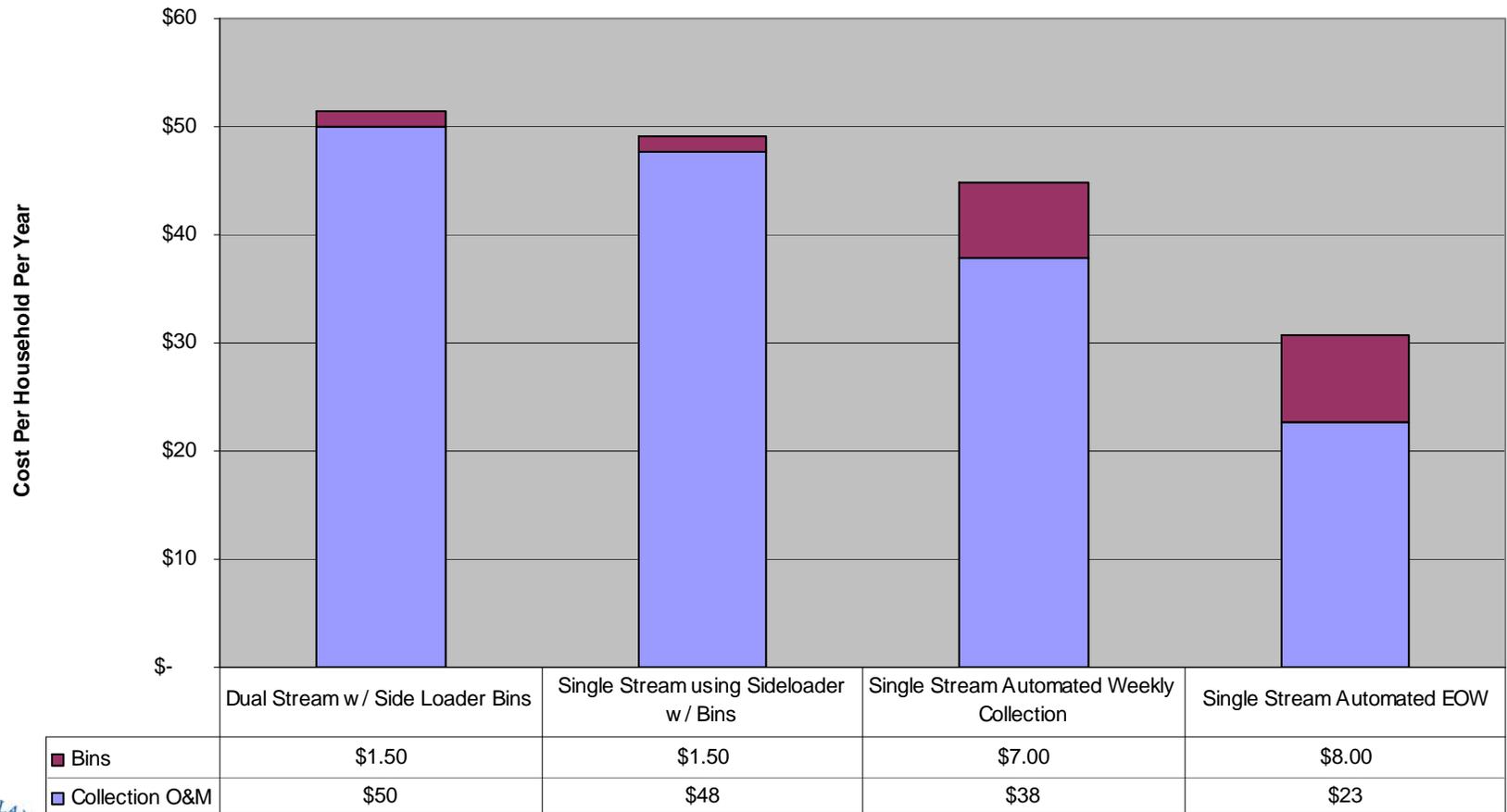
- **In General recycling collection costs per ton...**
  - Increase with the number of separately segregated commodities.
  - Increase with the frequency of collection.
  - Decrease as more materials are collected by the program.



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# A Comparison of Curbside Collection Cost



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# Recycling Collection Automation

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## Challenges:

- Higher capital costs trucks
- Fleet maintenance costs
- Upfront cost of carts
  - single stream reduces cart costs
- Contamination
- Public education

## Benefits:

- Reduced manpower and potential work related injuries
- Increased collection efficiency/stop
- Increased households/route
- Overall reduced costs
- Opportunity for EOW Collection



# Every Other Week Recycling Collection

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## **Challenges:**

- Scheduling
- Public Education
- Cart Size and Trashing of Recyclables
- Key is to Maximize Amount of Material Per Container Tipped

## **Benefits:**

- Lowest Cost Per Household
- Lowest Cost Per Ton
- Reduced Collection costs by 30 - 40%



# Advertising Bulky Waste Drop-Off

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- ***Auto-Batteries\****
  - ***Books\****
  - ***Clothing/Shoes\****
  - ***C&D\****
  - ***Computers/TVs\****
  - **Leaf & Yard**
  - **Mattresses**
  - ***Oversized Cardboard\****
  - **Plastic Bags**
  - **Rigid/Bulky Plastic**
  - **Scrap Metal**
  - ***Tires\****
  - ***Motor Oil/Filters\****
  - **White Goods**
- Others adding:**
- ***Cooking Oil\****



# Food Scrap Composting

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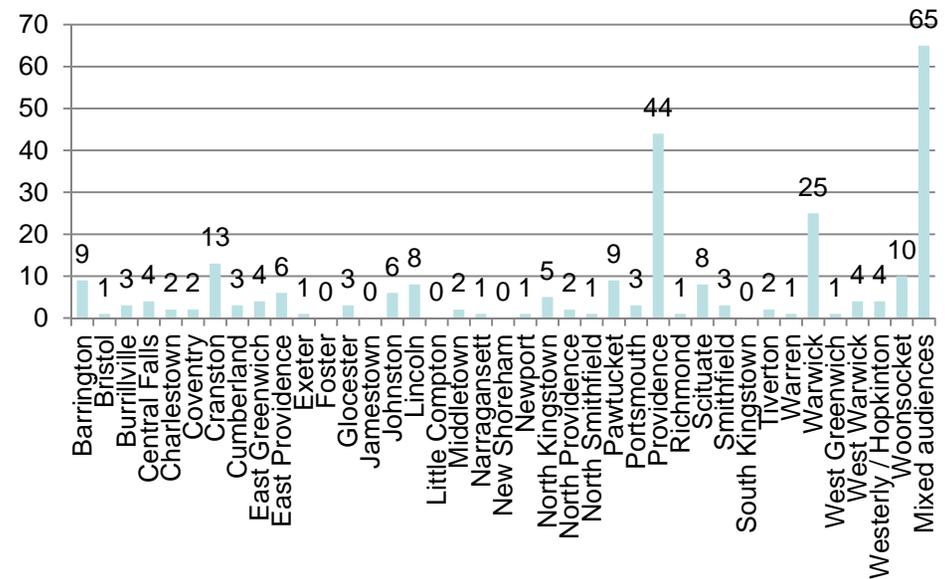
- Food scraps make up the highest % of waste landfilled (est. 20%): 1520 tons in CY12 \* \$32 = \$48,640.
- RIRRC rewards 500 lbs. of diversion credit, every year for 10 years, for each bin sold to a Bristol resident
- In CY12, only 3 sold from RIRRC
- Local sales and promotion most effective



# Tours & Presentations for Schools / Community

- Free! Use us!
- In FY12, RIRRC did 1 presentation (Rockwell ES)

**Number of FY12 Education Programs by Municipality**



# Recycling Coordinator

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- 15 municipalities with FT/PT Coordinator
- Can be funded in full or in part by profit share money / grant money
- Detailed tracking, analysis, and reporting is done consistently
- Plan, execute, and evaluate program changes
- Coordinate local outreach and education
- Direct point of contact for residents on issues related to local collection



# RI Communities With Recycling Coordinators

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- Barrington
- Burrillville
- Cranston
- Cumberland
- Middletown
- Narragansett
- Newport
- North Providence
- Pawtucket
- Providence
- Smithfield
- South Kingstown
- Warwick
- Westerly
- Woonsocket



*Thank You!*

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