



# Florida Department of Environmental Protection

## Waste Reduction/Recycling

# Contamination: A Growing Challenge to Reaching Florida's 75% Recycling Goal

December 16, 2015

Karen Moore

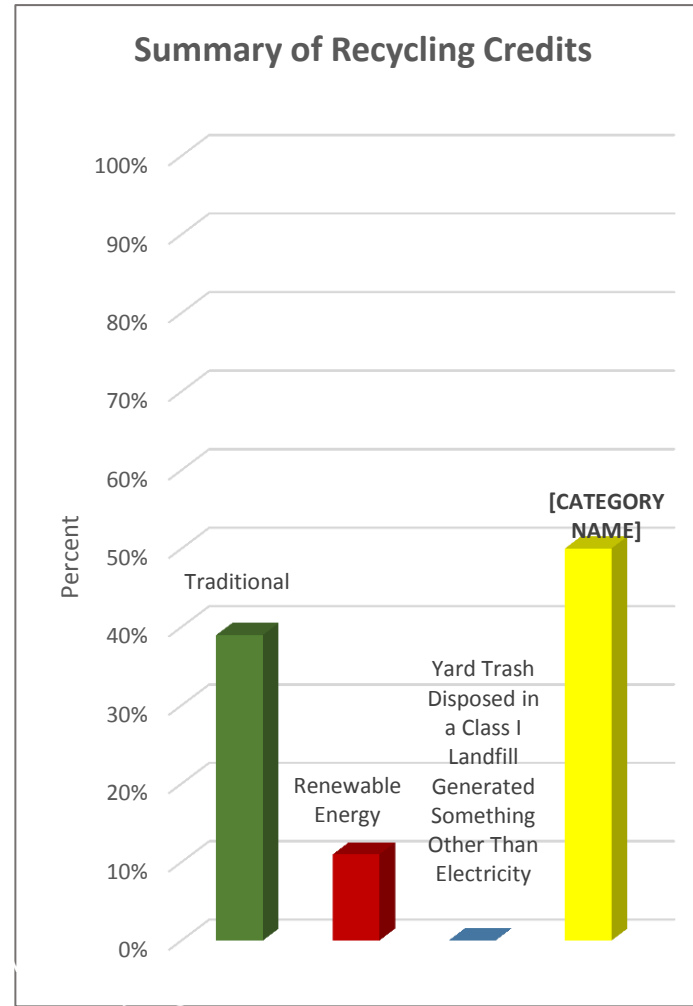




# Florida's 2014 Recycling Rate

- The statewide **overall recycling rate, which includes renewable energy\* recycling credits, increased from 49% (2013) to 50% (2014).**
  - The Legislature set an interim benchmark recycling goal of 50% for calendar year 2014 and 60% for calendar year 2016.
- The statewide **traditional recycling rate, which excludes renewable energy recycling credits, increased from 38% (2013) to 39% (2014).**

\*Electricity produced from MSW or landfill gas





# Single Stream Recycling: Challenge to Reaching Florida's 75% Recycling Goal

## Why Programs Are Using Single Stream:

- All accepted recyclables are placed in a single large cart
  - Increased participation due to convenience
  - Increased tonnage of recyclables
- Efficient collection = Reduction in Costs
  - Single Compartment Collection Truck
  - Automated
  - Fewer staff
- Over 50% of Florida's Population Has Single Stream Service

# Recycling Industry Report

## *The Challenges of Contamination*

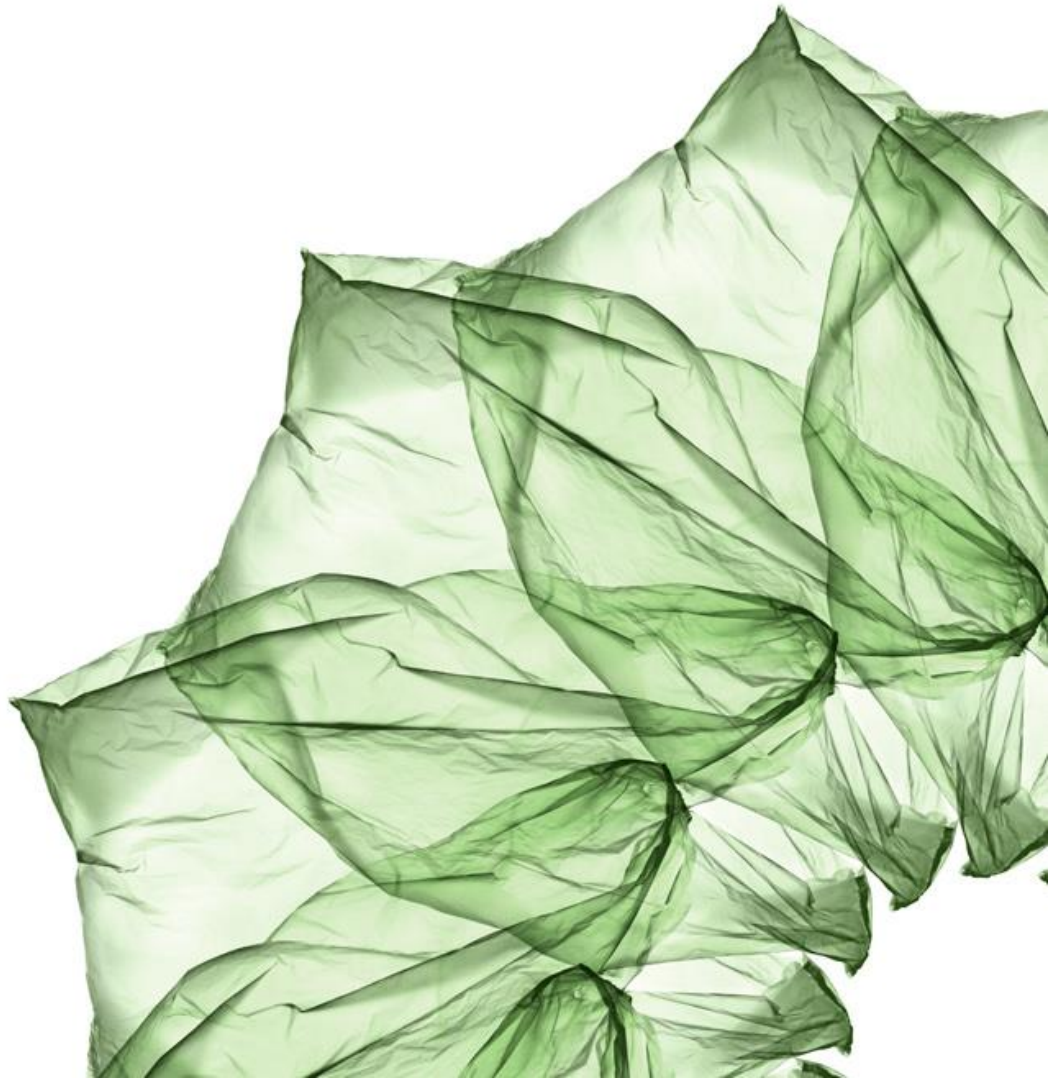
### FDEP Webinar

Dawn McCormick

Communications Director

Waste Management

December 16, 2015



# WM Recycling Services

- WM handled over 15 million tons of recyclables in 2014
- WM handles more residential recyclables than any other company in North America



## WM Recycling Facts

- **110 Material Recovery Facilities (MRFs) including:**  
Single-stream, C & D, and organics facilities
- Closed 8 recycling plants over the past year; more could cease operations.

# Recycling Report Card: Industry Challenges

Waste Management CEO David Steiner:

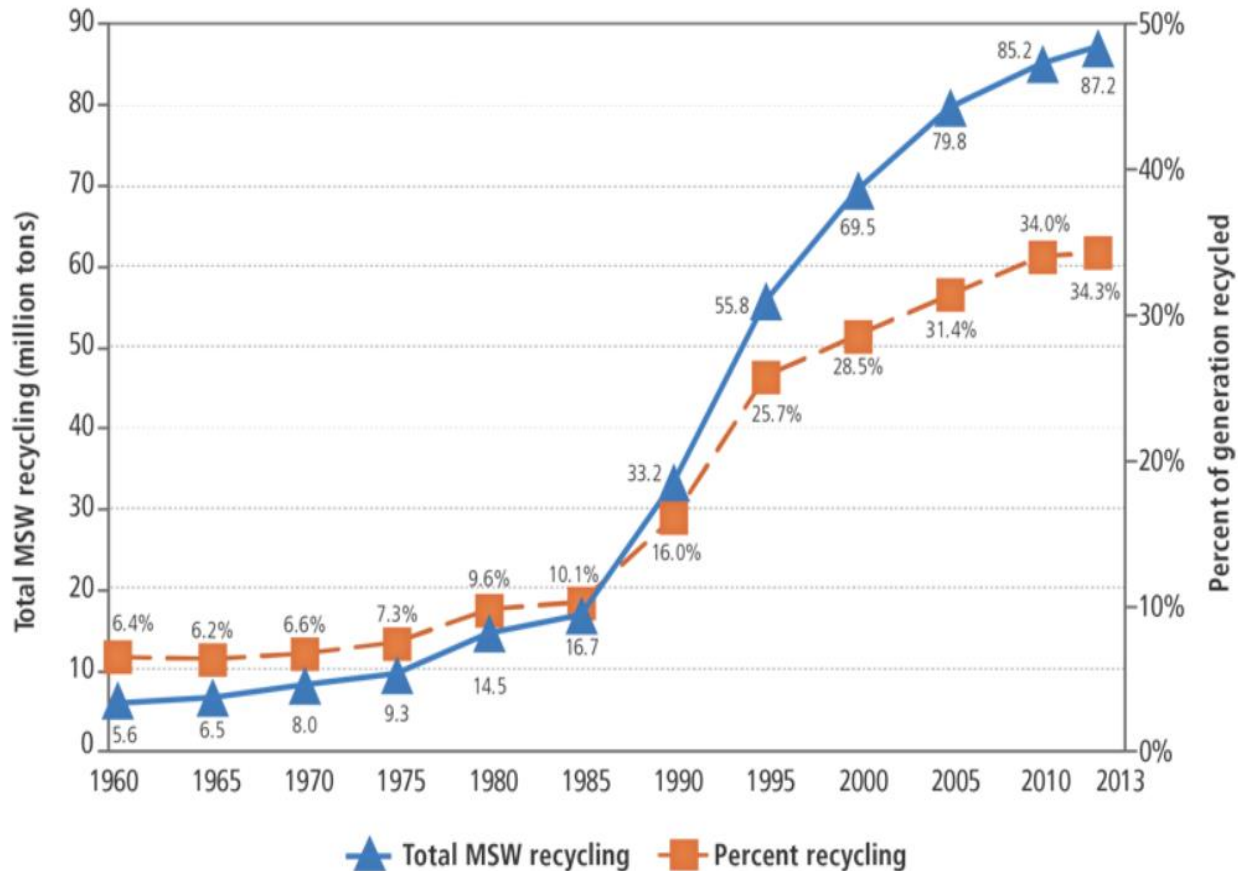
- Processing cost are going UP
- Contamination is UP
- Commodity prices are Down
- Costing more to process a ton of recyclables, and dispose of the contamination, than receiving from commodity markets



“To be sustainable overtime, recycling operations must make economic sense” - David Steiner

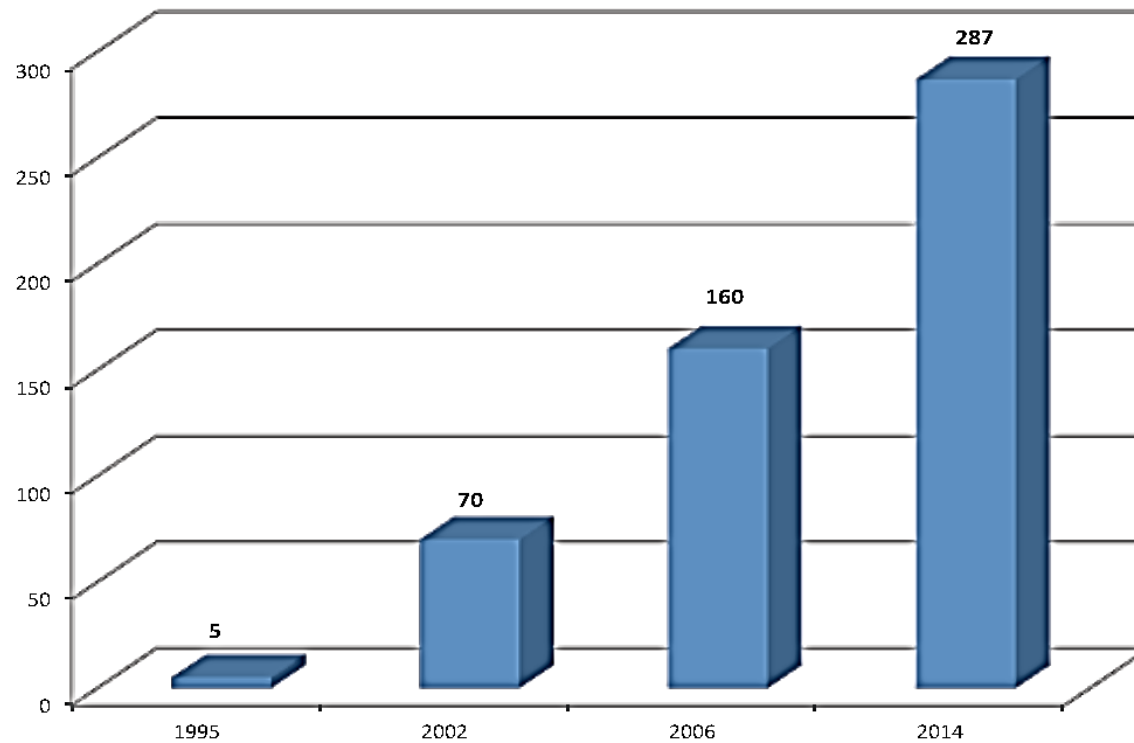
# Recycling is a Young, Evolving Industry

## MSW Recycling Rates, 1960-2013



Source: US Environmental Protection Agency <http://www3.epa.gov/epawaste/nonhaz/municipal/>

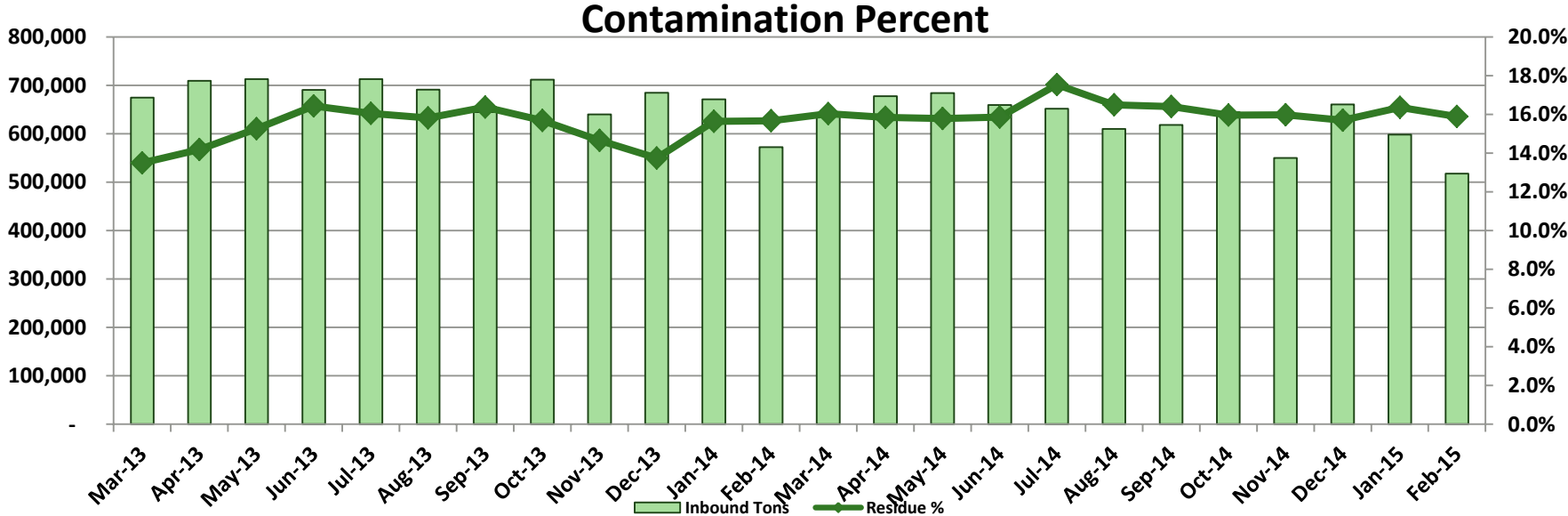
# Number of Single Stream MRFs



Source: Resource Recycling magazine; January 2015



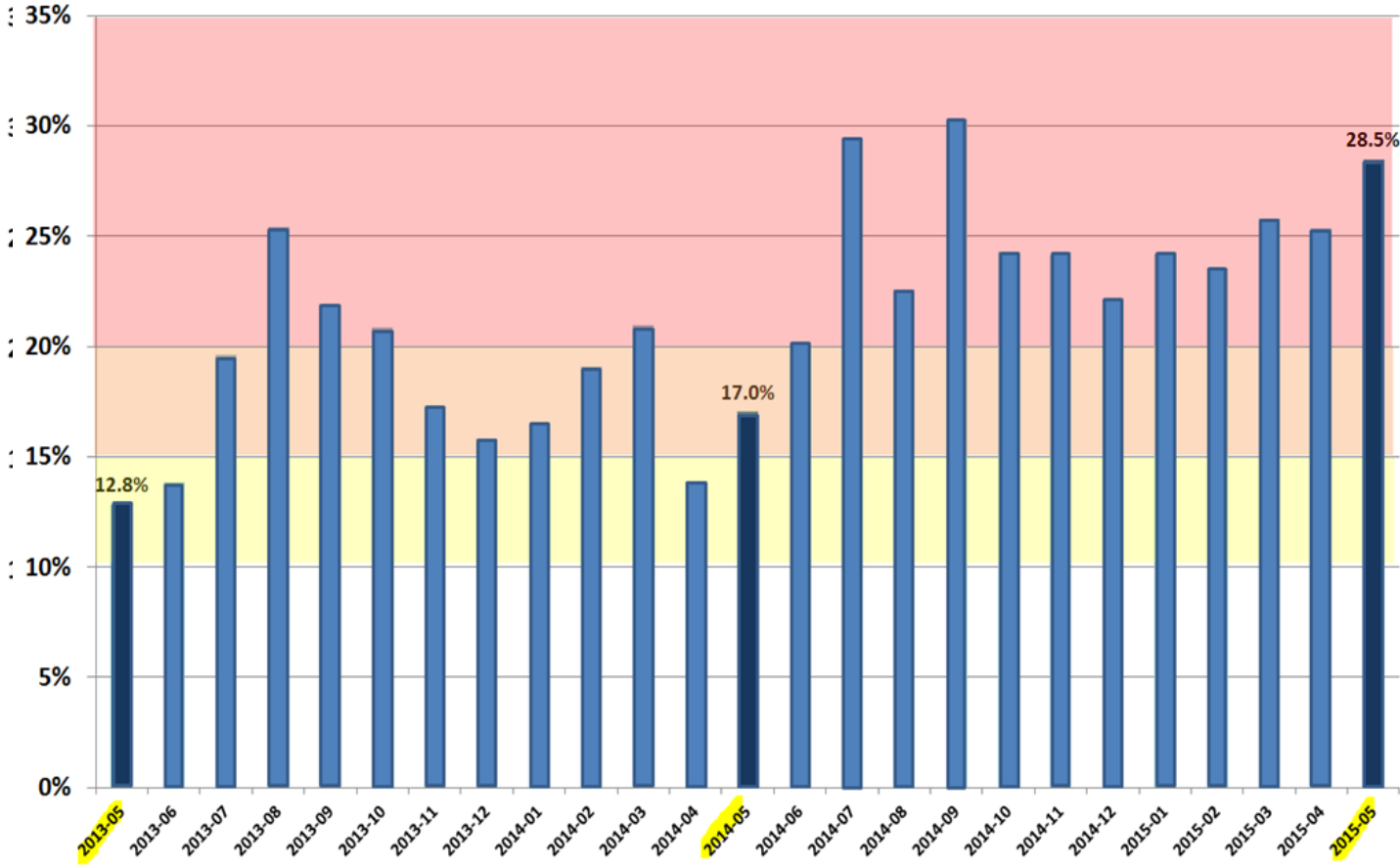
# Increasing contamination WM facilities companywide



- Contamination of loads is an *average* of 16% of inbound tons.
- Contamination can be up to 50% of incoming loads.
- Contamination cost an average of over \$125 per ton.
- Processing costs continue to increase as markets demand reduced contamination. This drives up cost to customers.



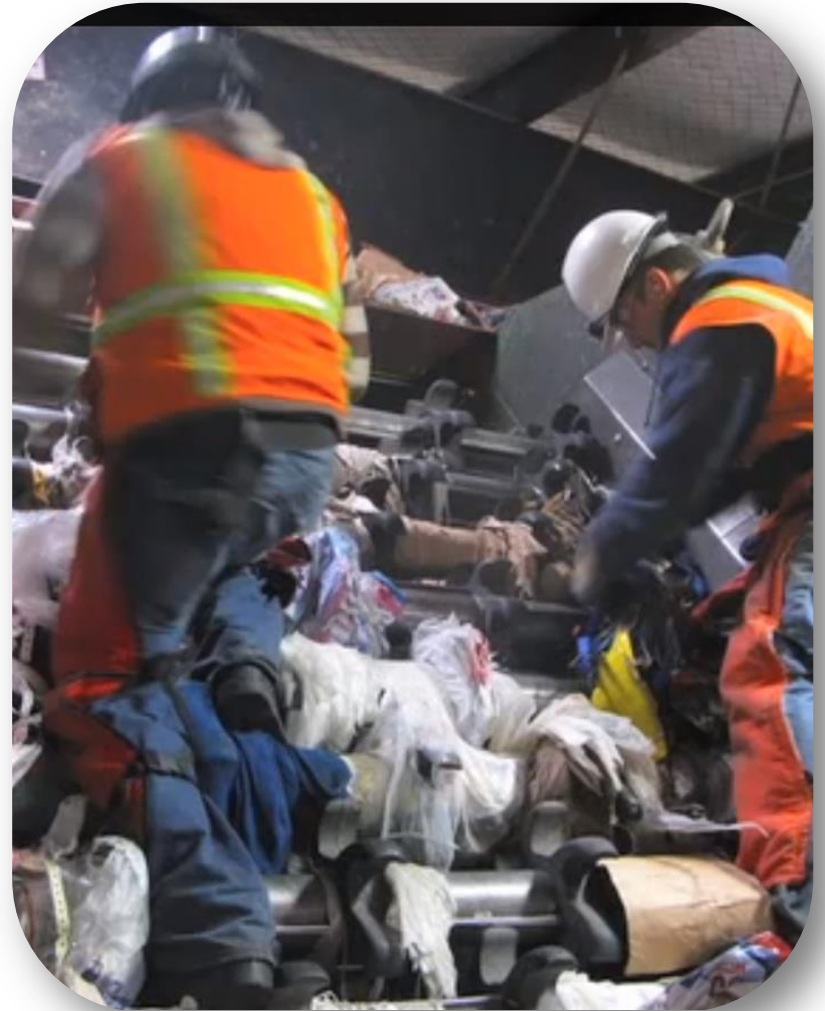
# Increasing Levels of Contamination: Reuter Recycling



# Contamination Challenges



# Film Plastics in Disc Screens





## HOME AND GARDEN

### Contamination causes most recyclables to end up in the landfill



### Tips for Tackling Contamination in Recycling Streams

Chrissy Kadleck | Waste360 Recycling Summit

Aug 6, 2015

EMAIL SHARE Tweet G+ Recommend COMMENTS

Impact and expense of careless recycling still worthwhile given our biggest challenge today is contamination in...

## County to pay for recycling program temporarily

First Posted: 12:29 pm - November 12th, 2015 Updated: 12:29 pm - November 12th, 2015

By Chris Cooper - ccooper@newsdemocratleader.com

It's never been simple to turn trash into gold. The spirit of recycling programs, paired with falling prices for commodities (such as aluminum) has led Jonathan Greenspan (former director of Resource Recovery Transfer Station Park recycling center in Illinois) to declare that "Recycling is dead in America."

Greenspan is not alone in his pessimistic outlook for the future of recycling. In a recycling boom *New York Times* journalist John Tierny was critical of the conditions. "Mandatory recycling programs aren't good for posterity. They offer mainly short-term benefits to a few groups –



### Tucson recycling rate is high, but so is contamination

Waste Dive - Oct 12, 2015  
The high recycling rate in Tucson, AZ — 90% of residents in the city and 92% outside where Waste Management provides the service — is ...

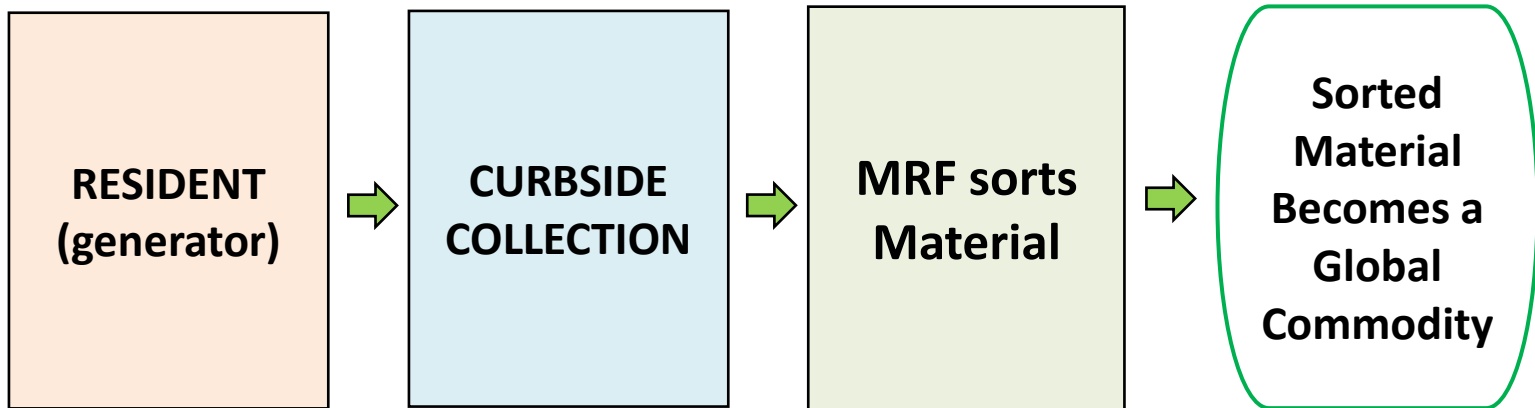
Tucsonans are above average with recycling, but there's room to ...  
Arizona Daily Star - Oct 10, 2015

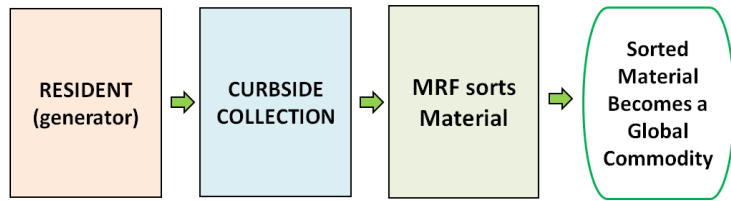
## Single Stream Residential Recycling Process.

What Goes Wrong?

What Process Controls are Needed?

### Recycling process simplified





## What goes wrong?

### Residents

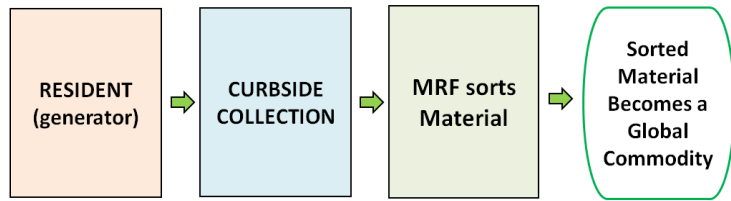
- Resident makes wrong decision, includes non-recyclable item
- Garbage in recycling container
- Missing lids on carts

### Collector

- Wrong material in right truck
- Right material in wrong truck
- Truck not cleaned out properly

### Processor

- Cross-contamination at MRF
- Poor recovery rates



# Process Controls in Recycling Contracts

## Residents

- Residents are educated on recycling right
- Residents have access to ongoing information
- Residents comply with rules

## Collector

- Drivers are trained to identify and handle material; leave material if not recyclable
- Conditions for rejection of material are defined and enforced

## County/City:

Proper steps for notification of non-compliant households are followed; consequences enforced

## Processor

- Auditing of inbound tons and continuous monitoring
- Control of inefficiencies in process



# Material Composition Auditing



## Aggregated Customer Audit Report

Thursday, December 03, 2015  
10:01:38 AM

Location Reuters MRF

Sample Confidence	95%	Shift		From	1/1/2015
Customer	Metro Dade County, Naples TS- Collier County, WM Delta Hialeah, WM Delta Recycling Homestead, WM Delta			To	12/3/2015
Status	# of Audits	Total Audit Time (hr.min)	Avg Audit Time (hr.min)	Total Weight (lbs)	Avg Weight (lbs)
Complete	124	341.40	2.75	26159.9	211.0

Material	Sub Type	Shape	Color	Min (lbs)	Max (lbs)	Avg (lbs)	Sum (lbs)	% of Total
Fiber	OCC			11.6	109.1	38.4	4758.50	18.2%
Fiber	ONP			25.0	128.4	65.3	8100.70	31.0%
Fiber	Mixed Paper			0.0	0.6	.0	.60	0.0%
Fiber	Aseptic-Gable To			0.0	2.6	.9	111.10	0.4%
Fiber	Wet Fiber			0.0	26.3	1.7	215.10	0.8%
Plastic	1 PET	Bottle		0.0	13.7	8.0	994.80	3.8%
Plastic	2 HDPE	Bottle	Natural	0.8	5.2	2.7	328.30	1.3%
Plastic	2 HDPE	Bottle	Colored	0.0	8.4	3.4	423.80	1.6%
Plastic	2 HDPE	Container	Natural	0.0	0.0	.0	.00	0.0%
Plastic	2 HDPE	Container	Colored	0.0	0.0	.0	.00	0.0%
Plastic	Plastic 3-7			0.0	3.5	1.2	150.50	0.6%
Plastic	Bulky Rigid Plasti			0.0	7.3	.3	27.60	0.1%
Metal	Aluminum	UBC		0.0	4.2	2.0	251.20	1.0%
Metal	Aluminum	NonUBC		0.0	2.2	.0	2.20	0.0%
Metal	Scrap Aluminum			0.0	4.6	.1	6.40	0.0%
Metal	Tin	Can		0.0	5.4	2.8	350.90	1.3%
Metal	Scrap Steel			0.0	8.5	.4	39.20	0.1%
Glass	Three Mix Glass >			12.2	62.2	32.1	3983.00	15.2%
Residue	Residue			23.4	97.1	51.7	6416.00	24.5%
				<b>Total Sample Weighed</b>			<b>26,159.9</b>	<b>100.0%</b>

NOTE: Values calculated by hand will differ due to rounding.

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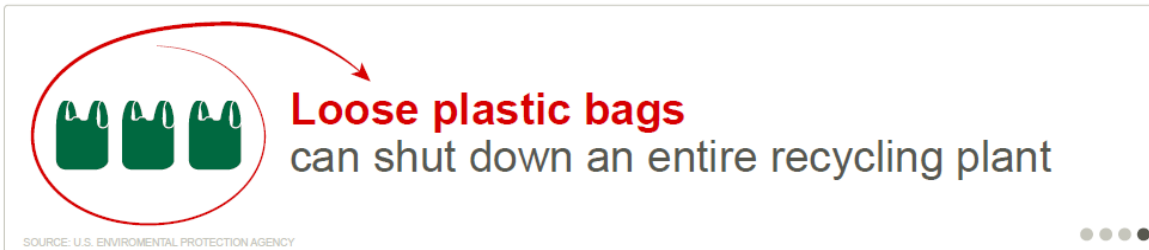
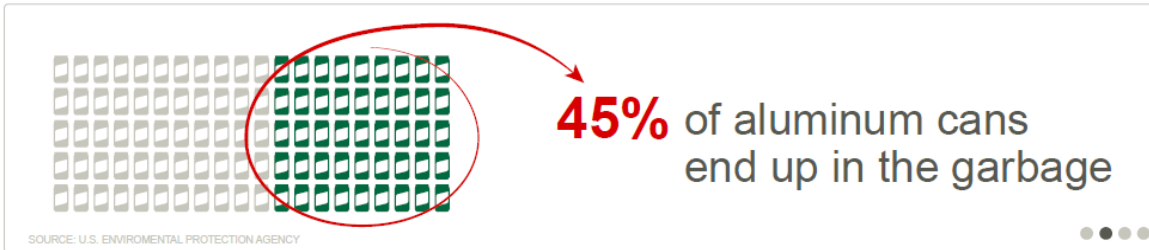
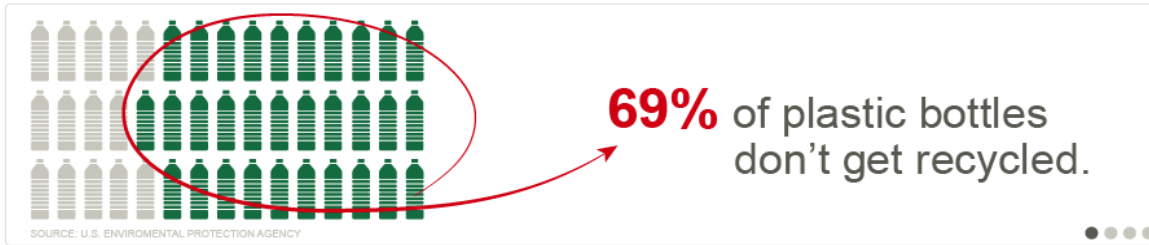
# Back to the Basics: Public Education and Outreach for Recycling

Recycle Often. Recycle Right.<sup>SM</sup>

The Path to Sustainable Profitable Recycling



# Its's Important to Recycle Often and Recycle Right



# Simple Messages



Recycle all my empty bottles, cans and paper.



Keep food and liquids out of my recycling.



Keep loose plastic bags out of my recycling.

## Simplifying the Message

- Focus on 3 simple behaviors that could greatly impact recycling in Florida and nationally

# What About Glass?



- Glass markets have historically been problematic - however they have moved to a critical phase with the closure of a key processor. Some regions of the U.S. have no market for their glass.
- Waste Management is working with its customers to develop solutions for glass. Our goal is to meet our customers' needs while ensuring that we are fairly compensated for the costs of managing glass.
- In new contracts, we are offering prices with glass recycling (higher cost) and without glass recycling.

# Sustainable recycling requires multi-stakeholder support

1. Recycling goals must be realistic.

2. Policies and contract terms must support these goals.

3. Contamination must be reduced to under 10% of the recycling stream to ensure operationally and economically sustainable recycling programs.

# Contact Information:

Dawn McCormick

[dmcormick@wm.com](mailto:dmcormick@wm.com)

954-984-2041

# Reducing Contamination in Single-Stream Recycling



Travis Barnes, MPA, LEED AP

Recycling Coordinator

Hillsborough County

Solid Waste Management Division

Office Phone: 813-209-3085

Email:

[barnest@hillsboroughcounty.org](mailto:barnest@hillsboroughcounty.org)



# Recycling Program Overview

- ▶ Once a week single-stream collection implemented in October of 2013
- ▶ Approximately 261,000 households served via 211 automated recycling routes
- ▶ Using 65 gallon recycling carts (95 and 35 gallon carts available upon request)
- ▶ 3 franchised haulers collecting from 5 competitively bid districts (Progressive Waste Solutions, Waste Management, and Republic Services)
- ▶ Single-stream doubled tonnage collected to  $\approx$  63,000 tons annually
- ▶ Recycling composition study found contamination/residue to be 19.21%.



# Preparing to Transition to Single-Stream

- ▶ Work with your MRF to identify which recyclables can be successfully recovered and marketed
- ▶ Focus initial messaging to public on what items are accepted in your curbside program
- ▶ Consider paying the extra cost to embed targeted program recyclables on the lid of your new carts
- ▶ Before cart distribution ensure staff are educated on what items are accepted in your curbside program so they can help provide consistent messaging to the public
- ▶ Share information about what items are accepted in single-stream program with community partners so they can help distribute accurate information
- ▶ Provide residents with information about what items are accepted in your program along with the recycling cart delivery



# Tools to Identify and Reduce Contamination

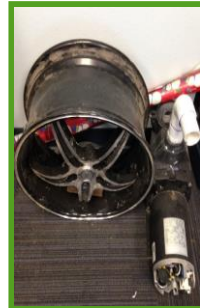
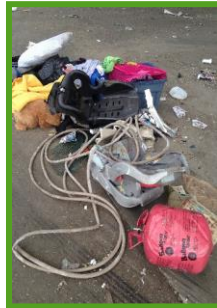


- ▶ Perform a composition study of your recycling stream
  - ▶ Establishes a contamination baseline to measure progress over time
  - ▶ Identifies the most common types of contamination entering your system and where it is originating
- ▶ Evaluate your current communication and outreach efforts
- ▶ Focus your message on what items can be recycled in your curbside program as opposed to general information about why recycling is important or good for the environment
- ▶ Explain the sorting process at MRFs so residents better understand why certain items can't be recycled curbside
  - ▶ Simply stating an item is not accepted is not enough
  - ▶ Provide a justification for why items can't be recovered
  - ▶ It's okay to tell people what NOT to do
- ▶ Use data to guide your program



# County Efforts to Reduce Contamination

- ▶ Developing a comprehensive public communication and outreach campaign
  - ▶ To include traditional media, social media, advertising, public meetings, events, etc.
  - ▶ Considering using focus groups to hone our message and receive public feedback
- ▶ Updating our website to be more user-friendly
- ▶ Updating recycling handouts to list common items we don't want in the recycling cart
- ▶ Utilizing our community partners (cooperative extensions, local universities and community colleges, adjacent municipalities, public schools, neighborhood newsletters, Keep America Beautiful affiliates, environmental groups, etc.)



# Example of Website Changes



**Solid Waste News**

Posted on: November 13, 2015

### Curbside Collections, E-Cycling, and Other Tips for the Holidays

Hillsborough County, Fla. (Nov. 13, 2015) - As the holiday season is approaching, this quick reference guide will help residents plan ahead to recycle the usual containers, cans, and cardboard boxes, and provide tips on what to do with those unique holiday items. Recycling and disposal options for Hillsborough County Solid Waste customers are available at [www.HillsboroughCounty.org/RecycletheHolidays](http://www.HillsboroughCounty.org/RecycletheHolidays) or by calling (813) 272-5680.

**Holiday Curbside Collection Changes:**

- No curbside collection of trash, recycling, or yard waste Thursday, Nov. 26
- No curbside collection of trash, recycling, or yard waste Friday, Dec. 25
- No curbside collection of trash or yard waste Friday, Jan. 1
- Normally scheduled recycling collection will occur Friday, Jan. 1
- No makeup collection days for the holidays

**Solid Waste Facility Holiday Closures:**

All Hillsborough County solid waste facilities, including Community Collection Centers, yard and wood waste, transfer stations, resource recovery, and the Southeast County landfill, will be closed Thursday, Nov. 26; Friday, Dec. 25; and Friday, Jan. 1.

**Recycling Food and Beverage Containers in Blue Curbside Cart:**

Recyclable food and beverage containers should be emptied and rinsed before placing them loose in the blue recycling cart.

- Plastic bottle and containers No. 1-7
- Aluminum, tin, and steel cans
- Cartons, such as those for soy milk, juice boxes, chicken broth, etc.
- Glass bottles and jars
- Plastic bags, film, or shrink wrap are NOT recyclable in the cart

**Recycling Paper and Cardboard in the Blue Curbside Cart:**

Place all items loose in the blue recycling cart.

- Any paper that is clean and easily tears
- Newspaper, office paper, junk mail, paperback books, magazines, etc.
- Flattened cardboard boxes
- Paperboard food boxes, cereal boxes, and paper towel rolls
- Greeting cards and wrapping paper, as long as it is free of ribbons, foil, and other non-paper items
- Gift bags, tissue paper, ribbons, and bows are NOT recyclable in the cart

**Recycling Electronics:**

- Items containing a digital display or circuit board, including televisions, computers, laptops, mobile devices, stereo equipment, gaming consoles, VCR/DVD players and printers, may be safely recycled at any of the Community Collection Centers for no additional fee.
- Small bathroom and kitchen appliances such as toasters, crock pots, electric skillets, blenders, hair dryers, and curling irons may be discarded in your gray garbage cart.

**Recycling Live Christmas Trees:**

- Curbside pickup of live Christmas trees is available by following these steps:
  - Remove all decorations, lights, and tinsel
  - Cut the tree into sections no larger than 4-feet long and 8-inches in diameter
  - Place curbside on your regular yard waste collection day
- Drop off live trees at one of the following Yard Waste Processing Facilities, after

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**Categories**

- All Categories
- All Hillsborough County News
- Solid Waste News

### Holiday Trash Schedule and Recycling



Tis' the season to recycle your leftover trash from the holidays. Click on the icons for information on holiday collection schedules, tips on how to dispose of unique holiday items, recycling options and more.

 <a href="#">Holiday Collection Days and Facility Closings</a>	 <a href="#">Live Christmas Trees</a>	 <a href="#">Electronics</a>	 <a href="#">Holiday Lights</a>
 <a href="#">Cooking Oil</a>	 <a href="#">Wrapping Paper and Cards</a>	 <a href="#">Holiday Ornaments and Decorations</a>	 <a href="#">Styrofoam Packaging</a>
 <a href="#">Cardboard Boxes</a>	 <a href="#">Plastic Bags</a>	 <a href="#">Food and Beverage Containers</a>	 <a href="#">Excess Trash</a>

# County Efforts to Reduce Contamination...



- ▶ Getting creative with our public outreach efforts to draw attention to the recycling process and how contamination negatively impacts the process
- ▶ Educating more staff on what items are accepted in the recycling program and why
  - ▶ Providing a list of frequently asked questions and stock responses
  - ▶ Work with other departments that perform community outreach
- ▶ Working with our haulers:
  - ▶ Help educate recycling drivers about what items are accepted
  - ▶ Developing cart contamination notification stickers to provide immediate feedback to households
  - ▶ Seeking feedback from drivers on what routes are the most contaminated



# Target Your Efforts Where Most Needed



- ▶ Identify what data is available to you
  - ▶ Grading inbound recycling loads at the MRF
  - ▶ Working to develop exception reports within Sonrai RFID system to identify households that receive contamination stickers and follow-up with direct correspondence to these customers
  - ▶ Identifying cart set-out rates on each route to measure participation
  - ▶ Calculating average lbs per household along each route to measure participation
- ▶ Track and measure progress over time
- ▶ Sustain and improve our efforts over time as the problem is never “solved”





Santa Rosa County Florida  
Environmental Department  
6065 Old Bagdad Highway  
Milton, FL 32583  
850-981-7135  
Ron Hixson, Environmental Manager  
[ronh@santarosa.fl.gov](mailto:ronh@santarosa.fl.gov)

# **SANTA ROSA COUNTY RECYCLING**

33



# PAST RECYCLING ACTIVITIES

- County Operated Recycling Facility
- Dual Stream with 19 Drop Sites
- Residential, Schools & County Offices
- Primary Items
  - Cardboard
  - Office & Mixed Paper
  - Metals
  - Limited Plastics
  - Glass



# OVERVIEW

- APPROXIMATELY 53 DUAL STREAM DROP BOXES
- LOW TECH – “KICK AROUND THE FLOOR SORTING”
- FOCUSED ON PROCESSING MATERIAL WITH REGIONAL MARKETS
  - CARDBOARD – LOCAL END USER
  - METALS – LOCAL METAL RECYCLERS
  - PLASTICS
  - MIXED PAPER
  
- CONTAMINATION AT DROP SITES – RESIDENTS USED AS GARBAGE BINS
- LIMITED CAPACITY TO HANDLE COUNTY SINGLE STREAM
- LOW REVENUE
- TRANSPORTATION COST & COST TO UPGRADE FOR CURBSIDE RECYCLING COLLECTIONS
  
- FOR PROFIT, WEST FLORIDA RECYCLING, CONVINCED BOCC THEY COULD DO CHEAPER AND PRODUCE MORE REVENUE

# CONTRACTING OUT RECYCLING

## WEST FLORIDA RECYCLING (WFR), FIRST ATTEMPT AT OUTSOURCING

- FUNDED BY INVESTORS, NO COST TO COUNTY
- PROVIDED COLLECTIONS AND TRANSPORTATION FOR DROP SITES
- PROCESSED ALL RECYCLABLES COLLECTED IN COUNTY
- OPERATIONS SUPPORTED BY SALE OF RECYCLABLES

### OPERATED 2011 TO 2013

- FAILURE CONTRIBUTED TO LOW MARKET REVENUE
- NON-RECYCLABLES IN THE RECYCLE STREAM
- OVERLOADED WITH MATERIAL
- CONTAMINATION OF END PRODUCT



# OPERATIONS AFTER WFR

## TWO PARTY OPERATION, SECOND ATTEMPT AT OUTSOURCING

- RECYCLABLES COLLECTED BY FRANCHISE HAULERS IN CURB SIDE SINGLE STREAM COLLECTIONS AND DELIVERED TO SANTA ROSA COUNTY CENTRAL LANDFILL AT NO-TIP
- EMERALD COAST UTILITIES TRANSPORTS ALL RECYCLABLES COLLECTED BY HAULERS TO IREP MONTGOMERY FOR PROCESSING
- ECUA PAID IREP MONTGOMERY \$28.10 / TON FOR PROCESSING
- REBATE OF \$38.10 / TON ON SELL OF RECYCLABLES
- NO COST TO COUNTY BUT ALSO NO REVENUE FROM SELL OF RECYCLABLES

# CURRENT RECYCLING OPERATIONS

## FRANCHISED COLLECTIONS COUNTY WIDE

- **THREE WASTE HAULERS**
  - **EMERALD COAST UTILITIES AUTHORITY (ECUA)**
  - **WASTE PRO**
  - **WASTE MANAGEMENT**
  
- **CURRENT HOUSEHOLDS IN FRANCHISES – 40,000 households**
  
- **SERVICES**
  - **TWICE A WEEK GARBAGE**
  - **ONCE A WEEK RECYCLING**
  - **EVERY OTHER WEEK YARD WASTE**
  - **BULK, E-WASTE ON DEMAND**

## RECYCLABLES COLLECTED CURBSIDE

- **APPROXIMATELY 830 TONS/MONTH**

# RECYCLABLES COLLECTED

- GLASS, ANY COLOR
- MAGAZINES & CATALOGS
- PHONE BOOKS
- ALUMINUM CANS & LIDS
- BUBBLE WRAP
- CARDBOARD EGG CARTONS
- PLASTIC MILK JUGS
- NEWSPAPER & INSERTS
- JUNK MAIL & ENVELOPES
- COLOR PAPERS
- TIN/STEEL CANS & LIDS
- TIN FOIL & PIE TINS
- PLASTIC CUPS, PLATES ETC
- PLASTIC PRODUCE CLAMSHELLS
- CARDBOARD
- PAPER BAGS
- PIZZA BOXES
- CEREAL BOXES
- METAL POTS & PANS
- JUICE BOXES / BAGS
- PET FOOD CANS
- CRACKER BOXES
- PLASTIC & METAL HANGERS

# MATERIALS NOT COLLECTED

- PLASTIC BAGS
- POLYSTYRENE
- WAXY / PAPER FOOD CONTAINERS
- GARBAGE / YARD WASTE
- AEROSOL CANS

# IREP CLOSED OCTOBER 2015

- **LOW REVENUE FROM SELL OF RECYCLABLES**
- **OPERATIONAL EXPENSES EXCEEDED ESTIMATES**
- **LACK OF CAPITAL TO CONTINUE OPERATIONS**
- **NON-RECYCLABLES IN THE INCOMING RECYCLE STREAM**
- **POSSIBLE CONTAMINATION OF END PRODUCT**

## AFTER IREP MONTGOMERY

### RECYCLABLES GOING TO TARPON RECYCLING IN ALABAMA

- |  | OUTBOUND | CLASS I |          |
|--|----------|---------|----------|
| ➤ OCTOBER  | 684/TONS | 146     | \$4,672  |
| ➤ NOVEMBER   | 427/TONS | 403     | \$12,896 |
| ➤ DECEMBER 10 ECUA TERMINATES HAULING CONTRACT WITH SRC DUE TO COST (TRANSPORTATION + TIPPING FEE AT TARPON) |          |         |          |
| ➤ ALL RECYCLABLES ARE DIVERTED TO THE CLASS I - \$26,560 / MONTH   |          |         |          |

# **FUTURE OPERATIONS ?**

## **RIGHT NOW – WORKING TO RESTART RECYCLING WITH ECUA / TARPON SHORT TERM FIX**

- **COUNTY WOULD PAY ECUA AROUND \$26.50 / TON TO COVER TRANSPORTATION PLUS TIPPING FEE AT TARPON**
- **TARPON WOULD ACCEPT APPROXIMATELY 75 -100 TONS / WEEK OF SANTA ROSA COUNTY RECYCLING OVER NEXT 6 MONTHS**
- **ABOUT 400 – 500 TONS/MONTH TO CLASS I**
- **ESTIMATED COST TO COUNTY \$83,000 TO \$102,000 OVER 6 MONTHS**

## **LONG TERM – REGIONAL RECYCLING FACILITY**

- **ESCAMBIA COUNTY & ECUA WORKING ON A TEMPORARY FACILITY**
- **EXPECTED TO OPEN JUNE – JULY 2016**
- **EXPECTED TIP \$20 - \$30 / TON**



# HOW TO RESCUE RECYCLING IF POSSIBLE ??

- CHARGE COLLECTION / TIPPING / PROCESSING FEES FOR RECYCLING
- RECYCLE ONLY MATERIALS THAT HAVE REGIONAL MARKETS (NOT CHINA)
- EDUCATIONAL - “MARKET BASED RECYCLING” (“YES, EVERYTHING CAN BE RECYCLED BUT NOT EVERYTHING SHOULD BE RECYCLED”)
- ELIMINATE MATERIALS THAT CONTAMINATE SELLABLE PRODUCTS
  - GLASS, FOOD CONTAMINATED BOXES (PIZZA), MATERIALS WITH LOW / NON-EXISTANT VALUE

**SHOULD MOVE TO “MARKET BASED RECYCLING” – ONLY COLLECT MATERIALS WITH A KNOWN LOCAL OR REGIONAL MARKET**



# Single Stream Recycling: Challenge to Reaching Florida's 75% Recycling Goal

## Recommendations to consider for Single Stream

- Education
  - Many residents are confused about what can be recycled
    - Focus on the top 4 or 5 recyclables
      - Highlight the do's and don'ts about your program
      - Provide directions on what items are suitable to be placed in the bin for recycling
    - Consider tags or stickers on carts to let homeowner know what is not accepted
- Contract Renegotiation between counties and the recycling processing companies
  - Look for provisions for route auditing and enforcement
  - Review the inbound material coming into the MRF
    - Set limits for contamination of 10% or less
  - Accept risk sharing
    - Understand that "never to pay" conditions are becoming unworkable
- Assistance from the State
  - Provide training and guidance to Counties



# Florida Department of Environmental Protection Waste Reduction/Recycling

Karen Moore  
Environmental Administrator  
Waste Reduction/Recycling  
850-245-8864

[Karen.S.Moore@dep.state.fl.us](mailto:Karen.S.Moore@dep.state.fl.us)



# Questions?

Thank you to our partners...

