

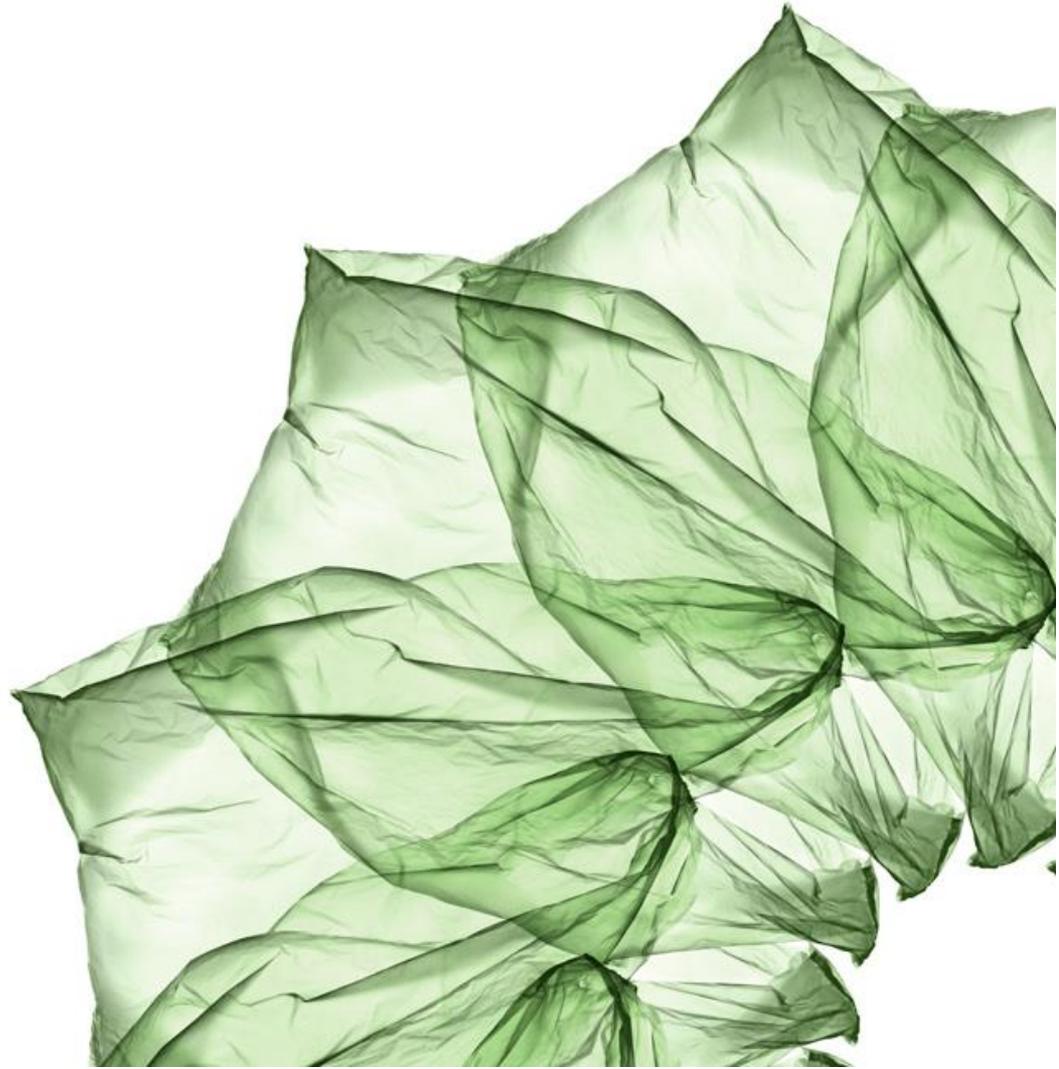
# Recycling Industry Report

## *Challenges and Opportunities*

### Jacksonville Environmental Symposium

Dawn McCormick  
Communications Director  
Waste Management

September 9, 2016



# WM Recycling Services

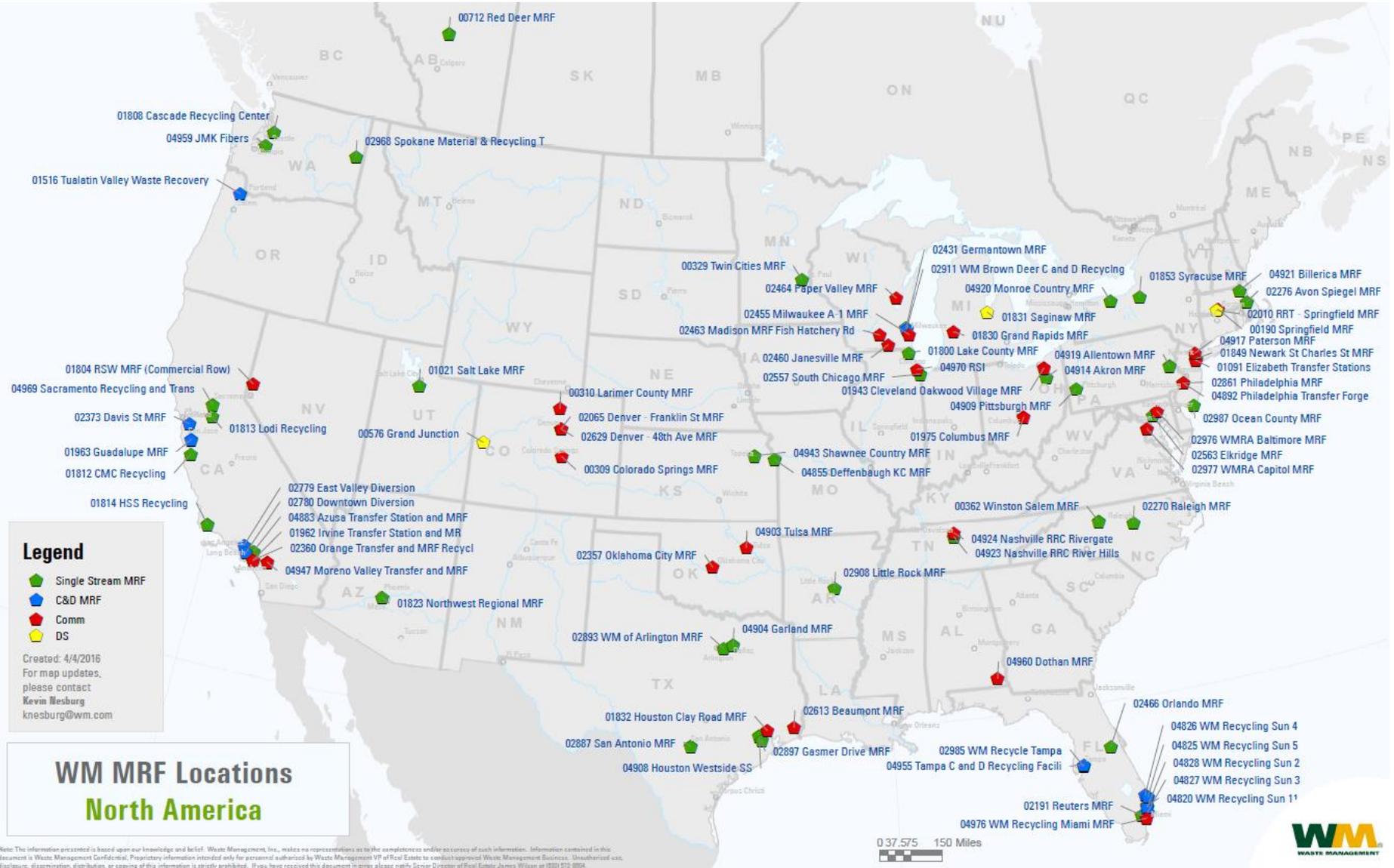
- WM handled over 15 million tons of recyclables in 2015
- WM handles more residential recyclables than any other company in North America



## WM Recycling Facts

- 104 Material Recovery Facilities (MRFs) including:  
Single-stream, C & D, and organics facilities
- Closed 9 recycling plants over the past year; more could cease operations.

# WM MRF locations: 104 MRFs in June 2016

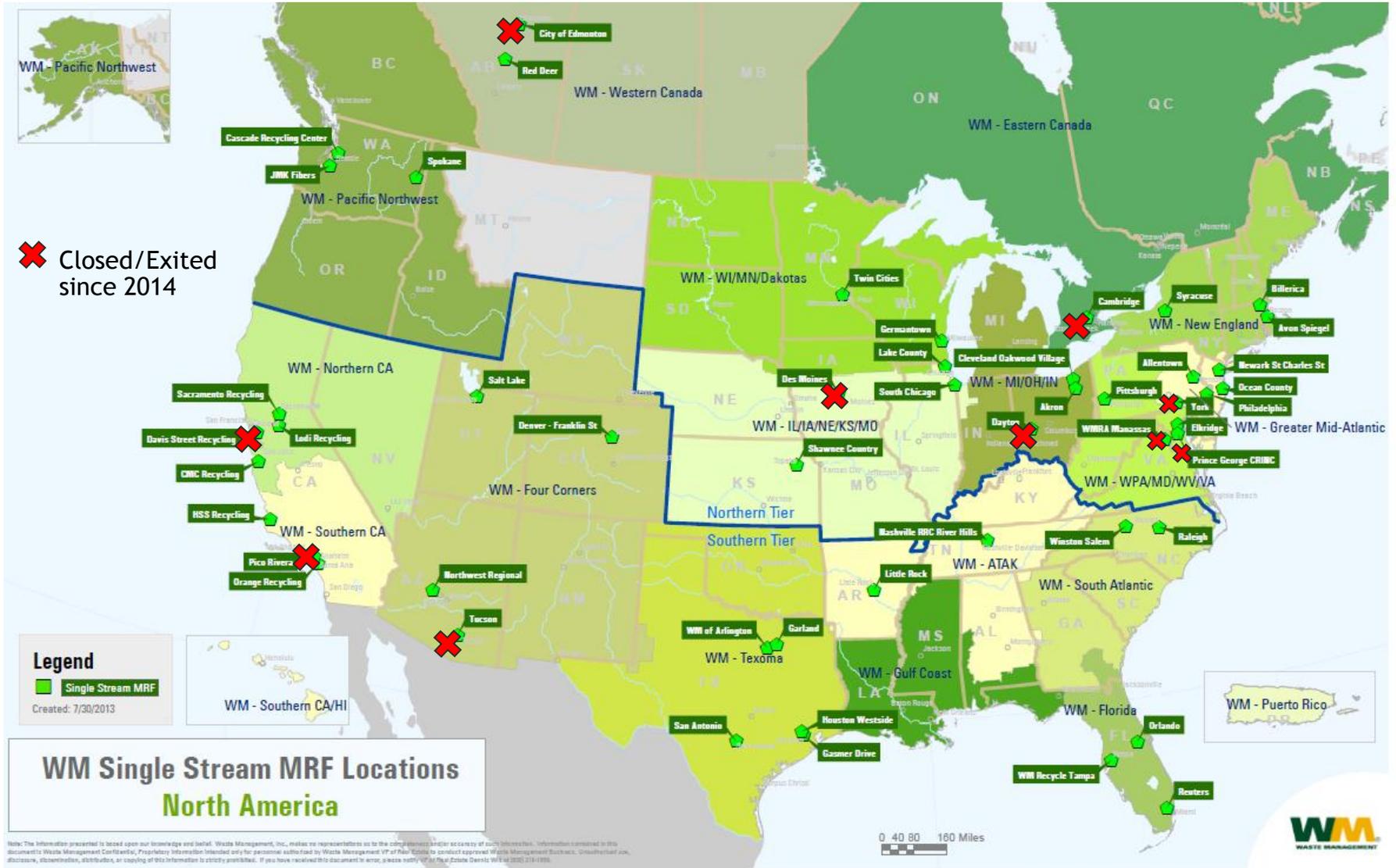


Note: The information presented is based upon our knowledge and belief. Waste Management, Inc., makes no representations as to the completeness or the accuracy of such information. Information contained in this document is Waste Management Confidential. Proprietary information intended only for personnel authorized by Waste Management VP of Real Estate to conduct approved Waste Management Business. Unauthorized use, disclosure, dissemination, distribution, or copying of this information is strictly prohibited. If you have received this document in error, please notify Senior Director of Real Estate James Wilson at (888) 975-0004.



**THINK GREEN®**

# Single Stream locations



Number of WM Single Stream MRFs:  
 2014: 50  
 2016: 41



THINK GREEN®

# 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

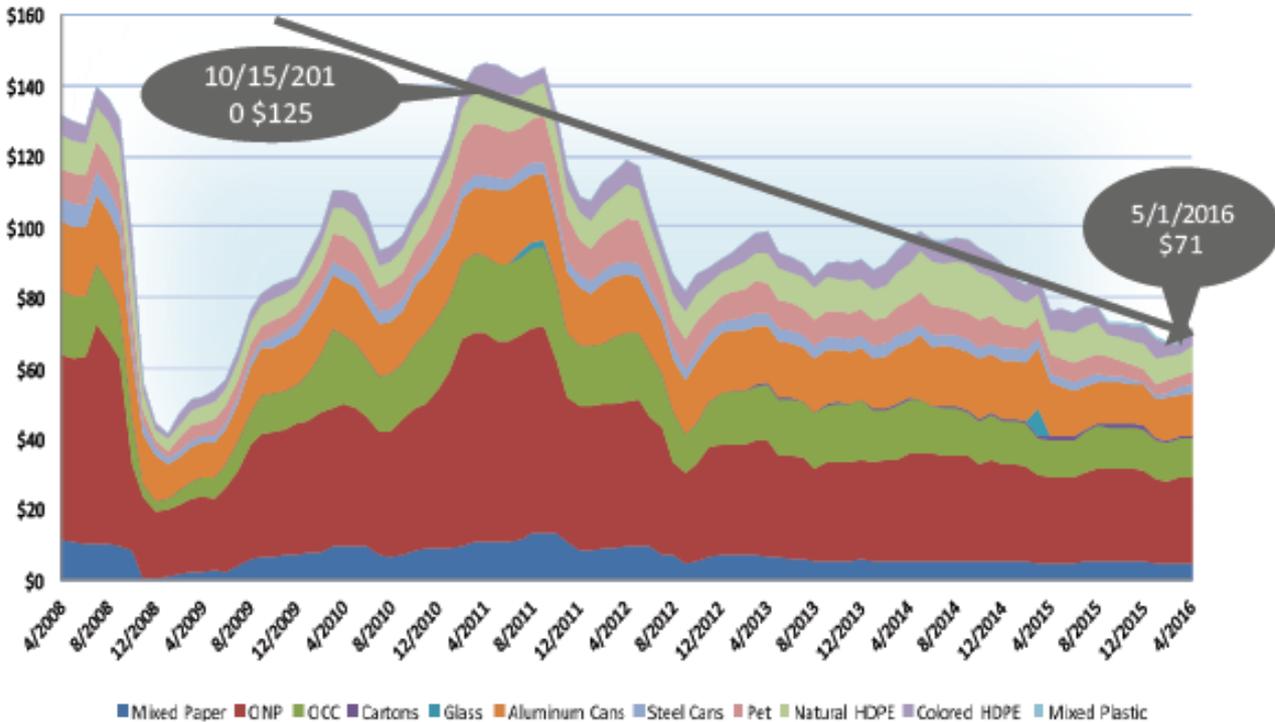
# State of Recycling - Challenging Economics



- This **4-plus year decline** in commodity prices is driven by global market conditions - with no end in sight.
- **Chinese economy**
- **Strong U.S. dollar**
- **Low oil prices**

# State of Recycling - Commodity Prices

- At May low point, 45% lower than they were at their peak five years ago.
- Lowest prices in 7 years. Current pricing 30% lower than peak.
- While they have stabilized, they are not expected to improve dramatically in the near future.
- Paper, plastics and metals markets are all low for various reasons beyond our control: low oil prices and overall global economic conditions



THINK GREEN®

# Economic/Market Projections (RISI June Market Report)

## Near term economics

- Expect seasonal marginal improvement in pricing over the summer, then weaker by fall due to low global demand.

## Economic Growth

- Chinese economy expected to slow from 6.4% in 2016 to 6.1% in 2017
- Europe (before Brexit vote) expected to slow from 1.6% in 2016 to 1.4% in 2017
- U.S. economy expected to improve from 1.9% in 2016 to 2.4% in 2017

There are no global economic projections that would indicate a significant improvement in commodity markets in 2016-2017

# 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.

# Contamination: Prevalence and Impacts

- Contamination costs over \$150 + per ton.
- Processing costs are **increasing** in order to meet more stringent quality standards, resulting in higher customer costs.

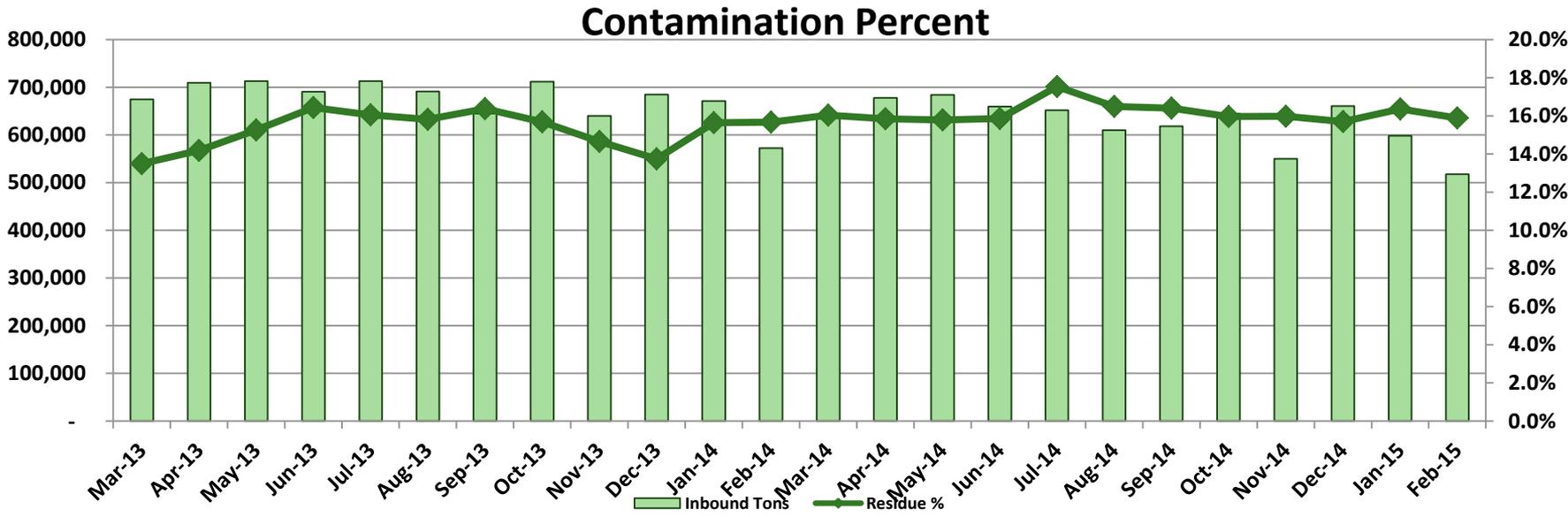


On average, *contamination makes up about 16% of collected recycling*, by weight.

In some U.S. communities, we see *up to 50% contamination, by weight, in materials collected for recycling*

Contamination costs WM \$60 Million per year

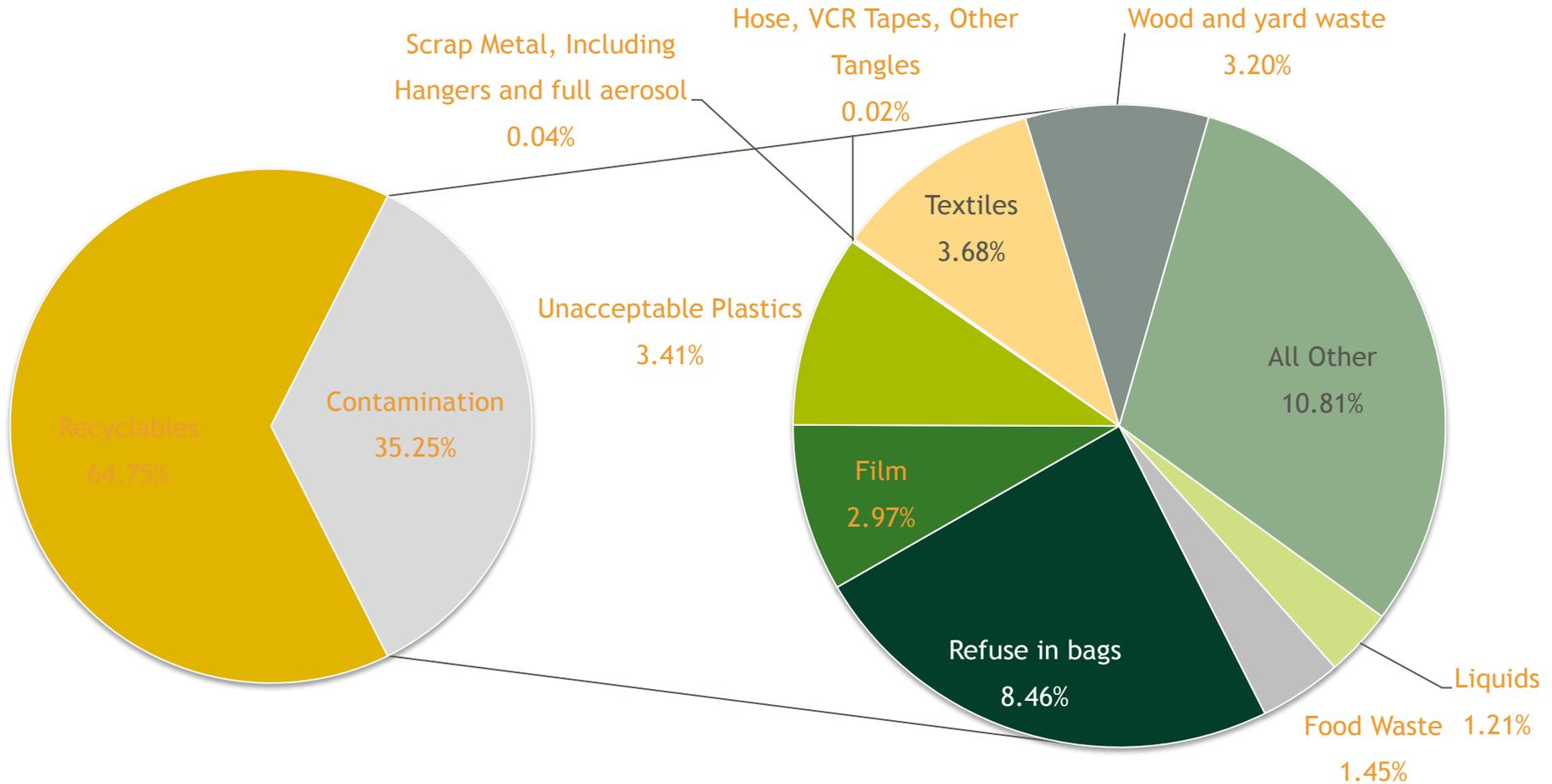
# Increasing contamination WM facilities companywide



- 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.



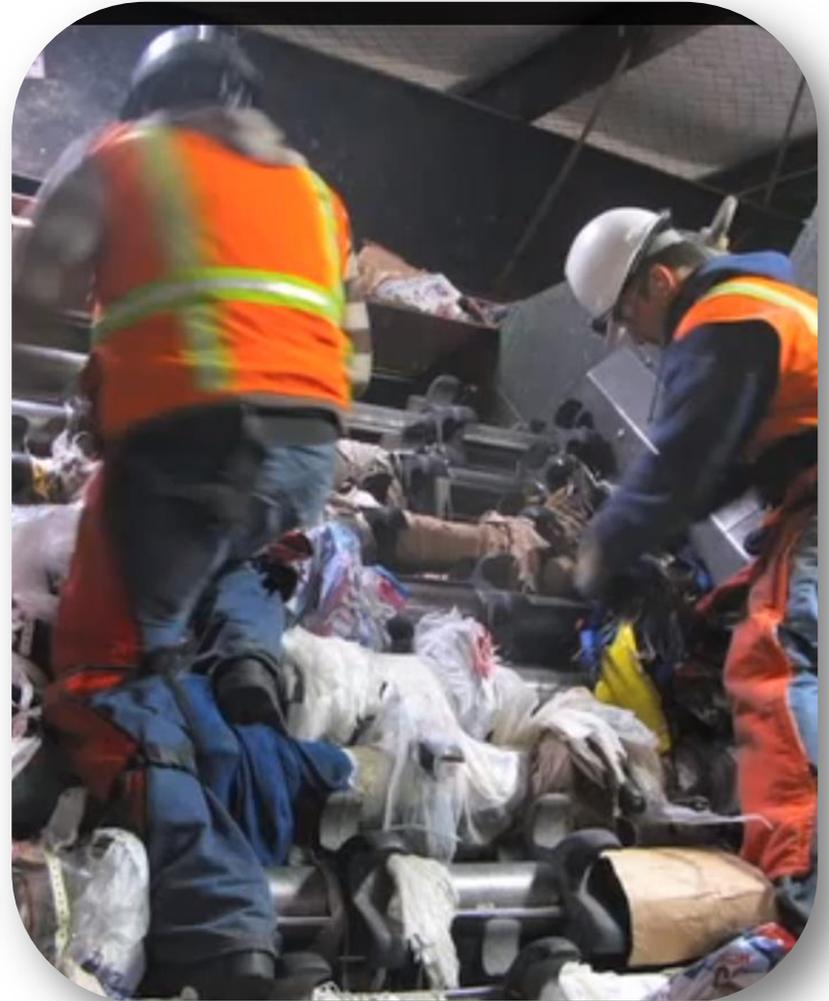
# What's in the Contamination?



# Contamination Challenges



# Film Plastics in Disc Screens





Search...

# 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 36

COMMENTS 1

Impact and expense of careless recycling  
Poughkeepsie Journal - Nov 7, 2015  
Is recycling still worthwhile given  
our biggest challenge today is  
contamination in...

# County to pay for recycling program temporarily

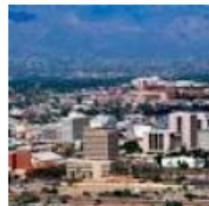
Is Recycling Dead in Tucson?  
Many...  
First Posted: 12:29 pm - November 12th, 2015 Updated: 12:29 pm - November 12th, 2015.

By Chris Cooper - ccooper@newsdemocratleader.com

The spirit of recycling programs, paired with falling prices for recycled materials (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 con...

"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

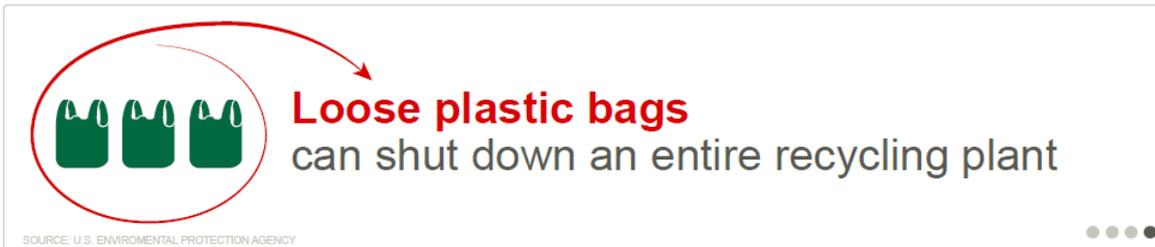
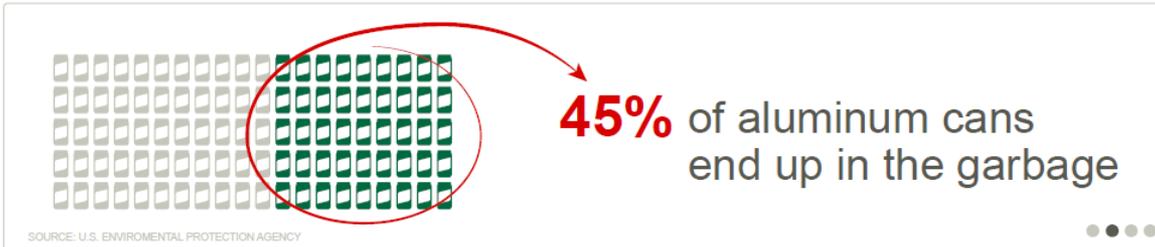
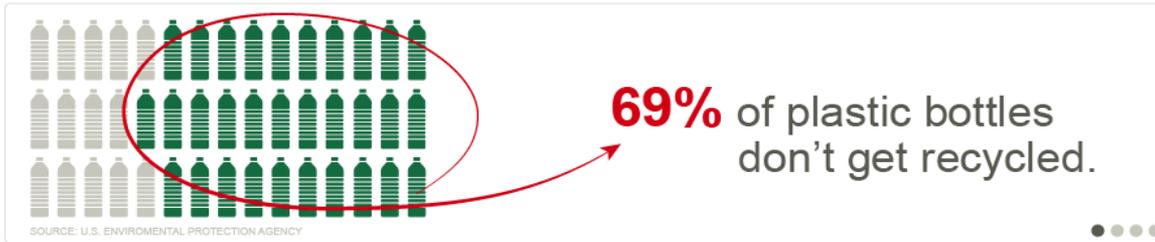
# Back to the Basics: Public Education and Outreach for Recycling

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

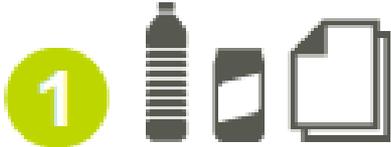
The Path to Sustainable Profitable Recycling



# 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

# WM 2015 Recycling/Composting Tonnages

Waste Management recycled and composted more than 14 million tons of commodities and other recyclable materials (organics, C&D materials) in 2015.

- We recycled enough materials to fill the U.S. Capitol Building more than 9 times!
- This amount of material weighs more than 184,000 Boeing 737's!



©2015 Waste Management

## 2015 Recycling/Composting Tonnages

<u>Material</u>	<u>Tonnage</u>
Paper/Cardboard	8,437,781
Mixed Organics *	2,468,740
Glass	766,981
C&D/Wood	397,799
Metals	462,040
Plastics	440,053
E-Waste/Other	89,076
Fly Ash	1,062,203
<b>Total Tons</b>	<b>14,124,673</b>

\* Mixed Organics were composted; all others recycled



THINK GREEN®

# Waste Management 2015 Recycling Benefits

In 2015, we recycled 10.2 million tons of commodities (aluminum, cardboard/paper, scrap metals, plastics, wood pallets, and glass).

These recycling efforts conserved the following resources:

**110.6 Million Mature Trees were Saved**  
Represents enough saved timber resources to produce  
1.37 Trillion sheets of newspaper!

**36.1 Million Cubic Yards of Landfill Airspace**  
Enough airspace to fulfill the annual municipal waste  
disposal needs for 46.4 Million people!

**18.7 Billion Kw-Hrs of Electricity**  
Enough power to fulfill the annual  
electricity needs of 1.79 Million homes!

**Avoided 32.5 Million Metric Tons (MTCO<sub>2</sub>E) of GHG Emissions**  
The recycling of these materials  
prevented these GHG emissions!

**59.0 Billion Gallons of Water**  
Represents enough fresh water to meet the fresh water  
needs of 26.2 Million people for a month!



Sources: U.S. Environmental Protection Agency, International Aluminum Institute, National Association for PET Container Resources, Institute of Scrap Recycling Industries, Earth Works Group Recycler's Handbook, One Earth Recycle, Bring Recycling.org, National Recycling Coalition, US Forest Products Laboratory, and Waste Management. © Waste Management 2015



# WM Green Sheet



## Waste Management 2015 Recycling Benefits

In 2015, we recycled 10.2 million tons of commodities (aluminum, cardboard/paper, scrap metals, plastics, wood pallets, and glass).



These recycling efforts conserved the following resources:



**110.6 Million Mature Trees were Saved**  
Represents enough saved timber resources to produce 1.37 Trillion sheets of newspaper!



**36.1 Million Cubic Yards of Landfill Airspace**  
Enough airspace to fulfill the annual municipal waste disposal needs for 46.4 Million people!



**18.7 Billion Kw-Hrs of Electricity**  
Enough power to fulfill the annual electricity needs of 1.79 Million homes!



**Avoided 32.5 Million Metric Tons (MTCO<sub>2</sub>E) of GHG Emissions**  
The recycling of these materials prevented these GHG emissions!



**59.0 Billion Gallons of Water**  
Represents enough fresh water to meet the fresh water needs of 26.2 Million people for a month!

Sources: U.S. Environmental Protection Agency, International Aluminum Institute, National Association for PET Container Resources, Institute of Scrap Recycling Industries, Earth Works Group Recycler's Handbook, One Earth Recycle, Bring Recycling.org, National Recycling Coalition, US Forest Products Laboratory, and Waste Management. © Waste Management 2015

# 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.