

BEYOND THE BIN

Env'tl Stewardship Program Annual Meeting 2.19.19

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OUTLINE

- **WHO IS IRC**
- **WASTE BACKGROUND**
- **COMMODITIES IN FOCUS**
 - **DISCLAIMER: WE WON'T HAVE TIME TO COVER ALL OF THEM**
- **STATE OF RECYCLING & TRENDS**
- **WHAT YOU CAN DO**

ABOUT THE IRC



MISSION

The mission of the Indiana Recycling Coalition is to support waste reduction, reuse, composting, and recycling activities in Indiana.

The Indiana Recycling Coalition is a not-for-profit representing concerned citizens, state and local government officials, business, industry and environmental groups since December of 1989.



WHAT IRC DOES

EDUCATION

PROGRAMS

PUBLIC SPACE RECYCLING

ADVOCACY



INDIANA
FOOD SCRAP INITIATIVE



The
CONFERENCE

Indianapolis, Indiana | June 10-12, 2019
@ the Marriott East



COMMERCIAL FOOD
COMPOSTING PROGRAM



THE INDIANA
STUDENT RECYCLING
LEADERSHIP CORPS



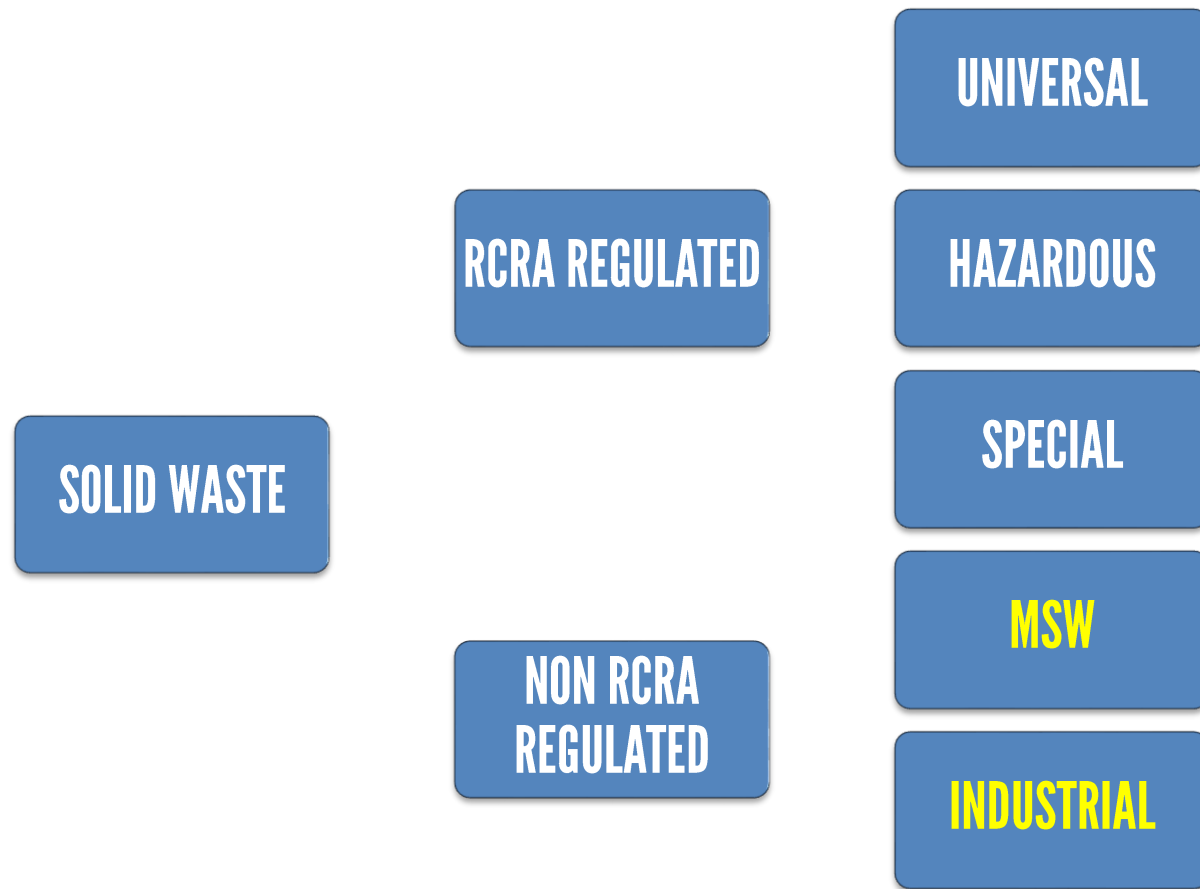
PepsiCo
Recycling

SIMPLE ACTS. BIG IMPACT.

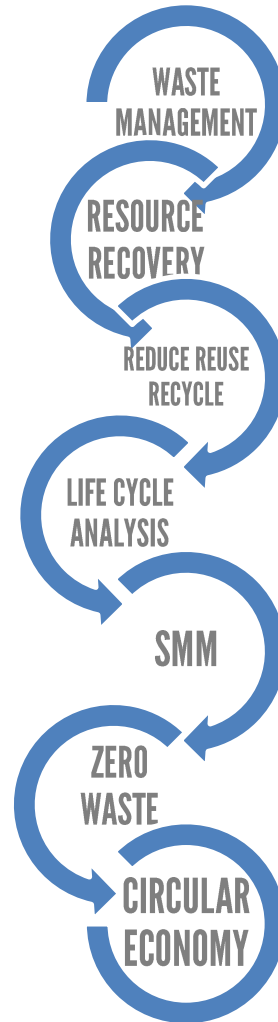
INTERESTED IN RECYCLING OR COMPOSTING AT YOUR EVENT?
LET US HELP. TOGETHER WE CAN MAKE A DIFFERENCE.
INDIANARECYCLING.ORG/LEND-A-BIN



WASTE CATEGORIES IN FOCUS TODAY



EVOLUTION OF THOUGHT



FOCUS ON RECYCLING

single issue & single solution approach

FOCUS ON RESPONSIBILITY

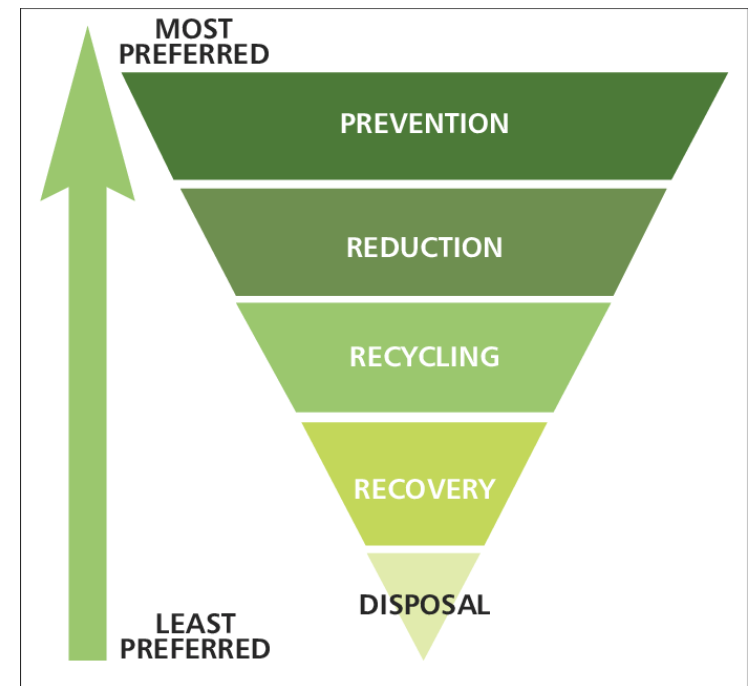
cradle-to-grave, env'tl persistence, EPR

FOCUS ON SYSTEM

designing out waste, cradle to cradle

HIERARCHY & METHODS OF WASTE REDUCTION

- REFUSE
- REDESIGN
- REDUCE
- REUSE
- REPAIR
- REPURPOSE
- RECYCLE
- RE-EARTH



WHY RECYCLE?

- CONSERVATION OF NATURAL RESOURCES
- ENERGY SAVINGS FOR MANUFACTURERS
- POLLUTION PREVENTION
- CUTS GHG'S
- CAPTURES ECONOMIC VALUE OF MATERIALS
- **JOBS ENGINE**



RECYCLING & JOBS



JOBS ENGINE

Every 1K tons of material recycled creates:

- \$14K in tax revenue
- \$76K in wages

U.S. EPA Recycling Economic Information Report, 2016

Every 10K tons of materials sustains:

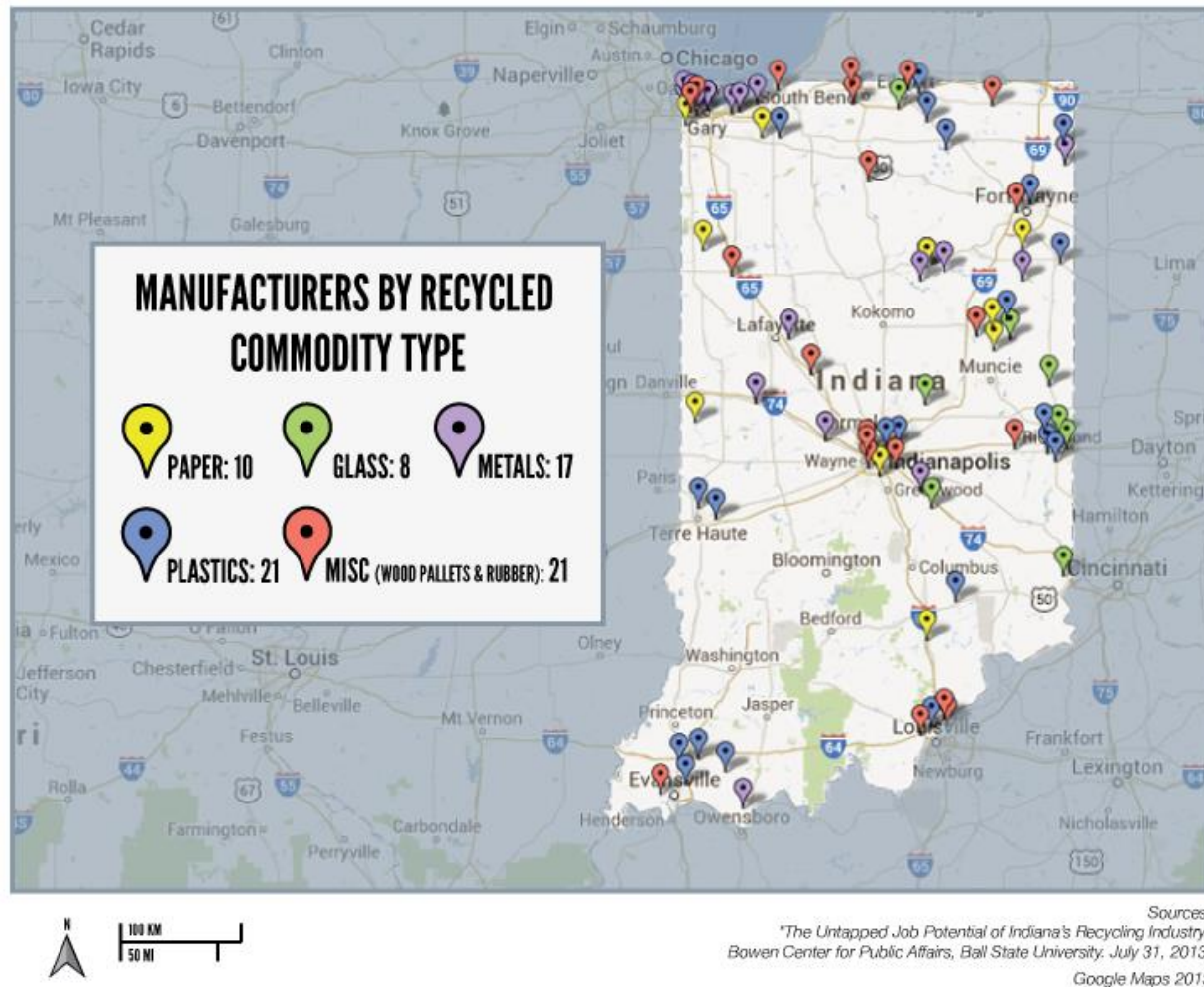
- 1 job if LF, WTE
- 4 jobs if composted
- **10-15.7 jobs if recycled** (2016 EPA report)
- 25 jobs if used in recycled content mfg.
- 75-250 jobs if reused

Institute for Local Self-Reliance, 1997



DEMAND FOR RECYCLED CONTENT MATERIAL IN INDIANA



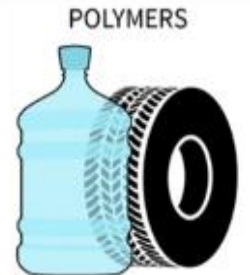
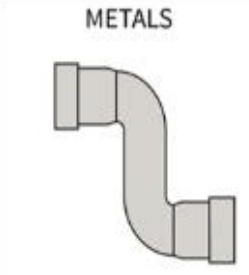

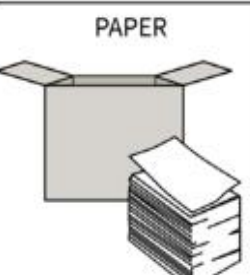
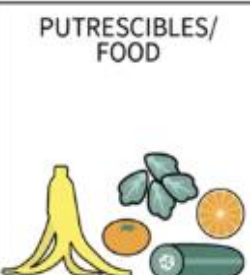

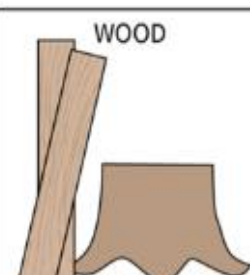

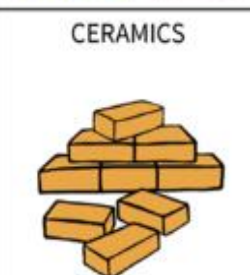

This map highlights key manufacturers who look to recycled materials to make their products.



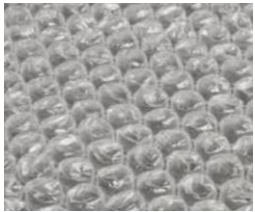
~~WASTE~~ = COMMODITIES

- GLASS
- FIBER
- METALS
- POLYMERS
- ORGANICS

12 MASTER CATEGORIES OF COMMODITIES

REUSEABLES 	TEXTILES 	POLYMERS 	METALS 
GLASS 	PAPER 	PUTRESCIBLES/FOOD 	PLANT DEBRIS 
WOOD 	SOILS 	CERAMICS 	CHEMICALS 

AM I MISSING ANYTHING?



Dunnage, off-spec, mfg. byproduct, breakroom

RAISE YOUR HAND IF YOU RECYCLE



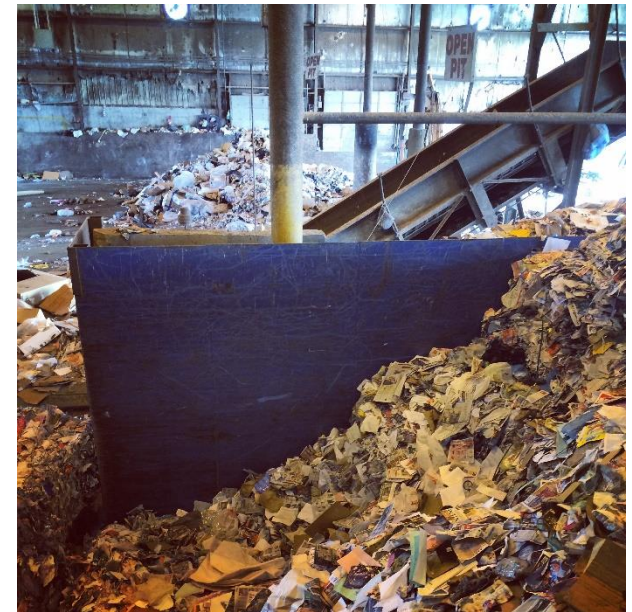
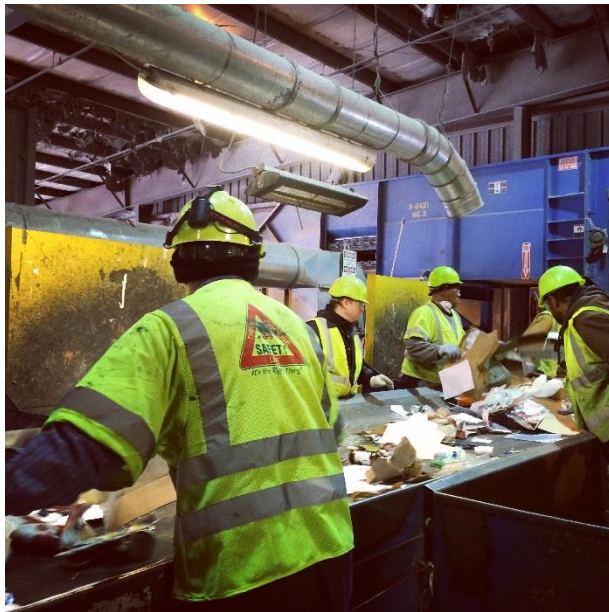
WHAT HAPPENS AFTER THE BIN?

1. Picked up by hauler



WHAT HAPPENS AFTER THE BIN?

2. Processed at Materials Recovery Facility (MRF)



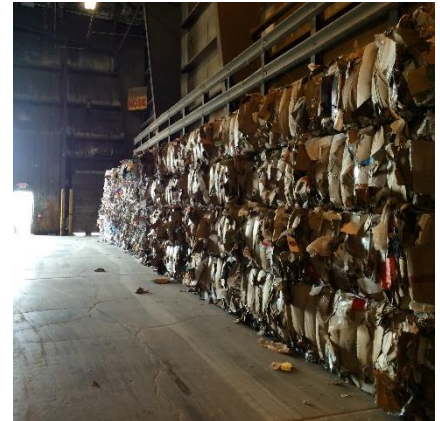
INDIANA SERVICE PROVIDERS



WHAT HAPPENS AFTER THE BIN?

3. Baled & shipped to processors

4. Then what?



GLASS

- **COMMODITY COOL FACTOR:** Infinitely recyclable
- **RESOURCE SAVINGS:** Over a ton of natural resources saved per ton of glass recycled
- **PROCESS:** Sorted by color & type, contaminant removal, crushed into cullet/dust/sand like specs, shipped to end users, melted, molded, or further pulverized
- **TOP USES:** What is the top use for glass?



- **TOP USES:** liquor packaging, fiberglass, reflective bead, Glasphalt, abrasives for blasting, fillers, tile
- **GLASS HALF EMPTY:** Only makes economic sense if within 150-200 miles of processor



Glass recycling by the numbers

10 million
metric tons

of glass is disposed of every year
in the US.

33%
of waste glass

gets recycled in the US.

90%
of disposed glass

gets recycled in several European nations,
on average.

40%
of glass

thrown into single-stream recycling
collections actually gets recycled.

90%
of glass

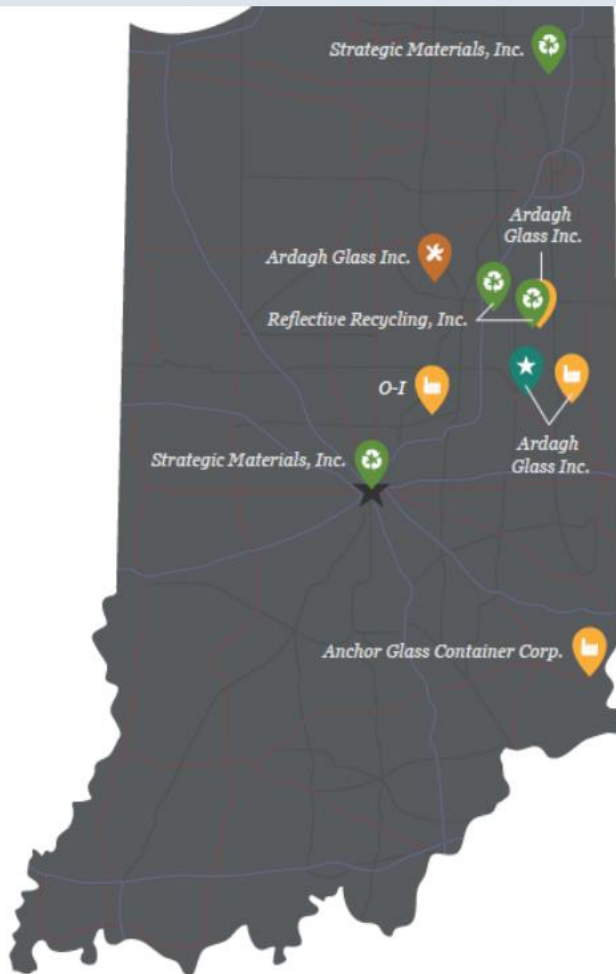
put into multistream collections
gets recycled.

5%
of CO₂ emissions

are cut for every 10% of glassmaking mix
substituted with cullet.

Source: Glass Packaging Institute.

Indiana Glass Container Presence



Glass Plant Headquarters

Ardagh Glass – Muncie, IN



Glass Container Manufacturing Plants

Anchor Glass Container Corp. – Lawrenceburg, IN

Ardagh Glass – Dunkirk, IN

Ardagh Glass – Winchester, IN

O-I – Lapel, IN



Glass Machine Shop

Ardagh Glass Inc. – Marion, IN



Recycled Glass Sorting Plants

Strategic Materials, Inc. – Ashley, IN

Strategic Materials, Inc. – Indianapolis, IN

Strategic Materials, Inc. – Hartford City, IN

Strategic Materials, Inc. – Dunkirk, IN



PULP & PAPER

- **COMMODITY COOL FACTOR:** when & where was it invented? # of grades of paper?
- **RESOURCE SAVINGS:** 12 trees for 1 ton low quality paper, 24 trees for high quality
- **PROCESS:** Sorted based on fiber length => baled=> shipped to mills => water and heat treated into pulp => dried & rolled => remaining pulp is land applied or burned
- **TOP USES:** rec. content paper, paperboard, tissue, egg cartons
- **DOWNSIDE:** it's downcycled

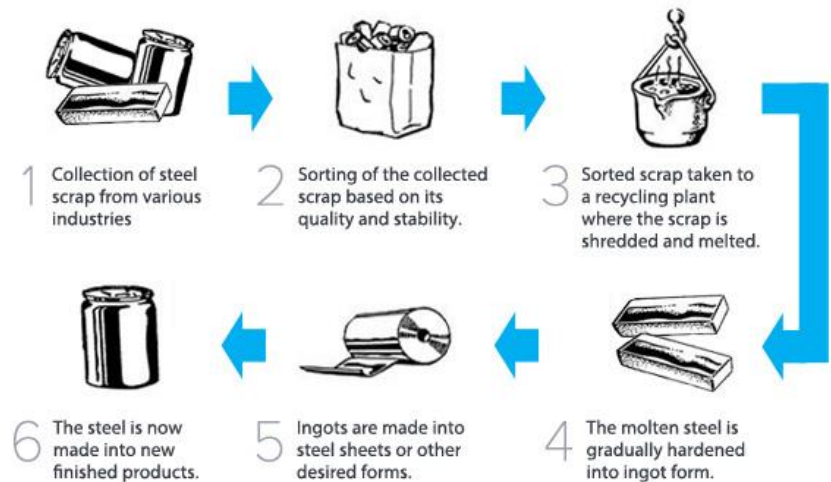


FIBER PROCESSORS



METALS

- **COMMODITY COOL FACTOR:** technically infinitely rec., alum - two-thirds is still in circulation, 3 month cycle
- **RESOURCE SAVINGS:** Aluminum offers 95% energy savings
- **PROCESS:** Sorted => crushed/baled => scrap yard/metal processor => magnet sorted, shipped, shredded, melted
- **TOP USES:** construction, cars, appliances, electronics, new cans
- **TAKEAWAY:** More ore above ground than in reserves so recycling is crucial

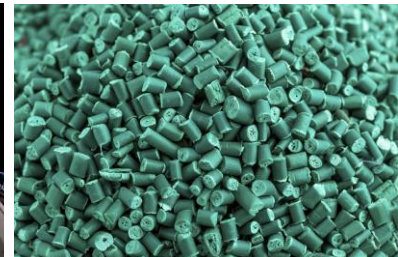


METAL PROCESSORS

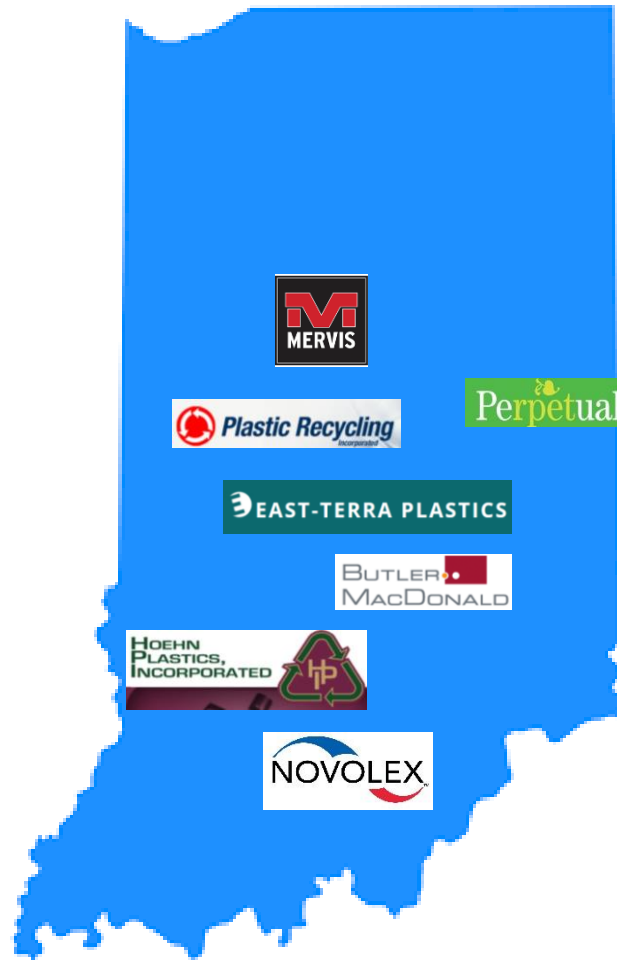


POLYMERS

- **COMMODITY COOL FACTOR:** light-weight, long-lasting, flexible, helps extend life of perishables
- **PROCESS:**
 1. At PRF, bales are broken, plastics is further sorted to increase value using:
 - Manual sorting
 - Optical sorting
 - Float/sink tests
 - Density based sorting
 2. Plastics are ground into 'flake' and washed to remove adhesives, labels, and chemical and food residues.
 3. Clean flake is extruded (heated and densified)
 4. Dyes or other additives are added, as applicable
 5. Final product is pelletized (strung and cut into small pellets) and cooled in water
- **TOP USES:** carpet, drainage pipe, polyester, plastic lumber, new packaging

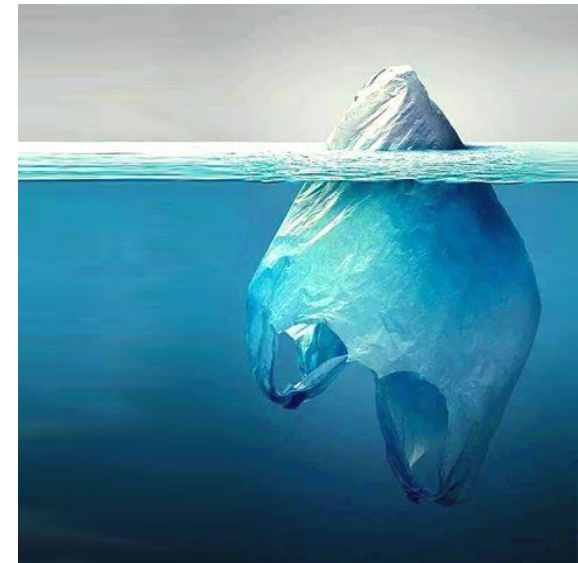


POLYMER PROCESSORS



CHALLENGES W. PLASTICS

- Composition
 - Petrochemicals - contribute to fossil fuel dependence
 - Can leach chemicals, esp. PVC & PS
 - Durability = env'tl persistence – how long do they last?
- Hard to Recycle
 - Consumer confusion - what does the # mean?
 - MRFs – residuals, CC
 - PCR requires additives & more chemicals, downcycled
 - Negligible recycling rates (esp. #3,4,6,7)
 - 9% REC, 79% LF
 - 12% marine pollution & litter
 - “Production, Use & Fate of all Plastics ever Produced” *Science Advances*, 2017



ORGANICS

STATS

- 1/7 Americans is food insecure
- 40% food wasted in US (NRDC)
 - From cultivation, harvest, transport, prep, to table
- 21% LF volume
 - Yard waste is banned
- Substantial methane emissions contributor
- No. 3 way to reverse climate change
 - *Drawdown*, Paul Hawken, 2017

FOOD WASTE CONSUMES:

 **21%**
OF ALL FRESH WATER

 **19%**
OF ALL FERTILIZER

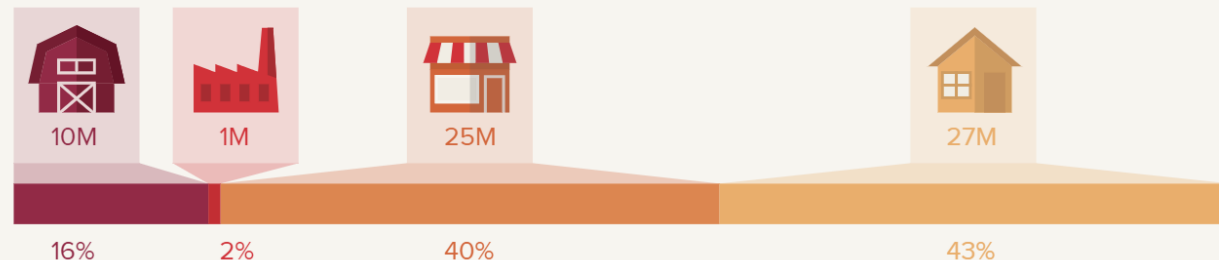
 **18%**
OF CROPLAND

 **21%**
OF LANDFILL VOLUME

ReFed.com, 2018

FOOD WASTED BY WEIGHT - 63 MILLION TONS

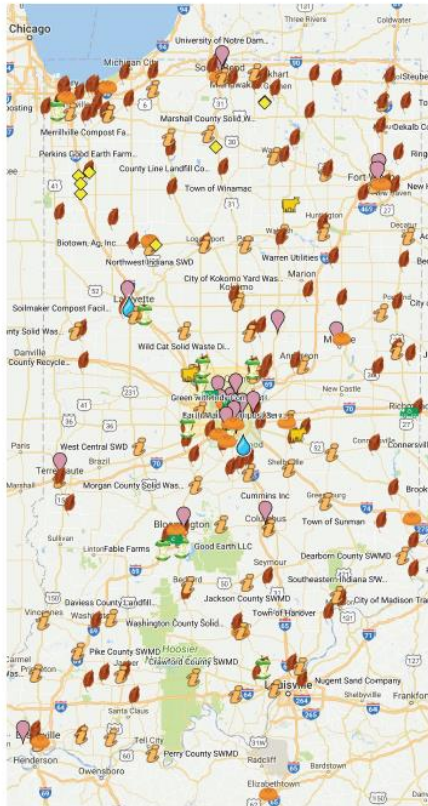
Waste occurs throughout the supply chain, with nearly 85% occurring downstream at consumer-facing businesses and homes.



FOOD RECOVERY LANDSCAPE

INDIANA'S FOOD RECOVERY LANDSCAPE

-  **REGISTERED YARD WASTE COMPOST SITES**
-  **WASTE WATER TREATMENT FACILITIES**
West Lafayette & Organic Solution Mgmt.
-  **ANAEROBIC DIGESTORS**
Bio Town AG, Inc., Green Cow Power, Homestead Dairy, Fair Oaks Dairy Farm, Martin Dairy, Windy Ridge Dairy LLC/Hidden View Dairy, LLC, Herrema Dairy, LLC, Bos Dairy, LLC, Homestead Dairy, LLC, Waste No Energy
-  **ORGANICS COLLECTION SERVICES**
Earth Mama, Green With Indy, Green Camino, Ray's Trash & Recycling, And Rose City Collection Service
-  **FARMS**
Hawkins Family Farm, Local Farms Harvest, Blue River Natural Foods
-  **LARGE GENERATORS OF FOOD SCRAPS**
-  **FOOD DONATION LOCATIONS**
Gleaners, Second Helpings, Food Bank of Northwest Indiana, Community Harvest, Westchester Neighbors Food Pantry, White County Food Pantry, Food Finders Food Bank, Second Harvest Food Bank of East Central Indiana, Crooked Creek Food Pantry, North Dearborn Pantry, Hancock County Food Pantry, Midwest Food Bank, Hoosier Hills Food Bank, Washington County Foodbank, Tri-State Food Bank, Campus Kitchen at IUPUI, Paw's Pantry at IUPUI, Feeding America, Wheeler Mission Ministries
-  **SWMDS & EDUCATIONAL FACILITIES**
-  **PERMITTED FOOD WASTE COMPOST FACILITIES**
GreenCycle of Indiana, AgRecycle, Smith Creek, Subaru of Indiana Automotive, Greentree Enterprises, Fable Farms

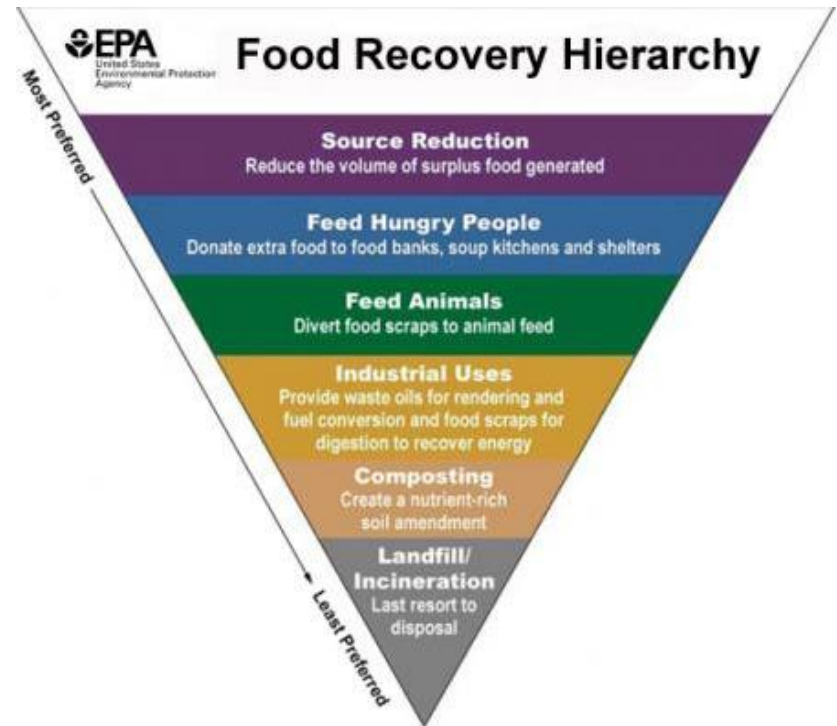


THIS MAP WAS CREATED BY STAKEHOLDERS OF THE INDIANA FOOD SCRAP INITIATIVE, A PROGRAM OF THE INDIANA RECYCLING COALITION, IN AN EFFORT TO BETTER VISUALIZE THE CURRENT LANDSCAPE OF FOOD WASTE RECOVERY IN INDIANA.



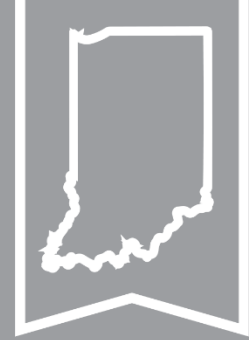
INDIANA

FOOD SCRAP INITIATIVE



COMMERCIAL FOOD COMPOSTING PROGRAM





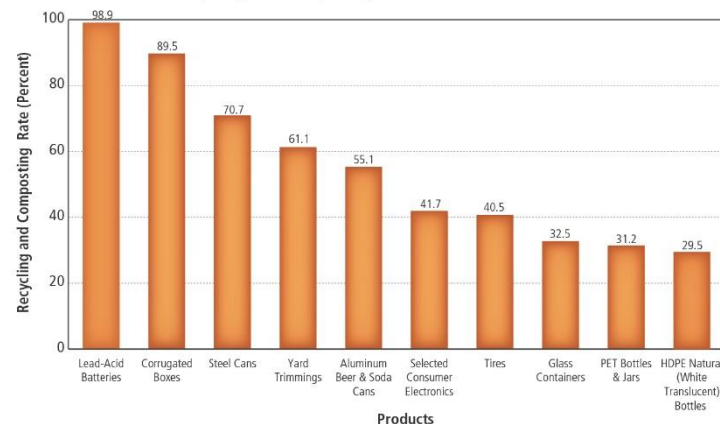
STATE OF RECYCLING



STATE OF RECYCLING

- **National Rate - 34.7%**
 - US EPA Recycling Facts & Figures Report, 2015
 - stagnant
- **Indiana's Rate - 16.8%**
 - IDEM Recycling Activity Summary Report, 2017
 - leveled off

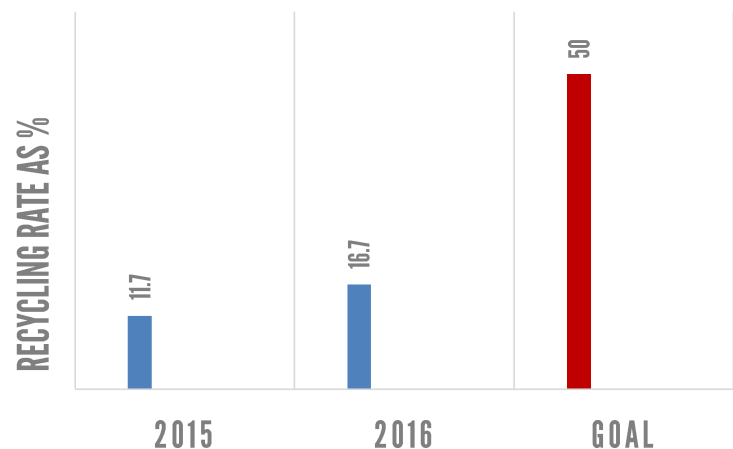
Recycling and Composting Rates of Selected Products, 2014*



*Does not include combustion with energy recovery.

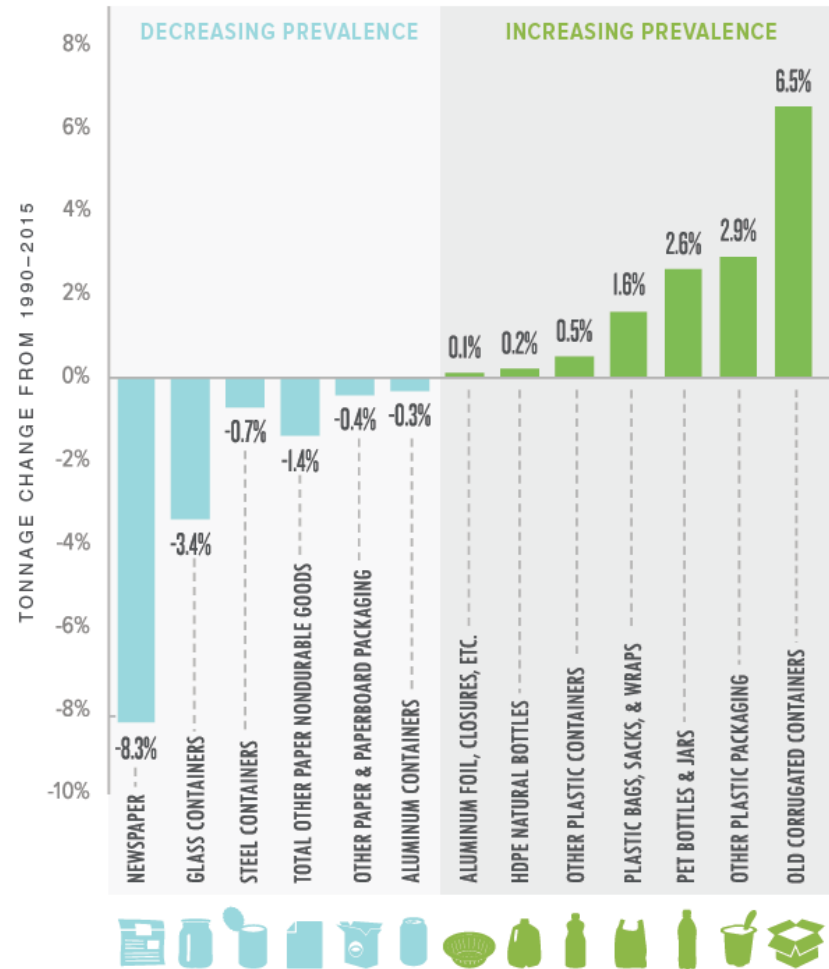
Source: U.S. EPA, 2016

STATE RECYCLING RATE



TRENDS - THE EVOLVING TON

- Loss of paper & ONP
- Amazon Effect (^OCC)
- Increase in plastics
 - Hybrids
 - cartons
 - Film & flexible pckg
 - Light-weighting
- Li-on batteries
- MRF tech isn't as dynamic
 - long payback period for investments



TRENDS - CHINESE IMPORT RESTRICTIONS

- China Ban / National Sword
 - 40% of U.S. exports
 - De facto bans - unrealistic contamination limits
 - De jure bans on mixed paper & plastics
- Results
 - - Many commodity prices tanked
 - - / + Rush to find new markets to absorb
 - -/+ Chinese businesses relocating
 - - East & West Coast MRF's stockpiling
 - + Indiana somewhat insulated
 - + Rates will rise – contracts durable & fee based – not market based
 - + Focus on education and back to fundamentals
 - + Pressure on mfg sector to design readily recyclable materials
 - + disclaimer: industrial / commercial sector outlook is much better



WHAT CAN I DO?



STEPS TO BE GOOD, BETTER, BEST

- **GOOD: RECYCLE RIGHT**

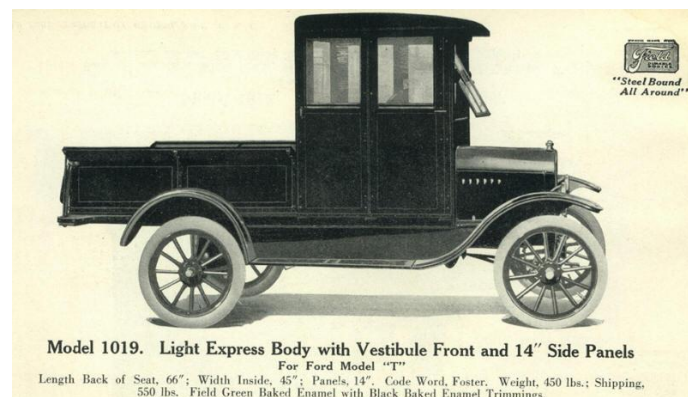
- Keep it loose, clean, empty & dry - if you wouldn't want to touch it, assume others won't either
- Keep it simple - when in doubt, throw it out – no wishcycling

- **BETTER: IMPROVE YOUR EXISTING PROGRAM**

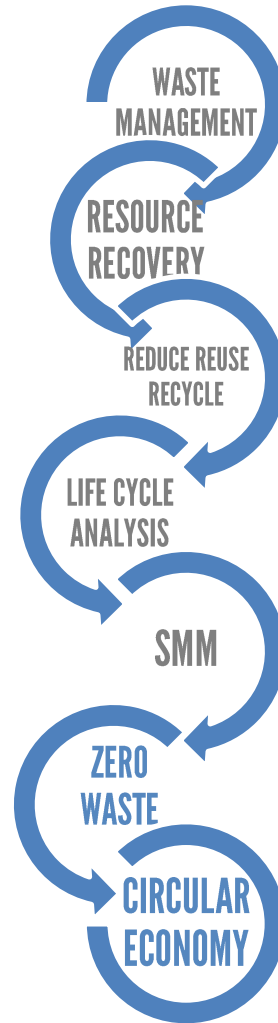
- Conduct a waste audit – what is your missed diversion potential
 - Educate & retrain staff on a regular basis
 - Right-size your bins
 - Develop a relationship with hauler
 - Open source soln's with other companies

- **BEST: EXPAND YOUR PROGRAM**

- Become a certified zero waste facility – true.gbci.org
- Ask more from your vendors
- Budget for waste reduction goals
- Purchase recycled content & compostable materials
- Design out waste – engage employees in process



EVOLUTION OF THOUGHT



ZERO WASTE

“Zero Waste is the conservation of all resources by means of **responsible production, consumption, reuse, and recovery of products, packaging, and materials without burning, and with no discharges to land, water, or air** that threaten the environment or human health.”

ZWIA, 2018

- **HOLISTIC – NOT JUST DIVERSION RATE BASED**
- **ZW LIFESTYLES, COMMUNITIES, BUSINESSES**



CIRCULAR ECONOMY

- **LINEAR ECONOMY**

- TAKE-MAKE-WASTE EXTRACTIVE INDUSTRIAL MODEL
- WHERE DO MATERIALS GO AT THE END OF THE LINE?

- **CIRCULAR ECONOMY**

- DESIGNS OUT WASTE

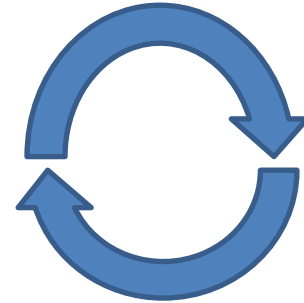
- TO EXPEND CARELESSLY, EXTRAVAGANTLY, TO NO PURPOSE
- CLOSES THE LOOP

- KEEPS PRODUCTS & MATERIALS IN USE

- CRADLE TO GRAVE => CRADLE TO CRADLE

- REGENERATES NATURAL SYSTEMS

- RATHER THAN DEPLETING
- TECHNICAL NUTRIENTS



QUESTIONS?



SUPPORT THE IRC'S MISSION

- SPONSOR
- DONATE
- BECOME A MEMBER
 - Lg business membership - \$350
- EXHIBIT
- ATTEND JUNE CONF
- ENGAGE



The **CONFERENCE**

Indianapolis, Indiana | June 10-12, 2019

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INDIANA
FOOD SCRAP INITIATIVE



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