

# **Taking on the Zero-Waste-to-Landfill Challenge**

Welcome!

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Sr. Environmental Engineer

What have YOU done to reduce your



today?



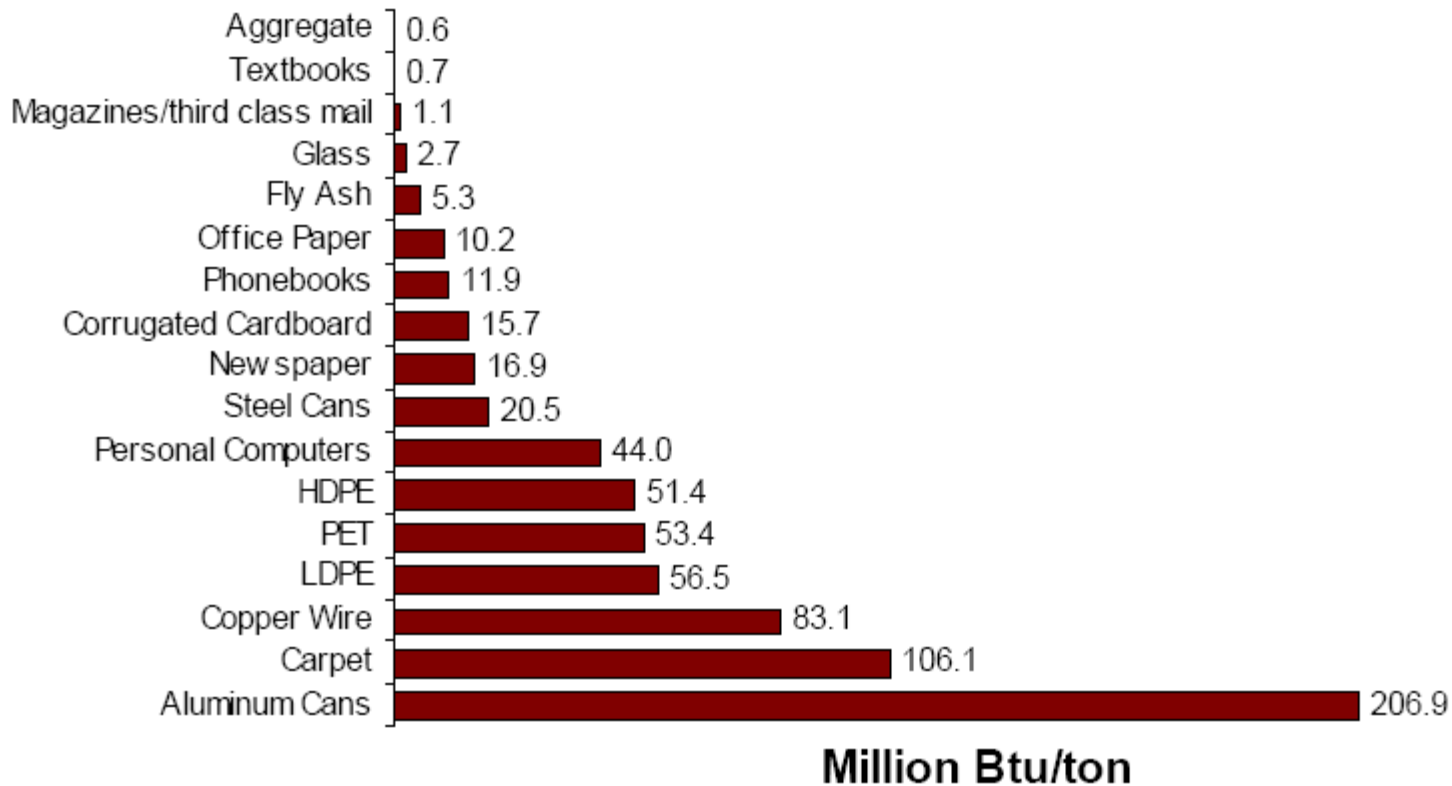
: A measure of the impact our activities have on the environment, and in particular climate change. It relates to the amount of greenhouse gases produced in our day-to-day lives through burning fossil fuels for electricity, heating and transportation, and the production and consumption of food, materials, manufactured goods and other services.

*Turn off water when brushing and showering, turn down the thermostat, turn off lights, ride share to work, turn off car when waiting to pick up kids @ school, coffee in reusable mug, etc. (\$)*

*Recycle cans, bottles, paper, etc., drive less, compost, use recycled products, insulate the house, use GREEN energy, etc. (\$)*

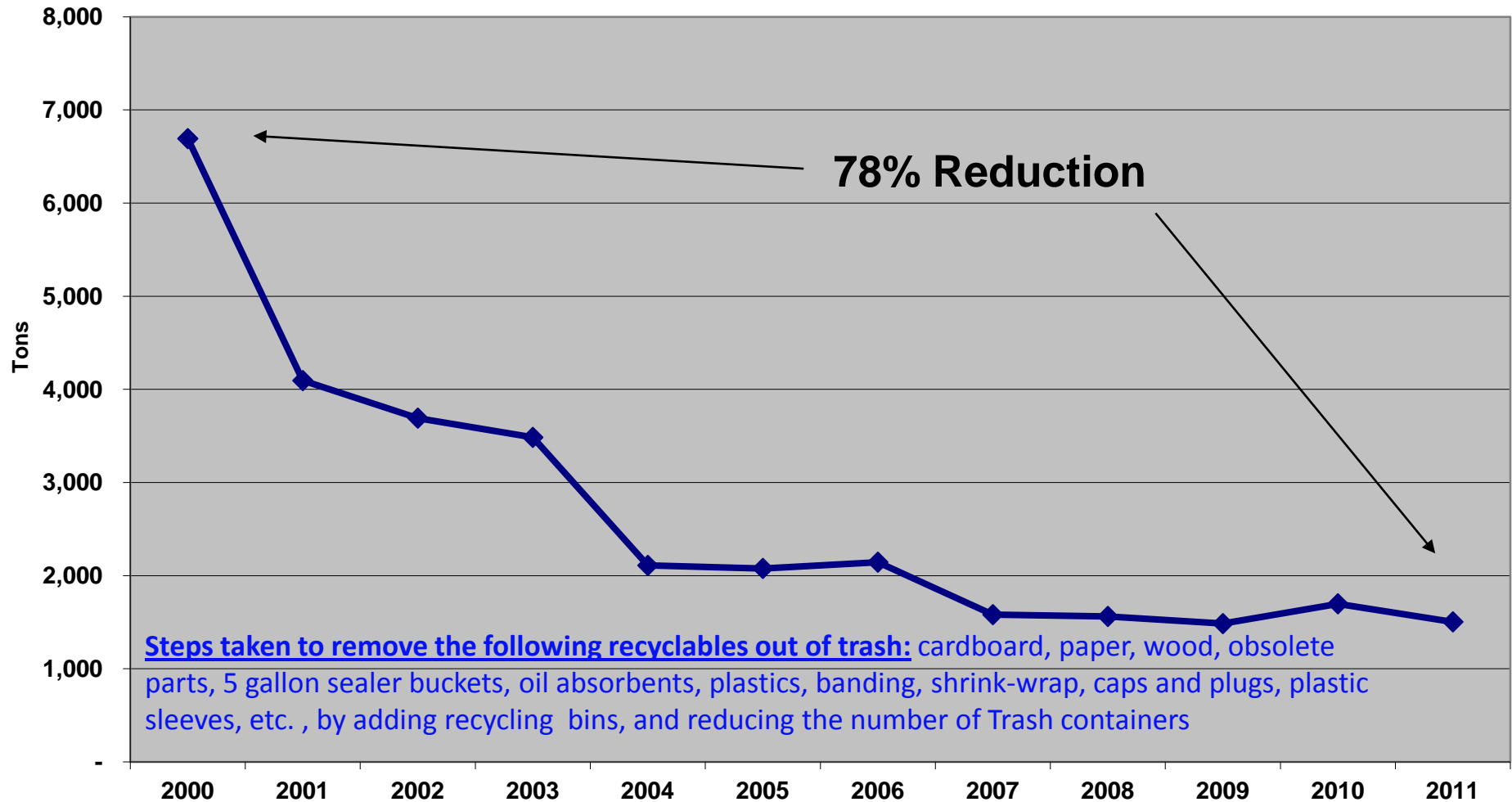
# Recycling Saves Energy!

**Exhibit 1: Energy Savings Per Ton Recycled\***  
(Million Btu)



\* Assumes recycled materials would otherwise have been landfilled. Includes embedded energy.

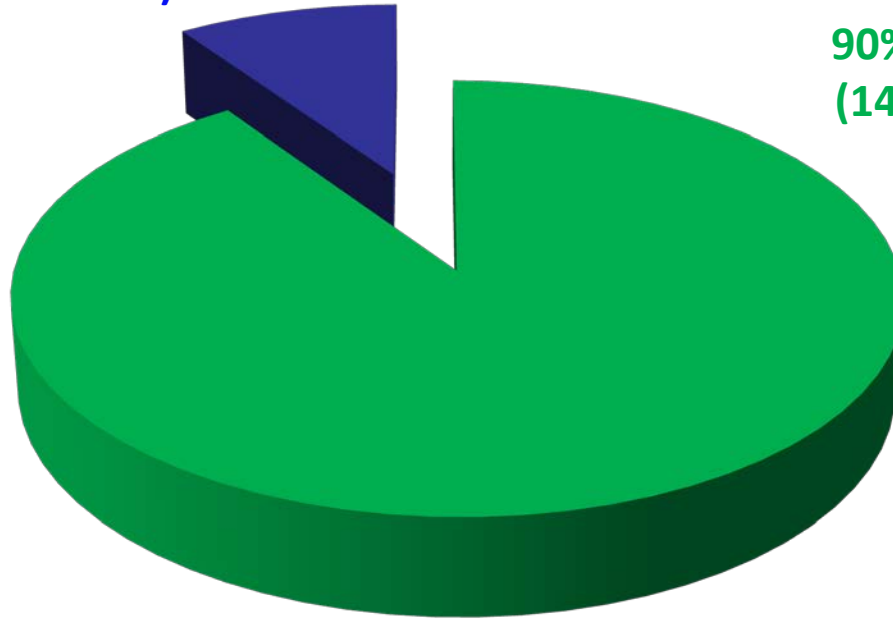
## Waste Landfilled at GM Fort Wayne Assembly 2000 - 2011



**GM FORT WAYNE ASSEMBLY**  
**2011 Total Waste (15,861 tons)**

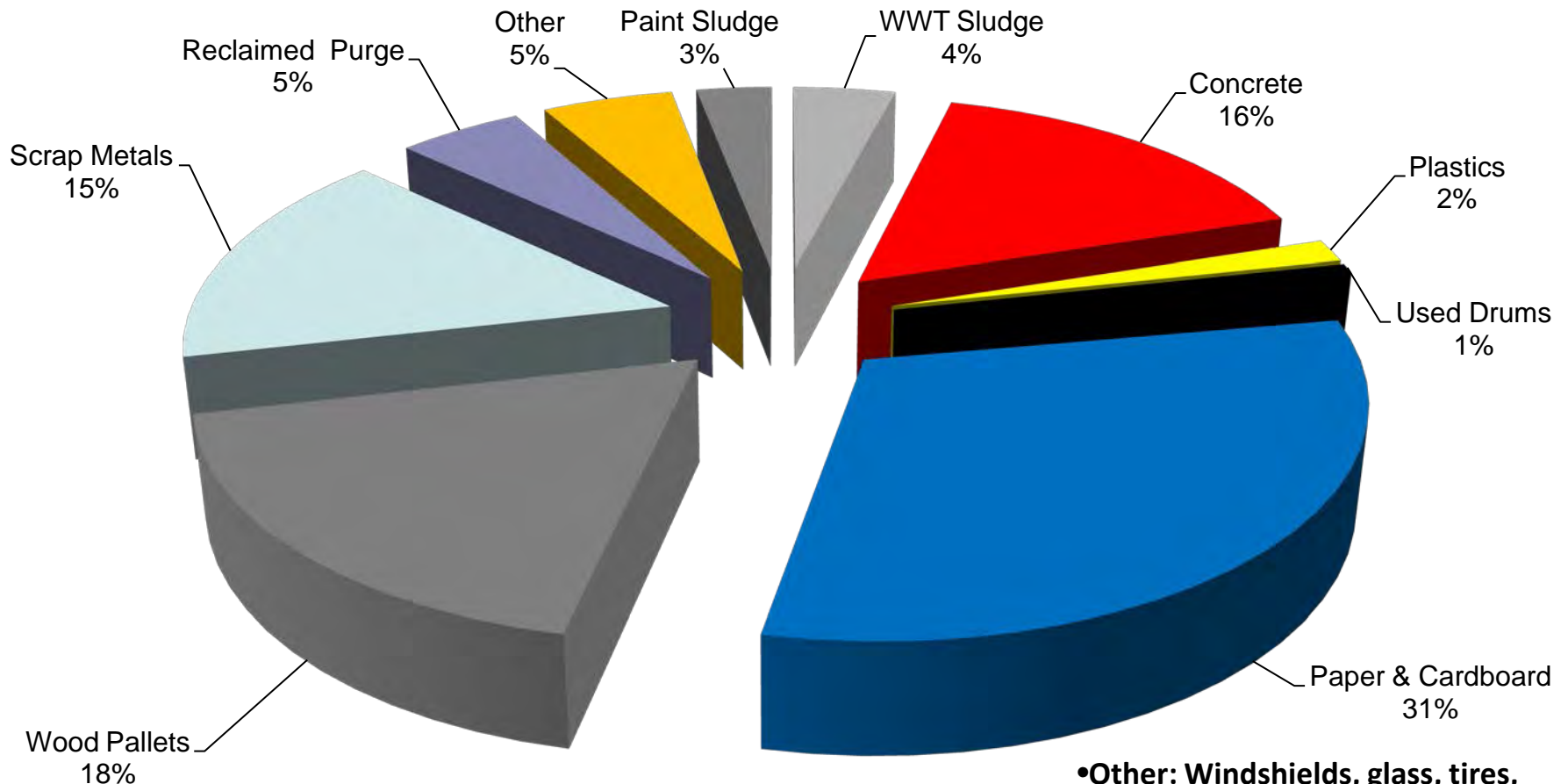
**10% Non-Recycled**  
**(1,514 Tons)**

**90% Recycled**  
**(14,347 tons)**



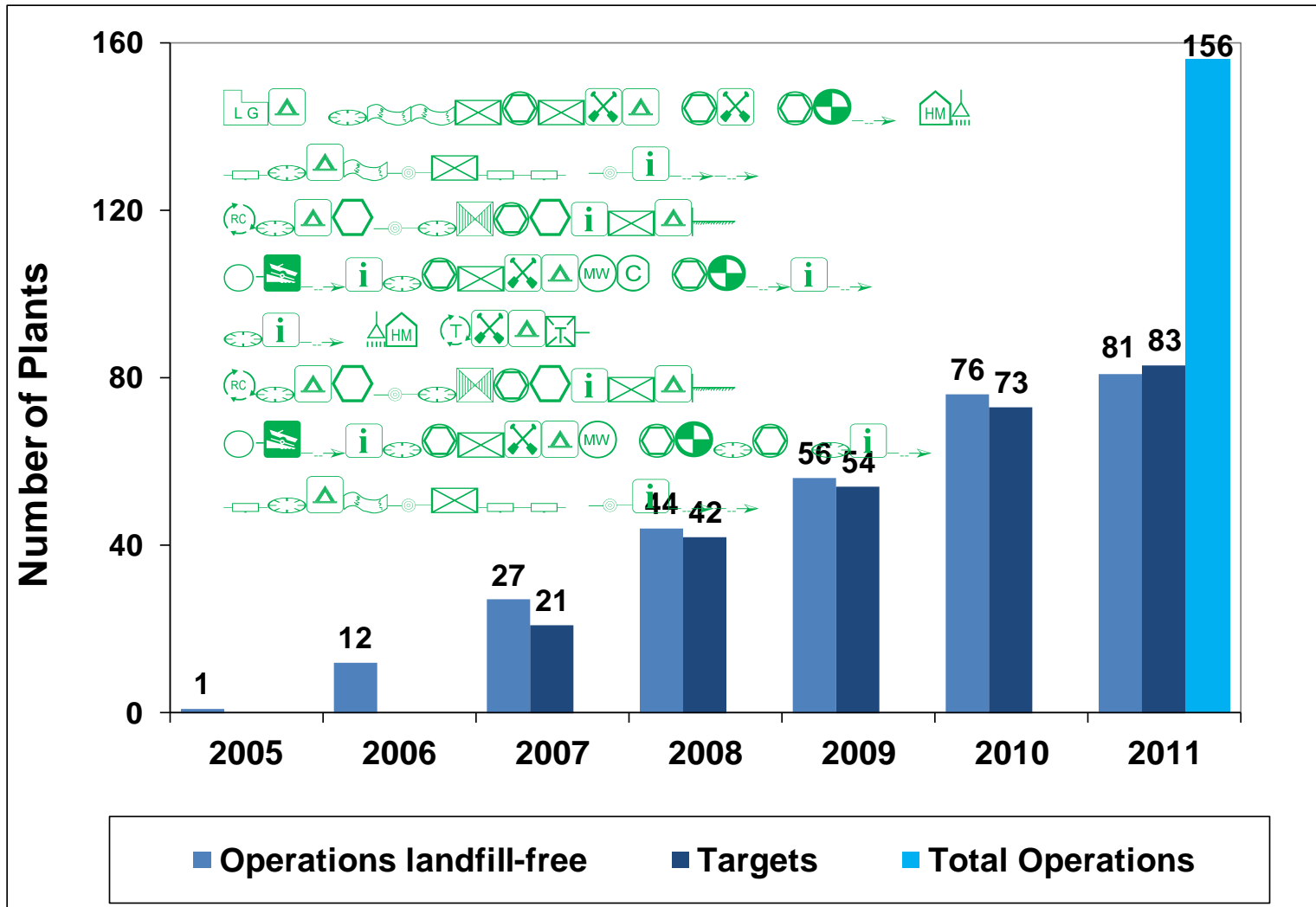
# GM FORT WAYNE ASSEMBLY

## 2011 Total Recycled (14,347 tons)



•**Other:** Windshields, glass, tires, batteries, wood, air bags, grease, sealers, urethane, oil, antifreeze, lamps, E-waste, printer cartridges, aluminum cans and obsolete production parts

# General Motors – Landfill Free Status





# Auditing Waste Streams





# Common items found in personal trash bins: Over 60% are recyclable material

## Can be taken to Glove Program

- \*gloves & aprons

## Can be recycled

- \*paper
- \*newspapers
- \*cardboard



## Ok for trash bin

- \*food-trash
- \*candy wrappers
- \*snack wrappers
- \*dirty Styrofoam
- food containers
- \*plastic forks/spoons
- \*paper towels & napkins
- \*used ear plugs
- \*tobacco spit containers

## Can be recycled

- \*aluminum cans, plastic & glass bottles

# GM FWA Outside Recycling Stations Stations



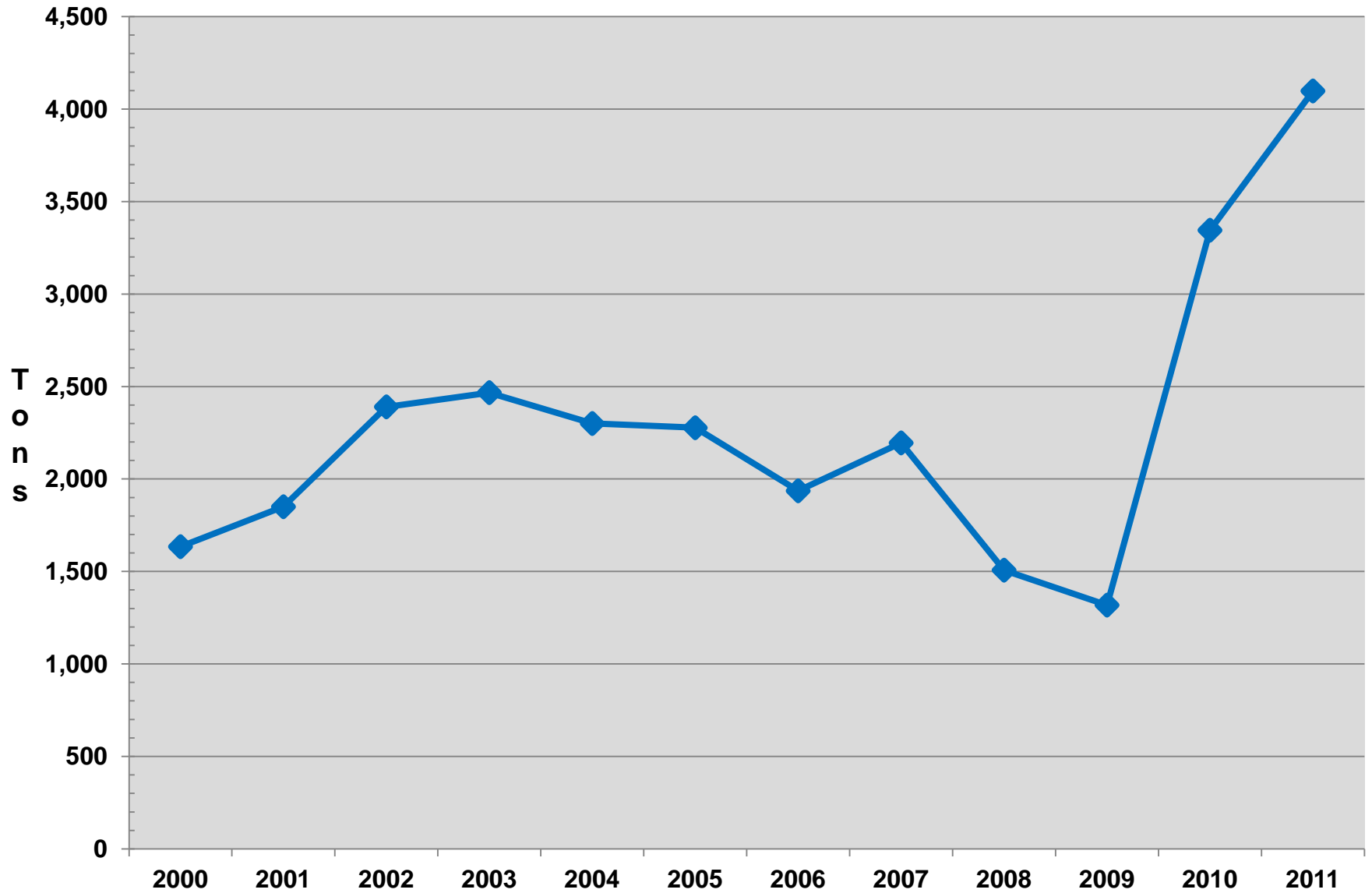


# GM FWA Office/Team Room Recycling Stations



Included in the office areas are Paper, Confidential Shredding, Batteries, E-Waste and Toner/Printer Cartridges recycling containers. (Over 100 locations)

# Recycled Cardboard





~100 Tons  
Of Recycled  
Cardboard  
per Month

6 Cardboard  
Balers Plant  
Wide







2 Cardboard Compactors

~200 Tons Of Recycled Cardboard per Month



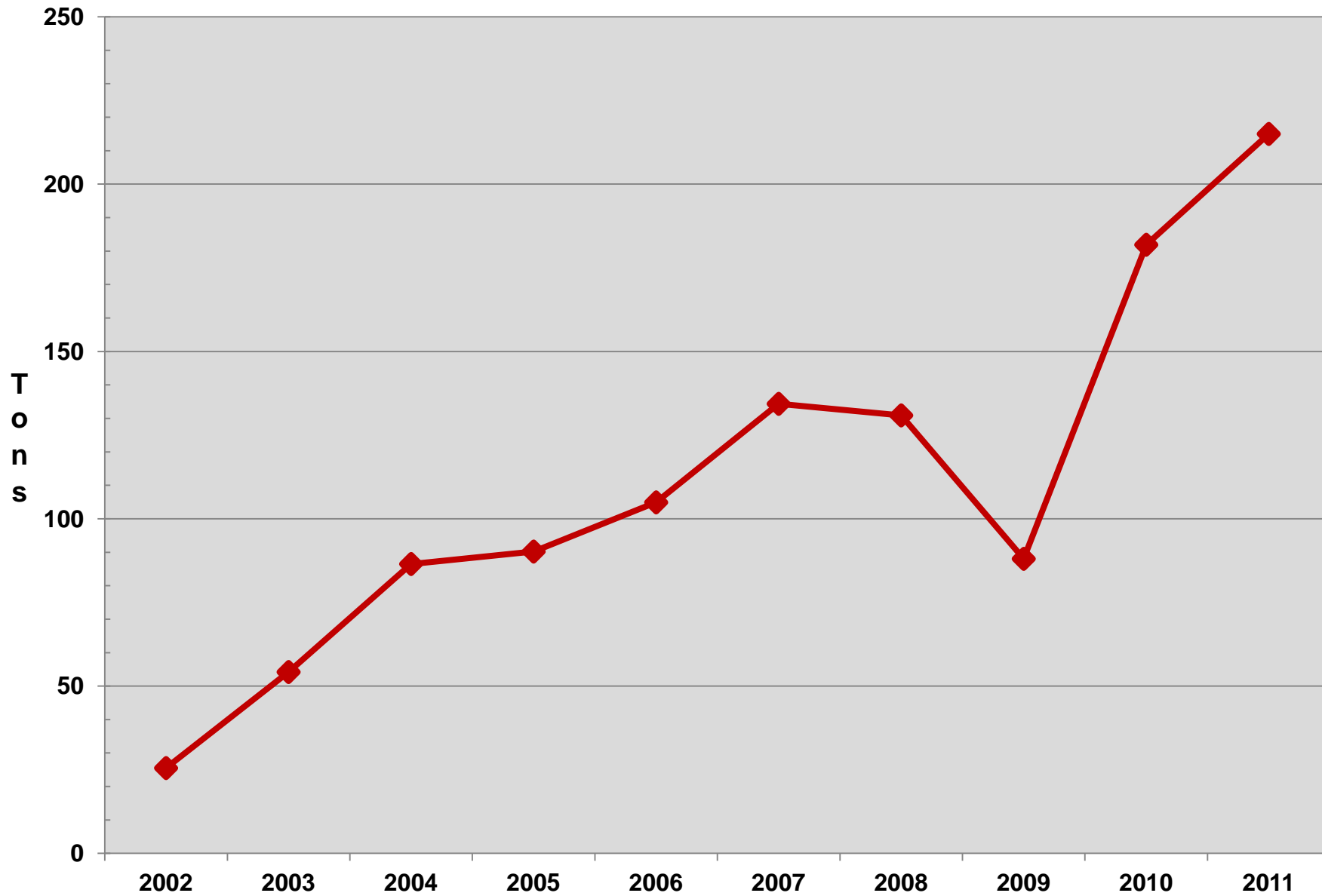






17 9:22AM

# Recycled Plastic





# Move Up To Six 96 Gallon Plastic Recycling Containers Per Trip

GM FWA >200 Totes in the system w/ ~ 15 Tons of Plastic recaptured per month



# GM FWA “Returned to Supplier” Plastics Program







## Recycling

VOLT Air Deflectors – contains 25% packaging plastic from our FWA plant

Buick LaCrosse Headliners - contains 25-75% Ft Wayne and Marion Operations cardboard

Plastics Recycling – Caps and plugs were made into benches and Picnic tables

Waste Water Treatment Plant Sludge is used to make portland cement. (used in concrete and grout)

Convert VOLT scrap battery covers into wood duck nesting boxes, and will be placed on our grounds to improve habitats.

Alcohol wipes and plastic caps are used to make radiator deflectors for our trucks



# 100% Closed Loop Recycling

Collect and ship scrap truck tires to recycler.



## GM Truck -900 Side Baffles

which includes 25% FWA Scrap, 25% Milford Proving ground tires (from GMFWA), 25% recycled oil booms and 25% recycled GDC material.

These tires are shredded Into small fibers.



The fibers are made into our Truck Side Baffles.



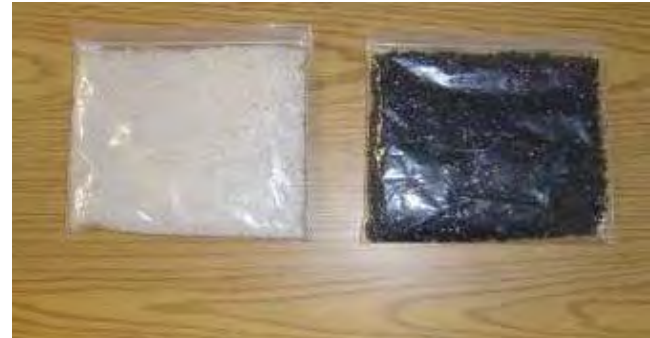
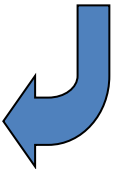
# GM FWA Innovative Achievements in Alcohol Wipe Recycling



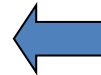
**Step 1.** Centrifuge Moist Wipes



**Step 2.** Collect Dried Wipes



**Step 3.** Compound wipes to form polypropylene



**Step 4.** Polypropylene pellets are used to make plastic vehicle parts like this wheel well liner



# 100% Closed Loop Recycling

## Used Solvent Rag & Absorbent Centrifuge Program

100 % saturated with oil



Centrifuge machine



95%  
of free liquids

**ONCE THE  
MATERIAL IS  
NO LONGER  
USABLE IT IS  
RECYCLED AND  
MADE INTO  
PELLETS**



Oil has been  
extracted

**ABSORBENTS  
CAN BE RE-USED  
UP TO 5 TIMES**

# 100% Closed Loop Recycling



*Plastic caps and plugs*

**DISCARDED PLASTICS  
AND ABSORBENTS ARE  
SHREDDED OR  
DENSIFIED INTO SMALL  
KERNELS**



**PELLETS ARE USED TO MAKE AUTOMOTIVE  
COMPONENTS, SUCH AS THE DEFLECTOR  
ABOVE**

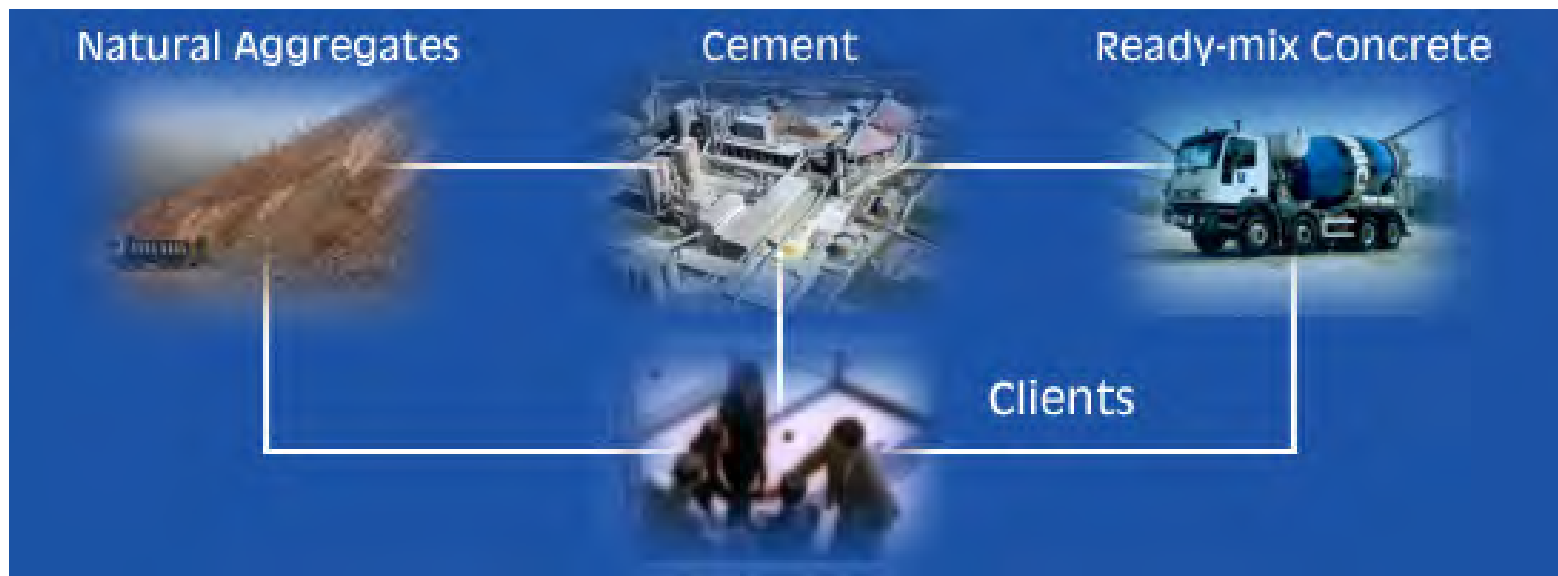


**RESIN PELLETS READY FOR USE**



**THE KERNELS ARE THEN EXTRUDED**





**Waste Water Treatment Sludge is added to Natural Aggregates to produce Cement at the Buzzi Unicem USA location in Indianapolis.**





## CONGRATULATIONS GM FORT WAYNE ASSEMBLY!

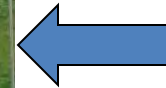
Winners of the  
Allen County Solid Waste District  
**Closing the Loop Award**

This Award is in recognition of GM's weld wire reel and scrap wood recycling programs.

Empty wood reels are now being returned to the reels supplier for direct reuse or minor re-work prior to reuse.



Misc. scrap wood is being recycled into mulch. Off-spec mulch is combined with GM paint sludge for use as Daily Landfill Cover at WM Earthmovers landfill.





# CONGRATULATIONS GM FORT WAYNE ASSEMBLY!

Winners of the Allen County Solid Waste District  
Closing the Loop Award



This Award is in recognition of your innovative achievements in Plastics Recycling.





# Mayor's Water Quality Award





## LOCAL GM PLANT WINS GOVERNOR'S AWARD



Courtesy photo

From left, Mark Kaszowski, facility area manager; Jennifer Dluzak, senior environmental engineer; George Kioultzopoulos, general supervisor of environmental engineering at the Fort Wayne plant; Bill Schoonmaker, GM's regional environmental engineering manager; and Daniel Murray, the Indiana Department of Environmental Management's assistant commissioner of air quality, accepted the Fort Wayne Assembly Plant's environmental award.

# STEWARDS OF ENVIRONMENT

*New measures have also saved the company \$3 million a year*





# GREAT AMERICAN CLEANUP™



## Other Community Activities:

- Earth Day Indiana Festival
- Allen County Tox-Away
- Tire Amnesty Day



A GM FWA Team of 16 volunteers participated and collected 42 bags, (over 1,000 lbs) of litter.

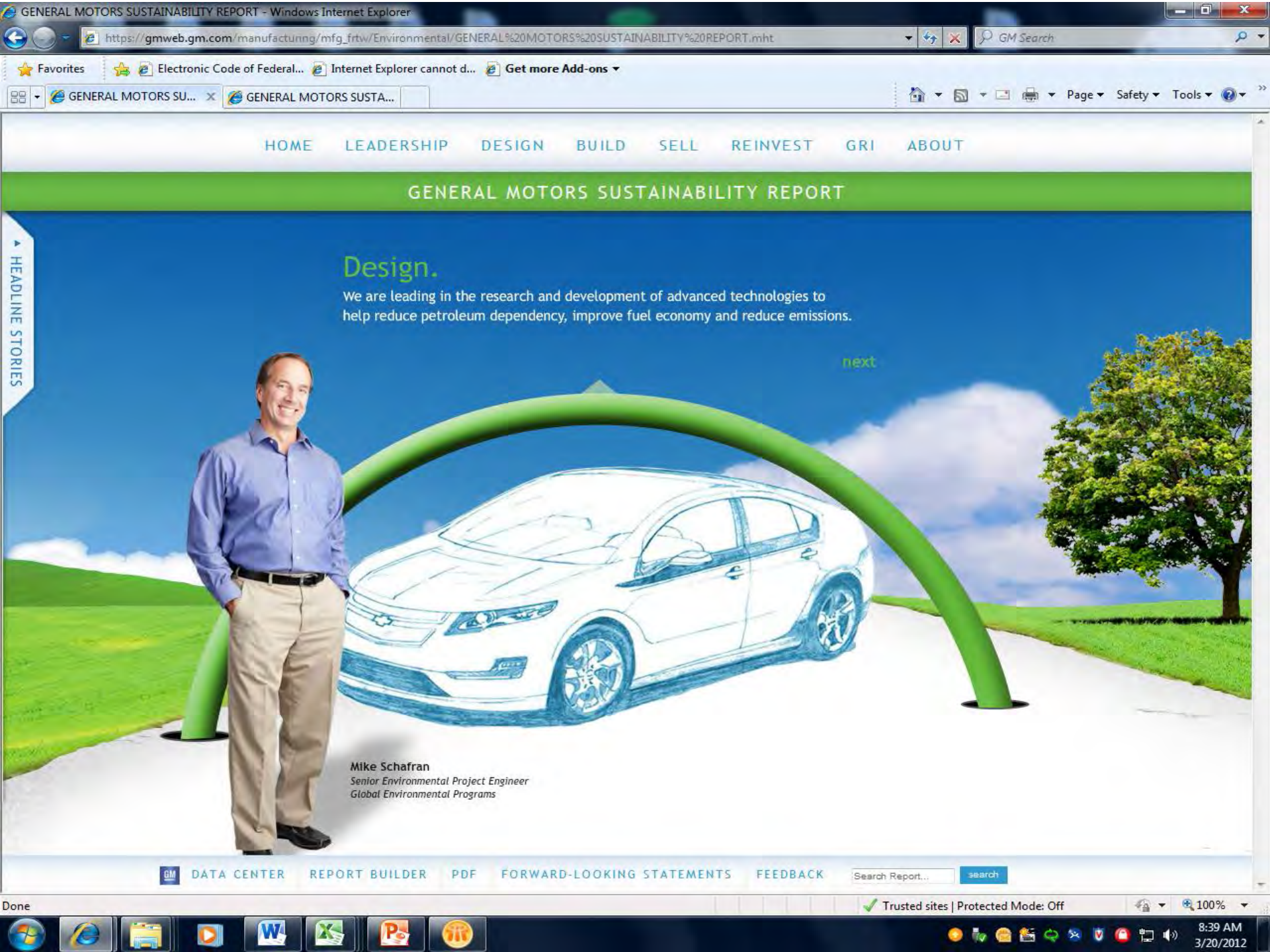


**GREEN** - Participated in 5 river monitoring events, Bluffton-Harrison Middle School (8<sup>th</sup> graders)  
Reached ~120 students, 50 people hours of community involvement from 12 different GM mentors



**Habitat Study,  
Macroinvertebrate Collecting &  
Chemical Monitoring:** Turbidity,  
Ph, Phosphates, Nitrates, Dissolved Oxygen, Biochemical  
Oxygen Demand, E. Coli, Water Temperature Change





HOME LEADERSHIP DESIGN BUILD SELL REINVEST GRI ABOUT

## GENERAL MOTORS SUSTAINABILITY REPORT

### Design.

We are leading in the research and development of advanced technologies to help reduce petroleum dependency, improve fuel economy and reduce emissions.

next



**Mike Schafran**  
Senior Environmental Project Engineer  
Global Environmental Programs



DATA CENTER

REPORT BUILDER

PDF

FORWARD-LOOKING STATEMENTS

FEEDBACK

Search Report...

search

Done

Trusted sites | Protected Mode: Off



100%



# Do your Part and help YOUR Facility become Landfill FREE!

**Landfill-free definition:** All byproducts from ongoing, day-to-day manufacturing operations, Including episodic byproducts like pit cleanouts can **NOT** go to landfills.

**Byproducts can be managed by ANY method, (Including Waste-to-Energy) as long as they don't go to a landfill**