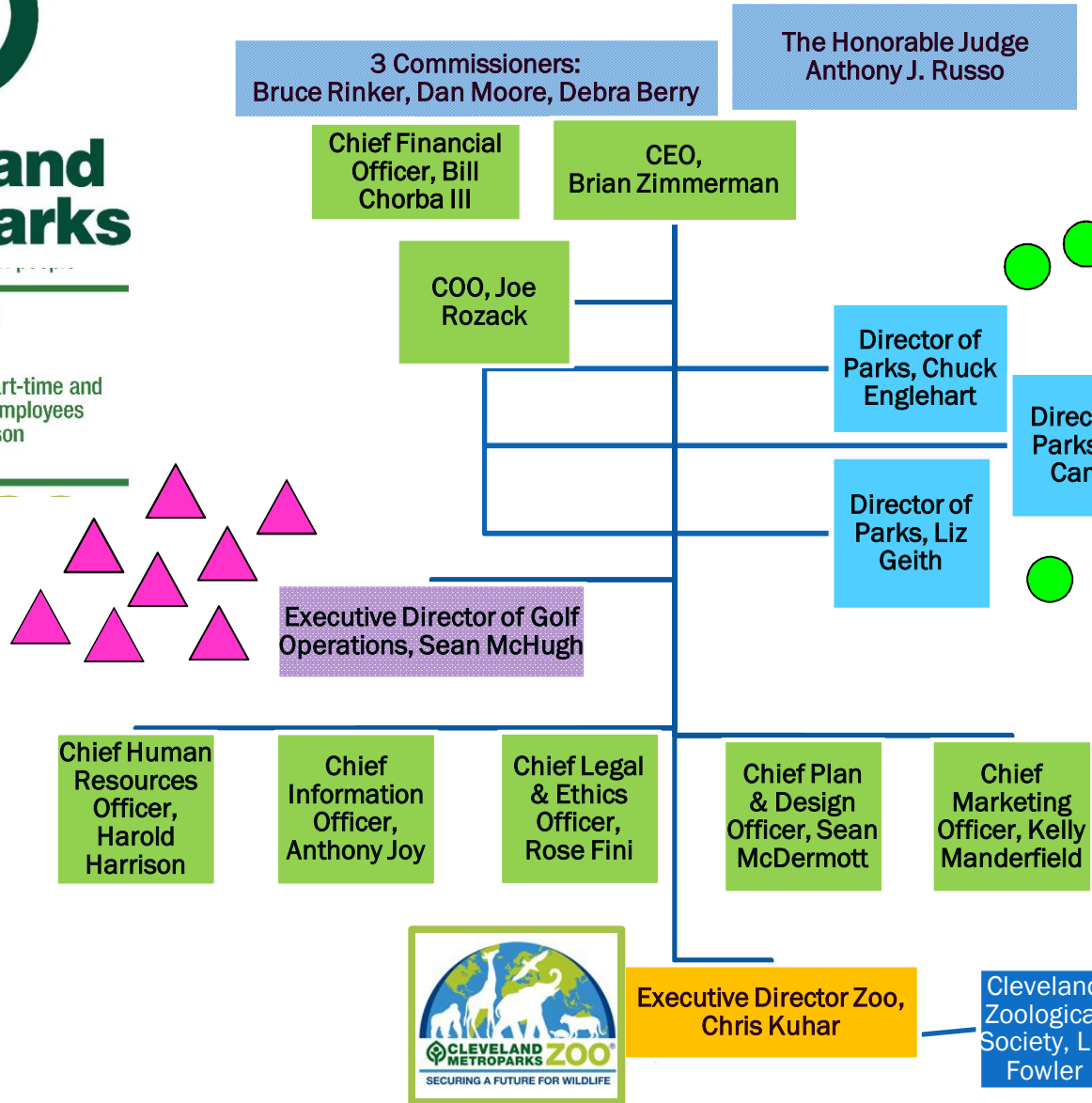


Sustainability:
Zero Waste and Beyond...
It's only 'waste' if you throw it away.

Nancy Hughes, October 2017





Mission:

Cleveland Metroparks will conserve significant natural resources and enhance people's lives by integrating high quality outdoor education, recreation, and zoological opportunities into people's lives.



Mission:

Cleveland Metroparks Zoo Creates compelling experiences that connect people with wildlife and inspire personal responsibility for conserving the natural world.

Five Strategic Goals:

- Protection
- Relevancy
- Connections
- Come Out and Play
- **Organizational Sustainability**

Seven Strategic Focus Areas:

- Animal Care and Exhibition
- Wildlife Conservation
- **Sustainability**
- Conservation Education
- Guest Experience
- Community Leadership
- Management

African Elephant Crossing

5-acre, \$25 million exhibit opened May 5, 2011



Leadership in Energy and Environmental Design (LEED) Green Building Rating System™



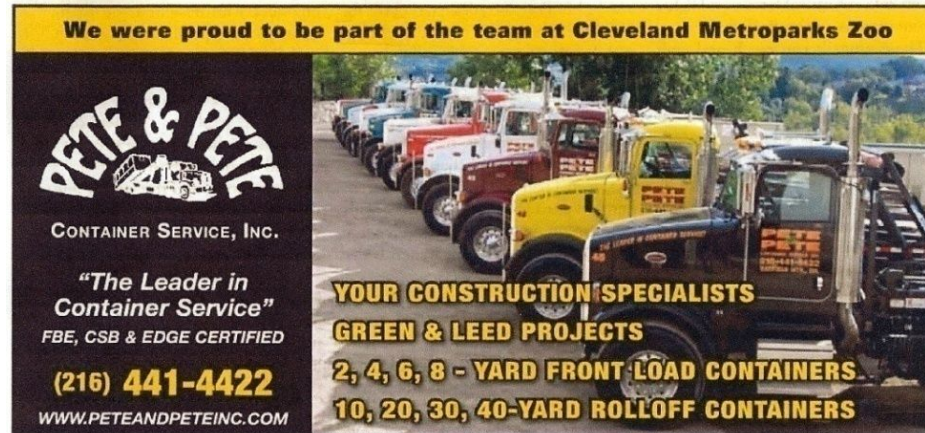
SUSTAINABLE SITES: SITE DEVELOPMENT, STORM WATER DESIGN, LIGHT POLLUTION REDUCTION

BUILT OVER AND AROUND THE SHELL OF THE OLD 1950s – ERA PACHYDERM BUILDING & ELEPHANT YARD.

MATERIALS & RESOURCES

× Materials Recycled ~ 93 %

- ✓ wood waste
- ✓ cardboard
- ✓ metal
- ✓ drywall
- ✓ plastic
- ✓ concrete, bricks, asphalt



Materials & Resources

Credits 2.1 & 2.2

4.1 & 4.2

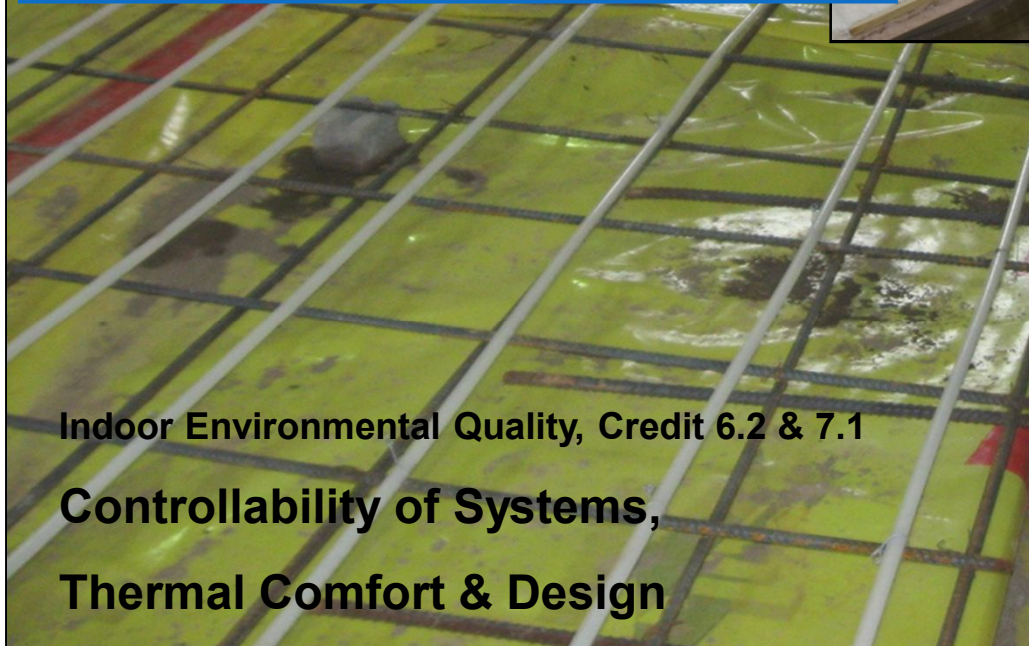
5.1 & 5.2

× ~ 24 % Recycled Content in Materials

× Purchased ~ 35 % Materials Locally



Energy Efficiency



Water Quality & Conservation



Exhibit is 4 x larger than previous, but uses 72% less water:
Before: 26.3 mil gals. per year / After 7.5 mil gals.



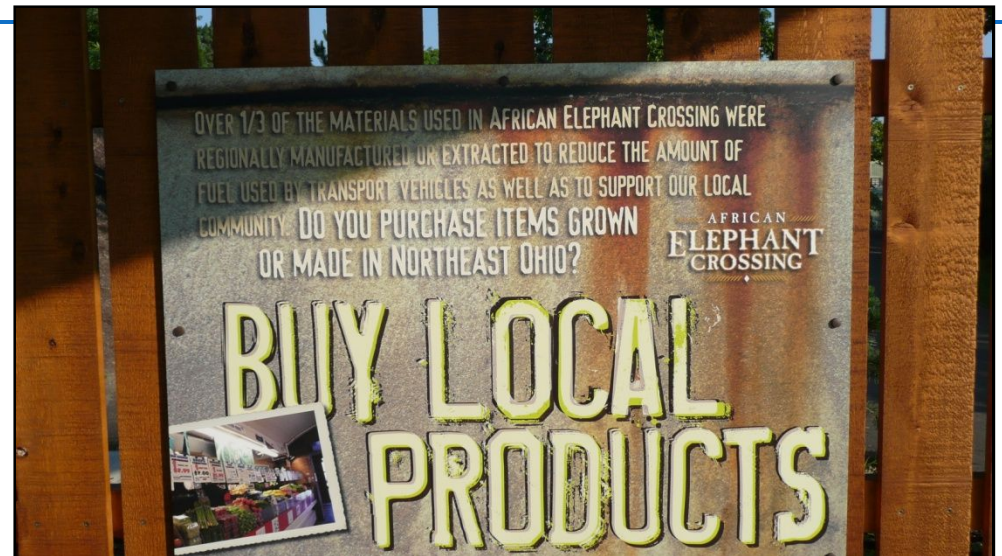
INDOOR ENVIRONMENTAL QUALITY

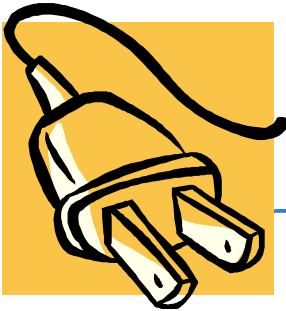
CREDITS 4.1, 4.2, 4.3, 4.4, LOW EMITTING MATERIALS
ADHESIVES & SEALANTS, PAINTS & COATINGS, CARPET SYSTEM,
COMPOSITE WOOD & AGRIFIBER PRODUCTS



INNOVATION: SUSTAINABILITY MESSAGING

INNOVATION & DESIGN PROCESS, CREDIT 1.2, GREEN EDUCATION PROGRAM

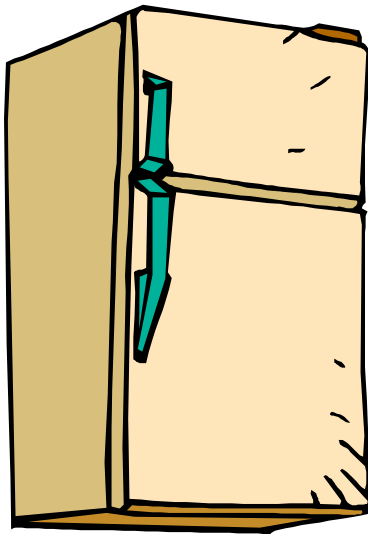




ENERGY

~128 BUILDINGS/STRUCTURES; > 416,142 FT²

- Do all of our buildings have meters on them?
- How old are our appliances and equipment?
 - Is our equipment Energy Star certified?
 - Is our lighting updated to T-8 FLs or LEDs?
- Have we installed motion sensors where applicable?
- Are computers and lights turned off when not in use?
 - **What is plugged in...and why?**



RESOURCE USE: HEATING/VENTILATION/AIR CONDITIONING (HVAC)

Furnace Replacement at Monkey Island



Built in the
early 1900's



RESOURCE USE: ELECTRICITY

LED LIGHTING



2016 Recycling Totals

Bulbs: Fluorescent, CFLs, HID, Flood, Incandescent, aquatic specific	2,244
---	-------



2016 Solar



Bold
ALTERNATIVES

64 hand-carved
animals, crafted
by Carousel
Works in
Mansfield, OH

❖ 96 solar modules that provide 27.36 kW of electricity.

✓ This offsets 50,000 lbs. of CO₂ per year =
21,000 #s of coal burned =
greenhouse emissions of 4 cars per year.



2017

RESOURCE USE: FUEL

UNLEADED GAS USAGE

YEAR	2007	29,331.1
	2008 *	25,950.8
	2009	22,274.8
	2010 >	22,026.7
	2011	21,707.3
	2012	20,295.9
	2013	19,008.1
	2014	18,694.0
	2015	16,829.8

*On Earth Day, began **limited driving policy** in the Zoo after the park opens for our busiest months, April – September
> Added 8 bikes to our fleet

- **Fuel Savings**
- **Reduced Air Emissions**
- **Reduced Noise Pollution**



SOLAR AND HYBRID VEHICLES



WATER – QUANTITY, QUALITY, & STORM WATER MGMT.

- ✓ Do all of our buildings have meters on them?
- In our buildings, can we use:
 - ✓ Motion sensors for faucets/toilets
 - ✓ Aerators for faucets
 - ✓ Dual flush toilets
 - ✓ Compost toilets
 - ✓ Waterless urinals
 - ✓ High efficiency dishwashers / washing machines



- ✓ Are irrigation heads positioned properly?
- For storm water management, do we utilize:
 - ✓ Rain gardens / barrels
 - ✓ Bioswales
 - ✓ Green roofs
 - ✓ Pervious pavement



WATER CONSERVATION – QUALITY

2012 PARKING LOT BIOSWALE



Storm water runoff from developed areas increases flooding potential and carries pollutants from streets, parking lots and lawns into local streams and lakes.

This bioswale **protects water quality** and **reduces storm water runoff**.



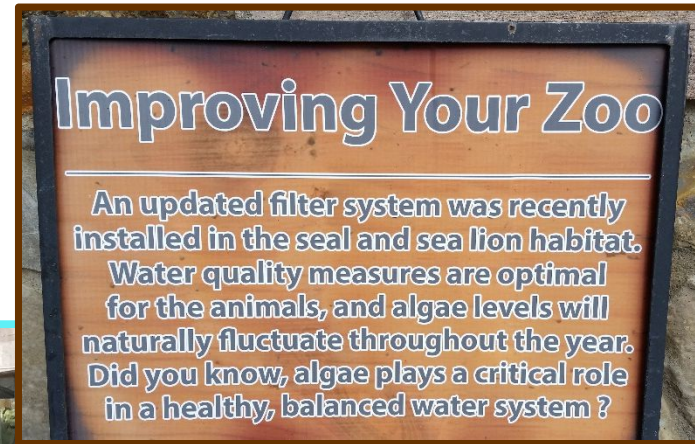
WATER QUALITY - BIOSWALE GARDEN & GUTTER RAIN CHAIN



Rain gardens can absorb most rainfall events and filter runoff that carries pollutants from streets, parking lots and lawns into local streams and lakes.

WATER CONSERVATION :

Seal /Sea Lion Pool pump replacement



**2013 ECO Grant
\$3,747.20**

RESULTS: new system
saves over 80% water vs.
old system which
wasted 7,200 gallons
per day!

ECO Grants are funded from
RECYCLING REVENUE.



RESOURCE USE: WATER CONSERVATION



WATER BOTTLE REFILL STATIONS & NEW COOLING MISTERS



Timed Operation Conserves Water



LANDSCAPE: RESOURCE USE

Planting Trees & Browse



2016



Two Amur Tigers:
a female, Dasha, 16,
born in Cleveland in
2001.
a male, Klechka, 13,
born at the Toledo Zoo.

LANDSCAPE: RESOURCE USE





SUSTAINABLE PURCHASING



> CMP POLICY 2014 <

Sustainable Products Are:

- ✓ Made with recycled content
- ✓ Highly energy efficient
- ✓ Designed to be long lasting
- ✓ Recyclable and/or compostable
- ✓ Made from renewable resources
- ✓ Less toxic than conventional goods
- ✓ Manufactured responsibly and locally
- ✓ Fairly traded
- ✓ Safely managed at the end of their life



RESOURCE USE: RESPONSIBLE PURCHASING -

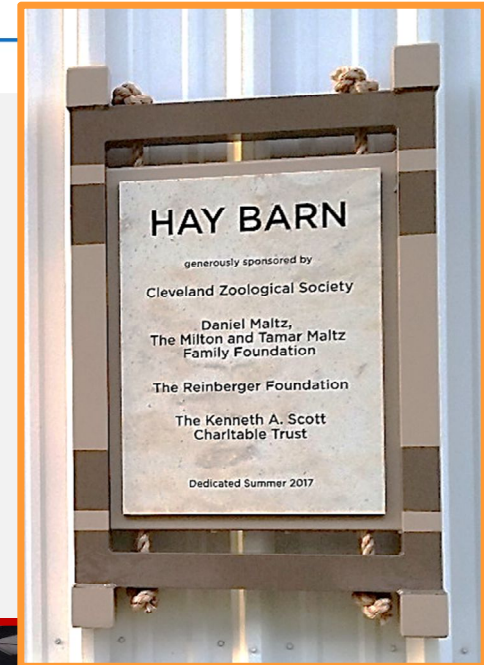
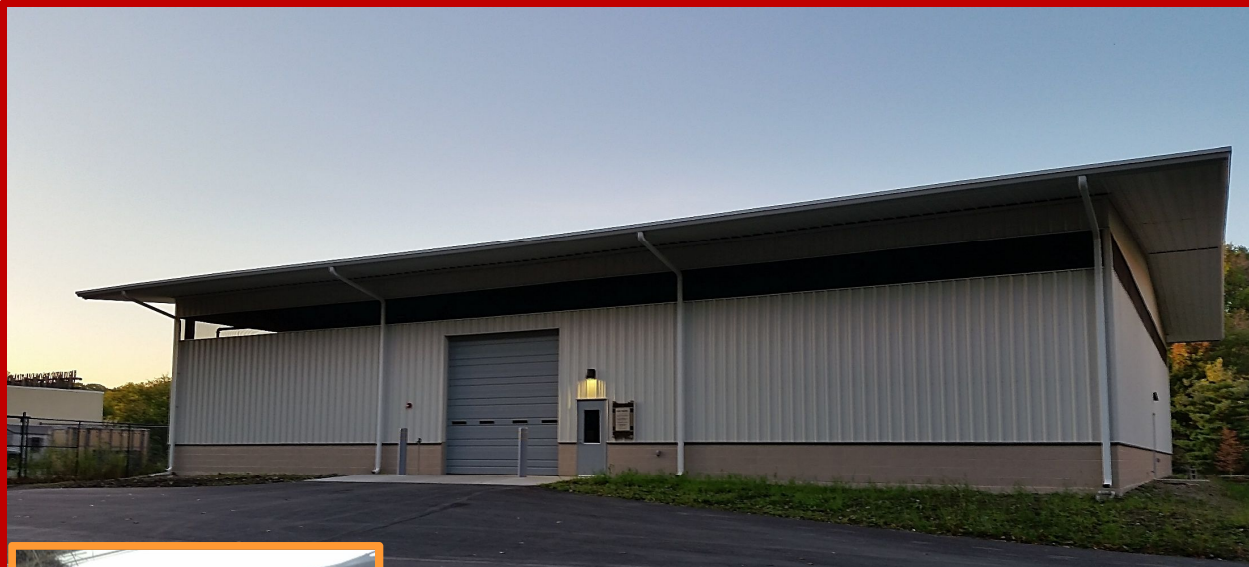
BUILDING CLEANING SYSTEM



- ✓ Non-toxic
- ✓ Biodegradable
- ✓ No or minimal VOC's
- ✓ No carcinogens
- ✓ Less irritating to skin and eyes
- ✓ No or minimal fragrance



AUG 2017 ZOOLOGICAL PROGRAMS - NEW HAY BARN

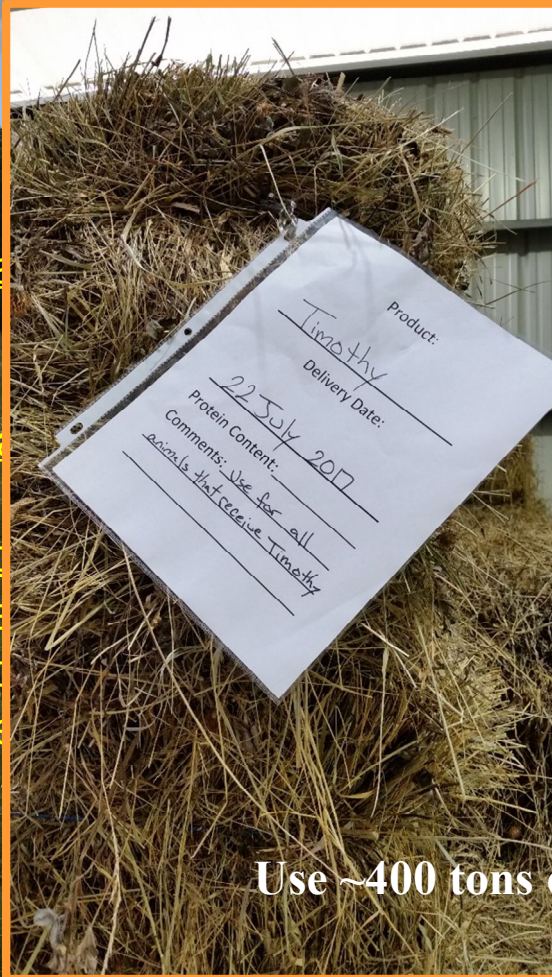


JUNE 2017

ZOOLOGICAL PROGRAMS - NEW HAY BARN

**Purchased a semi-trailer
with park recycling
revenue to haul the hay.**

**Partnership starting in 2013 with Cuyahoga Valley
National Park to lease 50 acres to be farmed for Zoo hay.**



Use ~400 tons of Timothy Hay for animal feed annually.

First Harvest 2017

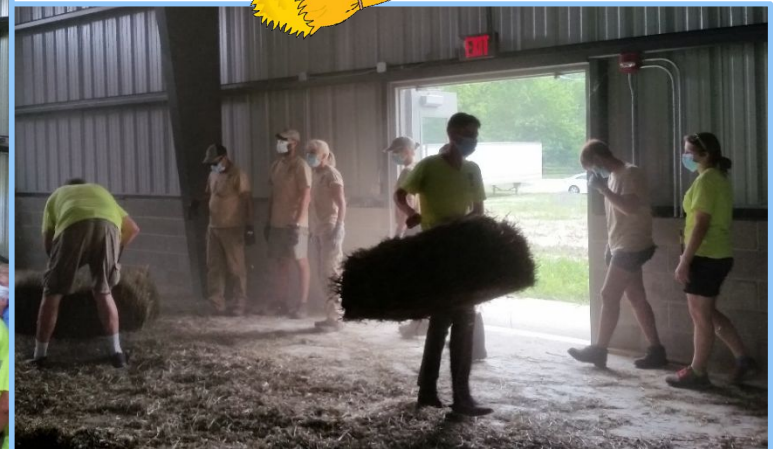
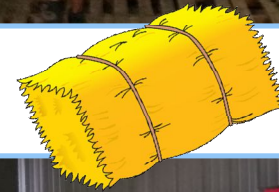


HAY BARN

8-9-17 Unloading 1st delivery (of 3) of ~ 54 tons of 'straw' grown at CVNP



“Many hands make light work!”

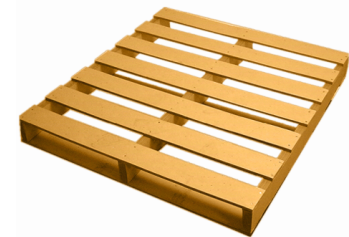




RECYCLING REVENUE:



- ❑ Aluminum cans and scrap
- ❑ Cardboard – 1 and 2-ply
- ❑ Cell Phones
- ❑ Metals – appliances, ballasts, brass, copper, iron, stainless steel, wire
- ❑ Pallets – wooden
- ❑ Paper – newspapers, magazines, books, catalogs, junk mail, envelopes, office papers, paper bags, phone books
- ❑ Printer Cartridges – ink jet and toners
- ❑ Shrink-wrap plastic

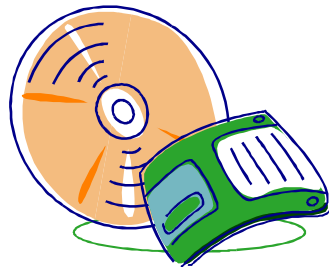
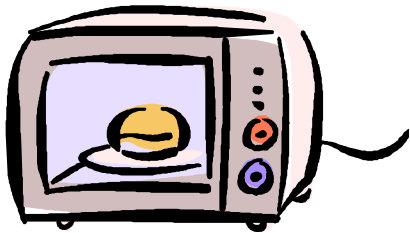
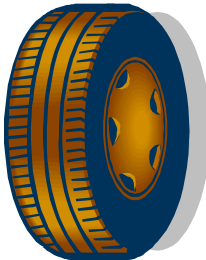




RECYCLING EXPENSE:



- ☐ Appliances - TVs and Microwaves
- ☐ Batteries
- ☐ Electronic Media - CDs, DVDs, VCR tapes. etc.
- ☐ Fluorescent/other lamps & bulbs
- ☐ Glass - bottles and jars
- ☐ Hazardous - cleaners, oil paints, solvents, pesticides, etc.
- ☐ Organics:
 - ☐ Food waste and compostable plates/cups/silverware
 - ☐ Manure - animal wastes and straw/wood shavings
- ☐ Plastics - rigid plastics
- ☐ Tires



\$\$ PAPER RECYCLING

\$25 per ton revenue

- × Newspapers
- × Magazines & Catalogs
- × Paper bags
- × Junk mail / Envelopes
- × Office/School papers/Folders
- × 2-ply corrugated Cardboard
- × 1-ply cardboard
- × Paperback books
- × Hardback books
- × Phonebooks



\$\$ CELL PHONE RECYCLING



Mining for COLTAN ORE
(columbite-tantalite)
in Africa's Congo region



Illegal mining and trading of certain ores in the DRC has been exploited to fund armed conflict and serious human rights abuses.



7-19-17 Annual Employee Picnic – Zero Waste



LANDFILLED:

< **10 pounds** - ice-cream wrappers, mayonnaise packets, and miscellaneous plastics.



RECYCLED: ~**15 pounds** of aluminum cans & aluminum foil; paper envelopes & single-ply cardboard; corrugated cardboard; a few steel food cans and fuel cans; plastic bottles and film plastic

COMPOSTED

371 pounds of food waste, plates, napkins, silverware, ice cream sticks.

The plates and napkins were a paper material, made from trees. The silverware was made from a sugar-based material called bagasse and was certified to be compostable by the Biodegradable Products Institute.



15 projects submitted; 5 projects awarded funding to be completed in 2017.			
Project Location	Submitted By	Project Details	Amount Awarded
Acacia Mgmt. Ctr.	Connie Hausman	Install <u>hoop house</u> that will be used to grow native plants for use throughout CM	\$5,013.00
Bedford	Rob Angiocchi	<u>Solar lighting</u> for interior and exterior of restroom	\$1,567.00
Hinckley	Amanda Creque	Install <u>air injection system</u> at Ledge Pool to remove iron from well water.	\$1,000.00
South Chagrin	Ryan Shalashnow	<u>Solar lights</u> for main entrance sign.	\$1,650.00
Zoo- RainForest Aviary Exhibit	Ryan Leasure	Install <u>automatic fill system</u> in pool.	\$2,000.00
{Total Requested from all projects: \$66,804.22} <u>TOTAL AWARDED:</u>			<u>\$11,230.00</u>

2017 AWARDED ECO GREEN PROJECTS



\$\$\$ FOR ECO GRANTS COMES FROM PARK RECYCLING EFFORTS

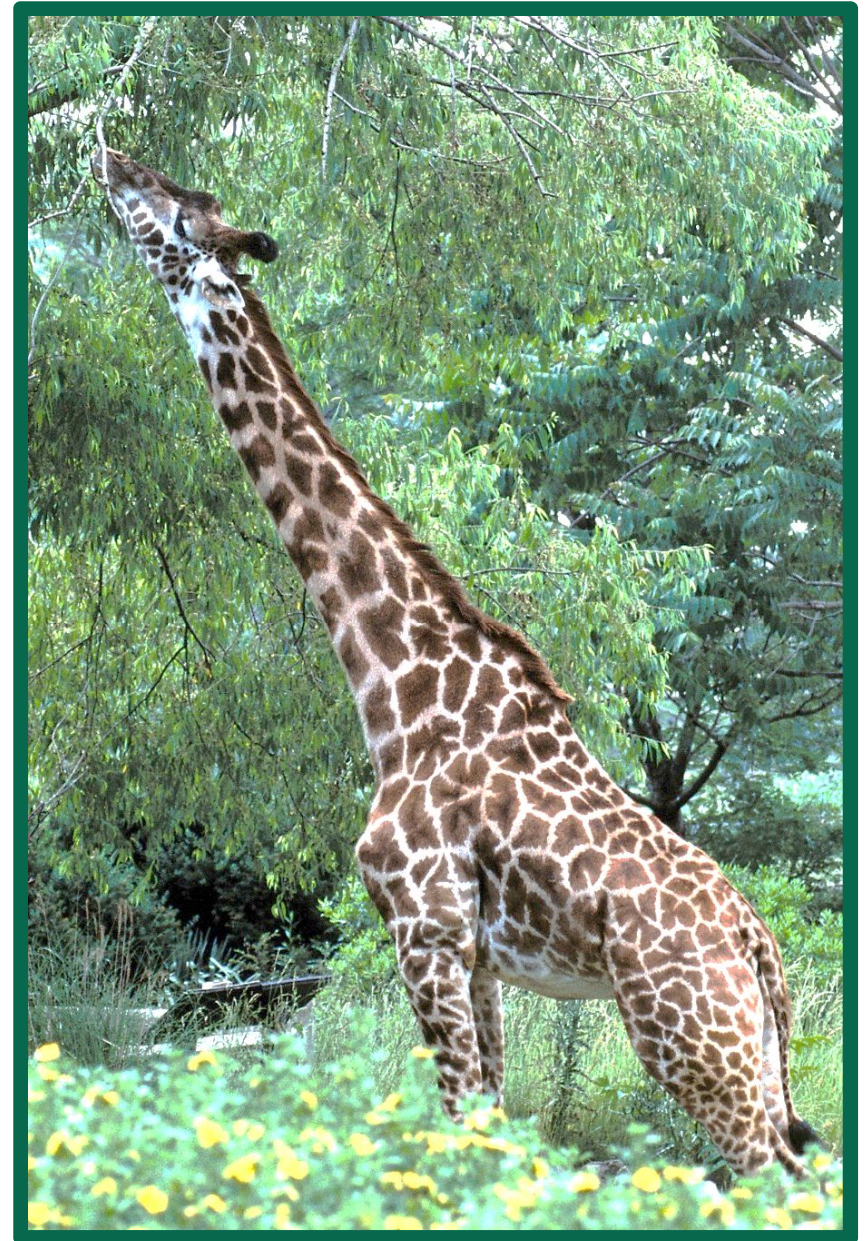
ORGANICS RECYCLING – Zoo Compost Program



~5,000
cubic yards
annually
(~ 3.5 tons per day)



Herbivore Animals



Herbivore Animals



COMPOST PROCESS AT THE ZOO



COMPOST PROCESS AT THE ZOO



aerating & monitoring



COMPOST PROCESS AT THE ZOO



Screening mature compost

BEFORE...



After

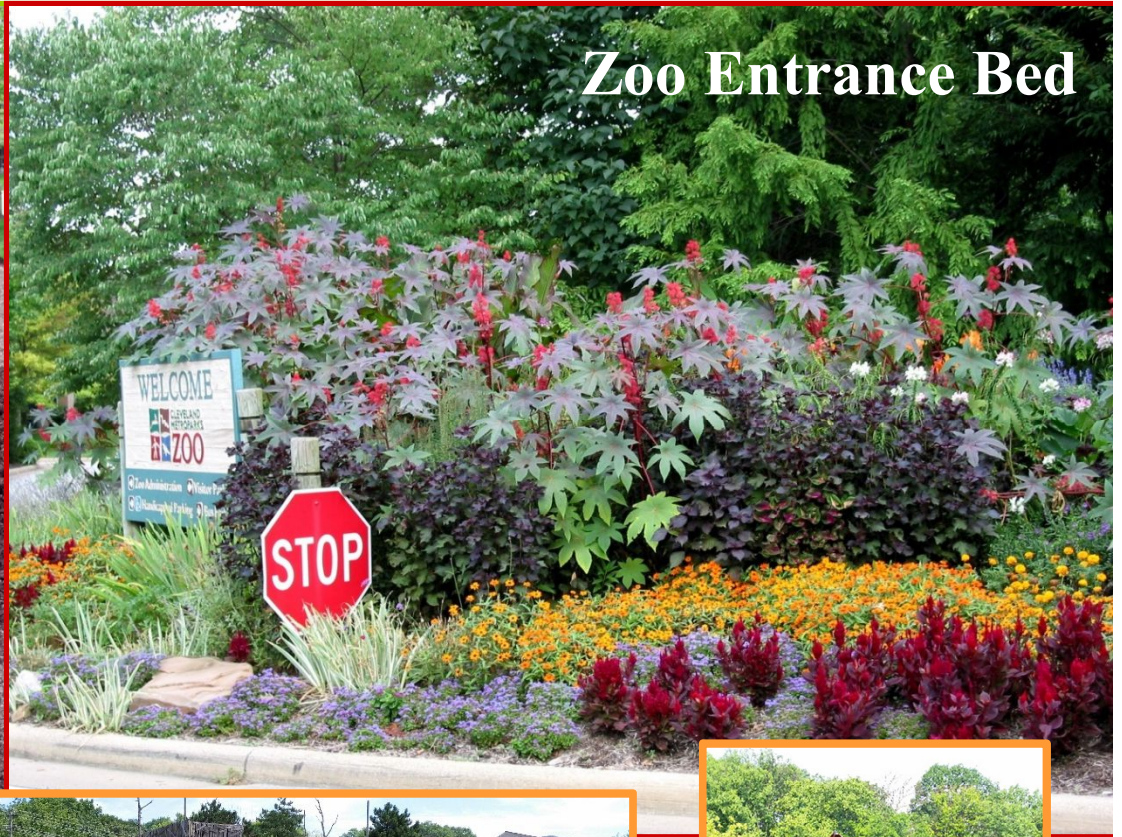
Mature Compost:



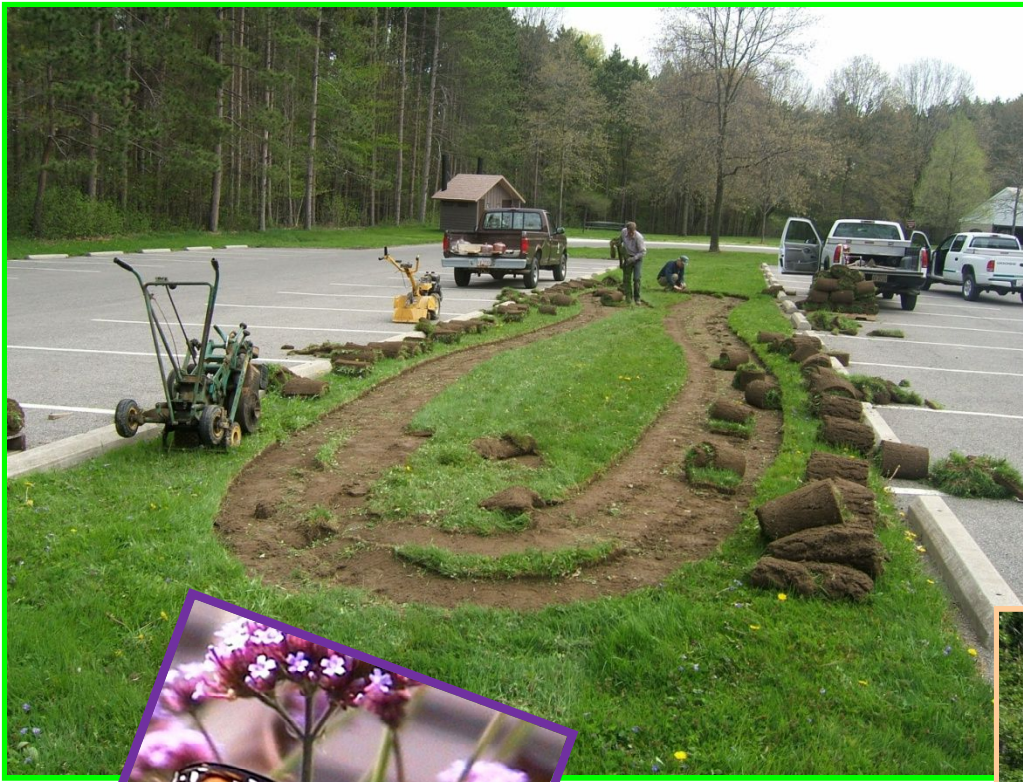
fluffy & crumbly
smells earthy,
sweet

dark in color
(but not black)
slightly moist

USING ZOOPOO COMPOST ON GROUNDS



USING ZOOPOO COMPOST IN CLEVELAND METROPARKS AND ON OUR GOLF COURSES



**Monarch
Butterfly
Way-station at
North Chagrin
Reservation**

BUY ZOOPOO COMPOST

- ❑ Spring – Buy in April, Pick up in May
- ❑ Fall – Buy in September, Pick up in October



SOLD OUT
in 2.5 hours!



FutureforWildlife.org



Nancy Hughes, Manager of Sustainability

216.635.3337

neh@clevelandmetroparks.com

