# Building a Sustainable NEW Zoo

The Background

Like many organizations and businesses, the zoo faces a changing economy, increased sensitivity to environmental conditions, the need to provide a stable work environment and retain good employees, all while providing products and services of value to its customers. The NEW Zoo is among a group of only seven of the 218 Association of Zoos & Aquariums (AZA) accredited zoos and aquariums in the country that do not receive local or regional public tax support for its annual budget. So, aside from the core mission of providing a natural adventure that promotes recreation, education, and conservation through encounters with live animals, economic sustainability has become a major reason to apply sustainable practices to our operations.

A few years ago, the zoo recognized the emerging trend towards sustainability and could foresee what benefits it offered the NEW Zoo. Preservation of animal species, their environmental role and habits are inherent goal of many zoos. The zoo is faced with a dual challenge including preservation of animals and their natural environments but to also demonstrate the zoo can function in a highly sustainable fashion.

The zoo embarked on its Strategic Sustainability Plan with help from the Green Bay based consulting firm Foth who offered the right combination of skills and a proven process for helping us move forward in developing and effective plan that could subsequently be implemented. Foth, in partnership with the zoo, were willing to donate considerable time, effort and resources towards the zoo sustainability initiatives.

As a first step, Foth integrated existing business and operations plans, policies and AZA accreditation requirements relative to sustainability into a planning process. A lot of research was gathered on the subject of sustainability by zoo leadership and an initial challenge for Foth was to select and then integrate relevant information into a planning process. The next step was to hold a workshop to gather input from staff and key stakeholder groups to identify possible strategies and tasks that will help the zoo become more sustainable as well as expose stakeholders to the concept of sustainability and the Natural Step Process.

An environmental footprint of the facility will be developed as well. This will serve as a baseline of the facility and primary emphasis will be in areas of water, wastes and energy. Developing an environmental footprint can be overwhelming, so the zoo looking to identify the most immediate factors that come into play. Water, wastes, and energy cover much of that objective. Annual reviews as well as an environmental monitoring system of the facilities' environmental footprint will allow progress to be measured.

Zoo management, like many organizational managers, sees some of the low hanging fruit in energy management especially given the availability of public and private financial incentives. Energy management is one critical contributor to sustainability but without including other elements, organizations might miss out on achieving a broader base of benefits. Proper planning for sustainability will require the zoo stakeholders to think in terms of systems. Ongoing discussions will involve conversations about the interplay between the various elements of the zoo's operations. Use of the triple bottom line concepts (balancing economy, environment and societal benefits) will help guide discussion and metrics of the Strategic Sustainability Plan. During the course of the plan development, Foth helped facilitate the processes using "The Natural Step" systems conditions to help place stakeholder input and recommendations in a sustainable framework.

The NEW Zoo also developed the following initial guiding principles for its sustainability program:

# Guiding Principles for the NEW Zoo's Sustainability Program

Through the practical application of these guiding principles, the NEW Zoo will be able to defend its sustainable practices under accreditation scrutiny. This set of eight guiding principles will define our objectives and activities for sustainability. All zoos and aquariums should work towards sustainability and reduce their 'environmental footprint'. They should use natural resources in a way that does not lead to their decline, thus meeting the needs of the present without compromising future generations. All zoos and aquariums should lead by example, using green practices in all aspects of their operations and demonstrating methods by which visitors can adopt sustainable lifestyles and practices.

*Use environmentally sound waste management*

- Minimize the total production of waste.
- Manage separation of waste at source to encourage maximum re-use and recycling.
- Minimize the risk of polluting.

*Be energy efficient*

- Maximize energy efficiency in all on-site and off site operations.
- Try to reduce travel-related energy consumption.
- Efficiently maximize the use of energy which is produced and distributed, especially from renewable sources.
- Apply the three R's – reduce, re-use, recycle – where possible.

*Use natural resources responsibly*

- Use products that embody the most efficient and least environmentally damaging use of renewable and non-renewable natural resources. This applies to products from major construction materials to daily consumables, and should apply back along the supply chain to source.
- Apply the three R's.
- Make sure that animal acquisitions and dispositions are not only sustainable environmentally but also ethically acceptable.

*If you pollute, you pay*

- Support the general principle that the polluter should not pass on to others the cost of cleaning up pollution.
- Apply this principle in our own institution as a measure of good practice.

*Put local consumption first*

- Maximize the proportion of goods and services that come from local providers with acceptable environmental practices.
- Reduce the environmental impact of transportation when feasible.
- Include in RFP's language to determine vendor's commitment to conservation when possible.

*Contribute to equitable development*

Keep in mind that sustainable development requires a reduction in differences of living conditions across the world and that you contribute to this by:

- Conducting activities that contribute to this ideal.
- Supporting conservation projects that embody this guiding principle.
- Adjusting purchasing policies and practices to help.

*Apply the precautionary principle*

- Obtain and analyze as much information as possible when making a decision.
- When in doubt, put in place measures to reduce environmental impact.

*Encourage public awareness and participation*

- Use the zoo's educational resources to help people understand why changes are important and what they can do personally to live in a sustainable manner.
- Set an example for other businesses in Earth-friendly operations.

**Guiding Sustainability Principles Checklist for the NEW Zoo**

1. **We seek to balance environmental, ethical and social considerations alongside our economic needs and refuse to compromise future generational needs to achieve short-term objectives.**
2. **We promote an open and inclusive decision – making process.**
3. **We ensure compliance to all relevant environmental legislation and ethical codes.**
4. **We follow the precautionary principle to minimize potential harm to the environment through our operations in the absence of scientific certainty.**
5. **We seek to minimize our use of non-renewable resources, taking into consideration the restraints of the natural environment, favoring local suppliers and reducing emissions.**
6. **We are committed to finding innovative solutions to improve our ongoing operations and activities.**
7. **We seek to ensure the health, diversity and productivity of the immediate and wider environment.**
8. **We understand that all of us have shared responsibility of living sustainability.**
9. **We seek to be a positive influence by communicating and sharing sustainability values with our members, stakeholders and wider community through promotion, education and facilitation.**
10. **We will assess sustainability performance of our partners and suppliers and use available opportunities to influence and improve their sustainability performance.**
11. **We will embrace sustainability not only because it is the right thing to do as a conservation organization but it make good business sense.**

# Sustainability Improvement Plan

NEW Zoo's Comprehensive Five – Year Plan

## Project Overview

The NEW Zoo's goal in creating a sustainability plan is to significantly reduce the zoo's negative environmental impact. Through conservation measures listed in this plan, new policies and practices that will improve our ecological footprint, we are striving to become an environmentally sustainable zoo and green leader in Brown County.

## Scope of Work

Evaluation & Prioritization
Evaluate current systems and determine the most prudent and cost-effective solutions for each of the five areas listed. Develop prioritized schedules for the implementation of improvements as they become fiscally and logistically feasible.

Water
Decrease water usage by increasing conservation and efficiency measures. Manage storm water runoff.

Atmosphere & Energy
Decrease greenhouse gas and air pollution emissions by increasing energy conservation and efficiency measures, initiating renewable energy use and emphasizing sustainable transportation choices.

Materials & Products
Increase percentage and variety of environmentally responsible products and materials used at the NEW Zoo.

Waste
Divert maximum amount of waste from landfills through source reduction, reuse, composting and recycling.

Environmental Education
Amplify the frequency and variety of environmental education efforts. Focus communication efforts on staff, volunteers and visitors.

A detailed list of initiatives to accomplish these goals can be found on the following pages. These initiatives will be modified as necessary to reflect ongoing changes in environmental technologies. Likewise, the Significant Accomplishments section will be annually updated. Costs for the majority of the strategic initiatives are still being determined. Cost will be an important factor in evaluating and prioritizing each environmental initiative.

# WATER

## Goals: Decrease water usage by increasing conservation and efficiency measures.

NOTE: The changes below must be sensitive to water requirements in animal areas.

Strategic Initiatives:

A. Evaluation & prioritization
   - Through research and careful analysis, determine best course of action for Initiatives B through G
   - Develop prioritized schedule for changes to occur as fiscally and logistically possible

B. Water efficient exhibits
   - Convert remaining dump-and-fill aquatic exhibits to filtered/recirculation systems
   - Repair leaks, beginning with otter pool
   - Install water filling float mechanisms in all stock tanks, ponds etc.
   - No running water to exhibits

C. Water efficient bathrooms
   - Install water efficient toilets and urinal systems
   - Install low flow showerheads and faucet aerators

D. Water efficient landscaping
   - Increase use of native plants in garden beds target 40-50%
   - Convert monoculture grass lawns into diversified, drought resistant native plant areas
   - Consider collecting rain water from building roofs for landscaping
   - Never leave sprinklers on overnight

E. Ensure all water fountains turn off/ use timers/ or eliminate if possible

F. Storm water management plan
   - Evaluate parking lot, grounds run-off
   - Determine and implement best course of action

G. Employee action
   - Encourage water-saving techniques in all areas, empower staff

H. Track, measure and quantify changes

# ATMOSPHERE & ENERGY

## Goal: Decrease greenhouse gas and air pollution emissions by increasing energy conservation and efficiency measures, initiating renewable energy use, and emphasizing sustainable transportation choices.

NOTE: The changes below must be sensitive to lighting, temperature and other requirements in animal areas.

Strategic Initiatives:

A. Evaluation & prioritization
   Through research and careful analysis, determine best course of action for Initiatives B through F
   Develop prioritized schedule for changes to occur as fiscally and logistically possible
B. Energy-efficient lighting
   Continue energy-efficient lighting upgrades
   Where appropriate, install occupancy sensors to ensure lights are turned off in unoccupied common areas
   Replace thermostats with efficient programmable functions
   Replace standard Christmas lights with LED lights
   Institute a "Power Down" campaign in all areas without occupancy sensors. Power Down stickers on all switches to provide a simple reminder to shut off
C. Energy efficient electronics & appliances
   Incrementally replace energy-intensive office equipment, refrigerators and freezers, washer/dryers and restaurant equipment with U.S. E.P.A. Energy Star qualified models
   Address issue of phantom loads
D. Energy efficient buildings
   Determine where weather-stripping, energy efficient HVAC systems and other measures are needed; install as appropriate
   Continue to install energy-saving green or reflective roofs on new and renovated buildings
   Pursue green and LEED design/elements in all new buildings as fiscally and logistically possible
E. Initiate renewable energy use
   Determine best renewable energy source(s) for zoo; install and implement
F. Employee action
   Encourage-saving techniques with washers/dryers, office equipment, including computers work related equipment
G. Track, measure and quantify changes

# Materials & Products

## Goals: Increase percentage and variety of environmentally responsible products and materials purchased by and used at the NEW Zoo.

NOTE: "Environmentally Responsible" is defined here as produced, manufactured, or grown in a manner that is socially and environmentally sustainable. The following are useful environmental credentials: locally produced; contains high percentage of recycled materials (particularly pot-consumer waste); made from rapidly renewable resources; contains minimal packaging; non-toxic and biodegradable. Whenever possible, environmental credentials should be third party certified.

Strategic Initiatives:

A. Evaluation & prioritization
   Through research and careful analysis, determine best course of action for Initiative C
   Develop prioritized schedule for changes to occur as fiscally and logistically possible
B. Create purchasing guidelines and/or policies that take into account products' environmental credentials
C. Incrementally increase/initiate purchase of the below materials (environmental credentials listed in order of descending importance)
   - All paper and paper-based products (including paper towels, napkins and toilet tissue) – highest possible post consumer recycled content, chlorine-free bleaching process, FSC-certified
   * Benches, fences, landscape edging, picnic tables- made of recyclable plastic lumber. If wood must be used, choose FSC-certified products
   - Carpet, construction materials, office furniture – low VOC, made of recycled materials
   - Cleaning supplies – lowest VOC content possible, non-toxic
   - Clothing items – composed of organic cotton and/or recycled PET
   - Coffee and tea service – shade – grown, organic, fair-trade coffee; organic, fair-trade tea and sugar, bamboo stir sticks, re-usable or unbleached coffee filters
   - De-icing chemicals – choose the most environmentally responsible rock-salt for use on grounds
   - Food items – local, organic, fair-trade, sustainable harvested products whenever possible

- Food packaging and food wares (plates, bowls, cups, utensils) - composed of rapidly renewable materials rather than petroleum. Examples include sugar cane or palm oil waste fibers, with corn as last resort choice
- Light bulbs – only energy efficient types
- Paints, caulk, adhesives – lowest possible VOC content
- Plastic-based products (computer disks, trash liners, etc.) – highest possible post consumer recycled content
- Retail bags _ composed of either bioplastic or recycled materials
- Retail items – sustainable produced or supporting environmental conservation projects
- Soap – non-bacterial/non-antimicrobial in office areas and restrooms; non-residue producing antibacterial in areas requiring extra sanitary precautions
- Thermometers – non-mercury
- Writing and correction items – recycled material casing, low VOC inks, water based correction fluid
- Set all printers to print double sided. All copy material to be double sided.

D. Track, measure and quantify changes

# WASTE

## Goals: Divert maximum amount of waste from landfills through source reduction, reuse, composting and recycling.

Strategic Initiatives:

A. Evaluation & prioritization

Through research and careful analysis, determine best course of action for Initiatives B though H

Develop prioritized schedule for changes to occur as fiscally and logistically possible

B. Source reduction

Significantly reduce office paper use in zoo office areas through initiating a "paperless office," where anything that is generated by a computer stays on computers and doesn't get printed out. Generate forms etc. to be transmitted electronically.

Replace paper towel dispensers in staff areas with controlled consumption dispensers or hand dryers

C. Reuse

Initiate and facilitate trading of reusable items across departments

D. Composting

Initiate a broader scale of composting of collections and landscaping materials: animal manure, used bedding, animal food prep waste, landscaping and gardening debris

Initiate composting of kitchen waste from all office areas

Initiate composting of Food service waste, both pre and post consumer

E. Recycling

Create and maintain policies mandating new and existing recycling programs for lights and ballasts, large and small electronic items, dry and wet cell batteries, spent carpet etc., amongst contracted and regular staff

Ensure that large events on zoo grounds have access to sufficient recycling containers as well as day to day visitors

Visitor recycling – create new and expanded system on ground to recycle paper (including visitor maps/guides), aluminum cans, plastic bottles and cups

F. Employee action

Continually encourage recycling; inform staff how to recycle and what to recycle

G. Track, measure and quantify changes

# ENVIRONMENTAL EDUCATION

**Goal: Amplify environmental education efforts in both frequency and variety. Focus communication efforts on staff, volunteers and visitors.**

Strategic Initiatives:

A. Evaluation & prioritization
   - Through research and careful analysis, determine best course of action for initiatives B through F
   - Develop prioritized schedule for changes to occur as fiscally and logistically as possible

B. Conservation programs
   - Increase number and variety of environmental education programs
   - Integrate environmental themes into existing programs

C. Signage
   - Increase number and variety of environmental sustainability-minded signage
   - Highlight zoo's green efforts

D. Community outreach
   - Identify and support local environmental efforts and events

E. Printed materials
   - Include environmental updates in member publications
   - Periodically review all printed material for environmental message

F. Employee education
   - Develop innovative methods of informing staff how to make positive green choices, encouraging action

Our Current Earth-friendly Operations

## Overview

Because we care so much about the animals and their habitats, we try to serve as a model for earth-friendly operations. With the goal of making the NEW Zoo a sustainable zoo, we are constantly looking for ways to improve our practices.

## Water Conservation

- We utilize smaller water containers which provides a sufficient amount of water for animals but is less waste when cleaning
- Dumped water is frequently used as initial rinse for den cleaning
- We use pressure washers which use less water to produce cleaning results
- Float filling mechanisms are used wherever possible
- We utilize drought resistant plantings in exhibits
- We channel rain water to water exhibit plantings
- native plantings, pruning to provide natural breezeways and shade minimizes need for sprinklers in hot weather
- Use of Antibacterial Hand Sanitizer at giraffe stand and contact station
- Never leaves sprinklers on overnight
- Ensure that all water fountains turn off/use timers or eliminate if possible
- Encourage water-saving techniques in all areas, empower staff
- Sustainable landscape zoo wide program in development

## Energy Efficiency

- We turn computers and equipment off at night and when not in use during the day
- Lights are turned on only when necessary
- Unnecessary travel limited/combined to 'as necessary'-multi purpose trips
- Replaced bulbs to compact fluorescent
- Sky lights in macaque and giraffe exhibits reduce need for electric lighting
- Sensors in Barth building provide light only when occupied
- Washers, dryers, refrigerators, freezers although not Energy Star rated, are donated items that might otherwise be thrown away
- Zookeepers use snow shovels, rakes, hand saws, and pruners rather than motorized equipment
- Routes are performed on foot or zookeeper bike when ever possible. Vehicles, when used, are turned off at every stop and not allowed to idle
- In our restaurant, smaller equipment items are used during slower periods
- Eliminated non-energy efficient sub zero freezers (3) and corresponding product (i.e. Dippin' Dots)
- Utilize smaller freezer vs. walk-in freezer to reduce energy loss when opened
- Bathrooms feature motion sensors to trigger lights
- Purchased new registers which turn off automatically
- Utilize bicycle vs. cart use whenever possible
- Acquiring energy efficient LED Christmas lights that can be used for both Halloween and Christmas events
- Acquiring energy efficient rope lights
- Volunteer room has motion sensors for lights to turn on when occupied
- Holiday Fest reduced to 1 weekend to reduce energy usage
- Continue energy-efficient lighting upgrades

- Where appropriate, occupancy sensors are installed to ensure lights are turned off in unoccupied common areas
- Instituted a "Power Down" campaign in all areas without occupancy sensors.
- Utility bikes purchased to minimize motorized cart use
- Pushmower purchased

## Recycling

- There are several recycling stations on grounds for visitors and most work areas have their own recycling stations as well.
- We recycle paper, aluminum, glass, cardboard, plastic, construction waste, toner cartridges, kitchen cooking oil, electronics, lights, batteries, spent carpet ….
- Employees use recycle bins for all paper products as well as plastic/aluminum
- Recycle/re-use Zoo Visitor Maps
- Recycling bins for visitors (soda cans, etc) in a visible location
- Visitor recycling – create new and expanded system on ground to recycle paper and aluminum cans
- Continually encourages recycling; inform staff how to recycle and what to recycle
- Save/Reuse decorations from different special events year to year
- Find multi-uses for items no longer needed (Zoo Boo straw, etc.)
- Zookeeper staff have committed their lives to conservation and do a great job of recycling and reusing.
- Ensure that large events on zoo grounds have access to sufficient recycling containers as well as day to day visitors

## Composting

- Animal waste is composted – this includes uneaten food, soiled bedding materials, manure, yard wastes (leaves, grass clippings, pruning…). This adds up to a LARGE amount of composted material.
- Composting of kitchen waste from all office areas
- Initiates a broader scale of composting of collections and landscaping materials: animal manure, used bedding, animal food prep waste, landscaping and gardening debris

## Waste Reduction

- Majority of written communication among staff is done electronically – reduces the amount of handwritten notes/paper used
- Printing/copying on both sides of paper to reduce paper consumption
- Practice 'brevity' in memos to reduce paper consumption
- Installed temperature alarm in refrigerator/freezer to avoid product loss
- Schedule distributed electronically (only two or so copies printed)
- "Un-saleable" gift shop items which can not be fixed are passed on to the Education Department or donated to non-profit Child Care center for use
- New paperwork storage process uses less materials (less envelopes, bags, boxes, etc.)
- Bathrooms offer hand dryers versus toweling
- Ordering done from 'on-line' catalogs whenever possible vs. catalog requests
- Send out an E-newsletter vs. paper newsletter
- Send out all press releases/zoo pass member updates electronically

- Send out meeting notification, agenda & minutes for Advisory Committee via email
- Implemented process to encourage Zoo Pass Members to re-use Zoo Pass Cards from year to year
- Initiates and facilitates trading of reusable items across departments

## Materials

- Orders are placed and need/use is limited in quantity
- Bought local, used items for re-use from liquidating businesses (i.e. display items, wireless communication)
- Recycled plastic wood used for fencing, animal platforms, and shelving
- The majority of enrichment items for our animal behavioral enrichment program are created from reclaimed materials or naturally grown and harvested materials
- Majority of produce is donated by local businesses. We use food that is in good condition but would be thrown out otherwise. Olsen's foods carries a high percentage of locally grown produce. Wery's farms donates locally grown produce. We also use fish donated by local fisherman.
- Corn, grain and hay are grown and purchased locally. Locally grown donated straw is also used for animal bedding. Specialized diets are purchased from our local feed mill to consolidate transportation pressures
- Frozen fish are purchased from Atlantic/Pacific – a company using sustainable fishery practices. AZA approved frozen meat is purchased from the nearest source to minimize transport.
- We use Ecolab cleaning products where possible. Dilution control mechanisms are used for animal area disinfectants which must meet OSHA Bloodborn pathogen and other veterinary standards (and are not green seal certified).
- Animal Acquisition and Disposition Policy ensures collection supports AZA conservation efforts and ethical considerations.
- Gift shop bags are 100% recyclable
- Styrofoam limited to 'hot' products only with transition to recyclable cardboard for 2009
- Re-usable/re-fill capable cleaning bottles and subsequent product used/purchased
- Re-usable/re-fill capable sipper products and water bottles offered through Concessions/Gift Shop
- Bathrooms feature 'green certified foam hand sanitizer'
- Use of Antibacterial Hand Sanitizer at giraffe stand and contact station
- Acquired plastic fencing as part of grant in children's area
- Fax machine is shared by entire department
- Benches, fences, landscape edging, picnic tables – made of recyclable plastic lumber. If wood must be used, choose FSC-certified products
- Carpet, construction materials, office furniture – low VOC, made of recycled materials
- Cleaning supplies – lowest VOC content possible, non-toxic
- De-icing chemicals – chooses the most environmentally responsible rock-salt for use on grounds
- Only energy efficient type light bulbs
- Lowest possible VOC content in paints, caulk and adhesives
- Highest possible post consumer recycled content in plastic-based products (computer disks, trash liners, etc.)
- Soap is non-bacterial/non-antimicrobial in office areas and restrooms; non-residue producing antibacterial in areas requiring extra sanitary precautions

## Outreach

One of the big improvements in our environmental impact has been in the education of staff. Making sure everyone understands our policies and knows what they can do to help us reach our environmental gals can have a great impact.

The Zoo strives to set an example for our community by creating events and activities focused on sustainability.

- Sustainability principles posted/reiterated/enforced

- Zookeepers are diligent about including conservation messages into every interaction with the public.
- Participation in numerous SSP programs not only aids in conservation of specials but also provides opportunity to highlight many other conservation concerns.
- Message of mission statement on walls around Concession area
- Conservation-size admission with funds to promote conservation efforts through grants
- Offer BC Recycling Center informational brochures at the VC
- Held & Scheduled "Party for the Planet" AZA event – Earth Day celebration
- Scheduled "Leap Into Spring" AZA event
- Cans for Conservation initiative
- Zoomobile program includes educational component about conservation. "Reduce Reuse Recycle"
- Drop off site for ink cartridges & cell phones
- Promoted Cans for Conservation in Newsletter to County and Zoo Pass Members
- Utilized Pepsi can panel to promote "Cans for Conservation" initiative – placed signage on recycling bins