Title: 2015 Excellence Award Entry

Category: 2015 Educational Program Excellence Award

Entrant: Montgomery County Environmental Learning Center

Contact: Chris Hoffman, Education Specialist
         E-mail: hoffmanc@mcohio.org
         Phone: 937.781-3064

Entry Title: Montgomery County Environmental Learning Center

Jurisdiction: Montgomery County, Ohio

Population: 533,116 (2014 estimate)

Cost per Household for Project: $20.78

Approximate Budget: $4,625,395 (facility)

Annual Operating Budget: $50,000 *

*Operational Costs, exclusive of staff wages and benefits
EXECUTIVE SUMMARY

Montgomery County Environmental Services developed, designed, and built a state-of-the-art Environmental Learning Center on the campus of the Montgomery County Solid Waste District. This one-of-a-kind facility is constructed with sustainable building materials and includes museum quality exhibits and interactive games designed to encourage waste reduction, recycling, and water and energy conservation. The facility also includes a green parking lot to teach visitors about storm water protection.

The location of the center is unique because it allows visitors to view large-scale solid waste and recycling operations firsthand. Visitors who tour the Montgomery County Environmental Learning Center are given the opportunity to directly experience environmental challenges, and learn personal strategies to reduce their waste and conserve natural resources.
STATEMENT OF INTENT

In August 2014, Montgomery County Environmental Services celebrated the Grand Opening of the Environmental Learning Center (ELC), located at the Montgomery County Solid Waste District Transfer and Recycling Facility. The ELC replaced an existing education facility and expanded the educational focus to teach a more comprehensive environmental sustainability message.

The ELC serves the citizens of Montgomery County with free tours for schools, businesses and community groups, while regional collaboration efforts allow all residents of the Miami Valley access to the facility. In keeping with our message of resource conservation, the 90-minute tour focuses on individual behaviors that contribute to environmental sustainability. The main goal of the ELC is to foster sustainable behaviors to conserve natural resources and preserve our local environment.

After just six months in operation, the ELC has hosted more than 4,000 visitors while continuing to develop external collaborations and promote the facility throughout our region. This center serves as a community resource for environmental education, enabling visitors to learn how their day-to-day activities affect the environment and thereby encourage them to adopt more sustainable lifestyle choices. We are excited about our success to date and appreciate your consideration for the 2015 SWANA Public Education Excellence Award.

RESEARCH AND PLANNING

Need for this Facility/Program

The previous education center, known as the Recycling Resource Center (RRC), shared a wall and infrastructure components with the solid waste transfer facility. Over time, the proximity of the RRC to the transfer facility led to negative environmental issues within the building and precipitated the need to demolish the old structure and construct a new facility. Montgomery County Environmental Services seized this opportunity to construct a facility that focused on more than recycling; creating a holistic vision of environmental stewardship that includes messages about energy efficiency, water conservation and resource preservation. The goal is to promote sustainability to all residents, with a focus on personal responsibility and personal engagement.
Education Standards

The goal of the ELC is to provide a lifelong learning experience for all visitors; however, the concepts presented in Ohio’s New Learning Standards (adopted for 4th and 5th grades in Science and Social Studies) provide the basis for the ELC tour. Ohio’s New Learning Standards which correlate directly with the Common Core Curriculum guided the project committee during the exhibit and tour development phases of the project. Direct correlation to state education standards allows teachers to enhance their classroom curriculum by visiting the ELC, and ensure that the message we present is relevant in the present scholastic context.

Resources used prior to implementing this program

Prior to constructing the ELC, program staff used the Recycling Resource Center to host visitors and conduct recycling presentations. Staff members also visited schools and community gatherings to promote recycling. With the development of the ELC, schools, businesses, and community groups are encouraged to use the facility. Our staff members continue to engage the community and conduct classroom visits to promote an expanded message about environmental sustainability. In addition, budget funds are specifically allocated to provide transportation to school and community groups who would like to visit the ELC.

Target Audience

The ELC was specifically designed to incorporate messages and information that would appeal to diverse audiences and all generations. The information is applicable to a wide array of people and organizations, but primarily targets individuals located in Montgomery County, with a focus on local sustainability and resources, as well as local actions that can be taken by participants.

The ELC is the cornerstone of the educational outreach and sustainability programs offered by Montgomery County Environmental Services. The ELC serves the citizens of Montgomery County with free tours for schools, businesses and community groups, while regional collaboration efforts allow all residents of the Miami Valley access to the facility. In keeping with our message of resource conservation, the 90-minute tour focuses on individual behaviors that contribute to environmental sustainability. The facility will serve as a regional center for sustainability and resource conservation efforts for generations to come.
Program Goals and Objectives

The goals of the ELC are designed to be specific, measurable and attainable. Goals include:

- Host 5,000 visitors annually
- Align the ELC exhibits and tour with Ohio’s New Learning Standards for 4th and 5th grade students
- Maintain the ELC with relevant and current information about environmental issues for a variety of facility visitors.
- Educate the public about solid waste and material management. Present information that promotes sustainability with a focus on personal responsibility and personal engagement.
- Collaborate with similar agencies to promote the ELC as a regional asset to foster sustainable behaviors.

In order to accomplish these goals, the Montgomery County Environmental Services program staff worked meticulously throughout the planning phase of facility development to ensure that the program goals were integrated as intended.

Public outreach has been essential to the success of the ELC. The facility has been promoted to school, business and community groups through a variety of mediums, including:

- A Traditional Brochure that promotes facility tours was mailed to:
  o School Districts
  o Community Centers
  o Libraries
• Information about the facility and contact information about scheduling a free tour are provided on the Montgomery County Solid Waste District website (www.mcswd.org).
• E-mail messages are periodically sent to school personnel regarding special events hosted at the ELC.
• Press releases were issued to the local media upon opening the ELC.
• Information on the ELC is included in the Solid Waste District Annual Report.
• 28 Jurisdiction Update Presentations were conducted at City Council meetings.

Anticipated Obstacles and Opportunities for meeting Goals

Constructing and designing a new education facility required a shift in programming during development and construction phases of the project. Facility visits and tours were reduced during construction and outreach focused on community and classroom visits. Once the ELC was completed and opened to the public, a few challenges were identified:

• Shifting the outreach focus from school and community visit to ELC facility tours
• Promoting the ELC to large number of schools and teachers at the beginning of the 2014-2015 school year
• Best approaches to promoting the ELC to citizens and community organizations

These challenges were addressed by a variety of methods and helped us meet the goal of promoting the ELC to our target audiences. Multiple Open House events were hosted at the ELC to promote the facility to teachers, businesses, and community groups. An educator’s focus group was formed to make recommendations regarding future programs and methods to promote activities to teachers. Most importantly, funds were budgeted to provide transportation to the ELC for groups to assist in the transition from school and community visits to facility tours.
IMPLEMENTATION/EXECUTION

Timeline of Events

<table>
<thead>
<tr>
<th>Completion Date</th>
<th>Schedule Details</th>
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<tbody>
<tr>
<td>January 2013</td>
<td>Construction begins on ELC</td>
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<tr>
<td>September 2013</td>
<td>Exhibits and Media Development Project Begins</td>
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<tr>
<td>December 2013</td>
<td>Exhibit and Audio Visual - Tour Concept Design</td>
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<tr>
<td>January 2014</td>
<td>Detailed Design</td>
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<tr>
<td>April 2014</td>
<td>Media Production</td>
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<tr>
<td>May 2014</td>
<td>ELC Construction Complete</td>
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<tr>
<td></td>
<td>Fabrication and Installation of Exhibits</td>
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<tr>
<td>July 2014</td>
<td>Green Parking Lot Completed</td>
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<tr>
<td>August 2014</td>
<td>Grand Opening and Ribbon Cutting</td>
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Environmental Education

As visitors approach the ELC, they first experience the green parking lot. This green parking lot features permeable concrete that absorbs rainwater and collects overflow into rain gardens and bioswales. Landscaping features a prairie grass area, as well as drought resistant native plants. The building also features a green roof, which is visible from both outside the building and inside the building when looking outside the second floor windows. Visitors will also see sustainable and/or recycled product demonstrations through incorporation of recycled rubber mulch, benches made from recycled plastic, and rain barrels to irrigate the landscaping.

Exhibits/Tour

The ELC has incorporated museum grade, interactive games and activities for visitors of all ages to engage them in the learning experience.

Visitors are welcomed to the ELC by a short introductory video that defines a variety of environmental challenges and encourages measures that individuals can take to conserve
and preserve natural resources. Upon conclusion of the video, the docent directs the visitor’s attention to display panels on the wall and leads a discussion about the role that Montgomery County Environmental Services plays in providing sustainable services that lead to natural resource conservation.

As tour participants head up the stairs to the second floor of the facility, they hear the sound of an approaching storm. Trash and debris hang from the ceiling and spiral up the staircase to the second story. The storm symbolizes an environmental crisis that looms without the intervention of human behavior changes. At the top of the stairs, visitors encounter a 10-foot-tall Environmental Tornado exhibit that represents one person’s waste for one week. The Environmental Tornado includes items that represent trash and waste, recycling, water usage and energy usage. The docent leads visitors in a discussion about our environmental footprint and our planet’s finite resources.

The tour then proceeds to the viewing corridor, which allows guests to view the live operations of the 130,000 square foot solid waste facility that processes over 2,000 tons of trash each day. Through a 10-foot-tall plate glass wall, tour participants are able to view unloading of commercial trash haulers and the operation of heavy equipment to load the waste into tractor trailers for transport to the landfill. The experience helps visitors understand how trash is managed after it is picked up at their homes, and this makes the enormity of the operation immediate and personal. This key exhibit allows staff to educate visitors on the importance of reducing waste at home by providing a dynamic visual of the amount of recyclables mixed with regular trash, which can be viewed on the tipping floor area. This segment of the tour also includes short video clips that offer an inside look into the operation of the solid waste facility, the operations of a local landfill, and the processing of recyclables at a local commercial recycling facility.
After exiting the viewing corridor, tour participants move on to the interactive classroom, which allows visitors to engage in hands-on interactive learning. The video wall contains a touch screen water calculator that provides a visual demonstration of household water consumption based on daily activities such as brushing teeth, shaving, cooking, doing laundry, and flushing the toilet. Participants are then provided with a variety of conservation actions that can be taken to reduce water consumption. Examples of these actions are turning off the water when brushing teeth or shaving, taking shorter showers, and reducing cooking water. Based on their individual reductions, the calculator provides feedback about how individual changes would reduce the water usage of the entire county if every resident made similar changes, as well as what the corresponding impact would be nationwide and worldwide.

An electronic touch screen recycling sorting table lets visitors challenge each other in a high energy game to see which team can more accurately sort the highest number of recyclable materials. Visitors are taught about the value of “clean” recycling and the appropriate way to recycle materials such as electronics, paper, and metals.

Tilt tables demonstrate water and sewer infrastructure and educates visitors on how water passes through our local treatment facility based on where it originates and what treatment or distribution process is active. For example, the tilt tables demonstrate what happens after the water is used in a house and the treatment stages completed before the wastewater is returned to the river.

A quick look out the front windows of the ELC provides a prime view of Stony Hollow Landfill. On clear days, visitors use binoculars to watch the “tipping” of a solid waste truck’s load into the nearby landfill and follow the progress of traffic as it moves in and out of the active cell area.

Energy conservation, alternative energy and the carbon cycle are presented to visitors in a manner that provides realistic actions everyone can take daily to personally impact global environmental sustainability. These include simple actions from unplugging electronics when not in use, to using a reusable water bottle or taking part in a neighborhood clean-up.

Visitors take action before leaving the facility by making an environmental pledge at the Commitment Kiosk, where they will make a personal promise to make small changes in their daily routine that will positively impact their community and the world.
Visitors conclude their tour when they enter the exit stairwell to see positive environmental images and hear pleasant environmental sounds including birds chirping, a running stream, and kids playing. This is in contrast to the initial trip up the stairwell where they encountered the beginnings of the Environmental Tornado.

The end of the ELC experience wraps up with a final Q&A session and a look at the abundant natural resources of Montgomery County and the Miami Valley.

Overall, the ELC focuses on teaching visitors that small changes by each individual can have a lasting and meaningful impact on the world. We are all part of the solution. Everyone can make a positive impact to conserve resources and make our world a better place to live work and play.

The Facility

The Environmental Learning Center was constructed using sustainable building practices to preserve the environment by reducing resource consumption and minimizing waste. The following sustainable design elements and building materials were used to construct the ELC:

<table>
<thead>
<tr>
<th>Sustainable Design Items/Elements</th>
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<tbody>
<tr>
<td>Reclaimed I-Beam</td>
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<tr>
<td>Recycled Rubber Flooring</td>
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<tr>
<td>Natural Lighting – Window, Glass including office walls</td>
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<tr>
<td>Cork Flooring</td>
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<tr>
<td>Recycled Glass Tile</td>
</tr>
<tr>
<td>Bamboo Woodwork</td>
</tr>
<tr>
<td>Recycled Aluminum Tile</td>
</tr>
<tr>
<td>LED Lighting</td>
</tr>
<tr>
<td>Recycled Glass</td>
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<tr>
<td>Green Roof</td>
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Indoor air quality features – low emitting paint, HVAC air filtration

“Green” Parking Lot
The ELC is currently seeking LEED certification for the facility. LEED (Leadership in Energy and Environmental Design) is a green building certification that recognizes best-in-class building strategies and practices.

Though open for just six months, the Montgomery County Environmental Learning Center has hosted more than 4,000 visitors while continuing to develop external relationships and promote the facility throughout our region. This center serves as a community resource for environmental education, enabling visitors to learn how their day-to-day activities affect the environment and thereby helping realize a more sustainable environment.
Environmental Learning Center
Montgomery County, Ohio

**Project Budget**

Total construction costs for the Montgomery County Environmental Learning Center were $4,625,395.

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<tbody>
<tr>
<td>Construction and Furniture</td>
<td>$ 3,754,715</td>
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<tr>
<td>Audio/Visual Exhibits</td>
<td>600,000</td>
</tr>
<tr>
<td>“Green” Parking Lot</td>
<td>270,680</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$ 4,625,395</strong></td>
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Yearly operational costs, exclusive of staff wages and benefits, for the Environmental Learning Center for fiscal year 2015 are $50,000 with a significant portion allocated for busing to help schools bring students to the center.

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<tbody>
<tr>
<td>Utilities and Maintenance</td>
<td>$ 25,000</td>
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<tr>
<td>Promotion and outreach</td>
<td>15,000</td>
</tr>
<tr>
<td>Transportation Reimbursement</td>
<td>10,000</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>$ 50,000</strong></td>
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The construction of the Montgomery County Environmental Learning Center serves many purposes, including:

- Educational Facility (tour program)
- Community Resource for Meetings and Professional Organizations
- Office Building for six (6) full-time staff members and one (1) part-time intern.

The ELC is the cornerstone of the educational outreach and sustainability programs offered by Montgomery County Environmental Services. The facility will serve as a regional center for sustainability and resource conservation efforts for generations to come.

**Partnership and Collaboration**

During the development of the exhibits for the ELC, the project committee consisted of representatives for the Montgomery County Solid Waste District, Water Services and DRG3 (Dayton Regional Green Initiative) to develop a comprehensive sustainability
message for the facility. The project committee also tapped the expertise of local partner agencies (Five Rivers Metro Parks, Miami Conservancy District, etc.) while developing the exhibits and the green parking lot.

Local jurisdictions, school districts and community organizations have been instrumental in promoting and partnering to ensure that the ELC meets it goal of providing a regional asset to promote sustainable behaviors. Examples include:

- School and community tours
- Professional Organizations meetings and tours
- Master Recycler Courses
- Statewide Solid Waste and Recycling Conference (To be hosted in June 2015)

**Unique Program/Improvement**

The ELC is unique in a variety of ways:

- One-of-a-kind facility is constructed with sustainable building materials and includes museum quality exhibits and interactive games designed to encourage waste reduction, recycling, and water and energy conservation
- Developed to meet curriculum standards for targeted school groups while also providing life-long learning opportunities for people of all ages
- Provide transportation reimbursement for school and community groups to ensure equitable access for people from all walks of life and from across the region
- Six (6) full-time program staff members dedicated to managing programs to promote and support the ELC

**RESULTS/EVALUATION**

**Response to Program**

The Environmental Learning Center has received positive feedback from the very first day that it opened. An indicator of the program’s success is the growing list of groups scheduling tours and return visits to the ELC. To date, tour groups have ranged from Pre-Kindergarten students to College/Adult groups. The age of the more than 4,000 visitors has ranged from three-year-olds to senior citizens.
Measurable Success

While touring the Montgomery County Environmental Learning Center, visitors experience environmental challenges firsthand, with the objective to learn strategies to reduce waste and conserve natural resources. At the conclusion of the tour, the group leader is asked to complete a brief evaluation. Evaluation results are used to refine details of the tour and to measure the success of the ELC.

As of March 2015, the evaluation reveals that 100% of the group leaders feel that the tour presented age appropriate information for the group, while also promoting active participation of the tour participants. Respondents also reported that as a result of the tour individuals in the group learned to: Improve Recycling Habits (100%); Conserve Energy and Water (94%); and make Sustainable Choices (94%). The strongest indicator of success is revealed by respondents reporting that 100% of individuals are better prepared to make sustainable choices in their everyday lives as a result of the visit to the Montgomery County Environmental Learning Center.

Below is a list of the goals and results to date for the ELC:

- **Goal** – Host 5,000 visitors annually
  - **Results** – Over 4,000 visitors as of March 2015, with school and community group tours scheduled throughout the Summer 2015.

- **Goal** – Align the ELC exhibits and tour with Ohio’s New Learning Standards for 4th and 5th grade students
  - **Results** – Tour curriculum aligns with State of Ohio’s New Learning Standards in Science and Social Studies for 4th and 5th grade students

- **Goal** – Maintain the ELC with relevant and current information about environmental issues for a variety of facility visitors.
  - **Results** – Tour information is flexible to accommodate groups of all ages and expertise.

- **Goal** – Educate the public about solid waste and material management. Present information that promotes sustainability with a focus on personal responsibility and personal engagement.
  - **Results** – Evaluation results indicate that 100% of individuals are better prepared to make sustainable choices in their everyday lives as a result of visiting to the ELC.
• **Goal** – Collaborate with similar agencies to promote the ELC as a regional asset to foster sustainable behaviors.
  
  o **Results** – To date, local and regional collaborations have been developed with multiple agencies to promote the ELC, including: 28 Jurisdiction Members of the Montgomery County Solid Waste District, Five Rivers Metro Parks, University of Dayton River Stewards, Boonshoft Museum of Discovery, Association of Ohio Recyclers, Buckeye Chapter of SWANA, and the Ohio Association of Litter Prevention and Recycling Professionals

**Program Opportunities**

The ELC provides a local and regional resource for schools, businesses and community groups. Further program opportunities are planned for development over the next 1-3 years include:

- Design standard pre- and post-curriculum activities for teachers to implement in their classroom, featuring an ELC field trip and tour
- Develop Traveling exhibit to promote the ELC at community activities (libraries, County Fair, etc.)
- Relate existing school programs (Recycle Rally, Poetry Contest, etc.) to visiting the ELC

**Other Communities**

The ELC is the cornerstone of the educational outreach and sustainability programs offered by Montgomery County Environmental Services. Montgomery County recognizes the importance of environmental sustainability education and believes in collaboration with other communities and organizations to maximize the impact of the ELC. Our message of environmental sustainability has been designed and developed with an approach that can be easily replicated by organizations with similar goals. The Montgomery County Environmental Learning Center will continue to welcome all visitors, while sharing ideas, program themes, and experiences with any agency interested in promoting environmental sustainability.