

## Project Summary: The Water Conservation Education Exhibit in Memory of Thomas C. Spellmire

Based on the concepts developed by Warren County Soil and Water Conservation District staff, CMC Exhibits has developed and created an educational trailer that will address three essential principles of water:

- Water shapes our land
- Water is life
- Water needs to be protected

The trailer's design address these essential principles as three main interactive zones.

The three featured interactive zones are:

- 1) The Kinect Sandbox Hydrology Landscape Simulator (water shapes our land)
- 2) Interactive Streambed (water is life)
- 3) Mapping Pollution (water needs to be protected)

### General Trailer and Interior Specifications

This exhibition uses 24' trailer with custom 8' ceiling in order to accommodate the necessary height for the projector that will be used to create the Kinect Sand Box Hydrology Landscape Simulator (see the following section for a description of the interactive). The trailer possesses a rear door that folds down to create a ramped back entrance with transition plate, suitable for visitors using wheeled mobility assistance.

The trailer's interior (flooring, build outs, and trim) is treated with sustainable materials. Our team also has outfitted the trailer's standard LED lighting configuration with an additional set of LEDs that will give visitors the feeling of being underwater. The underwater lighting effect can be switched on or off from regular LED lighting according to the Warren County SWCD education team's needs.

### Trailer Layout and Featured Interactives

The educational trailer will be designed around three featured interactive zones, which are supplemented by graphic panels highlighting key educational concepts.

- 1) **The Hydrology Landscape Simulator (i.e., the Kinect Sand Box)** uses the hands-on fun of playing in a real sandbox in order to demonstrate the cyclical relationship between water and landscape. CMC Exhibits is creating two sandboxes: one for permanent interior use, and one for external use for demos outside of the trailer. Visitors manipulate synthetic sand or recycled rubber pellets in a 4' x 4' receptacle, and a projected contour map tracks their modifications. When visitors hold their hands to simulate clouds above the receptacle, the projection shows the movement of water across the relief pattern they have created.

The Kinect, computer, and projection unit are attached to one of the trailer's side walls for stability during travel. Visitors experience how water flows according to the topography of a landscape, and how water flow in turn shapes the land.

- 2) **The Interactive Streambed** allows visitors to work together to select factors and conditions that affect the water quality of a stream, and then to view the results of those selections. A projection surrounded by low relief build outs of a stream bank

presents visitors with a “template” watershed - a cross section of a clean, healthy watershed featuring various plants and animals typical to southern Ohio.

Visitors interface with the stream projection using a touch panel mounted onto a reader rail in front of the interactive. They are presented with “point of interest” boxes inviting them to learn more about the animal and plant species shown, and they are presented with scenarios that will change the conditions of the stream. As scenarios are selected on the touch screen, the projected image displays alterations to the stream’s water quality, type species, and geological conditions. New “point of interest” boxes explain how and why these changes happen, and how they are all interconnected to determine watershed ecologies.

By selecting different scenarios, visitors learn how different human actions and environmental factors affect the quality of not only the water, but the flora and fauna within the stream as well as other species that use the stream (e.g., humans!).

- 3) Mapping Pollution** allows visitors to visualize and understand the interconnectedness of Ohio’s waterways. Through a series of fiber optic LED light strings operated by pushing buttons, visitors can observe how water quality impacts all of the elements of a water system, and how each part of a system depends on the others.

A large map display depicts a series of interconnected Ohio water byways and how they connect. Visitors manipulate the screen to learn about state and US watersheds, tracing paths along the map to show the movement of an agent through part or the whole of the waterway.

These three featured interactives operate as key centerpieces to convey the trailer’s primary messaging: Water shapes our land, water is life, and water needs to be protected. They make the interior space flexible, enabling small groups of students to engage in different activities at the same time, or leaving the possibility for groups experiencing the components in shifts.

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