2026 Pathway to Water Quality Exhibit Information – Key Points and Features on Display

EXHIBIT OVERVIEW

- **Watershed:** A watershed is the area of land that 'sheds' water, or drains, to a common place such as a stream, river, or lake.
- Watersheds come in all sizes – they can be small like a backyard (less than an acre) or large like the land that drains into the Mississippi River (covering nearly 40% of the U.S.)
- **What we do on the land affects water quality and soil health.** When rain or snowmelt moves across yards, sidewalks, driveways, parking lots, and agricultural fields, it picks up sediment, fertilizers, pesticides, animal waste, motor oil, and other pollutants. These pollutants can end up in our streams and lakes.
- **There are things that we can do to help protect our water and soil resources.** Examples of these conservation practices, or best management practices (BMPs), are demonstrated throughout PWQ.

THROUGHOUT EXHIBIT

Pervious concrete: The walkway throughout PWQ and the driveway in the Home area is made of pervious concrete. Pervious pavement (which includes pervious concrete, porous asphalt, permeable paver blocks and reinforced turf) contains openings that allow rain to seep through the surface into the soil below. It reduces runoff and can help filter out pollutants that contribute to water pollution.

- The sprinkler fountain near the entrance has regular concrete and pervious concrete side by side that shows the difference in runoff.

Native plants: Plants and flowers native to Indiana are grown throughout PWQ because they have evolved to local growing conditions and are best suited for the soil and weather in our area. They require less water, fertilizer, and fewer pesticides than non-native plants. They provide critical food and shelter for native wildlife. Native plants have deep root systems that help keep soil in place, as well as absorb nutrients and pollutants.

GREETER STAND/ENTRANCE AREA

Green roof: The greeter stand's roof consists of sedum (or stonecrop) plants, a growing medium, and a waterproof membrane. The green roof absorbs rainwater, provides insulation, and creates habitat for wildlife.

HOME AREA

Rain barrel: A rain barrel collects and stores rainwater that runs off the roof. This water can be used for watering plants and lawns, and for washing cars. Rain barrels conserve water and reduce runoff.

Rain garden: A rain garden is a shallow depression planted with native wildflowers and grasses designed to capture runoff from impervious surfaces like roofs, driveways and patios. Rain gardens reduce runoff, increase infiltration, filter pollutants in runoff, and provide habitat for birds, butterflies, and insects.

Compost bin: Composting is the natural process of breaking down organic materials such as leaves, grass clippings, and food scraps into a soil-like product called compost (or humus). Compost can be used to fertilize plants and build soil health. Composting reduces the amount of waste sent to landfills.

Septic system: A septic system model is located behind the house. Some homes are not close enough to a centralized sewer system and instead use a septic system to treat wastewater onsite. Typical systems consist of a tank, a distribution box, and a drain field (or leach field) where soil naturally treats the wastewater. Proper maintenance and care are needed to keep septic systems working properly. Failing systems can contribute nutrients and pathogens to groundwater and nearby surface waters.

Other practices at home that can help protect water quality include **not over-fertilizing lawns** (excess nutrients can run off into streams and lakes and cause algae blooms) and **picking up pet waste**. Pet waste left in a yard can take over a year to fully break down & contains bacteria and nutrients that can end up in our waterways.

FORESTRY/WOODLANDS AREA

- The Forestry area of PWQ includes a variety of hardwood trees commonly found in Indiana, such as oaks, maples, and white pines. Each year, volunteers work to **remove invasive species** such as Asian bush honeysuckle and Callery pear from PWQ. Invasive plant species displace native plants, eliminate food and cover for wildlife, and threaten rare plant and animal species.

AGRICULTURE AREA

Key concepts and BMPs on display in the Ag area include:

- The corn in the field is planted with minimum tillage (cover crops are inter-seeded to mimic additional residue). **No-till** and **reduced tillage** methods reduce erosion and runoff by minimizing soil disturbance and leaving crop residue on the fields as cover.
- **Cover crops** (buckwheat, sorghum sudan grass, crimson clover, hairy vetch, and cowpeas) are planted near the flagpole by the bridge and Water History cabin. Cover crops are planted to benefit the soil rather than for harvest. Benefits of cover crops include reduced erosion, weed and pest suppression, and improved soil health. A root tube display planted with cover crops is located across from the Water History cabin.
- **Grassed waterway** (located in field to the right of corn plants): Grassed waterways are wide, shallow channels that are installed where water runoff usually concentrates in a field. The vegetation slows the flow of the water and reduces erosion. A **grade stabilization structure** (located at the end of the grassed waterway) is used to slow water velocity & prevent erosion where water drops from a higher elevation to a lower elevation.
- The **drainage water management** box (located at the front of the field) is constructed to show the inner workings of the system and was funded and installed by The Nature Conservancy. Drainage Water Management uses water level control structures in conjunction with existing drainage tiles to raise or lower a field's water table depending on the water needs of the crop. When used properly, drainage water management conserves water, reduces nutrient loss to streams and increases crop yields.

- **Gabion baskets** (located along bridge across from field): Gabion baskets are wire baskets filled rocks and are used to stabilize stream banks and control erosion.

SOILS AREA

- Soil is the foundation of terrestrial ecosystems, vital for food, water, climate, and biodiversity. Protecting and restoring soil health is essential for sustainable agriculture, environmental protection, and climate resilience. 95% of food is grown in soil.
- Soil is a mix of **mineral matter, organic matter, water, air, and living organisms**, and plays a critical role in supporting plant growth, water storage, and nutrient cycling. It is also the foundation on which we build our houses, roads and other structures.
- Soil is **not just "dirt"** — it's a **living, breathing ecosystem** teeming with life and essential to the health of the planet. In fact, **over half of all known species on Earth live in the soil**, making it as biodiverse as a rainforest (The Old Farmer's Almanac)
- Soils are Alive! A single teaspoon of healthy soil can contain **up to 1 billion bacteria** and miles of fungal hyphae.
- Soil color is one of the most visually apparent properties of soil and provides important clues about its composition. **Dark brown or black soils** typically indicate high organic matter content, as humus coats mineral particles and darkens the soil. Soils with **red or reddish-brown hues** often reflect iron accumulation and oxidation in well-aerated soils. **Gray soils** usually form under waterlogged or reducing conditions, indicating wetness.
- **Soil texture** refers to the relative proportions of sand, silt, and clay particles in soil, which determine its physical properties and suitability for plant growth. Sand particles are the largest and feel gritty, silt particles are medium-sized and feel smooth or floury, and clay particles are the smallest, feeling sticky or slippery when wet.

- Miami is the name of the State Soil of Indiana.
- To maintain and improve soil health: **Keep it covered** (mulch, residue) to reduce erosion and retain moisture. **Do not disturb** unnecessarily (minimize tillage). **Use plant diversity** (cover crops, crop rotation) to feed the soil. **Keep plants growing year-round** to maintain organic matter. (NRCS: Soil Health Key Points)

WATER HISTORY CABIN & WATER WELL

- About 60% of Indiana residents get their drinking water from wells/groundwater. (IDEM)
- The well water at Pathway is safe to drink and is tested every year before the fair. Private well water quality is not regulated, so it's up to homeowners to ensure that their drinking water is safe – through testing and by carefully managing activities near the water source. (IDEM: Water Quality in Indiana: Understanding and Protecting Your Drinking Water)
- The well at Pathway is 45 feet deep and was drilled into a water-bearing sand and gravel aquifer.

PASTURE & GRAZING AREA

Well-managed pastures can improve animal health, increase profitability, and enhance wildlife habitat while still protecting water quality.

- **Rotational grazing** is a system where livestock are moved between portions of pasture (or paddocks) while allowing the other portions to rest and recover.
  - Grasses and clovers need time to regrow after being grazed and it's important for them not to be grazed to the ground. When plants have been overgrazed, there is less surface area available to capture the sun's energy and promote new growth.
  - Overgrazed pastures can result in increased erosion (due to lack of cover) and reduced infiltration/increased runoff (due to soil compaction).
- **Fencing** is used to keep livestock out of sensitive areas like streams and ponds. Keeping livestock out of streams helps prevent bank erosion and reduces the amount of animal waste being deposited into streams. Clean water can be provided to livestock through **alternative watering systems** such as wells.

EDUCATION AREA

Annual activities featured in this area include:

- Watershed map puzzle
- Augmented reality sandbox
- Pollinator tic-tac-toe
- Photo opportunities with Walter Water Drop & Sally Soil

There will be additional activities based on this year's fair theme. Detailed instructions on all activities will be available in the Education Barn.

SOIL HEALTH AREA

The Soil Health area is located between the horse barn and the main PWQ exhibit. This area was added in 2022 and includes soil health and urban exhibits. Features currently on display include:

- **Raised bed gardens:** various raised garden beds are on display, along with information on how to start, maintain and care for a raised bed. These beds will also have various vegetable plants and cover crops growing in them by state fair time. Garden hoops are also part of this exhibit. This display could be applicable to rural and urban/suburban residents.
- **Compost demonstration area:** Do you know that 145 billion meals' worth of food goes to the landfill annually? In the compost demo area, different forms of composting are on display: 3-bin hot composting, and a few different vermicompost bins (worm bins). Composting not only provides rich amendment for the garden, but also diverts food waste, reducing carbon emissions.
- **Native plantings:** additional native plants have been added to the Soil Health Area. Name plates are provided for identification. Native plantings support our native, beneficial insects, who in turn facilitate pollination for our gardens.