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# Stormwater Management why we all should care!

Diehl Park what in the world is going on there?

Riverfront Plans what does the future hold?

**Connectivity...** Around Defiance County, Upcoming Events, Lake Erie Update & More

# EVENTS | NEWS

# Upcoming Events!

- The Nature Conservancy (TNC) Open House: Friday December 16, 3-5 pm., 210 N. Clinton St., Defiance.
- Farm Fair January 13-15 at the Northtowne Mall, Defiance. Celebrate local farms with antique & modern farm equipment, kids pedal pull, farm animals, and wildlife presentations.
- Maple Syrup Festival & NW Ohio Woodland & Wildlife Family Festival Saturday March 25, 8:00 am to noon at Williams County Fairgrounds. Enjoy breakfast, tour maple syrup production, and learn about local wildlife.

Photo Contest
K-12th grade. Categories: 1) Wildlife
2) People in Agriculture 3) Trees &
Plants 4) Landscapes. Photos must be
taken in Defiance County. Due to
SWCD by April 10.

Poster Contest

Grade level categories: K-1, 2-3, 4-6, 7-9, 10-12. Must be 11" X 17" & have the words "Healthy Soils are Full of Life". Due to SWCD by April 10.

Like Defiance SWCD on Facebook or visit defiance-county.com/swcd for info on these events and contests.



Defiance County 6th graders explore stations on streams, soils, trees, pollinators, wildlife, and history at Auglaize Village. This event is part of the SWCD education program which includes classroom visits on conservation topics.

## Conservation Partner of the Year



Joe Blosser was honored and recognized this year by the SWCD as "Conservation Partner of the Year." Joe has an extensive collection of wildlife mounts and furs that he has very generously shared at SWCD events and classroom programs. Thousands of Defiance county students and adults have learned about Ohio wildlife by hearing Joe's presentation and getting up close and personal with the mounts and furs. Although these are expensive and delicate, Joe has always encouraged people to touch the animals! These experiences not only create a relationship with our wildlife population, but cultivate a respect for natural resources and promote a mentality of conservation. Thank you to Joe Blosser for the use of these displays along with the donation of his time. A champion of Defiance County conservation!

Watch for our Spring Issue! Native Plants Pollinators SWCD Tree Sale Coming March 2017



is published to provide the community with information on protecting the water resources of the Maumee River Watershed throughout Defiance County.

**Stephanie Singer** Watershed Coordinator, Defiance SWCD

Jennifer English MS4 Coordinator, City of Defiance

Design by Yvonne Dale Printing by Homewood Press, Toledo Ohio



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See this issue and all of our previous issues in digital form at landtolake.com

#### Congratulations MARY MARTIN of Defiance



Her name was drawn from those who correctly identified the Sycamore Tree on our Spring 2016 magazine cover.

This Issue Cover *Evening On The Maumee River* ©timthebikeman–stock.adobe.com

# why we all should care about Stormwater Management

Each year 24 billion gallons of combined untreated sewage and stormwater are dumped in the Great Lakes. Many combined sewers, where sewage and stormwater are transported in the same pipe, were built over 100 years ago. Although they were approved when built, these systems are no longer approved by the EPA and newer communities are built with separate systems. \*\*

The City of Defiance has a combined sewer system – similar to many local communities that were built adjacent to streams and rivers. During wet weather, large volumes of stormwater overwhelm the system, causing a CSO\*, discharging human sewage directly into the Maumee and Auglaize Rivers.

In order to meet EPA mandates, Defiance has reduced CSO's from 44 to 26 during the past 10 years and is currently negotiating with Ohio EPA to find the most affordable solution to complete this project. Any solution is complex and expensive with sewer pipes underground, often under the streets. It is anticipated that the City will need to spend up to another 50 million dollars over the next 20 years to address the problem in a sustainable way. Green infrastructure cannot be used in every location, but where it is feasible; it creates multiple water quality benefits. *See landtolake.com for more info.* 

Diehl Park is a prime example of *putting our green space to work* through the use of Green Infrastructure. Native trees, shrubs, grasses and perennial flowering plants drink, store, and process rain water, creating a functional yet beautiful landscaping. \***CSO:** <u>Combined Sewer Overflow</u>



According to the U.S. EPA, the principal pollutants found in CSO's are: microbial pathogens, bacteria, viruses, oxygen-depleting substances, suspended solids, toxics, nutrients, floatables, and trash.

\*\***MS4:** <u>Municipal Separate Storm</u> <u>Sewer Systems</u>

# Lake Erie UpDate

If you visited Lake Erie this summer there is a chance you saw algal blooms. Unfortunately, you didn't need to go that far, as we had a harmful algal bloom detected on the Maumee River right here in Defiance. (a) Having a bloom such as this on moving water demonstrates that we have a long way to go in reducing the nutrients entering our streams and rivers. These algal blooms occur when there is excess phosphorus & nitrogen, as algae and cyanobacteria feed on these nutrients. In addition, warmer water can increase the blooms making them more likely to occur in stagnant systems, usually not moving water flowing down a river! The Defiance Department of Health responded by posting warning signs at access points along the River. Fixing the Harmful Algal Bloom problem will not occur overnight, but Ohio has signed an agreement with some specific targets for reducing phosphorus inputs. We have committed to a 20% reduction by 2020 and a 40% reduction by 2025. Scientists are working to identify target areas and strategies that will be most effective by using computer models and data such as land use, soil type, and conservation practices to pinpoint phosphorus hotspots.

## what in the world is going on there?

# DIEHL PARK

Putting Our Green Space To Work

It is normal for major construction to spark curiosity! The endeavor at Diehl Park has been no different – and for good reasons, this type of work has not been done anywhere locally at this scale. While the City does have some rain gardens, this is a much larger version and comes with numerous benefits.

Our main objective for this project is to reduce Combined Sewer Overflow (CSO) occurrences using a series of green infrastructure practices. This work is supported with funding from the Ohio EPA Surface Water Improvement Fund (SWIF). By removing stormwater from the combined sewer system and letting it filter naturally by percolating into the native soils, we recharge our groundwater, improve the health of our streams and rivers, and protect our drinking water supply.

Rainwater from the parking lot will flow into two designated areas where the structural plastic frames called *Silva Cells* form a system of suspended pavement allowing for large trees to be planted without compaction of soil around their roots. These frames create storage for soil and water beneath the pavement, allowing additional time for the tree to absorb water and also for infiltration of rainwater into the soils. From there, any excess stormwater will be conveyed through a traditional storm sewer into a *Bioretention Basin*. Functioning like a large-scale rain garden, the stormwater will slow down, spread out, and soak into the soils in the basin, with the assistance of native deeprooted plants selected for their water tolerance. Any additional stormwater – typically, only during a heavy rain, will then be carried into an existing storm sewer conveying water directly into the Tiffin River.

Preserved Trees

Bioretention Basin

Native trees, shrubs and plants specially selected to soak up water!



# Slow it Down, Spread it Out, Soak it In.

**Preservation of Trees** was another important aspect of this project. Numerous design options were considered, one that would have used a **Bioswale** to convey stormwater rather than the traditional storm sewer. Ultimately this green option was rejected as not feasible because it would have required the removal of several large, beautiful trees. Mature trees are the absolute best possible solution for stormwater management due to the large volumes of water they can *capture, store, filter, consume, absorb, and transpire\**.

In addition to the demonstration of various stormwater best management practices, the "east" parking lot will be resurfaced and also increase in size. The adjacent area has also benefitted from Natureworks grant funds, used for the installation of new sidewalks and playground equipment.

Please come and see for yourself what in the world is going on at Diehl Park!

\*A large oak tree can transpire 40,000 gallons of water annually. (USGS)

# infiltration OF RAINWATER

- When we Slow It Down, we can more closely replicate original or pre-development conditions where soil has a chance to absorb rain water, rather than allowing it to become runoff, rushing across the land like a power-washer, picking up pollution along the way.
- To Spread It Out means that we need to collect rain water—even if only briefly—so that it has a chance to settle. Letting water settle, in natural wetlands or settling ponds on construction sites provides the time for the sediment to fall out. Sediment is pollution and nutrients attach to sediment, creating even more pollution. TSS stands for Total Suspended Solids and is a measure of pollution that is regulated in water quality.
- We Soak It In by using (or recreating) the natural properties of soil and deep-rooted, native plants to create conditions where rain water can infiltrate, percolate and recharge ground water.



Native Plants Incorporated Into The Bioretention Area Include:

#### Trees:

Red Maple Shadblow Serviceberry River Birch American Sycamore Bur Oak

#### Perennials:

Butterfly Weed New England Aster Nodding Bur Marigold Purple Coneflower Blue Flag Iris Marsh Blazing Star, Black-Eyed Susan

the bottom of the basin is planted with a "stormwater mix" of approximately 24 additional tall native species specially selected for their water-soaking abilities.

Find out how to put native plants to work in your garden. Go to landtolake.com

**Silva Cell System,** beneath parking surface Allows mature trees to consume large volumes of water.







Protection Agency

This project was financed in part through a grant from the Ohio Environmental Protection Agency under the provisions of the Surface Water Improvement Fund.

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# URBAN FORESTRY Putting our trees to work.

Trees are an important component of any green infrastructure project. Enabling urban tree growth through use of Silva Cell makes it possible to improve water quality.

The stormwater from Diehl Park is being filtered through the Silva Cells in the parking lot and then into a separate storm sewer system that connects to a bioretention basin where deep-rooted native plants are working to "Slow It Down, Spread It Out, Soak It In".

This combination of green infrastructure practices means that there is no longer a connection from Diehl Park into the combined sewer system.





Image courtesy of DeepRoot Green Infrastructure, LLC.

## Silva Cells:

- Are modular plastic frames designed to support traffic loads, allowing for a suspended pavement in parking lots and streets.
- Prevent soil from getting compacted around tree roots, allowing for large tree growth and on-site stormwater management.
- Make it possible to grow large canopy, mature trees within the confines of a parking lot.

In addition to helping cool and clean the air and provide beauty to the park, mature trees consume large volumes of water through soil storage, interception and evapotranspiration. A large quantity of planting soil provides ideal conditions for tree growth to occur and also provides storage for additional stormwater.

This project protected and preserved existing park trees and is part of the City of Defiance Master Planting Plan.

# CONNECTIVITY Around Defiance County

Our region is not the only place undergoing a paradigm shift to create healthy living opportunities for the community. Developing pedestrian transportation resources, promoting our most obvious natural resources as assets to be enjoyed by the public and creating connectivity within and between neighborhoods-these are just a few of the ways that Defiance is creating more access and visibility to the Maumee and Auglaize Rivers. To beautify and enhance the confluence, developing a central location for a gathering place by envisioning a pedestrian "tridge - three legged bridge" connecting Kingsbury, Pontiac and Fort Defiance Parks together is just a start!

# **Riverfront Concepts**

The City of Defiance has acquired several properties through the FEMA Floodplain Mitigation Program. The additional green space is becoming part of the park system which prompted the City to contract with a firm to develop a concept plan for the Riverfront and Confluence Area, *see back cover*.

## **Bike Path**

Maumee Valley Planning Organization (MVPO) coordinating efforts between the City and County have received notice of \$1.8 million dollars award from Ohio Department of Transportation (ODOT) to create a 4mile pedestrian/bicycle trail along River Road, or County Road 424, using enhanced shoulders from Pontiac Park to Independence Dam State Park. This trail will allow pedestrian and bicycle traffic to travel safely along the existing roadway. This 4 mile stretch, when completed will allow trail users connectivity to the trail system in Lucas County, utilizing various tow path trails through Henry County.

# **Riverbank Stabilization**

Ohio EPA has awarded \$400,000 of Great Lakes Restoration Initiative (GLRI) Funding to the City for a project that will reduce sediment by stabilizing approximately 1 mile of the riverbank using bio-engineering techniques.

# Water Trail

Canoeing and kayaking on the Maumee will become more accessible with the development of the Maumee River Water Trail. The proposed corridor will start where the Maumee enters Ohio in Paulding County at the state line and end in Lake Erie, with put in/ take-out locations at least every 10 miles. The access locations are publicly owned and will be marked with Water Trail signage that will be seen from the road and mile marker signs visible while on the river. A map of access sites, their amenities and potential hazards will be printed and available online. Public meetings about the proposed trail are planned for Jan & Feb 2017.



## **RiverFront Gathering**

This event took place this summer on the banks of the Maumee River in Defiance. The evening was a time to stop and reflect on our local historic and natural resources. The goal was to connect people to the river and we achieved this by taking about 130 people on free pontoon boat rides! The pontoon was provided by the Tri-State Watershed Alliance, a group focused on improving watershed health, recreation, and business opportunities. The mayor of Defiance, Mike McCann, and an Upper Maumee Watershed Partnership Board member, Rex Oskey took turns driving the boat and chatting with riders about local history, water quality and plans for the future. In addition, we had kayaks available for people to try a little human powered boating. Overall, it was a great event with music, food, art, farmer's market, and activities for the kids. Look for a similar event in 2017 to celebrate the River!



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RECONFIGURED BOATING ACCESS & PARKING

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# **Riverfront/Confluence** Conceptual Plans

A conceptual plan that has been developed to serve as a vision for the Riverfront and Confluence will allow the City to seek funding sources, grants and partnerships.

The public is welcome to give input on these plans at a future town hall meeting on the topic.