



Doan Brook Watershed

FACT & ACTION SHEET

The Doan Brook watershed is 12 square miles. Of this, 7.5 square miles, or two-thirds of the entire watershed, is residential land use.



What is a watershed?

Let's start from the beginning: Everyone lives in a watershed! A watershed is an area of land that drains to a particular stream, river, lake, or ocean. After a rain or snowfall, water flows over land, draining to the lowest elevation, usually a stream, river or lake.

Essentially, watersheds function like any type of basin, or bathtub, with high ridges and many starting points that drain downhill to one end point. Small watersheds always form part of a larger watershed. For example, the Doan Brook watershed drains into the Lake Erie watershed, which then becomes the St. Lawrence Seaway watershed, until it reaches the ocean.

We like to think of the Doan Brook watershed as our "ecological address." Do you know yours?



The importance of the Doan

The Doan Brook is an oasis in the heart of our neighborhoods, creating a buffer of green habitat known as the riparian zone. The Doan is fortunate to have a riparian zone lining most of its 8.4 mile course. Healthy ecosystems on either side of a stream are important sources of food and shelter to birds, reptiles, amphibians, fish and mammals. Buffer zones are critical to filtering pollutants from runoff that may contain harmful chemicals, nutrients or bacteria.

For more than 1,000 years, humans have depended on the Doan Brook for many important functions, such as power and drinking water, recreation and a connection to the natural world. From the brook's headwaters in Shaker Heights, it flows northwest through the cities of Cleveland Heights and Cleveland until it reaches the Lakefront Nature Preserve, a former dredge receptacle. We have so much to learn in the Doan watershed. We invite you to explore not just the brook's beauty, but its changes and challenges over time.

How has the Brook changed?

As the Doan Brook Watershed was developed over the last 200 years, the natural water balance has been altered significantly. Natural habitats, primarily forests and wetlands, have been replaced with roads, driveways, parking lots and buildings. These hard, or impervious surfaces, prevent rainwater from percolating through the soil and ground water. In addition, as water flows over pavement, it collects soil, pet waste salt, fertilizers, oils and other pollutants.

During heavy rain and snow falls, the volume and velocity of runoff is much higher than in pre-development days, often causing unusually large floods in University Circle. The average annual runoff to the brook is about three times larger than in Nathaniel Doan's time. The extra watershed area added by the diversion of Giddings Brook, which originally ran directly into Lake Erie, to the Doan Brook watershed further increases runoff volume.



What can you do?

Respect storm drains!

Did you know that 80% of stream pollution is due to storm water runoff? Storm drains empty directly into nearby streams without being treated, so please don't pour hazardous substances like motor oil, antifreeze, soap and

pesticides down the storm drain — the fish and wildlife don't consider this a refreshing drink! Street waste such as litter, cigarette butts, animal feces and grass clippings also degrade streams.

Please recycle...

Glass, plastic, aluminum and paper can be recycled and reused. This saves landfill space and energy. Producing a new aluminum can from a recycled can takes 95% less energy than creating one out of raw materials. Also, take advantage of motor oil, antifreeze and household hazardous waste collection in our community.

What's the problem with pet waste?

Did you know that a single gram of dog feces contains 23 million fecal coliform bacteria? Droppings from dogs, cats, exotic birds and rabbits may contain bacteria, parasites or viruses that pose a health risk to people and other animals. Animal droppings also contain nutrients that can promote excessive algae growth. Unless we all do our part to pick up after pets and flush waste down the toilet, pollutants enter our waters without treatment.

Our management of the land on the watershed's golf courses, around the Shaker Lakes and around the Wade and Rockefeller Park Lagoons has created extensive lawns adjacent to the water; an environment that is very attractive to Canada geese. Beautiful though they are, geese produce large quantities of feces and probably contribute significantly to bacteria levels in the brook.

What ails Doan Brook?

Flooding is one challenge facing the brook. In addition to carrying polluted runoff, the rush of water can scour streambeds and destroy aquatic habitat. But it doesn't stop there! Anything in the path of fast flowing water quickly becomes eroded — like stream banks, bridges and buildings.

Poor water quality is another challenge facing our brook. The Doan's polluted water is a reflection of the watershed's urban landscape. Under the conditions that exist today, sanitary sewer overflows are the most significant single source of bacteria to the brook.

The Heights/Hilltop Interceptor (HHI), completed in 2006, has cut the volume of sanitary sewage reaching the brook nearly in half, however the volume of combined storm and sanitary sewage that reaches the stream is still estimated to be 400 million gallons per year. That is enough sewage to fill Lower Shaker Lakes 25-30 times, or fill Cleveland's football stadium with a column of water that would dwarf downtown's 948-foot Key Tower.

The Doan Brook needs concerned citizens, like you, to take action and make a commitment to keep the stream in your neighborhood clean and healthy. Not only is stream health important to birds, fish and macro invertebrates (aquatic insects) which thrive in clean water; but our local streams and rivers drain to our drinking water source, Lake Erie.

Reconsider lawn care...

According to the U.S. EPA, 67 million pounds of synthetic pesticides and over \$5 billion dollars worth of fossil fuel-derived fertilizers are used by American homeowners to keep their lawns "green." 40-60% of the nitrogen in fertilizer leaches away, ending up in ground or surface water, and eventually our waterways.

Your lawn can be healthier and take less time and money to maintain if chemicals are not applied. Or alternatively, if you convert lawns to gardens.

By changing the way we care for lawns, we can improve our yards, create wildlife habitat, avoid debilitating health risks for our family and pets and improve the water quality of the Doan Brook and Lake Erie. The sooner you remove unnecessary chemicals, the sooner the natural balance of your lawn will return. *See our lawn care fact sheet for more details!*

Here's how to get involved...

Storm drain stenciling

Alert neighbors to the connection between storm drains and streams by volunteering to stencil our *Dump No Waste, Drains to Brook* pavement marker by storm drains in your community.

Stream monitoring

Monitor aquatic insect populations. We'll show you how; it's a great family activity!

Stream stewardship

Get involved in our annual stream clean-ups, plantings and pollution prevention.



For more information, visit www.doanbrookpartnership.org