

the Deed

2018

The Miami Conservancy District's annual report to the Miami Valley



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When it rains, it stores

You've seen the photos and videos of flooded homes and downtowns across the country. Have you ever wondered why you don't see the same thing in downtowns and surrounding neighborhoods along the Great Miami River?

It's because after the Great 1913 Flood, this region protected its homes, businesses, schools and more by building one of the world's greatest flood protection systems.

No system can provide a 100-percent guarantee against every storm, but this region's system is designed protect to the 1913 flood plus another 40 percent. That's 14 inches of precipitation in 72 hours over the 4,000-square-mile Great Miami River Watershed. That's a lot of water!

How the system works

When the region gets enough rainfall and the rivers rise, the Miami Conservancy District's (MCD) dams hold back the floodwaters. Concrete openings, called conduits, at the five dams release only the amount of water that can be safely handled downstream. Levees in cities along the Great Miami River keep the water within the riverbanks.

"The dams are 'dry dams,' meaning they don't hold water all of the time like many dams," says Kurt Rinehart, MCD chief engineer. "The land behind the dams is used as parkland and farmland except when it's needed to temporarily store floodwaters."

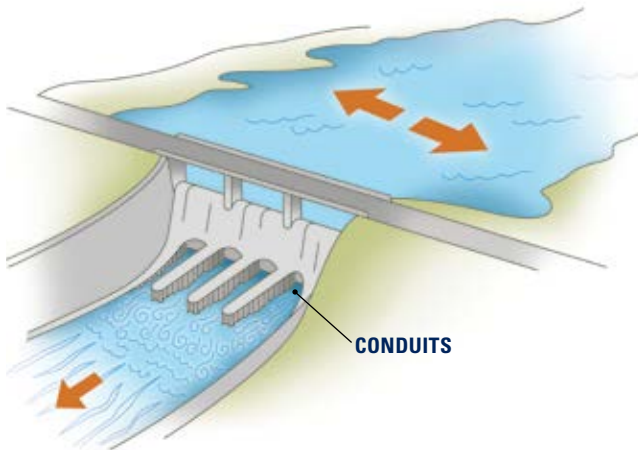
Together, MCD's five dams can store a total of 274 billion gallons of water. In the last 96 years, the most the dams have ever stored

at one time is 44.8 billion gallons.

In April of this year, MCD experienced its 12th largest high-water event. Together, MCD's dams stored 21.2 billion gallons of water.

People whose property flooded in 1913 pay assessments to maintain the system and for capital improvements.

How MCD's dams work



Great Miami River Watershed

The green shaded area shows the boundaries of the Great Miami River Watershed. That's all the land that drains to the Great Miami River in Ohio.



No assessment increase in 2018

If you pay an assessment to MCD for flood protection, it may look like this on your tax bill.

Sample Assessment

Current Year Special Assessments

MCD Dam Safety Initiative Fund	\$54.00
MCD Miami Conservancy District	\$165.00

People whose property flooded during the Great 1913 Flood—and now benefit from the flood protection system—pay for the system's upkeep.

The "MCD Dam Safety Initiative" assessment pays for capital improvements to the system. The "MCD Miami Conservancy District" assessment pays for the day-to-day maintenance of the five dry dams, 55 miles of levee and acres of preserved floodplain.

Some counties recently went through a triennial property valuation update which may have affected tax bills. But you did not see an increase in your MCD assessment. The last change to assessments was in 2012.

To learn more about MCD assessments, visit bit.ly/LearnAboutMyAssessment.



Mowing the dams and the 55 miles of levees is important to maintaining good turf. Good ground cover is the key to the flood protection system. MCD mows more than 1,620 acres.



Powerful river flows can erode earthen levees. MCD armors some levees with concrete revetment.



Reinforcing streambanks prevents water from undermining the bike trails or eroding into the levees.

Dam good maintenance

Protecting your family and your property is probably your highest priority. Well, it's ours too. MCD is extremely committed to reducing flood risk to people, homes, and businesses in cities along the Great Miami River.

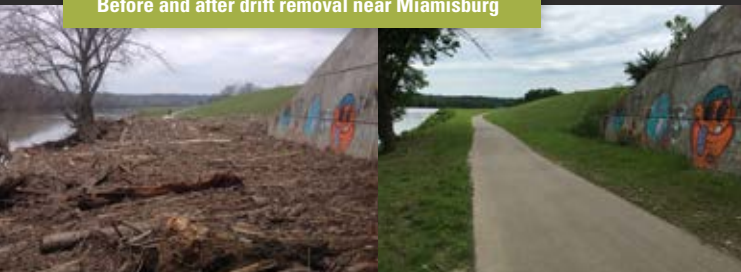
MCD's team members work every day to make sure the flood protection system functions at the highest level when you need it the most.



Removing drift at the dams is critical to making sure the land behind the dams drains properly after high water.

Even after the high water recedes, there's plenty of work to do.

Before and after drift removal near Miamisburg



Repairing and rebuilding floodwalls helps to protect riverfront cities' downtowns.



Clearing gravel from river and stream channels ensures the channels function as designed.



When the river rises, MCD closes floodgates to prevent the river from backing up into the storm sewer system and potentially flooding areas behind levees.

Rain on the rise

Almost 8 inches more than average in 2017

If you think it's getting wetter these days, you'd be right.

"Over the last 30 years or so, we've seen a rise in the amount of annual precipitation," says Mike Ekberg, MCD manager for water monitoring and analysis. "We are seeing, on average, about 3 inches more of precipitation per year now than 30 years ago."

The region averages about 40 inches of precipitation per year. But 2017 saw even more, with an average of about 48 inches in

communities across the Great Miami River Watershed.

MCD recorded 16 high-water events in 2017—twice as many as usual. A high-water event is any time a dam stores floodwaters or the river at any one of the MCD-protected cities rises to a height that MCD staff must monitor water levels more closely or close floodgates on storm sewers.



How safe are we?

MCD system can handle more rain than region has ever seen

MCD's flood protection system includes five dry dams and flood storage areas, 55 miles of levees, floodwalls and more.

The system is designed to handle about 14 inches of rain over a three-day period across the 4,000-square-mile drainage area known as the Great Miami River Watershed. That's all the land that drains to the Great Miami River in Ohio.

The largest high-water event since the 1913 flood happened about 60 years ago. In January of 1959, 4 to 6 inches of rain fell in three days. Even that storm used no more than 16.4 percent of the dams' storage capacity.

The Ohio Department of Natural Resources completed a study in 2013 that showed the largest scientifically possible—and extremely unlikely—storm for this region is about 16 inches over 72 hours.

Do you need flood insurance?

If you live near the Great Miami River, floods probably aren't a big concern. That's because the MCD flood protection system significantly reduces river flooding risk.

MCD operates, maintains and inspects its system on a daily basis and makes capital repairs as needed.

So do you still need flood insurance?

"Flood insurance is something everyone should consider whether you live near a river, in the floodplain, or miles from water," says Kurt Rinehart, MCD chief engineer. "Our system protects people and property from river flooding, but man-made structures can fail, streams can overflow their banks, and storm sewers can back up, potentially threatening your property. Everyone should look into flood insurance and see if it makes sense for them."

If your property is protected by MCD, you can purchase flood insurance at a greatly reduced rate. Learn more about flood insurance at <https://www.floodsmart.gov>.

Did you know?

The MCD flood protection system was awarded the 1922 Engineering Record's distinguished "Project of the Year," placing it in a category with other international engineering design feats like the Brooklyn Bridge (1883), Eiffel Tower (1889) and the Empire State Building (1931). MCD dams are also designated a National Historic Civil Engineering Landmark (1972).





MCD water data benefits many

MCD tracks river conditions—both river levels and the volume of river flow. That data is used by many people and organizations in a variety of ways including:

- The National Weather Service to create flood forecasts.
- Fishermen and paddlers to understand river conditions.
- Trail users to determine when sections of trail are underwater.
- The Ohio Environmental Protection Agency for scientific studies.
- Colleges and universities for research.
- Engineers to help with design of bridges and other infrastructure.
- The Federal Emergency Management Agency for floodplain mapping.

Get to know MCD

At MCD, we're all about water. For nearly 100 years, MCD has protected riverfront communities' downtowns and adjacent neighborhoods from flooding. We also monitor and analyze water in the underground aquifer and our rivers and streams. And we promote paddling, fishing, cycling and more on and along our riverways.

You may pay an MCD flood protection assessment if your property flooded in the Great 1913 Flood. Ohio's worst natural disaster, the 1913 flood brought between 9 and 11 inches of rain over 72 hours to the entire region.

Flood protection is MCD's primary mission. Did you know...?

- MCD's system is designed to handle a flood 40 percent greater than the 1913 flood.

- MCD greatly reduces flood risk for more than 40,000 properties along or near the Great Miami River in Piqua, Troy, Dayton, West Carrollton/Moraine, Miamisburg, Franklin, Middletown and Hamilton.
- MCD's dams—Germantown, Englewood, Lockington, Taylorsville, and Huffman—prevent downstream flooding. Collectively, they have stored floodwaters more than 1,940 times.
- Your flood protection assessment costs less than flood insurance. Flood protection helps prevent the mess, stress and duress of cleanup from flooding.
- You can learn more about your assessment at bit.ly/LearnAboutMyAssessment.
- MCD leases more than 2,750 acres of its land behind the dams to Five Rivers MetroParks for programming.

Water – life-giving and lifelong fun

When you turn on your faucet, water comes out.

But do you know where that water comes from? Does it come from the river?

And what about our rivers? Are they safe to paddle, fish and play in?

Water we use

- The buried valley aquifer—not the river—provides drinking water for nearly everyone in our region
- There are about 1.5 trillion gallons of water in the underground aquifer. Even though aquifer levels have been pretty consistent for decades, it's still a good idea to practice water conservation.

Water we fish and paddle

- The major rivers in the region are the Great Miami, Stillwater and Mad.
- Water quality in our rivers is good but there is still room for improvement.
- The Great Miami River Watershed Water Trail bit.ly/GreatMiamiWaterTrail is one of only 22 National Water Trails in the United States.

What you can do to keep water clean

- Take small steps to protect our water. Learn how at bit.ly/BeWaterWise1.



What is the Great Miami Riverway?

Using the river to promote tourism and increase investment



Cities across the country are reinventing themselves using their rivers. This region is taking that concept to a higher level. Nine cities and other agencies have launched an effort to make a 99-mile section of the Great Miami River a tourism destination.

“Within five or 10 years we want people to recognize the Great Miami Riverway the same way they recognize the Smoky Mountains of Tennessee or the Outer Banks

of North Carolina,” says Elizabeth Connor, Great Miami Riverway coordinator.

Think tourism doesn’t offer much in the way of economic impact? You might be surprised to know that according to Oxford Economics and Tourism Ohio:

- Tourism is one of the world’s largest economic sectors.

- Tourism sustains 1 in every 10 jobs around the world.

- Visitors spent \$43 billion in Ohio in 2016. Average spending per person equalled \$360 per overnight.

“Today, people care more about making memories than having ‘stuff;” Connor says. “It’s time for this region to capitalize on the amazing experiences on and along the Great Miami River.”

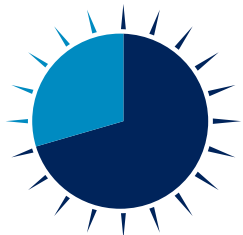


Courtesy City of Hamilton

Tale of the Trails survey

90 percent of users rate the trails as excellent or good

The region boasts more than 340 miles of connected trails, making it the largest paved trail network in the country. MCD owns/manages about 35 miles of trail along the Great Miami and Mad rivers. More than 60 miles of trail are on MCD flood protection land. Go to bit.ly/TrailsSurvey to see all of the survey results.



More than 70 percent of trail users surveyed use the trail at least weekly during the summer.



More than 90 percent of trail users rate the trails as excellent or good for cleanliness, maintenance and safety.

Trail use generates an estimated \$13.4 million of annual economic activity in the region.

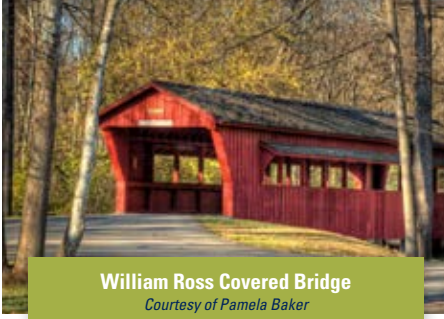


One in six trail users is from outside the Miami Valley.

55%

of trail users are cyclists





William Ross Covered Bridge
Courtesy of Pamela Baker



Treasure Island Marina and Park
Courtesy of the City of Troy



Carillon Brewing Company
Courtesy of Carillon Historical Park



Downtown Franklin Farmers Market
Courtesy of Downtown Franklin Farmers Market



River Center



RiversEdge Amphitheater at Marcum Park
Courtesy of Jacob Stone

Find your way

Great Miami Riverway offers something for everyone

You don't have to go far to find a great adventure. Amazing activities along the Great Miami Riverway are likely less than an hour from your home.

From award-winning restaurants to nationally recognized parks and trails, there is something for everyone along the 99-mile riverfront from Sidney to Hamilton.

The best part? You can do it all for less than the cost of a single night in a big-city hotel. Not sure where to start? Here are 10 fun ideas:

- 1. Bridge the gap** – Travel to the beautiful William Ross Covered Bridge in Tawawa Park in Sidney.
- 2. Take a hike** – Explore the Buckeye Trail. Blue blazes mark the trail that runs through Piqua, Troy and Dayton in our region. Piqua—one of several “Trail Towns”—is known for its charming downtown with an amazing chocolate and coffee shop, ice cream parlor, and restaurants.
- 3. Make a splash** – Grab a bite to eat on a deck overlooking the Great Miami River at Treasure Island in Troy. Launch a canoe or kayak from the lagoon.
- 4. Have a picnic** – Check out the massive Taylorsville Dam near Vandalia that protects downstream communities from flooding. Then enjoy a picnic in one of the many shelters.
- 5. Explore Dayton's history** – Step back in time at Carillon Historical Park in Dayton. Experience the 1913 Flood and the Wright Brothers' story before dining at the historic brewery or café.
- 6. Catch a fish** – Just downstream of the Wright Seaplane Base—where the Wright Brothers tested their seaplane designs—is a favorite fishing spot. Cast your line at Miami Bend Park in West Carrollton.
- 7. Celebrate a bicentennial** – Stop by the City of Miamisburg's Historical Society in downtown to view special exhibits for the city's 200th anniversary in 2018.
- 8. Visit a farmers market** – You'll find locally grown produce and other products at the Downtown Franklin Farmers Market. While you're in town, check out the award-winning murals.
- 9. Ride a bike** – You'll find bike rentals, coffee, and more close to the Great Miami River Recreation Trail. While biking in Middletown, check out progress on the new River Center.
- 10. Dance, dance, dance** – Enjoy a concert at Hamilton's RiversEdge Amphitheater. The 2018 line-up looks fantastic.

For more fun things to do, go to GreatMiamiRiverway.com. Find your way on the Great Miami Riverway!



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MCD Governance

MCD is governed by a Conservancy Court comprised of one common pleas court judge from each of the counties within the Conservancy District boundaries. The Conservancy Court appoints MCD's Board of Directors and approves its plans.

*Honorable Barbara P. Gorman,
Presiding Judge
Montgomery County*

*Honorable Keith M. Spaeth
Butler County*

*Honorable Thomas J. Capper
Clark County*

*Honorable Stephen A. Wolaver
Greene County*

*Honorable Robert P. Ruhlman
Hamilton County*

*Honorable Jeannine N. Pratt
Miami County*

*Honorable David N. Abruzzo
Preble County*

*Honorable James F. Stevenson
Shelby County*

*Honorable Robert Peeler
Warren County*



Board of Directors



Mark G. Rentschler
President



William E. Lukens
Vice President



Beth Whelley
Member

General Manager



Janet Bly

What MCD protects

The MCD flood protection system significantly reduces flood risk for:

- More than 40,000 properties in five counties
- More than \$5 billion worth of buildings and land
- 6 hospitals
- 60+ schools and colleges
- 814 miles of public roads

- 14 wastewater treatment plants
- 9 water treatment plants
- 1 million people who use all of these facilities

The system features five dry dams; 55 miles of levee in Piqua, Troy, Tipp City, Huber Heights, Dayton, Moraine, West Carrollton, Miamisburg, Franklin, Middletown and Hamilton; and thousands of acres of preserved floodplain.

The MCD system is unique in many ways, including the high level of protection it offers, the environmental and recreational opportunities it provides, and the fact that it is almost 100 percent locally funded.

Contact us at (937) 223-1271 or bgibson@mcdwater.org.

MCDWATER.ORG

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