

The Miami Conservancy District protects the region from flooding, preserves the quality and quantity of water, and promotes the enjoyment of our waterways.

Levee Accreditation

'Daunting task' is No. 1 priority for MCD in 2009

Levee accreditation will be the No. 1 priority for the Miami Conservancy District in 2009. It's a daunting task both in staffing hours and cost.

MCD estimates it will spend \$500,000 of its \$6.2 million flood protection budget in 2009 on levee accreditation—an unexpected expense. Local accreditation is part of FEMA's nationwide initiative to publish new Digital Flood Insurance Rate Maps for every county in the US.

"The federal government isn't requiring MCD to have its levees accredited, but the cost of not doing so would be too great to our communities, businesses and residents," says Janet Bly, MCD general manager.

Without accredited levees, many businesses and residents—protected by levees—would be required by the Federal Emergency Management Agency (FEMA) to buy expensive flood insurance in addition to the assessments they currently pay to MCD. Flood insurance premiums can cost many times greater than the assessments.

In addition, local governments would be required to enforce the same building and development restrictions that apply to floodplain properties.

More than 18 miles of levee are currently under review in Butler and Warren counties, and another 7.5 miles in Miami County are expected to be under review soon. FEMA provides only a two-year window to complete the intensive review and submit the report. MCD has hired a consultant to help complete the process on time.

Among the requirements for levee accreditation are:

- MCD must provide detailed data, drawings and analyses for each levee and show that the levee meets federal standards.
- A professional engineer must certify the data submitted.

The accreditation does not guarantee the levee or its performance, it simply is an indicator of compliance with certain FEMA requirements.

"There are many elements required for levee accreditation," says Kurt Rinehart, MCD's chief engineer, who will certify MCD's levee information. "We will be doing field surveys, levee inspections, and geotechnical explorations (soil borings). These soil samples will be used to analyze the levee stability and potential for seepage and settlement."

FEMA issued updated Digital Flood Insurance Rate Maps for Montgomery County in 2005, which included 34 miles of levee in several communities. These levees are currently accredited by FEMA but were done under a different process. MCD may need to seek re-accreditation for Montgomery County levees in the future.

"This is an incredibly arduous process that has a short time-frame to complete all of the requirements – some of which are not well-defined," Rinehart says. "There is little room for error and the stakes are extremely high, but we are confident about the quality of our levees."

Editor's Note: Another levee story, regarding the National Committee on Levee Safety – and unrelated to FEMA's levee accreditation program – appears on page 8.



MCD WILL SPEND SUBSTANTIAL TIME AND MONEY SEEKING LEVEE ACCREDITATION FROM FEMA SO THE UPDATED FEMA MAPS REFLECT APPROPRIATE FLOOD PROTECTION PROVIDED BY THE LEVEE.

PROTECTING

Dam Safety Initiative ensures flood protection system for the future



NEW CONCRETE REVETMENT BEING POURED IN TROY AS PART OF THE DAM SAFETY INITIATIVE.

America's infrastructure is in trouble in many areas from roads to bridges to dams. MCD has been proactive in addressing its flood protection infrastructure needs through its multi-year Dam Safety Initiative to ensure the integrity of the system for generations to come.

Since MCD's dams' construction, our staff has provided daily maintenance to the flood protection system and consistently worked to determine vulnerabilities – like underseepage – before they can cause damage. MCD has already addressed underseepage – the seepage of water under pressure through the foundation of a levee or dam – at three of the dams, and in 2008 installed 15 relief wells at Englewood Dam. These new relief wells are part of a contract to install 46 additional wells at the dam. The proposed underseepage control plan also requires construction of a weighted berm and drainage system along the downstream toe.

As part of the Dam Safety Initiative, MCD previously reinforced the crest at three dams, and has begun concrete repair throughout the system, beginning with revetment and floodwalls in Troy.

“The concrete revetment along the levee was built about 1920 and has protected the levee against erosion hundreds of times over the past 88 years,” says MCD Chief Engineer Kurt Rinehart. “Like all man-made infrastructure however, it has a certain

life and when its condition became deteriorated, MCD scheduled it for replacement so the levee will continue to function properly and safely.”

More than 2,300 linear feet of revetment and 500 feet of floodwall were removed and replaced in Troy. The project was nearly complete by the end of 2008. At Hamilton, MCD is planning a revetment and floodwall rehabilitation project similar to the project in Troy. MCD also intends to evaluate the concrete walls, spillways and conduits at all five dams and fix the deteriorated areas.

The final large infrastructure project to be completed as part of the Dam Safety Initiative is at Lockington Dam. The fractured bedrock in the dam's foundation needs to be grouted to reduce the volume and velocity of underseepage. The grouting project is only part of the underseepage control improvements at Lockington Dam. MCD installed five relief wells in 2006 and completed construction of weighted berms and drainage blankets along the downstream toe in 2007.



WORKERS DRILL FOR NEW RELIEF WELLS AT ENGLEWOOD DAM.

How Safe Are We

Model shows MCD system would have handled 2008 Midwest flooding

Remember the Midwest flooding last June in states like Iowa, Illinois and Indiana? A lot of people have wondered how MCD's flood protection system would handle a storm system like that. Well, the answer is: No problem.

Recent development of MCD's hydrologic model has allowed staff to simulate "what-if" scenarios. In this case, the Midwest precipitation data was collected and transposed over the Great Miami River Watershed. The data was acquired from several U.S. Geological Survey (USGS) precipitation stations located in central Iowa and near Cedar Rapids.

Those stations recorded 7 to 10 inches of precipitation in the period of May 21 to June 18, 2008. However, some isolated areas in the Midwest region received up to 14 inches of precipitation.

Simulating the "what if the June 2008 Midwest storms occurred over the Great Miami River Watershed" shows MCD's system would have handled the storms and protected the Miami Valley with minimal use of the system capacity. The storm events that hit the Midwest over those few weeks had several days between events. MCD's simulation shows the flood protection system would contain each storm then slowly release the flood waters, as designed.

High-Water Events

Despite higher-than-average precipitation and a higher-than-average number of storage events at the dams, only one 2008 event ranked in the top 25 of storage events.

For 2008, the watershed mean precipitation was 45.59 inches, 7.29 inches above the annual average. A total of 35 storage events were recorded during the year compared to an average year of 19. A storage event is recorded when the water behind a dam is higher than the top of the concrete openings in the base of the dam.

All five MCD dams stored water simultaneously only four times during 2008. The dams held back potential flood waters in January, February and twice in March. The second event in March was the largest of the year, with the dams holding back 15.5 billion gallons of water.

This mid-March event ranked as the 25th largest event MCD history. In 2005, during the second largest event since the flood protection system was constructed, the dams held back 37.2 billion gallons of water.



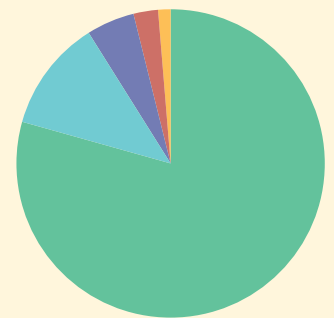
Windstorm figures

The September windstorm didn't hit MCD as hard as many communities, but it did take its toll. MCD has applied for \$30,461 in FEMA funds to cover 631 hours of labor and 297 hours of equipment time resulting from the storm.



Flood Protection Revenues (2008 Actual)

- Assessments (\$4,459,690)
- Intergovernmental (\$658,038)
- Interest (\$273,211)
- Fees & Charges (\$125,382)
- Other (\$100,134)



MCD CHIEF ENGINEER KURT RINEHART (LEFT) DISCUSSES THE HOLES CREEK PROJECT WITH U.S. SENATOR GEORGE VOINOVICH (CENTER) AND WEST CARROLLTON MAYOR JEFFREY SANNER.

Senator Voinovich goes to bat for Holes Creek

In February of 2008, Senator George Voinovich visited the Miami Valley to announce that Congress had appropriated \$1.47 million to help finish a flood protection project along Holes Creek. The initial project was completed almost 10 years ago but a hydraulic analysis later showed several properties would not be protected from the FEMA 1-percent annual (100-year) Base Flood. Since then, project partners, MCD, and the cities of Moraine, West Carrollton and Miami Township have been working with congressional representatives – U.S. Rep. Mike Turner and U.S. Sens. Sherrod Brown and George Voinovich – to acquire the funds to finish the project.

PRESERVING

Taking the river's temperature

Aquifer serves as river's 'good neighbor'

You can always count on a good neighbor to loan you a cup of milk or an egg when you run out. And when the Great Miami River in downtown Dayton starts drying up during a drought, the aquifer—like a good neighbor—is there to provide additional flow.

Studies—using temperature contrasts between the Great Miami River and the aquifer—show groundwater flows into the river and vice versa.

“What we found is that the aquifer provides flow to the Great Miami River when we’re in a drought, but it also means that the river—and any pollution—can move into our aquifer under certain conditions,” says Mike Ekberg, water resources manager.

Ekberg says MCD will use the information to help community decision makers understand:

- How additional/new well fields could impact the amount of water in the Great Miami River.
- How contaminants in the river could move from the river into the aquifer under certain conditions.
- How water travels from the river into the aquifer and into a particular drinking well.

MCD helped fund a similar study done by Miami University on the Great Miami River in Hamilton and Fairfield.



The Source, a new publication of MCD, examines both water quality and water quantity in the Great Miami River Watershed. View it online at www.miamiconservancy.org/resources/publications.asp



GAINING INTERNATIONAL ACCLAIM

Trading program continues to improve water quality

As the MCD Water Quality Credit Trading program continues to eliminate hundreds of thousands of pounds of nutrients from our waterways, it's also gaining the attention of others both nationwide and worldwide.

Teams of agricultural economists from Texas A&M University visited Dayton in September and October to learn more about the trading program, and MCD staff visited Sweden—at the country's invitation and expense—to discuss how trading might help the Baltic Sea's nutrient problem.

The trading program—now in its fourth year—has funded about 45 projects that should eliminate more than 300 tons of phosphorus and nitrogen from streams, rivers, and lakes in the watershed over a five- to 20-year period, improving water quality throughout the watershed.

The trading program is funded by wastewater treatment plants. Farmers upstream of the wastewater treatment plants submit projects that will reduce nitrogen and phosphorus from running off into area waterways. A committee, called the Project Advisory Group (PAG), considers the projects and recommends funding for the ones that eliminate the most nutrients for every dollar invested. The bottom line: Better water quality over larger areas at less cost.

“This program takes a common sense approach to making the most cost-effective environmental investments possible,” says Dusty Hall, MCD's program development manager. “And, it's working.”

Improving water quality Grant projects yield significant results

Starting in 2003, The Miami Conservancy District (MCD), along with several local partners, implemented a \$700,000 U.S. EPA Targeted Watershed Grant to demonstrate techniques that can improve water quality and save money. MCD and its partners contributed another \$600,000 in matching funds. The nine projects were wrapped up in 2008.

Among the results were:

- Rain gardens and paver driveways that reduce stormwater runoff and improve water quality in a 10-home housing development in Brookville. Paver driveways can cost \$1 to \$3 less per square foot compared with asphalt driveways because maintenance and accompanying stormwater controls are unnecessary. Paver driveways can last up to 50 years.
- A swirl separator system at the Miami County Engineer's facility filters out pollutants in stormwater runoff that drains to the Great Miami River. In its first three months, the system prevented about 322 pounds of oil, sediment and other pollutants from discharging into the river.
- A similar system is in place at a City of Dayton 3.5-acre municipal parking lot where garbage trucks are stored. That site collected 6.6 gallons of oil in its first four months – oil that would have otherwise drained to the Mad River.
- Butler County and Liberty Township adopted new zoning code standards including 35 percent open space for major subdivisions and 50 percent for Conservation Subdivisions (CPUD). Liberty Township adopted a CPUD of 40 percent open space. These changes benefit rivers and streams by encouraging conservation design during new construction.
- An innovative ditch design was installed in Shelby County to allow for drainage and improve water quality downstream. A 3,100-foot section of agricultural ditch was modified from a traditional v-shape into a two-stage channel. Nitrate concentrations were reduced by more than 30 percent.

Other projects that demonstrated positive water quality results include a rain garden in Colerain Township, a wetland in Fairborn, and green housing projects in Dayton and Moraine.

For more information visit:
www.miamiconservancy.org/water/epa_grant.asp.

Did you know?

■ In partnership with the American Society of Landscape Architects, MCD hosted North Carolina State University faculty to present a two-day workshop about low impact development practices. Nearly 100 civil engineers and landscape architects who design building sites learned how to design and maintain rain gardens – and other stormwater practices – so that they effectively improve water quality.

■ MCD trained more than 125 new Stream Team volunteers in 2008. Miami Valley Stream Team is a volunteer water quality monitoring program. Stream Team volunteers collect water quality data that can be used locally to help make management and restoration decisions.

■ Teachers and students from Kettering Fairmont High School, in partnership with MCD, tested the water quality of Holes Creek—as it runs through Centerville-Washington Township's Grant Park—by taking water samples and performing chemical and biological testing. The students participated in GREEN (Global Rivers Environmental Education Network), a partnership between community-based organizations and the non-profit organization Earth Force, which engages youth in real-world learning experiences.

■ MCD—with the Miami Valley Regional Planning Commission—continued to organize quarterly meetings of the Great Miami River Watershed Network, a group of professionals and private citizens interested in improving the health of the Great Miami River Watershed. Through expert presentations, field trips, and discussion, participants learned how to reduce water pollution, how to educate and involve the public to keep water clean, and how climate change could impact water resources in our region. To become involved in the Great Miami River Watershed Network contact Angela Manuszak at 937-223-1271 or Matt Lindsay at 937-223-6323.

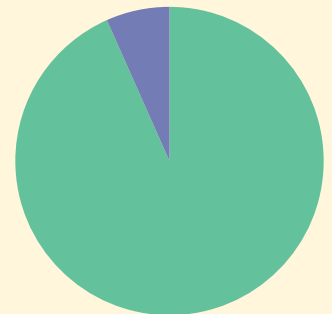
■ MCD staff participated in many festivals and environmental activities within the watershed, teaching hundreds of children and adults about our valuable river and groundwater resources.

Test Your Well

The Test Your Well program helps private well owners understand and, hopefully, take better care of their drinking water. In partnership with county health departments, soil and water conservation districts, Ohio State University Extension, and local Future Farmers of America (FFA) chapters, MCD provided confidential nitrate screening to 257 well owners in 2008, bringing the program total to 569 since its beginning in 2007.

Aquifer Preservation Revenues (2008 Actual)

- Assessments (\$912,677)
- Interest (\$63,752)



PAVER DRIVEWAYS NOT ONLY REDUCE STORMWATER RUNOFF BUT CAN SAVE MONEY IN THE LONG RUN.



PROMOTING

Great Miami River Recreation Trail

Recreation trails have become one of the region's best amenities. The Miami Conservancy District (MCD) built the region's first 8-mile loop in downtown Dayton in the late 1970s and today owns and/or maintains 34 miles of trail in the region. MCD continues its efforts to help communities complete additional miles of trail.

Improve your life

US News & World Report magazine lists biking to work as one of its "50 Ways to Improve Your Life in 2009." We couldn't agree more. And for those of you who are a little street shy, remember the recreation trails are a safe, easy way to commute.

Believe it or not, spring is just around the corner and the national Bike to Work Day isn't far behind—Friday, May 15. Check out the website at www.drivelesslivemore.org for information about the 2009 Bike to Work Day.



Trail reconstruction

If you had a chance to do some late-season biking along the Great Miami River Recreation Trail between West Carrollton and Miamisburg, you already know how much better – and smoother – the ride is. That's because MCD rebuilt 1 mile of the trail and widened it from 8 to 10 feet most of the way from West Carrollton to the trail bridge over Sycamore Creek in Miamisburg.

Trail relocation

Riders in Miami Township south of the Hutchings Station Dam have a new view after MCD relocated 1,500 feet of trail. That section of trail had been eroding since 2005. High-water events in 2008 continued to erode the bank and undermine the trail, forcing MCD to close that section of trail. MCD staff moved the trail inland about 250 feet.

"It was less expensive to move the trail than to fight Mother Nature by trying to armor the riverbank and save the old trail," says Hans Landefeld, MCD trail manager. "Miami Township provided an easement across its property so we could relocate the trail."

Trail addition

Piqua riders will have a new section of trail to enjoy this spring as a 2.75-mile extension of the Great Miami River Recreation Trail is under way by the City of Piqua. The new trail will travel across MCD property south from Lock Nine Park in Piqua to Peterson Road in Washington Township (Miami County). The trail on the west side of the Great Miami River is already completed and the east side should be finished this year.

Show me the way

Trail users now have help finding their way to various cities and amenities along trails in the Miami Valley. About 100 of these signs have been purchased and have been – or will be – installed along the trail in various communities in Miami, Montgomery and Greene counties in 2009.



Play It Safe!

You wouldn't ride your bike without a helmet. You wouldn't run through an intersection without looking both ways first. So why would you ever consider kayaking on a river without a life vest or a safety map? We hope you wouldn't.

That's why for the past several years MCD has sponsored the Play It Safe! campaign complete with river safety messages on radio and TV and free river safety maps. The maps are available for the Great Miami, Mad and Stillwater rivers. Each map features information about river hazards, how to stay safe on the river, and access points to the river. Go to www.miamiconservancy.org to order your free maps.

Drive Less Live More doubles in size

Gas hovering at \$3 and \$4 a gallon last summer was the nudge many people needed to get involved in the second annual Drive Less Live More program. Drive Less Live More encourages drivers to leave their cars at home and explore biking, walking, carpooling and riding the bus to get around town. About 700 people participated in four events and one contest during the campaign that ran from May through Labor Day.



“We don’t expect anyone to give up their car entirely, although a few have sold an extra car,” says Janet Bly, MCD general manager. “We’re just trying to get people to think about leaving it behind some of the time.”

During the campaign, participants:

- Gave up their cars to ride their bikes to downtown Dayton for the annual **Bike to Work Day**. Participants were provided a free pancake breakfast – to go along with self-satisfaction – for their healthy efforts.
- Discovered history and amenities along the Great Miami River Recreation Trail during a 14-mile round trip **River Ride** between Miamisburg and Franklin.
- Explored getting around the region by bus with the Greater Dayton RTA’s **Dump the Pump day**.
- Logged trips and mileage online in the **One Less Trip** contest each time they left their car behind. Prizes were given to monthly winners and a drawing was held at the end of the campaign for a trip to Mission Point Resort on Mackinac Island, MI.

Check out these results from the One Less Trip contest.

	2007	2008
Number of participants	202	389
Average miles traveled without a car	237	477
Average number of trips without a car	13	27
Total miles saved	29,987	64,306

“Together these people saved 3,300 gallons of gas,” says Bly. “At \$4 a gallon, they saved themselves \$13,200 not to mention the 65,000 pounds of carbon dioxide they prevented from spewing into the region’s air.”

Drive Less Live More is a partnership of MCD, the Miami Valley Regional Planning Commission, Five Rivers MetroParks and the Greater Dayton Regional Transit Authority.

To become involved in this year’s contests and events, go to www.drivelesslivemore.org.



RIDERS (ABOVE) DISCOVERED HISTORY AND AMENITIES IN MIAMISBURG AND FRANKLIN DURING THE 2008 RIVER RIDE. SOME DLLM PARTICIPANTS COMBINE MODES OF TRAVEL (LEFT), BIKING PART OF THE WAY AND USING THE BUS FOR THE REMAINDER.

River Summit draws regional leaders

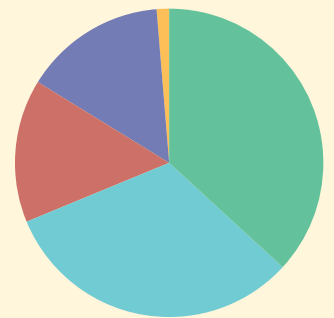
About 100 local leaders in politics, business and the arts participated in a River Summit last spring hosted by MCD and the University of Dayton. The summit focused on how the Dayton region can use the Great Miami River Corridor’s potential as a regional economic driver, helping to redefine the corridor’s downtowns, preserve its rich farmlands and share its greenspaces by linking them together with a shared resource – the Great Miami River.

After the summit, work groups developed recommendations for four goal areas: **Developing City Riverfronts, Promoting Recreation and Tourism, Preserving Farmland, and Protecting Open Space.**

Another River Summit is scheduled for April 2009.

River Corridor Improvement Revenues (2008 Actual)

- Assessments (\$249,223)
- Intergovernmental (\$214,000)
- Grants (\$103,892)
- Interest (\$101,431)
- Other (\$7,107)



Conservancy Court

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 Board of Appraisers, and approves their plans.

2009 Conservancy Court

Butler County
Honorable Keith M. Spaeth

Clark County
Honorable Richard J. O'Neill

Greene County
Honorable J. Timothy Campbell

Hamilton County
Honorable Robert P. Ruhlman

Miami County
Honorable Jeffrey M. Welbaum

Montgomery County
Honorable Barbara P. Gorman

Preble County
Honorable David N. Abruzzo

Shelby County
Honorable James F. Stevenson

Warren County
Honorable Neal Bronson

Board of Directors



Gayle B. Price, Jr.
President



William E. Lukens
Vice President



Thomas B. Rentschler
Member

Board of Appraisers

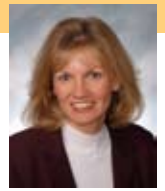
David K. Galbreath, Jr.
Realtor, Troy, OH

Robert Harris
Appraiser, Dayton, OH

James E. Sherron
Attorney, Middletown, OH

A message from the general manager

Flood Disasters Prompt National Levee Recommendations



Floods have been part of the national landscape for decades, making us thankful for the Miami Valley's robust flood protection system developed following the 1913 flood. Recent flooding disasters prompted Congress to pass the National Levee Safety Program Act in 2007, which formed the National Committee on Levee Safety (NCLS). In January, the NCLS issued its report.

MCD staff has reviewed the NCLS report and evaluated how our levees size up to their national observations. We also have considered how the committee's recommendations might impact our operations and the communities served by MCD's flood protection system.

Levees Promote Community Development

The NCLS found that levees are abundant and integral to economic development in communities throughout the U.S.

MCD's levees are part of a system that protects homes and businesses from flooding in many Miami Valley communities. This system also protects critical infrastructure such as roads, bridges, schools, water and sewer treatment plants, and utilities.

Flood Risk Management Requires Multiple Strategies

The NCLS stated that effective flood risk management involves a combination of strategies, techniques and tools, but often levees have been the primary or only tool.

MCD employs multiple strategies – a comprehensive system of dry dams, levees, channel improvements, preserved floodplain and other non-structural measures.

Nationally, Many Leveed Areas Still At Risk

The NCLS recognized that many urban areas protected by levees, particularly those in deep floodplains, have an unacceptably low level of flood protection and an unacceptably high risk.

Throughout the US, levee systems are often designed to protect against the FEMA 100-year flood. MCD's level of protection has been estimated to exceed the FEMA 500-year flood.

NCLS Recommendations

The NCLS is recommending federal legislation that will create a National Levee Safety Commission; authorize a national inventory and inspection of all levees; develop standards and strategies to improve levee conditions; and require mandatory risk-based flood insurance for properties protected by levees.

MCD applauds the NCLS efforts to bring high standards nationwide. We are taking a hard look at how these recommendations would impact MCD and

its constituents. Generally, the MCD staff supports the concepts developed by the committee. We do have some serious questions and concerns about financial impacts and unintended consequences of the NCLS recommendations – in particular mandatory flood insurance for levee protected areas.

MCD will continue to monitor developments of the national levee safety program and to communicate our concerns about the implementation of mandatory flood insurance. To review the full NCLS report, go to www.iwr.usace.army.mil/ncls.

Janet M. Bly
General Manager

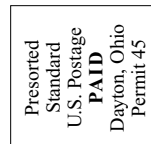
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