Restored upstream left wall of Lockington Dam

2024 Annual Report

& Report of the Chief Engineer

THE MIAMI CONSERVANCY DISTRICT

Miami Conservancy District
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MCD REPORT NO. 2024-54

Miami Conservancy District's Legacy

When three powerful storms converged over the Miami Valley on Easter weekend of March 23-25, 1913, the cities along the Great Miami River recorded up to 11 inches of rain and experienced devastating flooding.

The rain fell on frozen saturated ground, resulting in nearly 95 percent runoff into streams and rivers, drowning the region and creating **The Great Flood of 1913** - still considered the worst natural disaster in Ohio's history.

As the Great Miami River overflowed its banks, about 400 billion gallons of water rushed through Dayton.

The floodwaters chased residents to their second stories, attics, and rooftops. More than 360 people died, and thousands were left homeless. Some were without basic services for days.

Damages reached $100M. This would equal over $3.2B in today's economy.

In response to this great disaster, the people of the Miami Valley vowed, "Never again."

Miami Conservancy District and its flood protection system are the result of that promise. Completed in 1922, the integrated flood protection system of dams, levees, and channel improvements have protected communities from flooding by the Great Miami River for more than 100 years.

Today's Miami Conservancy District focuses on three areas: flood protection, water stewardship, and river recreation.

In response to this great disaster, the people of the Miami Valley vowed, "Never again."

In the Court of Common Pleas of
Montgomery County, Ohio

In the Matter of:

The Miami Conservancy District	No. 036847
The Water Conservation Subdistrict	No. 105912
The Aquifer Preservation Subdistrict	No. 94-4414
The River Corridor Improvement Subdistrict	No. 99-2243

2024
Annual Report of the Board of Directors

To the Honorable Judges of the Conservancy Court:

The undersigned Board of Directors of The Miami Conservancy District and its subdistricts have the honor of presenting the 2024 Annual Report and Report of the Chief Engineer.

Section 6101.66 of the Ohio Revised Code requires that after the close of each fiscal year, the Board of Directors shall make a report to the Conservancy Court of its proceedings and an accounting of receipts and disbursements for the year. The report shall be presented to the full Court at its annual meeting and a copy filed with the Clerk of Courts as a record of the Court.

Section 6101.12 of the Ohio Revised Code requires that the Chief Engineer, as superintendent of all the works and improvements, shall make a full report to the Board of Directors each year. The 2024 Report of the Chief Engineer is incorporated herein.

Additional copies are on file at The Miami Conservancy District headquarters office.

The Board wishes to take this opportunity to thank the Court for its continued support.

Respectfully submitted,

Mark G. Rentschler, President
Beth G. Whelley, Vice President
Michael H. van Haaren, Member

MaryLynn Lodor
General Manager/Board Secretary

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Governance

The organization is administered by a three-member Board of Directors. The General Manager reports to the Board. The Board of Directors meets quarterly, or as needed, and must be conducted in full compliance with Ohio Sunshine Laws. In 2024, they met January 11, March 21, May 3, May 24, June 5, July 16, September 18, and December 18. In addition, the organization has a three-member Board of Appraisers which meets as needed. In 2024 they met February 29, March 21, September 5, and November 6. The powers of the Board of Directors and Board of Appraisers are set forth in the Ohio Revised Code.

The political jurisdiction includes all or portions of the following nine counties in southwestern Ohio: Butler, Clark, Greene, Hamilton, Miami, Montgomery, Preble, Shelby, and Warren.

The Ohio Revised Code provides that the Conservancy Court, comprised of nine Common Pleas Court judges from counties in the Conservancy District, shall exercise the jurisdiction conferred by Chapter 6101 of the Ohio Revised Code. In 2024, the Conservancy Court met February 9 and July 26.

Conservancy Court Judges

Montgomery County
Honorable Denise L. Cross
Retired April 20, 2024

Honorable Mary Wiseman
Presiding Judge

Butler County
Honorable Keith M. Spaeth

Clark County
Honorable Thomas J. Capper

Greene County
Honorable Cynthia Martin

Hamilton County
Honorable Amy L. Searcy

Miami County
Honorable Jeannine N. Pratt

Preble County
Honorable Stephen R. Bruns

Shelby County
Honorable James F. Stevenson

Warren County
Honorable Robert W. Peeler

Board of Directors

Beth G. Whelley

Mark G. Rentschler

Michael H. van Haaren

General Manager, Board Secretary

MaryLynn Lodor

Chief Engineer

Donald P. O'Connor

Legal Counsel

Lee. A. Slone
McMahon DeGulis

Board of Appraisers

David K. Galbreath Jr.
Chairman

Joseph P. Kelley
Member

Adam P. Kranbuhl
Member

Leadership Team

MaryLynn Lodor
General Manager

The General Manager is directly responsible to the Board of Directors in accordance with the MCD Bylaws. The General Manager has oversight responsibility for the effective and efficient operation of the organization. The day-to-day operations and business are primarily handled by full-time and part-time MCD staff that report to the leadership team. The MCD staff total approximately 50 employees and 10-15 seasonal employees.

Don O'Connor
Chief Engineer

Barry Puskas
Chief of Technical & Engineering Services

Ken Moyer
Treasurer

Shannon Phelps
Administration Manager

Ben Casper
Operations & Maintenance Manager

Ginger Clark
Great Miami Riverway Manager (Started April 2024)

Sarah Hippensteel Hall
Communications, Outreach, & Stewardship Manager

Mike Ekberg
Water Monitoring & Analysis Manager

Dan Foley
Great Miami Riverway Manager (Retired April 2024)

2023-2028
Strategic Plan

The strategic plan describes the Miami Conservancy District's commitment, mission, vision, values, goals, and objectives. It is intended to provide clear direction for setting organizational priorities. The purpose of the strategic plan is to ensure that the organization is complying with the official plans, meeting the needs of stakeholders, and carrying out work effectively and efficiently.

The Board of Directors approved the 2023 – 2028 Strategic Plan (MCD Report No. 2023-11 in September 2024.

Flood Protection

- Prevent floods to cities along the Great Miami River by maintaining, improving, and protecting the system of dams, retarding basins, levees, and improved channels.
- Prepare for, and respond effectively, to potential riverine flood events.
- Enhance community climate resilience by preparing and planning for the possibility of more frequent, more intense storms.
- Communicate flood risk, individual responsibility, and the importance of community involvement to prevent flood damages.

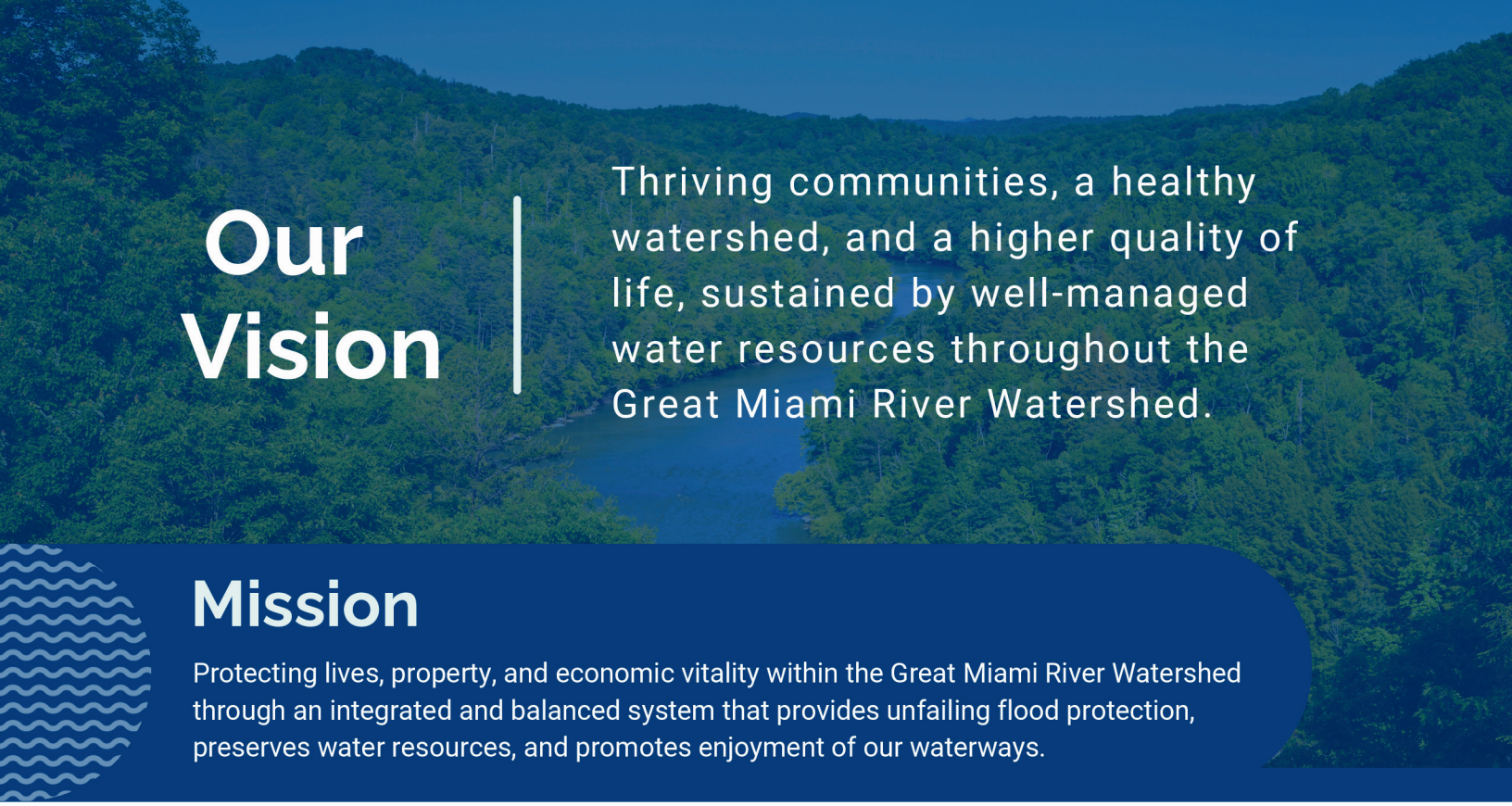
Water Resources

- Protect the safety and availability of water throughout the region.
- Improve water quality in the region's rivers, streams, and aquifers.
- Provide water information for various purposes.
- Increase public awareness of water.

Waterways

- Develop and maintain river corridor bike trails and activity zones for public use and enjoyment.
- Develop and implement river corridor marketing, planning, and programming that: increases use of recreational, historical, and cultural assets; attracts more visitors; supports economic development; and strengthens neighborhoods.

THE MIAMI CONSERVANCY DISTRICT



Our Vision

Thriving communities, a healthy watershed, and a higher quality of life, sustained by well-managed water resources throughout the Great Miami River Watershed.

Mission

Protecting lives, property, and economic vitality within the Great Miami River Watershed through an integrated and balanced system that provides unfailing flood protection, preserves water resources, and promotes enjoyment of our waterways.

Values

Commitment to the Great Miami Watershed
We are mindful of our mission. We realize what we do is crucial to the health of our region, and we are devoted to providing value to the people we serve.

Stewardship of the Public Trust
We carefully and responsibly manage the resources entrusted to our care.

Honesty and Integrity
We strive to be recognized as an organization with the highest ethical standards and integrity.

Teamwork and Cooperation
Teamwork is critical to our success. Trust and mutual respect for each other's responsibilities, functions, skills, and experience are essential.

Engineering Excellence
Efficiency and effectiveness in providing flood protection, water and land preservation, and recreational opportunities to enhance the region. It requires continuous learning, collaboration, adaptation to a changing world, and actively pursuing emerging technologies to ensure MCD's systems are resilient and will not fail.

Continuous Improvement
Exceptional contributions by individuals and teams are critical to our successful performance. Contributions at all levels will be appreciated and recognized.

Communication
Open, candid communication flowing in all directions is the norm. We emphasize listening as a critical component of effective communication.

General Manager's Message

Dear Friends and Partners,

As we reflect on 2024, it was a year of strategic realignment and forward-looking action. The Miami Conservancy District paused its 7th Readjustment of the Appraisal of Benefits to listen, recalibrate, and prepare—anchored by our commitment to protect the people, places, and prosperity of Southwest Ohio. Now, with renewed focus and determination, we share our 2024 Annual Report and look ahead to 2025 with clarity and momentum.

The challenges facing our region continue to grow. Intensifying weather patterns, aging infrastructure, and shifting community needs demand a more resilient and adaptive approach. In 2024, we made significant strides—combining decades of experience with modern tools and partnerships to ensure continued protection and progress.

We advanced critical components of our Capital Improvement Plan that will address long-term system integrity and public safety. Technical evaluations were launched to ensure the stability and integrity of our levee system and an in-depth review was conducted of MCD's Official Plan Flood. This lays the groundwork for prioritizing future upgrades that will improve our region's preparedness. We also conducted an in-depth benefit analysis of the flood protection system including benchmarking other flood districts and prepared the foundation for an updated, sustainable funding model for flood protection.

MCD's legacy of flood protection is matched with our forward-thinking stewardship of water and recreation resources. Throughout 2024, we strengthened infrastructure, enhanced water monitoring, and expanded community engagement. Dozens of community meetings, outreach campaigns, reports, and digital communications helped us deepen public trust and increase awareness of the importance of water to the region.

We remain committed to leadership, transparency, regional collaboration, and strategic reinvestment. This Annual Report captures the progress of the past year—and the promise of what lies ahead.

Thank you for your continued partnership in building a safer, stronger, and more vibrant region.

With gratitude,

MaryLynn Lodor
General Manager / Board Secretary

2024 By the Numbers

In 2024, the region experienced multiple high-water and storage events, reflecting the continued impact of frequent and intense rainfall. The most significant high-water event occurred in early April and ranked among the top 100 in the history of the flood protection system.

102
years of flood protection

21 storage events

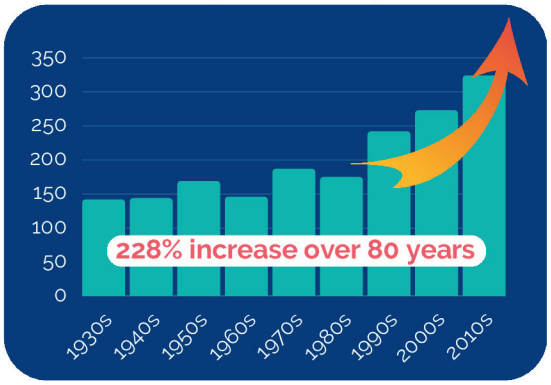
.75 -2.75"
Largest rainfall, September 30

total precipitation **41"**

2,142
total storage events through 2024

12.39"
total runoff

Total storage events by decade



Aquifer Trends

- Groundwater levels below normal levels
- Below normal recharge
- Drought for part of the year

20.6B
gallons stored

What is a Storage Event?
When the water elevation behind a dam reaches the minimum height at which the conduits begin to slow the flow of water.

Risks to the System

The dams, levees, and other parts of the flood protection system have worked harder and stored more water in recent decades, resulting in more stress on the system. **Three major factors pose risks to the region:**

1 Aging Infrastructure
More than 100 years old, the dams and levees are aging and need continuous maintenance and updating, just like roads or bridges. For the first 50 years, the rehabilitation and repair was minimal and efforts primarily focused on maintaining the levees. The flood protection system has kept the region safe more than 2,100 times since 1922.

2 Weather Trends
The change in average precipitation in the Great Miami River Watershed has steadily increased, especially since the 1980s. More frequent high water events mean the dam and levee soils are saturated more often and exposed to more frequent erosive forces and hydraulic pressure. Dam and levee failures are occurring more frequently in the Midwest.

3 Delayed Readjustment of the Appraisal of Benefits
Assessment revenues for flood protection have remained mostly flat for many years. A 2020 assessment update was delayed due to appeals of rising property values at the state level. Emerging information from ongoing research identifies broader benefits to the region. New assessment methodologies are under consideration to allow costs to be shared more fairly across the region.

FLOOD PROTECTION *Integrated*

Ingeniously Simple
The drainage patterns of the entire Great Miami River Watershed are key to the system's design.

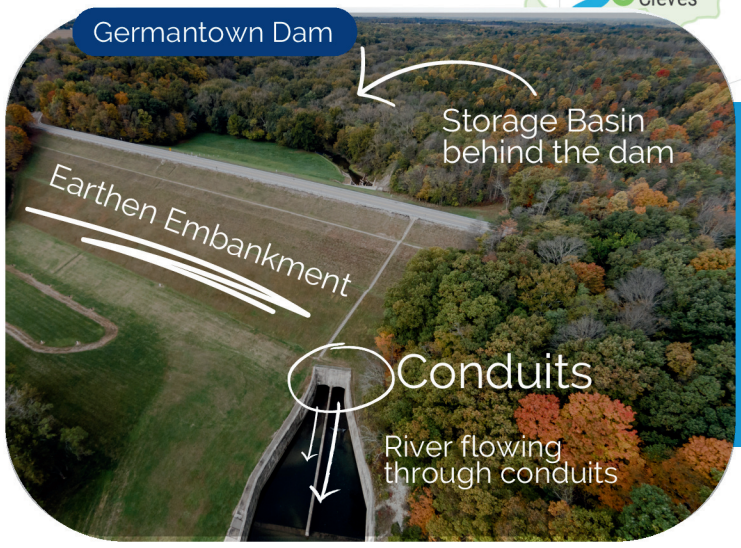
The dams and levees operate without human intervention and have no moving parts, except floodgates on storm sewers along the levees. The system includes:

- 5 dry dams
- 5 storage basins
- 55 miles of levee
- 1000s of acres of preserved floodplain

Total Capacity
The system is designed to store a storm the size of the Great Flood of 1913 (9-11 inches of rain in three days across the 4,000-square-mile watershed) plus an additional 40 percent.

Storage Basins
Behind each of the five dry dams, the Miami Conservancy District has flood storage rights that restrict land use on over 35,650 acres of land where floodwaters are stored when needed. When not storing floodwater, the land is primarily used for parks and agricultural activities. For the flood protection system to work properly, maintaining the storage capacity in the basins is critical.

Dam Safety Compliance
Miami Conservancy District works to ensure the dams comply with the Ohio Department of Natural Resources' Dam Safety regulations.



How Do Dry Dams Work?
Each earthen dam has large concrete openings (conduits) at the dam's base. During normal flows, the river runs through the conduits unimpeded. When the river rises approximately to the top of the conduit, water begins to store in the storage basin upstream. The conduits allow only the amount of water the downstream channel can handle. During periods of extreme high water, it can take up to a few weeks for the storage basin to drain the backed-up floodwaters.

Dams & Storage Basins
Flood Protection

Germantown Dam

Located on Twin Creek in Montgomery County, it is 1,210 feet long and 100 feet high. The drainage area above the dam is 275 square miles. It would take eight days to empty the 34.55 billion gallons of water in the storage basin after a maximum high-water event.

Englewood Dam

Located on the Stillwater River in Montgomery County, it is 4,716 feet long and 110.5 feet high. The drainage area above the dam is 650 square miles. It would take 28 days to empty the 101.68 billion gallons of water in the storage basin after a maximum high-water event.

Lockington Dam

Located on Loramie Creek in Shelby County, it is 6,400 feet long and 69 feet high. The drainage area above the dam is 257 square miles. It would take seven days to empty the 22.81 billion gallons of water in the storage basin after a maximum high-water event.

Taylorsville Dam

Located on the Great Miami River in Montgomery County, it is 2,980 feet long and 67 feet high. The drainage area above the dam is 1,149 square miles. It would take five days to empty the 60.62 billion gallons of water in the storage basin after a maximum high-water event.

Huffman Dam

Located on the Mad River in Greene County, it is 3,340 feet long and 65 feet high. The drainage area above the dam is 635 square miles. It would take five days to empty the 54.43 billion gallons of water in the storage basin after a maximum high-water event.

Levee Systems
Flood Protection

Dams and storage basins work in combination with levee systems to protect downstream communities.

The flood protection system includes 55 miles of levees that keep floodwaters within the river channel through the riverfront cities of Piqua, Troy, Tipp City, Huber Heights, Dayton, Moraine, West Carrollton, Miamisburg, Franklin, Middletown, and Hamilton, also referred to as the Local Protection Features.

Miami Conservancy District works to ensure the levee systems meet or exceed the criteria for accreditation by the Federal Emergency Management Agency (FEMA).

Levee systems include earthen embankments, revetments, floodwalls, floodgates, storm sewers, and pump stations.

In over 100 years of operation, no more than 60% of the flood protection channel capacity has ever been needed. This demonstrates the effectiveness of our dual system—combining upstream storage basins with well-designed levees and channels. The system not only protects local communities but also significantly reduces flood heights in downstream areas without levees.


Dayton levees


Miamisburg levees

MCD works with communities to strengthen levees while achieving community goals. The Miamisburg levee pictured above was raised to complete their new riverfront park.

MCD operates several types of floodgates and sluice gates are the most common type.

Floodgates

During high water, floodgates prevent river water from backing through storm sewers into the cities. Closing floodgates is one of the first actions taken by Miami Conservancy District staff during a high water event.

Cities have storm sewer pipes that cut through Miami Conservancy District levees to drain water from city streets to the river. The floodgates are built at the end of the storm sewers. Miami Conservancy District maintains and operates 218 floodgates. Other floodgates are also operated by the cities of Dayton, Piqua, and Hamilton.

Other Protection Features
Flood Protection

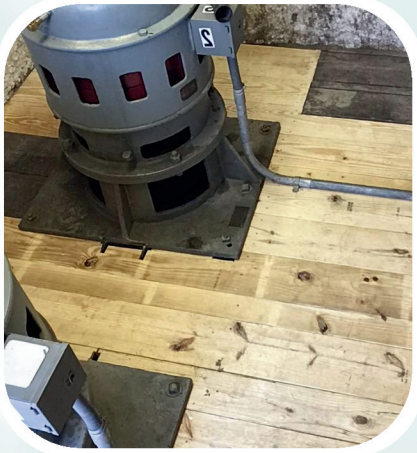
Floodwalls

During high water, floodwalls keep water away from communities to protect people and property. In total, there are seven miles of floodwalls throughout the flood protection system.

Revetment

Embankment armoring that includes 1.7 million square feet of concrete, is installed in select locations for prevention of erosion in areas with anticipated high stream velocities. In the Miami Conservancy District system, revetment is commonly located on the outside curve of the river, in areas where the channel is narrow, and under bridges.

Pump Stations



After floodgates are closed, water is prevented from flowing from the river into city streets. The water is also stopped from draining into the river. In some areas water must be pumped into the river from city streets. There are 21 pump stations throughout the system. Only two are operated and maintained by Miami Conservancy District, one in Piqua and one in Tipp City.

Preserved Floodplains

Approximately 1,100 acres of preserved floodplains along the Great Miami River are owned by Miami Conservancy District. These lands were acquired for stewardship and flood protection purposes.

Improved Channels

There are 37 miles of improved channels along the Great Miami River. The channels were modified to improve their ability to convey floodwaters.

Funding

The Ohio Revised Code outlines how conservancy districts are funded. The Miami Conservancy District (Main District) and two subdistricts (Aquifer Preservation Subdistrict and River Corridor Improvement Subdistrict) are individually funded, and the funds are not interchangeable. Miami Conservancy District can also receive funding through grants, agreements, and other sources.

Main District – Flood Protection

Properties that flooded in 1913 – and are now protected by the integrated flood protection system – pay an annual assessment calculated using several factors. The assessment amount is calculated by multiplying the benefit by the rate. Miami Conservancy District's level of protection is designed to store a flood equivalent to the Great Flood of 1913 plus 40 percent.

Because property values can increase or decrease over time, the Ohio Revised Code (O.R.C. 6101.54) allows conservancy districts to regularly readjust benefits but no more than once every six years.

Subdistrict – Aquifer Preservation (Water Stewardship)

MCD's work in preserving water resources is funded through assessments to the nine counties within the Aquifer Preservation Subdistrict. In 2024, Darke County entered into an agreement for groundwater monitoring and other programs.

Subdistrict – River Corridor Improvement (Recreation)

Recreation amenities are funded through assessments to seven communities for maintenance of recreational amenities in their city, township, or county. The amenities include bikeways and river activity areas – with improvements such as low dams, portages, river access, trailheads, and parking lots.

The Great Miami Riverway is a program managed by the Miami Conservancy District under the River Corridor Improvement Subdistrict. The program is funded through agreements based on population, or sponsorship with 19 cities, counties, park districts and other organizations.

2024 Funding Requests

Priority Development and Advocacy Committee (PDAC)

A new proposal was submitted to PDAC in 2024 for the Huffman Prairie Project, in partnership with the National Aviation Heritage Area. Ranking is expected in 2025. In previous years, MCD received priority ranking for several projects to rehabilitate the flood protection system including dams and levees and continues to pursue funding sources for those projects.

Other Funding Requests

District/Subdistrict	Purpose	Funding Source	Status
Flood Protection	$1.17M with MCD match for Wolf Creek Levee Improvements	American Rescue Plan Act (ARPA) with the City of Dayton	Approved (Agreement No. 2024-032A)
Flood Protection/Aquifer Preservation	$3.99M to address erosion on the Great Miami River threatening a Levee and the City of Middletown water reclamation facility.	Ohio EPA Water Resource Restoration Sponsor Program (WRRSP)	Approved (Agreement pending Ohio EPA approval of plan in 2025)
Aquifer Preservation	$100K request with $100K match for study of aquifer vulnerability to diversion	Ohio Water Development Authority (OWDA)	Approved (Agreement No. 2024-034A)
Flood Protection	$50K for new interpretive kiosks at the five MCD dams and reprint the Flood of Memories book.	Ohio Humanities Program	Not Approved
River Corridor Improvement	$322K for painting of the Gayle B. Price Bridge on the Stillwater Recreational Trail	MVRPC Transportation Alternatives (TA)	Approved (Agreement No. 2024-013A)
Flood Protection	$6.2M for critical projects and planning for preparedness	FEMA High Hazard Potential Dam (HHPD)	Preliminary approval of $1.42M but now on hold
Flood Protection	$200K feasibility study for Great Miami River Flooding Improvements Phase 1 Project (Miamisburg).	Bipartisan Infrastructure Bill for USACE	Pending federal interest and determination

Flood Protection	Authorization for a General Investigation with 50/50 cost share; $1.5M, total cost $3M	Water Resources Development Act of 2024	Study authorized
Flood Protection	$9M for capital improvement projects at the upstream walls of Germantown, Englewood and Taylorsville dams. (Previously ranked as a Priority Project by PDAC).	State of Ohio Capital Bill	Not awarded, seeking other funding
River Corridor Improvement	$196K for an access road upstream of Taylorsville Dam.	*State of Ohio 2023 Conservancy District Road Funding Program*	Project cancelled due to federal design standards resulted in project cost doubling and local funds would have to supplement.

Technical assistance

District/Subdistrict	Purpose	Value	Program
Flood Protection	Study of hydraulics and low dams in Hamilton	$250K	USACE - Planning Assistance to States (PAS)
Flood Protection	Levee Screening Tool – Miami and Montgomery counties	$70K	USACE
Flood Protection	Flood inundation mapping Troy/Piqua	$130K	USACE/Silver Jackets
Flood Protection	Complete hydraulic model of the flood protection system	$100K	USACE

Flood Protection

Miami Conservancy District

Flood Protection

Infrastructure Priorities

The Miami Conservancy District's (MCD) flood protection system has safeguarded communities throughout Southwest Ohio from catastrophic flooding since 1922. After 102 years of service, this critical infrastructure, one of the most innovative and influential flood protection systems in the United States, now faces deterioration and requires significant reinvestment.

While the system has benefited from routine maintenance and targeted capital projects over the decades, recent condition assessments and regulatory inspections have made clear that major repairs and system-wide improvements are now necessary. The system's most visible and iconic structures, the concrete walls (up to 78 feet tall), are literally falling apart in some areas. The deteriorating concrete poses risk to dam safety. The Ohio Department of Natural Resources (ODNR), which oversees dam safety across the state, has mandated immediate repairs to these critical assets.

Huffman Dam Concrete Condition

Additional concerns extend across the entire flood protection network. Concrete floodwalls in downtown riverfront cities show signs of serious degradation. Many of the hundreds of pipes and conduits that pass through the levees, many of which are more than a century old, are in poor condition and could become failure points under stress. Built before modern geotechnical science, the levees are increasingly vulnerable, particularly where erosion, settlement, or outdated construction materials are present.

Most alarmingly, while the MCD system has performed well under the storms it has experienced to date, it has never been tested by a high water event even 30 percent as large as the event it was originally engineered to withstand. That official plan "design flood" could occur at any time. Combined with the region's exposure to changing weather patterns, more intense rainfall, and aging infrastructure, the risks posed by the current condition of the system demand a strategic, forward-looking response.

National Infrastructure Trends

Despite its age, the MCD system remains among the most effective in the nation. Based on earlier FEMA accreditation reviews, all MCD levees met FEMA 1% chance flood certification criteria. However, more recent reviews identified deficiencies in some levee segments and assets, and evaluation is ongoing. Dams are currently rated as "Fair" in the National Inventory of Dams, a designation meaning no immediate safety issues exist under normal conditions, but significant repairs beyond routine maintenance are required.

The challenges facing MCD are part of a larger national crisis. According to the American Society of Civil Engineers (ASCE) 2021 Infrastructure Report Cards:

- Levees received a national grade of D. More than 30,000 miles of levees have been inventoried, but an estimated additional 10,000 miles remain undocumented.
- Dams also received a D nationwide. In Ohio, the rating is slightly higher at C-, with more than $300 million in identified dam repair needs across the state.

Although MCD's infrastructure is outperforming many national benchmarks, it still faces significant risks and requires dedicated investment to remain effective in the decades to come.

Critical Improvement and Investment Needs

As the Miami Conservancy District flood protection system enters its second century, the need for a large-scale capital improvement effort is undeniable. The most urgent projects focus on structural safety, failure risk reduction, and improving resilience to increasingly severe weather. Specific priorities include:

- Rehabilitation of dam concrete walls and spillways, including advanced deterioration, cracking, and potential structural weakening.
- Repair or replacement of levee conduits and internal pipes, which are potential failure points, particularly where corrosion or material failure is present.
- Comprehensive levee improvement projects, such as widening, flattening slopes, rebuilding with better materials, installing cut-off walls, armoring for erosion, and adding modern inspection access features.
- Floodwall patching and reinforcement, especially in urban areas where high-risk assets and population density demand the most stringent protection.
- Erosion control and bank stabilization in the channels managed by MCD, where unchecked erosion now threatens levee stability and nearby community assets.

Dam Safety Initiative (1999-2025)

The most recent capital improvement initiative, known as the Dam Safety Initiative (DSI), was authorized in 1999 and provided for a capital assessment of 0.54% annually from 2000 through 2022. The total amount spent on dam safety through 2024 projects was approximately $26.1M with a total authorization of $34.0M.

The DSI was authorized to address a limited scope of high-risk concerns related to dam underseepage, crest permeability, and concrete deterioration. This initiative enabled essential dam safety projects including:

- Installed over 208 relief wells to control threat of underseepage at all five Miami Conservancy District dams
- Placed impervious material at the crest of three dams to protect against seepage
- Rehabbed concrete and walls at Lockington Dam to improve stability
- Improved floodgates, revetment, and floodwalls in multiple cities

Miami Conservancy District also secured grants from the Federal Emergency Management Agency (FEMA) using the DSI funds as matching dollars to evaluate structural stability of concrete walls and design rehabilitation projects.

The remaining $5.25M is prioritized for underseepage and concrete deterioration projects during 2025. A fund balance accumulated due to project timing, restructuring, the borrowing plan, leverage and grant funds and earning favorable interest rates. The Board of Directors determined the fund balance should continue to be used for purposes outlined in the Dam Safety Initiative, and it was approved by the Conservancy Court.

Importantly, the DSI did not include authorization for many levee repairs including floodgates and pipe intrusions.

Remaining Dam Safety Initiative Projects

Identified Need	Identified Risk	Estimate	Work to be Performed
Underseepage	Parts of the foundations beneath all five dams are porous. These porous areas can allow water to seep under the dam, which could result in foundation instability and affect dam integrity.	$500K	Clean the buildup off the screens of the relief wells at all five MCD dams to ensure they meet their design requirements for the volume of water they can capture.
Concrete Deterioration	Concrete surfaces at Miami Conservancy District's dams and local features are exposed to air, moisture, and many freeze/thaw cycles that weaken and deteriorate the concrete over time.	$60K $2.24M $1.9M	Complete detailed designs for upstream concrete repairs at Germantown, Englewood, and Taylorsville dams. Remove and Replace the severely eroded/deteriorated right conduit concrete floor at Germantown Dam. Rehabilitate the deteriorated concrete revetment as required by ODNR at Germantown Dam Spillway.
	Total	**$4.7M**	

Completed Dam Safety Initiative Projects

Identified Need	Identified Risk	Expenditure	Work Performed
Underseepage	Parts of the foundations beneath all five dams are porous. These porous areas can allow water to seep under the dam, which could result in foundation instability and affect dam integrity.	$13.4M	Over 500 observation & relief wells, weighted toe berms, toe drains, and foundation grouting were installed. Monitoring is ongoing. In 2024, a study of the relief well systems was initiated to evaluate their efficiency and develop a future maintenance plan.
Crest Permeability	Porous areas existed near the crest (top) of the embankments at Englewood, Taylorsville, and Huffman dams, creating potential seepage paths during extreme storage events at the dams.	$2.1M	Impermeable crest cut-off walls were installed along the entire length of the three dams.
Concrete Deterioration	Concrete surfaces at Miami Conservancy District's dams and local features are exposed to air, moisture, and many freeze/thaw cycles that weaken and deteriorate the concrete over time.	$9.5M	Replaced portions of concrete revetment in Troy and Hamilton; rehabilitated and/or replaced several floodwalls in Troy, Dayton, and Hamilton; repaired cracks in a Germantown Dam conduit. Executed major concrete replacement project on the right wall at Lockington Dam. The Lockington left wall was fully designed and bid in 2022 for construction in 2023. Significant concrete structural stability analysis was performed at all five dams.
Support Costs		$1.0M	Board of Consultants reviews and meetings to support capital projects.
	Total Spent through 2024	**$26.1M**	

New Capital Program

MCD and the Board of Consultants developed a phased, prioritized approach to capital investment. Preliminary engineering assessments indicate that $140 million (in current dollars) is required to address aging infrastructure, reduce risk and failure, and update to current engineering standards. This estimate reflects a pragmatic strategy of targeting the most urgent needs first, while planning for long-term reinvestment across all system assets.

Phase 1, 2024-2032

Phase 1 focuses on $52.6M of the highest-priority projects. Projects are evaluated and prioritized each year based on multiple factors, including risk (likelihood and consequence of failure), regulatory requirements, funding opportunities, and project readiness. This phased strategy distributes costs over time, minimizes the financial burden on local communities, and uses local matching funds to pursue additional funding through state and federal grants and low-interest loans.

Capital Assessment

To fund Phase 1, the Board of Directors resolved a new capital assessment in the total amount of $34,500,000 in January 2024. In February, the Conservancy Court approved a new spending authority at a special meeting in February 2024. The Board of Directors approved the new capital assessment rate of 1.0% in July 2024.

Infrastructure Work History

To improve infrastructure planning and management, a spreadsheet was created in 2024 to consolidate all significant maintenance and capital infrastructure work history into one location. Historically, the information was listed in numerous reports and throughout multiple folders. Now consolidated into a single spreadsheet, the work history includes date, location, work descriptions cost, and who performed the work. In the future, the data will be migrated to a database and integrated into a new District Asset Management System (to be referred to as DAMS).

Flood Protection Capital Improvement Priorities

The table below provides the budget categories for Phase 1 (2024-2032) capital improvement priorities, as estimated in 2023. MCD is pursuing additional funds to supplement the $34.5M spending authority approved in 2024 to address the highest priorities.

Budget Categories	2024 Project Estimates
Channel	**6,080,000**
Channel	6,080,000
Dams	**30,830,000**
Appurtenances	1,200,000
Concrete Repairs and Stability	23,500,000
Floodgate	2,400,000
Revetment	3,000,000
Underseepage Control	730,000
Levees	**14,710,000**
Floodgate	2,600,000
Floodgate Outfall	60,000
Floodwall	500,000
Levee Stability Improvements	11,550,000
Program Support	**960,000**
Consulting	960,000
Grand Total	**52,580,000**

7th Readjustment of the Appraisal of Benefits

Properties that flooded in 1913 and now receive direct protection from the Miami Conservancy District's flood protection system pay an annual assessment based on the benefit they receive. The assessments are used to cover the necessary, ongoing maintenance and capital improvement of the dams, levees, storage basins, and related parts of the flood protection system.

The benefit represents the enhanced value of the property resulting from flood protection and is computed using the following flood factors:

- Land and building tax values of the property provided by the County Auditor.
- A flood percentage ranging from 3 to 30%, based on the depth of flooding at the property during the 1913 flood.
- Other applicable modifiers such as the percent of property that was flooded, the location of structures, and buildings with multiple stories.

Since property values can increase or decrease over time, the Miami Conservancy District periodically performs a Readjustment of the Appraisal of Benefits to make sure the cost to maintain the flood protection system is equitably distributed. This ensures that individuals and counties are not paying more than their fair share in the distribution of the assessment fees.

- The 6th readjustment was based on 2011 property values and collected annually since 2013.
- The current Appraisal Record lists benefits to more than 47,000 individual properties, plus unit benefits to five counties and 21 municipalities along the Great Miami River and its tributaries.
- The readjustment is used to calculate both the individual and unit assessments.

Timeline

- In 2020, the Conservancy Court ordered the Board of Appraisers to proceed with a 7th readjustment of the appraisal of benefits due to a material change in property value, or additional benefits.
- In 2020, a delay occurred when a county appealed the state valuation of property values. In 2022, those appeals were resolved.
- In May and August 2023, the Board of Appraisers met to review and approve the Benefit Appraisal Methodology.
- Throughout 2023 and 2024, the General Manager attended public meetings, city council meetings, and county commission meetings to inform the communities about the 7th Readjustment, schedule, status, and public notice.
- In early 2024, MCD staff prepared the 7th Appraisal of Benefits using 2023 property values.
- February 29, 2024, the Board of Appraisers met to review the Appraisal Record.
- March 21, 2024, the Board of Appraisers met to approve the 7th Appraisal of Benefits and the Board of Directors authorized the legal notice for public notification. The legal notice provided property owners and units of government with an opportunity to review their appraised benefits and file an exception if they did not agree with the appraised benefits.
- In 2024, open houses were hosted In Hamilton on February 27 at Miami University, in Troy on April 9 at Hobart Arena, in Dayton on April 4 at Dayton Main Library.

- May 3, 2024, the Board of Directors moved to rescind the readjustment at a special meeting after public feedback during the public notice period.
- May 10, 2024, the 7th readjustment was rescinded by the Conservancy Court.
- In May 2024, the Board of Directors launched an evaluation of the benefit appraisal method.

Communications

As part of the 7th Readjustment process, the Miami Conservancy District developed a strategic communications and outreach initiative to help communities understand the necessity of continued investment in the Flood Protection System. This outreach effort was essential to building awareness, addressing public concerns, and reinforcing trust in MCD's stewardship.

The initiative focused on training staff to confidently answer questions and serve as ambassadors for the readjustment effort. A detailed communications plan was developed and implemented, including the creation of fact sheets, dedicated webpages, and public outreach activities.

To ensure effective and proactive communication, MCD partnered with a public relations firm specializing in crisis communication. Clear, consistent key messages were identified explaining the purpose and benefits of the Readjustment Plan. The messages were integrated into a range of formats—including printed materials, public presentations, community meeting discussions, and a suite of engaging videos.

Video

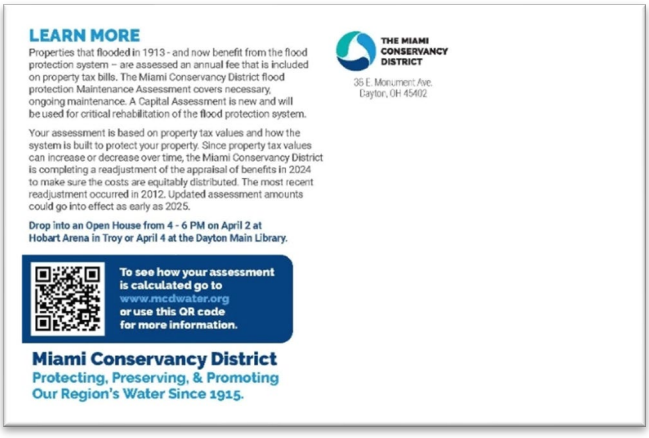
To reach diverse audiences across the region, MCD produced an informational video in multiple formats (6, 15, 30, and 60-second versions). These videos emphasized MCD's century-long commitment to flood protection and the critical importance of financial support to maintain and strengthen that legacy. The videos were distributed through multiple platforms, including Meta (Facebook and Instagram), YouTube, and streaming television services.

Watch the videos here: https://youtu.be/3VQUzkyfp94?si=yC2HGnpNFhFMPi4n

Mailing

In March, a postcard was mailed to all property owners who pay a flood protection assessment with the words:

> *Properties that flooded in 1913 - and now benefit from the flood protection system – are assessed an annual fee that is included on property tax bills. The Miami Conservancy District flood protection Maintenance Assessment covers necessary, ongoing maintenance. A Capital Assessment is new and will be used for critical rehabilitation of the flood protection system.*
>
> *Your assessment is based on property tax values and how the system is built to protect your property. Since property tax values can increase or decrease over time, the Miami Conservancy District is completing a readjustment of the appraisal of*



benefits in 2024 to make sure the costs are equitably distributed. The most recent readjustment occurred in 2012. Updated assessment amounts could go into effect as early as 2025.

Public Meetings

Open houses were held in three locations to help community members learn how the Miami Conservancy District protects you from flooding. Visitors could ask staff about the benefits they receive from the flood protection system, the 7th Readjustment of the Appraisal of Benefits, and their preliminary assessment for 2025.

- Hamilton, February 27 at Miami University, Hamilton campus
- Troy, April 2 at Hobart Arena rescheduled to April 9 due to weather
- Dayton, April 4 at Dayton Main Library

Benefit Assessment Study

To conduct an expedited evaluation of the benefit appraisal method, the Miami Conservancy District contracted Stantec Consulting Services Inc. (MCD Agreement No. 2024-020A) to conduct Phase 1 - Benefit Assessment Study. This study of the benefit appraisal methodology includes an analysis of current procedures and identification of both direct and indirect benefits across the nine counties. The study benchmarked similar flood and conservancy districts across the U.S. The study resulted in proposed alternatives that are scheduled to be presented to the Board of Directors in January 2025. Phase 2 of the study will refine alternatives and may result in changes to the 7th Readjustment of the Appraisal of Benefits.

The Board of Appraisers met September 5 and November 6 to review the study including newly identified benefits and alternative methodologies. The Board of Appraisers is anticipated to continue the discussion at a meeting scheduled in January 2025.

To better understand public opinion, the Miami Conservancy District contracted with Burges & Burges, Inc (Agreement No. 2024-027A), to conduct research. A telephone survey of the property owners across the nine county area was conducted in November 2024, and results are scheduled to be presented to the Board of Directors in January 2025. Interviews with community leaders are planned for January and February 2025 to gain perspectives on the importance of various factors being considered in the potential changes to the methodology and how best to communicate the need for funding to stakeholders.

Maintenance Rate Increase

Rates are used to calculate the assessments and can be adjusted annually by the Board of Directors and subject to approval by the Conservancy Court.

To ensure adequate revenue, the Conservancy Court voted 6-1 in June 2024 to increase the maintenance rate from 2.19% to 3.35%. Revenues have been flat since 2012. The rate increase was required because the delayed 7th readjustment resulted in a deficit. The approved rate increase will be applied to the sixth appraisal of benefits.

History of Readjustments of Flood Protection Benefits

Original Appraisal Record

- Approved in 1917 for collection beginning in 1919
- Each property was individually appraised to establish value and benefit

- Municipal Unit Benefit equal to sum of individual benefits within that municipality
- Piqua's Municipal Unit Benefit equal to one-half the sum of individual benefits within that municipality

First Readjustment of Benefits

- Approved in 1968 for collection in 1970
- Individual Benefits adjusted based on current (at that time) property values
- Used county auditor Tax Values (not full appraised values) as basis for benefit computation
- Unit Benefits to municipalities and counties not adjusted (remained at 1917 values)

Second Readjustment of Benefits

- Approved in 1980 for collection in 1981
- Individual Benefits adjusted based on current (at that time) property values
- Properties owned by federal, state and local governmental entities were exempted from individual assessments
- Adjusted all Unit Benefits by increasing the 1917 Unit Benefits by 13%

Third Readjustment of Benefits

- Approved in 1986 for collection in 1987
- Individual Benefits adjusted based on current (at that time) property values
- A committee of representatives of the affected municipalities and counties plus Miami Conservancy District staff recommended the current Unit Benefit formula:
    - Municipal - 40 percent of the sum of the individual benefits within the municipality
    - County - 40 percent of the sum of the individual benefits within unincorporated areas (townships) within that county; PLUS 15 percent of the sum of the individual benefits within that county

Fourth Readjustment of Benefits

- Approved in 1996 for collection in 1997
- Individual Benefits adjusted based on current (1994) property values
- No change to Unit Benefit formulas

Fifth Readjustment of Benefits

- Approved in 2004 for collection in 2005
- Individual Benefits adjusted based on current (2002) property values
- No change to Unit Benefit formulas

Sixth Readjustment of Benefits

- Approved in 2012 for collection in 2013
- Individual Benefits adjusted based on current (2011) property values
- No change to Unit Benefit formulas

Seventh Readjustment of Benefits

- Scheduled for 2024. Paused on May 3, 2024 by Miami Conservancy District Board of Directors. Rescinded by the Conservancy Court on May 10, 2024.

- Benefit Assessment Study was launched in July 2024 to identify all direct and indirect benefits and to update the methodology.

Coordination for Emergency Preparation

Flood Inundation Mapping

A flood inundation mapping (FIM) project was initiated in 2024 for the Great Miami River from Piqua, Ohio to Troy, Ohio through the United States Army Corps of Engineers (USACE) Silver Jackets team. The project was funded under the FY24 Flood Plain Management Services.

The USACE project kick-off meeting was held at the Miami County EMA office in Troy, on January 30. USACE staff prepared models and preliminary simulations. The USACE-Miami Conservancy District team evaluated the flow rates and preferred inundation levels. USACE provided draft mapping results in December 2024. The project will be completed in 2025. A public meeting will be scheduled to share the FIM application.

Butler County | Hazard Mitigation Plan

The Ohio Emergency Management Agency (OEMA) integrates hazard mitigation principles to make Ohio communities more sustainable and citizens more resilient. OEMA manages potential projects submitted to the Federal Emergency Management Agency (FEMA) through the Hazard Mitigation Assistance Grant Program. OEMA plans to submit a statewide grant application for funding that may include projects requested by local communities acting as sub-applicants. Jurisdictions must develop and maintain hazard mitigation plans to be eligible for this grant program. Miami Conservancy District staff collaborates with the counties to prepare updates to the plans and identify potential projects. The Board of Directors approved a resolution adopting the Butler County Hazard Mitigation Plan – 2024 on September 18, 2024.

Inspections & Analysis

Inspection and analysis are critical to identify and prioritize maintenance and capital work. This summary includes the flood protection infrastructure inspections, evaluations, and analysis work during 2024.

Dams

Miami Conservancy District dams are regulated by the Ohio Department of Natural Resources (ODNR) and inspected regularly, typically on a five-year cycle In 2024, ODNR staff performed detailed inspections of Englewood, Lockington, Taylorsville, and Huffman dams. Their detailed inspections reports are expected to be received by Miami Conservancy District in 2025. These reports sometimes contain work items required by ODNR.

MCD's annual concrete monitoring inspections were conducted in 2024. This program allows precise comparisons of photographs over time to track concrete deterioration which helps understand concrete degradation rates and plan concrete rehabilitation work.

Evaluation of Underseepage Controls

In 2024, Miami Conservancy District contracted engineering consultants from HDR, Engineering Inc. (Agreement No. 2023-051A) and hydrogeologic consultants from Terran Corporation to perform a comprehensive evaluation of the design, condition, and performance of the underseepage control infrastructure at the five flood protection dams. Historical design reports, field video inspections, and contemporary records of function in high water conditions of the relief wells were reviewed and key findings

reported to Miami Conservancy District. The final project deliverable (MCD Report No. 2024-31 & 2024-35) included the design of a new risk-based relief well maintenance program to be piloted in 2025 on wells prioritized based on relative condition, function, and criticality.

Probable Maximum Flood (PMF) Analysis at Dams

An engineering consultant, HDR Engineering Inc., (Agreement No. 2023-026A) performed a hydrologic analysis of the probable maximum flood (PMF) for Miami Conservancy District's five flood protection dams. The analysis will utilize ODNR Dam Safety guidelines for applying the probable maximum precipitation under OAC 1501:21-13-02. The purpose of the analysis is to determine the need for improvements to store the PMF event.

The hydrologic model development was completed (MCD Report #2024-50) using Miami Conservancy District data and information available from other dams, ODNR, and the USACE. The model inputs of storm data were inserted and simulated for model calibration. Model simulations require calibration or adjustments to enhance the accuracy of the modeled results. Further calibration is under consideration, and the analysis will extend into 2025.

Levee Systems

Routine inspections were conducted in 2024 by Miami Conservancy District caretakers and engineers as outlined in the Operation, Maintenance & Inspection (OMI) manuals.

The Holes Creek Levee System is the only U.S. Army Corps of Engineers (USACE) sponsored levee system of all the Miami Conservancy District levees. Following guidance in the USACE Holes Creek Operations and Maintenance Manual, MCD staff inspected the system in 2024. USACE personnel also inspected this levee system on November 13, 2024, accompanied by Miami Conservancy District staff. An Inspection Summary Letter is expected from USACE in 2025.

USACE Levee Screening Tool Pilot Test

In collaboration with the USACE, Miami Conservancy District volunteered as a non-Federal levee pilot with the National Levee Database team for a sponsored levee screening at a Miami Conservancy District levee system in Dayton. The Levee Screening Tool (LST) 2 is a USACE web-based application that quantifies risk estimates based on the likelihood of flood loading, expected performance of the levee under those loads and the potential consequences of a levee breach or overtopping. On March 19, a meeting and site visit were conducted with personnel from the USACE LST team, the City of Dayton flood control operations, the Ohio Department of Natural Resources (ODNR) Floodplain, and several members of Miami Conservancy District staff.

USACE completed a report, (MCD Report No. 2024-41) including comments provided by Miami Conservancy District and the City of Dayton. Dayton Levee 5 received a Levee Safety Action Classification (LSAC) of Low. The levee is considered low risk, with a low probability of breach prior to overtopping, a low probability of overtopping, and a low expected life safety risk. The levee provides flood risk reduction from the Great Miami River and its tributaries as part of the regional flood risk reduction system owned and maintained by the Miami Conservancy District. The screening helped train MCD staff on USACE protocols.

Levee Accreditation - Montgomery County

In 2023, in anticipation of FEMA accreditation requirements, Miami Conservancy District completed the field exploration of nine miles of levee in Montgomery County. In 2024, engineering consultant Michael Baker International (MBI) delivered the corresponding report (MCD Report 2024-22) detailing full geotechnical and laboratory analysis results for 71 soil borings. In 2025, these results will be utilized in embankment and foundation seepage and slope stability analysis towards FEMA accreditation reporting.

The FEMA maps in Montgomery County are being updated by FEMA with new hydraulic modeling, which is leading to submissions for levee accreditation. Miami Conservancy District is collaborating with FEMA to obtain provisional accredited levee (PAL) status for the levee systems. Miami Conservancy District will have two years after the PAL agreement is finalized to submit a comprehensive levee certification package for FEMA's review.

FEMA convened a meeting with Miami Conservancy District and community representatives in 2024. FEMA plans to determine PAL eligibility for each of MCD's levee systems. MCD will then have 90 days to submit the PAL agreement to FEMA, and there will be a 24-month deadline for the final accreditation packages, with the earliest due date projected for December 2026.

Miami Conservancy District coordinated with other partners that operate, maintain, and inspect the interior drainage components to ensure they understand their obligations. This specifically includes the City of Dayton, Huber Heights, West Carrollton, Miamisburg, and Montgomery County.

FEMA LEVEE ACCREDITATION

When FEMA updates floodplain mapping, levees must be reaccredited for the updated maps to continue to recognize the levees as providing flood protection to the communities. MCD, as the levee owner, must provide sufficient information to demonstrate that the levee complies with all accreditation requirements. The information and documentation submitted to FEMA must be certified by a professional engineer.

Miami Conservancy District provided the necessary information to reaccredit levees in Miami, Warren, and Butler counties between 2012 and 2016.

Accredited levees can save property owners money through reduced flood insurance costs and increased property value. Properties that FEMA determines are within a FEMA flood hazard area would be required to purchase increased, or new, flood insurance. Every time a property in a flood hazard area is backed by a federally backed mortgage, flood insurance would be a requirement of the financial institution.

Pipes

A new Pipe Inspection Manual (MCD Report # 2024-28) was developed by staff in 2024. The manual applies to pipes through levees that are owned by Miami Conservancy District, another public agency, or a private owner, that pass through levees. Complying with the requirements and recommendations in the manual will ensure pipes are video inspected regularly and repairs are made in a timely manner.

Floodgates

Annual inspections of all Miami Conservancy District floodgates were completed in January. Staff visually inspected each floodgate, operating mechanism, chamber, and storm pipes that connect to the chamber. During the inspection, staff operated each floodgate and performed annual maintenance such as lubricating moving parts.

Monitoring and Analysis

In 2024, the dam and levee safety monitoring program expanded with the installation of twelve (12) water level sensors at Lockington Dam (3), Middletown Levee (6), and Englewood Dam (3). These sensors collect temporally dense water level measurements used in analytical studies of foundation seepage and embankment stability. The data satisfies regulatory and accreditation requirements and informs maintenance plans. In 2025, the program is expected to include cellular telemetry to transmit sensor data in real-time for use during High Water Operations.

In 2024, the data was utilized for real-time analysis and emergency response including:

- Emergency Response - Transfer and display the data collected in real-time during the April 2024 high water event. Aquarius Time-Series was used for rapid engineering response to unusual underseepage control system behavior reported at Lockington Dam. This investigation was published in Miami Conservancy District Report No. 2024-38.
- Performance Analysis - Prototypes of historical pool-to-tail performance analysis charts built for the Evaluation of Underseepage Controls project at Englewood Dam using long-term data records in Aquarius.
- Performance Analysis - Python code developed for automatic, real-time generation of pool-to-tail charts scalable to all GELTH Dams relief wells.

Board of Consultants

The Board of Consultants did not meet in 2024.

Investigations

USACE: Planning Assistance to States (PAS)

Miami Conservancy District is working with the USACE Louisville District using funding available from USACE including Planning Assistance to States (PAS) Section 22 and Flood Plain Management Services (FPMS) Section 206. Projects were evaluated for either 50/50 cost share or 100% funded if the project was determined to be within a disadvantaged community.

Hydraulic Evaluation of Modifications to the Great Miami River Lowhead Dams in Hamilton

This USACE PAS project was awarded 100% federal funds to MCD. The focus of the study is on potential modifications to existing infrastructure along the Great Miami River. These modifications may include channel widening, removal or alteration of low dam(s), and alternative channel bank protection. In partnership with the Miami Conservancy District and the City of Hamilton, and the U.S. Army Corps of Engineers, Louisville District (USACE) a detailed hydraulic model was developed using HEC-RAS software to determine study element conclusions. The project goals are to evaluate possible modifications that are feasible to enhance the river while maintaining flood protection. Throughout 2024, regular meetings with Miami Conservancy District, USACE, and the City of Hamilton occurred to review the project status. Miami Conservancy District collected bathymetry data, gathered the sediment samples, and coordinated the laboratory analysis. USACE reported on the model and simulation results. USACE is continuing to run multiple scenarios to report the findings to the team in 2025.

Hydraulic Model of Great Miami River using Kentucky Flood Plain Management Services Study (FPMS)

The project is also 100% funded with federal sources. The purpose of this study is to update and combine numerous existing models, as well as fill in some data gaps in the models utilizing existing digital datasets and field survey data provided by Miami Conservancy District. The study area is along the Great Miami River, primarily in Hamilton, Butler, Warren, Montgomery, Miami, and Shelby counties, including tributary streams Loramie Creek, Mad River, Stillwater River, and Twin Creek.

USACE utilized multiple model data files to develop a consolidated model for this project. Miami Conservancy District supplied detailed bridge information to be incorporated into the hydraulic model. USACE is integrating the data for simulation and evaluation. USACE completed the project in December 2024, which includes a final report and digital hydraulic modeling files.

MCD I Wright Patt AFB - Mad River Watershed and Huffman Dam Operational Modification Analysis (PAS)

To perform analysis at Huffman Dam and upstream areas to enhance the level of service at Wright Patterson Air Force Base (WPAFB) and consider potential capital improvements or upgrades. MCD submitted a draft scope to USACE and MCD is awaiting feedback.

Projects Completed or Underway

PROJECT NAME	DISTRICT/SUBDISTRICT FUND	BUDGETED AMOUNT	STATUS
Lockington Dam Left Wall Drain System and Concrete Repair, Phase 1	Flood Protection	$4.11M	Completed
Taylorsville Dam Access Road Paving*	Flood Protection	$220K	Cancelled due to cost
Germantown, Englewood, and Taylorsville Upstream Improvement Design*	Flood Protection (Dam Safety Initiative)	$60K	Design under review
Germantown Dam | Emergency Spillway Improvement Design	Flood Protection (Dam Safety Initiative)	$1.89M	Design under review
Germantown Dam | Right Floor Conduit Improvement Design	Flood Protection (Dam Safety Initiative)	$2.23M	In Design
Dayton | Old North Dayton Levee & Alternative Transportation*	Flood Protection & River Corridor Improvement	$1.1M	Completed
Dayton | Riverfront Plan: Wolf Creek Levee Improvements*	Flood Protection (New Capital Program)	$2.25M	In Design
Hamilton | Caretaker Garage Design	Flood Protection	$30K	On Hold
Piqua | Pipe Project	Flood Protection	$30K	Underway
Piqua | Levee Improvements	Flood Protection	$150K	Completed

*partially grant funded

Dams

Lockington Dam Left Wall Drain System and Concrete Repair, Phase 1

Recognizing significant concrete deterioration, the Miami Conservancy District (MCD) made the rehabilitation of Lockington a top priority. Informed by rigorous inspections and structural analyses conducted in collaboration with the Ohio Department of Natural Resources, MCD launched a multi-year effort to restore the dam's concrete outlet works and improve long-term stability.

The purpose of the project is to address concerns related to the structural stability of the concrete wall, and water seeping into the wall which deteriorated the concrete. This work is the result of multiple years of MCD staff coordinating with the Board of Consultants and other consulting engineers to analyze the concrete structures at MCD's dams.

In 2024, MCD marked the substantial completion of the latest phase of this transformative project. The work included removal and replacement of failing concrete walls, installation of advanced drainage systems, and the placement of vertical rock anchors to reinforce wall integrity. These engineering solutions combined traditional methods with modern innovation, ensuring the dam can withstand future challenges.

More than $6 million was invested in Lockington Dam improvements through MCD's Dam Safety Initiative (DSI) and support from the Ohio Water Development Authority.

Construction was completed in 2024 under Agreement No. 2022-009C. A ribbon-cutting was held in conjunction with a tour in October.

Taylorsville Dam Access Road Paving

Staff designed a new paved access road that follows the alignment of an existing gravel access drive on the upstream slope of Taylorsville Dam. The project was cancelled after construction estimates exceeded the grant awarded through the State of Ohio's Conservancy District Roads funding program, which required that the designs meet federal roadway design standards.

Germantown, Englewood, and Taylorsville | Upstream Improvement Design

In 2023, Miami Conservancy District contracted with DLZ Ohio, Inc., (Agreement No. 2023-036A; No. 2023-037A; No. 2023-038A) to advance the design of the rehabilitation of the upstream dam walls at Germantown, Englewood, and Taylorsville Dams, based on the concrete structural analysis alternatives completed in 2022. The design work was performed with Federal Emergency Management Agency (FEMA) High Hazard Potential Dam grant funding and was informed by structural analysis and alternatives analysis that began in 2020. In 2024, the designs were under review for all three projects and review will extend into 2025.

Germantown Dam | Emergency Spillway Improvement Design

Under (Agreement No. 2023-040A) HDR consulting engineers detailed design work. This project includes repairs to the concrete revetments and weirs at the emergency spillway. Staff reviewed the 30% plans and supplied comments to HDR. Miami Conservancy District's review will extend into 2025, then submitted to ODNR for review.

Germantown Dam | Right Floor Conduit Improvement Design

Under (Agreement No. 2023-039A) HDR consulting engineers are assessing repair methods and developing comprehensive design plans. This project makes repairs to the concrete floor of the right conduit at the base of the dam. On October 18, the right conduit was dewatered and inspected by MCD and HDR. HDR performed detailed measurements to develop a plan for referencing the engineering drawings for construction. Miami Conservancy District reviewed the 60% plans and provided comments to HDR. MCD's review will continue into 2025.

Levees and Facilities

Dayton | Old North Dayton Levee & Alternative Transportation

Following the devastating Memorial Day tornado outbreak in 2019 — which saw 21 tornadoes strike Ohio, with the Miami Valley suffering some of the worst damage — the Miami Conservancy District (MCD) undertook a critical infrastructure project to protect lives, jobs, and property in the Greater Old North Dayton area.

This urban neighborhood, home to more than 10,000 jobs and a vital commercial corridor, saw significant damage to homes and businesses. The disaster also threatened the structural integrity of a key levee that protects these neighborhoods and essential infrastructure.

MCD has now completed vital repairs and upgrades to the Greater Old North Dayton levee (Agreement No. 2022-014C; 2023-015A; 2023-043A) were restored with reinforced turf grass to reduce future erosion, while one critical section was replaced with new, six-inch-thick reinforced concrete.

In addition to levee restoration, MCD constructed a new one-mile, 10-foot-wide asphalt trail atop the levee. This multi-use path connects Keowee Street to Helena Street and enhances access to alternative transportation options in the region.

Staff are working on final reports to close out the project and request reimbursement in 2025. A ribbon-cutting event was held in July.

The completed project strengthens the community's flood resilience, protects vital economic assets, and improves connectivity for residents and commuters alike.

Dayton | Riverfront Plan: Wolf Creek Levee Improvements

The City of Dayton and MCD entered into an agreement to construct levee improvements and river access along the Wolf Creek near the confluence with the Great Miami River. The project will include work on both banks of Wolf Creek, strengthen the levees, and make the creek more accessible and attractive.

The City of Dayton hired Stantec to develop the design. The agreement commits the city to provide $1,500,000 and MCD to commit $750,000 towards construction. MCD committed to managing bidding and construction in 2025 into 2026.

Hamilton | Caretaker Garage

The City of Hamilton purchased and demolished the Miami Conservancy District's Hamilton caretaker facility in 2023 to make way for the city of Hamilton's new Beltline Recreational Trail Phase 2. Construction of the trail was complete in 2024. Through 2025, the city is allowing MCD to use space at the former power plant while MCD considers facility options.

Piqua | Pipe Project

Pipe lining was expected to be performed however, the project goal was changed to storm sewer cleaning, televising, and inspection of MCD owned pipes in Piqua, Troy, and the Lockington Dam to determine the best rehabilitation technique. Per Agreement 2024-010A and Amendment No.1, Hydro-Klean was contracted for the work.

Piqua | Levee Improvements

Per a Memorandum of Understanding (MCD No. 2020-049A) between Miami Conservancy District and the City of Piqua, the Piqua levee was altered as part of the Lock 9 Park improvement project and the City's riverfront master plan. The project included improvements to MCD flood protection including replacement of concrete revetment with turf reinforcement matting, installing a small concrete floodwall, and installing two passive floodgate barriers that allow pedestrians easy access to the park through the floodwall and will automatically close when floodwater reaches them.

MCD provided funds to the City to pay for improvements to the levee as part of the project. New turf reinforcement replaced the concrete revetment. The passive flood gates were tested by MCD staff and performed well. MCD still needs to acquire an easement from the City for city-owned parcels that contain the realigned Official Plan Flood line of protection.

Operations & Maintenance

Properly maintaining dams, levees, floodwalls, floodgates, and pump stations along with addressing problems before they become large emergency repairs are critical to Miami Conservancy District's success. Failure to maintain or repair the flood protection infrastructure could result in catastrophic loss of life and property. To properly operate and maintain the flood protection system, staff must be well-educated about Miami Conservancy District features and repair practices and have the knowledge to apply appropriate flood protection methods during high water events.

An Operations, Maintenance, and Inspection manual (OMI) and Emergency Action Plan (EAP) is written for each dam and feature and used to train staff. The OMI manuals were updated in 2024 (Report #'s 2024-05 through 2024-14) and staff were trained using the updated manuals. Operation and maintenance activities include routine and preventive work such as:

- High water response activities
- Regular inspections of infrastructure and land
- Mowing levees and dams
- Brush and tree clearing
- Repairing erosion
- Filling levee holes
- Clearing drift and debris
- Installing or repairing safety features
- Installing or repairing signage and gates
- Checking or repairing floodgates

The operations vary by season. During the winter months, facility projects and annual inspections of the system occur which include safety and inventory checks. Staff also make improvements to facilities, and caretakers work in teams for some of these efforts.

Caretakers and assistant caretakers, supplemented by temporary employees who help with routine maintenance during the mowing season, perform the work necessary to keep the flood protection system in proper working condition as described in the Miami Conservancy District Official Plan.

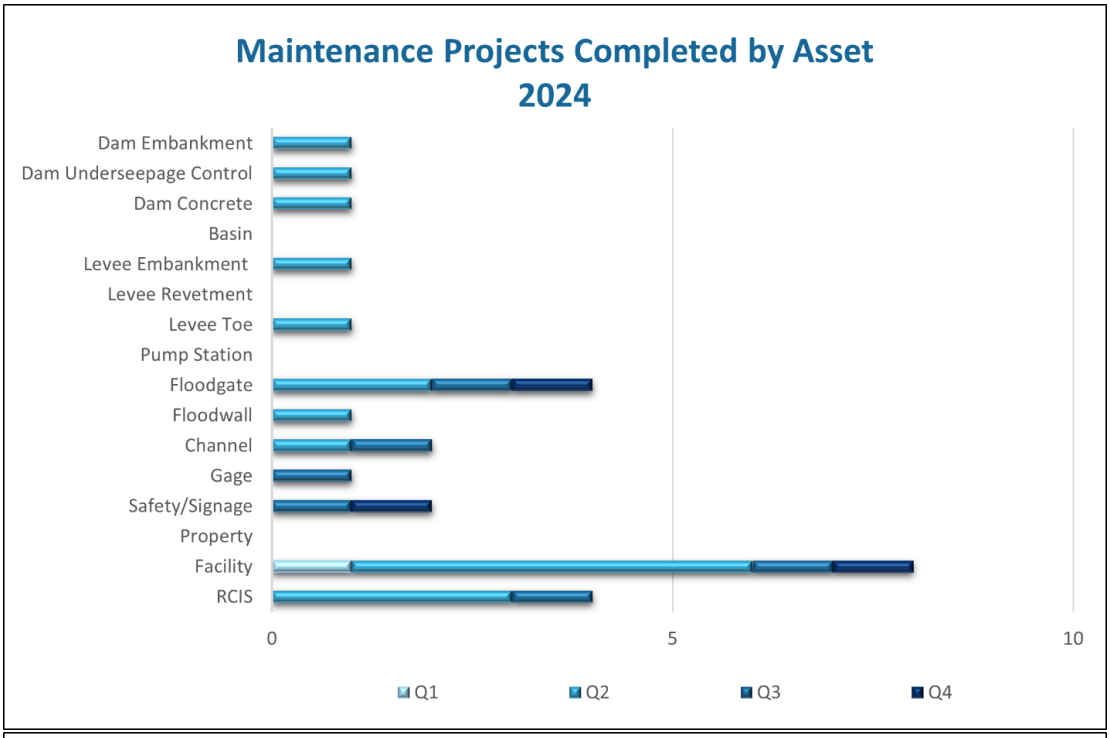
Staff maintain and monitor precipitation stations at each of the features and dams. During high water events, more frequent precipitation and river stage readings are collected. To record the fluctuation of groundwater pressure, staff read observation well data in and around each dam and along many of the levees. This data could be early warnings of potential failures. Dam caretakers also read relief wells and record the time and duration of relief well flow.

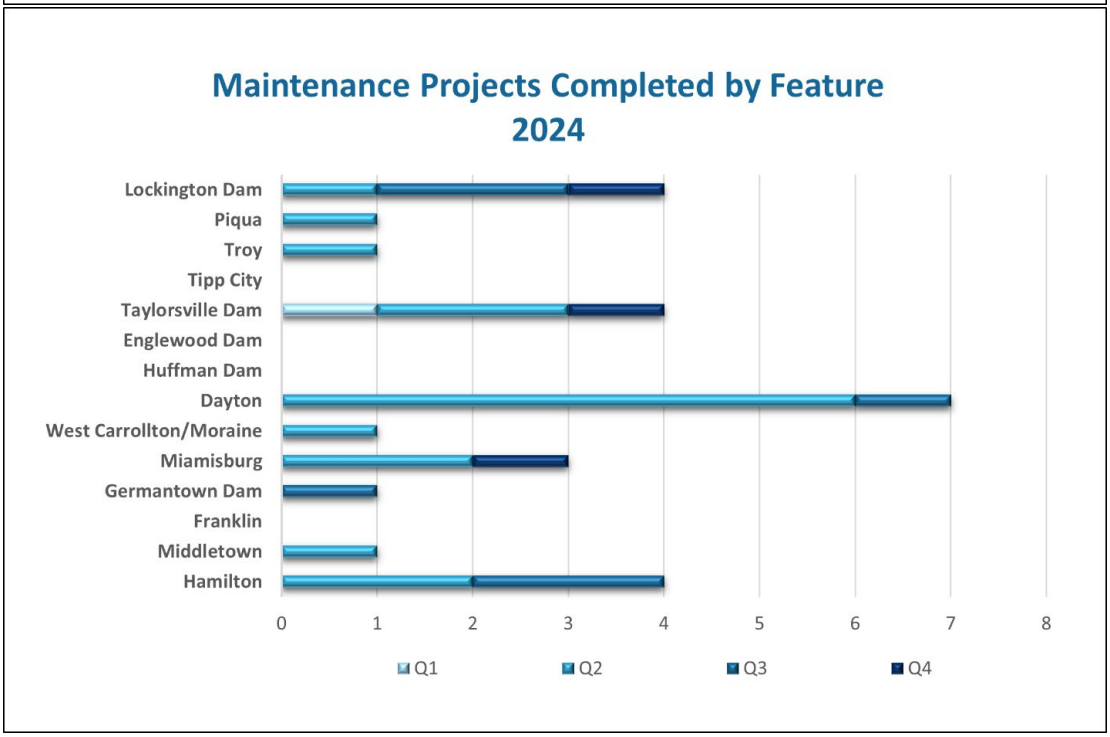
The project crew assists with maintaining facilities and infrastructure by performing larger-scale and specialized construction work. The crew operates a variety of heavy equipment throughout the flood protection system to perform its tasks. The equipment includes a backhoe, track hoe, bulldozer, track loader, skid steer with multiple attachments, dump trucks, generators, and pumps.

Inspecting a floodgate in Middletown.

Tracking Maintenance

Maintenance activities are tracked using an asset management system. The charts below summarize maintenance activities performed in 2024. Tracking activities helps to understand the performance of the infrastructure and can help identify repair, rehabilitation, and capital investment priorities.





Heavy and Specialty Equipment

Fleet Maintenance

To service MCD equipment, 68 work orders were completed on trucks and equipment including routine services, tire replacements, emergency repairs, and contracted mechanical work.

All caretakers brought their slope mowers to the Dayton Service Facility where the Fleet coordinator goes through each machine and does a yearly service on the engine, hydraulic system, and a multi-point inspection ensuring the unit is ready for work in the spring.

New Equipment

Fleet Vehicle

A new 2023 Chevrolet Traverse with four-wheel drive and able to seat up to 7 passengers was purchased to replace a 2013 Ford Fusion.

3-point mounted PTO (power take off) chipper

New chipper to clear and dispose of brush in smaller, tighter places that a dump truck and trailer mounted chipper could not go.

Cub cadet slope mowers

Two new mowers assigned to the West Carrollton andFranklin features. Old units will be sold on govdeals.com.

5095m tractor

New tractor with a MoTrim rear and side arm flail mower assigned to Dayton.

John Deere 5075m feature tractor

New tractor with front loader assigned to the West Carrollton feature.

John Deere 335P compact track loader

New loader with a hybrid bucket, hydraulic grapple, HD pallet forks, and forestry head for drift and brush removal and for constructions projects.

Trailer-mounted pump

These new pumps replaced older pumps and are crucial in flood-fighting situations but are used in daily operations and training exercises. The pumps are also trailer-mounted making them easier to move, whereas the old pumps required a tractor to operate.

Facilities Maintenance

Facility inventory and safety inspections are conducted each year. All assets at dam and feature maintenance facilities are inspected during the winter months to ensure they are ready for the high water season and the mowing season. For some specialty inventory and inspections, contractors are used.

Annual Inspections & Certifications

- All Garage Safety and Inventory inspections were conducted.
- Contracted with Feldkamp Enterprises to perform annual HVAC Maintenance and safety checks on all feature garages.
- Contracted with Mega City to perform an annual fire extinguisher certification.

Cleaning

Conducted cleaning and reorganization projects in the garages at Troy, Dayton, West Carrollton, Miamisburg, and Franklin features, and Germantown and Lockington dams.

Bannock Facility (Dayton)

Contracted with PAR Asphalt Maintenance and Marking to reseal and restripe the parking lot; redesigned the spots to better fit parking needs. Added parking blocks to prevent vehicle collisions with the building.

Contracted with security contractor Everon to add a new antenna to the security/fire monitoring at the Dayton Service Facility to aid in operation of the system.

Driveways and storage areas

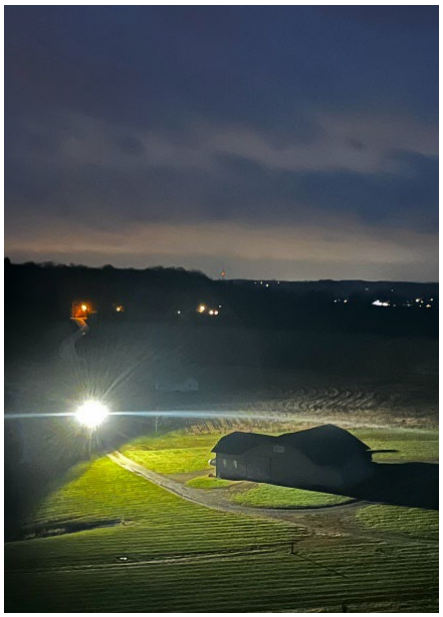
Used approximately 100 tons of gravel to regrade and top dress the driveways and storage areas at the Franklin, Miamisburg, and West Carrolton garages.

Franklin Facility

Contracted with Feldkamp Enterprises, Inc. to replace the old furnaces in the Franklin garage with a new unit heater.

Germantown Dam Facility

Contracted with Highfield Door Sales Inc. to replace the old garage door at the Germantown garage with one that was more secure and easier to use.



Contracted with Kastle Electric Co. to update security lighting at Germantown garage to allow for more visibility around the garage at night.

Miamisburg Facility

Contracted with Feldkamp Enterprises, Inc. to replace the old furnaces in the Miamisburg garage with a new unit heater.

West Carrollton Facility

Cleaned and recoated the floor in the West Carrollton garage.

Dam Maintenance

Preparing for ODNR Inspection

The ODNR inspected Lockington, Taylorsville, Englewood, and Huffman dams on October 23, 2024. MCD staff prepared for the inspections by ensuring the action items from the 2019 inspections were complete and making sure the dams were properly mowed, sprayed, free of brush, and ground hog holes were filled. This work included:

- String trimming the guardrails at Englewood, Taylorsville, and Huffman dams
- Filling in groundhog holes on the dams.
- Spraying selective and non-selective herbicide where necessary.
- Continuing with regular mowing.
- Sending out robotic slope mower to mow areas that are only done one or two times a year.
- Ensuring all brush is cleared from designated areas.
- Contracted with Davey Resource Group to apply herbicide with a drone where vegetation grows on the dam that is not accessible to staff with standard maintenance equipment.

Germantown Dam

Cleared brush and debris near the outlet of Germantown Dam. Placed large riprap at the mouth of a creek along the left bank upstream of the dam. This is designed to reduce scour and sediment deposition in Twin Creek from the stream that flows very steeply down the bank.

Englewood Dam

Drift was removed from the upstream end of the conduits.

Lockington Dam

- Prepared Lockington Dam for the MCD Dam Tour including regrading drive areas making them more accessible, removing trees and brush around the tablet to make it more visible, string trimming rock areas to make them look better, and assisting in set up and clean-up of the event. The outdated wooden sign kiosk was removed and a permanent new interpretive sign was installed on the east end of the dam prior to the tour.
- Removed brush downstream of the dam, right bank, where the old creek channel used to flow prior to dam construction. Piezometers in the area indicated there may be some dam underseepage concerns. The brush was cleared so the area could be monitored to observe signs of seepage.
- Installed new permanent staff boards and a new orifice line for the stream gage at the upstream left wall.

Taylorsville Dam

- Constructed a new gravel access road to access MCD property east of the dam. This road is parallel to and replaced the existing gravel road that is over top of a high-pressure gas line. A new material storage and sandbag operation area was also constructed to house stockpiles, sandbags, and equipment.
- Drift was removed from the upstream end of the conduits.
- A broken clay drainage tile led to a shallow sinkhole in the downstream embankment. The clay tile was excavated and removed and a new PVC pipe section was installed.

- The creek downstream of the dam on the left bank flows through a conduit before flowing over the left dam wall. There were erosion issues at the back of the wall. Large riprap was installed to prevent further erosion. Investigation and repairs are still required to prevent the creek from flowing around the pipe.

Local Protection Feature Maintenance

The Miami Conservancy District maintains infrastructure, called Local Protection features, in ten communities along the Great Miami River: Piqua, Troy, Tipp City, Huber Heights, Dayton, West Carrollton-Moraine, Miamisburg, Franklin, Middletown, and Hamilton. Each feature includes levees, and some have maintained channels. See Appendix F for maps of each feature.

District-Wide

Clear brush and trees

- Cleared brush and problem trees that were impeding maintenance in West Carrollton, Dayton, Tipp, Troy, and Middletown.
- Operated the fecon head on the Mower Max at the features from Dayton south to Hamilton to clear brush along riverbanks and tree lines to lower the impact on mowing equipment.
- Rented a large stump grinder for a week and ground 77 tree stumps throughout the entire district from the many brush and tree clearing projects.
- Contracted with ACE Tree service to remove 12 trees in Piqua, Troy, and in the Miami Villa that posed a threat to the flood protection system or private property.
- MCD staff completed fall spraying of honeysuckle in West Carrollton to help reduce the amount of time needed to trim with mowing equipment.
- Contracted with ACE Tree Service to remove approximately 25 trees along the bike trail in Miamisburg and Franklin. These trees were damaged or dying and removing them was done as a preventative measure before they would fall and cause a safety hazard on the trail.
- Utilized the new tractor mounted woodchipper to remove trees and brush from approximately .5 miles of Owl Creek along I-75.

Groundhog Holes

Filled groundhog holes with grout. A total of 30 holes were filled using approximately 6000 pounds of grout.

Vandalism

Staff cleaned and/or covered graffiti in Miamisburg and Dayton and repaired a damaged fence at the Piqua pump station.

Dayton Feature

Reused broken concrete from the revetment replacement on the Old North Dayton Levee, along with approximately 50 yards of topsoil, to build a ramp around a large outfall in Dayton for safer access of maintenance equipment to keep the riverbank and levee maintained.

Adjusted monitoring well casings and caps down to the new grade at the Webster Station levee. A small concrete pad was poured to connect the new trail ramp to the concrete pad at the bench area.

Franklin Feature

Installed a new property gate on the river side of the levee, right bank, upstream of Home Avenue.

Hamilton Feature

Installed a new conduit to the gage house so a temperature sensor could be installed.

Installed a new property gate on the river side of the levee, right bank, downstream of the Pershing Avenue Bridge.

Installed a new large brass fitting in the operating mechanism for floodgate HAM35B1. The original piece recently stripped and failed while the caretaker was closing the floodgate. On July 30 after an intense rainstorm, the Hamilton caretaker noticed a problem closing floodgate 35B1. Upon inspection, MCD staff determined that the female threads on the floodgate operator were heavily damaged not allowing the gate to fully open or close. Staff manually shut the gate and removed the floodgate's operator and stem and opened the bypass gate to allow rainwater to pass into the Hamilton ponds until the repair is complete. MCD contracted with D.C.P. Tool & Mfg. in Dayton to fabricate a new threaded piece out of brass. The repair was completed in 2024.

Holes Creek Feature

USACE inspected Holes Creek levee as part of their annual inspection process on November 13, 2024. MCD staff prepared by filling groundhog holes and mowing/trimming the area.

Miamisburg Feature

Replaced a property gate at the access drive to the Case's Landing boat access at the west end of the Linden Avenue Bridge.

Repaired the operator stem on floodgate MSBG28. The stem was bent when hit by a falling tree during a storm. Staff was able to bend it back into a straight position.

Repaired deteriorated concrete on the MSBG28 floodgate chamber.

Middletown Feature

Replaced a property gate at the island in the middle of Central Avenue Bridge. Filled ruts left by illegal off-road vehicle activity with approximately 30 yards of topsoil along the levee. After the soil was added they seeded and mulched the area.

Assisted with removal of a large homeless camp in cooperation with the City of Middletown.

Tipp City Feature

Surveyed property lines and cleared brush, stumps, groundcover, and landscape decorations from Tipp City levee. Staff filled uneven ground with approximately 25 yards of topsoil, seeded, and mulched the area.

Cleared approximately 600 feet of brush along the west end of Miller Ditch in Tipp City. Used the fecon on the mowermax, chainsaws and the new PTO chipper to clear brush. After clearing, herbicide was applied to the stumps to keep the brush from growing back.

Troy Feature

Installed a new property gate on the top of the levee, right bank, downstream of the CSX Railroad Bridge.

Illegal Dumping & Homeless Encampments

With an increasing number of people faced with homelessness, Miami Conservancy District properties are sought out for unauthorized uses. In such situations, Miami Conservancy District works with local social service agencies and law enforcement to assist in addressing the risk and safety issues of homeless encampments or illegal dumping on Miami Conservancy District lands. These are regional and national problems and not unique to Miami Conservancy District.

In 2024, MCD experienced a noticeable increase in illegal dumping, particularly in the southern features starting in the third quarter. Responding to these incidents diverts staff time and resources from core flood protection activities such as levee maintenance and mowing. Additionally, illegal dumping raises operational costs due to increased fuel, labor, and trash disposal fees.

Examples from 2024:

- Hamilton: Approximately eight refrigerators and freezers were removed from waterways, presumably dumped upstream and carried into the river.
- West Carrollton: Old RV sewage tanks were discarded at the low dam parking lot.
- Middletown: An entire RV was abandoned on MCD property, left tied to a pole and dismantled.
- Troy, Dayton, West Carrollton, Franklin, and Middletown: Multiple encampments were cleaned up by MCD staff. The largest, in Middletown, was addressed through a coordinated effort

with the Middletown Police Department. Following a 7-day vacate notice, MPD cleared the site, after which MCD staff removed approximately 15 tons of trash and debris.

- Encampments were removed in Dayton, Miamisburg, West Carrollton, and Middletown. In some cases, individuals refused to leave and had to be formally trespassed. These camps were generally smaller in size.

Illegal dumping and homeless encampments continue to present significant operational and logistical challenges, impacting MCD's ability to focus on flood protection and river stewardship. MCD works with local law enforcement and social service agencies as appropriate.

Training & Flood Fighting Preparedness

Lock 9 Park Floodwall Exercise

On July 10, MCD staff needed to test newly installed automatic floodgates at Piqua's new Lock 9 Park and used the opportunity as a training exercise for flood fighting using muscle walls and the sandbag filling machine. The crew prepared for the exercise by filling sandbags in the Dayton Service Facility and transporting the material to Piqua where they blocked off the new floodgate chambers with muscle walls and sandbags and filled them with water. As the water level rose it simulated a flood event and lifted the gate not allowing the water to spill out into the protected area.

Riverscape Floodwall Exercise

MCD installed the floodwall at Riverscape MetroPark on October 8 in coordination with the City of Dayton Water Utilities Department. To conduct the training exercise, MCD contracted with Pack's Crane Service to lift the pieces of the floodwall into place. The exercise to erect and tear down the wall took approximately seven hours.

CSAW Level 1 Chainsaw Safety, Hunting & Trapping Certification

The new assistant caretakers in Dayton completed their CSAW level 1 chainsaw safety training along with hunting and trapping certifications so they can begin to trap nuisance animals.

High Water Response

New assistant caretakers were trained as backup personnel for responding to high water when the primary caretaker is unavailable or needs relief.

Other Training

- Operation of the new sandbag filling machine.
- Welding operations.
- New staff training with Fleet coordinator on proper tractor and slope mower maintenance.

Property

Miami Conservancy District lands that were acquired for flood protection also serve as land managed for recreation and water stewardship activities. These lands are utilized for recreation, public access, and regional promotion. Miami Conservancy District property administration oversees the land uses, leases, permits, and storage basin rights.

Routine inspections are conducted of properties to identify and address encroachments and to ensure permit or lease conditions comply.

To better track permits after they are processed, a new database and dashboard are under development by staff to facilitate quick internal searches and locate property records in one location. This will replace the existing Access database once completed.

Surveying

Surveys locate and establish property lines; locate existing and proposed structures and utilities; and establish locations, elevations, and topography as needed for dam, levees, and channel maintenance projects. Staff prepare as-built surveys to document completed projects. Survey projects completed in 2024:

- Taylorsville Dam topographic survey of the upstream access road
- Dayton as-built survey of the new bikeway on the left bank of the Great Miami River downstream of the Keowee Street bridge and checked control points from construction
- Huffman Dam survey of concrete wall joint locations
- Hamilton established control points for the bathymetric survey for hydraulic modeling
- Middletown water surface elevation survey for bathymetric survey near the State Route 4 bridge

Miami Conservancy District staff locates and establishes property lines to provide information regarding Land Use Permits, property encroachments, and land transactions. In 2024, staff surveyed the following property lines:

- Dayton property line along Mad River near Keowee Street
- Hamilton property boundary for 2 lots near North B Street
- Troy property lines near Morgan Ditch near County Road 25A

Permit Process Improvement Team

A team of Miami Conservancy District staff worked to review, revise, improve and update the permitting processes. Recommendations included:

- Make information easy to find, understandable and accessible.
- Update and create an improved system for permit management.
- Create an on-line portal for permit applications and information.
- Ensure permit forms agree with Miami Conservancy District rules and regulations, and Property Department Deeds.
- Streamline approvals (possibly reduce the number of people reviewing each permit).
- Create and identify ways to educate partners and jurisdictions (including landowners, realtors,

- zoning professionals, etc.) about Miami Conservancy District restrictions and the need for a permit.
- Create a strategy around enforcement and penalties.
- Make staff aware of Miami Conservancy District roles and responsibilities related to permit compliance/deed compliance.

A Request for Proposal (RFP) for permit processing was sent to multiple software companies. MCD received six proposals. The Process Improvement Team used a scoring system to select a company based on certain criteria. Citizenserve was selected based on receiving the highest score from the group. The software will streamline the Property Department process because most functions will be completed through the software thus limiting staff time. The project will be implemented in early 2025.

Land Use Permits

Land Use Permits are issued allowing for specified use of Miami Conservancy District land for public and private purposes. Staff review each permit request to ensure that the proposed use does not adversely affect the operation or maintenance of the flood protection system or Miami Conservancy District property. Each permit specifies conditions for installation, construction, maintenance, removal, and termination of the permitted use.

General Land Use Permits

Many of the uses covered by General Land Use Permits are for utilities, including water and sewer lines, communication lines, and gas lines. In addition, parks and recreation trails that coexist with the flood protection levees and channels are permitted on a significant amount of land that Miami Conservancy District originally acquired for the flood protection system.

• At the close of 2024, there were 650 active General Land Use Permits.

Channel Excavation Permits

Channel Excavation Permits provide written authorization to access and use Miami Conservancy District property for a defined period for the purpose of excavating gravel. Periodic gravel removal is necessary to maintain the channel capacity. In 2024, Miami Conservancy District issued no Channel Excavation Permit.

Farm Permits

Farm Permits provide written authorization to access and use Miami Conservancy District property for a defined period for planting and harvesting crops, harvesting grasses, and raising livestock. Farm Permits issued in 2024 include:

- Five crop permits, four harvesting grass permits, and one livestock permit.
- One farming and sludge application permit remained in effect.

The Farm Permits authorized the use of approximately 845 acres of land for agricultural purposes. These permits reduce Miami Conservancy District maintenance responsibility at sites upstream and downstream of Lockington Dam, at a site upstream of Taylorsville Dam, and along certain portions of the Great Miami River at Troy, Dayton, Miamisburg, Franklin, and Middletown. Miami Conservancy District included language in the farm permits for the installation of conservation measures to enhance water quality, align land use, and demonstrate best management practices.

Temporary Permits

Temporary Permits provide written authorization to access and use Miami Conservancy District property for a defined period, typically 14 days or less. Temporary Permits issued in 2024 include:

- Six Temporary Permits for soil borings, clearing overgrowth of brush and trees, drift removal from bridge piers and use of the bikeway for mural and apartment painting.
- Nine Temporary Permits for scheduled events such as festivals, races, disc golf tournament and trail activities.
- In addition to the Temporary Permits that MCD issued for scheduled events, Five Rivers MetroParks issued 56 Special Event Permits in 2024 for a variety of scheduled activities on MCD bikeways.

Construction Permits

Construction Permits provide written authorization to contractors to access and use Miami Conservancy District property to work on non-Miami Conservancy District projects. Each Construction Permit has language specific to the project. A list of issued construction permits for 2024 can be found in Appendix H, Table 1.

Leases for Park Usage or Production Wells for Water

For decades, Miami Conservancy District has worked with local parks and water districts to allow Miami Conservancy District lands to be used for activities complementary to the mission and vision, and/or for the betterment of the region. From floodplain lands to lands above the five dams, Miami Conservancy District developed a unique agreement to give a partner or tenant the right to occupy property for a specific term and for specific purposes.

Throughout 2024, Miami Conservancy District continued to monitor land use authorized within 14 long-term leases (see Table 2 in Appendix H).

The Board of Directors authorized the General Manager to enter into a lease agreement with the City of West Carrollton for their River District and Whitewater Park. The lease was executed on December 1, 2024, through November 30, 2039, with optional renewal. There are currently 15 long-term active leases.

Storage Basins

During 2024, Miami Conservancy District implemented new storage basin rules. Regular monitoring of land use activities in the storage basins ensures that activities comply with the language in the individual deeds and with Miami Conservancy District Land Use Policy.

Reaffirming Flood Storage Rights in Basins

The Miami Conservancy District (MCD) holds legal rights on approximately 35,000 acres of land within the five storage basins located in Miami, Montgomery, Greene, Clark, Preble, and Shelby Counties. These rights were acquired beginning in 1918 through land purchases. While deed specifics may vary, they generally include the right to:

- Retain and back up floodwaters on the property;
- Remove structures located below the spillway elevation of each dam;
- Enter the property to remove drift and debris or conduct lawful inspections.

To preserve flood storage capacity, as required by the MCD Official Plan, MCD regulates certain activities on these lands. These rights are critical to protecting lives and property during flood events.

Historically, MCD reaffirms these rights approximately every 30 years by filing affidavits—detailing legal descriptions of each parcel—with the appropriate County Recorder's Office. This ensures the rights are discoverable during title examinations and apply to newly created parcels through land splits or replats. Most recently, rights for all basins were reaffirmed in the 1990s, except for Germantown Basin (Montgomery County) and Lockington Basin (Shelby County), which were reaffirmed in 2016.

In 2024, MCD staff prepared reaffirmation affidavits for most basins and submitted them for review and certification by the Board Secretary, as required by the Ohio Revised Code (ORC). This process ensures continued public awareness of MCD's rights and encourages property owners or potential buyers to consult MCD before making changes that could impact floodwater storage.

Reaffirmation work for the remaining parcels—Englewood Basin in Miami County and Germantown Basin in Preble County—will be completed in 2025.

Dam and County	Completion Year	# Affidavits Filed
Englewood, Montgomery County	2024	126 filed
Huffman, Montgomery County	2024	61 filed
Taylorsville, Montgomery County	2024	24 filed
Germantown, Montgomery County	2016	152 filed
Englewood, Miami County	Approximately 50% of affidavits filed in 2024. Remaining 200 will be filed in 2025	197 filed in 2024
Taylorsville, Miami County	Affidavits filed in 2024	342 filed
Germantown, Preble County	Legal descriptions acquired. 62 affidavits will be filed in 2025	
Huffman, Clark County	2024	82 filed
Huffman, Greene County	2024	436 filed
Lockington, Shelby County	2016	385 filed

Note: Some affidavits included multiple county parcel numbers for the same owner.

GeoPort Public Access Mapping Tool for MCD Lands and Restrictions

GeoPort is an interactive web mapping application developed by the Miami Conservancy District (MCD) to provide public access to key spatial data on lands and land use restrictions within MCD's jurisdiction. The platform enables property owners, developers, local officials, and the general public to easily view and search geospatial information related to the 35,650 acres of flood storage basin land managed by MCD.

GeoPort supports MCD's goals of transparency, accessibility, and responsible land stewardship by offering a user-friendly interface that delivers detailed information about:

- Parcel boundaries and ownership within MCD-managed basins
- Recorded flood storage rights
- Construction and land use restrictions
- Permit requirements and thresholds (e.g., de minimis fill volume)
- Location of MCD infrastructure, such as dams and levees

By centralizing this information into a publicly accessible platform, GeoPort enhances awareness of MCD's role in regional flood protection and facilitates compliance with floodplain regulations. Users can also access related resources, including the Storage Basin Rules Fact Sheet and online permit applications, directly through the platform.

GeoPort is a valuable tool for proactive engagement, ensuring that landowners and stakeholders have the knowledge and tools needed to help maintain the effectiveness of MCD's flood protection system.

Storage Basin Permits

The deeds for storage basin properties and Miami Conservancy District's Land Use Policy limit structures built in the basins. Miami Conservancy District staff may authorize non-habitable structures, structure modifications, and other developments that comply with the deed and the Land Use Policy. This authorization is documented in a Storage Basin General and Individual Permits (previously called Retarding Basin Permits). During 2024, Miami Conservancy District issued two new and replaced five expiring permits.

- Permit 3980 to Mitch Bergman for a picnic shelter located in Lockington Basin, east of Loramie-Washington Road, south of Hardin-Station.
- Jennifer Budding applied for a permit to construct a house on Frederick-Garland Road below the spillway elevation of 876 of the Englewood Dam. Her request was denied based on a deed restriction that prohibits building below 876. Ms. Budding went before the MCD Board of Directors to plead her case and was granted a variance to the Land Use Policy to construct a house below the spillway but above the building line elevation of 871. The authorization was contingent on issuing a permit.

Storage Compensation Agreements and Easements

Owners of properties in storage basins are required to provide new storage capacity to compensate for fill or other encroachments that would reduce storage capacity of the basins. To resolve storage capacity encroachment, the property owner must enter into a Compensation Agreement with Miami Conservancy District and fulfill the terms of the agreement.

In 2024, Miami Conservancy District issued no Storage Compensation Agreements.

Real Estate Land Transactions

No land transactions were completed in 2024.

Conservation Easements

A conservation easement is a voluntary legal agreement between a landowner and a land trust or government agency that permanently limits land use to protect its conservation values.

For conservation, Miami Conservancy District protects over 1,800 acres of land using fee simple acquisition, conservation easements, or deed restrictions.

In 2024, Miami Conservancy District staff visited six conservation easement sites to visually examine, photograph, document, and assess property conditions to ensure there are no violations.

Community Projects on MCD Lands

MCD partners with others on projects led by communities or organizations that are built on MCD controlled land and often impact flood protection or river corridor infrastructure. Staff review projects through the permitting process prior to approval. MCD may contribute funding or additional time for planning, design, or construction for certain projects that assist with MCD's missions. Below is a list of some of the community projects that are actively under development.

Dayton | Colonel Deeds Park

The Greater Dayton School worked with a landscape architect to develop concept plans for Colonel Deeds Park and MCD participated in the planning process. Ryan Ernst of the Greater Dayton School presented information to the Board of Directors including renderings of the design and the budget. He stated that the plan will go over the $1M budgeted for the park improvements and will likely finish later than anticipated, mostly due to necessary site remediation.

Dayton | Wright Patt Compatibility Use Plan

Commissioned by the Wright Patt Council of Governments (WPCOG), the plan was approved November 19 and is available at https://www.wright-pattcog.com/index.php/cup-project-home

Sections 6 (6-29-6-33) highlight water quality and water quantity priorities of the land use around WPAFB. The Huffman Dam is highlighted in the report as a water quantity priority for flood control and protection, highlighting the age and condition. This notation may assist in the allocation of future federal assistance for the rehabilitation or modification of Huffman Dam. MCD is also working with WPAFB and other partners on a potential FY 2026 Readiness and Environmental Protection Integration (REPI) program opportunity.

The report also highlights water quality issues associated with PFAS. MCD is collaborating with a technical advisory group including the City of Dayton, Ohio EPA, and WPAFB to monitor PFAS concerns.

Dayton | 24" Water Main Crossing GMR near Kettering Fields

The City of Dayton installed a new 24" water main in 2024 under the Great Miami River downstream of the Island Park Low Dam near Kettering Fields. MCD staff reviewed the plans thoroughly, issued the appropriate permits, and performed construction inspections.

The pipe was installed at least 20 feet below the levees and river using the horizontal directional drilling method. All work including restoration was completed in 2024.

Dayton | Findlay Street Outfall Repair

MCD staff alerted the City of Dayton about severe erosion at a large storm sewer outfall downstream of the Findlay Street bridge on the left bank of the Mad River. This resulted in the City creating design plans for expedited repairs. MCD reviewed the plans and issued the appropriate permits. Construction was completed in 2024.

The asphalt detour route upstream of Findlay Street created as part of the project was left in place at MCD's request for staff to use as a maintenance road. The kayak access directly downstream of the outfall was relocated and a new gravel access path installed. The access path is part of Land Use Permit 3490 issued to FRMP.

Dayton | Great Miami River Trail West Extension, Phase II

The City of Dayton completed construction on a new Great Miami River Recreational Trail West Extension, Phase II along the right bank from the University of Dayton softball complex to West River Road. MCD staff reviewed the plans, issued permits, and inspected the project.

Franklin | Montgomery County Retaining Wall Project

In 2020, a concrete retaining wall partially collapsed onto the Great Miami River Recreational Trail along the left bank of the Great Miami River at the Montgomery County and Warren County boundary. The wall is not owned by Miami Conservancy District. Montgomery County, working with the City of Franklin, developed a project to remove the wall and stabilize the slope. MCD reviewed the plans and issued the proper permits. The project will close a section of the trail temporarily. Construction is expected in 2025.

Hamilton | Black Clawson Floodwall Mural

After the MCD Board of Director's approval of the preferred mural design for the Black Clawson Floodwall, the City of Hamilton, Streetscape, and the Fitton Center hired Ellis Maintenance and Blasting to remove the existing paint off the wall in late April and early May. An inspection was performed and determined the sand blasting process was effective and safe without damage to the floodwall. After the existing paint was removed, the artists painted the mural during June. The community celebrated the completion on July 2, 2024.

Hamilton Floodwall

Hamilton | Spooky Nook Construction Permit and Floodwall

MCD has worked with Spooky Nook (the former Champion Mill paper plant) for several years on permitting work on MCD property that directly impacts MCD's flood protection system. Spooky Nook's new Land Use Permit was fully executed in 2024. Staff found that most of the first-floor doors and windowsills of the

building are below the adjacent levee top elevations, but higher than MCD's Official Plan Flood (OPF) water surface elevations. This aligns with MCD's Official Plan. However, there are sections north and south of the building that are gaps in the required levee system. Staff will continue to work with the City of Hamilton and Spooky Nook to get the gaps filled.

Huffman | Wright Patterson Air Force Base Projects

Wright Patterson Air Force Base identified several projects in the Huffman Storage Basin in the development process in 2024. To allow the development, most of the projects would require a complicated permit review process to determine how fill is offset in the basin. One important project that was permitted for construction by MCD is a new water treatment plant designed to remove PFAS and other forever chemicals from groundwater.

Miamisburg | Riverfront Park

The construction of the new Riverfront Park was completed in 2024. MCD staff assisted with design and construction ensuring there are no impacts to the levee system or Great Miami River Recreational Trail that both run through the park. The construction included adding large amounts of earthen fill on the land side of MCD's levee to create a gradual transition to the top of the levee. Park amenities include an amphitheater, splash pad, playground, shelters, trails, and seating. MCD reviewed plans, issued permits, and performed inspections. Staff attended a ribbon-cutting for the new park in May.

Miamisburg Riverfront Park

Monroe | GMRRT & Dick's Creek Opportunity

To assist the City of Monroe, the Miami Conservancy District applied for an ODNR grant to request H2Ohio grant funds to stabilize severe bank erosion on MCD property along Dicks Creek. Previously, the City was awarded funds to construct a new 2.3 mile bike trail project previously funded by ODOT and ODNR to

connect Bicentennial Commons Park near Monroe's northern boundary with the City of Middletown. The eroded area made construction of the trail impossible. The new trail would have filled a section of one of the largest remaining gaps on the Great Miami River Recreational Trail. Unfortunately, the H2Ohio funding request was not successful, and the project was on hold as of the end of 2024.

Moraine/Montgomery County | Well Abandonment and Water Line Repairs

Montgomery County Environmental Services began construction work to abandon their Miami Shores groundwater well field in 2024. The wells were located downstream of the Main Street Bridge on the right bank near the east end of the Moraine Airpark. Work completed in 2024 included removing the pumps and associated electrical infrastructure, abandoning the wells, and restoring the site to meet MCD standards. MCD reviewed the plans, issued permits, and inspected the work. A future project is expected to abandon/remove the water lines under the levee associated with the well field.

Piqua | Lock 9 Park

Per a Memorandum of Understanding (MCD No. 2020-049A) between Miami Conservancy District and the City of Piqua, the Piqua levee was altered as part of the Lock 9 Park improvement project and the City's riverfront master plan. The project improved protection including replacement of concrete revetment with turf reinforcement matting, installing a small concrete floodwall, and installing two passive floodgate barriers. The new barriers allow pedestrians easy access to the park through the floodwall during lower river levels, and automatically close when floodwater reaches the barrier.

The City added an amphitheater, restrooms, stepped seating on the levee, a water feature, and many other amenities. Construction was completed in 2024.

In addition to the standard permit review process, MCD provided funds to the City to pay for improvements to the levee as part of the project. New turf reinforcement replaced the concrete revetment. The passive flood gates were tested by MCD staff and performed well.

MCD still needs to acquire an easement from the City for city-owned parcels that contain the realigned Official Plan Flood line of protection.

Piqua Lock 9 Park

Taylorsville: | Tri-Cities Equalization Tanks

Tri-Cities Wastewater Authority hired Peterson Construction Co. to construct two equalization tanks, and associated structures to improve their wastewater treatment system. MCD agreed to allow Tri-Cities to place these structures on the downstream side of Taylorsville Dam near the maintenance facility. MCD issued a construction permit for tree removals to be completed before the equalization tank installations. MCD field staff reviewed and approved the tree removal plan. Tri-Cities requested many changes to the MCD Land Use Permit. The Land Use Permit and Construction Permit were approved in 2024. Construction began in July and is scheduled to be completed in early 2026.

Tipp City | 349 N. 2nd Street Property Encroachment

MCD staff noticed a small retaining wall under construction adjacent to MCD's levee on MCD-controlled land and a small patio with a retaining wall under construction on MCD's levee. Staff communicated with the homeowner, their attorney, and the City of Tipp City to stop the construction and protect the levee. The construction was on land with an easement granted from Tipp City to MCD. It was determined that Tipp City was responsible for addressing the activities of the property owner within the easement. The City agreed to work with the property owner to remove the patio and the retaining wall unless MCD granted a permit to remain.

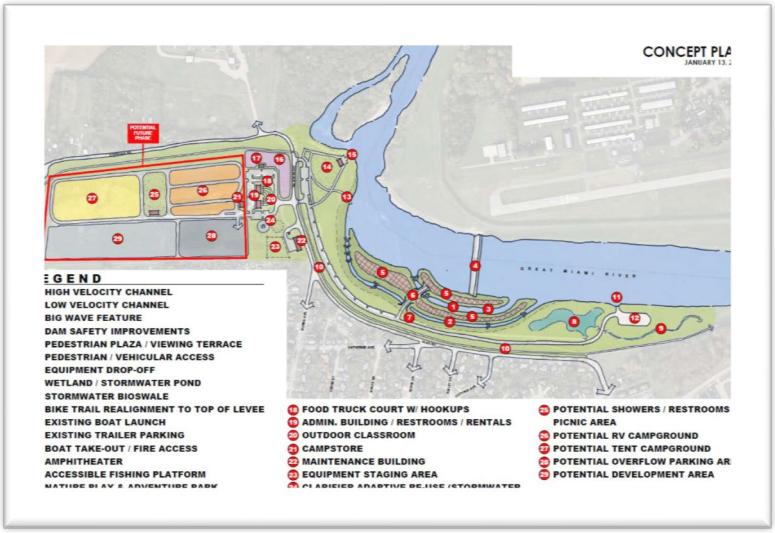
West Carrollton/Montgomery County | SMART Project

Montgomery County Environmental Services began construction on improvements to their sanitary pump station, pipes, and wastewater treatment plant in Moraine and West Carrollton in 2024. Some of the pipe work impacted MCD property and the MCD-managed bike trail, resulting in a 100 foot long section of the trail being relocated around a new manhole. MCD reviewed the plans, issued permits, attended the groundbreaking ceremony, and performed inspections. Construction that will impact MCD property is complete.

West Carrollton | River District and Whitewater Park

MCD has worked with the City of West Carrollton since 2022 on the new West Carrollton's River District and Whitewater Park. This project supports MCD's mission by enhancing safe public access to the river and expanding recreational opportunities. MCD will continue to ensure that all aspects of the project are compatible with the flood protection infrastructure.

A recent concept plan is shown to the right. In 2024, a lease agreement was finalized allowing portions of the river district and the park to be located on MCD property. Phase 1 of the work is expected to include safety improvements to the South Montgomery Low Dam. The City obtained grant funding for the project and is actively pursuing additional funds. This is expected to be a multi-year project.



Plan for new River District in West Carrollton

Hydrologic Data

The Miami Conservancy District manages a Hydrologic Monitoring Program to continually evaluate the flood protection system and provide recorded hydrologic data for public use. These networks include a daily Observer Precipitation network, a Stream-Gaging network, and a Real-Time Data network. Additional data and statistics are also recorded during each high-water event in which the dams store water.

To track water quality and quantity conditions, Miami Conservancy District operates automated and observer precipitation stations as well as extensive stream gaging and observation well networks to record precipitation, stream flow, and water levels.

Stream Gage and Stream Flow Data

To conduct high water forecasting, remotely observe river conditions, and schedule activities in accordance with the Operations, Maintenance, and Inspection (OMI) manuals and Emergency Action Plans (EAP), Miami Conservancy District maintains a network of 24 stream gages by agreement with USGS.

The gages are equipped with Geostationary Operational Environmental Satellite (GOES) telemetry. Each stream gage transmits data to the USGS National Water Information System (NWIS) and is stored in a permanent archive. The network includes continuous recording (automated) and non-recording (manual) stream gages. The GOES system allows the Miami Conservancy District, USGS, and National Weather Service (NWS) to receive real-time stream stage, discharge, precipitation, water temperature, and air temperature data.

Miami Conservancy District also operates and maintains five automated stream gages immediately downstream of Germantown, Englewood, Lockington, Taylorsville, and Huffman dams not connected to the GOES system.

Staff also manually read water levels at the dams and local protection features using staff gages and wire weight gages. These manual readings provide backup data for monitoring the streams and help identify problems with automated gages or the GOES system.

Staff taking a stream flow measurement.

To measure stream flow (discharge), Miami Conservancy District staff use either an Acoustic Doppler Velocimeter (ADV) or an Acoustic Doppler Current Profiler (ADCP). The ADV provides measurements of water velocity at various points in the stream while the ADCP provides measurements of water velocity throughout the entire stream depth. As part of the cooperative agreement with Miami Conservancy District, USGS:

- Processes and analyzes the data from the automated stream gages equipped with GOES telemetry and the stream flow measurements taken by Miami Conservancy District.

- Establishes rating curves and tables defining the stage/discharge relationship for each stream gage.
- Publishes the stream flow data online and in state and federal reports.

The 24 stream gage sites are visited on a bimonthly basis to measure the flow in the river or stream. While staff are at the site, they also check the electronic readings against manual readings to make sure the electronic equipment at the gage is properly calibrated and in good working order. Non-routine flow measurements are also collected during larger high-water events to develop the high flow end of rating curves for the stream gages.

Stream flow trends for 2024

The year 2024 saw seven high flow events on the Great Miami River during the winter and early spring. The highest flow event occurred in mid-April when flows on the Great Miami River peaked at 18,800 c.f.s. Flows on the Great Miam River trended below normal throughout the summer and fall of 2024 as drought conditions set in. Groundwater levels in the buried valley aquifer were below normal throughout the summer and fall. Lower than normal groundwater levels resulted in lower hydraulic head differences between the river and aquifer and less flow from the aquifer into the river. The result was a prolonged period of lower-than-normal river flows.

Impacts From Hurricane Helene

The remains of Hurricane Helene dropped nearly three inches of precipitation across the Great Miami River Watershed at the end of September resulting in a significant runoff event. However, the runoff from Helene did not result in any storage events or exceedances of first action river levels at any of the MCD dams or flood protection features. Flows in the Great Miami River at Dayton quickly receded as October brought an average of only 0.30 inches of rain to the watershed.

TRACKING PRECIPITATION

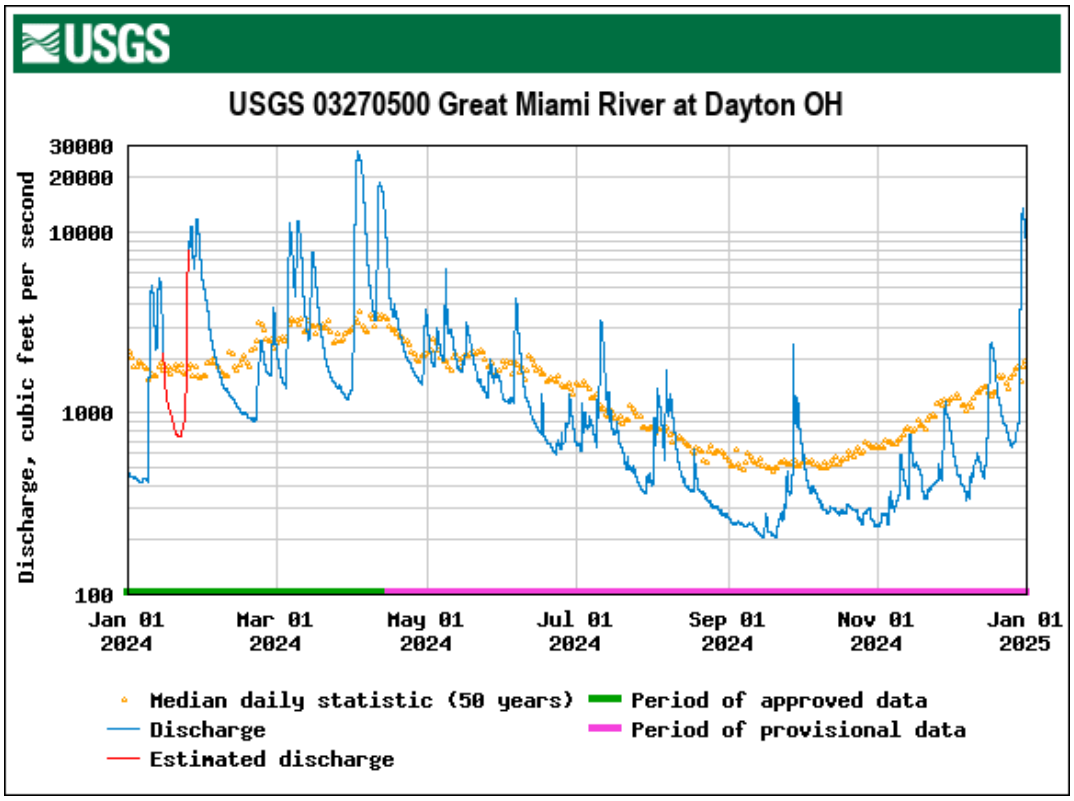
To track precipitation amounts, MCD maintains a network of 42 stations staffed by citizen observers who record daily precipitation.

The observers read the amounts collected at standard National Weather Service (NWS) rain and snow gages and send the readings to MCD via mail or electronic submittal.

MCD uses the data to calculate annual precipitation for the watershed by averaging annual precipitation totals measured at each of the stations.

MCD publishes the information from these precipitation stations in a monthly precipitation report. Twenty-eight of MCD's precipitation stations have more than 75 years of records. See Appendix G, Table 7. The Urbana station has the longest period of record—142 years. Long records are required for resource planning and understanding environmental trends.

Precipitation observers at five of the stations in the network also record air temperature. Data are published in "Climatological Data, Ohio," prepared by NWS. The five stations are: Bellefontaine, Greenville, Sidney, Springfield Water Treatment Plant, and Eaton.



Hydrology Team Activities

Routine Flow Measurements

Completed routine bi-monthly flow measurements at all 24 stream gage sites in February, April, June, August, October, and December.

High flow Measurements

Staff measured flows during the March 3-8 high water event at locations near Newport, Lockington, Troy, Germantown Dam, Englewood Dam, Huffman Dam, and Middletown gages. Staff made five additional flow measurements during the March 24–28 high water event at Urbana, Wolf Creek, Holes Creek, Camden, and Hamilton gages. Additional high flow measurements were made at Bradford, Englewood Dam, Franklin, Miamisburg, Middletown, Lockington Dam, Piqua, Taylorsville Dam, and Troy during the April 11-15 high water event.

New stream gage installation on Mad River near Springfield

Working with USGS, staff installed a new stream gage on the Mad River near Springfield. The previous gage location did not have safe access due to a bridge not being maintained by the private landowner. A decision was made to relocate the gage to a bridge crossing downstream of the current location. The new Springfield gage began transmitting water stage data on January 16, 2024. The old and new Springfield gages are running concurrently while MCD and USGS staff work to establish a new rating.

New Stream Gage on Great Miami River near Troy

The existing Troy gage was phased out and replaced with a new gage located downstream of the former gage on the right bank of the Great Miami River near the SR 41 bridge crossing. The rating for the new gage is now established. MCD engineering staff conducted HEC-RAS modeling to complete the rating for high river flows and estimate river stage at the new gage for previous high flow events. NWS updated the flood forecast webpage for the Troy gage to reflect the change in location. MCD and NWS have coordinated with the Miami County Emergency Management Agency and city officials to ensure everyone is aware of the change in gage location. The phase out of the existing Troy gage occurred during the week of February 5.

Stream gage maintenance

Maintenance was performed on stream gage sites configured with stilling wells. Stilling wells at the Germantown Dam (downstream), Englewood Dam (downstream), Lockington Dam (downstream), Huffman Dam (downstream), Sidney, Dayton, Wolf Creek, Miamisburg, and Hamilton gages were all flushed out and returned to service.

Observation wells

Depth to groundwater was measured at all 92 observation wells in January and February. Logged groundwater level data from wells with recorders was also downloaded.

Observation well redevelopment

Many of the MCD observation wells have been installed in regional aquifers for decades. Over time, well screens can become fouled by microbial activity and buildup of mineral deposits, causing the well to lose connectivity with the surrounding aquifer. This deterioration in specific capacity can be remedied by redeveloping the well. MCD staff evaluated specific capacities of all MCD-owned observation wells. Wells constructed with 2-inch PVC casings have been redeveloped in-house.

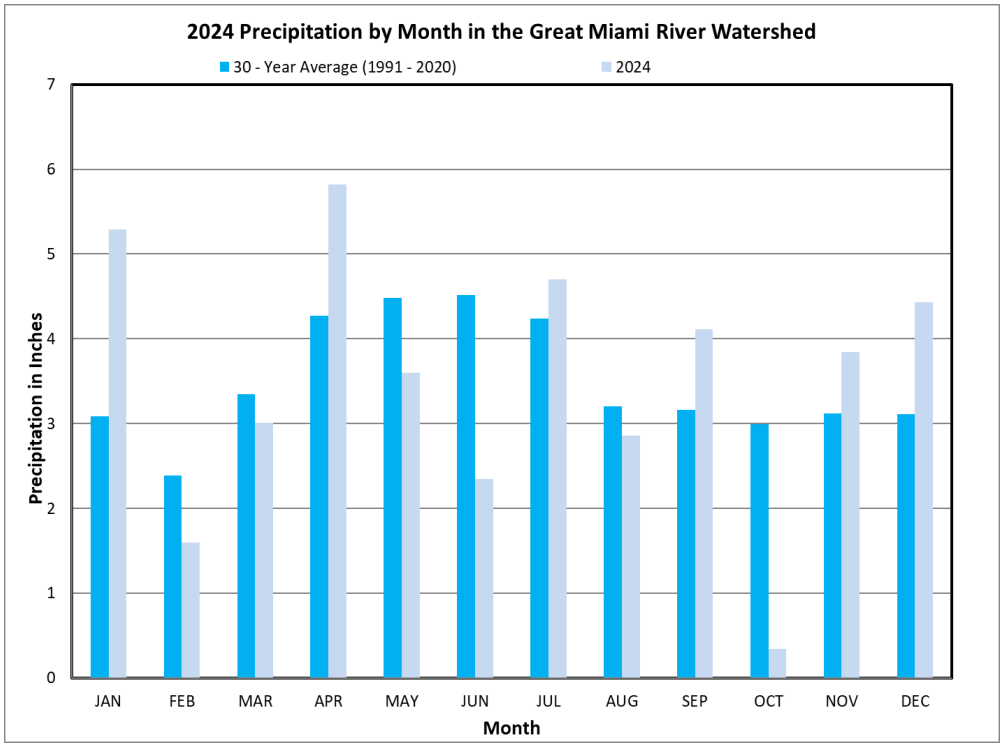
Completed well redevelopment work on eight observation wells in the network. Observation wells redeveloped included CLA10018, MON00003, MON00023, MIA00043, LOG10000, CHA10010, and BUT10013. Staff are working on a plan to troubleshoot options where wells lack screens. Observation well MON00023 was removed from service after redevelopment efforts showed the well was no longer in good communication with the aquifer.

Observation well capacity testing

Specific capacity testing was completed on observation wells BUT00013, BUT10013, BUT00179, CHA10010, CLA10017, CLA10018, MIA00043, MON00003 (NRSF3), MON00023 (nrsf4).

Precipitation

- The 2024 mean annual total precipitation for the Great Miami River Watershed was 41.91 inches. That is 0.01 inches below the 30-year average.
- Miami Conservancy District's observer at Eaton recorded the most precipitation – 53.95 inches – for 2024, while Lockington Dam recorded the lowest amount – 36.27 inches.
- The 2024 monthly precipitation reports were compiled into MCD Report No. 2024-49.
- Monthly precipitation was above normal in January, April, July, September, November, and December. The months of February, March, May, June, August, and October saw below normal precipitation.



Runoff

The 2024 mean annual total runoff for the Great Miami River Watershed was 12.39 inches. That is 3.82 inches below the 30-year average. Monthly runoff was above normal in April and below normal for every other month of 2024.

High Water and Storage Events

A high-water event is defined by Miami Conservancy District as a time when one or more of the following occurs:

- Any one of the flood protection dams goes into storage, which is defined as when the pool elevation reaches a minimum stage at which the conduits begin to slow the flow of water. See Appendix G, Table 6. Storage events at each of the dams are recorded separately. If all five dams are in storage at the same time, it is recorded as five separate events.
- The stream gage at any one local flood protection feature reaches an action stage.

The high-water event begins with any one or combination of storage events at the dams, or any action stage at the local flood protection features. An action stage is a specific river stage at which a defined activity must be performed, such as a floodgate closure or well reading. The high-water event ends when the dams are no longer storing water, and all the local flood protection features have receded below the defined action stages. During a single high-water event, any dam could have multiple storage events, and the river at any feature could rise into and recede out of action stages several times.

Miami Conservancy District measures the magnitude of a high-water event by totaling the peak storage volume recorded at the five dams during the event.

2024 High Water Event Summary

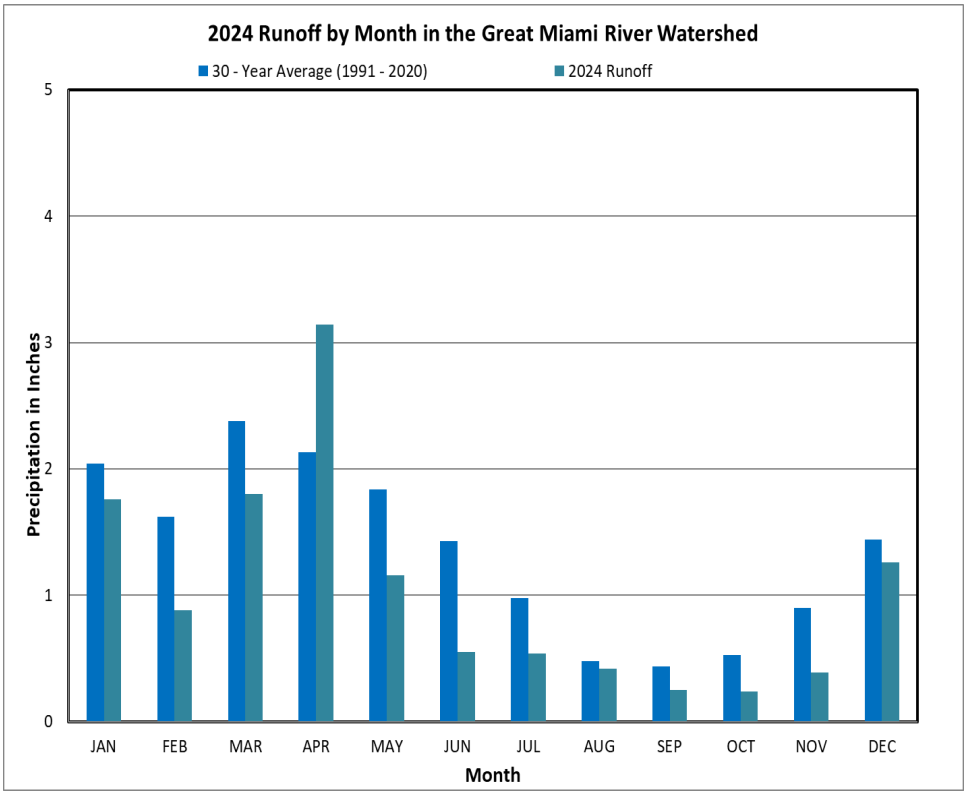
The table below summarizes high-water events during 2024. A total of 9 high water events and 21 storage events took place during the year. The total peak water storage volume of about 20.6 billion gallons. There was a total of 41.91 inches of precipitation and 12.39 inches of runoff. The largest rainfall event – September 30 with 0.75 - 2.75 inches

G=Germantown, E = Englewood, L= Lockington, T= Taylorsville, H=Huffman

Dates	Dams in Storage	Local Protection Features that Reached Action Stage
Jan 26	None	HAM
Jan 28-30	G, E	HAM
Mar 6-8	E	None
Mar 9-11	G, E	HAM
Mar 15-16	E	None
Apr 2-7	G, E, L, T, H	PIQ, TRO, DAY, WC, MIA, FRA, MID, HAM
Apr 11-15	G, E, L, T	DAY, WC, FRA, MID, HAM
Dec 16-17	G	None
Dec 29 - Jan 3	G, E, L, T	DAY, MID, HAM

April 2-7 High Water Event

The largest high-water event of the year took place April 2-7 and resulted in a peak water storage of 9.1 billion gallons of water. This event ranked 74 on the list of largest storage events for the flood protection system.

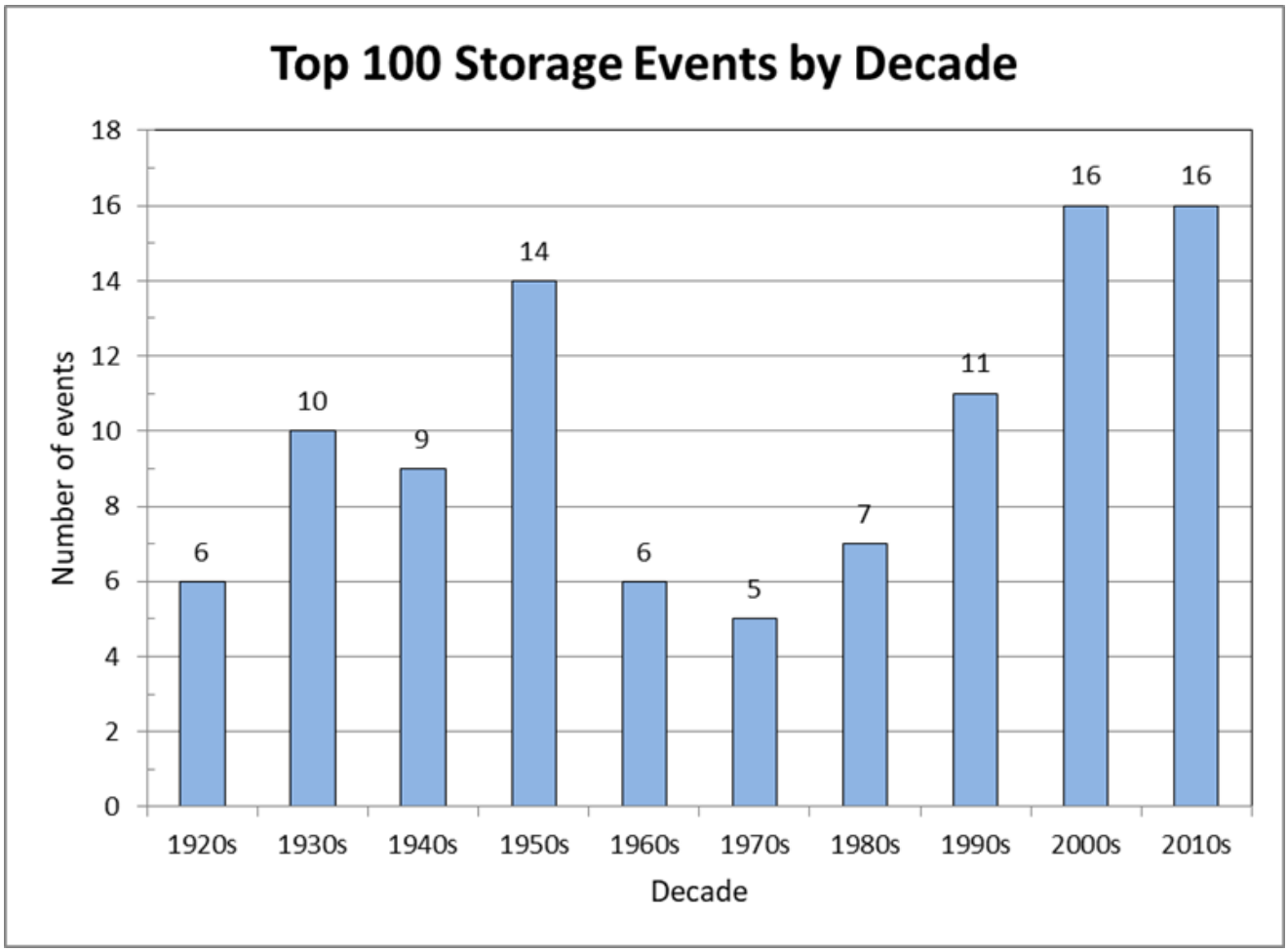


Dayton during April 2024 high water event

Removing drift during April 2024 high water event

The chart below shows how the top 100 largest high water events are distributed by decade since the completion of the Miami Conservancy District flood protection system in 1922.

The number of storage events has been trending upward since the 1990s.



Relief Well Flow

Pool stages behind Englewood, Lockington, and Taylorsville dams reached a sufficient level during the April 2-7 high water event where it is likely that some of the relief wells at each dam flowed. Relief wells also likely flowed at Englewood and Taylorsville dams during the April 11-15 high water event.

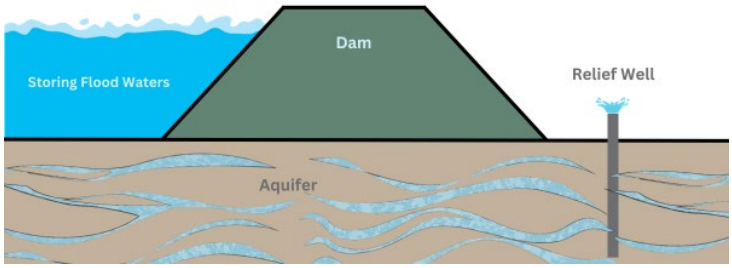


Illustration of placement of a relief well.

RELIEF WELLS

Relief wells are installed to control underseepage and enhance stability at all MCD dams.

Groundwater in a dam's foundation becomes pressurized by the weight of the water stored upstream of the dam. Without relief wells, the groundwater in the foundation can exert uplift forces at the downstream toe of the dam, resulting in potential instability.

The relief wells reduce the uplift forces by providing a safe and controlled release of the pressurized water. As the groundwater level rises above the relief well outlets, artesian water-flow relieves the pressure and dissipates the uplift forces. Relief wells may continue to flow as the pool level recedes and/or after the dam has stopped storing water.

The number of relief wells at each MCD dam are:

- Germantown Dam – 5
- Englewood Dam – 75
- Lockington Dam – 11
- Taylorsville Dam – 66
- Huffman Dam – 48

Additional Hydrologic Data in Appendix G:

- Table 5 - Summary of 2024 High Water Events
- Table 6 – Flooding Basin Stages Where Storage Begins
- Table 7 – Precipitation Station Records in the Great Miami River Watershed - 2024
- Table 8 – Storage Basin Operation (Storage Events) Miami Conservancy District during 2024
- Table 9 – Largest Storage Events by Volume at Miami Conservancy District Dams since 1922
- Table 10 – Storage Basins – Ten highest for 1922-2024
- Table 11—Storage Basins—Ten Highest Stages for 1922–2024
- Table 12 —Flooding Basin Data and Operational Experience
- Table 13—Channel Data for Local Protection Since 1922
- Table 14—Maximum Stage and Discharge during 2024 for the Great Miami River
- Chart 1—Great Miami River Watershed Monthly Precipitation Statistics, 1913–2024
- Chart 2—Change in the 30-Year Average Annual Precipitation for the Great Miami River Watershed, 1945–2024
- Chart 3—Average Annual Precipitation for the Great Miami River Watershed, 1915–2024
- Chart 4—Annual Precipitation for the Dayton Observer Station, 1915–2024
- Chart 5—Annual Peak Discharges of the Great Miami River at Dayton, Ohio

Water Stewardship

Aquifer Preservation Subdistrict

Aquifer Preservation Subdistrict

Under the Aquifer Preservation Subdistrict, the Miami Conservancy District works to help protect and improve water for people living and working within the Great Miami River Watershed. Using data collected by our staff and partners, we work collaboratively with elected officials and community leaders, providing them with valued research and insight. This water stewardship helps support the overall health and growth of our region. This work is funded by nine counties.

According to the Official Plan, the purpose is to "…develop and maintain an ongoing, watershed-wide program in support of comprehensive protection, management, and understanding of the region's water resources; to implement improvements and actions necessary in order to accomplish said purpose; and to work with existing federal, state, local, and regional agencies toward that purpose."

The income, assets, costs, and obligations of the Aquifer Preservation Subdistrict are kept legally separate from those of the main district's flood protection system and other subdistricts.

Strategic Planning Review & Update

In addition to the Official Plan, a strategic plan guides the activities of the Aquifer Preservation Subdistrict. Major categories include:

- Assess water conditions
- Analyze and publish data
- Education and outreach
- Develop and support regional partners
- Implement projects to improve water
- Watershed and land use planning
- Advocacy

About the Great Miami River Watershed

- Includes all of the land that drains to the Great Miami River
- 1.5 trillion gallons of good quality water are stored in the watershed's buried valley aquifer
- 68 percent of the land in the watershed is used for agriculture
- 2.3 million people get their water from the buried valley aquifer
- 6,600 miles of rivers and streams flow within the watershed
- 75 percent of stream miles meet state standards

Monitoring, Analysis, & Studies

Water Monitoring Strategy

A water monitoring strategy guides the collection of both quality and quantity data and reporting. Quality Assurance Project Plans (QAPPs) are necessary for precipitation, groundwater levels, nutrient monitoring, and groundwater quality monitoring.

2024 Groundwater Study

The hydrology team collected from the monitoring wells during the spring and fall of 2024. These were the same wells sampled each year since 2017. The team sampled 13 monitor wells for field parameters, herbicides, major ions, metals, nutrients, pesticides, semi-volatility organic compounds (SVOCs), and volatile organic compounds (VOCs).

The analytical results from the sampling event are consistent with previous rounds of sampling. The results show anthropogenic impacts associated with elevated levels of salinity and nitrates in shallow zones of the buried valley aquifer system. These results are consistent with other regional groundwater monitoring programs and previous studies on groundwater quality. Herbicides and pesticides were not detected in any of the groundwater samples collected during this round of sampling. A report on all groundwater analytical results for samples collected in 2024 is available (MCD Report No. 2024-45)

GROUNDWATER QUALITY

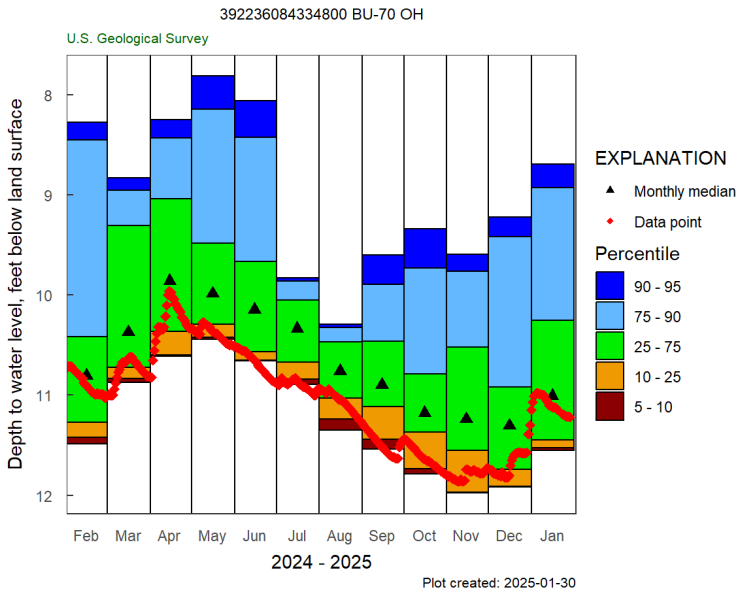
To provide a better understanding of human impact on—and identify trends related to—groundwater quality, MCD analyzes samples for a groundwater quality characterization program.

The MCD groundwater quality monitoring network consists of 12 monitoring wells located in the buried valley aquifer.

Groundwater Levels

Groundwater levels were measured at 101 active groundwater level (observation) wells in three aquifer types—buried valley, bedrock, and upland glacial sediment. MCD added six observation wells in Darke County and one observation well in Montgomery County to the network in 2024. Of the 101 active wells, 35 have loggers (transducers) that automatically record groundwater levels daily. Staff manually measure groundwater levels monthly in the other 66 observation wells.

In general, groundwater levels in the network fell below average during the spring of 2024 and remained below average throughout the rest of the year. The chart below shows the depth to water measured in Observation Well BU-70 in Butler County. The well is 54 feet deep and near the Great Miami River. BU-70 is equipped with a logger and telemetry system that transmits hourly depth to water measurements to USGS. This well is representative of groundwater conditions in shallow unconfined zones of the buried aquifer system. The chart shows the highest groundwater level (smallest depth to water) occurred in April of 2024. This level was close to the monthly median groundwater level. After April, groundwater levels fell below monthly median values for the remaining months of 2024. The lowest groundwater level (greatest depth to water) occurred in November. Two precipitation events in December provided recharge to the aquifer and groundwater levels rose back into the 25th to 75th percentile range to close out the year. Groundwater levels at other MCD observation wells installed in the buried valley aquifer system showed similar trends in 2024.



GROUNDWATER MONITORING

To track changes in water availability including precipitation, runoff, and groundwater levels, MCD collects data to estimate water inflows and outflows for the Great Miami River Watershed upstream of the Hamilton stream gaging station, an area of more than 3,630 square miles.

Collection of groundwater data helps MCD evaluate trends in water quantity entering and leaving the watershed, as well as trends in aquifer storage. The information can be useful for planning related to water supply, flood protection, construction, agriculture, commerce, and industry.

MCD continued a partnership with the United States Geological Survey (USGS) throughout 2022 to operate and maintain 10 real-time groundwater wells (Agreement Nos. 2021-018A and 2022-038A). USGS published the real-time data on its website.

Nutrient Monitoring

Elevated levels of nutrients (nitrogen and phosphorus) are widespread in the surface water and groundwater of the Great Miami River Watershed. Nutrients enter water from numerous sources including discharges from municipal wastewater treatment plants, runoff from urban and agricultural land, discharges from drainage tiles in agricultural fields, and infiltration of nutrients into groundwater from agriculture and failing septic systems.

To track nitrogen and phosphorus levels in rivers and streams, analysis was collected at all four sensor locations.

Impacts of nutrient enrichment

Nutrient enrichment occurs when excessive amounts of nitrogen and phosphorus are present in the water column of lakes, rivers, and streams. Excessive nutrients in natural water systems can overstimulate the growth of phytoplankton and periphyton such as algae and cyanobacteria. When phytoplankton and periphyton growth is overstimulated, it can disrupt aquatic ecosystems and cause biological impairment.

How MCD monitors nutrients

Samples from four nutrient sampling stations are picked up weekly by MCD staff and analyzed for nutrients by the City of Dayton water reclamation facility's laboratory. Two samples are collected each week by an automated sampler deployed at each of the stations.

The samples are analyzed by the laboratory at the Dayton Wastewater Treatment Plant. Analytical data from the laboratory was imported into MCD's AQUARIUS database. The data from the sampling stations is used by Miami Conservancy District staff to track long-term trends in nutrient concentrations in the water of the Great Miami, Mad, and Stillwater rivers.

SURFACE WATER QUALITY

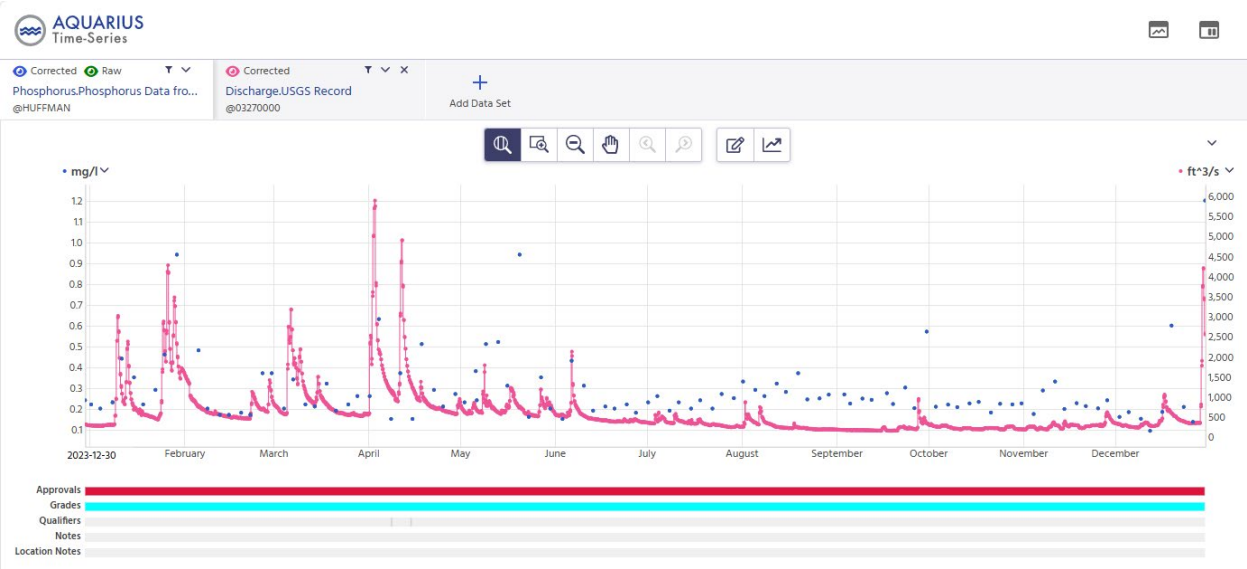
To increase regional understanding of water quality conditions in surface water and groundwater resources, MCD has managed a surface water quality monitoring program focused on nutrients in the Great Miami River Watershed since 2006.

MCD operates and maintains four nutrient monitoring stations in the Great Miami, Stillwater, and Mad rivers.

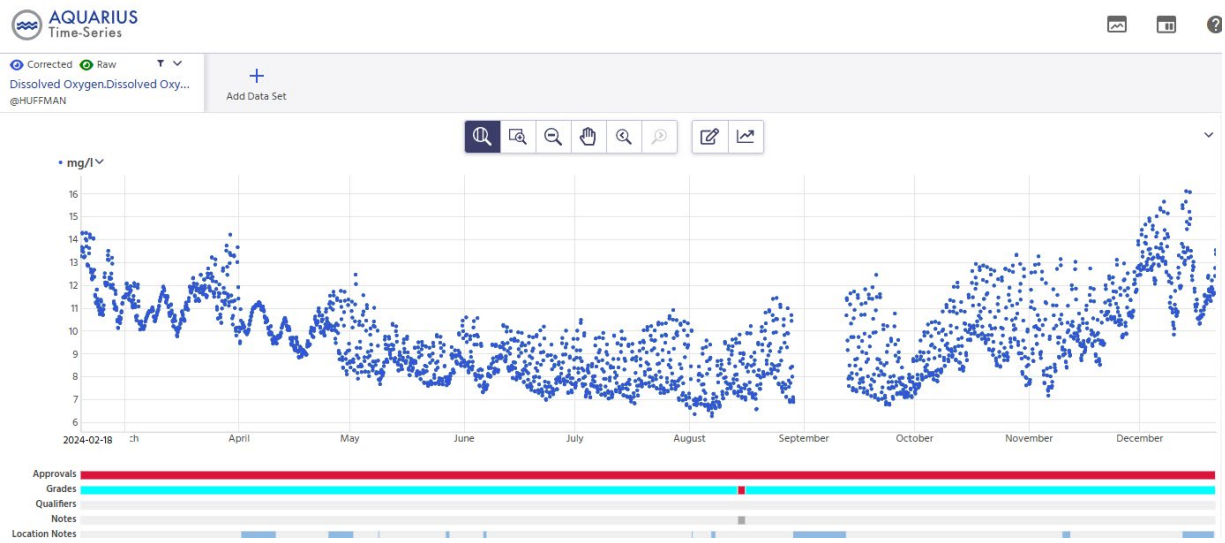
An average of two samples per week are collected at each sampling station and delivered to the City of Dayton Wastewater Treatment Plant laboratory for analysis.

2024 Monitoring trends

Analysis of the data collected in 2024 shows the average concentrations of the various forms of nitrogen and phosphorus in water samples are similar to results collected in previous years. The data shows rivers and streams within the Great Miami River Watershed are over enriched with respect to nitrogen and phosphorus concentrations in water. Reports suggest the Great Miami River Watershed is a leading contributor to nutrient pollution in downstream river systems.



The chart above shows total phosphorus concentrations measured in water samples collected on the Mad River about 960 feet downstream of Huffman Dam. Discharge in the river is shown in pink and total phosphorus concentrations of water samples are shown as blue dots. Ideally, total phosphorus concentrations should not exceed 0.10 mg/L to minimize pollution in downstream waters and eutrophication at or near the sampling site. The chart shows very high total phosphorus concentrations during high flow events between January and June. In some cases total phosphorus concentrations were as high or higher than 0.9 mg/L. There was an absence of high flow events after June. Nevertheless, total phosphorus concentrations in the Mad River tended to remain above 0.2 mg/L – twice the target concentration.



Despite the elevated total phosphorus concentrations in water samples, dissolved oxygen (DO) levels in the Mad River downstream of Huffman Dam did not show evidence of eutrophication. The chart above shows hourly DO measurements between February and December in 2024. The data in the chart shows healthy DO

levels with low daily DO values never falling below 6 mg/L. The average DO value over this timeframe is above 8 mg/L. These values meet the Ohio EPA exceptional warmwater habitat criterion for DO. Diel DO fluctuations did not exceed 6 mg/L during this period indicating acceptable trophic index conditions.

It is likely the cooler water temperatures during the warm season of the Mad River in comparison to other rivers within the Great Miami River Watershed helped to offset some of the adverse impacts of elevated phosphorus levels. Ohio EPA has measured trophic indicators such as DO, benthic algae, and biological assemblages at various sites in the Great Miami River and documented evidence of nutrient enrichment.

Private Well Testing

As a service to private well owners, MCD supports a confidential screening program called Test Your Well. Scheduled events allow private well owners to bring a sample of well water to be tested, at no charge, for the presence of nitrates, arsenic, and bacteria.

Miami Conservancy District supported one Test Your Well event in 2024 on March 19 at the Greene County Fairgrounds in Xenia. In partnership with Greene County and The Ohio State University, MCD supported the event by providing test strips and funding for analytical support. Greene County residents brought in 72 water samples for analysis.

A Test Your Well event was held at the Greene County Fairgrounds

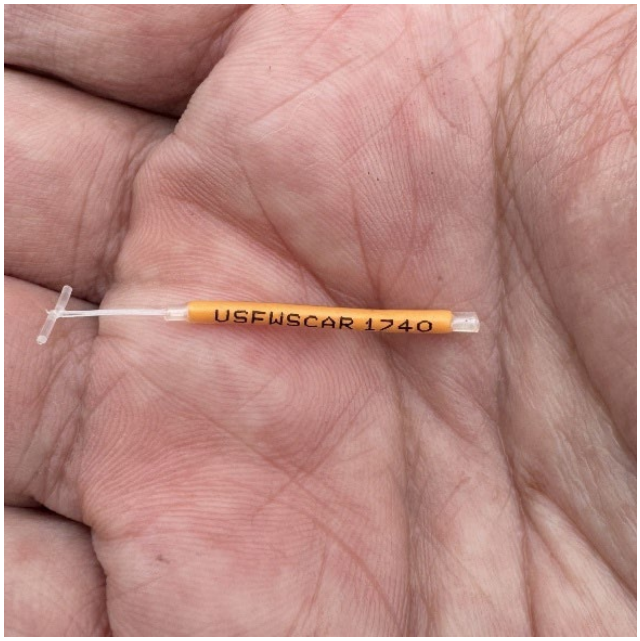
Monitoring Bacteria Levels for Safe Recreation

Miami Conservancy District manages a bacteria application featured on the Great Miami Riverway website and app. The predictive application uses recent rainfall and changes in river flow to predict *E. coli* levels at two locations (Dayton Rowing Club and Huffman Dam) in the Dayton region. The sensors are live from May 1 – October 31. They are dormant from November 1 – April 30 for the winter season.

The purpose is to promote public health and safety by helping people decide to enter the water when it is most likely to be safe. To safely engage in water sports, river users should know water conditions before entering the water. Rain events can cause water to become too high or too swift for recreation. Rain events can cause bacteria levels in river water to become unsafe for human contact. Bacteria can get into the river water from a variety of sources including pet waste, storm sewers, septic tanks, and farm fields. Bacteria can make people sick if they swallow the water. The Ohio EPA defines water that is suitable for recreation as unsafe for human contact when *E. coli* is > 298 colony counts per 100 mL of water.

Fish Passage through Taylorsville Dam

This October, the U.S. Fish and Wildlife Service (USFWS) kicked off an exciting study in the Great Miami River! With nearly 900 fish tagged in just three days, the study will track fish movements for an entire year. Fish species like bass, catfish, carp, and more are now swimming with special tags that help researchers understand their patterns. If you catch a fish with an orange tag, be sure to call the number on it and help us log the fish's journey! The data collected will help preserve and protect the river's ecosystem for generations to come. Partners included the Miami Conservancy District, Ohio Department of Natural Resources, and Ohio EPA.



Per- and Polyfluoroalkyl Substances (PFAS) in Water

MCD tracks emerging rules and policies about the presence of PFAS, which continues to be a water quality issue of concern for communities in southwest Ohio. On April 10, USEPA issued drinking water standards for six PFAS compounds. A summary of the standards follows:

- For PFOA and PFOS, USEPA is setting a Maximum Contaminant Level Goal, a non-enforceable health-based goal, at zero. This reflects the latest science showing that there is no level of exposure to these contaminants without risk of health impacts, including certain cancers.
- EPA is setting enforceable Maximum Contaminant Levels at 4.0 parts per trillion for PFOA and PFOS, individually.
- For PFNA, PFHxS, and "GenX Chemicals," USEPA is setting the MCLGs and MCLs at 10 parts per trillion.
- Because PFAS can often be found together in mixtures, and research shows these mixtures may have combined health impacts, USEPA is also setting a limit for any mixture of two or more of the following PFAS: PFNA, PFHxS, PFBS, and "GenX Chemicals."

The drinking water purveyors listed below detected at least one water sample with PFAS levels that exceeded the new drinking water maximum contaminant levels. The new rules may require these facilities to install treatment systems to remove PFAS:

- A and R Reck Mobile Home Park
- Aullwood Farm Discovery Center
- City of Dayton Public Water System
- City of Fairborn Public Water System
- City of Middletown Public Water System
- Village of Phillipsburg Public Water System
- City of Urbana Public Water System
- Wright Patterson AFB Area A Public Water System
- Wright Patterson AFB Area B Public Water System

Hamilton to New Baltimore Groundwater Consortium

MCD is a long-time partner with the Consortium in its effort to protect source water areas. Groundwater and surface water monitoring data collected by MCD are shared with the Consortium.

Impact of Biosolids on Groundwater

MCD is working with Tri-Cities Wastewater Authority to understand the impact of biosolids application to groundwater quality on approximately 200 acres of land owned by MCD upstream of Taylorsville Dam. The land is permitted to Tri-Cities (formerly owned by MCD) for application of biosolids. Tri-Cities has three monitoring wells installed on the land. In 2024, MCD staff installed loggers in two of the wells to record groundwater levels. This data will help to better understand how nitrate levels in groundwater change with fluctuating groundwater levels.

Possible Comprehensive Water Study for Southwest Ohio

Miami Conservancy District engaged with Ohio EPA, MVRPC, and OKI to discuss current and future water needs in Southwest Ohio. Ohio EPA expressed interest in working with Miami Conservancy District, OKI and MVRPC for a study on Southwest Onio in 2025. The State of Ohio wants to better understand water issues that may impact economic development and Jobs Ohio.

Study of Groundwater Vulnerability

In 2024, the Miami Conservancy District was awarded a competitive research grant by the Ohio Water Development Authority (Agreement #2024-034A) to study the long-term sustainability of the Buried Valley Aquifer, which supplies nearly all Southwest Ohio's drinking water. The purpose of this study is to evaluate whether the region's groundwater is vulnerable to increased future withdrawals or potential export beyond the watershed.

The project will assess aquifer recharge rates, groundwater availability, and the impacts of interbasin or interstate transfers. The findings will help inform future planning and policy decisions to ensure that this critical water resource remains abundant and resilient in the face of growing demands and climate variability.

This research aligns with MCD's mission to protect, preserve, and manage water resources throughout the Great Miami River Watershed and supports our long-term commitment to regional water security.

Hydroclimatic Variability Study

MCD funded a study on hydroclimate variability (Agreement No. 2024-004A). The study is led by Dr. Natalie Teale of Miami University, an assistant professor and climatologist. Research objectives include:

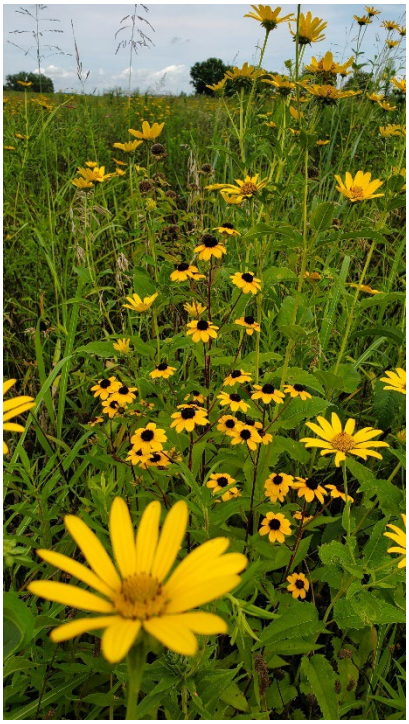
- Investigate variability in maximum and daily temperatures,
- Establish spatial precipitation patterns across the Great Miami River Watershed, and
- Analyze long-term variability in precipitation.

The study began in June and will conclude in August 2025 with a final report.

Projects That Protect, Restore, & Conserve Water Resources

Restoring Habitat

Aquifer Preservation Subdistrict funds support native prairie meadows on Miami Conservancy District lands near Lockington Dam, the Hamilton Ponds area near the HAML6 levee system, and Germantown Dam. Trees were also planted on five acres of land in Miami County along the Great Miami River in Piqua. Construction of the project began during the 2018 spring season. MCD is planting areas to improve the environment and save time and money.



Hamilton Ponds

MCD hired The Conservationist, LLC, for additional seeding and weed eradication on the planted areas. In 2024, staff also performed targeted herbicide applications in the reseeded area with guidance from The Conservationist. Project crew also performed maintenance on a forested prairie planted by MCD along the Mad River.

Low Dam Removal Project on the Stillwater River at Covington

MCD provided $2,500 in funding from the APS to develop a conceptual design for the removal project. USFWS submitted and was awarded a grant application to the USFWS National Fish Passage Program to fund engineering designs for the project. USFWS is working with a consultant to design the project. Once the project's full design is complete and necessary permits are obtained, USFWS will pursue a grant for dam removal. USACE permits were applied for and the project engineer is planning to put the project out to bid in 2025.

Miami River Conservation Reserve Enhancement Program (CREP)

Miami Conservancy District is partnering with the Ohio Department of Natural Resources Division of Wildlife to bring new funding to the Great Miami River Watershed. The Conservation Reserve Enhancement Program (CREP) is a part of the Conservation Reserve Program, the country's largest private-land conservation program. Administered by the Farm Service Agency, CREP leverages federal and non-federal funds to target specific state, regional, or nationally significant conservation concerns.

In exchange for removing environmentally sensitive land from production and establishing permanent resource conserving plant species, farmers and ranchers are paid an annual rental rate along with other federal and non-federal incentives as specified in each CREP agreement.

Participation is voluntary, and the contract period is typically 10-15 years.

Adding a CREP to the watershed will build on conservation activities funded in the H2Ohio initiative. Many H2Ohio floodplain and wetland restorations have been largely restricted to public lands. CREP will provide Ohio with a tool to foster conservation with private landowners and address nutrient loss. Over the course of a 15-year agreement, Ohio proposes to enroll 60,000 acres total or 3.1% of Miami crop land acres.

ODNR contracted with MCD (Agreement No. 2024-005A) to manage the required Programmatic Enhancement Assessment (PEA). A PEA is a broad review of the environmental impacts of the proposed CREP. MCD was awarded an H2Ohio Grant in the amount of $112,500.00 to manage the PEA. MCD managed an RFP process, and a contract was executed with Burgess & Niple (Agreement #2024-014A) to complete the PEA. To provide details about the program, the Miami Conservancy District hosted a series of open house informational sessions. These sessions were held:

- August 20, 2-4PM - Urbana: 1512 US-68 suite e-100, Urbana
- August 21, 9-11AM - Sidney: 820 Fair Road, Sidney
- August 28, 1–3PM – Hamilton: 1802 Princeton Road, Hamilton
- August 29, 1-3PM - Xenia: 100 Fairground Road, Xenia
- September 11, 10AM-12PM - Greenville: 5844 Jaysville St. Johns Rd, Greenville
- September 12, 1–3PM – Batavia: 2156 U.S. Hwy 50, Batavia

The meetings followed an open house format, allowing attendees to drop in at any time during the scheduled hours. A 15-minute pre-recorded introductory presentation was available to explain the basics of the Miami Rivers CREP program. The funding for the program is expected to be authorized in 2025.

Darke County Partners with the Aquifer Preservation Subdistrict

At the request of the Darke County Commissioners, a plan was drafted for monitoring and additional services that Miami Conservancy District can provide throughout the county. Darke County commissioners indicated recent concerns over aquifer depletion due to agricultural water withdrawals and reports of private wells drying up. An agreement for services was executed (Agreement #2024-011A). MCD entered into agreements with private well owners to measure groundwater levels monthly at four locations. Staff also entered into an agreement with the Darke County Park District to drill and install a monitoring well (100'-200' deep) at their Eidson Woods Preserve.

Installing a monitoring well at Eidson Woods Preserve.

Radabaugh Road Property Investigation

In 1970, MCD acquired 312 acres of land from the Baker family to protect as a natural floodplain purchase and to prevent future gravel mining activities from occurring at the site. This land is on the right bank of the Great Miami River just south of SR 73 and the Village of Trenton. Since that time, MCD has allowed 112.95 acres of the property to be farmed under a permit. Radabaugh Road Fact Sheet MCD Report # 2024-20 was created.

MCD contracted with Burgess & Niple (Agreement No. 2024-015A) to perform a wetland delineation and Ohio Rapid Assessment Method (ORAM). The delineation and ORAM will provide MCD with knowledge of wetland habitats that exist on the property. The wetland delineation and ORAM are now complete. The delineation identified five wetland areas on the property comprising about three acres of the 303-acre property. All wetland areas were classified by the ORAM as Category 2.

MCD staff met with Butler County MetroParks to discuss potential land management partnerships for the property.

The Molson Coors Beverage Company awarded Partners for the Environment a $4K contribution for native plantings. The brewery, located in Trenton, received funds from their corporate office to donate to local water and/or climate causes. This was a reward for the brewery for meeting their emissions and water goals over the last six months. The funds will be used at the Radabaugh Road property.

This year's All Staff River Clean-up was held September 27 on the property.

Nonpoint Source Implementation Strategies (NPS-IS)

An approved NPS-IS (9-element) plan is required by Ohio EPA before organizations and watershed management groups can apply for Section 319 grants to address nonpoint source pollution and restore stream channels. MCD has been assisting various watershed groups and local governments throughout the region with completing NPS-IS plans. NPS-IS plans must address nonpoint source pollution issues for watershed at the Hydrologic Unit Code (HUC) 12 level.

MCD staff attended a public information meeting on August 1 regarding efforts to complete a NPS-IS plan for the Cotton Run – Four Mile Creek Watershed in Butler County. Upon request, MCD provided Three Valley Conservation Trust with $4K (MCD Agreement No. 2024-024A) to complete the remaining steps in the plan.

Lockington Reserve Wetland Assessment

MCD staff contracted with Burgess & Niple (MCD Agreement No. 2024-029A) to perform a wetland delineation and Ohio Rapid Assessment Method (ORAM) in the Lockington Storage Basin. The delineation and ORAM will provide possible location of wetland habitats.

Recreation

River Corridor Improvement Subdistrict

River Corridor Improvement Subdistrict

Under the River Corridor Improvement Subdistrict, the Miami Conservancy District works to enhance and promote public use and enjoyment of river corridors utilizing improvements, amenities, and activities within and along the river corridors.

These amenities include:

- Recreation trails
- Bridges and walkways
- Water recreation areas
- Low dams
- Boat ramps
- Boat docks
- River access points
- Parking lots

Installing a boat ramp on the Great Miami River.

To enable the full enjoyment of the amenities, River Corridor Improvement Subdistrict also maintains stairways, signs, fences, railings, lighting systems, benches, trash receptacles, and landscaped areas.

To improve the recreation trails, Miami Conservancy District plans, designs, and constructs projects, seeking grants to enhance the level of service and working with numerous partners and park districts.

Funds to maintain River Corridor Improvement Subdistrict amenities are generated by assessments levied to townships, cities, and counties where the amenities are located. In Montgomery County, funds are also made available through an inter-governmental agreement with Five Rivers MetroParks. River Corridor Improvement Subdistrict supplements local assessment funding with a variety of local, state, and private sources, including grants, donations, and land use fees. Income, assets, costs, and obligations are separate from Miami Conservancy District's flood protection system and other Miami Conservancy District subdistricts.

River Corridor Improvement Subdistrict partners with park districts, cities, and other agencies to support programming and promotion of the river corridor.

River Corridor Improvement Subdistrict cooperates and collaborates with river corridor partners to enable river corridor law enforcement and to secure state and national designations.

MAINTAINING RECREATION

Typical maintenance includes:

- sweeping asphalt & concrete surfaces
- drift removal & scraping mud following high water
- mowing, weeding, & spraying for vegetation control
- trash pick-up & emptying trash receptacles
- painting
- replacing light bulbs & globes
- planting trees & tree pruning
- bridge inspections
- placing and replacing signs and signposts, fences, safety railing, guardrails, gates, and riprap
- patching asphalt and concrete repairing gravel surfaces
- installing & removing boat docks
- sealcoating asphalt & painting pavement markers
- repairing culverts
- design and distribution of safety publications
- detour coordination

Great Miami Riverway

Under the River Corridor Improvement Subdistrict, Miami Conservancy District manages the Great Miami Riverway program as a Miami Conservancy District initiative. The program is funded through agreements with 19 cities, counties, park districts and other organizations.

The goals of the Great Miami Riverway program are to:

- Increase use of recreational, historical, and cultural assets.
- Attract more visitors.
- Support economic development.
- Strengthen river corridor neighborhoods.

The Miami Conservancy District leads the Great Miami Riverway Coalition. The activities of the Great Miami Riverway are funded by the Coalition members and guided by the strategic priorities identified in 2021 for a five-year agreement with Coalition members for 2022-2027.

Coalition Members

- City of Franklin
- City of Hamilton
- City of Miamisburg
- City of Middletown
- City of Piqua
- City of Sidney
- City of Tipp City
- City of Trenton
- City of Troy
- City of West Carrollton
- Miami County Commissioners
- Montgomery County Commissioners
- Five Rivers MetroParks
- Great Parks of Hamilton County
- MetroParks of Butler County
- Miami County Park District

Sponsors

- Miami County Convention and Visitors Bureau
- Miami Valley Regional Planning Commission
- Sidney/Shelby County Visitors Bureau

Priority One: Build identity and awareness of the Great Miami Riverway.

Economic Impact of Tourism in the Great Miami Riverway Region

Every other year, MCD contracts with Oxford Economics to conduct an economic analysis of tourism and visitation in the Great Miami Riverway. In 2023, tourism in the Great Miami Riverway region reached new heights, with visitor spending totaling $710 million—a 6% increase over the previous year and 12.2% above pre-pandemic levels. This spending generated a total economic impact of $1.2 billion and supported 10,930 jobs, representing 1 in every 17 positions across the region. Montgomery County led with the largest share of tourism sales, while Hamilton and Shelby counties saw the fastest growth. Tourism also contributed $321 million in labor income and generated $140 million in tax revenue, with nearly $1.9 million spent by visitors each day. These figures highlight the essential role tourism plays in driving regional prosperity and economic resilience.

Outreach activities are guided by a Marketing Subcommittee 2024 outreach activities included:

- The Marketing Subcommittee met February 29 and April 25 to finalize the 2024-2028 Marketing Plan and discuss the 2024 workplan.
- Hosted Ron and Joy McAdams, from Harrison, Ohio, who hiked the length of the Great Miami River Recreation Trail from Fairfield, Ohio, to the northern terminus in Piqua, Monday March 18 to Monday March 25. They met with MCD staff on Friday, March 22 at MCD headquarters.
- Distributed regular Riverway newsletters to subscribers via Mailchimp software.
- Managed an ongoing Search Engine Marketing campaign on Google with Great Lakes Publishing, Paid Meta and Search with Tourism Ohio, and sponsored blogs for June and August with Cincinnati Magazine.

Exhibitions

- Bike to Work Day at Riverscape Park, May 17.
- Ohio Tourism Day at the Ohio Statehouse on May 21.
- August 23 Donut Jam
- August 24 Tour de Donut
- Outdoor Experience at Eastwood MetroPark, October 5 & 6.

Presentations

- Presented at Chamber 45005 (Franklin/Carlisle) meeting on July 15
- Presented a general overview of the Great Miami Riverway and upcoming projects for the Miami County Board of Development on September 11.

Sponsorships

- Supported Miamisburg's Spring Fest in the Burg and Sidney's Paddles, Pedals and Pints as a presenting sponsor.

Priority Two: Advocate and nurture connections between Riverway Communities.

2024 Great Miami Riverway Summit

The 2024 Great Miami Riverway Summit was held Friday, April 19 at the Fort Piqua Plaza Hotel in downtown Piqua. The annual Riverway Summit is hosted in a different Riverway community each year. This year's Summit welcomed 207 registrants and 16 exhibitors. A total of $31,500 in sponsorships were raised during the Summit to fund activities prioritized by the Coalition but not previously funded.

The agenda included panel discussions featuring leaders of river corridor initiatives, river-centric event coordinators, and the managing director of the iAngler app for outdoor competitions. The featured keynote speaker was Scott Holley, President and CEO of Eddyline Kayaks who focused on rivers as unifying forces for vibrant waterfront communities and their impact on local economies.

The Summit agenda also featured walking tours of points of interest in historic Piqua. During the event, students from the University of Dayton Rivers Institute presented copies of their original children's book, *Into the River,* to the two Piqua elementary schools. They received copies of the book for every 3rd grade student in Piqua City Schools. Attendees at the Summit also created friendship bracelets with inspirational messages for the students.

To show appreciation for their support, the mayors and commissioners of the Riverway Coalition were presented with hand-carved wooden paddles featuring the Riverway logo. The Corridor Champion of the Year was awarded to Shelby County Commissioner Tony Bornhorst, for his contributions. Retiring Riverway Manager, Dan Foley, was honored during the event.

The recording can be watched here: https://www.youtube.com/playlist?list=PL_iV__ZplU0H6tB4-YuajkkuqlwT4IRVY

2024 GREAT Miami Riverway Smallmouth Bass Fishing Challenge

The 2024 annual GREAT Miami Riverway Smallmouth Bass Fishing Challenge kicked off June 15 to coincide with the State of Ohio's Free Fishing Days and Father's Day weekend. The tournament ran through July 21 and culminated with an awards event on July 31 hosted at Crooked Handle Brewing Co. in Piqua. Anglers utilized the iAngler app to register and send in their catches during this family-friendly, catch-and-release virtual tournament. 43 anglers submitted over 500 catch logs from communities all along the Great Miami River, with 25 trophy length smallmouth bass qualifying as a noteworthy catch through the Fish Ohio recognition program. This year's tournament was sponsored by MCD, Molson Coors Beverage Company, ODNR Division of Wildlife, ReelFlyRod and Fisherman's Headquarters.

Canal Feeder Trail Ribbon-Cutting

Staff were invited by the City of Sidney to speak at the ribbon-cutting on July 10 for Phase V of the Canal Feeder Trail. The trailhead is located at Kuther Road and offers scenic views of the Great Miami River. This marks another step forward for Shelby and Miami Counties to connect the Sidney sections to the Great Miami River Recreation Trail. The expansion of the City trail north into Sidney will establish a future "emerald necklace" of trail connectivity, allowing pedestrians to explore Sidney.

2024 River Ride

The 2024 River Ride was hosted by the cities of Franklin and Miamisburg on September 14, with over 70 registrants. All registrants received goodie bags with swag provided by Riverway, Miamisburg, and Franklin.

2024 Riverway Half Marathon

The Riverway Half Marathon was held on September 15. The race started in Troy and ended in Piqua at Crooked Handle Brewing Co. A sponsorship of $1500 was provided to support the event, which had approximately 300 registrants.

2024 Shop Local Passport Challenge

This year's Passport featured a Shop Local theme to boost visibility and visitation for locally owned retail shops in Riverway communities. It launched October 1 and ran until December 31. 38 local shops participated from the Riverway Coalition communities. Participating shops agreed to install Great Miami Riverway clings in their front window and provide small gifts for the weekly prizes and grand prize.

Weekly posts and videos featured the participating stores and 15 users logged a total of 171 visits.

Planning for 2025 Riverway Summit

Monthly planning meetings for the 2025 Riverway Summit in Miamisburg took place in August, September and October. The event will be held on May 2, 2025, at Riverfront Park, with tours and sessions taking place at various points of interest throughout the downtown area.

Priority Three: Build investment in riverfront development along the river and in our communities.

Public and private sector investment continues to be robust in Riverway communities. Here are recent examples:

- Miamisburg Riverfront Park-$5.7 million investment
- The City of Franklin announced the future opening of the newest brewery along the Great Miami Riverway, Slipcast Brewing!
- Sidney City Manager, Andrew Bowsher, and wife Taylor, recently opened a new retail wine store in downtown Sidney, Austeria Wine Boutique.
- Hamilton will be the home of a new Marriott brand boutique hotel.
- The City of Trenton will see almost 90 new homes being built later this year.
- New 6,000 SF roastery that Winans Chocolates and Coffee uses to supply their 19 store locations as part of our walking tours during the Great Miami Riverway Summit in Piqua on Friday April 1
- Piqua's Lock 9 Park
- House Bill 2 passed on June 26, and included $2,000,000 for the Troy Great Miami River Recreation Connectivity Project
- Also in Troy, Clopay Corp is investing $30 million into expansion.
- Aglamesis Bros is opening their first new shop in 54 years, with its 3rd location in Hamilton!
- Sidney City Council approved a resolution for the purchase of the former Big Four Passenger Station from CSX on August 12, with plans to develop the site into a city park.
- Phase 1 of West Carrollton's $75 million River District Project has begun.
- Small Nation and Winans Coffee & Chocolate announce collaboration for redevelopment of Downtown Piqua
- New Master Plan for West Carrollton to connect downtown area with the Great Miami River Recreational Trail and bring abundance of recreational activities and amenities to the city.
- Large Dayton law firm states that the river and riverfront amenities are a large reason for its selection of the CareSource building as its new home.
- Basecamp Outdoors Co opened its brick-and-mortar location on August 23. It is a $1 million investment in the Water Street District in Dayton.
- Great Parks of Hamilton County received their largest award in its history for constructing a bike trail.

Priority Four: Restructure the Riverway Coalition and broaden the funding platform

A Coalition meeting was held every other month at Miami Conservancy District headquarters.

On September 26, a motion was passed to convene a Funding subcommittee. This subcommittee met late 2024 to discuss Priority Four and will make their recommendations to the Coalition at the next meeting.

River Recreation Activity Areas

Miami Conservancy District operates and maintains recreation areas on and along our waterways. Recreation activity areas may include amenities such as walkways, low dams, boat ramps, parking lots, and portages.

Safe Recreation Plan

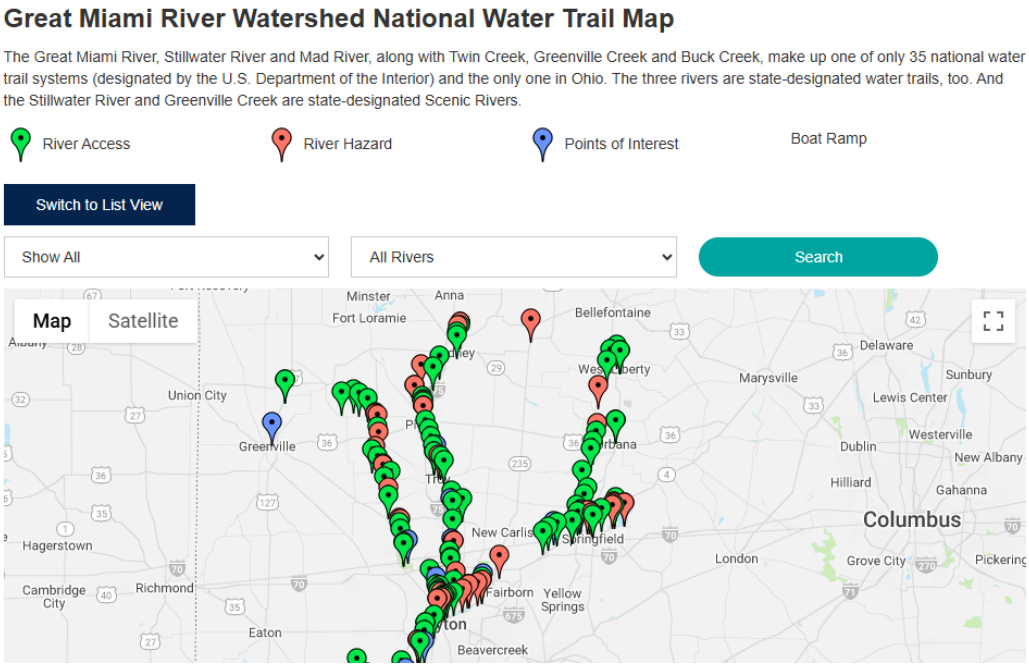
Staff developed a Safe Recreation Plan (Report No. 2022-11) which provides details on how and where Miami Conservancy District provides safety information on and about Miami Conservancy District low dams, trails, and other river corridor amenities. Miami Conservancy District utilizes navigational aids, portage routes, publications, social media platforms, and safe boating resources of other partners such as the Ohio Department of Natural Resources (ODNR) and Five Rivers MetroParks to communicate the safety information. Staff inventoried and installed low dam warning signs in advance of the spring paddling season.

In 2024, a new low dam warning sign was installed in Hamilton above the Two Mile Dam and the Fecon attachment on the Mower Max was used to clear brush to make the sign visible from the river.

Partnered with the UD Rivers Institute to create a plan for improved safety on the Great Miami River near Island MetroPark Low Dam. The dam is owned by the City of Dayton. MCD built and maintains a portage on the left bank. The plan is underway and anticipated to make recommendations for improved signage in 2025.

Water Trails

Miami Conservancy District maintains up-to-date maps for the Great Miami River Watershed Water Trail including the Great Miami River, Stillwater, and Mad rivers. An online version, for the MCD website, of all three maps was under development in 2024.



Recreation Trails & Trail Bridges

Miami Conservancy District helped build the first mile of bike trail in Troy nearly 50 years ago. That first mile has grown into a system of over 350 connected paved trails that stretch across southwest Ohio managed by many trail partners. This includes the 101-mile long GMRRT, of which Miami Conservancy District manages approximately 30 miles.

Miami Conservancy District continues to build new trail sections, and repair as needed. Miami Conservancy District also advocates for the missing sections of trail that will one day create an uninterrupted Great Miami River Recreation Trail from Shelby County to Hamilton County.

A significant number of River Corridor Improvement projects are underway that will address asset needs related to recreation. In recent years, MCD received state and federal grants to fund improvements to trails and other river corridor amenities. A summary of the projects is provided in the table below and additional detail of active projects follows.

Recreation Trail Maintenance

Bike Trail Crack Repair Improves Safety and Comfort for Trail Users

Miami Conservancy District (MCD) staff recently completed repairs on approximately 40 significant cracks along the Great Miami River Recreation Trail near West Carrollton in 2024. The repairs began at East River Landing and continued downstream for about one mile. This section was prioritized after numerous complaints from trail users about its rough and uneven surface.

Many of the cracks in this area had been previously repaired by a contractor, but those fixes were failing. Under the direction of MCD engineers, staff approached the repairs as a pilot test for several different techniques to evaluate which method offers the best balance between efficiency and long-term durability.

Nearly 30 tons of hot mix asphalt were applied, along with approximately 150 gallons of hot-applied crack sealant to prevent moisture intrusion and further deterioration. MCD rented specialized asphalt equipment from DLJ Manufacturing, including an asphalt hot box to maintain optimal material temperature and a trailer applicator for precise sealant placement.

In addition to the work in West Carrollton, MCD staff continued applying hot-applied crack sealant to other sections of the trail as part of a broader preventative maintenance effort. Completing the work in-house not only improved quality control during the installation process but also resulted in significant cost savings compared to hiring outside contractors.

These repairs enhance trail safety, improve the user experience, and extend the life of this valued regional asset.

MCD staff also replaced approximately 75 feet of bike trail in between Miamisburg and Franklin. This area showed significant damage due to a large amount of rotting tree roots underneath the trail. Staff excavated the damaged portion of trail and all the old roots, added gravel in compacted lifts, applied two courses of asphalt, intermediate and top course, then regraded the area between the bike trail and river to allow for proper drainage and seeded and mulched for proper grass growth.

Other Bike Trail Maintenance

- Removed dead and damaged trees along the bike trail in West Carrollton and Dayton that would potentially fall in a windstorm and preemptively trimmed or cut them down and removed them.

- Completed the annual fall cleanup of the Dayton left bank amphitheater on the Great Miami River, downstream of Riverscape below the south river walk, where they removed multiple dump truck loads of leaves from the rows of seats.

- Contracted with ACE Tree service to trim 87 trees along the south riverwalk in Dayton. The trees were overhanging the bike trail and the walking path causing potential maintenance issues. The fall pruning should help elongate the life of the trees.

- Used the extending arm mower to push brush back along the bike trail from West Carrollton to Franklin so the honeysuckle does not grow too close to the trail.

- Repaired erosion with reused broken concrete that was starting to undermine the bike trail near East River Road in Moraine and along the bike trail in between Miamisburg and Franklin.

- Trimmed trees along the bike trail in West Carrollton, Miamisburg, and Franklin to improve visibility and remove dangerous hanging branches that posed a threat to trail users.

Recreation Improvement Projects

Miami Conservancy District staff seek federal, state, and local grants to rehabilitate or add new trails. Staff spend significant time guiding major projects through the project development process. For many projects, this planning and design process takes several years.

Dayton | Dayton Riverfront Plan: River Walk Improvements

Under contract with Five Rivers MetroParks, Human Nature, Inc. is working with project partners to develop a Riverwalk Concept Study on both the north and south River Walk.

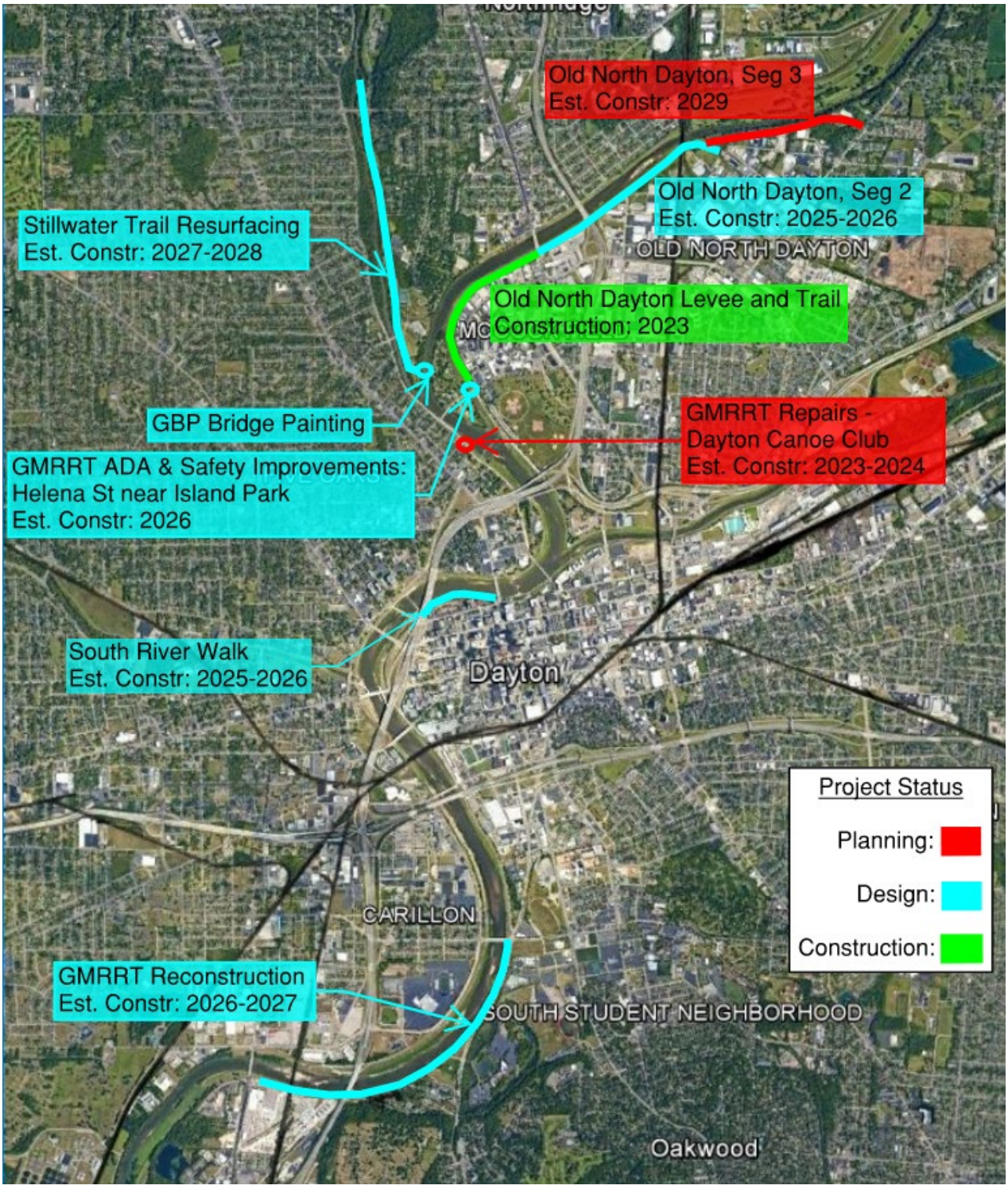
The project planning team includes Human Nature, Five Rivers Metroparks, the City of Dayton, and MCD. Planning throughout 2024 focused on identifying the River Walk experience. Human Nature summarized opportunities and constraints and developed alternatives including branding, wayfinding, and programming. Phased improvements to the Riverwalk are being planned to improve safety, comfort, and usage.

The following list includes funded trail and bridge projects in design or construction during 2024.

Project	Cost	Grant Total
Old North Dayton Levee and Trail	$1,516,900	$1,105,016
South River Walk Improvements	$806,000	$348,893
Old North Dayton, Segment 2	$1,308,845	$711,569
Sycamore Creek Bridge Replacement*	$665,805	$186,363
GMRRT** Reconstruction	$2,216,530	$1,711,123
Stillwater Trail Resurfacing	$676,605	$629,109
GMRRT** ADA & Safety Improvements	$359,170	$228,391
Old North Dayton, Segment 3	$1,182,265	$583,991
Gayle B Price Bridge Painting	$480,906	$322,035
TOTALS	**$9,213,026**	**$5,826,490**

* Not pictured on map (next page)

**Great Miami River Recreational Trail


Old North Dayton, Seg 3
Est. Constr: 2029
Old North Dayton, Seg 2
Est. Constr: 2025-2026
OLD NORTH DAYTON
Stillwater Trail Resurfacing
Est. Constr: 2027-2028
Old North Dayton Levee and Trail
Construction: 2023
GBP Bridge Painting
GMRRT Repairs -
Dayton Canoe Club
Est. Constr: 2023-2024
GMRRT ADA & Safety Improvements:
Helena St near Island Park
Est. Constr: 2026
South River Walk
Est. Constr: 2025-2026
Dayton
Project Status
Planning:
Design:
Construction:
CARILLON
GMRRT Reconstruction
Est. Constr: 2026-2027
SOUTH STUDENT NEIGHBORHOOD
Oakwood

(Dayton) South River Walk Improvements

This project is partially funded by an MVRPC grant. Design is ongoing and performed by MCD. CEC consulting engineers (Agreement 2023-023A) were hired to complete right-of-way plans with legal descriptions for two easements that meet ODOT requirements. MCD received letters of support for the project from the YMCA and the First Baptist Church. Additional funds were needed in 2024 for right-of-way acquisition. Since the easements are donated, no appraisals of the properties are necessary.

Staff are working on Stage 3 plans. The Ellis Schedule was updated in November and Stage 3 plans are now due February 2025 with construction scheduled for summer 2026.

(Dayton) Old North Dayton Trail, Segment 2 (Keowee Street to Heid Avenue)

This project is partially funded by an MVRPC grant. Design is performed by Choice One Engineering Corporation (Agreement 2023-015A) and is about 90% complete. Stage 2 plans were submitted to MCD and ODOT and the reviews were complete. Choice One completed a hydraulic analysis that showed the project will not cause a rise in flood elevations. CSX railroad agreed to review the design plans and consider allowing the trail to pass under their bridge. MCD must pay CSX for their review work. MCD does not have property rights under the railroad bridge and Choice One initiated the process to acquire an easement with CSX property department. An amendment to the consultant agreement was executed for the consultant to perform the acquisition work. Final right-of-way plans were sent to ODOT in October. The centerline plat was recorded at Montgomery County and the right-of-way consultant (O.R. Colan Associates) started the process of contacting CSX real estate to negotiate and develop appraisals on the easement. CSX requires a canopy over the proposed trail under the RR bridge. Design for the CSX canopy was sent to MCD for review in November before sending to CSX for approval.

Per ODOT requirements, a letter was drafted with a map and project description and sent to the adjacent property owners for public involvement.

The project is on schedule, with construction to begin in 2026.

(Montgomery County) GMRRT ADA & Safety Improvements

With the support of staff, Choice One Engineering Corporation (Agreement 2023-042A) developed Stage 1 and 2 plans and acquired right-of-way permits from all impacted jurisdictions to waive ODOT's right-of-way plan requirement. The design will continue in 2025, with construction scheduled for 2026.

(Dayton) GMRRT Carillon Reconstruction

This project began in early 2024 with LJB Inc., per Agreement 2023-052A. Staff met with stakeholders to discuss goals and objectives for the project. An AER (Alternative Evaluation Report) to explore options for setting the curbline for Carillon Boulevard was created and reviewed by the cities of Dayton and Moraine, MCD, and ODOT. Property rights were researched. Stage 1 plans were completed in the second quarter of 2024 and the project is on schedule.

(Dayton) Stillwater Trail Resurfacing

After narrowing the original grant scope to reduce the design costs, LJB Inc., under Agreement 2024-012A, began to implement Stage 1 plans after completing a field survey and base mapping. Design will continue in 2025, with construction scheduled for 2028.

Bridge Improvements

(Dayton) Gayle B. Price Bridge Painting

MVRPC staff notified MCD that $322,025 of grant funding is recommended for the award. The MVRPC Executive Committee is expected to approve the funding in March 2025. Staff are exploring short term repairs and painting rusty areas until grant funding is available, likely in 2028 or 2029. Staff met with ODOT for a Scope of Services meeting. This meeting set the project schedule and discussed environmental items and construction logistics.

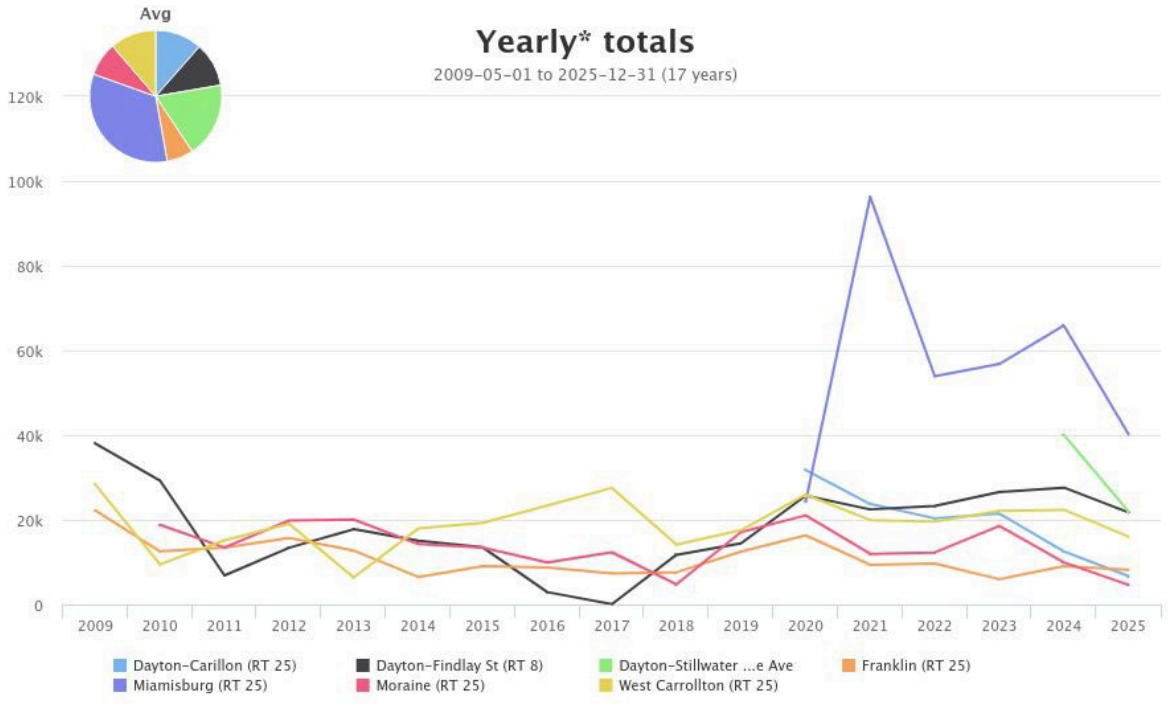
(Miamisburg) Sycamore Creek Bridge Replacement

Under Agreement 2023-053A, Woolpert created Stages 1-3 detailed design plans and submitted a final plan package to ODOT on schedule. The bid and award dates are set for first quarter of 2025.

Counting Recreation Trail Users on MCD Trails

The Miami Conservancy District maintains infrared counters at seven locations to monitor trail usage across the region. In mid-2024, a new counter was added on the Stillwater River Trail in Dayton, while existing counters continue to operate along the Mad River Trail (Dayton) and the Great Miami River Trail in Dayton, Moraine, West Carrollton, Miamisburg, and Franklin.

In 2024, most trails saw strong and stable use. Franklin experienced a marked rebound in trail activity, reversing a 2023 decrease. Moraine and the Carillon Park area in Dayton recorded modest declines, particularly during the summer months. The Miamisburg counter at Riverfront Park continued to report high volumes. Due to its installation in mid-year, the Stillwater Trail counter provides a limited but promising snapshot of usage in that corridor. Below is a graph of trail users since 2009.



Water Conservation Subdistrict

No Activity in 2024.

Communications & Outreach

Communications and Outreach

Effective, transparent communication is a core value of the Miami Conservancy District, both internally and externally. A comprehensive plan enables Miami Conservancy District to broadly communicate with a wide variety of stakeholders, community partners, scientific and educational experts, property owners, major business and civic institutions, internal staff members, and other interested parties.

Communications Plan

A communications plan for 2024-2029 (MCD Report No. 2024-47) was created.

Staff Communication

An internal newsletter is distributed to help keep staff informed. The newsletter provides information on events, staff training, HR reminders, Miami Conservancy District stories in the news, staff recognition, and more (MCD Report No. 2024-53).

An all-staff meeting was also held in December.

River Cleanup

The Clean Sweep of the Great Miami River is an annual event with more than 15 coordinated sections and more than 80 sponsors, including Miami Conservancy District. These organizations work together to clean up the entire Great Miami River from Indian Lake to the Ohio River. Aquifer Preservation Subdistrict funds supported the Clean Sweep of the Great Miami River. The Clean Sweep of the Great Miami River Watershed organization provided t-shirts, trash grabbers, trash bags, and gloves.

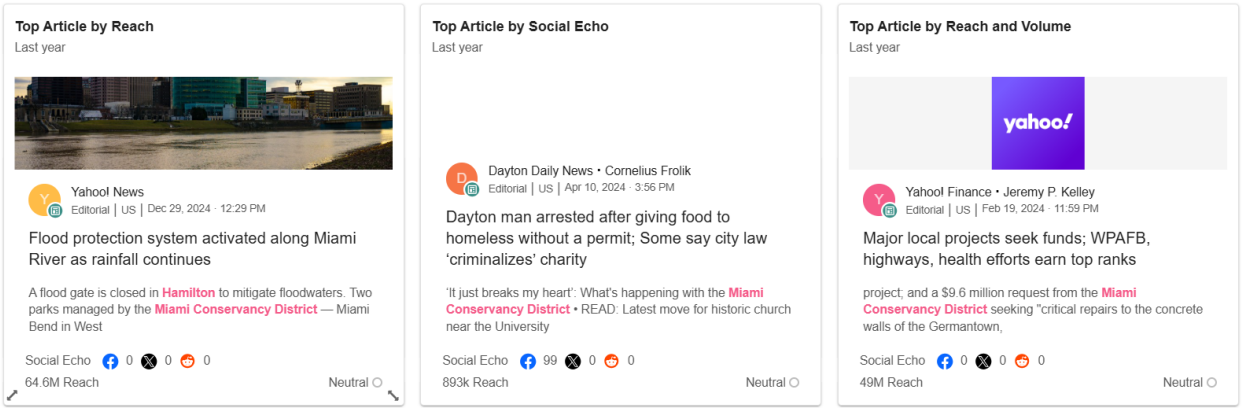
When all section results were totaled for the year, A total of 881 volunteers collected 282 tires and 12.1 tons of trash.

On October 4, Miami Conservancy District staff cleaned up trash, debris, and tires along the Great Miami River in Lemon Township in Butler County. This year's event included staff from the Trenton-based Molson Coors Beverage Company. 36 MCD staff collected 24 tires and a total of 920 pounds (.46 tons).

Community Outreach

Media

During 2024, Miami Conservancy District used Meltwater to track media exposure. There were 363 mentions of Miami Conservancy District throughout the year for a total potential news reach of 1.59 billion. The sentiment towards Miami Conservancy District was 76% neutral, 18.7% positive, and 4.7% negative. The top stories were the December 2024 High Water Event, and the funding needs of the flood protection system.



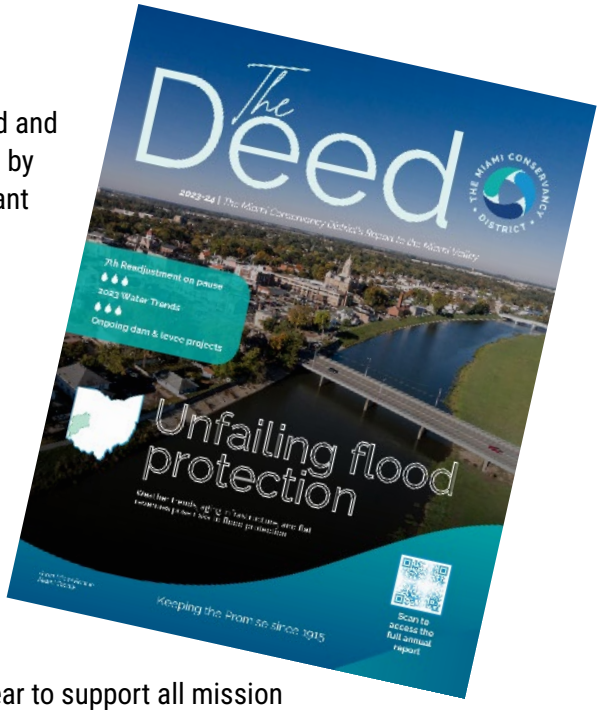
Press Releases

Miami Conservancy District issues news releases throughout the year. Miami Conservancy District staff also served as regular subject matter experts for regional media outlets.

Social Media Channels

MCD posts content on Facebook, Instagram, YouTube, and LinkedIn. The Great Miami Riverway posts messages on Facebook, Instagram, TikTok, YouTube, and LinkedIn. MCD contracts with Artistic Inspirations to draft content and schedule posts on Facebook and Instagram. Content is reviewed and approved by MCD staff weekly. MCD staff create content to post on other channels. MCD also monitors and responds to comments and messages posted on all those social channels plus Messenger/Meta. All posts are tracked using PageFreezer.

Printed Handouts



The 2023-2024 Deed

The annual newsletter (MCD Report No. 2024-48) was mailed and electronically delivered in June to property owners protected by Miami Conservancy District from flooding, as well as important stakeholders including elected officials and partners. Miami Conservancy District also contracted with Great Lakes Publishing to email the newsletter to 75K email addresses in the areas protected from flooding.

Annual Report

Completed layout, design, and edits of the 2023 Annual Report. The report was posted on Miami Conservancy District's website following the November Conservancy Court meeting (MCD Report No. 2023-18). https://www.mcdwater.org/resources/mcd-publications

Fact Sheets

Several fact sheets were created on topics throughout the year to support all mission areas.

Presentations

Staff provided dozens of presentations to professional organizations; stakeholder groups; university classes; and local, state, and federal entities.

MCD staff Barry Puskas and Mike Ekberg were interviewed for a local documentary titled "WATER". The film covers natural water resources in the region as well as public water systems, water reclamation facilities, and the Miami Conservancy District flood protection system. Details on the film can be found at https://www.filmsbygarybeeber.com/water.

Websites

A new www.mcdwater.org website was released in early January. Designed by staff and built by contractor, Artistic Inspirations, it replaced the website built in 2015. New features include enhanced functionality, ease of maintenance, forms, an interactive map, and seamless interaction with existing portals including Aquarius. The www.greatmiamiriverway.com website is also maintained by MCD with professional assistance from Artistic Inspirations.

Meeting Minutes and Schedule are now available on the MCD website. https://www.mcdwater.org/about-mcd/meetings-and-minutes

GeoPort, the web mapping tool to help landowners better understand MCD rights and restrictions, was added to the website in 2024. https://www.mcdwater.org/geoport

Traffic to the websites is tracked using Google Analytics. In 2024, 54,846 (49,005 the previous year) users visited the Riverway website and 38,655 (29,186 the previous year) visited the Miami Conservancy District website. The top pages visited are: the interactive map, event calendar, learn about assessments, the home page for tracking ads, and water trail maps.

Blog

Stories are shared via blog posts as part of the website (MCD Report No. 2024-52).

- 2024 Benefit Assessment Study - Flood Protection
- The Drought of 2024: How the Buried Valley Aquifer Supports Ohio's Resilience
- Why All The Grass? 5 Reasons We Use Turf On Our Levees
- How Regional Flood Insurance Premiums are Positively Influenced by Miami Conservancy District
- A Century of Safety: Lockington Dam's Concrete Rehabilitation
- Who owns the water? Understanding Ohio Water Rights: What Every Resident Should Know

Email Newsletter

An E-news blast was sent regularly to subscribed email contacts in November. Content included stories on The Deed, PFAS research, events, and a blog on projects underway in Dayton along the trails.

Exhibits

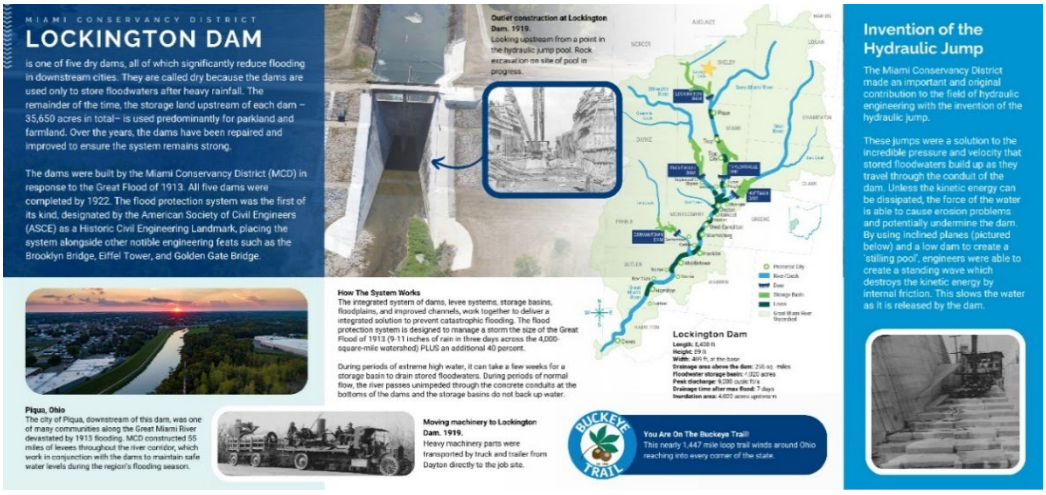
Hosted an information booth at Bike to Work Day at Riverscape MetroPark in May, the Montgomery County fair in July, and the Miami County fair in August, the Fitton Center New Season Launch in August, and the Outdoor Experience event at Eastwood MetroPark in October.

Signage and Wayfinding Plan

A Signage and Wayfinding plan is being drafted for both the flood protection system and the recreation corridor. The plan will include sign standards and inventories. The plan will also define internal and external processes to replace damaged or missing signs on bike trails, navigational warning signs at low dams, and more. Staff coordinated the replacement process for signs to address damaged or missing signs. Staff also submitted a grant application to ODNR for replacement low dam warning signs but were notified that ODNR no longer pays for safety signage through the Navigational Aids program.

Dam and Feature Interpretive Signage

The outdated wooden sign kiosk at Lockington Dam was removed and a permanent new interpretive sign was installed on the east end of the dam prior to the tour. Staff designed the sign in-house and it was constructed by KAP Signs, Inc.



Flood Protection Outreach

Dam Tours: Engaging the Public in Flood Protection

A new public engagement initiative was launched in 2024: the "Dam Tour" series, designed to connect residents across Southwest Ohio with the infrastructure that protects their communities. The "Dam Tour" series is a strategic step in increasing transparency, building public trust, and reinforcing the community's understanding of MCD's work. Events like these offer an up-close look at infrastructure that is usually out of sight, and often out of mind, while giving community members a direct connection to the experts who care for the flood protection system.

Lockington Dam

The inaugural tour was held at Lockington Dam in Shelby County on October 16, welcoming more than 100 attendees for an open-house experience that brought MCD's flood protection work to life.

- Celebration of Recent Rehabilitation: A brief ceremony at 11:30 a.m. marked the successful completion of significant rehabilitation and construction projects at the dam.
- Expert-Guided Tours: MCD engineers and technical staff led visitors on guided walks along the dam, answering questions and explaining the dam's features, operations, and critical role within the regional flood protection system.
- Education and History: Attendees viewed exhibits about the Great 1913 Flood, the dam's construction history, and the broader Flood Protection System operated by MCD.
- Insight into Future Work: Displays and conversations highlighted upcoming projects, and the ongoing funding needed to maintain and modernize this vital infrastructure.

Taylorsville Dam

A Dam Tour at Taylorsville Dam was held August 25 for Congressman Turner and USACE.

Other Events

- Participated in the Miami County Fall Fest and built a dam out of straw, October 19 & 20
- Facilitated the Ohio Watershed Leaders Conference, September 5 & 6
- Hosted the Great Miami Riverway booth and spin-art bike at the Outdoor Experience event at Eastwood MetroPark on October 5 and 6.
- Facilitated the annual meeting of the Ohio Conservancy District Conference during the 2024 WMAO conference on November 19 in Columbus.

Water Stewardship Outreach

Great Miami River Watershed Network

Miami Conservancy District hosted a meeting of the Great Miami River Watershed Network on December 15. The topic was agency updates and roundtable announcements. The Network is co-facilitated with the Miami Valley Regional Planning Commission. Miami Conservancy District, along with partner MVRPC, facilitated a meeting in January.

Source Water Protection

The Miami Conservancy District hosted a Tabletop Exercise on Source Water Protection and Emergency Number Response on January 24 at the Engineer's Club in Dayton. MCD registered the event with the State of Ohio so participants could earn 4.0 contact hours from Ohio EPA for participating. Partners also included the Miami Valley Regional Planning Commission and the Ohio EPA, with help from the City of Dayton, the City of Cincinnati, and the Hamilton to New Baltimore Consortium.

- The session helped communities in southwest Ohio be prepared to respond to emergencies that threaten drinking water source areas. During the meeting you will gain hands-on familiarity on how to implement, and improve, your community's SWAP in an emergency.
- This event was designed for water professionals actively working to protect drinking water assets including source water areas, land use, and drinking water treatment plants.
- Three scenarios were used to discuss the effectiveness of current source water protection and emergency response. They include scenarios with local impacts to individual sources, and scenarios with regional impacts to multiple sources.
- Participants brought copies of their source water protection plan, contingency plans, and asset management plans.

Boonshoft Children's Museum

MCD provided 25K from the Aquifer Preservation Subdistrict to support the development of a new water-themed exhibit that will span the entire first floor of the Boonshoft Museum. Staff also provided technical support and advice on water education topics.

University of Dayton

For the 20th year, MCD assisted with the Rivers Institute at the University of Dayton's River Stewards Orientation. Staff gave a presentation on the Great Miami River Watershed on August 13. For the two-day river trip, MCD loaned our kayak fleet on August 15 & 16 that launched from Taylorsville Dam. On August 16, staff give a tour of MCD headquarters. The trip ended on MCD land at Sunwatch Indian Village and Archaeological Center. Lent Miami Conservancy District stream education tools to the UD River Stewards for use April 21 Earth Day event at Eastwood MetroPark at the Scout Camporee; Sunwatch Museum on April 22; UD Campus Sustainability vent on April 22; and Boonshoft Museum on most Saturdays in March and April.

Greater Dayton Partners for the Environment

MCD co-chairs the Partners for the Environment, an alliance of environmental organizations, government and civic organizations, and public and private educational institutions. These organizations share the common goal of protecting, restoring, preserving, and promoting the environmental and agricultural resources of the Great Miami River and Little Miami River Watersheds – an 18-county region in southwest Ohio. The Partners hosts regular training and workshops that help strengthen organizations who work on environmental issues. The organization also partners on a leader development program, annual awards, and joint regional grant applications. A Summer Meeting focused on regenerative agriculture was held on June 26. A Fall Awards Celebration is scheduled for September 18 at the Boonshoft Museum.

Shelby County Conservation Day Camp

Staff led fun water activities on Day 1 of a three-day camp (June 25-27 this year) for 100 kids grades 2-5 in Sidney. The camp is hosted by Shelby SWCD, the Ohio Farm Bureau to involve kids in conservation and agricultural topics. This year's theme was Habitat Chat. MCD also provided a $250 sponsorship.

Shelby County Conservation Day Camp

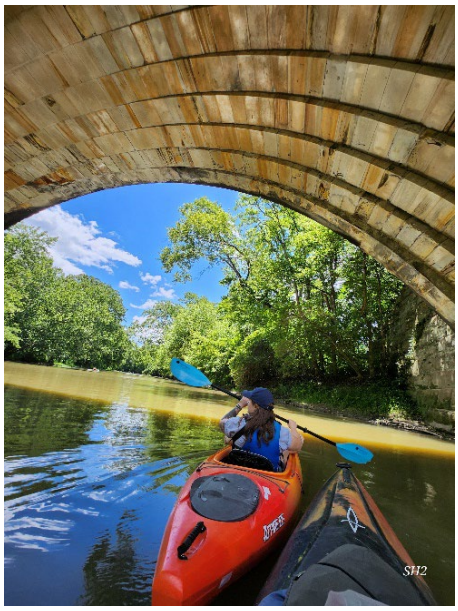
Children's Water Festivals

Miami Conservancy District contributed funds to support the Dayton Children's Water Festival and the Butler County Water Festival. The two festivals together reach more than 2,500 students. The 2024 Dayton Children's Water Festival took place at the University of Dayton in May. The Butler County Water Festival took place on October 18 at the Miami University Hamilton Campus. MCD staff assisted by presenting, leading classes to their presentations, and serving on the planning committee.

Gulf Hypoxia Task Force

Convened a regional meeting, in partnership with Ohio EPA, to gather input to update the Ohio Nutrient Reduction Strategy report as part of the Gulf Hypoxia Task Force March 6 in Dayton.

Educational Float Trips for Elected Officials



MCD staff participated in two float trips for elected officials in Greene and Warren counties June 21 and July 12 to talk about riparian setback ordinances used in Ohio to protect rivers and streams.

MCD staff participated in an Educational Float on June 7 for Darke and Miami Counties to talk about the importance of the Stillwater River and MCD programs.

Support for River Clean-ups

Transported Miami Conservancy District kayaks and equipment to (and from) the City of Troy for use by the UD River Stewards and city staff during the UD visit to Troy in September. Provided supplies to local retailer, REI Co-op, for a staff river clean up along the Great Miami River.

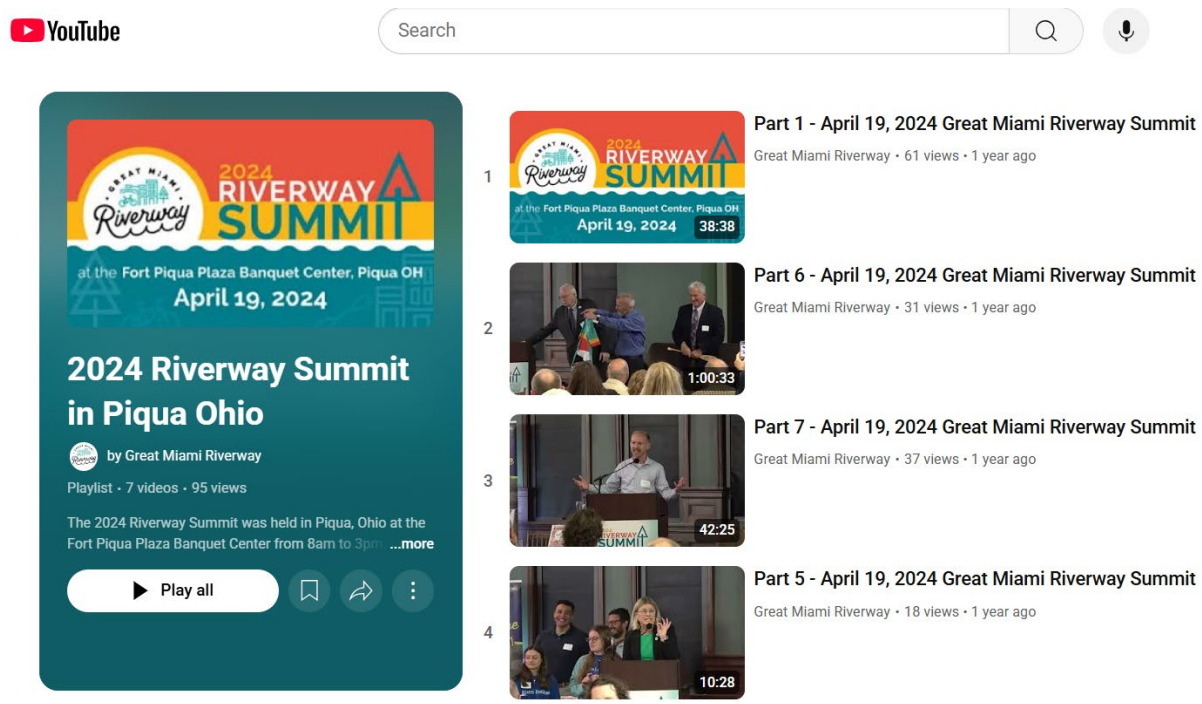
Recreation Outreach

New Trail Segment Ribbon-cutting

Hosted a ribbon-cutting for a new one mile trail segment in Old North Dayton, July 18.

2024 Riverway Summit

Significant staff time supported the 2024 Great Miami Riverway Summit held April 19 in Piqua. The recording can be watched here: https://www.youtube.com/playlist?list=PL_iV__ZplU0H6tB4-YuajkkuqlwT4IRVY



Administrative & Support Services

Administrative & Support Services

Ensuring the Main District and Subdistricts are supported with administrative and support services is critical to achieve Miami Conservancy District's mission. This section summarizes records management, staff names and positions, and outreach and education.

Records Retention and Disposal

The Records Commission held its annual meeting on October 2, 2024. The Records Commission reviewed and approved the Records Retention Schedules (RC-2) for Administrative, Assessment, Hydrology, Legal, Property, and the General Schedule. The Records Commission also reviewed and approved the disposal of Fiscal, Hydrology, and Payroll records.

Active Litigation

The Miami Conservancy District is the defendant in an action pending in Montgomery County, Ohio, Court of Common Pleas (Case No. 36847), filed by Sunesis Construction Co. (Sunesis) on November 12, 2021. The action is related to the Lockington Dam Right Wall Drain System and Concrete Repair project. The action was resolved by decision of Judge Stevenson on May 21, 2024, granting summary judgment in favor of the MCD and against Sunesis on all claims. Sunesis appealed to Ohio's Second District Court of Appeals. Appellate oral argument was held on November 5, 2024, before Judges Epley, Welbaum, and Lewis. No appellate decision had been rendered as of the close of 2024.

The Miami Conservancy District is a defendant in an action pending in Montgomery County, Ohio, Court of Common Pleas (Case No. 2024 CV 04888), filed by Tain Investments III LLC (Tain) on September 16, 2024. Originally assigned to Judge Mary Wiseman, the matter was transferred to Judge Susan D. Solle on December 2, 2024. The action involves Tain seeking declaratory judgment related to special assessments for his property located in downtown Dayton. The Miami Conservancy District moved to dismiss the Complaint on October 14, 2024. Briefing was complete as of October 31, 2024, and no decision has been rendered as of the close of 2024.

Staff

Miami Conservancy District employees as of December 31, 2024.

EMPLOYEE NAME	POSITION
Emma J. Allington	Engineering Associate
David L. Basballe	Assistant Caretaker
Stephen A. Berry	Mechanic/Fleet Coordinator
William J. Birtcil	Project Crew Member
Timothy S. Borders	Caretaker
William L. Boyle	Caretaker
Raymond M. Burton	Project Crew Supervisor
James B. Casper	Manager, Operations & Maintenance
Brandon K. Clark	Assistant Caretaker
Ginger K. Clark	Manager, Great Miami Riverway
Karen A. Claude	Technical Property Analyst
Lauren E. Eifert	Administrative Associate
Michael P. Ekberg	Manager, Water Resources Monitoring & Analysis
Darin M. Eversole	Project Crew Member
Roxanne H. Farrier	Property Administrator
Jack L. Fisher	Caretaker
Jamie L. Frey	Finance Assistant
Ryan W. Gray	Caretaker
James E. Haaga, Jr.	Caretaker
Alex C. Hackney	Hydro Technician
Sarah Hippensteel Hall	Manager, Communications, Outreach, and Stewardship
Nathan T. Homan	Caretaker
Jaden D. Horner	Civil Engineer
Deborah L. Janning	Records Administrator
James D. Kittel	Construction Administrator
Krystal L. Lacy	Lead Worker, Water Monitoring
MaryLynn Lodor	General Manager
Christopher D. Macy	Assistant Caretaker
Shane T. McGuire	Assistant Caretaker
Jessica L. Moyer	Engineering Associate
Kenneth P. Moyer	Treasurer
Donald P. O'Connor	Chief Engineer
Jerry K. Oaks, Jr.	Caretaker
Susan M. Peele	Caretaker
Christina M. Pfeiffer	Executive Assistant
Shannon E. Phelps	Manager, Administration
Amanda N. Phillips	GIS Analyst
Andrew E. Pohl	Assistant Caretaker
Barry M. Puskas	Chief, Technical & Engineering Services
David A. Reynolds	Hydro Technician
Justin C. Shade	Caretaker
Isaac D. Shaffer	Assistant Caretaker
Elizabeth E. Sigmond	Hydro Technician
Darion B. Smith	Communications Specialist

Joseph A. Wesselman	Caretaker
Austin J. Williams	Caretaker
Scott E. Wilson	Caretaker

New Hires/Appointments

Name	Position	Effective Date
Lauren E. Eifert	Administrative Associate	03/04/2024
Ginger K. Clark	Manager, Great Miami Riverway	04/15/2024

Separations/Retirements

Name	Position	Effective Date
Daniel K. Foley	Manager, Great Miami Riverway	04/26/2024
Samuel J. Kirkpatrick	Assistant Caretaker	06/28/2024
Lloyd L. Ballard	Surveyor	12/12/2024

Changes—Promotions/Position Reassignments

Name	Position	Effective Date
Deborah L. Janning	Records Administrator	01/01/2024

Interns

MCD hosted two Summer Interns from the University of Dayton from mid-May to early August. Zada Gillenwater was placed with MCD from the Ethics and Leadership program at the Fitz Center, and Lloyd Osborne was placed with MCD from the ETHOS engineering program. Both students worked on a range of projects related to water stewardship, flood protection, and recreation.

Retirees

Daniel K. Foley

Daniel K. Foley retired from Miami Conservancy District on April 26, 2024, with more than 4 years of service. Mr. Foley began his employment on November 4, 2019, and served as the Great Miami Riverway Manager.

Remembering Lloyd Ballard

Lloyd Ballard (12/27/1957 – 12/12/2024) was a dedicated surveyor who served the Miami Conservancy District for 34 years, playing a vital role in engineering projects that safeguarded the region. He exemplified precision and innovation, mastering advanced surveying technologies such as the Total Robotic Station and GPS systems.

Beyond his professional contributions, Lloyd was a gifted musician whose piano playing and warm spirit brought joy to those around him. Lloyd's legacy will be remembered and deeply missed by his colleagues and all who knew him.

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Financial Statements

Financial Statements

Miami Conservancy District maintains its accounting records in accordance with the principles of fund accounting. Fund accounting is a concept developed to meet the needs of governmental entities in which legal or other restraints require the recording of specific receipts and disbursements. The transactions of each fund are reflected in a self-balancing group of accounts, an accounting entity, which stands separate from the activities reported in other funds. The restrictions associated with each fund type and the funds they cover are as follows:

I. GOVERNMENTAL FUND TYPES

A. GENERAL FUND

Limited to operation, maintenance, and other current expenses of The Miami Conservancy District

1. The Miami Conservancy District

B. SPECIAL REVENUE FUNDS

To account for the proceeds of specific revenue sources that are legally restricted to disbursements for specified purposes

- The Aquifer Preservation Subdistrict (APS)
- The River Corridor Improvement Subdistrict (RCIS)
- The Water Conservation Subdistrict (WCS)
- Federal Emergency Management Agency (FEMA) Assistance

C. DEBT SERVICE FUNDS

To account for the accumulation of resources for and the payment of debt principal, interest, and related costs

1. Dam Safety and Rehabilitation Debt Service

D. CAPITAL PROJECT FUNDS

To account for financial resources to be used for the acquisition or construction of major capital facilities

- Dam Safety and Rehabilitation
- Capital Improvements
- Federal Emergency Management Agency (FEMA) Capital Projects

See Appendix A – E for Financial Tables.

Appendices

Appendix A—Combined Statement of Cash, Investments, and Fund Cash Balances for all Fund Types

AS OF DECEMBER 31, 2024

Demand Deposits	$	1,387,709
Total Deposits		1,387,709
STAR Ohio		16,918,932
Money Market Mutual Fund		3,055,621
Total Investments		19,974,553
Total Deposits and Investments	$	21,362,262

CASH BALANCES BY FUND TYPE

GOVERNMENTAL FUNDS:		
General Fund	$	8,492,878
Special Revenue Funds		7,187,280
Debt Service Funds		-
Capital Projects Funds		5,682,104
Total Cash Balance	$	21,362,262

Appendix B—Combined Statement of Cash Receipts, Cash Disbursements, and Changes in Fund Cash Balances for Governmental Fund Types

FOR THE YEAR ENDED DECEMBER 31, 2024

	GOVERNMENTAL FUND TYPES				TOTAL
	General	Special Revenue	Debt Service	Capital Projects	(Memorandum Only)
Cash Receipts:					
Assessments	$ 6,414,471	$ 1,202,867		$ 25,561	$ 7,642,899
Investment Income	337,202	345,390		243,625	926,217
Fees & Charges	109,842	55,336			165,178
Intergovernmental	20,300	353,750		248,745	622,795
Reimbursements/Miscellaneous	50,767	43,840			94,607
Total Cash Receipts	6,932,582	2,001,183	-	517,931	9,451,696
Cash Disbursements:					
Operating	7,404,075	2,235,584		1,206,354	10,846,013
Equipment & Machinery	293,051	10,417			303,468
Land Acquisition	1,612				1,612
Dam Safety				945,181	945,181
Other					-
Debt Service:					
Principal			74,931		74,931
Interest			68,135		68,135
Total Cash Disbursements:	7,698,738	2,246,001	143,066	2,151,535	12,239,340
Total Receipts Over/(Under) Disbursements	(766,156)	(244,818)	(143,066)	(1,633,604)	(2,787,644)
Other Financing Receipts/(Disbursements):					
Sale of Land					-
Sale of Equipment	17,194				17,194
Advances In	4,193,010				4,193,010
Advances (Out)				(4,193,010)	(4,193,010)
Transfers In			143,066		143,066
Transfers (Out)	(143,066)				(143,066)
OWDA Loan Proceeds				4,165,103	4,165,103
Total Other Financing Receipts/(Disbursements)	4,067,138	0	143,066	(27,907)	4,182,297
Excess of Cash Receipts and Other Financing Receipts Over/(Under) Cash Disbursements and Other Financing Disbursements	3,300,982	(244,818)	-	(1,661,511)	1,394,653
Cash Balance - January 1, 2024	5,191,896	7,432,098	-	7,343,615	19,967,609
Cash Balance - December 31, 2024	**$ 8,492,878**	**$7,187,280**	**$ -**	**$5,682,104**	**$ 21,362,262**

Appendix C—Combined Statement of Revenue—Estimated and Actual for all Budgetary Funds

FOR THE YEAR ENDED DECEMBER 31, 2024

Fund Type	Budgeted Receipts	Actual Receipts	Variance
General	$ 11,099,310	$ 11,142,786	$ 43,476
Special Revenue	1,960,900	2,001,183	40,283
Debt Service	143,066	143,066	-
Capital Projects	4,944,563	4,958,749	14,186
Total	$ 18,147,839	$ 18,245,784	$ 97,945

Appendix D—Combined Statement of Appropriations, Expenditures, and Encumbrances for all Budgetary Funds

FOR THE YEAR ENDED DECEMBER 31, 2024

Fund Type	Prior Year Carryover Appropriations	2024 Appropriations	Total	Actual 2024 Expenditures	Encumbrances Outstanding 12/31/2024	Total	Variance Favorable (Unfavorable)
General Fund	$ 1,066,436	$ 9,011,225	$ 10,077,661	$ 7,841,804	$ 1,473,372	$ 9,315,176	$ 762,485
Special Revenue Funds	865,717	2,017,281	2,882,998	2,246,002	403,797	2,649,799	233,199
Debt Service Fund	-	143,066	143,066	143,066	-	143,066	-
Capital Projects Funds	2,811,281	4,537,690	7,348,971	6,620,260	728,609	7,348,869	102
Totals	$ 4,743,434	$ 15,709,262	$ 20,452,696	$ 16,851,132	$ 2,605,778	$ 19,456,910	$ 995,786

A

Appendix F - Local Protection Features

Figure 1—Piqua Local Flood Protection Feature Levee Systems

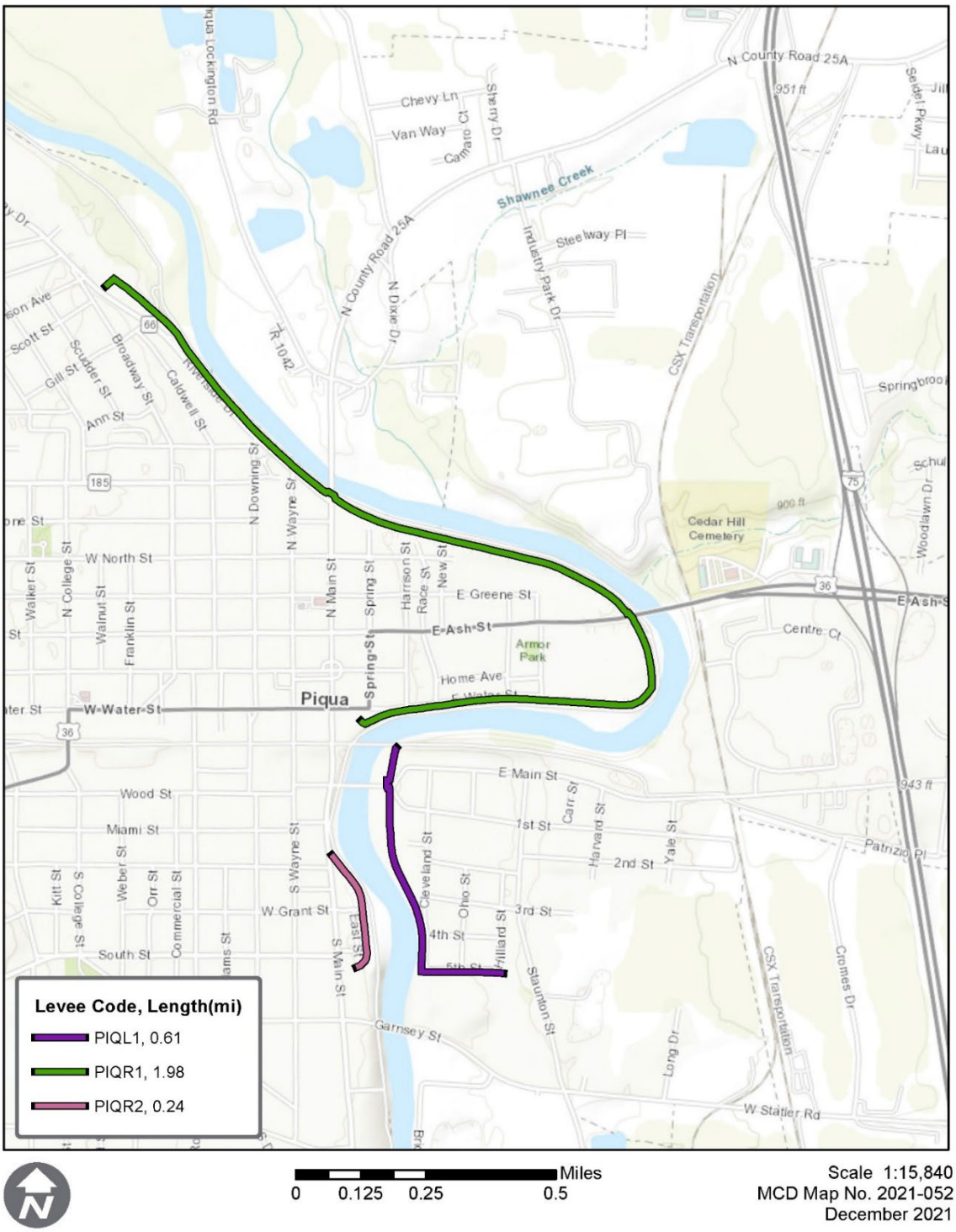


Figure 2—Troy Local Flood Protection Feature Levee Systems

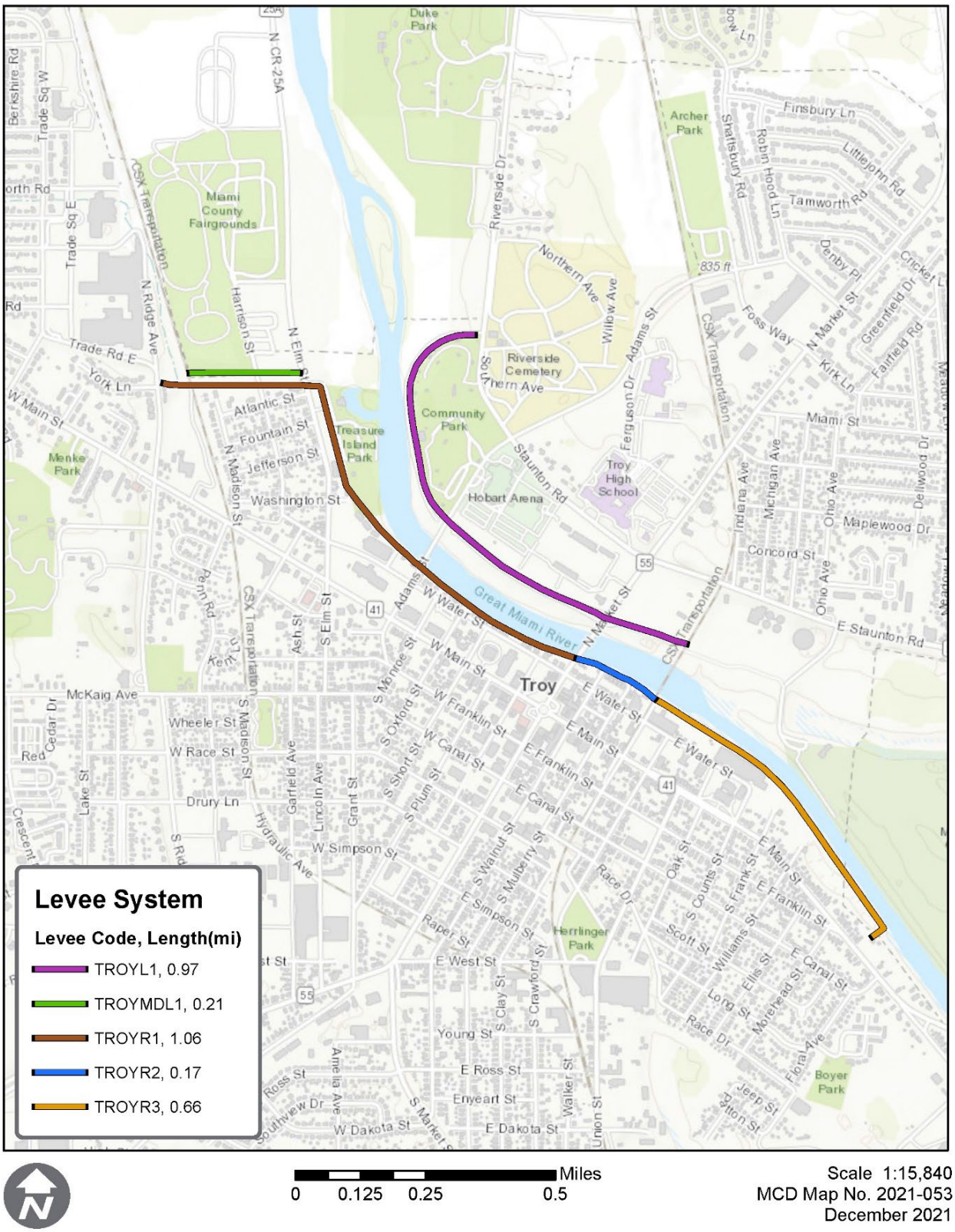
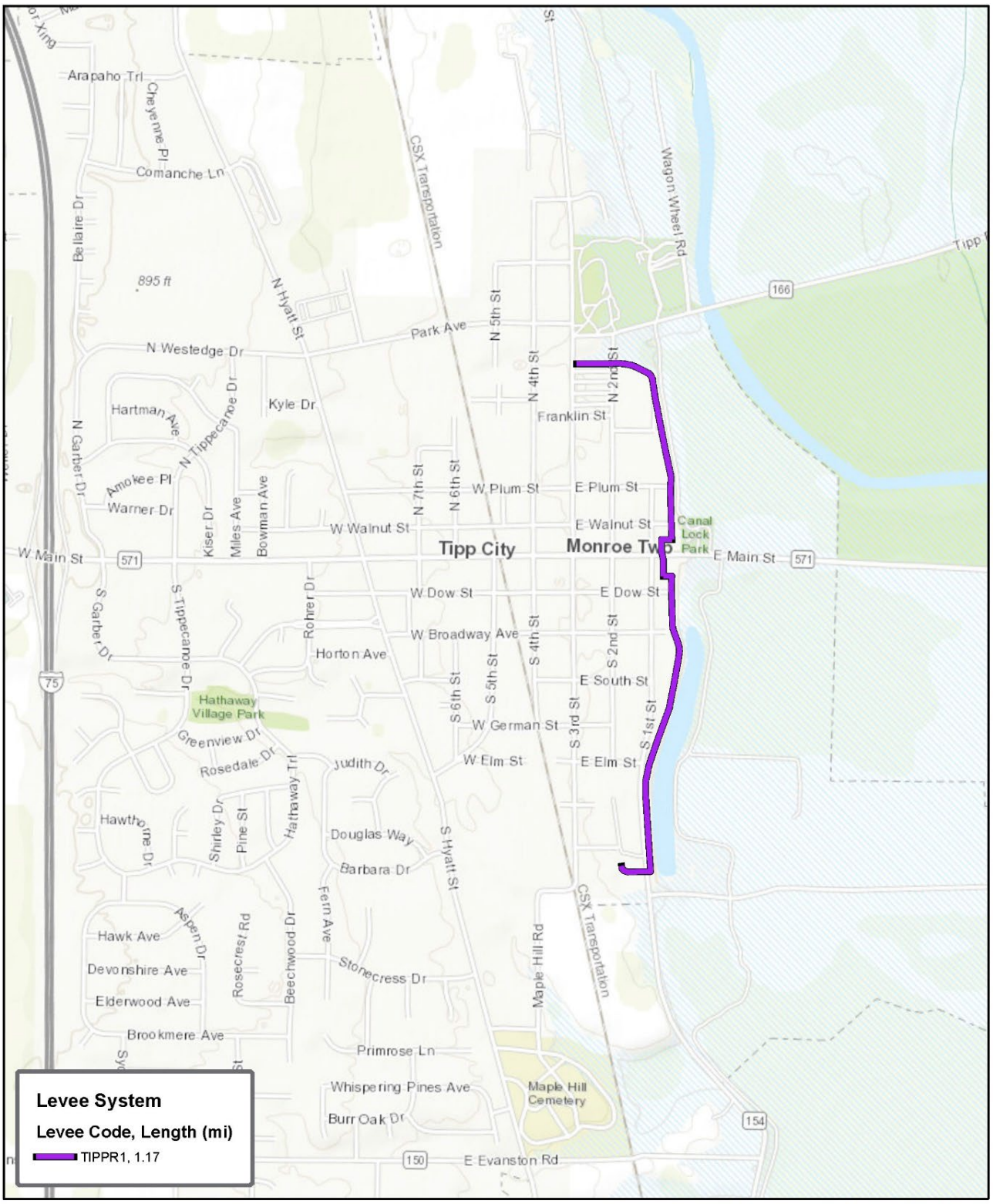


Figure 3—Tipp City Local Flood Protection Feature Levee System



Scale 1:15,840
MCD Map No. 2021-054
December 2021

Figure 4—Huber Heights Local Flood Protection Feature Levee

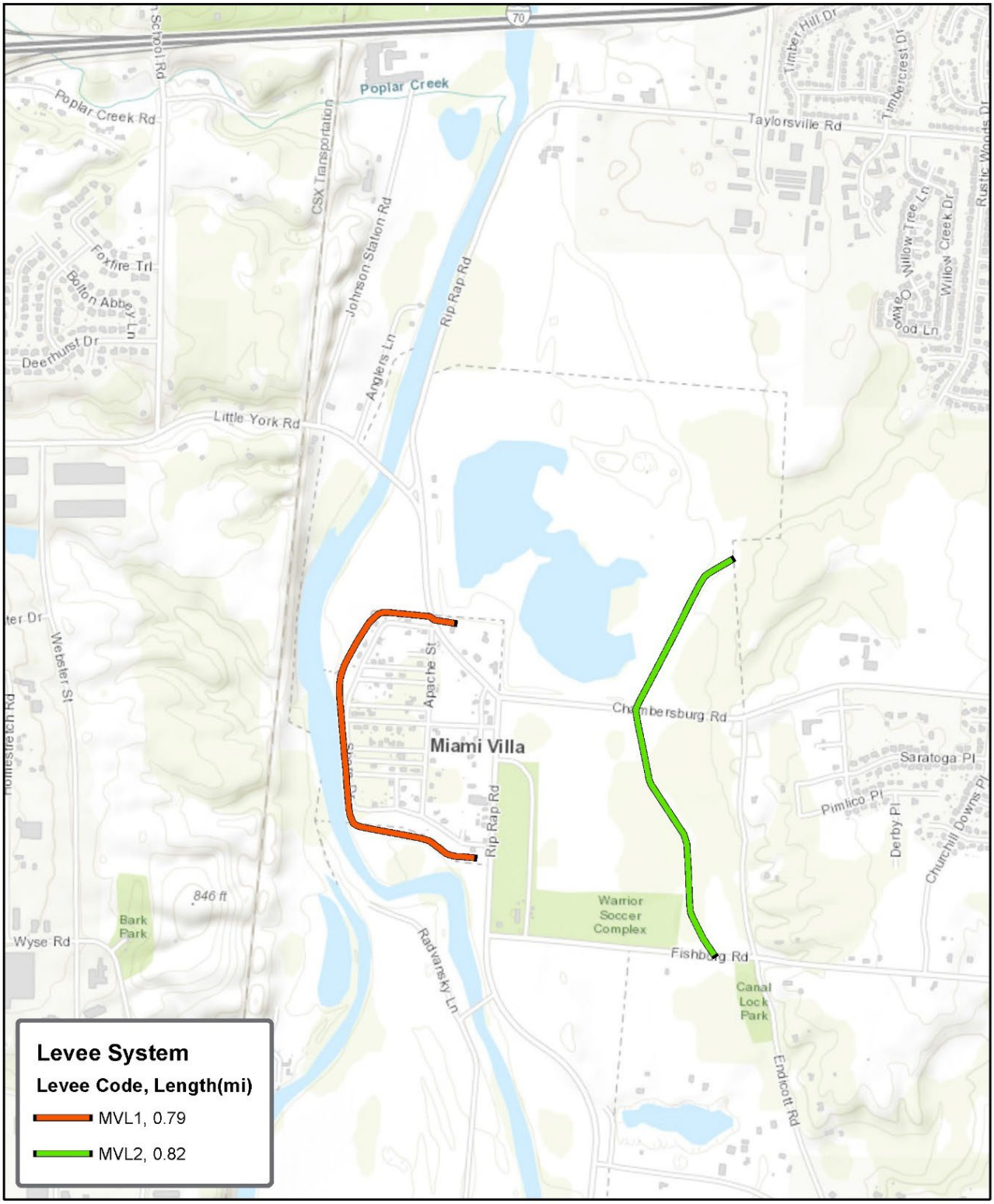


Figure 5—Dayton Local Flood Protection Feature Levee Systems

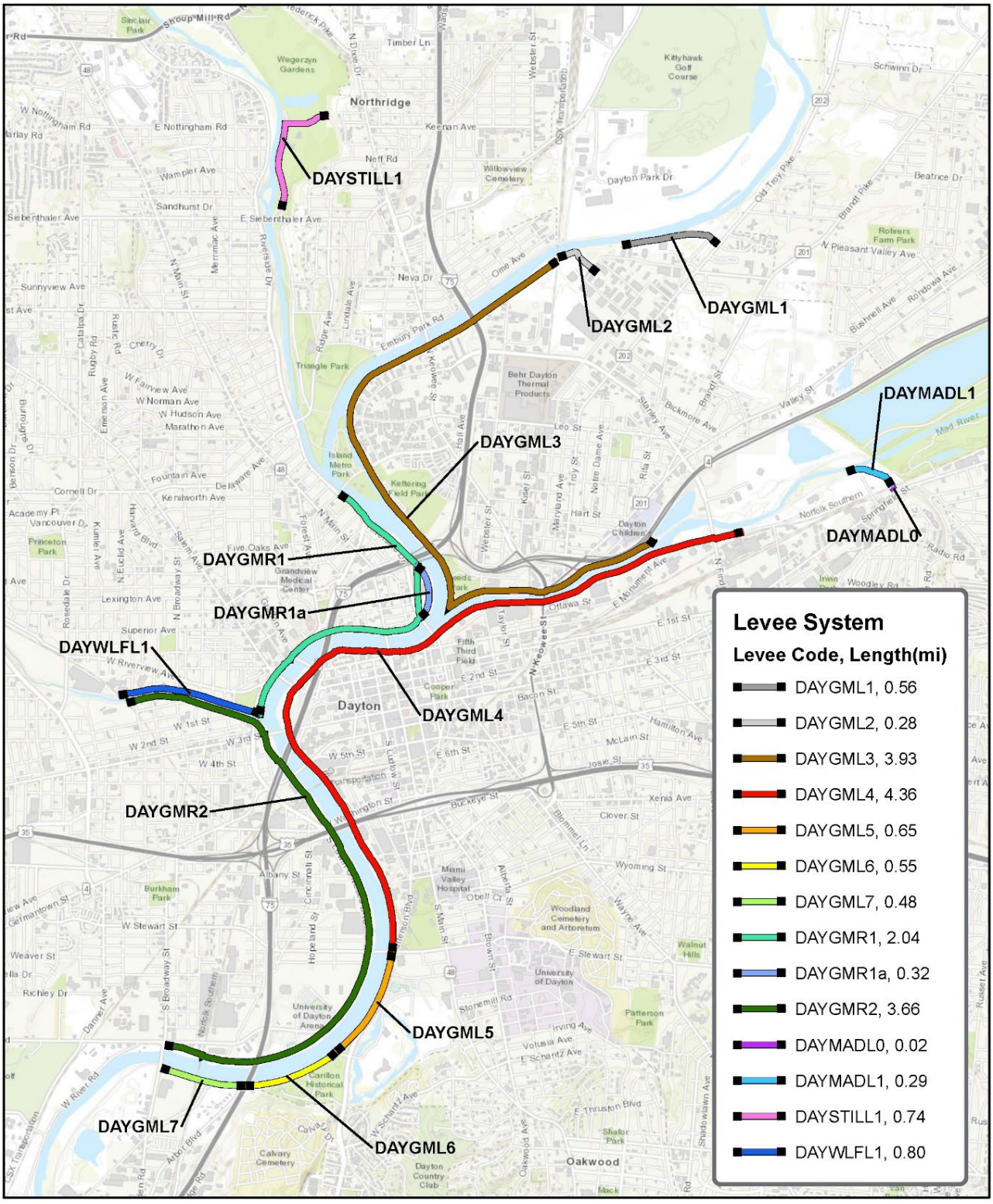
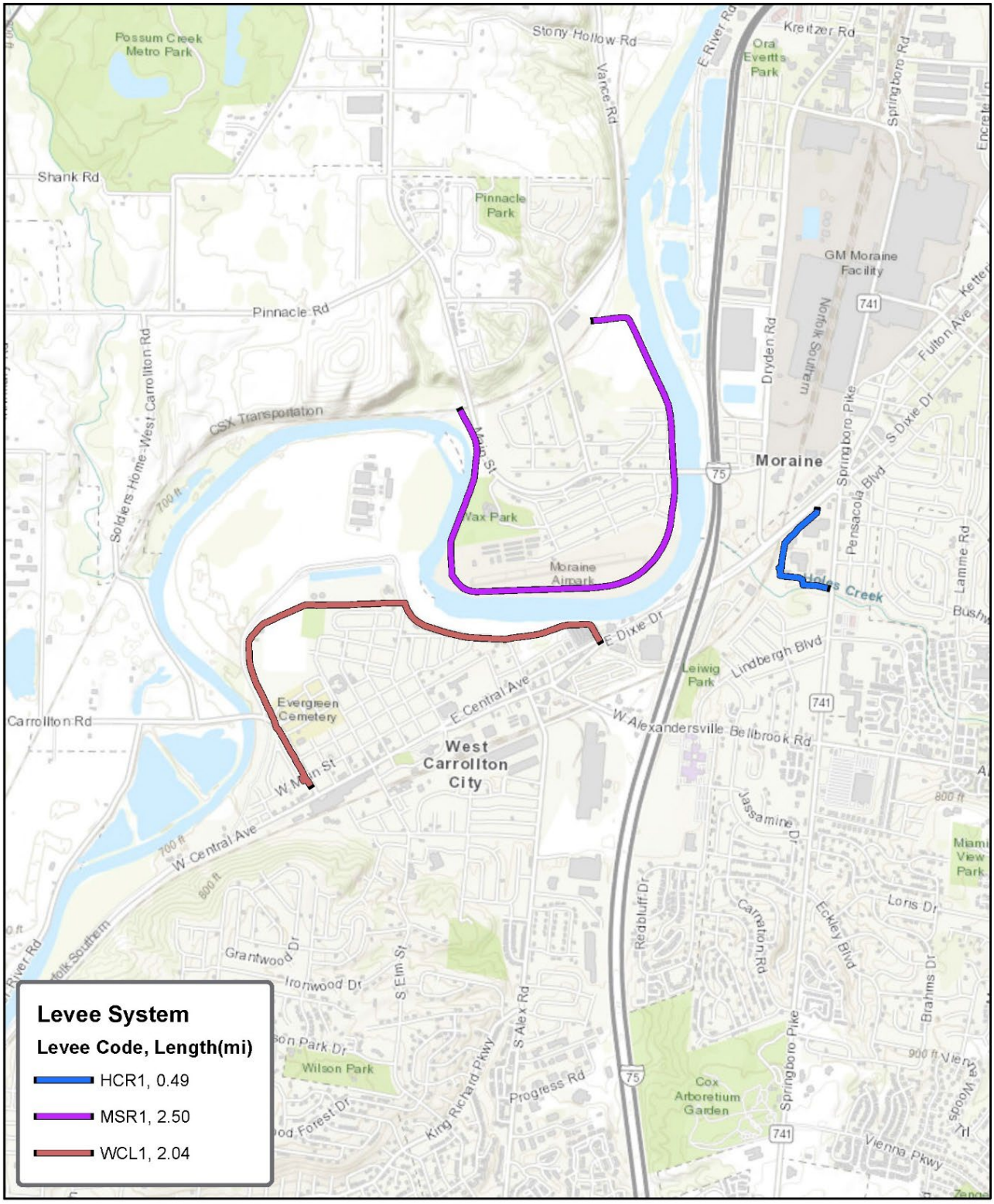


Figure 6—West Carrollton-Moraine Local Flood Protection Feature



Levee Systems

Figure 7—Miamisburg Local Flood Protection Feature Levee Systems

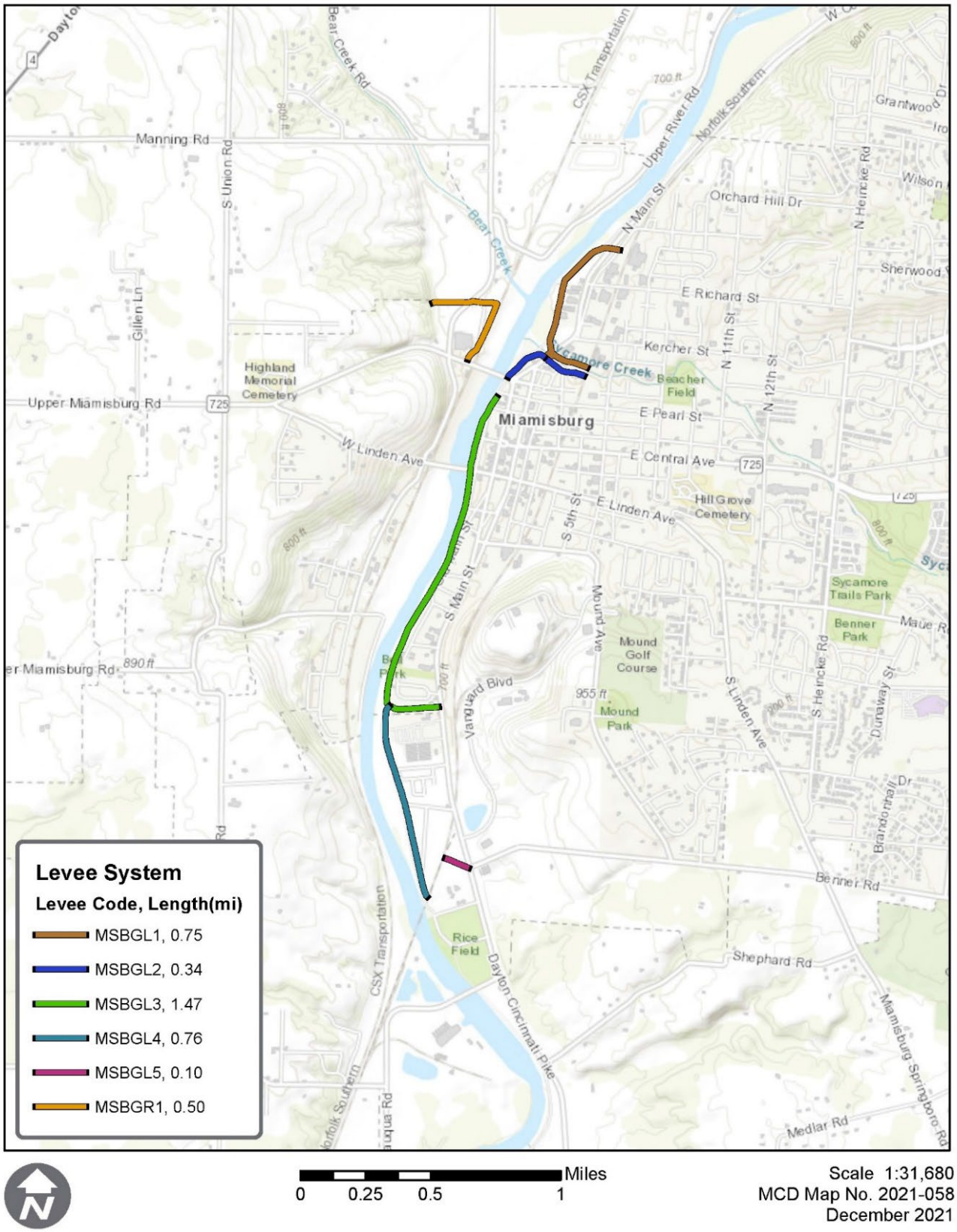


Figure 8—Franklin Local Flood Protection Feature Levee Systems

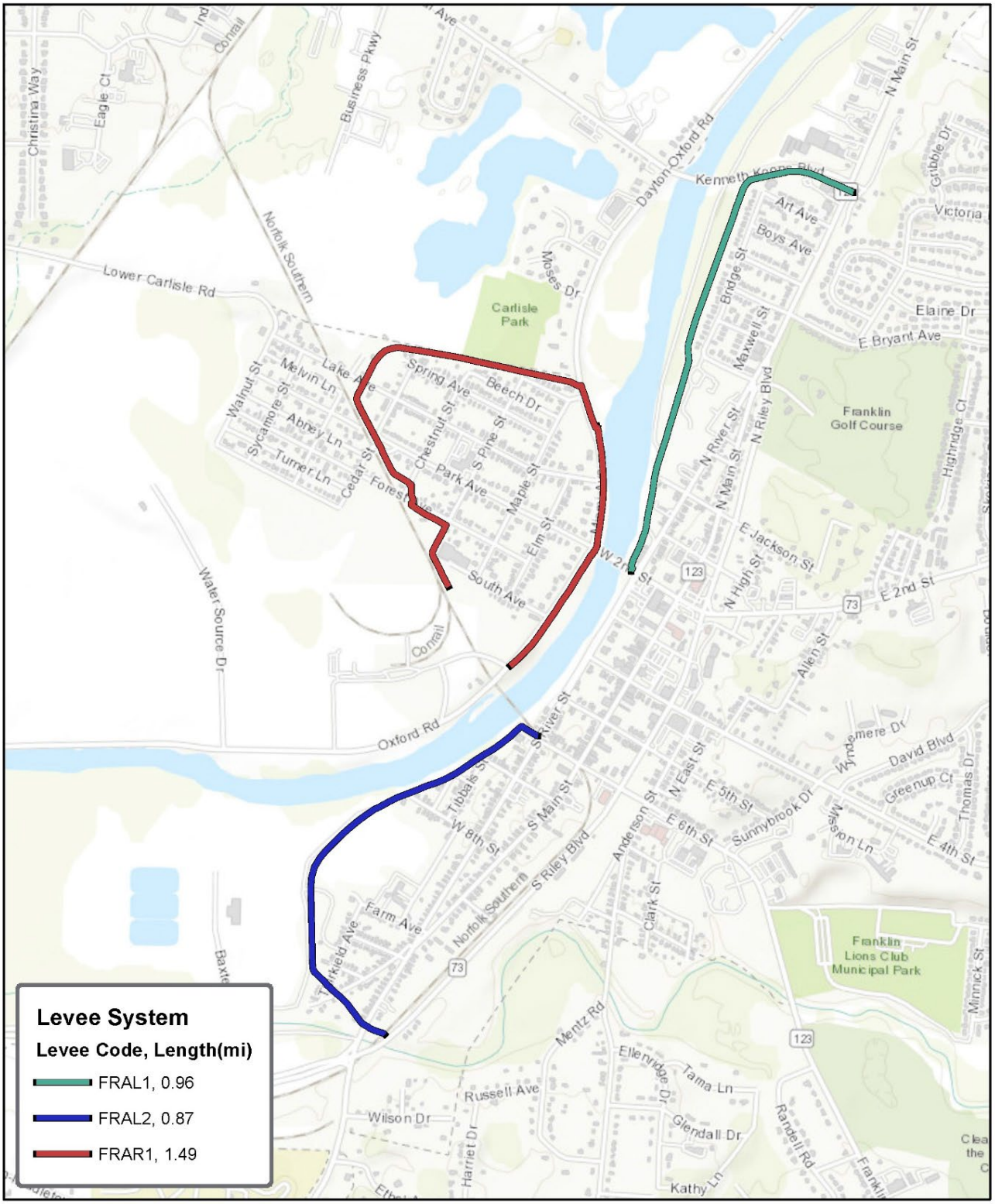


Figure 9—Middletown Local Flood Protection Feature Levee Systems

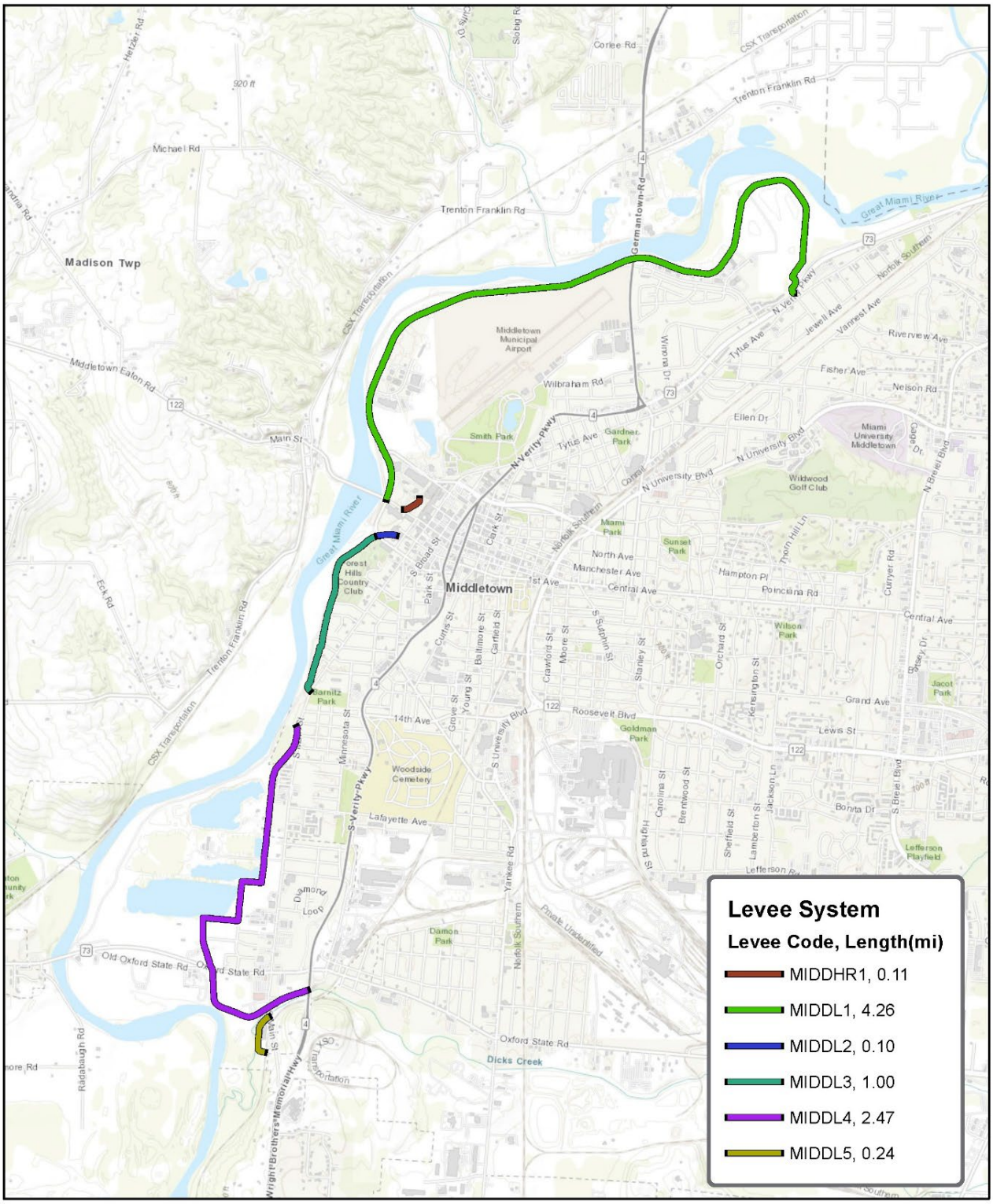
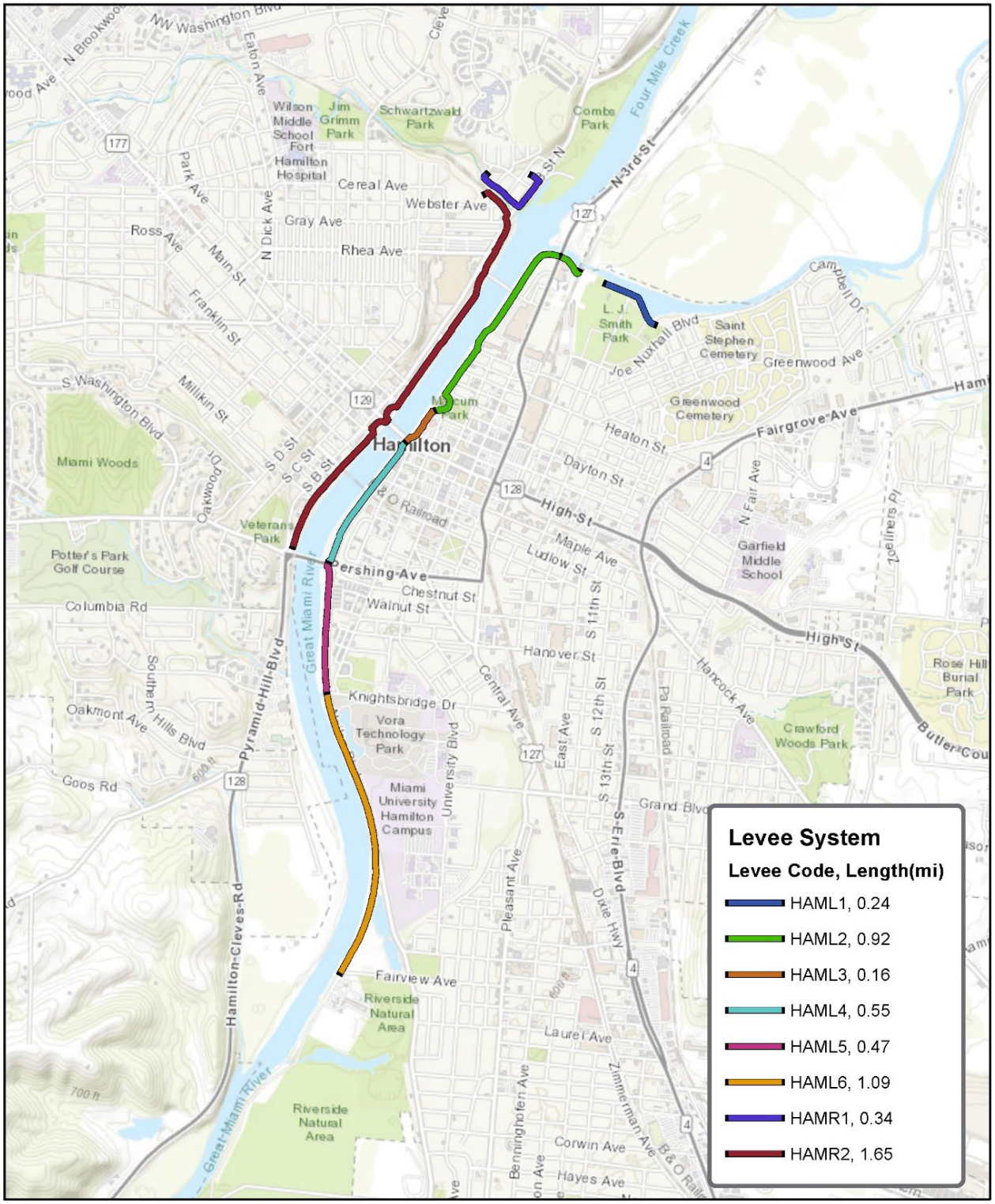


Figure 10—Hamilton Local Flood Protection Feature Levee Systems



Appendix G – Hydrologic Data

- Table 5 - Summary of 2024 High Water Events
- Table 6 – Flooding Basin Stages Where Storage Begins
- Table 7 – Precipitation Station Records in the Great Miami River Watershed - 2024
- Table 8 – Storage Basin Operation (Storage Events) Miami Conservancy District during 2024
- Table 9 – Largest Storage Events by Volume at Miami Conservancy District Dams since 1922
- Table 10 – Storage Basins – Ten highest for 1922-2024
- Table 11—Storage Basins—Ten Highest Stages for 1922–2024
- Table 12 —Flooding Basin Data and Operational Experience
- Table 13—Channel Data for Local Protection Since 1922
- Table 14—Maximum Stage and Discharge during 2023 for the Great Miami River
- Chart 1—Great Miami River Watershed Monthly Precipitation Statistics, 1913–2024
- Chart 2—Change in the 30-Year Average Annual Precipitation for the Great Miami River Watershed, 1945–2024
- Chart 3—Average Annual Precipitation for the Great Miami River Watershed, 1915–2024
- Chart 4—Annual Precipitation for the Dayton Observer Station, 1915–2024
- Chart 5—Annual Peak Discharges of the Great Miami River at Dayton, Ohio

Table 5—Summary of 2024 High Water Events

Dates	Dams in Storage*	Local Protection Features that Reached Action Stage
January 26	None	HAM
January 28-30	G, E	HAM
March 6-8	E	None
March 9-11	G, E	HAM
March 15-16	E	None
April 2-7	G, E, L, T, H	PIQ, TRO, DAY, WC, MIA, FRA, MID, HAM
April 11-15	G, E, L, T	DAY, WC, FRA, MID, HAM
December 16-17	G	None
December 29 – January 3	G, E, L, T	DAY, MID, HAM

The table reflects the high water events as measured from the beginning to the end of all storage at the dams or action stages at the local flood protection features.

*Names of Dams: G – Germantown; E – Englewood; L – Lockington; T – Taylorsville; H - Huffman

Table 6—Flooding Basin Stages Where Storage Begins

Storage Basin	Stage Where Storage Begins
Germantown	12
Englewood	11.6
Lockington	12
Taylorsville	15
Huffman	11

Table 7—Precipitation Station Records in the Great Miami River Watershed—2024

STATION NAME	PERIOD OF RECORD* (years)	30-YEAR AVERAGE** (inches)	2024 TOTAL (inches)	DEPARTURE (inches)
Alcony	44	40.19	37.26	-2.93
Arcanum	65	41.52	46.90	5.38
Beechwood	52	41.97	46.42	4.45
Bellefontaine	52	42.74	39.25	-3.49
Brookville	54	42.32	44.77	2.45
Centerville	61	44.18	38.29	-5.89
Collinsville	54	44.03	40.66	-3.37
Covington	68	41.95	38.92	-3.03
Dayton	142	41.96	39.38	-2.58
De Graff	63	40.26	38.56	-1.70
Eaton	105	42.96	53.95	10.99
Englewood Dam	98	42.29	45.17	2.88
Ft. Loramie	104	39.07	37.69	-1.38
Franklin	95	43.29	42.22	-1.07
Germantown Dam	103	42.34	49.03	6.69
Greenville	120	40.19	41.07	0.88
Hamilton	107	42.45	40.85	-1.60
Huffman Dam	93	42.28	39.04	-3.24
Ingomar	90	44.09	49.13	5.04
Lakeview	99	40.10	37.24	-2.86
Lockington Dam	104	41.03	36.27	-4.76
Miamisburg	100	44.63	43.12	-1.51
Middletown	101	42.48	40.83	-1.65
New Carlisle	100	41.71	43.81	2.10
Oxford	94	42.85	46.34	3.49

Piqua	110	43.01	40.77	-2.24
Pleasant Hill	104	40.98	43.13	2.15
St. Paris	88	42.65	40.49	-2.16
Sidney	126	41.59	37.10	-4.49
Springboro, South	47	43.72	43.36	-0.36
Springfield North	59	43.25	39.07	-4.18
Springfield, WPC	114	42.86	39.32	-3.54
Taylorsville Dam	99	43.19	44.03	0.84
Tipp City	101	40.92	39.98	-0.94
Troy	93	40.64	40.78	0.14
Union City	56	38.85	36.33	-2.52
Urbana	143	41.24	43.97	2.73
Versailles	106	39.64	40.17	0.53
West Carrollton	61	41.93	41.91	-0.02
West Liberty	62	42.87	47.08	4.21
West Manchester	96	42.17	47.60	5.43
West Milton	88	39.55	39.18	-0.37
Average for Watershed		**41.92**	**41.91**	**-0.01**

* The Years of Record values include only years with full, uninterrupted monthly records.

** The 30-year average represents the average annual precipitation at each station for the period of 1991–2020. The 30-year average is recalculated every 10 years to account for climatic trends and variability.

Figure 1—Great Miami River Watershed Monthly Precipitation Statistics, 1913–2024

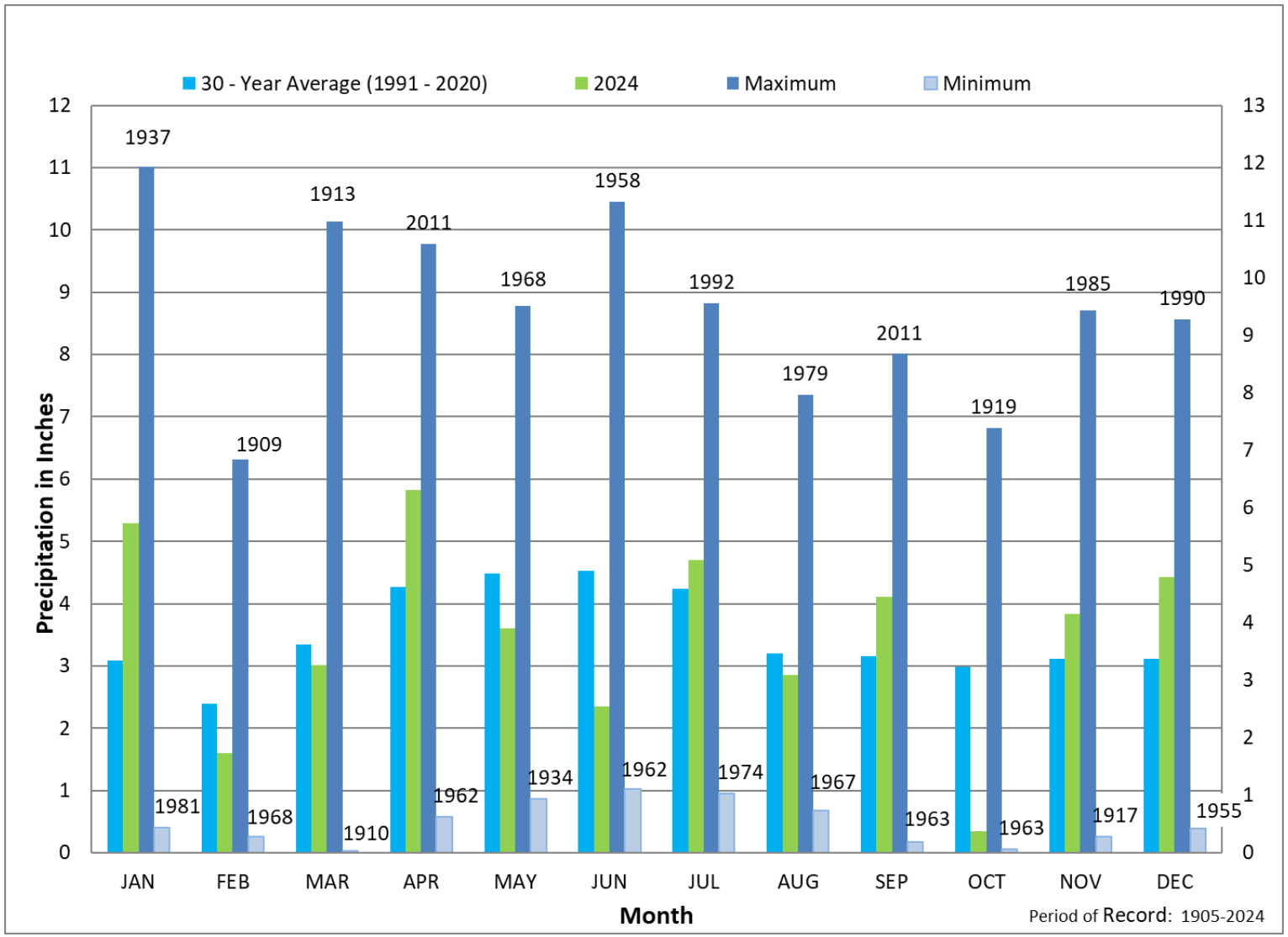


Figure 2 —Change in the 30-Year Average Annual Precipitation for the Great Miami River Watershed, 1945–2024

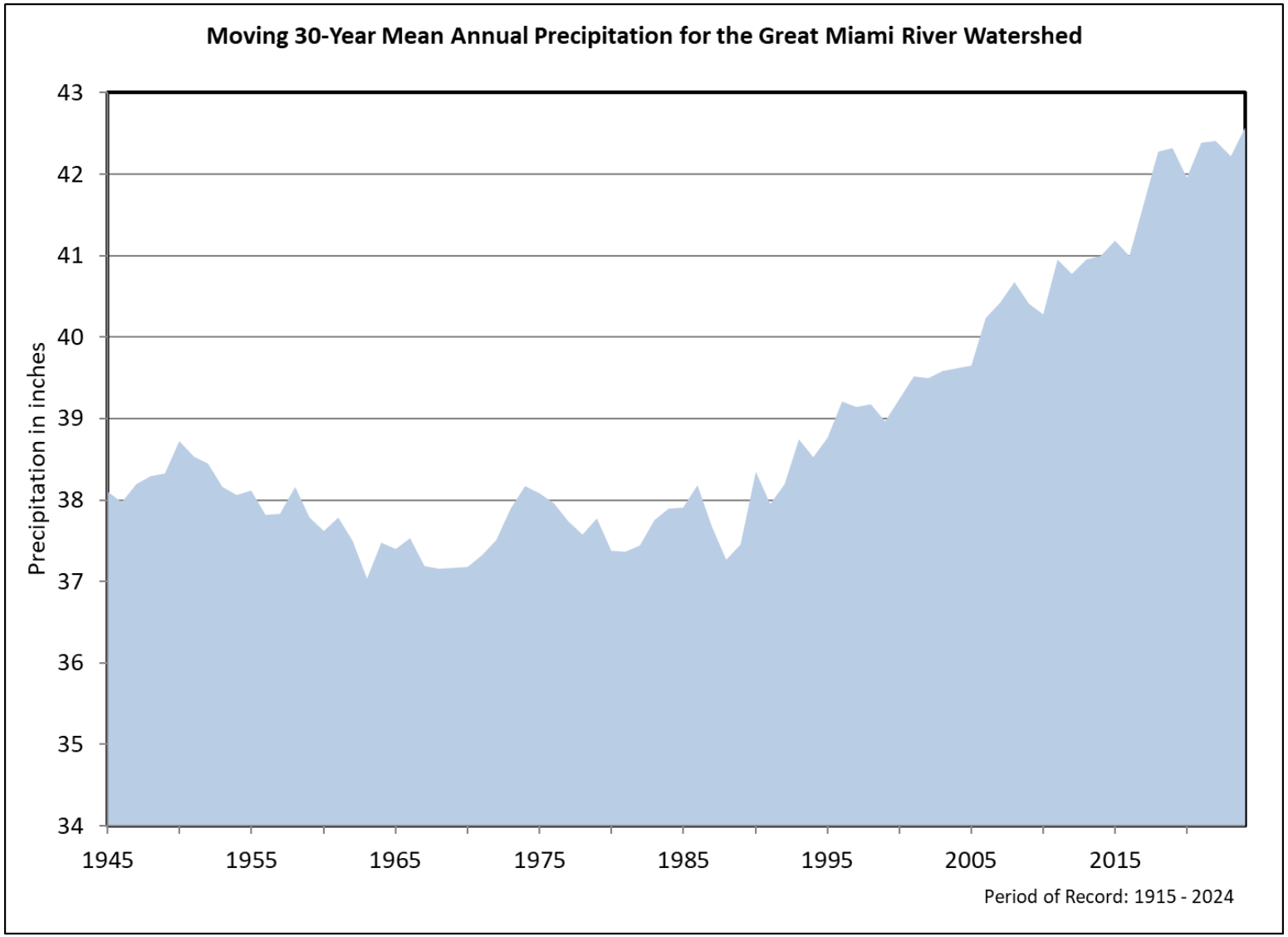


Figure 3—Average Annual Precipitation for the Great Miami River Watershed, 1915–2024

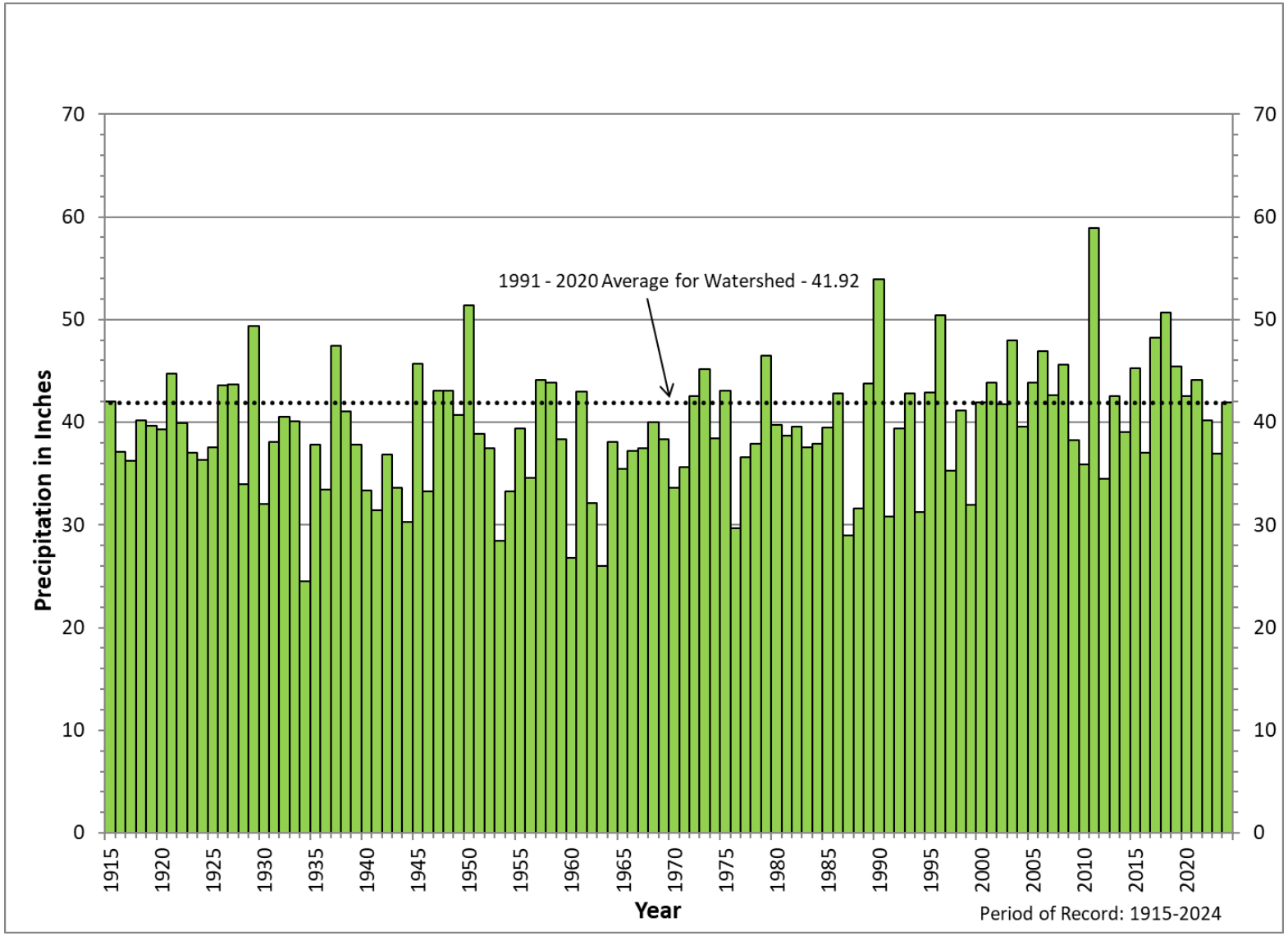


Figure 4—Annual Precipitation for the Dayton Observer Station, 1915–2024

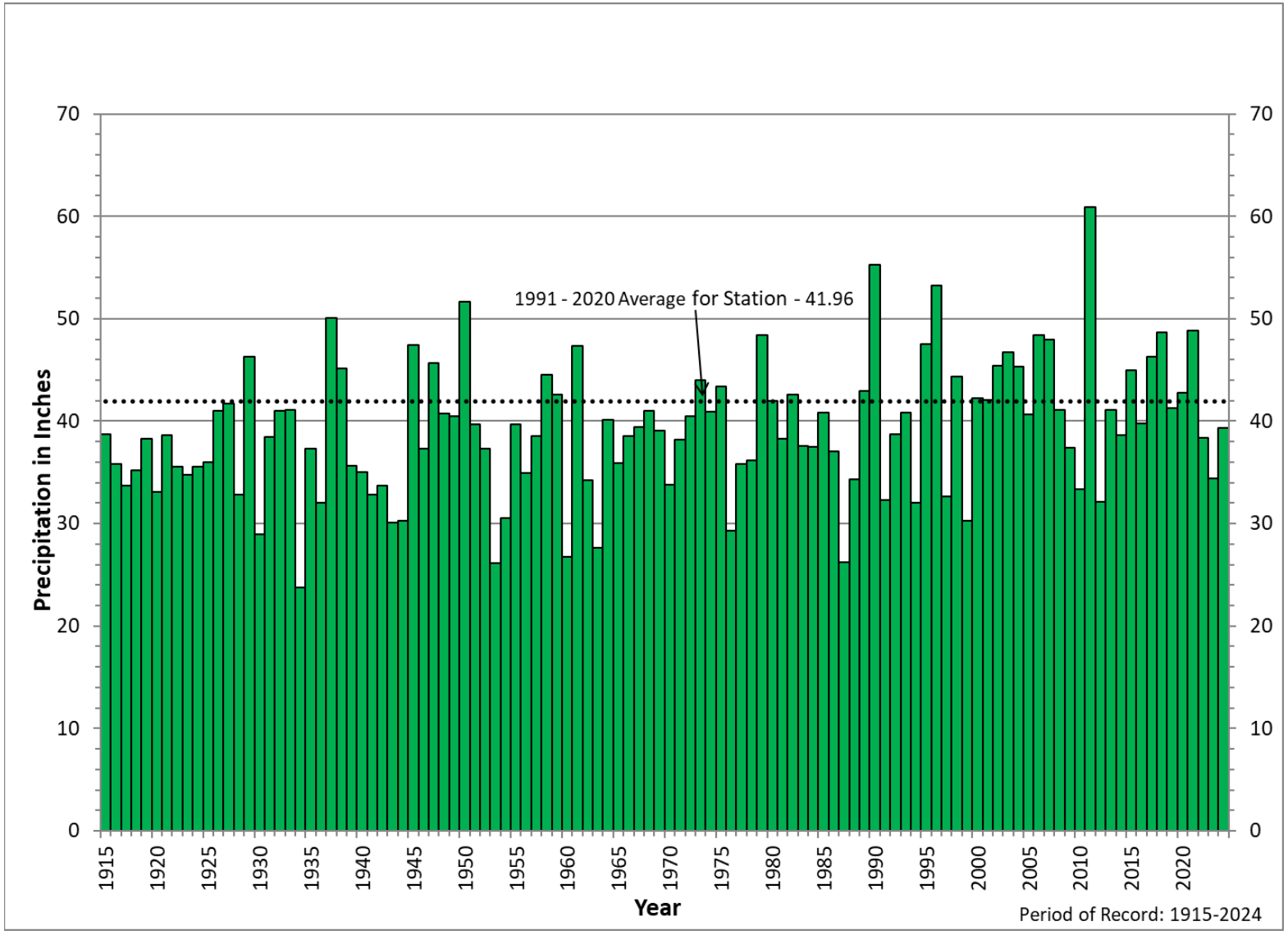


Table 8—Storage Basin Operation (Storage Events) during 2024

Storage Basin	Date	Maximum Elevation (ft.)	Maximum Depth (ft.)	Maximum Storage (ac. ft.)	Storage Used (percent)	Pool Area (acres)	Maximum Outflow (c.f.s.)
Germantown Twin Creek (Zero 723.2)*	1/28/2024	741.1	17.9	540	0.5%	114	3,830
	3/9/2024	745.2	22.0	1,075	1.0%	175	4,520
	4/3/2024	739.6	16.4	420	0.4%	93	3,580
	4/11/2024	738.7	15.5	345	0.3%	83	3,420
	12/16/2024	739.5	16.3	410	0.4%	92	3,550
	12/29/2024	752.0	28.8	2,775	2.6%	378	5,480
	12/31/2024	739.9	16.7	435	0.4%	96	3,630
Englewood Stillwater River (Zero 771.2)*	1/29/2024	786.9	15.7	1,070	0.3%	235	3,460
	3/7/2024	789.4	18.2	2,400	0.8%	325	4,010
	3/10/2024	792.8	21.6	4,000	1.3%	540	4,730
	3/16/2024	783.8	12.6	430	0.1%	135	2,770
	4/4/2024	806.3	35.1	15,200	4.9%	1,240	6,640
	4/13/2024	803.1	31.9	11,300	3.6%	1,030	6,270
	1/1/2025	791.8	20.6	3,500	1.1%	465	4,520
Lockington Loramie Creek (Zero 875.2)*	4/3/2024	901.9	26.7	4,100	5.9%	555	5,210
	4/12/2024	893.7	18.5	1,050	1.5%	250	3,730
	12/31/2024	888.6	13.4	290	0.4%	111	2,550
Taylorsville Great Miami River (Zero 759.2)*	4/3/2024	782.3	23.1	7,700	4.1%	1,080	19,700
	4/12/2024	777.8	18.6	3,800	2.0%	645	14,400
	1/1/2025	774.8	15.6	2,235	1.2%	425	11,100

Huffman	4/3/2024	788.7	12.4	620	0.4%	225	5,890
Mad River							
(Zero 776.3)*							

* Denotes floor elevations of conduits referenced to NAVD88 vertical datum.

Table 9—Largest Storage Events by Volume at MCD Dams

Rank	Date	Total Storage (acre-feet)	Total Storage (billion gallons)
1	January 22–23, 1959	137,600	44.8
2	January 6–8, 2005	114,500	37.2
3	June 11–15, 1958	97,690	31.8
4 (tie)	January 14–16, 1937	93,300	30.4
4 (tie)	December 21–24, 2013	93,300	30.4
6	January 21–23, 1937	93,200	30.4
7	May 13–15, 1933	86,900	28.3
8	March 5–7, 1963	86,690	28.2
9	February 26–27, 1929	84,300	27.5
10	December 31, 1990	81,300	26.5

Table 10—Storage Basins—Ten Highest Stages for 1922–2024

Germantown			
Date	Elevation	Depth (ft.)	Storage (percent)
Capacity	814.2*	91.0	100.0
1/22/1959	786.4	63.2	31.8
2/26/1929	777.7	54.5	20.8
1/27/1952	776.7	53.5	19.8
1/06/2005	776.4	53.2	19.6
3/05/1963	776.0	52.8	18.5
12/22/2013	775.9	52.7	18.4
4/04/2018	775.3	52.1	17.8
1/15/1937	775.0	51.8	17.5
1/22/1937	773.2	50.0	15.9
1/05/1949	772.5	49.3	15.3

Englewood			
Date	Elevation	Depth (ft.)	Storage (percent)
Capacity	875.2*	104.0	100.0
1/08/2005	831.2	60.0	21.6
6/15/1958	830.5	59.3	21.1
5/15/1933	827.4	56.2	18.1
1/23/1937	825.9	54.7	17.0
1/16/1937	825.0	53.8	15.9
12/24/2013	824.8	53.6	15.7
1/23/1959	824.3	53.1	15.4
1/10/1924	822.1	50.9	13.6
1/15/1930	821.9	50.7	13.5
12/31/1990	821.9	50.7	13.5

Lockington			
Date	Elevation	Depth (ft.)	Storage (percent)
Capacity	937.2*	62.0	100.0
7/09/2003	911.6	36.4	17.2
6/11/1958	911.4	36.2	17.1
1/22/1959	909.0	33.8	13.6
12/31/1990	908.6	33.4	13.0
12/22/2013	907.4	32.2	11.6
3/21/1927	907.3	32.1	11.4
5/13/1933	906.6	31.4	10.7
4/22/1964	906.4	31.2	10.5
1/12/2005	905.7	30.4	9.4
1/06/2005	905.2	30.0	8.9

Table 11—Storage Basins—Ten Highest Stages for 1922–2024

Taylorsville			
Date	Elevation	Depth (ft.)	Storage (percent)
Capacity	817.2*	58.0	100.0
1/22/1959	790.7	31.5	11.6
1/06/2005	788.8	29.6	8.7
12/22/2013	787.7	28.5	8.3
12/31/1990	786.7	27.5	8.0
5/14/1933	786.3	27.1	6.9
1/14/1937	786.1	26.9	6.7
2/26/1929	785.8	26.6	6.4
8/09/1995	785.7	26.5	6.3
1/21/1937	785.6	26.4	6.2
3/05/1963	784.9	25.7	5.7

Huffman			
Date	Elevation	Depth (ft.)	Storage (percent)
Capacity	834.3*	58.0	100.0
1/22/1959	808.3	32.0	15.0
2/26/1929	804.5	28.2	8.5
3/05/1963	803.4	27.1	7.5
1/21/1937	800.3	24.0	4.7
1/27/1952	800.1	23.8	4.5
1/15/1937	799.1	22.8	3.9
2/14/1948	798.6	22.3	3.7
3/29/1924	797.3	21.0	2.9
3/10/1964	797.0	20.7	2.7
2/11/1959	796.5	20.2	2.5

* Spillway crest in feet above mean sea level referenced to NAVD88 vertical datum.

Table 12 —Flooding Basin Data and Operational Experience

Flooding Basin & Stream	Drainage Area (sq. mi.)	Capacity (ac. ft.)	Design Depth (ft.)	Times Water Stored		Maximum Storage Depth		
				102 years	2024	Date	(ft.)	(percent)
Germantown	275	106,000	91	580	7	January 1959	63.2	31.8
Twin Creek								
Englewood	650	312,000	104	731	7	January 2005	60.0	21.6
Stillwater River								
Lockington	257	70,000	62	435	3	July 2003	36.4	17.2
Loramie Creek								
Taylorsville	1,149	186,000	58	209	3	January 1959	31.5	11.6
Great Miami River								
Huffman	635	167,000	58	208	1	January 1959	32.0	15.0
Mad River								
Total Times of Storage				**2,163**	**21**			

Table 13—Channel Data for Local Protection Since 1922

City	Drainage Area (sq. mi.)	Channel Capacity (c.f.s.)	Maximum Discharge (c.f.s.)	Maximum Gage Height (ft.)	Percent Total Channel Capacity	Month and Year
Piqua	866	70,000	26,500[1]	16.2[1]	37.9	March 1927
Troy	926	78,000	29,500[1]	--	37.8	March 1927
Tipp City	969	--	--	14.6	--	January 1959
Dayton	2,511	110,000	60,900	35.4[2]	54.5	January 1959
West Carrollton	2,614	125,000	--	20.1	--	January 1959
Miamisburg	2,713	130,000	62,000	20.7	47.7	January 1959
Franklin	2,727	135,000	68,000	17.6	50.4	January 1959
Middletown	3,134	150,000	90,000	20.5	60.0	January 1959
Hamilton	3,630	200,000	108,000	79.5[3]	54.0	January 1959

1- Estimated.

2- Measurement originally was made at the Main Street Bridge and converted to an equivalent Dayton gage height.

3- Measurement originally was made at the Main-High Bridge and converted to an equivalent Hamilton gage height.

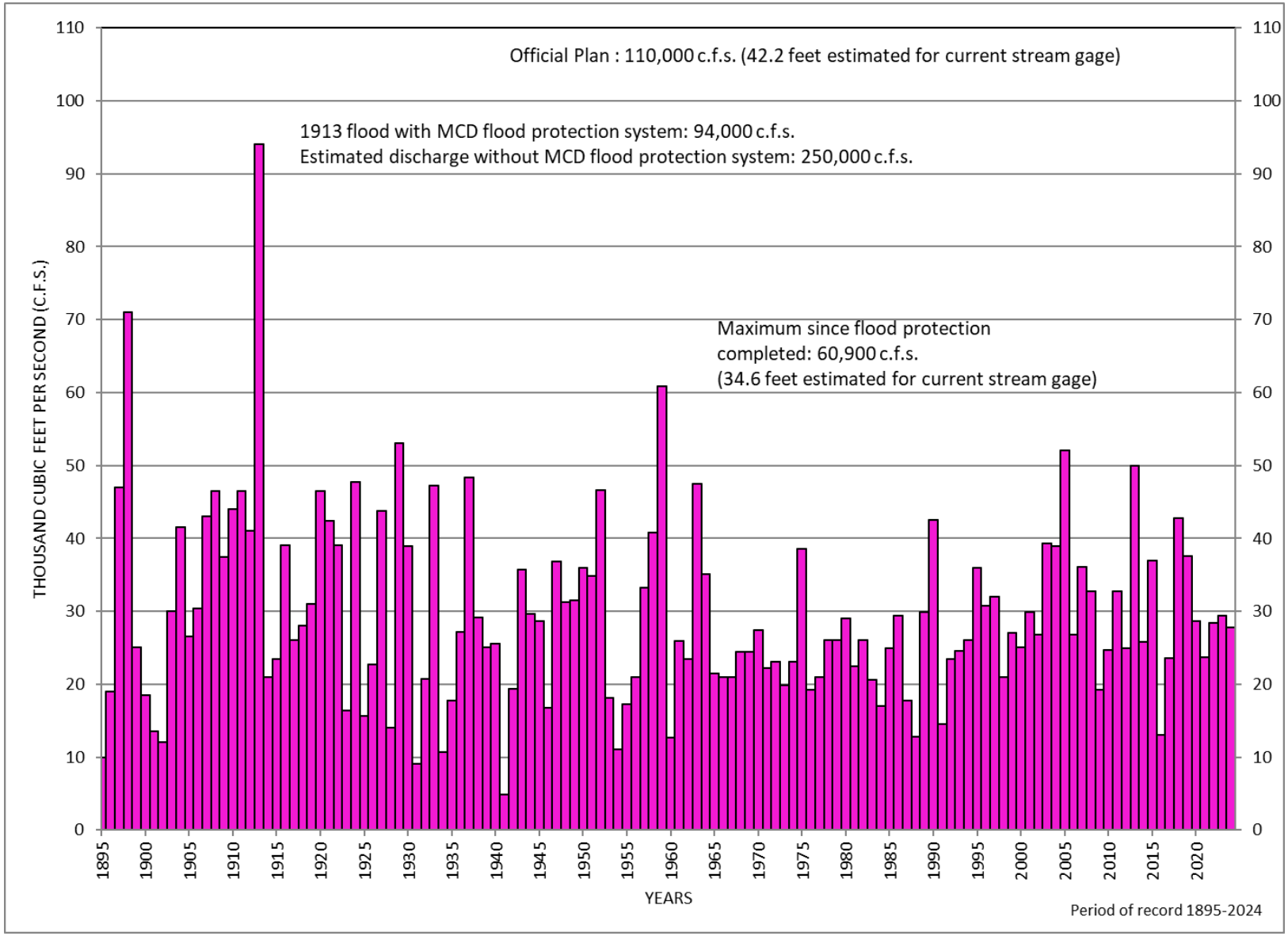
Table 24—Maximum Stage and Discharge during 2024 for the Great Miami River

City	Date	Gage Height(ft.)	Discharge (c.f.s.)
Piqua	4/3/2024	12.6	16,900
Troy	4/3/2024	12.7	16,800
Tipp City	N/A*	N/A*	N/A*
Dayton	4/3/2024	31.8	27,800
West Carrollton	4/3/2024	14.5	N/A**
Miamisburg	4/3/2024	13.8	27,600
Franklin	4/3/2024	11.3	27,900
Middletown	4/3/2024	10.7	29,400
Hamilton	4/3/2024	69.6	31,000

* MCD does not measure stage or discharge at Tipp City.

** MCD does not measure discharge at West Carrollton.

Graph 5—Annual Peak Discharges of the Great Miami River at Dayton, Ohio



Appendix H – Permits

Table 1 - Construction Permits

NUMBER	ISSUEDTO	ISSUEDATE	EXPIREDATE	LOCATION	PURPOSE	NOTISSUED
2050	MAROUS BROTHERS CONSTRUCTION	3/1/2024	8/1/2025	RB GMR BETWEEN RAILROAD & MAIN/HIGH BRIDGE	STAGING OF 4 CONEX BOXES	HAMILTON
2090	PETERSON CONSTRUCTION CO	7/1/2024	12/31/2025	RB GMR S OF US 40 E OF RR	EQ TANKS	TAYLORSVILLE
2100	EAGLE BRIDGE COMPANY	8/1/2024	7/31/2025	BOTH BANKS OF GMR AT SR 4 BRIDGE	REHAB OF SR 4 (GERMANTOWN RD) BRIDGE	MIDDLETOWN
2103	BRUMBAUGH CONSTRUCTION, INC	9/2/2024	9/30/2025	UPS & DS OF US 40 E OF BROWN SCHOOL 9/2/2024	VANDALIA BIKEWAY CONNECTOR	TAYLORSVILLE
2108	OUTDOOR ENTERPRISES, LLC	8/8/2024	5/31/2025	LB MAD DS OF FINDLAY ST BR	FINDLAY ST OUTFALL	DAYTON
2117	MOODY'S OF DAYTON, INC	9/3/2024	5/31/2025	RB GMR DS OF SELLARD RD (MAIN ST) BRIDGE	MIAMI SHORES WELLFIELD ABANDONMENT	MORAINE
2134	HGC CONSTRUCTION	10/8/2024	5/9/2025	LB GMR BET BUCKEYE & DAYTON	RIVERSEDGE RENOVATION CONSTRUCTION	HAMILTON
CONSTRUCTION PERMITS THAT CONTINED IN 2024						
1996	DOUBLE JAY CONSTRUCTION	5/2/2023	5/1/2024	LB GMR LINDEN AVE - FERRY	MIAMISBURG RIVERFRONT PARK IMPROVEMENTS	MIAMISBURG
2002	AMERICAN TRADEMARK CONSTRUCT SERV	6/26/2023	7/31/2024	RB GMR BETWEEN WATER ST & FORMER RR BRIDGE	RECONSTRUCTION OF LOCK 9 PARK	PIQUA
2046	RB JERGENS CONTRACTORS, INC	########	9/30/2024	BLACK ST - MAIN/HIGH ST	HAMILTON BELTLINE TRAIL, PH 3	HAMILTON
1915	SUNESIS CONSTRUCTION CO	########	11/30/2024	RB GMR ALBANY - DEEDS PT	INTERCEPTOR SEWER PHASE C & D	DAYTON

Table 2 - Active Leases

MCDNUM	ISSUEDTO	DATEISSUED	EXPIREDATE	FEATURE	PURPOSE	FEE	LOCATION
24	VANDALIA, CITY OF	1/1/1983	12/31/2032	VANDALIA	CITY CARETAKER'S RESIDENCE & STORAGE	$0.00	N OF CASSELL RD, W OF RR
33	VANDALIA, CITY OF	1/1/1983	12/31/2032	VANDALIA	GOLF COURSE	$0.00	CASSELL RD
76	DAYTON, CITY OF	12/16/1991	12/15/2031	DAYTON (GMR)	TEMPLE ISRAEL DEVELOPMENT	$0.00	RIVER BEND AREA
203	FIVE RIVERS METROPARKS	1/1/2012	12/31/2036	PIGEYE-RESERVE	PARK	$0.00	PIGEYE RESERVE
204	FIVE RIVERS METROPARKS	1/1/2012	12/31/2036	ENGLE-RESERVE	PARK	$0.00	ENGLEWOOD RESERVE
205	FIVE RIVERS METROPARKS	1/1/2012	12/31/2036	GERMAN-RESERVE	PARK	$0.00	GERMANTOWN RESERVE
206	FIVE RIVERS METROPARKS	1/1/2012	12/31/2036	HUFF-RESERVE	PARK	$0.00	HUFFMAN RESERVE
207	FIVE RIVERS METROPARKS	1/1/2012	12/31/2036	TAYLOR-RESERVE	PARK	$0.00	TAYLORSVILLE RESERVE
208	FIVE RIVERS METROPARKS	1/1/2012	12/31/2036	TWIN CR-RESERVE	PARK	$0.00	TWIN CREEK RESERVE
235	BUTLER MP	6/1/2016	5/31/2036	MIDDLETOWN	BICENTENNIAL COMMONS	$0.00	DS SR 122 BR
307	MIAMI COUNTY PARK DIST	5/1/2019	4/30/2029	CONCORD TWP	RECREATION PUBLIC TRAIL	$150.00	RUSK RD TO ELDEAN
311	MIAMI TOWNSHIP	3/1/2020	2/28/2025	MIAMI TWP	CRAIN'S RUN PARK	$150.00	LB GMR DAYTON-CINCINNATI PK DS OF CRAINS RUN RD

317	HAMILTON, CITY OF	1/1/2022	12/31/2031	HAMILTON	COMBS PARK	$150.00	ALONG RB OF GMR BETN TML DAM & N B ST AT ZOAR
364	WARREN CO PARK DISTRICT	10/1/2022	9/30/2027	FRANKLIN TWP	CARMODY/TWIN CREEK PRESERVE	$150.00	BOTH BANKS OF TWIN CR DS OF FRANKLIN-TRENTON RD
370	WEST CARROLLTON, CITY OF	12/1/2024	11/30/2039	WEST CARROLLTON	MIAMI BEND PARK	$150.00	BOTH BANKS OF GMR UPS & DS OF LOW DAM

THE MIAMI CONSERVANCY DISTRICT

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