Meeting system’s needs

Members of the Leadership Tuscarawas class and the Muskingum Lakes Chapter of the American Red Cross listen to U.S. Army Corps of Engineers Ranger Stan Rosenblatt discuss operations of Dover Dam and the upcoming rehabilitation project at the dam.

Projects to sustain reservoirs, dams

It has been more than 70 years since the Muskingum Watershed Conservancy District (MWCD) was organized and the system of reservoirs and dams it conceived was built.

The thousands of people involved in planning, constructing and operating the reservoirs and dams were no doubt still stinging from the Great Flood of 1913 in Ohio. The state’s worst natural disaster led to the deaths of hundreds of people – including 11 in the Muskingum River Watershed – and wrecked many more lives through the losses of property, jobs and the vast amount of time and effort it took to rebuild.

The MWCD was established in 1933

By The Numbers

A look at the Amendment to the Official Plan enacted by the Muskingum Watershed Conservancy District in 2009:

- $660 million - Estimated amount of rehabilitation that could be spent at 5 priority projects by federal government.
- $138 million - Amount for local cost-share match that could be spent by MWCD on priority projects at the dams.
- 5 priority projects - Located at Beach City, Bolivar, Dover and Mohawk dams, and Zoar Levee.
- $367,682 - Total amount for six grants awarded in 2010 for MWCD’s “Partners in Watershed Management” program.
- $1 million - Amount to be spent in 2010 for MWCD partnerships for flood reduction and water conservation in region.
- 16 - Reservoirs and dams in Muskingum River Watershed.
- 8,000-plus - Square miles located in Muskingum River Watershed.

Read the Amendment to the Official Plan of the MWCD on www.mwcd.org
Setting the course for the present, future by enacting MWCD Plan

MWCD staff have been busy setting programs and initiatives in motion to meet the challenge set forth in our Amendment to the Official Plan (see Page 3 for more details on the Plan). Three main priorities define the conservation and flood control aspects of MWCD’s mission. Here are those priorities and a brief update as to our progress with each of them.

**Rehabilitate the Muskingum flood control system** through partnership with the U.S. Army Corps of Engineers (USACE) as a local cost-share sponsor.

Modifications to Dover Dam, the only concrete gravity structure in the Muskingum flood control system, will commence in early 2011. The USACE is reviewing proposals for the installation of foundation anchors and anticipates awarding a construction contract in the fall of 2010.

A Project Partnership Agreement (PPA) between the USACE and MWCD for rehabilitation of Bolivar Dam has been drafted and is currently under review by the USACE Division Office in Cincinnati as well as USACE headquarters in Washington. Execution of the PPA with MWCD will likely occur in late November 2010 with a request for construction proposals expected in late 2011. Modifications to Bolivar Dam are intended to repair seepage problems with the dam’s foundation.

**Maintain MWCD’s reservoirs** by addressing sedimentation, shoreline degradation and threats to water quality. **Shoreline Protection**; MWCD’s Shoreline Protection Initiative is under way to address eroding shoreline problems on more than 360 miles of MWCD reservoir shorelines. Nearly 480 project areas have been identified and evaluated and 24 projects have been preliminarily selected for construction during the 2011-12 winter period. These projects are located at Atwood (8), Charles Mill (4), Pleasant Hill (1), Piedmont (1), Seneca (8) and Tappan (2) reservoirs.

These 24 initial projects represent nearly two miles of shoreline with an estimated volume of eroded shoreline material totaling 29,500 cubic yards – or the equivalent of 5,000 tandem axle dump truck loads. Preliminary project cost estimates for these projects total more than $2 million.

**Dredging**: Preparations continue for dredging operations at MWCD reservoirs. Understanding sediment deposit characteristics and patterns at each reservoir will allow MWCD staff to plan and prioritize dredging. In addition, identifying the prominent sources of sediment from each reservoir’s watershed will allow future conservation program efforts to focus on problem areas and partner with other agencies and groups for implementation of solutions.

MWCD has entered into a partnership with Ohio University to inventory existing sediment information with particular emphasis on previous USACE sediment studies. All MWCD reservoir watersheds are being digitized and their land characteristics will be inventoried to be used for future erosion modeling.

**Assist in the implementation of watershed conservation projects** with a focus on flood control and water quality.

**MWCD’s Partnership in Watershed Management Program (PWM)** provides funding and in-kind assistance to local communities, agencies and groups involved in projects and programs that support conservation and flood control in the Muskingum River Watershed. **PWM** programs include: debris/logjam removal in streams, creeks, and rivers; flood cleanup; stream gauging and water quality testing; flood warning system implementation; acid-mine drainage projects in partnership with the Ohio Department of Natural Resources; hazard mitigation grant program projects in partnership with the Ohio Emergency Management Agency; small conservation projects in assistance with Soil and Water Conservation District offices; and assistance with education and outreach programs.

For more information about specific programs and projects MWCD is working on, be sure to visit us on the web at [www.mwcd.org](http://www.mwcd.org).

*Boris Slogar is the chief engineer of the Muskingum Watershed Conservancy District.*
MWCD Official Plan, amendments are building blocks for the future

When the Muskingum Watershed Conservancy District (MWCD) was organized in 1933, its leaders immediately set about to developing an “Official Plan” for the district. The Official Plan is the guiding document for the MWCD to implement the purposes for which it was organized, namely flood reduction and water conservation in the Muskingum River Watershed.

The Official Plan of the MWCD is a lengthy document – 86 pages – that was adopted in November 1934 and was followed up with the first amendment to the plan a few months later in April 1935, and it contains more than 200 pages. A second Amendment to the Official Plan of the MWCD was approved in June 1935.

As a unit, these three documents laid out the plan to develop, construct and operate 14 reservoirs and dams in the Muskingum River Watershed that operate as a coordinated system for flood reduction and water conservation.

These reservoirs and dams would be located in the watersheds of the three main tributaries of the Muskingum River: the Walhonding River (northwest section of the Muskingum Basin), the Tuscarawas River (northeast section of the Muskingum Basin) and the Wills Creek (commonly referred to as the Lower Muskingum region in the southern portion of the Muskingum Basin). The Walhonding and Tuscarawas rivers meet in the city of Coshocton to form the Muskingum River, which eventually flows south and empties into the Ohio River at Marietta.

In the Walhonding River basin, dams were constructed creating the Mohawk Reservoir on the Walhonding River, Pleasant Hill Reservoir on the Clear Fork, Charles Mill Reservoir on the Black Fork and Mohicanville Reservoir on the Lake Fork.

In the Tuscarawas River basin, dams were constructed creating the Dover Reservoir on the Tuscarawas River, Atwood Reservoir on Indian Fork, Leesville Reservoir on McGuire Creek, Bolivar Reservoir on Sandy Creek, Beach City Reservoir on Sugar Creek, Tappan Reservoir on the Little Stillwater Creek, Clendening Reservoir on the Brushy Fork and Piedmont Reservoir on the Stillwater Creek.

In the Wills Creek/Lower Muskingum basin, dams were constructed creating the Wills Creek Reservoir on the Wills Creek and the Senecaville Reservoir on the Seneca Fork.

Two other dams, North Branch Kokosing on the Kokosing River in the Walhonding River basin, and Dillon Dam, located on the Licking River in the Wills Creek/Lower Muskingum basin, were constructed later by the U.S. Army Corps of Engineers (USACE).

The passage of the Flood Control Act of 1939 by Congress transferred ownership of the dams and the duties for operations of the dams to the federal government, with the MWCD responsible for the operation and maintenance of the reservoir areas behind the dams under its ownership and control.

In the decades following the original construction of the system, the MWCD held a strong focus on conservation and recreation activities at its reservoirs. The passage of time and the passage by Congress of the Flood Control Act of 1986, though, renewed the MWCD’s original mission and confirmed its partnership with the USACE in the Muskingum River Watershed.

A multi-agency review of the Muskingum River Watershed several years ago revealed numerous needs to protect the region’s natural resources and to update the flood-reduction system. The USACE identified that five of its projects in the watershed were priorities for maintenance and rehabilitation, and the costs would be in the hundreds of millions of dollars.

The federal government would pay the bulk of the costs, but as a result of the passage of the 1986 Flood Control law, a local cost-share sponsor was required to participate by contributing a portion of the costs on individual projects to demonstrate local interest in the importance of the system. The MWCD, which originally contracted with the USACE for the design and construction of the reservoirs and dams, was the logical choice to serve as the local cost-share sponsor.

In the early 2000s, the MWCD began the process of preparing the third Amendment to the Official Plan of the MWCD to reflect the needs of the aging system and the role it would play in it. The plan was approved in 2005 by the Board of Directors and recognized by the Conservancy Court later that year. The plan serves as a guide to the conservancy district for its role as the cost-share sponsor with the USACE for projects at the dams, and for the needs that exist in the reservoirs and throughout the watershed that have effects on the system of reservoirs and dams.

The Amendment to the Official Plan confirms the partnership between the MWCD and USACE, and encourages additional partnerships among the MWCD and other agencies and entities in order to maximize available resources.

The plan was enacted in 2009 and projects have begun in support of the plan.

The Amendment to the Official Plan of the MWCD can be found on the MWCD’s website at www.mwcd.org.

Projects

Projects from Page 1

with two primary goals:

- Reduce the effects of flooding in the watershed.
- Provide water for beneficial public uses.

The hard work of those who participated in the development of the MWCD system has paid off. After developing a partnership with the U.S. Army Corps of Engineers (USACE) for operation of the dams, the MWCD system has saved more than $8 billion in estimated property damage from flooding. In addition, the development of the MWCD recreation program and natural resources stewardship has produced jobs and an economic boost to eastern Ohio.

Today the MWCD is focused on ensuring that the reservoirs and dams are properly maintained to continue to operate effectively and efficiently. The effort and costs attached to proper care for this valuable infrastructure are noteworthy – the USACE estimates that its five priority projects alone will cost more than $600 million and take many years to complete – but will lead to the continued benefits that its visionary founders intended to create.

In 2009, the MWCD enacted a maintenance and rehabilitation plan to preserve and protect the system of reservoirs and dams in the watershed for future generations. It is ambitious and it will demand great attention to detail.

But it is definitely worth the time and effort.

Information in this issue of LakeViews provides an update on the projects and programs the MWCD is working on as part of the Amendment to the Official Plan of the conservancy district, which was adopted in 2005.
The planning and work began in 2009 to implement the Amendment to the Official Plan of the Muskingum Watershed Conservancy District (MWCD).

The MWCD took large strides in the plan in 2009 by finalizing an agreement with the U.S. Army Corps of Engineers (USACE) for work at Dover Dam, partnering with state and local entities for work at Piedmont Reservoir, for a flood reduction and water conservation program in Stark County and a flood mitigation program in Carroll County, and preparing for a major shoreline stabilization project at Pleasant Hill Reservoir.

The MWCD and the USACE confirmed their commitment in July for a multi-million dollar rehabilitation project to stabilize Dover Dam and continue to provide flood reduction downstream of the dam.

Members of the MWCD Board of Directors approved a Project Partnership Agreement (PPA) with the USACE for the work, which is scheduled to get under way during the fall of 2010. As the required non-federal local cost-share sponsor for the project, the MWCD will contribute an estimated $2.4 million for the maintenance work estimated at a total cost of $68.5 million, or 3.45 percent of the total cost.

Also in 2009, the MWCD and Brown Township trustees in Carroll County signed a project assistance agreement to help relocate up to 30 homeowners from a flood-prone area near Malvern. The MWCD will provide up to $140,000 in funding for the program, which helped the township receive a federal grant to pay for the bulk of the costs.

MWCD officials signed a letter of intent to participate with the state government for a redesigned reclamation pond located in the headwaters above Piedmont Lake that will reduce the potential for heavy metals to eventually flow into the lake. As a partner in the project, the MWCD funded nearly $35,000 for the project, which was estimated to cost nearly $75,000.

The MWCD also approved a program to help reduce downstream pollution from a site in Stark County. The MWCD Board of Directors approved local matching funds of $43,200 for the work in the city of Canton to install a retention basin and forebay planned at the Fairhope Nature Preserve will reduce pollution loads in the watershed.

And, a five-year plan to identify and improve the most severely eroded shorelines around the reservoirs managed by the MWCD is expected to be ready during 2010.
Lake Views

2010 - Staying on course

It has been a busy year in 2010 for Muskingum Watershed Conservancy District (MWCD) staff involved with implementation of the Amendment of the Official Plan of the MWCD that was enacted only one year earlier.

The MWCD has directed or served as a partner for many programs in 2010 that will have a positive impact on flood reduction and water conservation in the Muskingum River Watershed.

The MWCD is investing funds this year to ensure the continued effective performance of the aging infrastructure that has saved more than $8 billion of potential property damage from flooding over the past 70-plus years. Dollars to be spent by the MWCD for the projects are collected through an annual assessment of nearly 500,000 property owners who receive recognized benefits from the operation of the reservoirs and dams.

Members of the MWCD Board of Directors approved a 2010 budget that includes many projects from the maintenance plan, including partnering with the federal government on projects at two dams in the watershed, shoreline stabilization work at one of the MWCD reservoirs, working with Soil and Water Conservation District (SWCD) offices in the region, debris removal in streams, water quality monitoring, reduction of acid mine drainage and other programs in the watershed.

The MWCD will provide more than $1.7 million as its 2010 portion of the local share for work at Dover and Bolivar dams in northern Tuscarawas County. The bulk of the costs of the work – which will protect and create jobs through the public bidding process – will be paid for by the federal government with the MWCD providing from 3.45 percent to 25 percent of the total cost depending on the type of project. The dams, operated by the federal U.S. Army Corps of Engineers (USACE), are among five projects in the watershed identified by the USACE as priorities for significant rehabilitation and maintenance.

Construction work at Dover Dam is expected to begin in the fall of 2010, while the Bolivar Dam project is in the planning phase and is scheduled to begin construction in 2012.

The MWCD also will invest in numerous shoreline protection projects at its reservoirs in 2010, including work at a site along Pleasant Hill Reservoir in Ashland County that is considered to be the highest priority to be addressed by the MWCD.

Six applicants that will provide watershed improvements in the Muskingum River Basin received funding assistance this year from the Muskingum Watershed Conservancy District’s (MWCD) “Partners in Watershed Management” grant program.

Members of the MWCD Board of Directors approved grants totaling $367,682 for the projects, which will provide benefits not only in the communities they serve, but also in the entire 18-county MWCD region, according to Boris E. Slogar, MWCD chief engineer.

Programs selected to receive funding are the following:

- Licking County - $124,000 to assist in development and installation of flood warning system, with a total estimated cost of $651,000.
- Village of Brewster (Stark County) - $116,079 to assist with the installation of new lining for sewer conduit under Brewster Levee, which is estimated to cost a total $185,184.
- Ohio Lake Management Society (entire Muskingum River Watershed region) - $85,685 for citizen lake awareness and monitoring partnership program with Ohio Lake Management Society, Ohio Department of Natural Resources and the MWCD.
- Stark Parks (Stark County) - $22,080 for watershed education training for teachers to create a five-day Muskingum River Watershed improvement project workshop for teachers to incorporate into their academic curriculum.
- The Wilderness Center (Stark and Wayne counties) – $15,785 for the required local-cost share match for a Clean Ohio Fund program for acquisition of a 30-acre parcel of property under the Sugar Creek Corridor Protection Plan.
- Washington County Soil and Water Conservation District - $4,053 for the required local-cost share match for a federal flood plain management education program grant to educate community leaders about floodplain issues and programs.

The MWCD launched the Partners in Watershed Management program in 2009 to support work, reduce costs and leverage cost-share dollars by other agencies and communities in the watershed. This year marked the first that grants were awarded in the program.
Federal government sets focus on Muskingum Watershed dams

The U.S. Army Corps of Engineers (USACE) is planning a monumental investment in the Muskingum River Watershed over the next several years.

The Huntington (WV) District of the USACE, which operates the dams in the system of reservoirs and dams in the watershed, has listed five of its projects in the region as top priorities for maintenance and rehabilitation to ensure their continued safe and effective performance. The dams impound water in times of heavy rain to allow for the safe and coordinated release of the water downstream in order to protect property and lives.

The work, funded through Congress and with a required local cost-share match provided by the Muskingum Watershed Conservancy District (MWCD), is estimated to cost between $610.5 and $660.5 million. As the cost-share sponsor, the MWCD will invest an estimated $127.1 million to $138.6 million.

Dams on the list are the following:

- Beach City Dam in northern Tuscarawas and southern Stark counties – currently estimated to cost up to $110 million, with the MWCD local share to be up to $25.3 million
- Bolivar Dam in northern Tuscarawas and southern Stark counties – currently estimated to cost $165 million with the MWCD local share to be up to $38 million
- Dover Dam in northern Tuscarawas County – estimated to cost $68.5 million with the MWCD share to be an estimated $2.4 million
- Mohawk Dam in portions of Coshocton, Holmes and Knox counties – currently estimated to cost $187 million with the MWCD local share to be up to $43 million
- Zoar Levee located behind Dover Dam in northern Tuscarawas County – currently estimated to cost up to $130 million with the MWCD share to be up to $29.9 million

The USACE expects work to begin this fall at Dover Dam, followed by Bolivar Dam in 2012 or 2013, Mohawk Dam in 2013 or 2014, and Beach City Dam and Zoar Levee in 2014 or 2015.

There are a total of 16 dams and reservoirs in the Muskingum River Watershed flood reduction and water conservation system. They are:

- Atwood - located on Indian Fork Creek
- Beach City - located on Sugar Creek
- Bolivar - located on Sandy Creek
- Charles Mill - located on Mohican River
- Clendening - located on Brushy Fork Creek
- Dillon - located on Licking River
- Dover - located on Tuscarawas River
- Leesville - located on McGuire Fork Creek
- Mohawk - located on Walhonding River
- Mohicanville - located on Lake Fork
- North Branch Kokosing - located on Kokosing River
- Piedmont - located on Stillwater Creek
- Pleasant Hill - located on Mohican River
- Seneca - located on Seneca Fork of Wills Creek
- Tappan - located on Little Stillwater Creek
- Wills Creek - located on Wills Creek
Ohio University will assist the Muskingum Watershed Conservancy District (MWCD) in development of dredging plans for the MWCD reservoirs.

In an agreement approved by the MWCD Board of Directors, graduate students and staff members from the Civil Engineering Department of the university at Athens will research the MWCD reservoirs to inventory all existing sediment information and prepare for future erosion modeling. The Ohio University study, scheduled to be completed by early 2011, is not expected to cost the MWCD more than $50,000.

“Ohio University previously assisted the MWCD with a sediment study at Charles Mill Reservoir in preparation for the dredging project that occurred there in the 1990s,” said Boris E. Slogar, MWCD chief engineer. “The study was performed under the direction of Dr. Tiao J. Chang from the university’s Civil Engineering Department, and Dr. Chang again will oversee this study on all 10 of the permanent MWCD reservoirs.”

The MWCD reservoirs to be studied by Ohio University are Atwood, Beach City, Charles Mill, Clendening, Leesville, Piedmont, Pleasant Hill, Seneca, Tappan and Wills Creek. Those are the reservoirs with permanent pools of water, or lakes, located behind dams as part of the flood-reduction system constructed more than 70 years ago in the Muskingum River Watershed.

Understanding sediment deposit characteristics and patterns at each reservoir will permit MWCD staff to plan and prioritize the sediment removal (or dredging) operations, Slogar said. In addition, identifying the prominent sources of sediment from each reservoir’s watershed will permit future conservation program efforts to focus on problem areas and potentially partner with other agencies and groups for solutions.

Conservancy District to work with state agency on projects

Projects to conserve and protect water and soils in the 18-county region served by the Muskingum Watershed Conservancy District (MWCD) have received a boost this year.

The MWCD and the Ohio Department of Natural Resources’ Division of Soil and Water Resources have finalized an agreement and work plan to assist landowners and communities to develop and install conservation projects. The work will improve water quality, reduce sedimentation to streams and lakes, reduce flooding and promote education for the conservation and protection of these natural resources.

The MWCD has invested $400,000 in 2010 for projects submitted by the staffs of the 18 Soil and Water Conservation District (SWCD) offices in the Muskingum River Watershed. SWCD officials will work with local landowners and communities to identify projects for consideration by the Division of Soil and Water Resources and the MWCD.

Through the agreement with the Division of Soil and Water Resources, the MWCD funds will be directed to local projects throughout the watershed that are endorsed by county SWCD staff members who routinely survey and design conservation practices and programs to address agricultural and urban issues. The MWCD anticipates it will receive a strong return on its funding since its participation often will be used to help supplement the local match requirement on projects that primarily are funded through other sources.

While the SWCD staffs will oversee the projects, the MWCD will be expected to provide payment only upon satisfactory project completion, said Fred Hammon, SWCD program manager of the Division of Soil and Water Resources.

“This is an agreement that has generated a great deal of enthusiasm at the state and county levels,” Hammon said. “We have some outstanding projects that will protect our natural resources that have been unable to move forward because of funding issues. This will enable many of these valuable projects in the MWCD region to be completed.”

The 18 county SWCD offices participating in the program are located in Ashland, Belmont, Carroll, Coshocton, Guernsey, Holmes, Harrison, Knox, Licking, Morgan, Muskingum, Noble, Richland, Stark, Summit, Tuscarawas, Washington and Wayne counties.

Does your group need a speaker?

Area groups and organizations in the Muskingum River Watershed in need of presentations for their business and other meetings can call on the Muskingum Watershed Conservancy District (MWCD) for help.

The MWCD has staff members available who can provide details about the conservancy district’s history, mission, operations and more.

MWCD speakers can provide Power Point slide presentations, distribute handouts on their topic and answer questions.

Of course, there is no cost for any MWCD presentation.

For more details or to “book” a speaking engagement, please contact Darrin Lautenschleger at the MWCD main office at New Philadelphia by calling toll-free at (877) 363-8500 Ext. 2226, or by sending an e-mail to darrin@mwcd.org.
Workers involved with the drilling process during the construction of the dam at Clendening Reservoir take a break for a photo. Thousands of people were employed during the construction of the dams and reservoirs in the Muskingum River Watershed during the 1930s. The projects also attracted visitors daily who watched the construction process unfold. When the projects were dedicated, a national radio broadcast was on hand when the projects were dedicated. Since then, construction, the system of reservoirs and dams in the watershed has prevented more than $8 billion worth of potential property damage from flooding.

Workers involved with the drilling process during the construction of the dam at Clendening Reservoir take a break for a photo.