

**Montgomery
Soil & Water
Conservation
District**


**Storm Water Management &
Storm Water Pollution Prevention
City of Brookville &
Surrounding Areas**

February 27, 2018

Presented by: District Staff
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**Montgomery Soil & Water
Conservation District (SWCD)**

- 1930s, The 'Great Dust Bowl'
 - 150,000 square miles in the 'Great Plains'
 - 5 five (Texas, Oklahoma, Kansas, Colorado, New Mexico)
- Causes: poor farming practices & drought
- Lost lives
- Lost topsoil
- Lost fertility
- Lost farm ground
- Lost livelihoods




**Montgomery Soil & Water
Conservation District (SWCD)**

- 1935: 'Soil Conservation Service' created by the U.S. government (today's Natural Resources Conservation Service)
- 1941: Soil Conservation Districts created by Ohio grassroots efforts (Ohio Conservation District Law)
- 1949: Local farmers organized the Montgomery SWCD
- 1963: 'Water' added to the name and mission




What is Storm Water?

Storm water runoff is generated when precipitation from rainfall and snowmelt events flows over land or impervious surfaces and does not percolate into the ground.

Up to 98% of the rainfall over an impervious area becomes storm water runoff, for example, just 1 inch of rainfall over 1 acre of pavement can generate almost 27,000 gallons of storm water runoff (over 1 million gallons in a year's rainfall)

Brookville Storm Water History

FLOODS OF 1959 IN THE UNITED STATES

- JANUARY-FEBRUARY 1959 IN OHIO AND ADJACENT STATES
- The floods of January 21-24, 1959, were the greatest of record in a widespread area in Ohio and Indiana and were of large magnitude in western Pennsylvania and southwestern New York.
- **On some streams the stages and discharges: exceeded those of 1913.**

HISTORIC STORMS AND FLOODS

- On January 20th and 21st, 1959 a large storm event occurred over much of southwestern Ohio, including the Wolf Creek Basin. This event produced 4.81 inches of rainfall that resulted in record flooding along Wolf Creek and its tributaries.
- On May 27th and 28th, 2004 another storm event occurred producing 4.5 inches of rainfall, resulting in near record flooding along Wolf Creek and its tributaries.

1959 Rain Event & Damages

- Heavy rains on January 20-21 exceeded 6 inches in a belt extending from the southwestern corner of Indiana through the southwestern corner of Ohio.
- Thirty-two lives were reported lost and total damage was estimated at \$100 million. About 20,000 buildings were flooded, and more than 50,000 persons were evacuated.

Mean Monthly Precipitation

Precipitation in the Wolf Creek basin is fairly well distributed throughout the year.

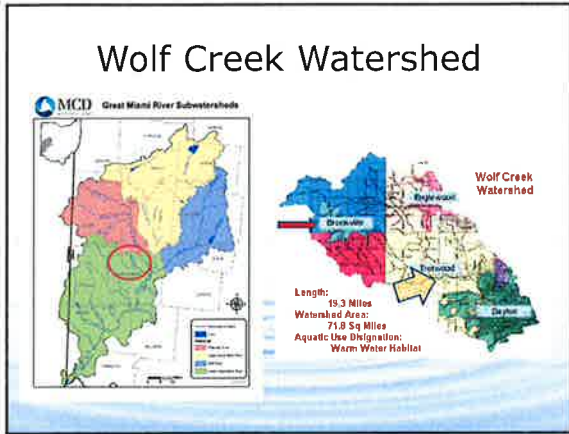
The average annual precipitation approximately 39.4 inches, with most months having about 2.4 inches.

- Month Precipitation (Inches)
- January 2.65
- February 2.37
- March 3.08
- April 4.04
- May 4.38
- June 4.17
- July 3.93
- August 3.28
- September 2.61
- October 2.69
- November 3.27
- December 2.94
- Average Annual – 39.41"

Annual Peak Discharges/Events

- Wolf Creek at Dayton USGS gauge was the only gauge that was operating during both events
- Based on that gauge:
 - The 1959 event had a discharge that was approximately 3,000cfs greater than the 2004 event
 - Produced a water surface elevation approximately 1.8 feet higher

1959 Flood
• Jan. 21, 1959
• 12,500cfs
• 755.1 Peak Elev.
2004 Flood
• May 28, 2004
• 9,420cfs
• 753.33 Peak Elev.





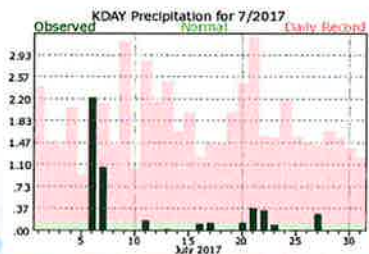


Local Rainfall-2017

July 2017
Brookville: 7.82 Inches



July 6 & 7, 2017 Rainfall

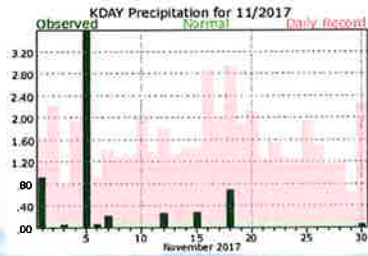


Local Rainfall-November 2017

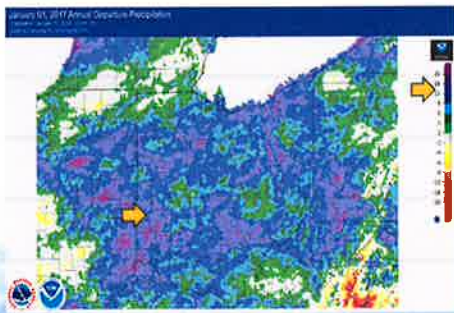
November 2017
Brookville: 5.66 Inches



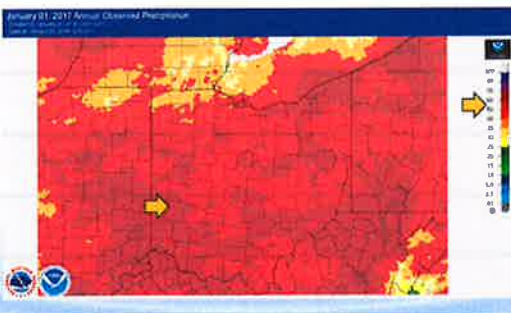
November 5, 2017 Rainfall Data



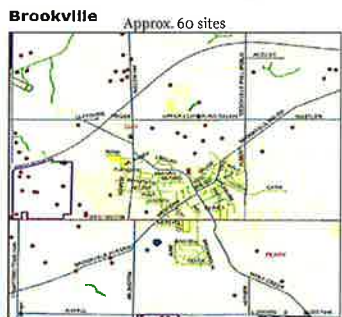
Rainfall Departure from Normal 2017



2017 ANNUAL OBSERVED RAINFALL



MSWCD Site Visits within Brookville region



2017 Brookville Ohio Flooding



2017 Brookville Ohio Flooding



2017 Brookville Ohio Flooding



2017 Brookville Ohio Flooding



2017 Brookville Ohio Flooding





Drainage Solutions

Small Watershed and Creek's


1. Use the Volunteer Drainage Project Process
2. SB160 or Ditch Petition Process



Drainage Project Information Meeting

Agenda

- Protocol
- Costs
- Funding



How can we enhance drainage in Brookville?

- Conservation Works of Improvement ORC-940.19
- An owner of land that is located in a Soil and Water Conservation District may file a petition with the supervisors of the District requesting the construction of a conservation work of improvement. Upon the receipt of such a petition, the supervisors shall make a preliminary determination to accept or reject the petition



Drainage Project Protocol – Evaluation & Approval

1. Request for Assistance
2. Petition for Assistance
3. View Notification
4. Field View
- 5. Hearing Notification**
6. Public Hearing
7. Field Survey
8. Project Design
9. Project Approval



Drainage Project Protocol - Construction

10. Easements
11. Bid & Award
12. Construction



**Drainage Project
Protocol – Post Construction**


13. Assessments
14. Maintenance



**Drainage Project
Assessment Criteria (ORC 1515.24)**

1. Benefit to the Area
2. Disposal of Water
3. Location of Property Relative to the Project
4. Amount of Water Disposed of
5. Potential Increase in Productivity
6. Value of the Project to the Watershed

Group Drainage Project Example



<u>Project Revenue</u>	<u>Funds (\$)</u>	<u>%</u>
• OPWC Grant	411,724.00	75
• Landowners	137,241.00	25
Total	548,965.00	100

OPWC \$ 411,724.00

Group Drainage Project



- Cooperation and team work is the key to having a successful drainage project!

Group Drainage Project- Approval by SWCD Board

When considering whether to approve or disapprove construction of an improvement, the board shall consider all of the following factors:

- (A) The cost of location and construction;
- (B) The compensation for land or other property that must be taken;
- (C) The benefits to the public welfare;
- (D) The benefits to land, public corporations, and the state needing the improvement;
- (E) In the case of an improvement involving the drainage of water, the effect on land below the improvement that may be caused by constructing the improvement and the sufficiency or insufficiency of the outlet that receives flow from the improvement;
- (F) Any other proper matter that will assist the board in approving or disapproving construction of the improvement.

Completed Ditch Construction-2 sided

The ditch is complete, outlet pipes are replaced and topsoil is graded. The ditch has 2:1 side slopes and a 15 ft maintenance berm.

Below-ditch has been seeded and strawed, to include the maintenance berm.



Drainage Solutions

Large Watershed and Creek's (I&E) Wolf Creek


1. Use the Volunteer Drainage Project Process
2. SB160 or Ditch Petition Process



Logjam work planned for St. Marys River

CELINA - Officials finally have enough money to work on logjams that block the flow of the winding St. Marys River and contribute to periodic flooding.

Mercer County commissioners on Tuesday set July 14 as the date to open bids for the estimated \$75,000 project in Blackcreek, Dublin and Union townships. The company awarded the contract will have one year to complete the job.



Logjams in the Miami-Erie Canal in late February forced excess rainwater into the St. Marys River and contributed to massive flooding in the city of St. Marys. More than 100 homes sustained flood damage.

Mercer County is responsible for 23 miles of the river within its borders. Allegheny County has 26 miles and Van Wert has seven. Earlier said, Officials in the surrounding counties also are working to address logjams.




"There is probably the worst. There's just so much more woods along the river in our county and the logjams are as hard to get to," he said. Earlier said some of the problems again are several miles from the gravel machine. Contractors will use eight-wheel spades along the river's banks and other paths between fields to reach the areas to work, he said.

Natural Causes of Log Jams

Overeager beaver causes big headache at Mason park

MASON - City officials here are grappling with a gnawing problem: a bothersome beaver who's made his home at Pine Hill Lakes Park.


Officials say the beaver has been, well, busy as a beaver gnawing away at 50 trees and felling three others lining the park's bike path and lake.

Brookville-(Brook-ville)

The Areas in Blue are FEMA Flood Zones-Blue on the Map

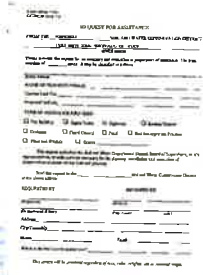
1. Will this log jam project reduce my flood insurance?-No
2. Will this keep me from carrying flood insurance?-No
3. Can I get a flood exemption certificate?- You can hire a private engineer to determine the elevation and possible exemption.



REQUEST FOR ASSISTANCE

Begins the process!

The SWCD will group the request by project and priority.



Montgomery Soil & Water Conservation District



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