

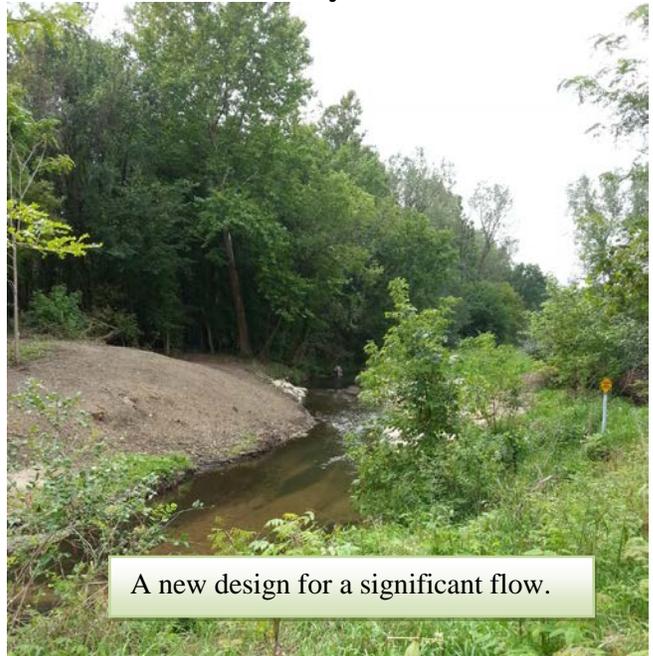


2015 Annual Report

Patricia A.S. Crowley
Kalamazoo County Drain Commissioner



A failed technology exposed.



A new design for a significant flow.



Michelle (Road Commission) volunteering at the Fair



Jeff VanBelle: Getting it done.



Office of the Drain Commissioner

201 West Kalamazoo Avenue • Kalamazoo, Michigan 49007
Phone: (269) 384-8117 • Fax: (269) 383-8920 • email: pacrow@kalcounty.com

Patricia A.S. Crowley, PhD, Drain Commissioner

July 20, 2016

County Board of Commissioners
201 W Kalamazoo Avenue
Kalamazoo, MI 49007

Re: 2015 Annual Report

Dear Board of County Commissioners;

It is my duty and pleasure to present to you the Kalamazoo County Drain Commissioner's Annual Report for calendar year 2015 in accordance with Section 31 of the Drain Code of 1956 (1956 PA 40, as amended), MCL 280.31. Section 31 requires that the Drain Commissioner inform you of the status of new drainage districts and present you with the financial statements, drain orders, and debit and credit balances for each drainage district.

There were no new drains established in 2015, however an assessment roll has yet to be set for the Lexington Green Drainage District which was established in 2012. The financial statements for Kalamazoo County are found in the last section of this report and include: 1) The Debit and Credit Balances of the Drainage District Funds, 2) Itemized Statements of Orders Issued for Active Drainage Districts, 3) Liability of the Drain Commissioner for Bonds and Notes and, 4) 2015 Special Assessments.

In addition to the required reports, we are including additional items about the activities of the State of the Drain Office in 2015. Our office deeply appreciates the interest and generous support that you have given us as we endeavor to create a responsive and responsible stormwater utility.

At this time, I would like to recognize Amanda Morse, Peggy Bresnahan and Greg Vliestra for their special efforts in helping the Drain Office transition to a new accounting system, Project Accounting makes it possible for the Drain Office to account for all its separate drain accounts in the main county Eden system. Thank you!

Additional recognition goes to Deputy Drain Commissioner Jeff VanBelle, Kellie Layman, and Zeña Vos and all of the county staff for their continuous contributions to the work of the Drain Office in 2015. The following individuals were especially helpful: Mary Balkema, Julie Harrison, Mary Wyatt, Thom Canny, Michelle Tombro-Tracy, Lotta Jarnefelt-Burns, Chris Bessert, Rachael Grover, Lisa Bradshaw, Georgia Byrant, Diane Erikson, Joanna Johnson, Larry Shaffer, Jamie McCarthy, and Nicole Craig. We also wish to express our deepest gratitude to our consultants and contractors for all their hard work. We could never do it without them.

Putting together this annual report involves considerable time but we hope it helps you to understand the work of the Drain Office. If you have any questions, comments or require additional information, please call 269-384-8117 or visit the Office of the Drain Commissioner at your convenience. We love visitors.

Respectfully submitted,

Patricia A.S. Crowley, PhD
Kalamazoo County Drain Commissioner



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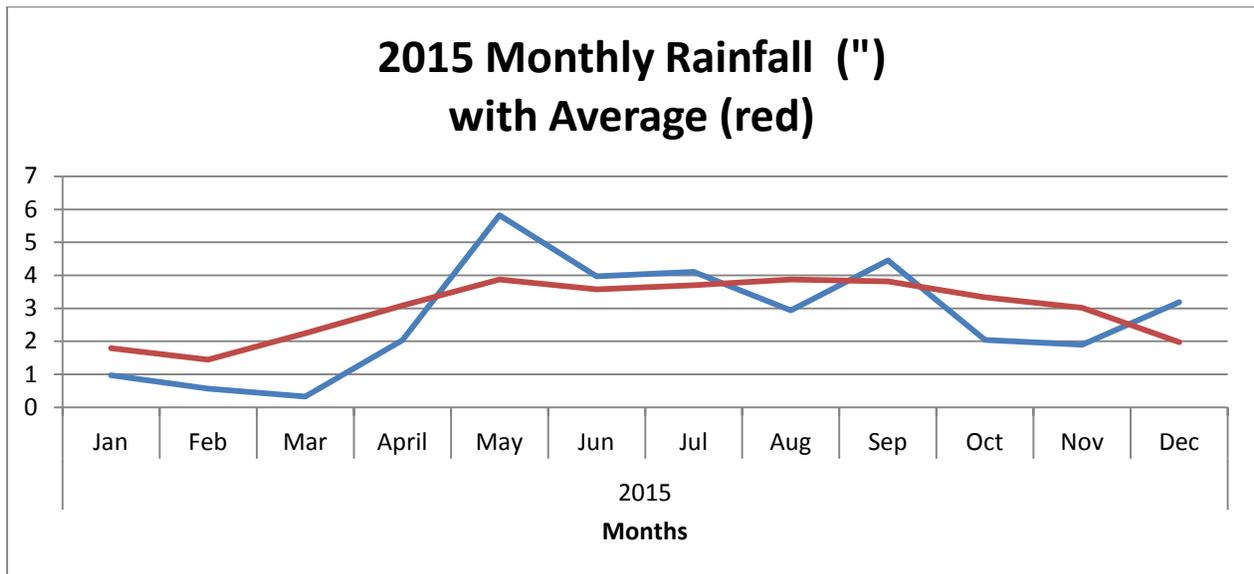
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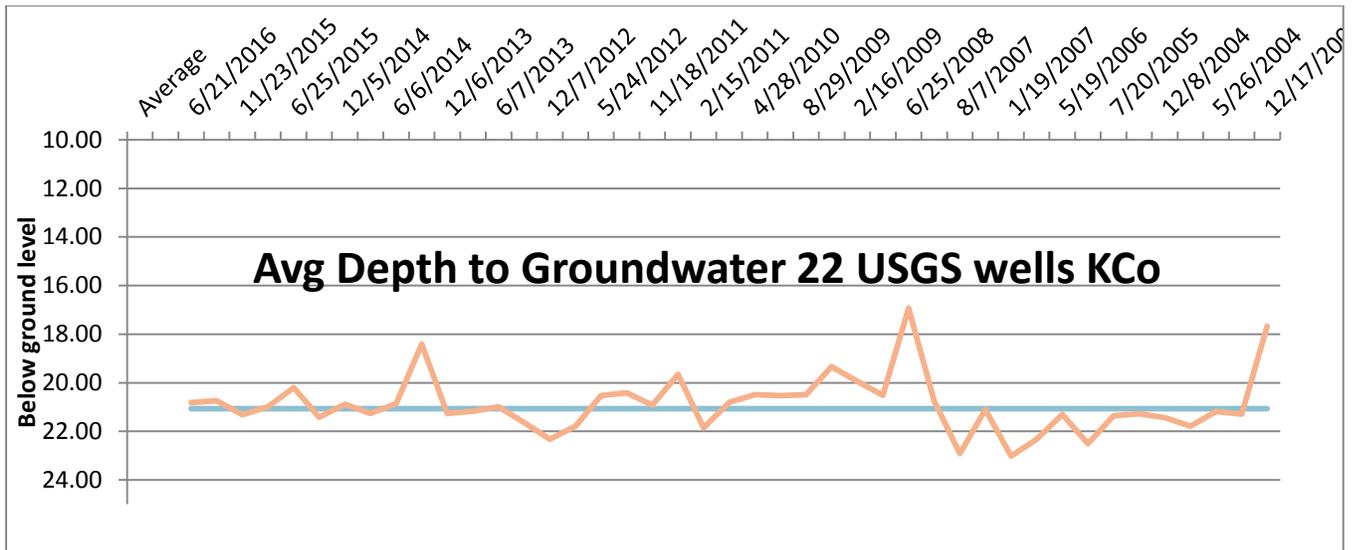
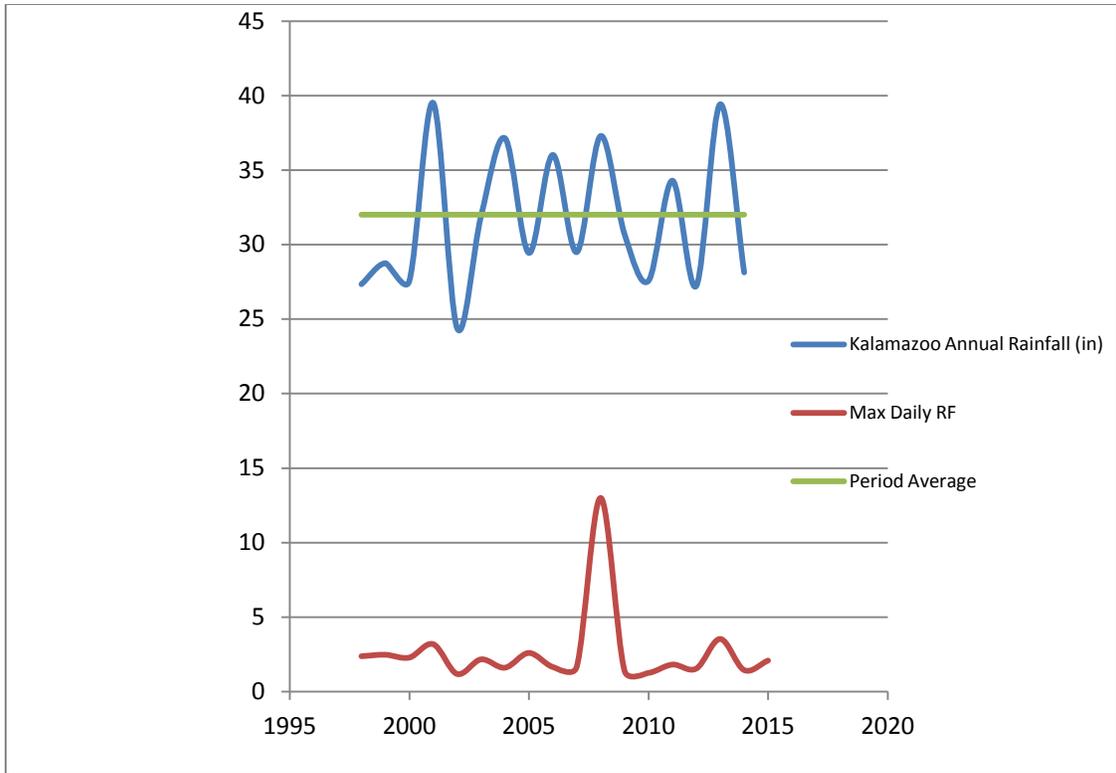
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I. INTRODUCTION

The total annual rainfall in 2015 for Kalamazoo County as measured at the airport was 32.3". This was 3.4" of rainfall below the annual average of 35.7". In both the spring and fall we had 2 dry months, then one wet month following, with a typical summer. The annual oscillation pattern of rainfall continued in 2015 and largest storm of the year was 2.08" with the largest multiday precipitation only 2.30".

The 2015 groundwater levels were very nearly average (since 2003 when Kalamazoo started measuring the wells). There were no flooding emergencies.





Economic challenges persist throughout the County though we did experience some development.

In 2015, total expenditures on drain work decreased to more normal levels after the construction at Townline Galesburg was finished. Engineering was about 30% and maintenance was about 30%. Remaining services include energy, communication and debt service. Total assessments decreased to \$111.2k.

Costs for excavation, contracting, engineering, mowing and financing continued to be favorable for work. The Drain Office spent 31% of its allocated operating budget (the part the office administers) in 2015.

Drain Office	Expenses	Assessments
	(\$K)	(\$K)
2009	269.8	468.3
2010	202.3	247.9
2011	110.5	223.6
2012	79.1	77.0
2013	194.0	112.6
2014	1054.4	168.2
2015	232.3	111.2

Even though total expenditures were lower, we worked on about 25% more plat basins (52) and 80% more traditional drains (36) than in 2014. Work was done in all townships except Richland. The majority of work in 2015 was done in Comstock, Texas, Schoolcraft and Pavilion.

No new projects were petitioned in 2014.

The mowing contractor, Cutting Crew Lawn Care, mowed 37 basins twice in the growing season. The maintenance crew cleared brush and removed solid waste from 19 drains and 15 plat basins.

We had four State of Michigan grant projects in 2015. The most substantial of these was a 319 grant streambank restoration of three reaches of the Davis Olmstead Drain in Kalamazoo Township. Progress was also made on two Stormwater Asset Management (SAW) grants: one asset management grant and one stormwater management plan, and a phosphorus study of Morrow Lake.

2015 Drain and Lake Work Locations

Plats						Drains									
Alamo		Cooper		Richland		Ross		Alamo		Cooper		Richland		Ross	
0		4		0		1		1		2		0		0	
Oshtemo		K-City	K-Twp	Comstock		Galesburg	Charleston	Oshtemo		K-City	K-Twp	Comstock		Galesburg	Charleston
8		0	2	1 8		0	0	0		3	5	6		2	3
Texas		Portage		Pavilion		Climax		Texas		Portage		Pavilion		Climax	
1 2		0		1		0		0		4		6		4	
Prairie Ronde		Schoolcraft		Vicksburg	Brady	Wakeshma		Prairie Ronde		Schoolcraft		Vicksburg	Brady	Wakeshma	
1		4		0	0	0		0		5		2	5	5	

(Drains that span more than one municipality are counted once per municipality.)

The most significant event that happened to the Drain Office in 2015 was the design and adoption of a new Drain accounting system, Eden Project Management. Previous to October 2015, the Drain Office had been using the Microsoft Excel program to track every Drain District account. We had no way of “seeing” into the history of our individual accounts except manual examination of the monthly reports.. In 2015, Amanda Morse became Deputy Director of Kalamazoo County Finance Department, and with the support of Tracie Moored, breathed life into the Project Management. The Drain Office and Treasurer’s Office had been requesting improvements for at least 3 years and within weeks of stepping into her new position, Amanda had the system operational. She spent the time it took to make it work and patiently taught us how to use it. For that, we are very grateful to her and Tracie. In 2016 we will be working on making the system more efficient at tracking assessments and accounting for interest.

We continued with the MS4 permit stormwater outfall inspection program. However with the new permit and clarified definitions, the County now has only 2 Drain outfalls and 17 County Administration permitted stormwater outfalls.

In 2015 the Kalamazoo County Drain Commissioner continued to serve on the Michigan Association of County Drain Commissioners Legislative Committee. Besides seeking to maintain good relations with other state and local partners, the Drain Office continues to reach out to the community in its efforts to increase public trust in its operations. In 2015, the Drain Office was an active member of the Kalamazoo County Stormwater Working Group, the Parks and Recreation Commission, the Disaster Committee, the Board of Public Works, the Environmental Health Advisory Committee, the Austin and Long Lake Governmental Lake Boards, and the Parks Foundation.

Amendments to the Drain Code approved by the Governor in 2015: Section 5 now allows a drainage district to acquire real or personal property; Sections 101 and 121 allows a single municipality in one county to apply for an intercounty drain district and to petition for an intercounty drain; Section 327 allows road commissions the ability to petition for a new intercounty district and intercounty drain and for the maintenance and improvement of an existing intercounty drain. Section 196a is a new section which will allow for the Drain/Water Resources Commissioners and Drainage Board to remove debris, such as ice, fallen trees or logjams, from natural watercourses that is adversely affecting one or more county or intercounty drain. The Office of the Drain Commissioner is now required to be a member of Miss Dig but is not required to participate. At this time Kalamazoo County has chosen to not become a member of Miss Dig because we have very few enclosed drains and of the high fee schedule that is unrelated to resource density. We did choose to participate in the Kalamazoo County Freedom of Information system.

Other opportunities for better understanding, partnerships, and governance were found by listening to the concerns of the Kalamazoo Environmental Council, the Council of Governments, the Kalamazoo River Watershed Council, the Kalamazoo County Farm Bureau, the Friends of the St. Joseph River, and the Natural Resources Conservation Service.

In 2015 the Drain Office was denied participation in a state program promoted by the Governor's Water Strategy which was designed to create funding for permanent streamside conservation easements because Kalamazoo County does not have a Farmland Preservation Ordinance. In mid summer a group of interested parties including the Kalamazoo River Watershed Council, the Comstock Charter Township, the Kalamazoo County Farm Bureau, the Kalamazoo County Planning Department, the Kalamazoo River Cleanup Coalition, the Potawatomi Resource Conservation & Development Council, the Kalamazoo Drain Commissioner, and the Kalamazoo Conservation District, started to investigate how Kalamazoo County might consider such an ordinance. The group has been meeting monthly with support by many other organizations. We believe that this ordinance will also help sustain our varied agricultural economy and hope be adopted by the Board of Commissioners.

Standards for flood prevention and improved stormwater management can be found in the Kalamazoo County Site Development Rules on the web. The Site Development Rules were adopted by the County Board of Commissioners in July 2012 for all County Administration facilities and construction projects.

The following report will review the duties, activities, office, and financial reports for 2015.

II. GENERAL DUTIES

The Drain Commissioner duties:

- Provide for the operation, and maintenance of more than 170 county and inter-county drains, 180 platted basins, and numerous other stormwater collection systems necessary for stormwater management, drainage, flood prevention and stream protection to agricultural and developed lands
- Recover the costs of operation by levying special assessments on local governments, private property owners, and others who benefit from drainage and stormwater management improvement projects
- Finance drain projects through the sale of bonds and notes
- Maintain records of the establishment and operation of each drain district
- Oversee the management of all drainage district financial accounts
- Publish design standards for stormwater systems
- Review and issue approval of plans for private stormwater systems in new developments and redevelopments
- Determine the legal lake levels for petitioning lakes
- Maintain legal lake levels on five lakes and serve on governmental lake boards
- Implement the federally-mandated Municipal Separate Storm Sewer Systems (MS4) Stormwater Permit Program in 3 of the 8 sub-watersheds in the Kalamazoo River Watershed, and 1 of the 5 sub-watersheds in the St Joseph River Watershed located in Kalamazoo County.
- Participate with others in watershed plan development and implementation
- Serve on the Parks and Recreation Commission, the Parks Foundation, the Environmental Health Advisory Council, the Disaster Committee, the Kalamazoo River Watershed Council, and the Board of Public Works
- Seek stormwater management enhancement grants
- Work with local property owners, county municipalities, the County Soil Erosion and Sedimentation Control Agent, the Kalamazoo County Road Commission, the Michigan Department of Transportation, the Michigan Department of Environmental Quality, and the Kalamazoo County Stormwater Management Working Group

III. ACTIVITY

A. *County Drains*

The Kalamazoo County Drain Office held a Day of Review for East Cooper Drain in 2015. A Day of Review is where all stakeholders in a drainage district are formally invited to discuss the drain district, special challenges, and the apportionments associated with their parcels with the Drain Commissioner and staff.

PROJECTS (not routine maintenance)

1) Petition projects

Townline-Galesburg

In 2015, this project won the Michigan Association of Drain Commissioner’s Innovation and Excellence Award because of its innovation, complexity, and cost-effectiveness. The success of the project was due to the painstaking work of Deputy Jeff VanBelle supervising and coordinating with our 15 other partners. This project is the first time the Kalamazoo Drain Commissioner’s Office won an award of this kind and it is a major accomplishment for such a tiny office. The project team included: Land & Resources Engineering, VanderVeen Excavating, ADS, Northern Concrete Pipe, Lowe Construction, Mersino Dewatering, Ryan’s Modern Sewer Cleaning, Lakeland Asphalt Corp, Hasting City Bank, National Railroad Passenger Corp, Amtrak, the City of Galesburg, the township of Charleston, MDOT, Kalamazoo County, and the Kalamazoo County Road Commission. An excellent narrative published in the Fall 2015 Pipeline, a journal of the Michigan Association of County Drain Commissioners and in the 2014 Annual Report.



In 2015, the Townline Galesburg Drain project was wrapped up with one minor road repair. It was located in the MDOT right of way but under the auspice of goodwill, the Drain Commissioners office completed the repair of a slight dip in the M-96 intersection and recent inspections show the repair is adequate.

Lexington Green

July 2011, the Portage City Council passed a resolution to petition for a new county drain that is a sub watershed of the Davis Creek Drain. On May 3rd 2012, the Drain Commissioner affirmed the boundaries of the Lexington Green Drainage District. On February 26, 2013, the City of Portage approved a petition for drainage improvement to the Lexington Green Drain. The Board of Determination found the project necessary on June 28, 2014. A detailed survey has been completed. The outcome of this survey, along with meetings with the City of Portage has led to the initial scope of the project. On March 24th the Portage City Council approved the easement transfer to the Drain Commissioners office. Two private easements remain to be obtained but progress continues to be made and the Drain Office is confident the easements will be obtained. Construction design was mostly completed in 2015.

East Corporation

A petition to establish a drainage district was received in August 2010. A survey was performed and a district created in October. A second petition for construction of a county drain was received in December. The project was deemed necessary by a Board of Determination on February 1, 2011. Merritt Engineering was initially selected for the design work but we later changed to Land & Resources when the Merritt engineer left the company. Easements have been acquired. MDOT and Norfolk Southern Railway permits have been obtained. The final design was altered to meet cost expectations of the City of Galesburg. In 2016, the contract was put out to bid, with Fulton & Sons out of Kalamazoo as the low bidder. The contract calls for construction to begin in late July 2016 with substantial completion by November 15th 2016.

2) Maintenance projects

Gilbert Drain at Market Street



A culvert failure under Market Street in Comstock Township on the Gilbert Drain prompted immediate action. This road is particularly busy in the spring with traffic for the greenhouses. A culvert was provided by the Road Commission of Kalamazoo County and the Drain office coordinated its installation along with a structure in a short 2 day window while maintaining traffic for the businesses.

Wiersma West

A property owner requested an inspection of the West Street drain. That inspection revealed the ditch along North Westnedge needed to be cleaned out so the adjacent property had an outlet for its water. Bids were obtained and the ditch was cleaned out so the crop could be installed on schedule.

ROUTINE MAINTENANCE

1) Clearing Brush/Removing Waste/Beavers

In 2015, the Drain Office hired a maintenance crew to remove obstructions and brush, and trappers to remove beaver.

Climax- Wakeshma

Davis Olmstead

Eldred

Four Township

Gilbert

Longley

Parker

Pease

Schippers

State Ditch

Townline Galesburg

Weirsma West

Zantman

In addition the following drain districts experienced more maintenance activity than usual:

Austin Lake Consolidated

In early spring of 2014 complaints of backyard flooding from residents of the Oakview Drive neighborhood began coming in even though rainfall had been relatively sparse throughout the season. The culvert was cleaned out and provided some relief. During the flooded period, some landscape plants and trees were lost. The Drain Office sent a crew to clean up debris along the drain but could not replace the trees. A brochure was designed to recommend more durable floodplain landscaping and provided to the residents and public at large..

The floodplain in the area provides extensive habitat for beavers. In 2015 clean up and beaver dam removal has continued. Deadfall has also been removed from the drain to promote proper flow.

Big Marsh 1

Big Marsh 1 requires constant attention for woody debris removal and animal activity.

Carter Bower Drain

Two property owners paid for cleanout work on the outlet for the Carter Bower Drain. This work was completed by an excavator under the supervision of the Deputy Drain Commissioner. This saves the district money while providing the needed drainage for the property owners.



Debris causing sedimentation



After the cleanout.

Follmer

Follmer Drain has had continued woody debris removal to establish flow in several areas. Beaver activity appears to have subsided for the moment.

2) Signage

Four drain signs were replaced and numerous ones were repaired and reinstalled. This is ongoing maintenance to update the signage in the entire county.

B. Inter-County Drains

The Kalamazoo County Drain Office held Days of Review for three intercounty drains in 2015: 1) Hubbard (with Allegan Co), 2) Big Marsh 2 (with Calhoun), and 3) Snyder and Snyder Extension (with Calhoun). A Day of Review is where all stakeholders in a drainage district are formally invited to discuss the drain districts, special challenges, and the apportionments associated with their parcels with the Drain Commissioner and staff.

PROJECTS (not routine maintenance)

1) Petition projects

None

2) Maintenance projects

Big Marsh Intercounty Drain

The Calhoun County Water Resource Commissioner received call about the Big Marsh Intercounty Drain which also services Kalamazoo County. Two contractors were contacted for bids in the fall of 2015 and the low bidder was selected. Work is scheduled for the spring of 2016.

ROUTINE MAINTENANCE

1) Clearing of Brush/Removing Waste/Beavers

Otsego-Alamo Drain:

The Allegan County Drain office responded to calls about trees and deadfall in the drain. The work crew cleaned a portion of the drain and a private contractor was hired to remove a large tree impacting a home.

Hubbard Drain:

Minor brush maintenance was performed on the Hubbard Drain after a request by a property owner.

C. Plats

PROJECTS (Not routine maintenance)

1) Petition projects

None

2) Maintenance projects

Fawn Meadows



An existing plat, (Fawn Meadows) had 3 phases completed but the final phase never developed. A property owner bought all the remaining land for a private residence. An issue arose over a driveway access point. The Road Commission and the Drain Commission worked out an agreement to swap easements and the landowner paid a contractor, under the supervision of the Drain office, to expand the existing basin to provide room for a legal driveway and turn around to be built.

ROUTINE MAINTENANCE

1) Mowing

The Drain Office hires a maintenance contractor to mow drainage basins each year.

In 2015, 37 drainage basins were inspected, trash removed, and mowed twice during the growing year. Calls for service on retention basins continue to decline with the continued expansion of this program.

<i>Applegate Farms 1</i>	<i>Oshtemo Woods</i>
<i>AZO Commercial</i>	<i>Prairie Edge 2&3</i>
<i>Bela Sera</i>	<i>Rolling Meadows 3</i>
<i>Bel Villagio</i>	<i>Rose Arbor 2</i>
<i>Breckenridge 1</i>	<i>Rose Blossom Trails 2</i>
<i>Chestnut Hills</i>	<i>Rudgate Meadows</i>
<i>Colonial Estates Village 1</i>	<i>Springbrook Meadows</i>
<i>Crooked Lake Cove 2</i>	<i>Texas Heights 2</i>
<i>Fleetwood 4-5-6</i>	<i>Texas Heights 3</i>
<i>Fleetwood 1&7</i>	<i>Texas Heights 5</i>
<i>Forest Glen</i>	<i>Valleywood 1&7</i>
<i>Greenfield Pointe 3</i>	<i>Valleywood 2&3</i>
<i>Greenview Meadows</i>	<i>Valleywood 5&6</i>
<i>Greystone</i>	<i>Virgina Downs 4&5</i>
<i>Meadowood Estates 1</i>	<i>Walker Trails 1</i>
<i>Meadowood Estates 2</i>	<i>West Port Trails</i>
<i>Mystic Trail Estates</i>	<i>Wildwood Hills</i>
<i>Nichols Landing</i>	<i>Woodbrook 3</i>
<i>Northpeak</i>	

2) Clearing Brush/ Removing Waste/Misc

<i>Applegate Farms 2</i>	<i>Mystic Trails Estates- West</i>
<i>Country Estates</i>	<i>Nichols Landing</i>
<i>Greystone</i>	<i>Rolling Meadows 2</i>
<i>Jessica Hills</i>	<i>Stoney Creek 2</i>
<i>LaSalle Homes</i>	<i>Timberleaf</i>
<i>Meadowbrook Hills</i>	<i>Walker Meadows</i>
<i>Mystic Trail Estates 2</i>	<i>Walker Trails1</i>
<i>Mystic Trails Estates 3</i>	

3) **Pumping**
Greystone

D. Soil Erosion and Sedimentation Control Program

In 2013, the Soil Erosion and Sedimentation Control Program returned to the Drain Commissioner’s Office after about eight years in Planning. The Deputy Drain Commissioner, Jeff VanBelle, oversees the program and supports Kellie Layman, the enforcing agent, with the more challenging aspects of her work. The number of permits continues to rise as the economy improves. This program also works with building officials and the Kalamazoo Area Building Authority to ensure permitting requirements are being met. In 2015, Kellie had literature out at the County Fair and went to a Home Builders Conference to talk about Soil Erosion rules and regulations. Here are some highlights of development around the County that required soil erosion permitting:

Oshtemo: Costco, continued growth of banks and credit unions; more small company growth (Bronson Health Care, Autozone); housing growth for single families, site condos and plat development.

Texas: small business, condo and plat development.

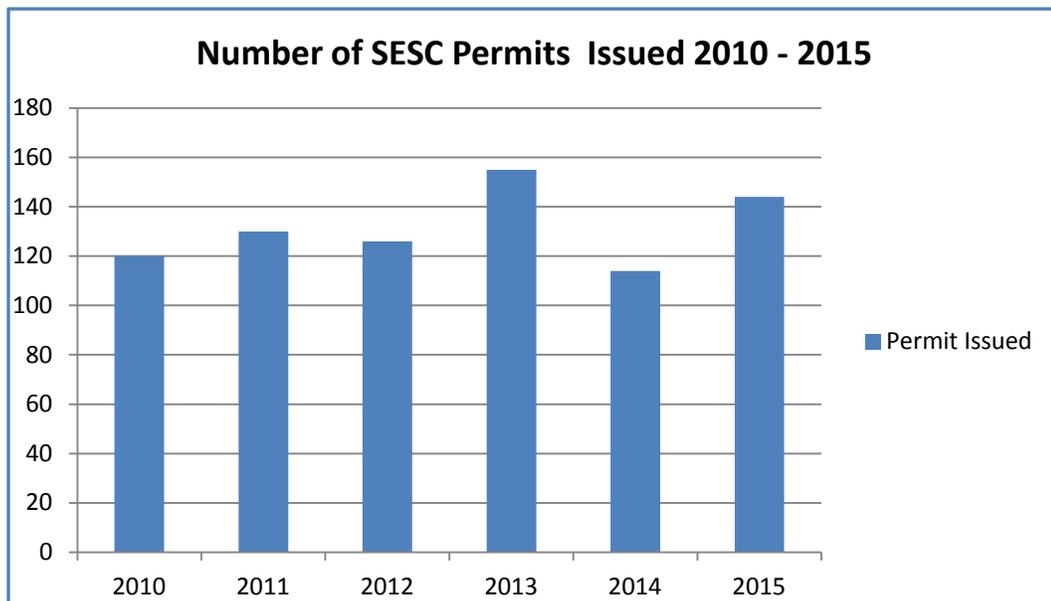
Comstock: MidLink filling up with commercial sites. Krum St. is filling up with Bell’s expansion and several other small companies.

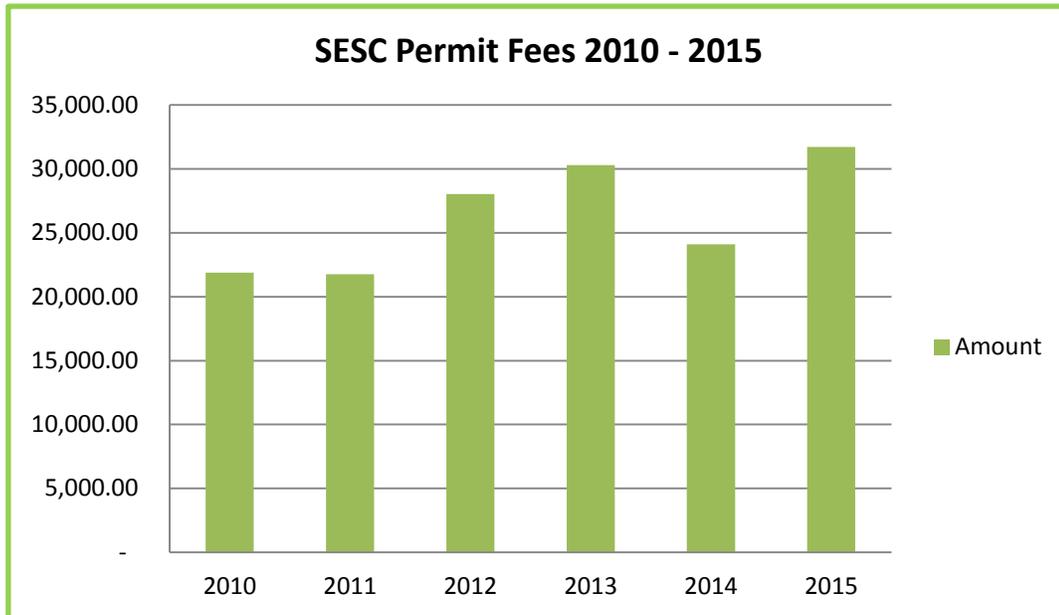
Cooper: Expansion of Cooper Meadows and small businesses.

Ross: New township hall, Gull Lake Ministries.

Richland: Site condos, New single family homes, small businesses

Vicksburg: Small businesses and expansions.





E. Lakes

PROJECTS (Not routine maintenance)

1) Petition projects

Austin Lake

The Austin Lake Governmental Lake Board (ALGLB) was formed at the request of the City of Portage in 2009 to consider muck removal in the South Bay of Austin Lake. After a study was completed, a project was approved and a special assessment district and assessment roll defined. In 2012, the Kalamazoo County Board of Commissioners loaned the Austin Lake Governmental Lake Board \$133,000 to assure sufficient cash flow for the Austin Lake aeration project. The loan was repaid with interest to the County over a four year period. That aeration system was installed in the summer of 2012.

In 2014, the Drain Commissioner audited the muck reduction data associated with three years of aeration. Sixty-five locations were measured 5 times. Between 16 and 18 inches of muck were lost in the areas near the diffusers and between 10 and 13 inches of muck were lost in the areas between. A weighted average of 13.1 (+/- 1.2 inches) was lost over 245 acres. This corresponds to about 0.4 million yards of muck reduced. The Austin Lake Governmental Lake Board decided to continue treatment for 2 more years. This is the largest evaluation of this technology known. In 2015, there was a substantial and unexpected increase of muck but aquatic plants are fewer. We will continue treatment and monitoring another year.

2) Maintenance projects

There were no lake maintenance projects done in 2014.

F. MS4 Activities

In 2015 we submitted our biannual permit report to MDEQ in December. We collaborated with our Kalamazoo County Stormwater Working Group partners on our new permit application. MS4 activities for 2015 were: public outreach, staff education, SWPPP compliance, the site development rules and grant management. The last two activities are covered in other sections of this report.

1) Public Outreach

In 2015 the Drain Commissioner prepared stormwater demonstrations at the: Kalamazoo Nature Center Earth Day, Portage Green-a-Thon, and the Kalamazoo County Fair. We hired extra help to communicate with the large numbers of people who showed up at our booths. We had water games and toys for kids, ample seating for tired parents, regular stormwater exhibits and small talks, and several county maps including a new map of the first survey done in Kalamazoo County, showing the unaltered hydrology before dams and drains. The layout was originally designed to attract the younger audiences so that we could capture the older audiences, but we were happy to find that many teenagers enjoyed the presentations..



As part of our commitment to the Total Maximum Daily Load (TMDL) program, we partner in the Kanoe the Kazoo and Crazy for the Kazoo. This photo shows a put in and take in facility funded by Enbridge at Bridges Park on the K River near I94 in Calhoun County.

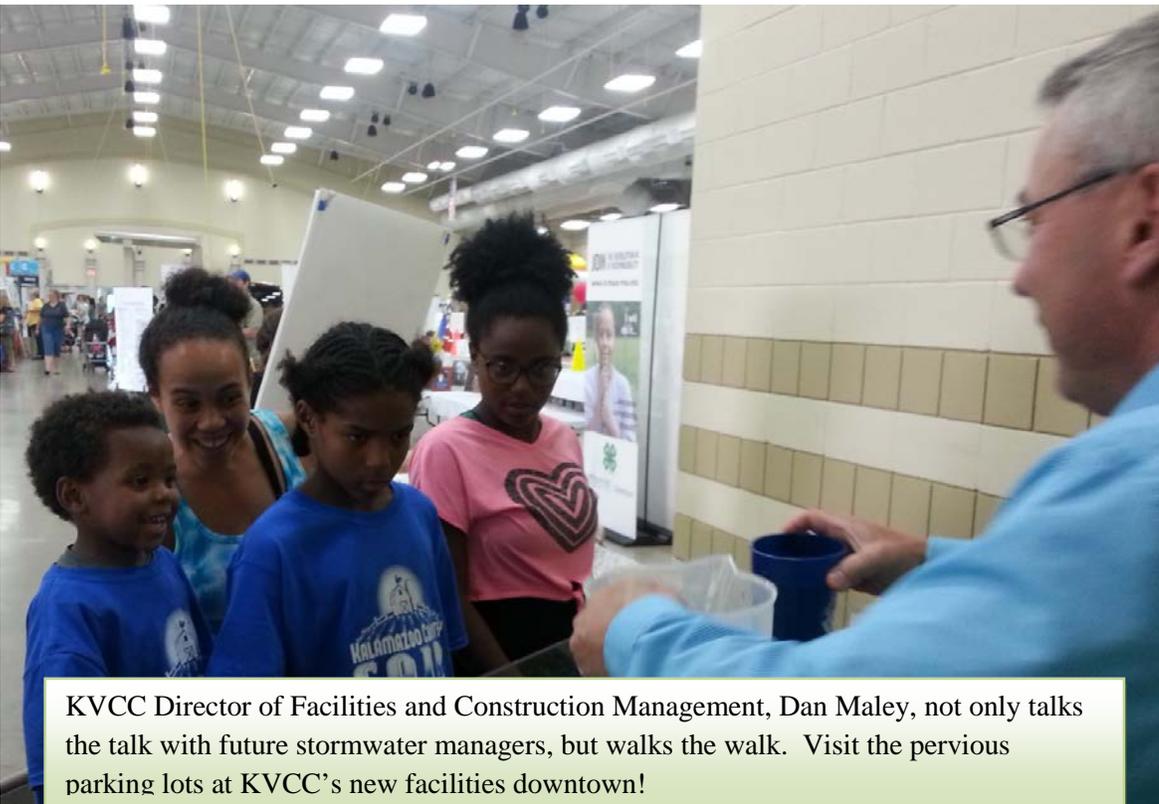


Flooding is not the only reason to be concerned with good stormwater management. Stormwater quality affects our entire aquatic ecosystem; from crustaceans to fish, and to the birds and mammals (including humans) who depend on them for food.

The new Ward's Stormwater Simulator we bought with our partners from the Kalamazoo River Cleanup Coalition and the Kalamazoo Community Foundation turned out to be a success far greater than imagined. Though the model can support complex projects enough to interest an introductory hydrology class, its greatest attribute lies with its ability to convey the fundamentals of stormwater management in a profoundly simple way. Every person, no matter how experienced they are with stormwater concepts, is impressed by the message that the model so graphically conveys. We took it to the County Fair, along with our regular materials and were continuously visited by people wanting to see it. The Fair was open from 9 to 7 Tuesday through Saturday. We counted over 1400 visitors. In 2015, we had about 15 volunteers helping us share the effort at the Fair. Most notably the Road Commission had four employees, including their Director, Joanna Johnson, Engineer Ryan Minkus, Michelle Podgorski, and Area Supervisor Bill DeYoung, get trained to give the demonstration. They did a great job! Even the director of the Kalamazoo Valley Museum, Bill McElhane, came by to check it out. It was an incredibly gratifying experience as many kids also stayed with us for extended periods and gave the demonstration to their friends and families. The age, educational, and cultural range that it was able to influence was huge.



Road Commission Area Supervisor Bill DeYoung successfully engages a whole family



KVCC Director of Facilities and Construction Management, Dan Maley, not only talks the talk with future stormwater managers, but walks the walk. Visit the pervious parking lots at KVCC's new facilities downtown!



About 10 volunteers showed up to help at Stormwater Otter World at the Water Festival in August. They made it possible for visitors to experience the very wide variety of activities we had available.



Something for everyone. Even drawing and reading.



Doing what Otters are famous for: sliding and having fun.



Even without water!

In the summer of 2015 the Michigan Chapter Soil and Water Conservation Society came to visit Southwest Michigan. The first half of the day was spent at Western Michigan University where WMU's effort to evolve into a first class stormwater management system was discussed. We visited WMU's many innovative stormwater systems and then jumped into a trolley to go on a trip to two of Kalamazoo County's projects: Davis Creek and Haas Drain. Jeff VanBelle told of his long interest in Davis Creek's challenges and was able to show them four newly completed streambank improvement sites.



This site is near the Kalamazoo County Fairgrounds. The three culverts are evidence of a high flow before a flood diversion was installed which took most of the water away from this neighborhood. Even though the diminished Creek is valued by residents, it was a magnet for dumping. Now it is properly channeled and replanted with native species.



Project engineer, Brian Boyer, discusses how a J-Hook directs channel flow.



Jeff VanBelle tells of his long interest in fixing this particular section of the Davis Creek.

InterFaith Creek Celebration.(State Ditch)

The Drain Office requested \$1585.00 from Michigan’s Volunteer River, Stream and Creek Cleanup Program (sales revenue of the water quality car license plate). We currently remove about 15 tons of material every year from this perennial stream that originates off of Ravine Road and flows across Douglas through Hammond Machinery and continues between the Interfaith Apartments and the City Ball Field to the River. Almost 15 partners gathered to sponsor the cleanup including the Kalamazoo River Watershed Council, Kalamazoo City Parks and Recreation, 2nd Baptist Church, JBS Packerland, the Lift Foundation, Interfaith Housing, McDonalds Corp, Republic Waste Services and T-Robb from “The Touch” WKZO 1560 AM, 95.5 FM.

Our intention was to present a day of celebrating the InterFaith Creek (aka State Ditch County Drain) with a cleanup, breakfast, lunch and fun activities, celebrity appearances, and enthusiastic volunteer recognition as part of the watershed wide Crazy for the Kazoo day, but we did not receive funding. Instead we went for gift certificates at Meijers and donuts and cookies and drinks and cool litter picker uppers. It started out as a cold and miserable day but the nice food and good support of the City crew and radio station made it fun for all of us.





Bundled up and ready for action



Wants to know when we can do it again



Mover and shaker



Watershed Council, McDonalds, Republic and Interfaith



Deep cleaners



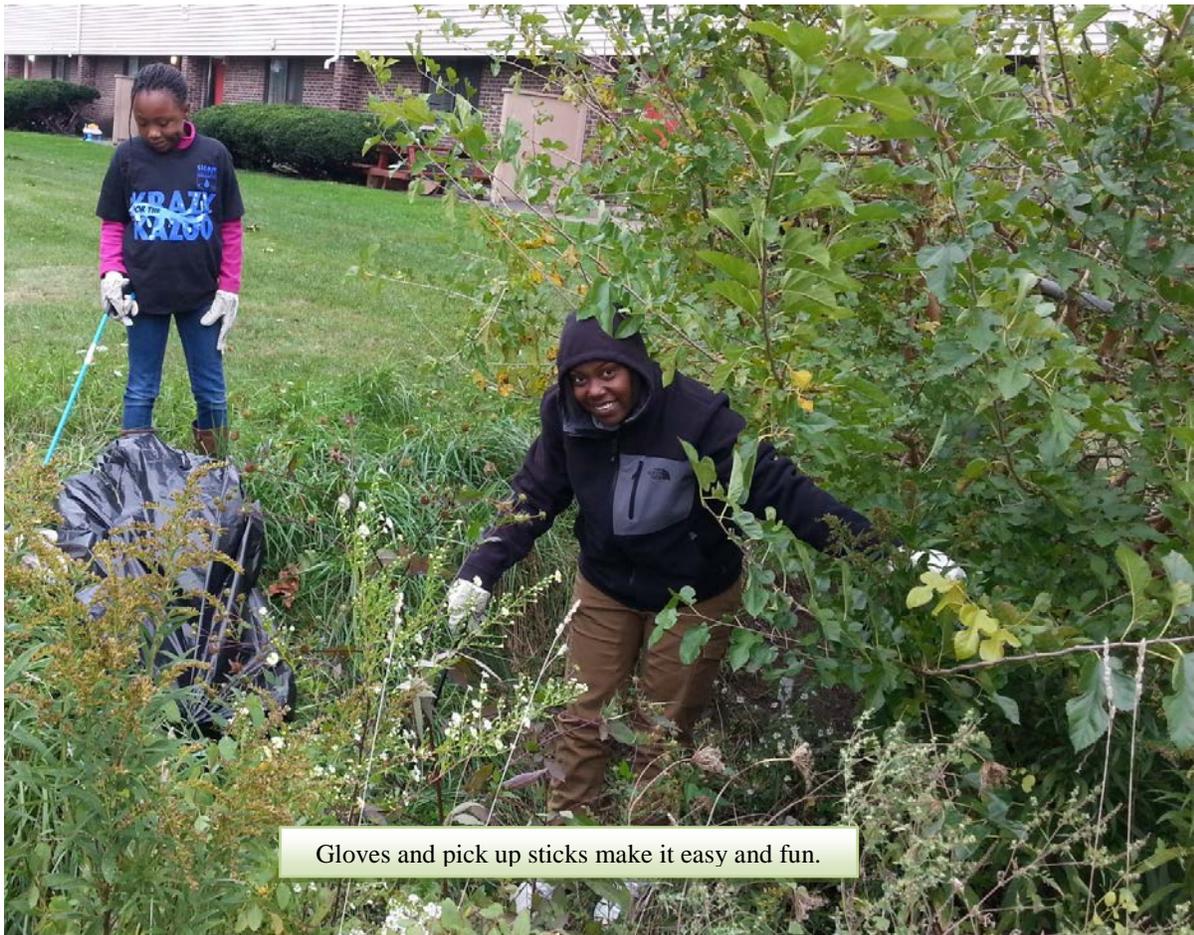
T-Robb and fan



Kal City heroes



Some came because of the radio invitation.



Gloves and pick up sticks make it easy and fun.



A beautiful little creek again.

2) MS4 Staff Education

The Drain Office collaborates with the Kalamazoo County Stormwater Working Group on a quarterly basis to discuss permit compliance including educational opportunities. The Deputy Drain Commissioner organizes and leads these meetings which include the Road Commission, MDEQ, the cities of Kalamazoo, Portage, Parchment and Galesburg, WMU, KVCC and the Village of Vicksburg.

The Drain Office participates in the Lake Allegan/Kalamazoo River Phosphorus Total Maximum Daily Load Implementation and Point Source Committees meetings quarterly and participated in their “Krazy for the Kazoo” river cleanup organized by the City of Kalamazoo.

3) MS4 Illicit Discharge Inspections

Dry weather inspections are done on a 3 year rotation so the next round of inspections will be in 2015. There were no new discharges discovered in 2015.

G. New Subdivisions

The Drain Office has responsibility under The Land Division Act to review and approve drainage for subdivisions. In 2015, three plats were reviewed: Rose Arbor #4, Oshtemo Township; Sky King Meadows #3, Oshtemo Township; and Crooked Cove Street Ext., Texas Township.

H. Drain Permits

In accordance with the Site Development Rules of the Kalamazoo County Drain Commissioner, a permit must be obtained from the Drain Commissioner’s office if a party needs or wants to do work in a county drain and/or the work requires tapping into or crossing over or work in the drain right of way. There is a \$150.00 fee associated with this permit. One private and one Road Commission permit were issued in 2015.

I. Road Commission of Kalamazoo County

The Drain Commissioner's Office considers the Road Commission of Kalamazoo County (RCKC) an important partner. We share our stormwater permit with them and meet with them to discuss common issues and goals. Their field staff functions as our eyes and ears to the county and they help us stay on top of evolving issues. Problems can be e-mailed in to the Road Commission and the area superintendents inspect and report back usually within a day. This level of cooperation is vital going forward to continue a high level of service at a reasonable cost.

The Drain Commissioner's Office has a reciprocal agreement with the RCKC for permits to work in County drains or in road right of ways. One permit was issued to them in 2015.

J. Training and Certifications

The Drain Office staff passed state administered examinations on several of its Soil Erosion and Stormwater Operator certifications this year and is current on all necessary certifications. Both the Drain Commissioner and the Deputy Drain Commissioner attend the State Drain Conference twice a year and our regional gathering and get about 6 formal days of education on drain issues. We also participate in relevant webinars on best management practices, permitting activities, and other supervisory and management training.

K. Site Development Rules

In the years before 2014, the Kalamazoo County Drain Commissioner Site Development Rules were introduced to all township planning commissions. In 2014 the Drain Commissioner used the Ward's Stormwater Simulation Model at the September Township Supervisor's Meeting to clearly illustrate the need for good stormwater management. After the demonstration, it was unanimously agreed that the Rules should be adopted. At the following Supervisor's meeting it was decided that they would incorporate the Rules as part of their five year plans. This strategy will be supported by the Drain Office in 2016.

The Drain Office had instructional materials prepared to use in Rules training sessions in 2014 but lacked the time to organize the sessions.

L. Grants

The Drain Office is interested in grants that will 1) extend the purchasing power of drain assessments, 2) increase public awareness of effective stormwater management techniques, and 3) strengthen local partnerships. This involves frequent brainstorming meetings with a large

variety of potential partners. In 2014, the Drain Office a) celebrated the award of two State of Michigan Stormwater Asset Management and Wastewater (SAW) grants, b) worked with partners to implement another, and c) submitted two more for consideration.

a) Two SAW Grants

With the authorization of the Kalamazoo County Board of Commissioners, the Drain Office proposed two State of Michigan Stormwater Asset Management and Wastewater (SAW) grants in 2013 and was selected for both of them in 2015. In 2015 progress was made on these.

- 1) Enclosed Drain Asset Management Plan for \$210,000
- 2) Davis Creek Stormwater Management Plan (focusing on non-point hydrocarbons and solvents) for \$85,000

We spent time in 2015 locating the enclosed drains to be inspected. After this is done we will inspect and repair them. We look forward to upgrading our field technology and making a plan to improving water quality in Davis Creek by reducing hydrocarbon inputs from the roads.

b) 319 Davis Creek Streambank Stabilization Grant

In 2015, the Drain Office worked on an EPA TMDL grant for Davis Creek (a Chapter 20 Drain) with partners from the cities of Kalamazoo and Portage, the townships of Kalamazoo, Comstock and Pavilion, the County Road Commission, the Kalamazoo River Watershed Council, and Kieser & Associates. Part of that TMDL project reconstructed the streambank south of the 94 Business Loop and the other part will improve the stability of two open channel portions of Davis Creek traveling through the neighborhoods just north of Business 94. We invited a MI Corp water quality management assessment to be initiated on this stretch of the Creek when we first got this grant. The assessment will continue for some time after the construction has been finished and we can demonstrate that our work will make a difference.



The old part of Davis Creek south of Bus 94



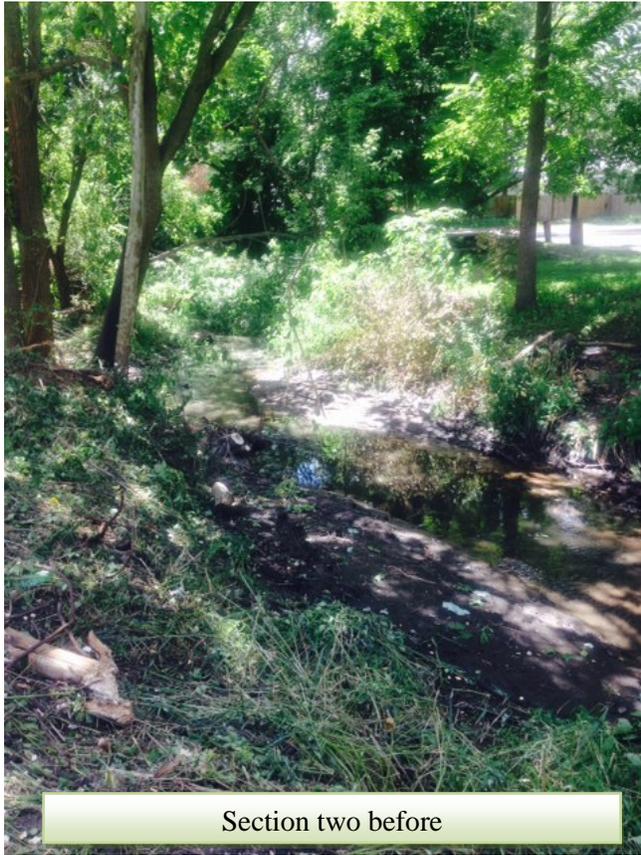
In progress



Construction finished.



Right before our first tour arrives



Section two before



Section two after



Section three before



Section three in progress.

c) Davis Creek E.coli Study.



Dog trained to identify multiple sources of e-coli along Davis Creek.

The Drain Office partnered with the Kalamazoo River Watershed Council on its e-coli study of Davis Creek. Jeff VanBelle helped to locate areas of concern and went with the team on the field reconnaissance effort. Several areas were referred to the Environmental Health, Kalamazoo County Community Health Services.

d) Morrow Lake Water Quality Monitoring Project



The Kalamazoo River Watershed is under Total Maximum Load Limits for total phosphorus. The Kalamazoo County Drain Office formally administered a grant to: 1) confirm sources of total phosphorus (TP) coming from the Morrow Lake outlet via collection and analysis of water quality samples collected from the inlet, outlet and within the reservoir during the growing season (April-September); 2) determine the likely causes of the source(s) of TP from the reservoir through analysis of sediment and water samples that might indicate whether sediment or biological productivity are potential sources; and 3) identify management activities linked to the sources identified through sampling that might reduce TP loading from within the reservoir. Partners were the Forum of Greater Kalamazoo, City of Kalamazoo Water Reclamation Plant Laboratory, Upstate Freshwater Institute, MDEQ, and Kieser & Associates, LLC.

IV. OFFICE

After all its historic documents were scanned in 2012, thanks to County Clerk Tim Snow's Technology fund, the Drain Office came to realize that improvements in document handling are needed to ensure future document recovery. This issue has been brought up for discussion with other departments, but currently there are no obvious software solutions.

Changes to legislation concerning public noticing and Freedom of Information affected the Drain Office. The office continued to update its webpage (<http://www.kalcounty.com/drain>).

The new GIS Coordinator in the Planning and Community Development Department, Chris Besser significantly contributes to the improved functioning of the Drain Office. The GIS Coordinator produces updated parcel lists of drain districts, enabling apportionment models incorporating area and land use to be constructed, new maps for communicating with the public at meetings, and makes it possible for us to quickly address a large variety of practical geographically-based inquiries that are critical for Drain Office decision-making. Rachael Grover, also new to the Planning and Community Development Department has helped us to organize and write our grant proposals.

V. LOOKING FORWARD

- Affordable drain maintenance continues to be the main goal of the Drain Office.
- The Drain Office will continue to seek to have the Site Development Rules approved by all interested local governments.
- We will complete the scope and design of the Lexington Green Drain in the City of Portage and prepare for construction.
- We will finish construction on the East Corporation Drain in the City of Galesburg and Charleston Township.
- Now that we have our historic documents in electronic form, we need to better manage our communications. We will monitor the progress of the Kalamazoo Health and Community Services Department as they go through this process.
- We will start to explore the use of mobile devices in our field operations to streamline our inspection and reporting process
- We will locate, inspect and repair our enclosed drains and storm water retention ponds and create a management plan with the State SAW funding.
- We will design a solvent and hydrocarbon contaminant storm water management plan for Davis Creek (grant).
- We will support community efforts for storm water innovation, including rain barrel sales and design a floodplain landscaping plants brochure.
- We will continue to bring storm water education to the schools and other public demonstrations using the Ward's Storm water Simulation Model.
- The Drain Office will support public and private programs that enhance good storm water management such as wetland restoration, outdoor recreation, and wildlife habitat

VI. FINANCIAL REPORTS

Copies of the following four financial reports are on file in the Board of Commissioner's Office as well as the Drain Office. Please note that these reports reflect the balances on December 31, 2015.

A. Debit and Credit Balances of all District Funds

- 1) The December 2015 ledger balance shows end of year balances for all *regular and revolving drain* funds.
- 2) The December 2015 ledger balance shows end of year balances for all *regular and revolving lake level* funds.
- 3) The December 2015 drain ledger balance show total debits, total credits and year end balances for all *special* funds (eg.Townline-Galesburg drainage district)

B. Accounting expense detail shows activity of all active regular and revolving District Funds.

C. Liability of the Drain Commissioner for Bonds and Notes:

1) Townline Drain – Galesburg 2008

This principal of this bond was \$415,000. In 2015, a total of \$53,085 (including bank fees) was paid on the bond for the seventhth year of ten years. The assessments associated with this bond payment are paid in summer, unlike usual drain assessments. This bond will be paid off in 2018.

2) Townline Drain- Galesburg 2014. Principal of this note is \$445,000. The first interest payment was paid on July 1, 2015.

3) Bear Creek 2015. Principal of this note is \$20,000. This note was paid off in 2015.

4) Big Marsh #1 2015. Principal of this note is \$45,000. Final payment was paid in 2015.

5) Vicksburg and Branch 2014. Principal of this note is 60,000. \$11,085 was paid in 2015. Final payment due in 2019.

D. 2015 Assessment Roll Summary

This is the roll approved and signed by the Kalamazoo County Board of Commissioners on October 6, 2015.

A. Debit and Credit Balances of all District Funds

B. Accounting expense detail shows activity of all active regular and revolving District Funds.

C. Liability of the Drain Commissioner for Bonds and Notes:

2015 Assessment Roll Summary