

ENVIRONMENTAL CONCERNS COMMITTEE

JULY 18, 2018 MEETING MINUTES

Community Room, 2nd Floor, City Hall, 241 W. South Street, Kalamazoo, MI 49007

Members Present: Paul Manstrom, Chair; Matt Fletcher, Vice Chair; Aaron Wright; Phil Dietrich; Mary Clare Griffith; Gail Walter

Members Excused: Laurie Holmes

City staff: Malissa Drzick, Staff Liaison; Amy Thomas, Recording Secretary

1. ROLL CALL

- While waiting for a quorum of members to be present, the ECC proceeded to Item 6, Unfinished Business, and the presentation regarding flood mitigation.

6. UNFINISHED BUSINESS

City of Kalamazoo Climate Action Plan

Presentation by James Baker, Director of City of Kalamazoo Public Services on City planning for mitigation of future flooding (climate resiliency).

- Mr. Baker provided the following information:
- There are two types of flooding: 1. Riverine flooding occurs when the volume of water overflows the channel (river) and flows out into the floodplain. 2. Due to the higher elevation of the Kalamazoo River, riverine flooding from the river can flow into Portage Creek, which creates backwater flooding. The flooding Kalamazoo experienced earlier this year was a combination of these two issues.
- A Hydrograph shows details of the flooding. As an example, Portage Creek usually peaks within an hour or less after a storm begins. It takes the Kalamazoo River about four days to peak in response to a major storm event.
- A specific section of a river is referred to as a reach. Within that reach, the cross section and slope will determine the amount of flow the creek or river can handle. The floodplain area is subject to flooding and absorbing the flow.
- With regard to Portage Creek, the reach south of Reed Street can handle a higher volume of water than the reach north of Reed Street. From Kilgore Road to Reed Street, Portage Creek has a deep channel and runs downhill very fast. The linear drop over vertical drop is very low (low linear to high vertical) this causes substantial flow in the channel, well over 567 cfs (flow measured in cubic feet per second). That varies depending on the area. As an example, at the Alcott bridge, the water can flow over 1,300 cfs.
- Once the channel reaches Reed St., it transitions from a steep slope with a rocky, sandy-bottom channel to a channel with a flat slope with silt and organic matter at the bottom.
- If you look under the bridge at Stockbridge (one street north of Reed St.) the water is moving slower and there is a lot of silt and organic material. The channel north of Reed Street is limited to approximately 300 cfs.
- The steepest part of the channel (within the City of Kalamazoo) is at Kilgore Road. The channel goes north to Alcott and Bryant and is flat by the time it reaches Reed Street and Stockbridge. It remains flat until it reaches the Kalamazoo River. This creates a flow differential in terms of the amount of flow we receive versus the amount of flow that we can convey to the river.
- During any given flood event, there is a 120,000 gallon per minute capacity deficiency, which is approximately equal to an Olympic-size pool every 5 ½ minutes. This impacts the Crosstown pond area. The higher/longer the flow is over 300 cfs determines how soon we have flooding conditions.
- Zone AE on the map shows the 100-year flood plain. (blue area on map of Crosstown Pond area).
- Pictures of the February 2018 flood show Burdick, Crosstown, Rose Street and north of that area where the ponds and Park Street were completely overbanked.
- There is more data available regarding the Kalamazoo River because it has been gauged since the 1930's. Anything over 3,100 cfs in the Kalamazoo River will cause flooding. A cfs of 7,260 would cause a 100-year flood event.
- In February of 2018, the water flow was about 7,000 cfs. To measure flow in the channel, you would need to measure a cross section of 32 points in the channel. Then you would measure the velocity at 80% depth and at 60% depth. There is an average unit variable method to calculate the velocity.

- The normal (dry weather) flow of the Kalamazoo River is 800 to 1,000 cfs. The normal flow of Portage Creek would be 60 to 100 cfs.
- We have not hit the 100-year mark recently. A 100-year flood would have about 1% chance of happening.
- Hydrographs measure rain fall according to where the rain is sitting, how long the water sits in a particular location and the intensity while it remains in that location.
- When Storm duration meets or exceeds the time and concentration (when a drop of water falls, how long does it take to reach the watershed) in a water body, there will be flooding. For Portage Creek, the time and concentration would be an hour or less.
- The Portage Creek watershed is about 38 square miles. We normally don't receive water fall over the entire 38 square miles at the same time but that's what happened back in October. If we have 6.25 inches of rain in 24 hours that would likely cause a 100-year flooding event.
- Another factor to consider is frozen soil which will prevent water from being absorbed into the ground and there would be a greater chance of flooding.
- The Kalamazoo River watershed is about 2,000 square miles. The area upstream from Kalamazoo (about 1,000 square miles) is an area of concern.
- On February 14th the entire watershed had approximately 20 to 30 inches of snow pack. Then we had two days of significant rainfall (6.32 inches) on top of the snow/frozen soil. As the snow melted, that increased the amount of water from 6.32 to 7.32 inches on top of the frozen soil. The hundred-year rain level is 6.25 and we reached that point as the snow was melting.
- The City of Kalamazoo doesn't do snow cores but they are done in St. Joseph County (City of Three Rivers). On February 15th, they had 36" of snow core in the watershed. There was a lot of water held up in the watershed. Outlying areas have impact on what happens in Kalamazoo.
- In 1947 we had similar flow numbers. That event was also caused by rain and snow on frozen ground. Much of the floodplain is forested now rather than being as grassy as it was in 1947. It is harder for water to flow through the trees. The flooding in 2018 was also worse than the flooding in 2008.
- The flooding in 1904 was the most severe flooding we've had on record. Train tracks and bridges were washed out. The trains could not travel from Battle Creek to Kalamazoo because they could not get past Augusta. The water was not up to the railroad tracks (in Augusta) in 2018. The same tracks still exist in that location at the same elevation.
- The peak discharge in the Kalamazoo River is increasing annually by 13.3 cfs. During the October 2017 flood, we had 6.3 inches of rain in 24 hours. That storm was unique because it stalled out over southwest Kalamazoo County and the Portage Creek watershed. It didn't get to the Kalamazoo River.
- The Morrow Dam is a hydro-electric, earthen-core, reservoir dam. It has to maintain a certain water level. The dam was not designed as a flood-control dam. One of these flood events wouldn't fit in Morrow Pond.
- They need to keep the pond (the dam) as high as possible and the tail (river) as low as possible to generate power. If they let water out, the tail goes up, the City of Kalamazoo is in the tail. If the tail gets too high, they will have to shut the turbines down. They don't have the capacity to hold back the flood waters.
- There was approximately 90 trillion gallons of water from the recent flood event and that won't fit in Morrow Pond. As an example, if you pour water into a full glass of water, the water you pour in comes back out.
- It takes about 36 hours for flood waters to travel from Battle Creek to Morrow Pond. With information regarding the cross sections of the Kalamazoo River in Battle Creek and Kalamazoo it is possible to predict details of a flood event.
- There is a crisis team in public services that will join another team from the county if the flooding conditions are substantial enough to require that collaboration. Public Services staff would monitor rain fall and stream flow. There are gauges and alarms that will provide calls and text messages if conditions are unusual.
- In February of 2018, City staff was able to predict, three days ahead of time, when the river would crest.
- To prevent flooding, Portage Creek would need to flow at 600 cfs. The Kalamazoo River would need to flow at 11,000 cfs to prevent flooding.
- The necessary cross-section and slope required to prevent flooding has been calculated. Low spots between Reed Street to the Kalamazoo River would have to be lifted up. A levy would need to be constructed at Portage Creek by Crosstown Parkway. A project this extensive would be costly.
- Mr. Fletcher mentioned that there was no storm water control as it applied to developments 30 years ago. The water would flow into the storm gutters and into our water system. He referred to the Midtown Market (former Hardings Grocery store property by Crosstown and Park St.). It looks like new landscaping was added in that location but it is

storm water control. Storm water on that site is metered out and controlled. He inquired if that could contribute to improvements with the flooding issues over time.

- Mr. Baker responded in the affirmative and advised that through site plan review and new construction requirements any particular construction site is not allowed to discharge more storm water than it would have under pre-development conditions. These are new development standards that the City has been implementing over the past two years.
- In the past (100 years ago) developers didn't build in the flood plain because they knew it wouldn't be safe. Areas which are in the Portage Creek watershed and upstream from the City of Kalamazoo have been developed and paved over. We are paying for that now with flooding. On-site containment systems help with the environmental stewardship of the water system.
- Mr. Wright inquired what the chances are that changes to the grade will occur to help prevent flooding. Mr. Baker advised that those changes would cost approximately 150 million dollars.
- In 2019, the USGS, the Army Corps of Engineers and the DEQ are planning to launch the USGS flood information mapping and program system. Surveys will be done in 2018 of Portage Creek and the Kalamazoo River to gather information that will be used in the HEC-RAS river analysis system. The Army Corps of Engineers can use the computer program to analyze how various alternatives would impact the flooding in Kalamazoo. If they find something that works, they can look at how much it costs and the benefits to the community.
- If the proposal meets the cost/benefit ratio, the Army Corps of Engineers, through a Par205 program, is willing to fund 10 million dollars of the project for a \$100,000 local match.
- Mr. Wright inquired if documentation could be provided that would show flooding events and the resulting economic impact. Mr. Baker will look for resources that would provide those details. Sediment transport is also an issue. Flooding causes contaminants to move to different locations.
- Ms. Walter commented that there are a lot of factors related to flooding that can't be controlled. Mr. Wright noted that correcting the flooding issues would require \$150 million dollars vs. \$10 million dollars just to get started with flood mitigation efforts.
- Mr. Fletcher commented that the Army Corps of Engineers hasn't been to Kalamazoo to study the flooding issues yet. He inquired if follow-up information could be provided at a future ECC meeting.
- A quorum of members now being present, the ECC proceeded with the remainder of the agenda.

2. APPROVAL OF JUNE 20, 2018 MEETING MINUTES

- Mr. Dietrich requested the following changes to the June Tree Committee report: Under the second bullet point, the power lines are not new. They have been there for many years but are now visible. Under the sixth bullet point, strike the second sentence.
- **Mr. Dietrich, supported by Mr. Wright, moved approval of the June 20, 2018 ECC minutes as amended. With a voice vote, the motion carried unanimously.**

3. APPROVAL OF AGENDA

- There were no changes to the agenda.
- **Mr. Fletcher, supported by Mr. Manstrom, moved approval of the July 18, 2018 ECC agenda as presented. With a voice vote, the motion carried unanimously.**

4. ANNOUNCEMENTS

- Ms. Drzick provided information regarding the ECC meetings to Coleen Prichard who expressed an interest in attending the July meeting. She is a former ECC member.

5. COMMENTS BY OTHERS ON NON-AGENDA ITEMS.

- There were no guests/comments.

6. UNFINISHED BUSINESS

Report by Paul on June CAP meeting at the Kalamazoo Nature Center

- Ms. Griffith, Mr. Dietrich and Mr. Manstrom attended the Climate Action Plan meeting. There were approximately 40 to 50 people in attendance. They broke up into six different work groups and took notes but they were not able to come up with a mission statement. Ms. Shipley will convene the work groups again in six weeks.
- Mr. Dietrich noted that the work groups were comprised of individuals with specialized knowledge. It was difficult to come to any conclusions because there were so many variables.
- Ms. Griffith mentioned that someone on one of the committees had a second draft of the Climate Action Plan from WMU. That document included a list of what to plant to help with flood mitigation. She will forward the document to Mr. Manstrom if it is provided to her. Ms. Walter will check with Dr. Keele regarding the second draft of that document.

Natural Features Protection Update

- There were no updates available. Mr. Manstrom will keep this agenda item under unfinished business and provide updates to the ECC as more information becomes available.

Kalamazoo Air Quality

Update by Aaron on communications with MDEQ and others

- Mr. Wright advised that USA Today printed a statement advising that Kalamazoo has some of the worst air quality in the country. He has been trying to find more details about the source of that information. 24/7 Wall Street provided the article to USA Today. They received the data from ATTOM Data solutions in California, a company that provides updates to commercial real estate companies for development purposes.
- Mr. Wright informed the representative that he spoke with that he thought the information they provided is false. The representative advised that the data was provided by the EPA (Environmental Protection Agency).
- Mr. Wright spoke with the local Air Quality Agent from the DEQ (Department of Environmental Quality) who contacted her boss at the State DEQ office. They provided him with the same links to the EPA and DEQ information pertaining to air quality. None of the data corroborates the statements made in the article from USA Today.
- He suggested sending a recommendation to the City Commission that the City of Kalamazoo provide a press release stating that this information is wrong.

Update by Malissa on Graphics Packaging and City discussions

- Ms. Drzick advised that there is a letter/statement in the works regarding what has been discussed and it will be presented to the City Commission. She will provide updates as more information becomes available.
- Mr. Wright mentioned that July 7th was the deadline for Graphic Packaging to respond to the DEQ but there has been no update so far.

2017 Annual Report

- A draft of the 2017 Annual Report was provided to the ECC. Mr. Manstrom requested that the members review the report and provide comments. The goal is to have the ECC approve the Annual Report at the next meeting.
- Commissioner Anderson commented at a previous meeting that he thought it would be a good idea to provide the Annual Report to the City Commission.

PFAS update

- Ms. Drzick provided a document regarding PFAS to Mr. Manstrom to be forwarded to the ECC.
- There is a meeting in Richland Township tonight regarding testing that was done and a site in Richland that was shut down due to PFAS contamination.
- The City of Kalamazoo is one of the waste water treatment plants that is being modeled for PFAS removal. The City's waste water treatment process already uses carbon to remove contaminants. It appeared that a majority of PFAS in the Kalamazoo area was coming from one site so that facility was shut down.
- There was some decrease of PFAS by shutting down that facility but not as significant as hoped. There might be more PFAS in the domestic waste water than was originally estimated.
- The Township of Richland did testing of well water and the tests came back with higher levels of PFAS than expected.
- There isn't a method for removal of PFAS and they are trying to place limits into laws. Further testing might be on hold until additional funding can be obtained from the State of Michigan. Mandates were formulated before test results came

back. It was originally thought that the existing carbon filtration system would remove PFAS from the waste water system.

- An agency was hired to do testing of the water and waste water systems. US EPA 570 is the method to find PFAS contamination. It is a modified method of finding the contaminants and has not been approved at this point. Methods for removing PFAS contaminants from water and waste water still need to be developed. Even if a variation of the existing carbon filtration method is eventually approved for removing PFAS, there will still need to be a method for dealing with the resulting waste that is filtered out.
- Ms. Drzick will forward an AECOM presentation regarding the PFAS/Wolverine Company issue that was causing clusters of illness/cancer. The local PFAS contamination has not reached that level.
- The water quality standard limits for PFAS discharged to the river is 12 parts per trillion and 12,000 parts per trillion for PFOA (another form of PFAS). The drinking water standards are 70 parts per trillion.
- The first screening for industrial users was performed in March of 2018. Another analysis was performed in April to determine the source of the PFAS. The main source was determined to be a plastics manufacturing company in the Richland area. Nine non-domestic users were above the water quality standards for PFAS but PFOA was not exceeded.
- In order to comply with the February 20, 2018 letter from the MDEQ, the City contacted the MDEQ to discuss remediation at the Richland site. On June 20th, discharge was ceased from the site. On June 21st, the City outlined conditions to be met in order for the facility to resume operations at the Richland site.
- A groundwater pre-treatment system has been proposed for that site. If that treatment system is not in place by July 31st, they will be shut down again.
- The pretreatment could be a mini waste water treatment system, an extended carbon filter system, or extra chemical dosing, etc. The PFAS must be reduced to 3,226 parts or lower by September 21st. The DEQ owns the site that was shut down.
- Well head areas nearby have been tested and shown no PFAS or PFOS. PFAS/PFOS is in clothes, dishes, etc. Doing laundry, dishes, etc. puts it in the waste water system and into the environment. Elevated levels of PFAS have not been found in the drinking water yet. So far, it has just been in the waste water.

WMU Bird Friendly Initiative Update

Schedule Gail's full presentation for future ECC meeting

- Mr. Manstrom will look into scheduling Ms. Walter's full presentation (45 minutes) on the August ECC Agenda.

7. NEW BUSINESS

- Mr. Fletcher requested an update from the City of Kalamazoo regarding super funds. He mentioned that something happened after the 2016 election and he questioned if it is still a priority for the City to work with the EPA regarding the Allied Paper site. He will check with his contacts at the EPA and look into having someone provide an update to the ECC. Ms. Drzick will also follow up with this topic.

8. SUB-COMMITTEE REPORTS

Kalamazoo River Issues (KRCC, KRWC, Allied, etc.)

- No Report

Planning Commission

- The Planning Commission was rescheduled to July 19th due to the conflict of the original meeting date with the July 4th holiday.

Tree Committee

- Mr. Dietrich spoke with the outgoing Consumers Energy representative on the Tree Committee about the possibility of putting power lines under ground. It is five times more expensive to put the lines underground and they would last half as long. The lines cannot be inspected easily when they are underground and the ground shifts.
- Gas lines are buried in steel pipe. Consumers Energy could put power lines in steel pipe (conduit) but it would be more expensive.
- Mr. Fletcher mentioned that it cost \$175 dollars per foot for data lines to be placed underground for a commercial project he had done in 2017 and that was not in a conduit. The cost may be more or less for Consumers to install

underground electric or data lines in the City of Kalamazoo. In both the public & private sectors, most of the underground data lines have water-proofed insulation for rain/snow but are not meant to remain under water.

Asylum Lake Policy & Management Council

- The ALPMC does not meet during the summer months.

Parks & Recreation Advisory Board

- Mr. Wright attended the last PRAB meeting. This board approves park usage.
- One member talked about his displeasure with the contractor who has been mowing the parks; they weed-whacked too close to the trees and damaged the trees. The Parks and Recreation Liaison to the PRAB advised that a different contractor has been hired to do the work.

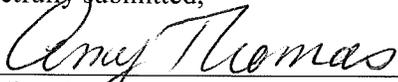
Wellhead Protection Program Committee

- No report.

9. ADJOURNMENT

- The meeting adjourned at 6:10 p.m.

Respectfully submitted,



Recording Secretary