AGENDA
Sustainability Commission Meeting
7:00 PM - Monday, March 8, 2021
Zoom Meeting

Page

1. CALL TO ORDER
2. ROLL CALL

   Commissioner Heine
   Commissioner Bayha
   Commissioner Foley
   Commissioner Greenwald
   Commissioner Gibbons
   Commissioner Collins
   Commissioner Simmons
   Commissioner Michalowski
   Councilmember Wilcoxen
   Staff Liaison Akers
3. PUBLIC COMMENT (3 MINUTES)
4. AGENDA APPROVAL (5 MINUTES)
5. INTRODUCTIONS
6. PRESENTATIONS
   - 6.1. Water Management with Harry Sheehan, Washtenaw County Deputy Drain Commissioner — 3 - 8
     Washtenaw County Water Resources Commissioner 2018 Annual Report
   - 6.2. Adapt Card Deck Game with Co-Creator Bridget O'Brien — 9 - 22
     Adapt FAQ
   - 6.3. Composting with Commissioner Collins
7. CONSENT AGENDA (2 MINUTES)
   - 7.1. Approval of Minutes from February 8, 2021 — 23 - 25
     Sustainability 2-8-2021 Reg Minutes
8. WORK SESSIONS
   - 8.1. Sustainability Goals: Water — 27 - 30
     Draft-Master-Plan-Update - Water
9. RESOLUTIONS/MOTIONS/DISCUSSIONS
   - 9.1. Water Testing Experiment Update — 31
     Washtenaw County Water Tests and Fees
   - 9.2. Storm Drain Awareness Campaign Discussion

9.3. Composting Pilot Program Update

9.4. Neighborhood Hubs Pilot Program Update

9.5. Earth Day 2021 Planning Updates

9.6. Sustainability Commission KN95 Mask Event Update

9.7. Commissioner Vacancy Update

10. COMMISSIONER REPORTS (20 MINUTES)

11. PUBLIC COMMENT (3 MINUTES)

12. PROPOSED BUSINESS (5 MINUTES)

12.1. U of M Resilience Hub Group Presentation

13. ADJOURNMENT

WASHTENAW COUNTY WATER RESOURCES COMMISSIONER

2018 Annual Report

(734) 222-6860

705 N. Zeeb Rd
Ann Arbor, MI 48103

washtenaw.org/drains

Evan Pratt is currently serving his second term as Washtenaw County Water Resources Commissioner (WCWRC).

The Office of the Water Resources Commissioner is responsible for coordinating stormwater management, developing strategies for flood and erosion control and participating in the development of stormwater and land use policies, plans and programs. In addition, the office is assigned responsibility for the Department of Public Works.

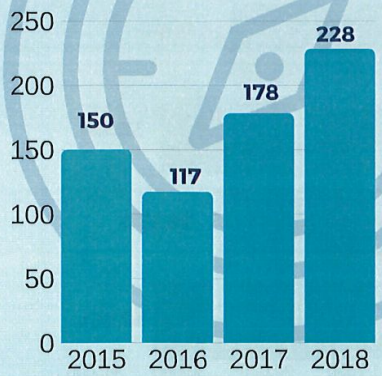
WCWRC also partners with other municipalities for stormwater improvement projects, as well as establishing Storm Water Asset Management Plans.

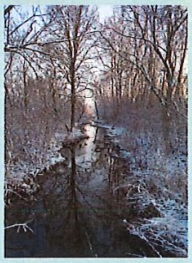
Customer Satisfaction

Commissioner Pratt and his staff strive to provide quality customer service to all residents. Each service requests is followed by a Customer Satisfaction survey to receive feedback from all residents. The average response per year is about 50%.

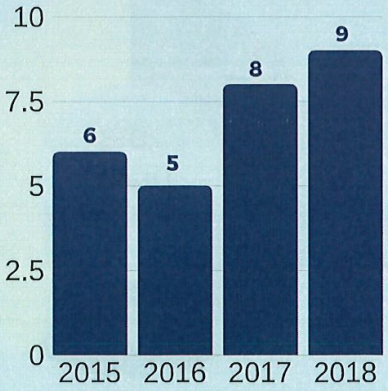
The results are reviewed and suggestions on improvements are always welcome!

Number of Maintenance/Engineering Service Requests per Year

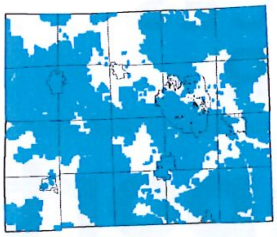




Rain Events Exceeding 1" in 24 Hours



DRAIN MAINTENANCE & PROJECTS



Under the authority of the Michigan Drain Code (Public Act 40 of 1956), the Water Resources Commissioner may receive petitions from property owners or municipalities to lay out new drainage districts, construct new drains, or do maintenance and improvement projects to existing County drains. Currently there are over 500 drains and districts.

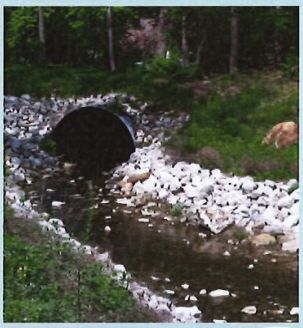
In 2018, the WCWRC laid out one new drainage district in Augusta Township called the Longmeadow Drain Drainage District.

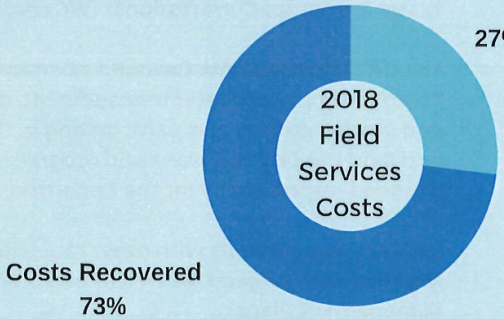
The Office of the Water Resources Commissioner maintains and operates over 500 stormwater systems. Approximately 63% of land throughout Washtenaw County is in a drainage district.

Photo Credit: Linda Prieskorn

Also in 2018, construction was completed on the following drains:

- Hickory Hollow Drain - Pittsfield Township
- Tyler Dam Drain- Ypsilanti Township, Superior Township & City of Ypsilanti
- Ypsilanti Township #07 Drain -Harris Road - Ypsilanti Township



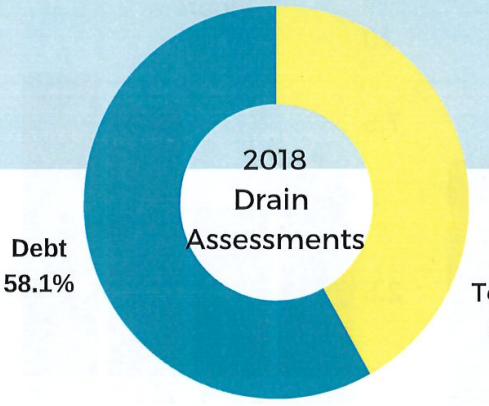


DRAIN SPECIAL ASSESSMENTS

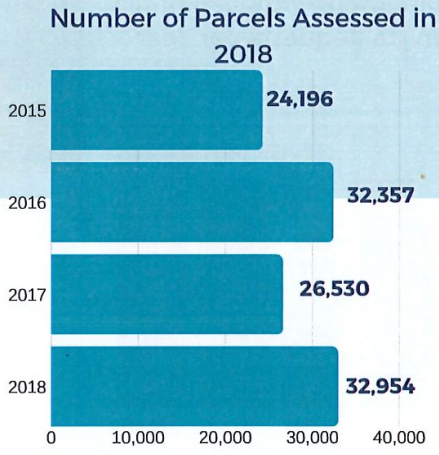
Drain construction and maintenance is financed by special assessments charged from three sources, properties within the district, local governments at large, and road agencies. The Drain Code requires that the apportionment of costs by the Water Resources Commissioner must be based off of the "benefit" received.

The factors that the Water Resources Commissioner base "benefit" are as follows:

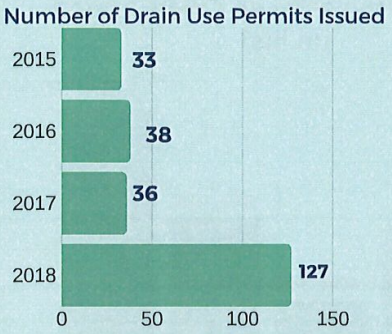
- Land use classification
- Acreage in the drainage district
- Actual work performed on the drain as it crosses individual properties
- Michigan Department of Transportation's highway runoff formula assessing costs to state and county highways and roads



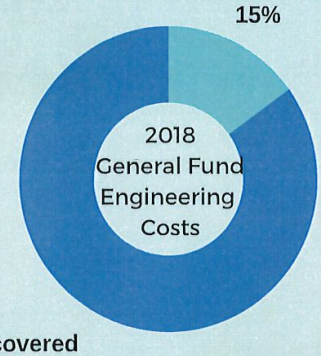
Total Assessed: $3,323,351.91



ENGINEERING SERVICES



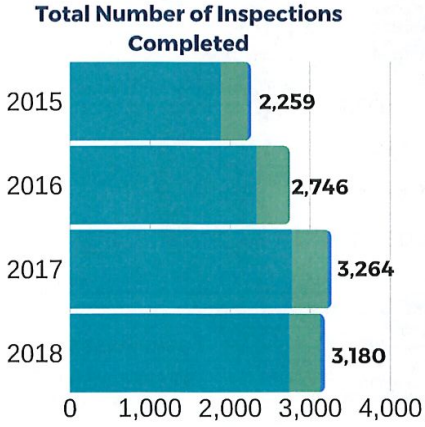
The Rules & Design Standards of the Washtenaw County Water Resources Commissioner embody a shift in stormwater management philosophy. WCWRC includes design standards that provide more sophisticated quantity control and directly address water quality. Currently thirteen municipalities elect to have WCWRC review some or all stormwater projects.
The engineering staff strive to review plans within 14 business days of a full submittal. In 2018, they were 99% successful at completing this goal.



Costs Recovered
85%

SOIL EROSION

Many pollutants travel by attaching to sediment particles. Washtenaw County is mandated by the State of Michigan's Department of Environment, Great Lakes and Energy to administer and enforce Part 91, Soil Erosion & Sedimentation Control currently for twelve municipalities.
The Washtenaw County Soil Erosion (SESC) programs' purpose is to manage soil erosion and subsequent sedimentation in order to promote the safety, public health and general welfare of the community through effectively sustaining the goal of clean water in Washtenaw County.



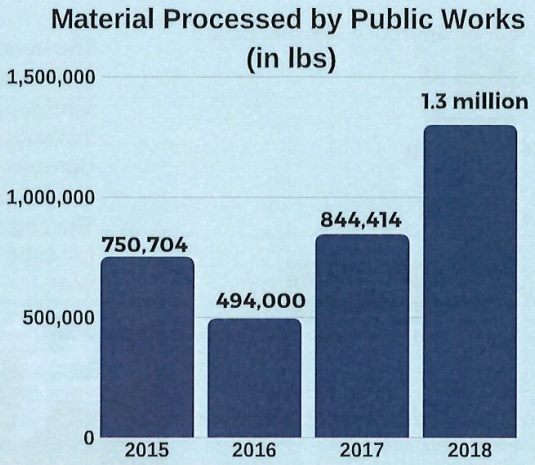
- Augusta Township
- City of Dexter
- City of Saline
- City of Ypsilanti
- Lodi Township
- Northfield Township
- Salem Township
- Saline Township
- Scio Township
- Superior Township
- Webster Township
- York Township

SOLID WASTE DIVISION

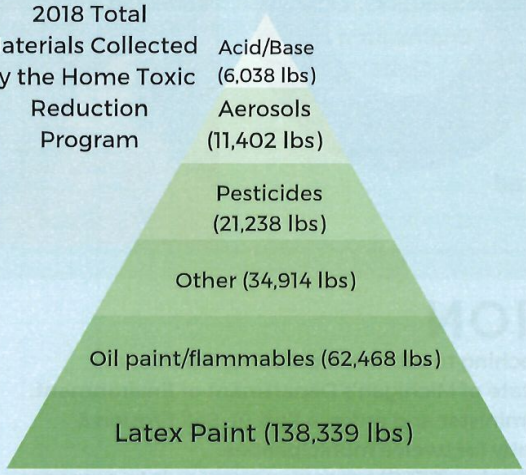
The Washtenaw County Public Works Solid Waste Division processed 1.3 million pounds of waste in 2018, the most in our history. This is primarily material that does not belong in a landfill or curbside recycling.

Additionally, the division achieved:

- 49,659 website views
- Over 80,000 residents served
- 63 public events



2018 Total Materials Collected by the Home Toxic Reduction Program



Hazardous Household Waste

Since 1995, the Home Toxic Reduction Program has provided convenient drop-off services for residents to safely dispose of materials that should not go down the drain or in the trash.

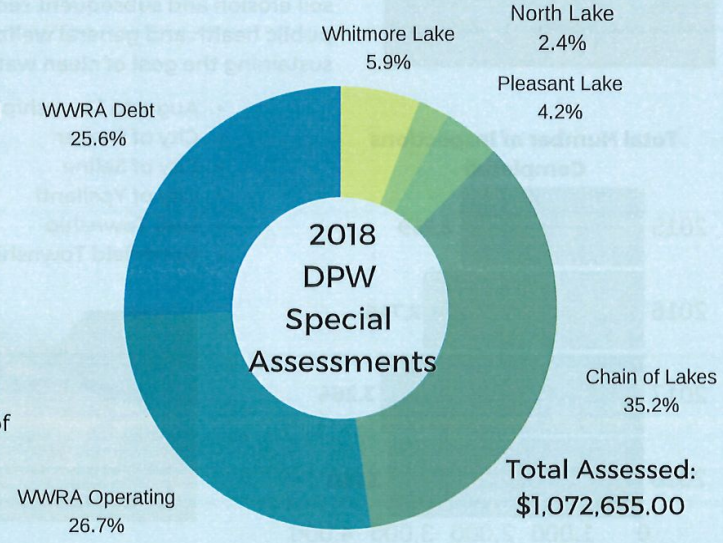
This service at Zeeb Road is available throughout the year on weekdays by appointment, and the first three Saturdays of the month from April to November (excluding holidays) from 9:00am-12:00pm.

DPW Special Assessments

Commissioner Pratt also serves as the Director of Public Works. The Washtenaw County Board of Public Works projects include:

- Western Washtenaw Recycling Authority
- Pleasant Lake Lake Improvement Project
- North Lake Lake Improvement Project
- Whitmore Lake Lake Improvement Project
- Chain of Lakes Lake Improvement Project

The lake improvement projects , administered through Public Act 185, are for the treatment of invasive aquatic plants, such as Starry Stonewort, by herbicide application, mechanical weed harvesting, and improved ecosystem management.



WATER QUALITY

Our RiverSafe Home Program enables residents to identify water quality protection activities they already do around their homes by completing a survey, and committing to pollution prevention activities. In 2018, the RiverSafe Home Program added over 100 members.

Through a partnership with the City of Ann Arbor, city residents that participate are eligible to receive a stormwater credit on their quarterly stormwater bills.

Photo Credit: Kari Paine

Number of E2P2 Members

The Environmental Excellent Partnership Program (E2P2) provides businesses and organizations information, technical assistance to encourage environmentally sound behavior in areas of water quality protection, waste reduction & recycling, and pollution prevention.

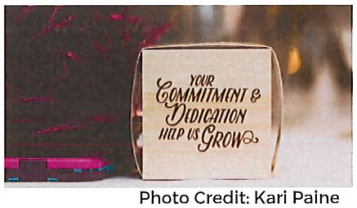
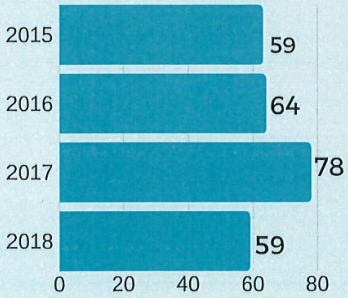


Photo Credit: Kari Paine

RAIN GARDENS

Number of Rain Gardens Installed

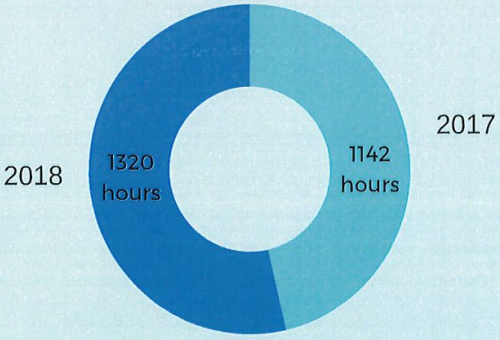


Rain gardens are shallow gardens filled with beautiful plants that collect rain water and runoff and let it soak into the ground naturally. This helps to clean the water, protect our rivers and lakes, and reduce flooding.
Rain gardens also create healthy habitats for wildlife, birds, and pollinators.

Rain Gardens:

- Clean water by filtering pollution and stopping trash
- Protect our rivers, lakes and drinking water sources
- Reduce flooding in homes and on streets and sidewalks
- Native plants provide beautiful, healthy habitats

Number of Volunteer Hours in Public Rain Gardens



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NOW SHIPPING THE ADAPT GAME WORDWIDE!

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"I always wished for a game like this! You can use it to generate ideas and come up with solutions."

Joet Reoma

Adapt FAQ

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Commonly asked questions about Adapt

WHAT ARE PEOPLE SAYING ABOUT 'ADAPT'?

"Adapt is so applicable and innovative, that any group of people can use the game to amplify ideas into action." Hilary Nichols

"Adapt takes the permaculture principles that helped me so much in my life as a farmer and helps me apply them to health, working with kids or solving global or local issues. **It's definitely a way to make problem solving more fun!**" Beth Celeste-Eitzen

"When you play Adapt you end up in a place or with possibilities you didn't know existed. The game helps you get out of 'head'/current perspective and helps you see from a much wider view. **By the end of playing a game you have actional outcomes to move forward with.**" Brian M Truskowski

"Adapt is a joyful tool for serious play to activate your collective intelligence in an ever-expanding spiral of creative surprise!" – Chad Monfreda Phd

'I always wished for a game like this! You can use it to generate ideas and come up with solutions." Joet Reoma

"The questions and scenarios presented are very thought provoking and will lead you down a path of very creative new ideas." Jesse Raudenbush

Have you ever wished for a really good mentor? Someone who could help guide you through a thought process whether it's about a creative project or a life decision? The best kind of mentor doesn't give you their opinion or force their ideas onto you. The best kind of mentor asks you questions, really good questions that guide you to uncover your own genius, opinions, ideas, and principles before setting out in a direction of your own choosing. Play ADAPT to help you design your life, to make decisions, to set intentions, to find out what others think, to plan a community space, to teach the children and give them the best tools…practically speaking, the possibilities are endless. You'll

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discover that ADAPT is the mentor we all need in a time of deep change on our planet, a time when we need to be able to turn to ourselves for the answers, a time of deep adaptation. ***ADAPT is a mentor in a box!*** *Claire Maitre*

WHAT IS 'ADAPT'?

Click here to watch our What is Adapt video

Adapt is a creative process game

Adapt is a creative process game that can be applied to anything and everything – from the design of a garden, a business idea, a way of caring for community or one's self, or even how you set up your kitchen. **Adapt** game-play sparks creativity, imagination and potential

To play the game

To play the game participants identify a life-challenge and are guided through rounds of questions, brainstorming, and responses. Participants can systematically and playfully explore all aspects of their proposed design.

The game deck includes

When you open up an **Adapt** game pack you will find a deck of 60 playing cards, and an instruction booklet with digital access to printable posters and educational resources.

Adapt opens up possibilities and offers actionable outcomes

Most fundamentally, when you play **Adapt** you are opening up possibilities. This engaging tool helps individuals and groups of people, in all kinds of circumstances, design their next best steps. Hacking habits, pro-actively creating, doing,

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designing and redesigning. Creating the world of your dreams. The Adapt game offers you ideas, actionable outcomes and even better yet resilient solutions to the challenges you face each day.

WHY PLAY 'ADAPT'?

To adjust or modify to new conditions

To adapt is to adjust or modify to new conditions, becoming specifically “fit” for something. In these rapidly changing times if we don’t adapt how will we survive? How can we thrive joyfully with abundance and justice? How will we be able to meet life’s core needs if we can’t adjust to the world’s rapidly changing conditions?

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To creativly meet our core need in a precarious time

During this global pandemic and all that is associated with it we have seen – lock downs, travel bans, economic, social and personal mental health challenges, all which have been compounded by political opportunism – this has thrown much of our lives into doubt. It has made our lives even more precarious than they were before.

In times like these we’re called to remember what is most important to us – friends, family, intimate relationships, health, community cooperation, gardens, walking in nature, making plans to survive into the future for us and our children. Time is ripe for change, for radical redesign, to move courageously from nightmare disaster scenarios towards our desires and dreams.

To open up possibilities and actionable outcomes

We are always re-designing our lives to adapt from our current state towards our desired state. **Adapt**, the creative

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process game, takes us through a time tested process which mimics how we naturally design each day. The **Adapt** game process sparks creativity, imagination and actionable outcomes. Challenging and unexpected questions will arise and often new practical solutions are found.

HOW DO YOU PLAY 'ADAPT'?

The basic gist of the game

The game is played by laying out the 6 sets of color coded cards and working your way through a series of questions presented on each card. The questions and the topics presented on the cards guide you through a creative design process to support holistic decision making skills.

Watch our 'How to Play Adapt' Video – Coming soon!

Watch our How to play Adapt video to learn more about this creative, fun and revolutionary game!

Adapt comes with Instructions

Instructions can be found in the instruction booklet that comes with each game pack. Or view them on our How to play – Adapt PDF.

Other Ways to Play

Plus, we have outlined 12 Other ways to play – Adapt. As we have played the game with many different groups we have uncovered a large variety of ways to use the cards and poster. These other ways to play are perfect for experienced users, educational groups and to take the game concepts and tools to a deeper level in your life.

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WHO CAN PLAY 'ADAPT'?

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'Adapt can be played by anyone

Adapt can be played by just about anyone – adults, teenagers, kids, teachers, students, designers, business people, community groups and families. Anyone making life decisions, facing challenges and /or wishing to fulfill their dreams. We have seen all kinds of people grow and expand as they immerse themselves in **Adapt**'s creative process for decision making.

We recommend Adapt for people aged 6 and up

We do recommend that the game is best suited for people aged 6 and up; children between 6 and 12 often excelling at gameplay with adult support. We have even experienced children under 6 have fun playing with the cards and talking and learning about the topics in the **Adapt** cards.

Adapt can be played by single people up to a group of 100 or more

Adapt is perfect for helping individuals or groups design and create their next best steps in their lives. Adapt can be played by single people up to groups of 100 or more. To learn more about large group facilitation check out our 'Train the Trainers' program.

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HOW MANY PEOPLE CAN PLAY?

We recommend 1- 6 groups or individuals to play the game at a time. Depending on the challenges you bring to the game or the amount of time you have to play will determine the length of play.

CAN SCHOOLS USE 'ADAPT'?

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Adapt is suitable for use in all subjects

Adapt is a wonderful tool for schools as the game play applies to how we design and create for all subjects and all aspects of our lives! The cards cover 'core needs', 'design principles', 'energy exchanges' (actions) and a 'care challenge' (ethics).

Adapt engages complex thinking skills

Adapt stimulates and guides our natural creative process to help cultivate imagination, lateral thinking, holistic systems thinking, problem solving & decision making skills.

Adapt can be used for Kindergarten students to Adult learners

The cards are designated with 'Learning Levels' to meet students where they are at.

Perfect as a parting gift for graduating students

Adapt is the perfect gift for parents or schools to give graduating students as they set out on their next life chapter.

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CAN UNIVERSITIES USE 'ADAPT'?

As above Adapt is a powerful educational tool and approach. This also applies to university lessons and classrooms to facilitate holistic, systemic, problem solving and creative design processes. Whether teaching design, life sciences, social ecology, sustainability, engineering or a range of other subjects professors will find helpful tools within the game pack and educational resources provided.

HOW DO PERMACULTURE TEACHERS USE 'ADAPT'?

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Adapt was born from a love of Permaculture

Adapt was initially inspired by Permaculture and David Holmgren's Permaculture Principles and Ethics. The foundation of the game came from applying living systems design thinking to all aspects of life.

Adapt is perfect or any level Permaculture course

Adapt makes a wonderful tool to use in any Permaculture course from introduction to advanced. **Adapt** game was literally made for teaching Permaculture. The sturdy box, cards and flex-canvas poster are all made for indoor and outdoor use.

3 great ways for Permaculture teachers to use Adapt in their course

Adapt can be used as a reference, a fun way to reinforce lessons or as a central tool for your course. Three examples are listed below:

- **The Ethics of Lunch**

During an ethics lesson in your course pull out the blue EVALUATE cards. Have each student pull a card and answer how their most recent meal does or doesn't care for the ethic presented on the card.

- **Intro to design**

Play the game early in your Permaculture course and start your students on a path to holistic systems thinking. It could be as simple as a group 'Lighting Round' or a few rounds of full game play.

- **The Creative Process poster as a teaching tool**

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Hang the Detailed Creative Process poster up in your indoor or outdoor classroom or place it on the ground where you're sitting with the class. As you discuss and teach core subjects or when you reference a core Permaculture design teaching point to where it relates to on the poster. You can also have students engage with the poster when presenting or asking questions.

As a Parting Gift for your Participants

Many Permaculture schools are choosing Adapt as a parting gift for their PDC graduates.

HOW CAN COUNSELLORS AND LIFE COACHES USE 'ADAPT'?

A useful tool for all fields of counselling and life coaching

Adapt applies to all aspects of our lives. The cards focus on life's core needs, design principles, energy exchanges (actions) and care challenges (ethics).

Help your clients navigate conversations and challenges

Counsellors and life coaches use the game play to help clients navigate tough conversations and challenges they are facing in their life. Through the use of the cards in game play or as a conversation piece you can support your client with a holistic perspective that uses a proven nature-based creative design process.

CAN YOU PLAY BY YOURSELF?

Yes!

Adapt is perfect for helping individuals design and create their next best steps in their lives.

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Try our favourite way for individual play – "The Daily Meditation"

We suggest exploring the Other ways to play – Adapt PDF, especially the way of using the cards called 'Daily Meditation'. This method of play acts like oracle cards for problem solving your daily challenges. The cards are always referencing something you have designed for or been challenged by in the last 24-48 hours. This is because the first step of the game play references the 'core needs' we design for each day, consciously or unconsciously.

IS THERE A DISCOUNT IF I BUY MORE THAN ONE GAME?

Yes! Until February, buy five, get one free!

Yes, to align with the end of the year and to bring in the New Year, we are offering a bonus offer to help you and your friends turn over a new leaf. From 1 December 2020 to 30 January 2021, if you buy 5 single packs of Adapt, we will give you one game free!

Get 8-18% off with Bundles

Our Designers Bundle, Dreamers Bundle and Change Makers Bundle is perfect for the designer, teacher, activist or community leader. Each bundle comes with the Adapt game, Creative Process Posters and a training or facilitation session. We have bundled these great products together to provide you with all the tools needed to make great designs and cultivate change towards the world of your dreams.

WILL IT SHIP IN TIME FOR CHRISTMAS?

The early bird catches the worm

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The earlier orders are placed the sooner they will arrive – hopefully in time for Christmas (though with the current global situation, which is causing some shipping delays), this cannot be guaranteed.

We ship within 5 days

We aim to turn around each order within 5 business days of it being placed.

We normally ship within 2 business days, however, we know how super keen everyone is to get their presents sorted, so we will be shipping within 24 hours during December.

We've got your back

And, just in case Adapt doesn't arrive before the big day, we've created a downloadable card here to give the recipient to tell them all about Adapt, why its awesome and that it's on its way.

Plus, it will also make a great present to get their 2021 off to a positive start!

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PERFECT FOR FAMILIES

Changing the world one loungeroom at a time.

LEARN MORE

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MEET THE TEAM THAT BROUGHT YOU ADAPT

Shipping now for Christmas:
Give the gift of positive change

SHOP ADAPT

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Adapt is created by the
Garden Juju Collective.

We are a consultancy specialising in ecological landscape design and project management services, as well as online courses and in-person workshops, all centred on

holistic design.

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SUBSCRIBE TO OUR GOOD JUJU NEWSLETTER AND RECEIVE A FREE PDF OF

"10 RADICAL REDESIGN TOOLS & TRICKS"

"Like a sunbeam in your inbox"

INSPIRATIONAL STORIES TO HEAL OUR WORLD

Heal. Design. Grow.

Email

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ADAPT IS FOR...

INDIVIDUALS

You can play adapt solo.

FAMILIES

Play with children over 6 years.

TEACHERS

Suitable for classes of up to

DESIGNE

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Take design to the next level

PERMACULTURISTS

You will love Adapt - trust us!

Learn More

AUSTRALIA CONTACT
PO Box 368
Bellingen NSW 2454 Australia

cwsbrennan@gmail.com
+61 (0)403 296 317

USA CONTACT
PO Box 980192
Ypsilanti, MI 48198 USA

resilientspirals@gmail.com
+1.734.8292645

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MINUTES

City of Ypsilanti
SUSTAINABILITY COMMISSION MEETING
Virtual Meeting held via Zoom

Monday, February 8, 2021
7:00 P.M.

I. CALL TO ORDER: 7:00 p.m.

II. ROLL CALL

Keith Michalowski	Present - Washtenaw County, Ypsilanti City
Nancy Heine	Present - Washtenaw County, Ypsilanti City
Julia Bayha	Present (*late arrival) - Washtenaw County, Ypsilanti City
Bryan Foley	Present - Washtenaw County, Ypsilanti City
Katy Greenwald	Present - Washtenaw County, Superior Township
Beth Gibbons	Present (*early leave) - Washtenaw County, Ypsilanti Township
Takunia Collins	Present - Washtenaw County, Pittsfield Township
Desirae Simmons	Present (*late arrival) - Washtenaw County, Ypsilanti City

Also Present: Counsel Liaison Steve Wilcoxen
Staff Liaison Ron Akers, Public Services Director
Commission Recording Secretary, Nancy Hare-Dickerson

Additional Staff Present: Bonnie Wessler, Public Services Project Manager (Zoom Meeting Host)

III. INTRODUCTIONS – none

IV. PUBLIC COMMENT – none

V. AGENDA APPROVAL

Foley (Second: Heine) moved to approve the Agenda as submitted.

Roll Call Vote – Ayes: Commissioners Michalowski, Heine, Foley, Greenwald, Gibbons, Collins
Nays: None
Absent: Commissioners Bayha* and Simmons*
Motion Carried.

VI. PRESENTATIONS – none

VII. CONSENT AGENDA

1. **Approval of January 11, 2021 minutes**

Greenwald (Second: Gibbons) moved to approve the January 11, 2021 Minutes as submitted.

Roll Call Vote – Ayes: Commissioners Michalowski, Heine, Foley, Greenwald, Gibbons, Collins
Nays: None
Absent: Commissioners Bayha* and Simmons*
Motion Carried.

VIII. WORK SESSIONS

1. **Sustainability Goals: Water**

   Commissioner Michalowski explained that, going forward until necessary, the work sessions would be to review the goals in the Sustainability Plan which are located inside of the Master Plan and discuss how they can be applied to the City of Ypsilanti. Discussion regarding the Water section of the Plan included topics such as Penn Dam removal, restoration sub-committee work, restoration opportunities, flooding and stormwater management, creation of micro pollinator gardens, drinking water concerns/water testing/YCUA-Water Quality Report, PFAS concerns, Water Street development considerations, educational opportunities – engaging students, and possible future presentation topics and presenters.

IX. RESOLUTIONS/MOTIONS/DISCUSSIONS

1. **Annual Report 2020**

   Commissioner Michalowski asked that commissioners review each section of the draft report and alert him to any item which they feel needs to be changed/corrected. *[Discussion followed]*

2. **Penn Dam Discussion**

   Council Liaison Wilcoxen provided an update as to what has occurred, from the City's perspective, from the time that Council voted to move forward with the project to remove the dam. He noted that it would be a years'-long project with many different phases, which he briefly outlined. *[Query/discussion followed]*

****

At or about 9:00pm, Heine (Second: Foley) moved to extend the meeting time to approximately 9:15pm.

Roll Call Vote – Ayes: Commissioners Michalowski, Heine, Bayha, Foley, Greenwald, Collins, Simmons
Nays: None
Absent: Commissioner Gibbons*
Motion Carried.

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X. COMMISSIONER REPORTS

Commissioners provided additional comment and also shared updates of events and activities they are involved with and/or are working on related to sustainability. Some discussion topics included: Penn Dam removal costs, 2021 Earth Day missive for commissioner review, Resiliency Hub update, Penn Dam power house building - possible EMU public engagement interest, compost/gardening education, research as to neighborhood resiliency needs, the Adapt game-possible future presentation.

XI. PUBLIC COMMENT – none

XII. PROPOSED BUSINESS

Commissioner Michalowski asked commissioners to contact him as soon as possible regarding any items they would like to see added to the agenda.

XIII. NEXT MEETING DATE

Monday, March 8, 2021

XIV. ADJOURNMENT: 9:23 p.m.

Simmons (Second: Greenwald) moved to adjourn the meeting of the Sustainability Commission.

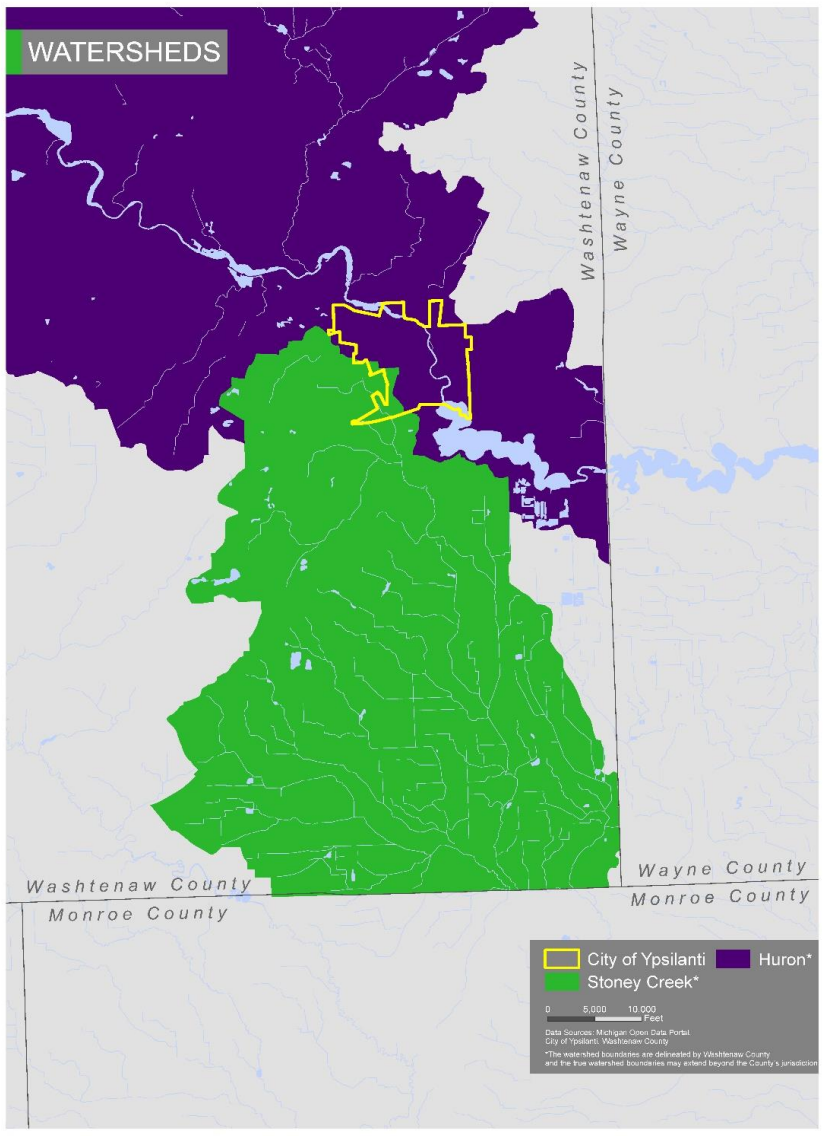
Voice Vote: Unanimous **Motion: Carried**

Water

Surface Water Quality

Ypsilanti is a part of the Lake Erie Basin. Within the City's boundaries are two watersheds - Huron River and Stoney Creek (into which the City's Paint Creek drains). The Huron Watershed, which covers most of the City, is divided into five sections. The section that encompasses Ypsilanti is known as the "Lower Middle Huron," enveloping about 27.7 miles of the river from North Maple Road (Barton Pond) downstream to Belleville Lake. It includes portions of the City and Township of Ann Arbor, Superior Township, Ypsilanti Township, and Van Buren Township.[14] Because a watershed crosses several jurisdictional boundaries, it is incumbent on these municipalities to cooperatively maintain high-quality water while permitting access to the river. The health of the river depends on the quality of all its tributaries, which is often linked to land use policy. One way to coordinate across municipal jurisdictions is through a watershed council: the Huron River Watershed Council (HRWC) was the first in the state and has been working to protect and restore the Huron River since 1965. In addition to writing a management plan for the entire watershed, the HRWC also authors management plans covering specific sections of the watershed. The HRWC is updating the section of the watershed management plan that includes Ypsilanti, the Lower Middle, in 2020-2021.

The HRWC identifies that the section of the Huron River that runs through Ypsilanti and Ann Arbor is heavily impounded: 77% of it is impounded by the seven dams that stretch across this area, making it more similar to a lake ecosystem than a river. Two sources afflicting the health of the watershed are runoff from impervious surfaces, and new development along the riverbank that clears vegetation vital to the absorbing runoff. In particular, phosphorous and *E. coli* are entering the river from Mill, Honey, and Boyden Creeks.



Some measures are in place to protect water quality. According to the City of Ypsilanti's code of ordinances, all development along any river frontage must show where a planned conservation and/or access easement of 50 to 100 feet would be located.[15] A conservation easement allows river access for potential restoration or cleanup efforts. Without an easement, the City would have to receive permission from private property owners to pursue any riverbank projects. The City has also adopted ordinances to limit phosphorus fertilizers and asphalt sealcoats; the success of this regulation is limited by enforcement and cooperation from property owners and has yet to be measured.

To further ensure protections for the Huron River, an overlay district could be implemented. The regulations would limit new development, curtail uses involving toxic chemicals on site, and enforce low impact design standards that allow the site to retain water to mitigate contamination entering the river. Ypsilanti has adopted the stringent standards from Washtenaw County Water Resources Commissioner, a mighty step in safeguarding future development from polluting practices. However, these regulations are not a panacea because they only apply to new or redeveloped sites, which are much fewer in number than established sites.

Table X: Watershed Report Card

Subject[1]	Grade	Explanation
Watershed land use	D	High impervious surfaces along tributaries
Natural areas	D	12% of watershed has intact natural areas
River flow	F	Flashes following storms, erratic dam gate
River habitat	B	Where undammed, favorable features for river life
Aquatic Insect Community	C	Where undammed, good habitat for insects
Fish Community	B	Anglers enjoy good smallmouth bass
Phosphorous	C-	Concentrated of phosphorous exceed target; declining
E.Coli	C	After heavy rain, E.coli exceeds state standards
Total Suspended Solids (TSS)	A	Low levels of TSS
Water Temperature	B	High maximum summer temperatures
Conductivity	B	Mostly measured at normal levels
Dams	F	High presence of dams and poorly controlled

Source: HRWC

A retrofitting program would have wider scale effects, but its implementation is more controversial than policies pertaining only to new development. The adoption of stormwater fees based on the amount of impervious coverage on a property is an example of this type of effort and has been enacted in places like Detroit and Ann Arbor. In those communities, impervious surfaces incur drainage fees, thus incentivizing the implementation of pervious substitutes. Credits are offered for on-site stormwater management investments, such as the installation of a rain barrel, cistern, or rain garden to capture run-off from a rooftop. Rain barrels are a cost-effective method of storing water for residential properties when used correctly. Best practices suggest rain barrels should stand upright, be screened to prevent mosquito breeding and debris accumulation, connect to overflow barrels, have a "do not drink" spigot, and belong to property owners who have been educated about their use and maintenance.

It takes the work of many groups to see positive change in our water systems. The Middle Huron Partners, a group that works with the HRWC, has invested over $10 million over 11 years on projects that reduce and capture stormwater runoff. At a larger scale, the Middle Huron Partners successfully lobbied to restrict phosphorous fertilizers, and the state followed suit in 2012 with new legislation to reduce algae blooms. At the county level, Washtenaw County modified its focus from flood control to quality control. This change in philosophy is backed by a hierarchy of preferred management practices that prioritizes natural vegetation first for infiltration, then minimizing impervious surfaces, and finally detention

[14] HRWC. "The Huron River: Lower Middle Huron." River Profile. https://hrwc.maps.arcgis.com/apps/MapJournal/index.html?appid=67e1fd1bbc9a44cf853cd78dd6d8219f
[15] City of Ypsilanti Code of Ordinances, Article VI: Site Regulations, Section 122-607 (c). https://cityofypsilanti.com/DocumentCenter/View/1396/ZOUpdate--02--ZO_BW20170215_anno?bidId=

and conveyance of excess stormwater. [16] Vegetation is at the top of the hierarchy for its varied benefits: plants provide structural support, stabilize the soil through their root networks to reduce erosion, keep rivers healthier for aquatic life, and purify runoff before it enters the river.

As vegetation becomes the priority for protecting water quality, it is important to recognize the maintenance challenges that have hampered its progress. Landscaping is not a short-term proposition. Specifically, it takes about three years for a rain garden to take root and maximize its capacity as a water absorber and purifier. During that time, it must be regularly nurtured *and* must avoid its other unintended function as a "litter collector." In cases where rain gardens have amassed trash and debris, they have been deemed "blight" and subsequently removed. A rain garden sign that includes its year of inception can insulate them from removal during their nascent stages and give them sufficient time to mature.

Dam Removal

The Peninsular Paper Dam, in its current state, is a cause of many troubling ecological indicators regarding the Huron River's health, namely creating impoundments where algae forms and changing water temperatures that alter dissolved oxygen levels, harming fish habitats.[17] Ypsilanti and the HRWC conducted a feasibility report on removing the dam. The dam was classified as a high potential hazard by the DEQ due to the severity of impending damage it could cause if it failed, and its classification as obsolete because it no longer serves any purpose. Based on sediment quality and quantity, potential infrastructure and utility impacts, and riverfront land ownership, it was determined that removing the dam is feasible.[18] In 2016, estimates for repairing the dam would exceed $800,000 and removing it would cost closer to $2.7 million. Its removal would help restore the Huron River to a flow that is better suited for the ecosystem that depends on it.

In May 2019, City Council voted to approve $500,000 towards deconstructing the dam as opposed to continuing to pay for repairs so long as the City applies to grants to complete the project.[19] [20] Dismantling the dam will protect the environmental health of native species that rely on the Huron River, and protect the City's budget in the long run.

Flooding and Stormwater Management

Flooding has the potential to harm the drinking water supply, human life, property, and infrastructure. The Federal Emergency Management Agency (FEMA) has identified zones based on the anticipated frequency an area will flood in a 100-year interval. These predictions are based on historical data, which means that they do not incorporate climate change considerations. Already, the FEMA-delineated floodplains have been shown in many cases to be outdated, as areas vulnerable to flooding have expanded outside of its boundaries. Part of the increase in instances of flooding is linked to increased precipitation falling in concentrated storm patterns. Fortunately, Ypsilanti has not yet experienced flooding that has overwhelmed its storm sewer infrastructure, and much of the land that lies in the flood zones is designated parkland. The composition of Ypsilanti's soil also helps in that regard, since only 7% of the soils in Ypsilanti are prone to "frequent flooding," and the other soils experience no flooding aside from extreme circumstances.[21] To gain more accurate depictions of how the City may flood in the future, Ypsilanti can invest in an updated study that incorporates recent data and includes forecasts of more intense and frequent storms. The study should also include how the river's altered channel due to the anticipated removal of the dam may impact flooding.

Green Infrastructure, specifically green stormwater infrastructure (GSI), is one way to reduce the impacts of excess stormwater. Green stormwater infrastructure is a broad term that includes several practices of water management that protect or mimic the natural water cycle. As opposed to conventional "gray" stormwater infrastructure, which uses hard surfaces and systems to channel excess water elsewhere, this approach protects and expands the natural environment so that water can be absorbed naturally at several scales: a home, a downtown, an entire city, a watershed. Common examples are rain gardens, green roofs, trees, planter boxes, rainwater harvesting systems, and bioswales, and better protection of wetlands and floodplains.

The utility of GSI should not be underestimated. For example, one acre of imperviously-surfaced roadway can generate between 0.5 and 1 million gallons of stormwater runoff annually. On Michigan Avenue in Lansing, there are 30 planter box bioretention areas that collect runoff from four acres of roadway and reduce the annual stormwater runoff by approximately 75%.[22]

Landscaping that beautifies a site can also capture stormwater. Already embedded in the landscaping requirements in the Zoning Ordinance is a tree protection plan for site plan review. The applicant is awarded credit for preserving or incorporating existing trees and shrubs into the development, and if trees or shrubs intended to meet the minimum landscaping requirements are cut down or damaged, the applicant must replace them according to ordinance specifications. Moreover, trees proposed for credit cannot be invasive (122-632). The frontage of all public and private streets for a new or altered use that requires site plan review must be landscaped with street trees (122-636). Existing regulation stops short of a tree preservation ordinance, which would prevent the removal of trees determined meeting criteria for condition, size, and species. In a tree preservation ordinance, regulations prioritizing transplanting trees prior to removal can also be included. Furthermore, wetlands are

[16] Washtenaw County Water Resources Commissioner. Rules and Guidelines: Procedures and Design Criteria for Stormwater Management Systems. Revised October 2016. https://www.washtenaw.org/DocumentCenter/View/302/Rules-and-Guidelines---Procedures-and-Design-Criteria-for-Stormwater-Management-Systems-PDF?bidId=
[17] Huron River Watershed Council. The Huron River Data Report: Ann Arbor and Ypsilanti Vicinity. https://www.hrwc.org/wp-content/uploads/LowerMiddleHuron-11x8.pdf
[18] Princeton Hydro. Peninsular Paper Dam: Dam Removal Assessment and Feasibility Report. September 2018. https://cityofypsilanti.com/DocumentCenter/View/1789/2018-11-21-Peninsular-Dam-Removal-Study-Report
[19] WXYZ Detroit. Ypsilanti City Council Votes to Tear Down Peninsular Dam. May 2019. https://www.wxyz.com/homepage-showcase/ypsilanti-city-council-votes-to-tear-down-peninsular-dam
[20] Ypsilanti City Council. Resolution 2019-101. May 7 2019.
[21] Web Soil Survey, United States Department of Agriculture, https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm
[22] SEMCOG. Green Infrastructure Vision for Southeast Michigan. 2014. Page 45. file:///C:/Users/Michelle%20Bennett/Downloads/GreenInfrastructureVisionForSoutheastMichiganMarch2014.pdf

Stormwater Drainage Program

A case study in Detroit quantified the combined advantage of pervious pavement and a rain garden on a church's parking lot. Using the EPA's stormwater management model, they calculated that a 4,530 square foot rain garden and a 33,000 square foot patch of pervious pavement reduced stormwater runoff volume by 70%, even during the heaviest six-hour period of precipitation in Detroit's recent history (2016).[1] In Detroit, there is an added incentive for property owners to use green infrastructure because they are charged a drainage fee based on the impervious surface area on the property. However, they may also earn a "green credit" for actions such as redirecting downspouts into areas where natural infiltration can take place.

tremendous stormwater capturers and beautiful landscapes to behold. While most of them are regulated at the state level, the city can continue to monitor their health and work with partners to protect those that remain.

The Zoning Ordinance also permits accessory stormwater control features such as swales, pervious paving, rain gardens, rain cisterns, vegetated roofs, and other methods. Ypsilanti has one city-sponsored rain garden at the Freighthouse that is managed by volunteers, and several curbside raingardens in Depot Town that are maintained by the DDA with volunteer assistance and assistance from local merchant groups.

In partnership with Washtenaw County Conservation District (WCCD), the Sustainability Commission has offered support to promote WCCD workshops to residents, encourage tree planting on residential lots, and identify a site and volunteers for an Earth day tree planting event. Washtenaw County has staff dedicated to teaching master rain gardener certification courses and provides technical advice for planting one on private property. The City of Ypsilanti also won bronze at the Michigan Sustainability Conference in 2019 for its work with the Washtenaw County Water Resources Commissioner to provide free consultations to households interested in developing or enhancing rain gardens.[23]

In addition to enhancing green stormwater infrastructure, some expansion to grey infrastructure may also be needed. Ypsilanti was recently awarded a Stormwater, Asset Management, and Wastewater (SAW) grant. With the funds, the City mapped its storm sewers and plans to upgrade its software to aid in continuing to monitor and record its conditions. With improved information about existing infrastructure, Stormwater Management Plans can be tailored to specific areas for improvement so that estimates for expansion are based on accurate data. Using climate change predictions for precipitation and updated inventory on the storm sewer system, Ypsilanti can continue to use the Capital Improvement Plan to plan for greater stormwater capacity with greater precision.

Drinking Water Sources

There are 13 water wells within the City: four type 1 (community) wells, now closed; one type 2 (facility) well, now inactive; four household wells, and four irrigation wells.[24] These are personal wells that the owners are responsible for testing. The City of Ypsilanti, through the Ypsilanti Community Utilities Authority, sources water from the Great Lakes Water Authority for its municipal water system.

The Ypsilanti Community Utilities Authority provides a municipal water system and requires households that can be serviced by municipal sewer shall be, according to ordinance 106-22. At the point of a sewer hookup, the City encourages households to use the municipal water system, and as most of the few remaining households convert, the installation of personal wells is no longer necessary nor advisable.

The City created two well exclusion areas which are written into local ordinances and recorded with the Register of Deeds. Well exclusion areas were instituted to protect property from water contamination. One, in the downtown, prohibits wells adjacent to a parcel where there was a leak from a former gas station; the other, in the Bell-Kramer neighborhood, prohibits wells adjacent to the former landfill.

What the City can focus on is how to improve services through its water and wastewater provider Ypsilanti Community Utilities Authority (YCUA). Because wastewater treatment plants are energy-intensive, and provide an essential service to households, upgrades to this system are a win-win. Potential policies are two-fold. First, the City and YCUA can collaborate on home and business water efficiency financing programs to reduce total load and peak flow rates, saving energy at the plant and potentially lowering water bills for households. Secondly, advances to sensors and software can also improve their energy efficiency so that our water sources and treatment can contribute less to emissions.[25] The City can also continue to work with YCUA on water transmission infrastructure upgrades and maintenance; this minimizes potential waste from leakages and helps to minimize the risk of lead or other exposure from older pipes.

Sustainability Goals: Water

GOAL: Protect the watershed from further contamination.

- ~~Establish a Sensitive Features Overlay Zoning District along the Huron River and Paint Creek and implement LID standards and chemical bans~~
- Consider a sensitive features overlay zone providing a buffer around the Huron River and Paint Creek that provides site and use regulations tailored to the proximity to these waterbodies.
- Invest in consistent enforcement for compliance to the sensitive feature overlay zoning district.
- Continue to pursue updates to the zoning ordinance, such as tree protection regulations, that preserve and improve vegetation that can mitigate stormwater impacts.
- Continue to support the work of the Washtenaw County Water Resources Commissioner and other partners to educate members of the public, particularly single-family homeowners, on stormwater issues.
- Monitor adherence to the City's phosphorous fertilizer and tar sealcoat ordinances for effectiveness.
- Work with Washtenaw County Environmental Health to research the status of remaining private wells and provide resources and recommendations for testing water quality to property owners

GOAL: Preserve and expand the City's capacity to deal with heavy rainfall to mitigate negative effects on people and property.

- Incorporate capacity upgrades for grey stormwater management into the CIP based on predictions for greater precipitation
- Update the flood maps, including FIRM, based on climate projections and changes to the river channel since the FIRM formulation in the 1970s
- Investigate an equitable stormwater fee schedule that encourages converting impervious to pervious surfaces and proper use of rain barrels or other detention/retention systems.

[23] Michigan Green Communities (MGC). 2019 MGC Challenge Participants and Awards. https://migreencommunities.com/blog/
[24] Michigan Open Data Portal, "Water Wells – South Central & Southeastern Michigan" http://gis-michigan.opendata.arcgis.com/datasets/water-wells-south-central-southeastern-michigan?geometry=29.491%2C-17.893%2C-105.860%2C71.775
[25] Ypsilanti Climate Action Plan. 2012. Pg 30.

- Consider banning basements or enforce floodplain standards in boundaries where the soil has limited capacity to handle stormwater
- Develop a Stormwater Management Plan
- Continue to pursue the removal of the Peninsular Dam
- Continue to maintain City lands that are in the flood zones and vacant for stormwater and floodwater mitigation.
- Pursue GSI projects in the City parks, particularly in the flood zones.
- Pursue conservation &/or access easements along the Huron River.
- Explore offering incentives to property owners to retrofit existing buildings and site improvements with stormwater-friendly infrastructure, including rain gardens.
- Explore the potential to equitably enact a stormwater fee structure to encourage private retrofit stormwater infiltration and detention infrastructure

GOAL: Promote resources for water conservation and testing to ensure access efficiency upgrades and clean water

- Work with YCUA to develop home and business water efficiency financing programs
- Promote Great Lake Water Authority program WRAP to perform conservation audits and funds for repairs to help reduce low-income households reduce water bills
- Collaborate with YCUA on water conservation and infrastructure improvement projects.

DRAFT NOVEMBER 2020

Washtenaw County
Health Department

Environmental Health Division
705 N Zeeb Road • Ann Arbor, MI 48103
Phone: 734-222-3800 • Fax: 734-222-3930
www.washtenaw.org/envhealth

WATER TESTS & FEES

These water tests are available at our Environmental Health Division office. Sample bottles must be picked up from our office, filled at the water source, and then delivered back to our office. Other water tests may be available through the State of Michigan lab or through private testing companies. Please contact out office at 734-222-3800 with questions.

Bacteriological Analysis of Water

Test	Water Source	Turn-around	Cost
Coliform, Total (Bacteria)	Groundwater / Well	24 hours	$15
Coliform, Fecal	Groundwater / Well	24 hours	$15
E. Coli	Surface Water	24 hours	$17
Coliform, Fecal	Wastewater	24 hours	$15
Total Coliform and Plate Count	Swimming Pool	24 hours	$17

Chemical Analysis of Water

Test	Water Source	Turn-around	Cost
Arsenic	Groundwater / Well	5 days	$15
Barium	Groundwater / Well	5 days	$11
Chloride	Groundwater / Well	5 days	$11
Conductivity	Groundwater / Well	5 days	$10
Fluoride	Groundwater / Well	5 days	$11
Hardness, total	Groundwater / Well	5 days	$13
Iron	Groundwater / Well	5 days	$11
Lead	Groundwater / Well	5 days	$15
Manganese	Groundwater / Well	5 days	$11
Nitrates	Groundwater / Well	5 days	$14
Nitrites	Groundwater / Well	5 days	$14
Sodium	Groundwater / Well	5 days	$11
Sulfate	Groundwater / Well	5 days	$11
Tannin	Groundwater / Well	5 days	$15
Ammonia	Surface Water	5 days	$20
Biochemical Oxygen Demand (BOD)	Surface Water	5 days	$20
Dissolved Oxygen	Surface Water	5 days	$13
Oil and Grease	Surface Water	5 days	$55
Orthophosphate, Phosphorus	Surface Water	5 days	$20
Phosphorus, total	Surface Water	5 days	$20
Surfactant	Surface Water	5 days	$35
Total Organic Carbon	Surface Water	5 days	$55
Biochemical Oxygen Demand (BOD)	Wastewater	5 days	$20
Total Suspended Solids (TSS)	Wastewater	5 days	$15
Wastewater Analysis - i.e. Sand Filter (BOD, TSS, Fecal Coliform)	Wastewater	5 days	$50

Other Common Water Tests

Test	Water Source	Turn-around	Cost
Partial Chemistry* (Chloride, Fluoride, Hardness, Iron, Nitrates, Nitrites, Sodium, Sulfate)	Groundwater / Well	Depends	$18 (Order from State lab)
Subdivision Scan (Partial Chemistry*, Arsenic, Total Coliform)	Groundwater / Well	Depends	$30 (Arsenic/Coliform - From our office) $18 (Partial Chem - Order from State lab)

***Partial Chemistry tests are run through the State of Michigan laboratory. You must order the test bottle from the lab, and then mail the sample to Lansing with your payment. The box includes a cold pack that you must freeze and then include with the bottle when mailing to keep the water sample cold. Call the lab at 517-335-8184 with questions.**

Fees updated 10/1/17; Form updated 3/6/19