STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
GRAND RAPIDS DISTRICT OFFICE

RICK SNYDER
GOVERNOR

C. HEIDI GRETHER
DIRECTOR

September 28, 2016

VIA EMAIL

Mr. Jon Braxmaier, Soil Erosion Agent
Ottawa County Water Resources Commissioner
12220 Fillmore Street, Room 141
West Olive, Michigan 49460

Dear Mr. Braxmaier:

SUBJECT: Public Education Plan (PEP)
National Pollutant Discharge Elimination System (NPDES)
Certificate of Coverage (COC) No. MIG610203
Municipal Separate Storm Sewer System (MS4)

On August 19, 2016, the Department of Environmental Quality (DEQ), Water Resources Division (WRD), received the final version of the PEP for NPDES permitted communities in the Lake Macatawa Watershed. The revised PEP was submitted on your behalf by the Macatawa Area Coordinating Council (MACC). The PEP was reviewed in accordance with the requirements of NPDES General Permit No. MIG619000. General Permit No. MIG619000, authorizes discharges of storm water from municipal separate storm sewer systems (MS4s) to the surface waters of the state, and thus you are subject to the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251 et seq; the "Federal Act"), Michigan Act 451, Public Acts of 1994, as amended (the "Michigan Act"), Parts 31 and 41, and Michigan Executive Orders 1991-31, 1995-4 and 1995-18.

The PEP has been reviewed and is approved. At the request of the MACC, this document was also reviewed in accordance with the requirements of the 2016 MS4 permit application. With the exception of some time frames which may fall short of the permit cycle after issuance, the 2016 PEP appears to meet the new requirements as well as those of the current permit.

Please begin implementing the August 19, 2016, version of the PEP immediately. This will resolve compliance issues due to discrepancies between the previously approved PEP and unapproved documents.

Should you require further information, please contact me at 616-356-0215; stamoura@michigan.gov; or at the address below.

Sincerely,

Amanda St. Amour

Amanda St. Amour
Senior Environmental Quality Analyst

PUBLIC EDUCATION PROGRAM PLAN FOR STORM WATER EDUCATION IN THE MACATAWA WATERSHED

September 2016

For use by:

Allegan County

Allegan County Road Commission

City of Holland

City of Zeeland

Ottawa County

Ottawa County Road Commission

Prepared by

Macatawa Area Coordinating Council

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Cover Photos by Macatawa Area Coordinating Council

Top: Storm water display at Zeelmania, 2014

Middle: Interface H2O storm water activity at the Macatawa Water Festival, 2015

Bottom: Ottawa Conservation District Rain Barrel Workshop, 2014

Approved September 28, 2016

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I. Introduction

The purpose of this document is to outline a public education strategy for stormwater education in the Macatawa Watershed. This plan contains elements that meet the Public Education Program requirements under the State of Michigan's National Pollutant Discharge Elimination System (NPDES) permit for the discharge of storm water to surface waters of the state from a municipal separate storm sewer system (MS4). Storm water education will be focused within the regulated urbanized areas as defined by the Michigan Department of Environmental Quality, but the messages and actions described here will also be implemented within the entirety of the Macatawa Watershed and throughout Allegan and Ottawa Counties.

The plan will be implemented by the Macatawa Area Coordinating Council's (MACC's) Macatawa Watershed Project in cooperation with six local MS4 communities that are members of the MACC's Stormwater Committee. The six communities include Ottawa County, the Ottawa County Road Commission, the City of Holland, the City of Zeeland, Allegan County, and the Allegan County Road Commission. These six partners have worked together cooperatively as a watershed group since the MS4 permit program started in Michigan in 2003. The partners will continue to work together under their current and future MS4 permits to implement a stormwater public education program.

II. Background

Public education and outreach has been an important component of the Macatawa Watershed Project since its inception in the late 1990s. Early efforts were guided by a *Community Outreach Plan* (COP) that was developed in 2000 and updated in 2005. The 2005 plan will remain in effect and be implemented by the MACC until the new Public Education Program Plan (this document) is approved by the Michigan Department of Environmental Quality (MDEQ) Storm Water Program. The overall goals for education and outreach in the COP were to:

- Build and retain high levels of public (stakeholder) awareness and involvement in the Macatawa Watershed Project so that community values related to stewardship for the Macatawa Watershed can be sustained.
- Raise awareness of stakeholders about the relationship that exists between their daily land use and management decisions and the water quality in Lake Macatawa and its tributaries.
- Promote ongoing participation of watershed residents in activities which benefit the watershed and its water quality during and following completion of the Watershed Project.

Specific audiences and objectives, messages and tools were outlined in the 2005 COP. Many of the outreach tools developed under the COP have been updated and are still in use today.

In 2009, a process was started to update the Macatawa Watershed Management Plan to meet all state and federal watershed management plan criteria under the Clean Water Act. Included in that was the development of a robust information and education strategy. This strategy was developed with the assistance of a diverse group of local stakeholders that met over several years to define audiences, messages, delivery mechanisms, and the costs to carry out a comprehensive information and education strategy in the Macatawa Watershed. The final information and education strategy is found in Appendix B of the Macatawa Watershed Management Plan that was approved by the MDEQ Nonpoint Source

Program in 2012. This strategy was meant to replace the 2005 *Community Outreach Plan* but was not approved by the MDEQ Storm Water Program to use for compliance with the 2003 MS4 permits.

Numerous surveys have been completed in the Macatawa Watershed to gauge public awareness of, attitudes toward and actions impacting water quality. Telephone surveys were completed by the Hope College Frost Research Center in 2000, 2001, 2003, 2007, and 2014. Results of those surveys were incorporated into the Community Outreach Plans and the current information and education strategy.

Stormwater education for urban audiences is identified as a priority in the 2012 information and education strategy. However, the 2012 strategy does not fulfill all Public Education Program requirements of the MS4 permit program. This *Public Education Plan* is intended to fulfill the permit requirements while serving as a companion to the 2012 strategy and is not intended to replace the 2012 strategy.

A. 2014 Public Education Survey

In 2014, the Hope College Frost Research Center conducted a phone survey of 403 residents in the watershed to assess their knowledge, interest and habits regarding activities that affect water quality. Overall, the results indicated that the awareness of the watershed and the Macatawa Watershed Project is increasing. The survey also indicated that understanding of storm water and where it ends up is also increasing. The importance of lawn care seems to be increasing, yet awareness of the Macatawa Watershed's Lawn Care Seal of Approval Program has decreased. Residents seem to be more willing to make personal changes that will improve water quality, however, they are less willing to pay for those changes. The executive summary and overall results of the 2014 survey are in Appendix A.

Survey respondents were asked to rate the importance of various issues as to how they impact the water quality of the Macatawa River. For comparison, the same question was posed via Survey Monkey to a group of local stakeholders that are actively engaged in the Macatawa Watershed Project. The results of the public survey and stakeholder responses are shown in Figure 1. The graphs show that public and stakeholder perceptions of the problems in Lake Macatawa are very different. The two greatest discrepancies are the public opinion of industry and soil erosion. Soil erosion is the primary concern in the Macatawa Watershed, which is reflected in the stakeholder responses, but ranks much lower in public opinion. Industry is a very minor concern in the watershed, which is again reflected in the stakeholder responses, but ranks much higher in public opinion. This one question alone will help to focus storm water education in order to increase understanding of the actual water quality concerns in Lake Macatawa and the Macatawa Watershed.

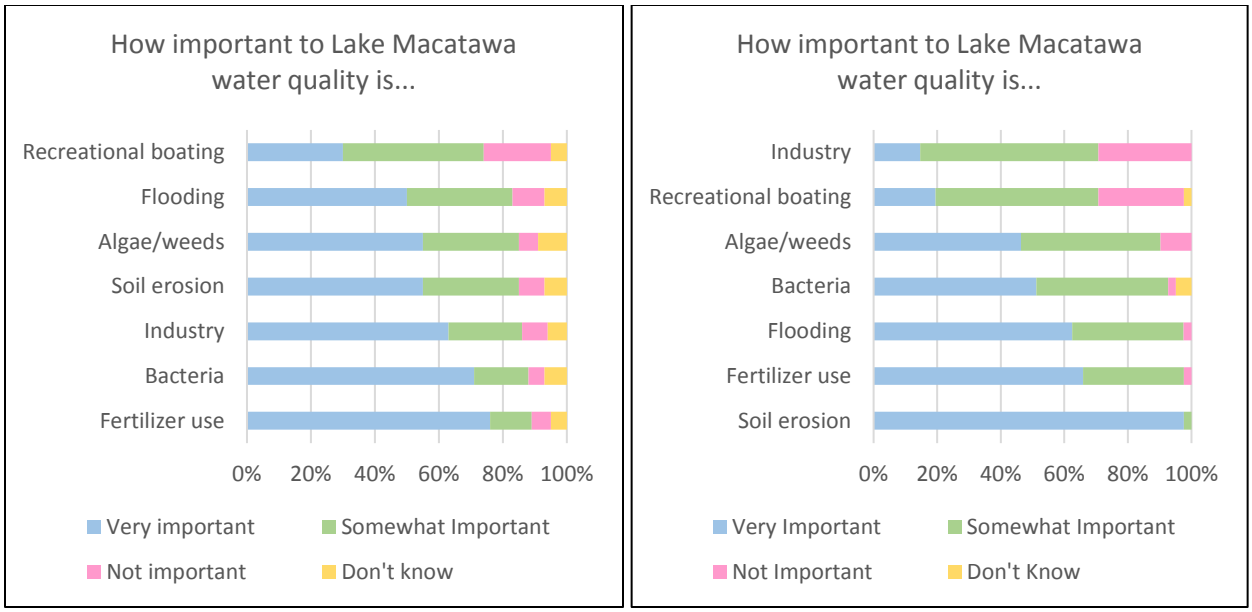

Figure 1. Perceived importance of water quality issues. The chart on the left shows responses from participants in the Frost Center phone survey and the chart on the right shows responses from Macatawa Watershed Stakeholders.

III. New Storm Water Permit Requirements

The 2013-2017 State of Michigan Storm Water Permit allows for the prioritization of storm water messages as an alternative to requiring that all 10 listed topics be covered. A procedure for how the prioritization was determined must be provided as well as a procedure for evaluating and determining the effectiveness of the Public Education Program. The permit is jurisdictional, but does allow for collaboration to carry out all or parts of the Public Education Program.

The six permittees that collaborate with the MACC elected to prioritize public education topics and to continue to work collaboratively with the MACC in the development and delivery of a storm water Public Education Program.

A. Public Participation/Involvement Program

In addition to conducting public education on storm water topics, the MS4 permit requires a mechanism for involving public participation in the review of the Storm Water Management Plan (SWMP). The SWMP is the compilation of all documents related to the minimum measures required by the MS4 permit. The six MS4 permitted entities that work with the MACC will make their SWMPs available to the public by posting them on their websites and allowing for comments or questions to be submitted electronically through the website or in writing to their offices. Local media outlets will also be provided with a notice to publish inviting the public to review the SWMPs and submit comments. The MACC will also post digital copies of all six SWMPs and invite public comment through their website. The MACC will work collaboratively with the six MS4 permittees to host public open houses where local residents can review the SWMPs in person, ask questions and submit comments.

IV. Storm Water Education Topic Prioritization

A. Procedure

MACC staff conducted a table top exercise with the Macatawa Watershed Information and Education Committee in January 2015 to prioritize the 11 storm water messages listed in the FY2016 MS4 permit application. The Committee is comprised of representatives from the MS4 permitted entities and representatives from other local partners, including non-profit organizations, Conservation Districts, local utilities, and local universities. Participants were provided with a list of the 11 topics and asked to review them and determine whether they were high, medium or low priority in the Macatawa Watershed and throughout Ottawa County. Each of the 11 topics were printed on individual papers that were hung on walls around the room. Everyone was given color coded stickers to place with the topics to indicate their rankings of high, medium and low priority. Prior to completing this exercise, the results of the Frost Center Survey were reviewed and discussed. A very similar exercise was conducted by additional watershed stakeholders that were not present at the meeting via Survey Monkey. The results of the table top exercise were input into Survey Monkey so all responses could be compiled and analyzed. There were 38 total responses. Note that the FY2017 permit only included 10 topics. The eleventh topic was removed from the results and this plan to reflect the FY2017 change.

B. Prioritization Results

Overall, no topics were ranked as not applicable in the Macatawa Watershed. Five of the ten topics received at least a 50% response of high priority (A, B, E, G, J) and two received at least a 50% response of medium (D, F). Two of the remaining three topics received similar responses as high or medium priority (C, I), so those will be considered medium, and the final topic received the highest ranking as low priority (H) and will be considered low. The raw results are shown in Figure 2 and the final prioritization is shown in Table 1.

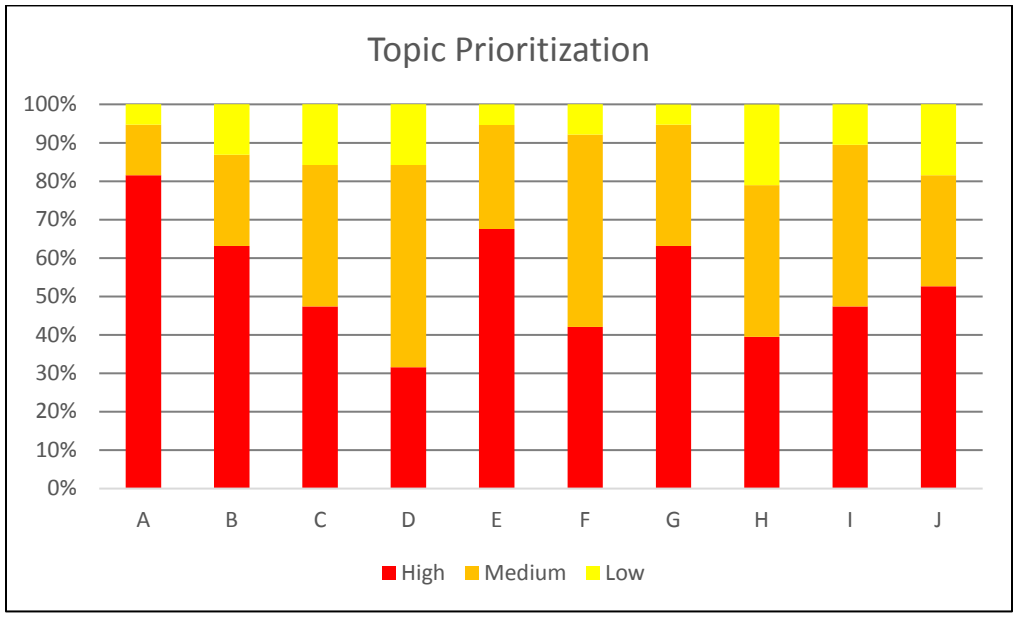

Figure 2. Results of public education topic prioritization exercise. The horizontal axis indicates the public education topics as defined in Section VII.5 of the FY2017 Storm Water Discharge Permit Application.

Table 1. Final prioritization of public education topics

Topic	High	Medium	Low	Final Prioritization
A. Promote public responsibility and stewardship in the applicant's watersheds.	82%	13%	5%	HIGH
B. Inform and educate the public about the connection of the MS4 to area waterbodies and the potential impacts discharges could have on surface waters of the state.	63%	24%	13%	HIGH
C. Educate the public on illicit discharges and promote public reporting of illicit discharges and improper disposal of materials into the MS4.	47%	37%	16%	MEDIUM
D. Promote preferred cleaning materials and procedures for car, pavement, and power washing.	32%	53%	16%	MEDIUM
E. Inform and educate the public on proper application and disposal of pesticides, herbicides, and fertilizers.	68%	27%	5%	HIGH
F. Promote proper disposal practices for grass clippings, leaf litter, and animal wastes that may enter into the MS4.	42%	50%	8%	MEDIUM
G. Identify and promote the availability, location, and requirements of facilities for collection or disposal of household hazardous wastes, travel trailer sanitary wastes, chemicals, and motor vehicle fluids.	63%	32%	5%	HIGH
H. Inform and educate the public on proper septic system care and maintenance, and how to recognize system failure.	39%	39%	21%	LOW
I. Educate the public on, and promote the benefits of, green infrastructure and Low Impact Development.	47%	42%	11%	MEDIUM
J. Identify and educate commercial, industrial, and institutional entities likely to contribute pollutants to storm water runoff.	53%	29%	18%	HIGH

Topics that are assigned as high priority **will** be delivered at least once a year. Topics assigned medium priority **will** be delivered at least once every two years. The topic assigned low priority **will** be delivered at least once every 5 years.

V. 2017-2021 Storm Water Education Implementation Plan

The results of the prioritization exercise and the 2014 Frost Center survey were used to develop the revised strategy presented in Table 2. This strategy **will** be implemented starting in FY2017, pending DEQ approval of this plan. The strategy **will** be carried out collaboratively among the MACC and the six MS4 permitted entities. Table 3 provides further details about the activities that **will** be carried out from FY2017-FY2021.

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Approved September 28, 2016

Table 2. Revised Storm Water Information and Education Strategy

Topic	Messages	Target Audience	Specific Activities and Delivery Mechanisms	Measurable Goals	Year	Frequency	Responsible Party	Evaluation
1. Promote public responsibility and stewardship. (A)	We all live in a watershed (define) and our actions affect the health of the watershed.	Home owners Business owners Schools	1. Participate in Macatawa Water Festival 2. Host volunteer cleanup event 3. Host volunteer monitoring event	1. 1,500 attendees 2. 75 Volunteers 3. 20 Volunteers	1-5	Annual	MACC	An increasing number of people who express awareness and behavior related to the subject when we talk to them at events (Three Question Survey). An increase in the number of volunteers, both new and returning.
2. Inform and educate the public about the connection of the MS4 to area waterbodies and the potential impacts discharges could have on surface waters of the state. (B)	Rain water runs over impervious surfaces, enters storm drains and is delivered to local rivers and lakes untreated. Anything rain water washes off the land surface has the potential to become water pollution. Nonpoint source pollution (define) is the primary water quality problem in Lake Macatawa.	Home owners Business owners	1. Macatawa Water Festival 2. Public presentation 3. Community events 4. Enviroscape models	1. 1,500 attendees 2. 1 presentation 3. 8 events 4. 1 Enviroscape presentation			MACC	Increasing participation in the Macatawa Water Festival. An increasing number of people who express awareness and behavior related to the subject when we talk to them at events (Three Question Survey). Increasing requests for the MACC to participate in community events. Increasing requests for use of the Enviroscape.
3. Inform and educate the public on proper application and disposal of pesticides, herbicides, and fertilizers. (E)	Use pesticides, herbicides and fertilizers sparingly and always read and follow label directions. These chemicals are hazardous and need to be disposed of as hazardous waste to reduce harm to the environment.	Home owners Lawn care companies	1. Homeowner's Handbook 2. Lawn Care Seal of Approval literature 3. MACC website/ Facebook	1. 300 distributed 2. 200 distributed 3. # of hits, 2 promotions			MACC	Number of follow up phone calls received for more information or more copies of the handbook/lawn care literature. An increasing number of people who express awareness and behavior related to the subject when we talk to them at events (Three Question Survey). An increasing number of hits for these materials on our website. Increased use of the applicable local household hazardous waste recycling facility and/or increasing amount of product recycled.
4. Identify and promote the availability, location, and requirements of facilities for collection or disposal of household hazardous wastes, travel trailer sanitary wastes, chemicals, and motor vehicle fluids. (G)	Household hazardous waste should be disposed of properly to avoid any potential environmental contamination. There are many local options for proper disposal.	Home owners Business owners	1. Homeowner's Handbook 2. MACC website/ Facebook 3. Promote local collection events on website/Facebook	1. 300 distributed 2. # of hits 3. 2 posts			MACC, Ottawa County, Allegan County	An increasing number of people who express awareness and behavior related to the subject when we talk to them at events (Three Question Survey). An increasing number of people that use the applicable local household hazardous waste recycling facility and/or an increasing amount of product recycled. An increasing number of people that participate in collection events or an increasing amount of product recycled.
5. Identify and educate commercial, industrial, and institutional entities likely to contribute pollutants to storm water runoff. (J)	Pollution prevention and good housekeeping: parking lot sweeping, vehicle maintenance, dumpster storage, chemical storage and containment, etc.	Commercial and industrial business owners Schools	Distribute guidebooks[1]	Distribute 20 guidebooks and attend one Chamber event	2-5	Annual	MACC	This is a new topic so a baseline will need to be established for the number of entities made aware of the issue in order to track changes in behavior, such as calling to request additional information, copies of the guidebook or assistance with storm water management.

1-5 = high priority, 6-9 = medium priority, 10 = low priority

[1] A Commercial/Industrial Pollution Prevention and Good Housekeeping Guidebook (or similar title) will be developed in FY2017 for distribution in the following years.

Topic	Messages	Target Audience	Specific Activities and Delivery Mechanisms	Measurable Goals	Year	Frequency	Responsible Party	Evaluation
6. Educate the public on illicit discharges and promote public reporting of illicit discharges and improper disposal of materials into the MS4. (C)	Only rain down the drain. Nothing else should enter the storm drains either by running off the surface or by direct connection or dumping. Spills and dumping should be reported immediately.	Home owners Public safety	1. Post reporting information on website 2. Storm drain marking 3. Promote reporting	1. Posted on 7 websites 2. One neighborhood 3. 7 posts on website, Facebook and/or in newsletters	1, 3, 5	Every other year	MACC, MS4 Permittees	An increasing number of reports to the MS4 permittees and/or an increasing number of website hits. A lack of increasing reports and hits could indicate that either better education is needed or that there are less illicit discharges to report. This will be evaluated along with the effectiveness of the MS4 permittees illicit detection and elimination plans.
7. Promote preferred cleaning materials and procedures for car, pavement, and power washing. (D)	Waste water from washing activities should be diverted away from storm drains. If soap is necessary, use eco-friendly, biodegradable products.	Home owners Churches Schools	1. Deliver tip sheet[2] to schools and churches 2. Distribute tip sheet[2] at community events	1. Mail to 20 churches and all schools in urbanized area 2. 250 distributed	2, 4		MACC	An increasing number of community car washes held in grassy areas outside of parking lots or at commercial car washes. An increasing use of car wash kits[3] to keep waste water out of the storm drain.
8. Promote proper disposal practices for grass clippings, leaf litter, and animal wastes that may enter into the MS4. (F)	Anything left on the land can be washed away into storm drains when it rains. Grass clipping and leaf litter should be kept away from storm drain. Pet waste should be picked up and composted or disposed of in the trash.	Home owners Business owners Schools Lawn care companies	Lawn Care Seal of Approval literature	200 distributed	1, 3, 5		MACC	An increasing number of people who express awareness and behavior related to the subject when we talk to them at events (Three Question Survey).
9. Educate the public on and promote the benefits of green infrastructure and Low Impact Development. (I)	Green infrastructure and low impact development can be used to slow down or treat storm water before it enters surface water or encourage storm water to soak into the ground.	Home owners Business owners Elected Officials	1. Outreach to planners and planning commissioners 2. Distribute information at community events	1. Attend and present information at 9 planning commission meetings 2. 100 handouts	2, 4		MACC	Increased adoption of GI both from the standpoint of developers/engineers incorporating GI into designs and planning commissions encouraging them to do so. Increased installation of GI by private business and home owners.
10. Inform and educate the public on proper septic system care and maintenance, and how to recognize system failure. (H)	Septic systems must be inspected and maintained for proper function to ensure that untreated waste does not contaminate surface water or drinking water sources.	Rural home owners	1. Distribute Septic System Awareness packet (already developed) at local events 2. MACC and county websites	1. 25 distributed 2. # of hits	4	Once every 5 years	MACC, Ottawa County, Allegan County	Increased requests for septic system inspections and regular maintenance. Will require coordination with septic pumpers/haulers. Decreasing number of problems discovered during county point-of-sale septic system inspections.

1-5 = high priority, 6-9 = medium priority, 10 = low priority

[2] Tip sheet will be developed in FY2017 for distribution in the following years.

[3] The MACC will create and maintain car wash kits (similar to Springfield, OR: http://www.springfield-or.gov/dpw/CarWashKits.htm) and make them available to school and church groups.

Table 3. Storm Water Public Education Activity 5-year Schedule

Year	Activity	Applicable Topic (as numbered in Table 2)
1	Participate in Macatawa Water Festival	1, 2
	Volunteer cleanup event	1
	Volunteer monitoring event	1
	Public presentation	2
	Participation in community events (literature distribution)	2, 3, 4, 8
	Enviroscape model	2
	Articles posted on website and Facebook	3, 4, 6
	Develop guidebook	5
	Post information on MS4 permittees websites	6
	Storm drain marking	6
	Develop tip sheet and assemble car wash kits	7
2	Participate in Macatawa Water Festival	1, 2
	Volunteer cleanup event	1
	Volunteer monitoring event	1
	Public presentation	2
	Participation in community events (literature distribution)	2, 3, 4, 7, 9
	Enviroscape model	2
	Articles posted on website and Facebook	3, 4
	Attend Chamber of Commerce event and distribute guidebooks	5
	Deliver tip sheet to schools and churches, promote use of car wash kits	7
	Attend planning commission meetings and present information	9
3	Participate in Macatawa Water Festival	1, 2
	Volunteer Cleanup event	1
	Volunteer monitoring event	1
	Public presentation	2
	Participation in community events (literature distribution)	2, 3, 4, 8
	Enviroscape model	2
	Articles posted on website and Facebook	3, 4, 6
	Distribute guidebooks	5
	Storm drain marking	6

Year	Activity	Applicable Topic (as numbered in Table 2)
4	Participate in Macatawa Water Festival	1, 2
	Volunteer Cleanup event	1
	Volunteer monitoring event	1
	Public presentation	2
	Participation in community events (literature distribution)	2, 3, 4, 7, 9, 10
	Enviroscape model	2
	Articles posted on website and Facebook	3, 4, 10
	Distribute guidebooks	5
	Deliver tip sheet to schools and churches, promote use of car wash kits	7
	Attend planning commission meetings and present information	9
5	Participate in Macatawa Water Festival	1, 2
	Volunteer Cleanup event	1
	Volunteer monitoring event	1
	Public presentation	2
	Participation in community events (literature distribution)	2, 3, 4, 8
	Enviroscape model	2
	Articles posted on website and Facebook	3, 4, 6
	Distribute guidebooks	5
	Storm drain marking	6

A. General Delivery Mechanisms

The current list of delivery mechanisms have proven to be effective means of conveying educational messages to the public. Due to their success, these mechanisms will continue to play an important role in the new public education plan. They include:

- Quarterly newsletters/e-newsletters
- Distribution of handouts
- Press releases and newspaper articles
- Storm water display at community events
- Lawn Care Seal of Approval program
- Community presentations
- Website and Facebook page posts
- Storm drain marking
- Enviroscape models

B. Additional Considerations

It has been acknowledged by several of the MACC's cooperating MS4 permittees that language barriers can be an impediment to implementing effective public education programs, in particular related to illicit discharges. The MACC will work with the permittees in 2017 to identify specific topic needs and either find, purchase or develop materials in the appropriate languages, provided that translation services are available. As much as possible, existing materials that have already been translated will be used, such as the EPA's Spanish version of their *After the Storm* brochure (https://www3.epa.gov/npdes/pubs/after_storm_spanish.pdf).

Spanish materials will be made available at community events in which the MACC participates and will also be made available to the applicable MS4s for use in their office or by their field staff as appropriate.

C. Evaluation

Implementation of proposed activities will be tracked and an annual report will be created to document the effectiveness of the PEP. Evaluation methods are listed in Table 2 and additional methods plus justification for those methods is provided below.

- Number of hits on website announcements increases annually. This will indicate increased interest of people in the information that we provide because it requires them to take action to go to our website and find the information.
- Increase in requests for MACC to participate in community events. This indicates that community groups and organizations are familiar with our message and want us to deliver it at their events.
- Track number of illicit discharge reports based on permittees IDEP Plan. This could indicate that people are more aware of illicit discharges and what to do if they see one, but it could also indicate an increase in the number of illicit discharges and the need for more education.
- Increased number of people using the local household hazardous waste collection facilities or participating in drug take back days. This is an indication of an increased level of awareness about the importance of proper disposal to avoid environmental contamination and also represents a change in behavior.
- Increased number of phone calls received as a result of information provided at a community event or published in a local newsletter or paper. This represents a higher level of interest in the

topic that moved the individual to seek more information or assistance, leading to a change in behavior. MACC staff will retain a phone log of these requests for information.

- Increased implementation of green infrastructure indicates increased interest in improving storm water management and represents a behavior change compared to traditional grey infrastructure for storm water management.
- Increased number of people who display a level of knowledge about the watershed, storm water or related issues. This primarily occurs when talking to people at community events. MACC staff will track and record these conversations as they happen. MACC staff will implement oral "Three Question Surveys" when talking to people at events to ask their knowledge on specific storm water topics and their behavior. Responses will be recorded by MACC staff on a simple form that also includes the date and location of the event. Individual responses for the same public education topic will be compiled and compared for all events on an annual basis. A three question survey to evaluate Topic 1, promote public responsibility and stewardship, will include the following procedure (exact questions may vary):
    - Question 1 = Do you live in the Macatawa Watershed?
        - If yes, Question 2 = How do your actions impact the watershed?
            - If they acknowledge that their actions impact the watershed, then Question 3 = What actions do you take at home to protect the watershed? If they do not take any action, then information will be provided verbally and in a handout. If they do, their actions will be affirmed and they will be thanked for their support.
            - If they believe their actions do not impact the watershed, then information will be provided, verbally and with a handout, about how their actions do impact the watershed.
        - If no, then no further questions.
        - If they don't know, then they will be shown a map of the watershed. If they do live in the watershed, then the procedure from Question 1 will be followed.
- Number of follow up contacts from commercial and industrial landowners after receiving the commercial/industrial pollution prevention and good housekeeping handbook. MACC staff will track the number of guidebooks distributed and the number of follow up contacts received asking questions or requesting assistance for storm water management. Increased number of entities implementing storm water best management practices.

The Hope College Frost Research Center will be contracted to conduct periodic phone surveys (at least once every 5 years) to measure awareness, knowledge, behavior, and adoption of watershed best management practices (goal of 20% increase from previous surveys) The survey will include questions about awareness and behavior related to 9 of the 10 storm water topics (excluding #5 since the survey will target residents and this topic does not apply). A survey will also be developed and conducted with industrial, commercial and institutional entities to evaluate awareness and behavior as it relates to topic #5.

Appendix A: Frost Center Watershed Report 2014

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Macatawa Area Coordinating Council

A Cooperative Effort Among Units of Government

MACATAWA WATERSHED PROJECT

Macatawa Area Coordinating Council
Watershed Report 2014

September 23, 2014

Hope COLLEGE
CARL FROST CENTER FOR SOCIAL SCIENCE RESEARCH

Contents

Executive Summary

The Macatawa Area Coordinating Council (MACC) contracted the Frost Research Center to conduct a survey assessing local residents' knowledge, interest and habits regarding activities affecting area water quality. Four hundred and three respondents completed the telephone survey in July and August of 2014.

Topics in this survey were divided into four subsections:

- Watershed
- Stormwater
- Lawn Care
- Water Quality

General findings regarding each subsection of the survey are as follows:

Watershed:

- Awareness of watershed and the Macatawa Watershed Project are on the rise.
- Respondents most often use the newspaper as a source of information about local issues and watershed.

Stormwater:

- Respondents' confidence in defining stormwater has increased and most know that storm drains empty into streams and lakes.

Lawn Care:

- Lawn Care is important to residents. Eighty-five percent (85%) of respondents take care of a lawn and most do their own lawn care.
- Awareness of the Macatawa Watershed's Seal of Approval for lawn care and landscaping services has decreased in past years.

Water Quality:

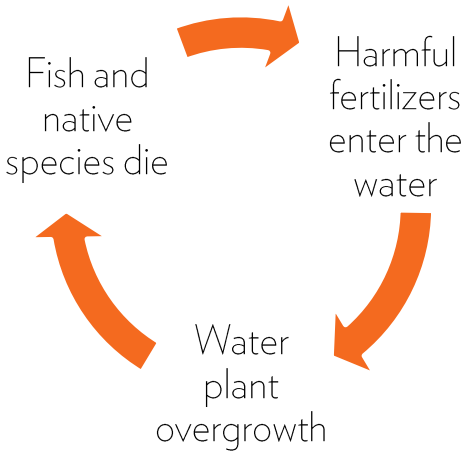
- Residents are more willing than ever before to make some changes that will positively impact water quality.
- Residents are less willing than in past years to pay out of pocket to implement changes that will improve water quality. If funding is provided, residents' willingness increases dramatically.

Water quality and the factors influencing it are important to area residents. Residents are generally more knowledgeable and more willing to make changes that improve and promote water quality in our area than in the past.

Introduction

The Frost Research Center was contracted by the Macatawa Area Coordinating Council (MACC) to conduct a survey to assess residents' knowledge and views of watershed issues in the Macatawa area.

The U.S. Environmental Protection Agency defines a watershed as "the area of land where all of the water that is under it or drains off of it goes into the same location." The Macatawa Watershed covers approximately 175 square miles of land and consists of all the land that drains to Lake Macatawa, including all or part of Laketown, Fillmore, Overisel, Holland, Park, Zeeland, Port Sheldon, Olive and Blendon Townships as well as the cities of Holland and Zeeland.



The Macatawa Watershed is experiencing harmful levels of phosphorus, a naturally occurring element present in fertilizer, animal waste, and soils. Excess phosphorus causes too many plants to grow in the water. Plant decay robs the water of oxygen causing fish and plants to die leading to deteriorating water quality.

The Macatawa Watershed Project was created in 1999 with the goal to reduce the amount of phosphorus that enters Lake Macatawa by rain runoff by approximately 70% through public awareness, education, and Best Management Practices.

Methodology

Watershed knowledge and opinions were assessed through a telephone survey. Residents in the Macatawa Watershed area, specifically Blendon Township, Fillmore Township, Holland City, Holland Township, Laketown Township, Olive Township, Overisel Township, Park Township, Port Sheldon Township, Zeeland City, and Zeeland Township participated in the survey.

To reach residents in these areas, two lists of phone numbers were obtained from Survey Sampling Inc.; the first group comprised directory listed numbers whose address fell within the study boundaries, and the second group contained wireless numbers connected to Holland or Zeeland billing centers. Calls were placed by Frost Center staff Monday through Thursday evenings and midday Saturday from July 26, 2014 to September 5, 2014. The survey took approximately five to seven minutes for respondents to complete.

Overall, four hundred and three respondents participated in the survey. All participants lived in the Macatawa Watershed and were divided between the following eleven geographic regions.

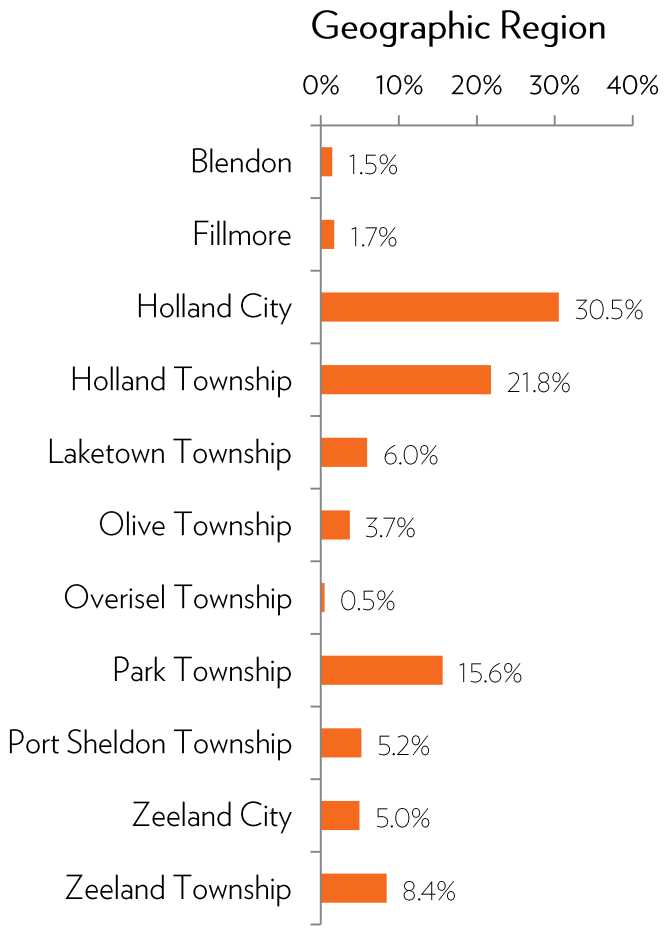


Figure 1

The largest percentage (30.5%) of survey respondents reside in the City of Holland. Less than one percent of respondents reside in Overisel Township.

Demographics

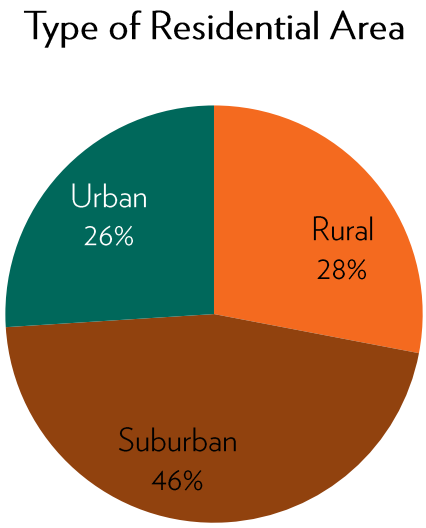


Figure 2

Forty-six (46%) of respondents live in a suburban area. Respondents from urban and rural areas made up twenty-six percent (26%) and twenty-eight percent (28%) of survey responses, respectively.

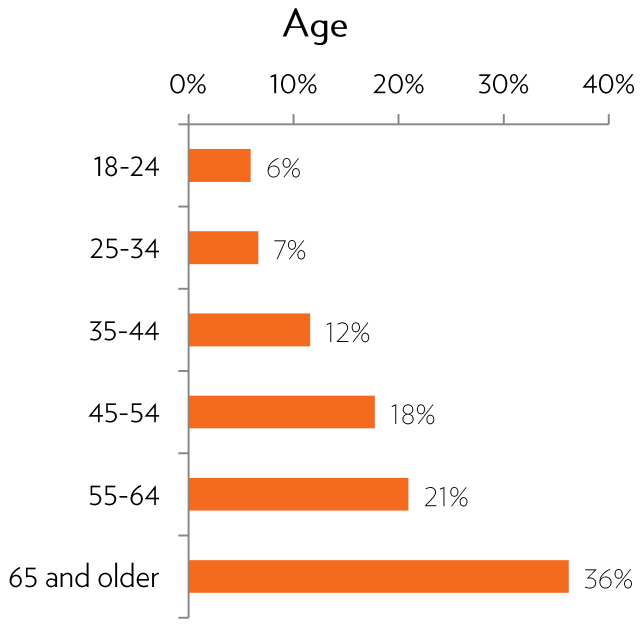


Figure 3

Respondents aged 65 and older make up more than a third of survey participants, making this age group the most common among survey respondents. Six-percent (6%) of respondents were between 18 and 24 years old.

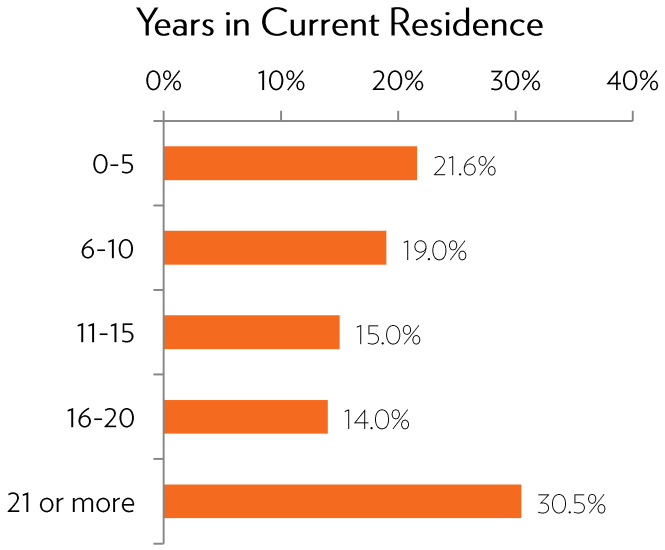


Figure 4

More than thirty-percent (30.5%) of respondents have lived in their current residence 21 years or more. Respondents have lived in their current residence an average of 17 years.

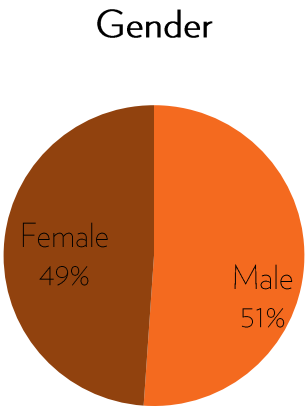


Figure 5

A nearly equal amount of males and females completed the survey with males making up fifty-one percent (51%) of respondents and forty-nine percent (49%) being females.

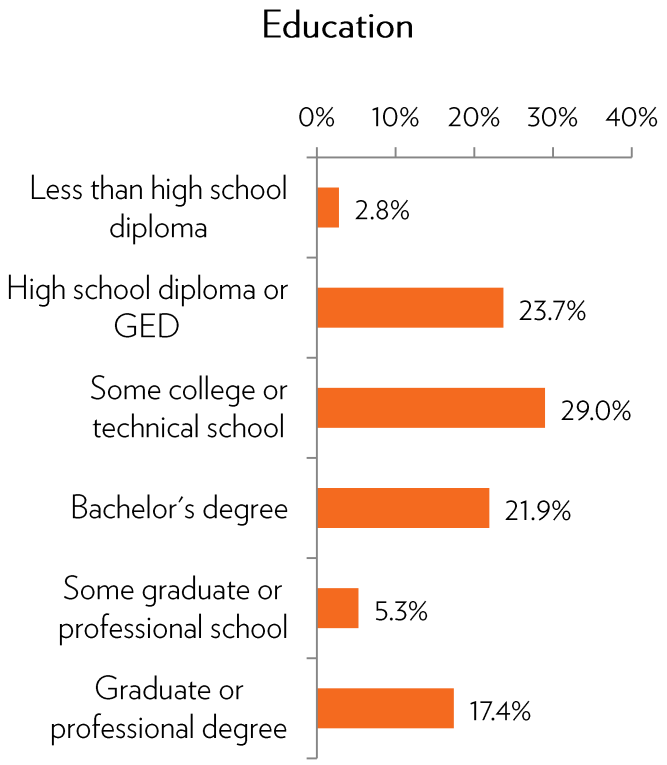


Figure 6

Survey respondents are well-educated. Seventeen-percent (17.4%) have completed a graduate or professional degree. Twenty-nine (29%) percent of respondents have completed some college or technical school.

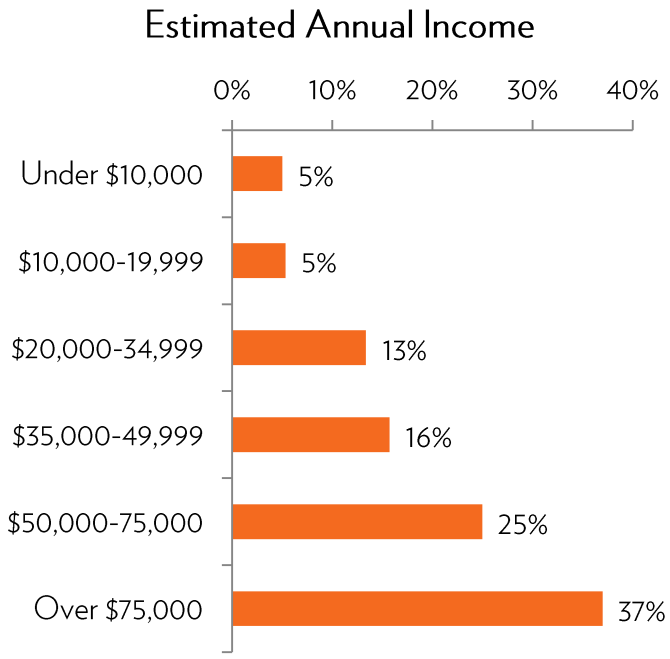


Figure 7

Well over a third of survey respondents have an estimated annual household income of more than $75,000. Only ten-percent (10%) earn less than $20,000 per year.

Findings

Watershed

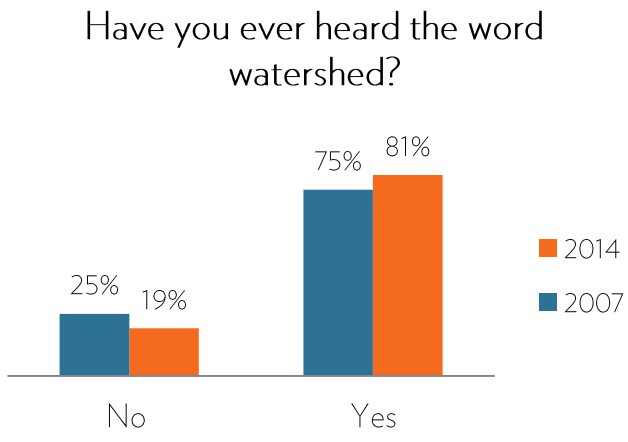


Figure 8

More than eighty-percent (80%) of survey respondents have heard of the term "watershed." This has risen since 2007 when seventy-five

percent (75%) of respondents were familiar with the word.

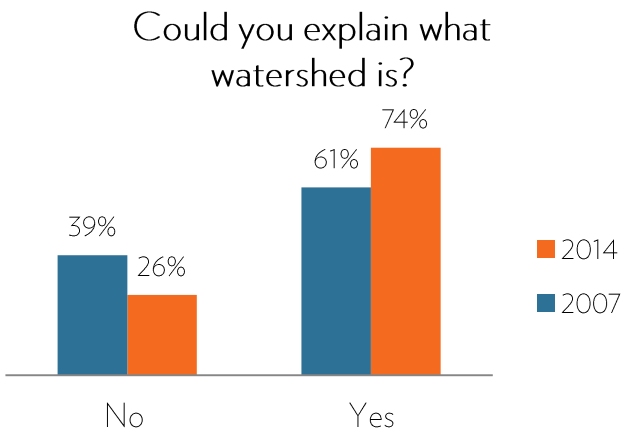


Figure 9

Respondents' confidence in explaining watershed has risen since 2007. Seventy-four percent (74%) of survey respondents feel they could explain what watershed is compared to only sixty-one percent (61%) in 2007. An analysis of respondents' definitions shows the majority (46%) of respondents define watershed correctly, with thirty-five percent (35%) defining it partially correctly and seventeen percent (17%) giving an incorrect definition.

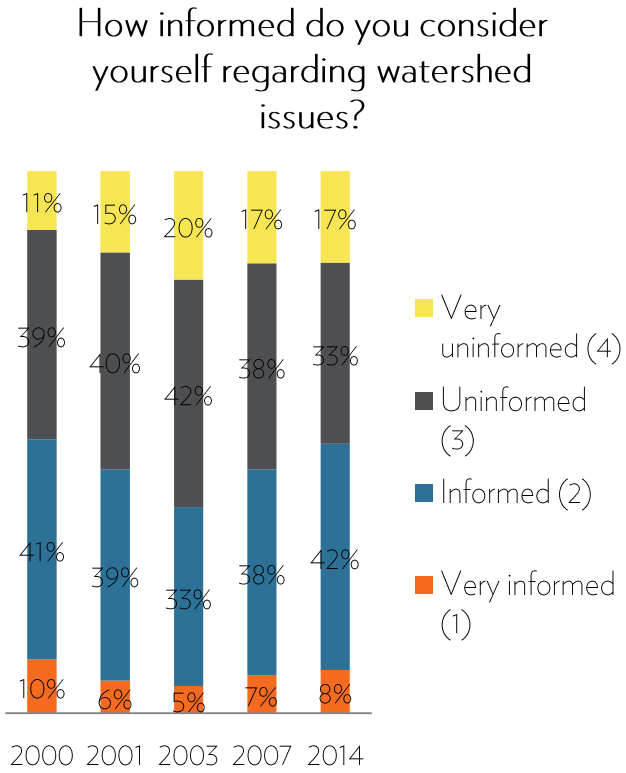


Figure 10

Respondents feel more informed about watershed issues now than in past editions of the survey. Respondents considering themselves "informed" or "very informed" have been on the rise since 2003 with 38%, 45%, and 50% with each survey edition identifying as such. The average responses corroborate this. The means for each year are in the table below. The decreasing mean suggests respondents currently feel more informed about watershed than in the past, with the exception of 2000.

Year	Mean
2000	2.52
2001	2.64
2003	2.77
2007	2.65
2014	2.60

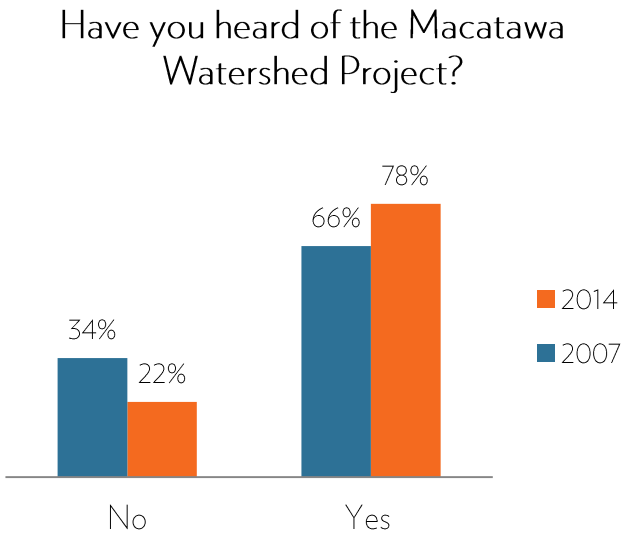


Figure 11

Respondents' familiarity with the Macatawa Watershed Project has increased dramatically since 2007. Nearly eighty-percent (78%) of survey respondents had heard of the Project, an increase of 12% points since 2007.

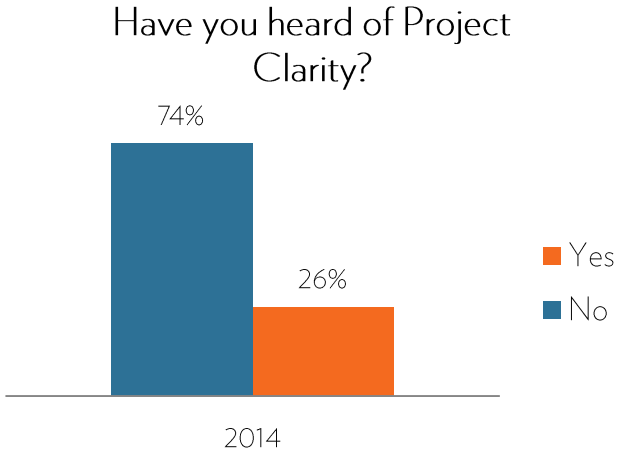


Figure 12

Much fewer respondents were aware of Project Clarity. A mere twenty-six percent (26%) of respondents recognized this name.

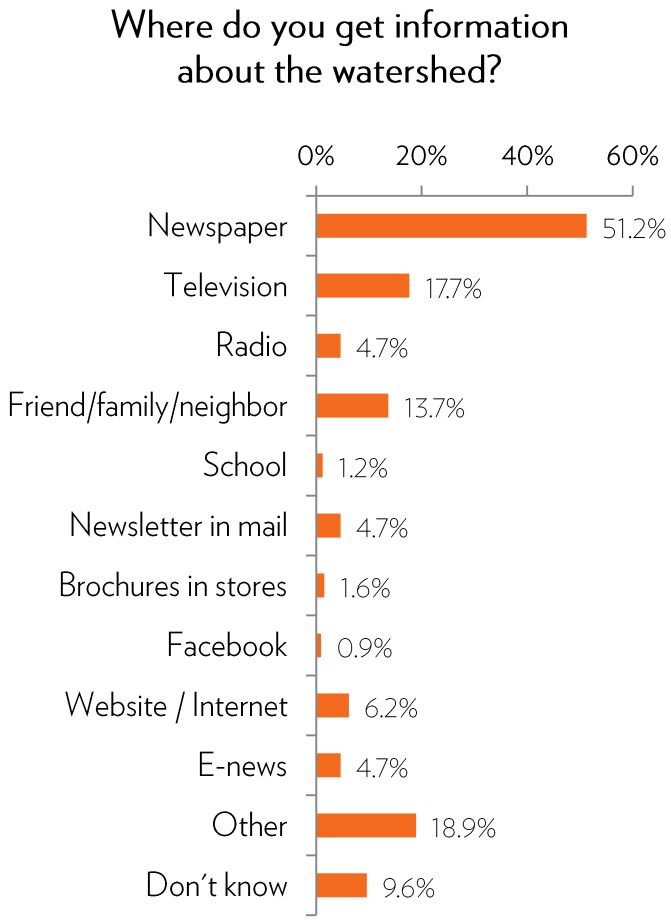


Figure 13

The newspaper is cited most often as respondents' source of information about watershed issues. Other sources of information respondents listed include workplace, community centers or agencies (MACC, Outdoor Discovery Center) and public education events in the area. Web-based sources about watershed were not highly utilized. However, we must keep sample demographics in mind as more than a third of respondents were aged 65 and older.

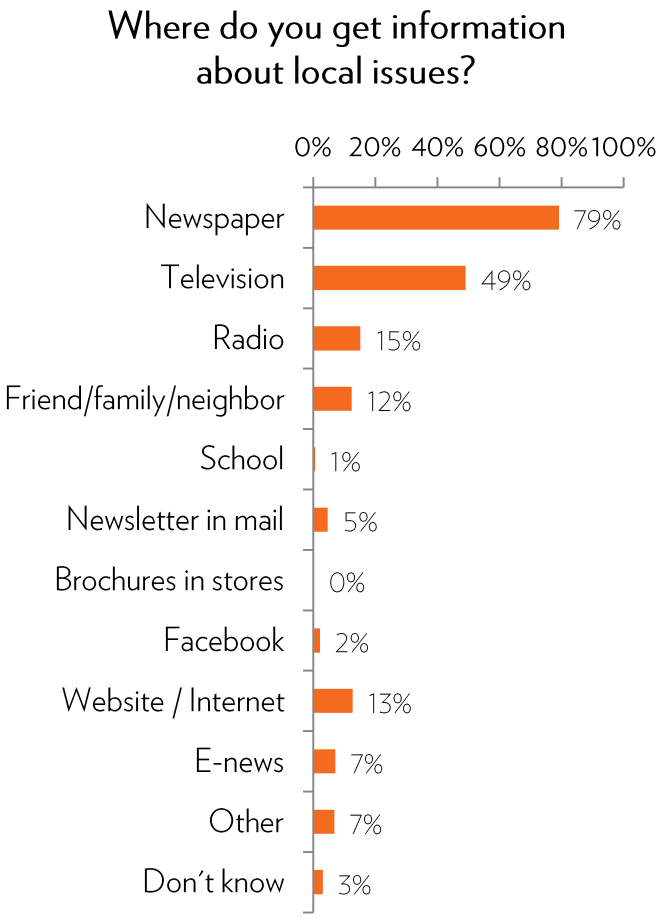


Figure 14

Respondents report receiving most of their information regarding local issues from the newspaper (79%) and television (49%). Fifteen-percent (15%) and thirteen-percent (13%) of respondents reported the radio and the internet as being a source of information about local issues.

Storm Water

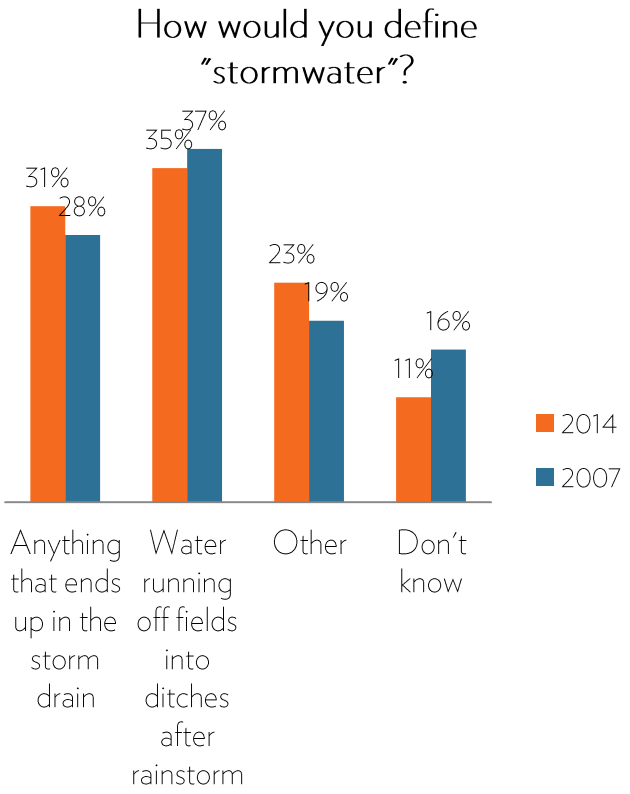


Figure 15

Most survey respondents defined "stormwater" as "water running off fields into ditches after a rainstorm." The percentage of respondents that answered this way fell two percentage points (2%) from 2007. Thirty-one percent (31%) of respondents answered "anything that ends up in the storm drain," an increase from twenty-eight percent (28%) in 2007. Frequent other definitions include "water from a storm," "rain water" and "drainage water."

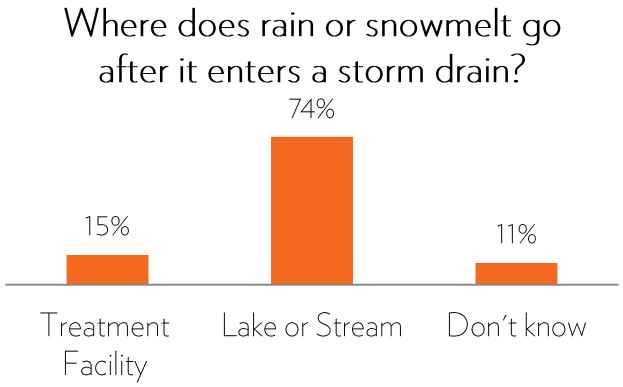


Figure 16

Most participants (74%) know that rain and snowmelt run to a lake or stream after it enters a storm drain. A smaller proportion of respondents (15%) answered that it travels to a treatment facility after entering a storm drain.

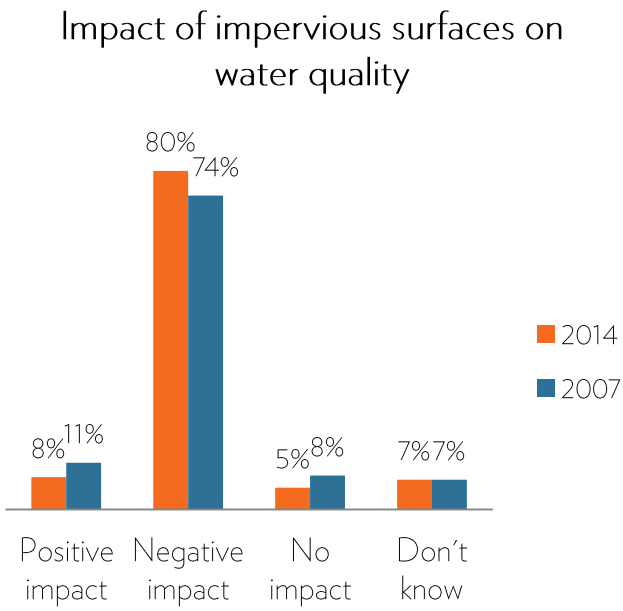


Figure 17

Respondents were given an explanation of impervious surfaces and asked their effects. Most (74%) answered that impervious surfaces had a negative impact on water quality. Only eight percent (8%) thought these surfaces had a positive effect on water quality. Overall, survey respondents were more educated about these surfaces' impacts on water quality than in 2007.

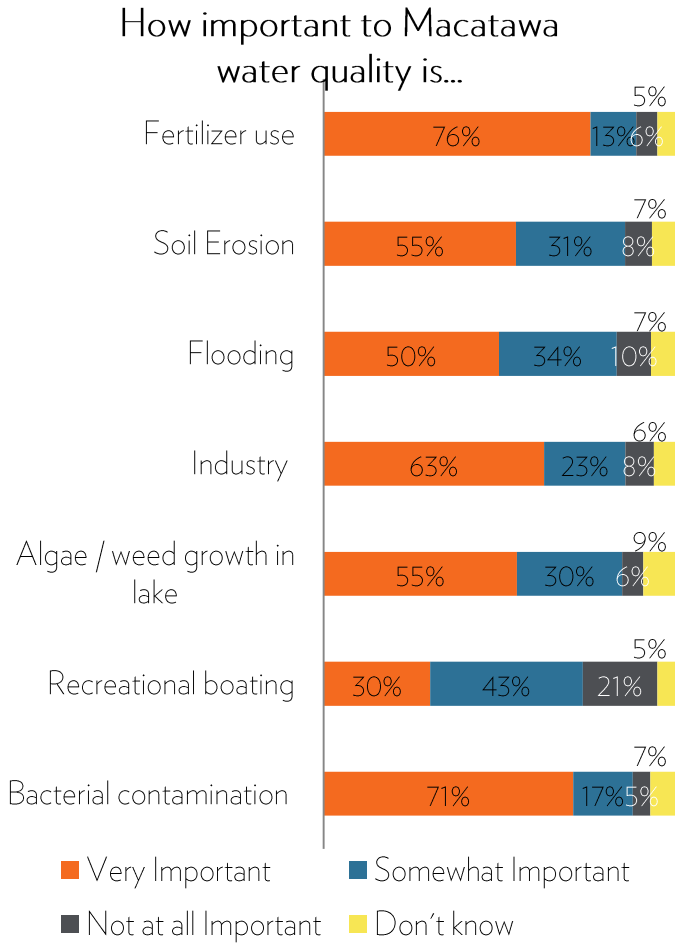


Figure 18

Respondents most often cited fertilizer use (89%) and bacterial contamination (88%) as being "very important" and "somewhat important" in their impact on water quality of Lake Macatawa and its tributary river. A much smaller percentage (73%) felt that recreational boating is important to water quality.

Lawn Care

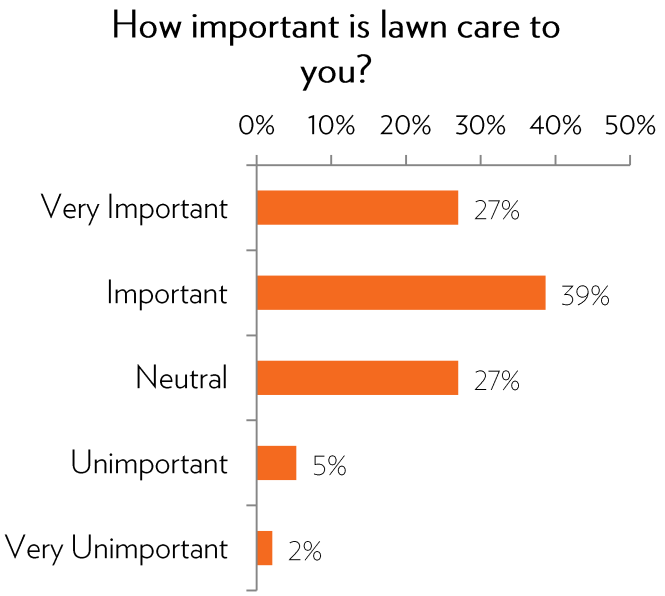


Figure 19

Survey respondents find their lawns and lawn care important. Two-thirds of respondents rated lawn care as "very important" or "important."

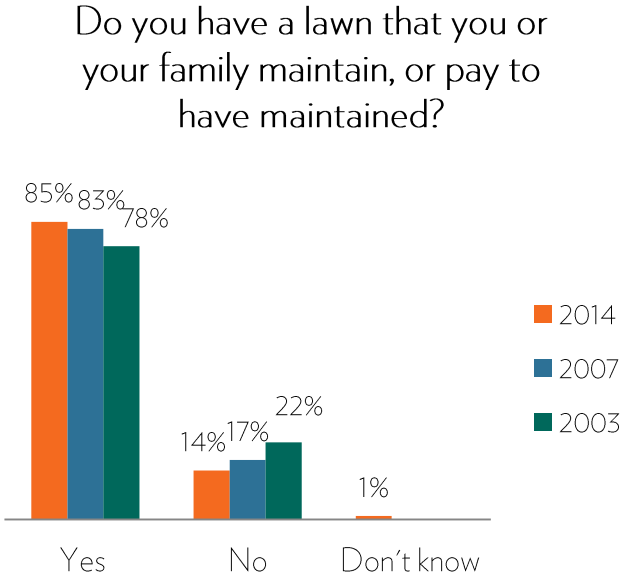


Figure 20

A greater proportion of respondents currently have lawns that they maintain or pay to have maintained compared to 2007 and 2003. Only fourteen-percent (14%) of respondents do not have a lawn they are responsible for maintaining.

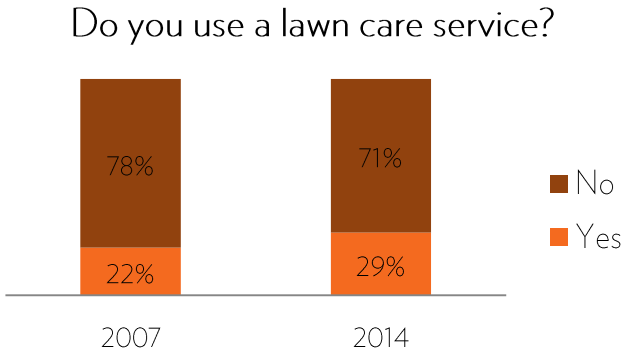


Figure 21

Lawn care service use has grown by seven-percent (7%) among respondents that are responsible for their own lawn care since 2007. The majority, however, continue not to use a service.

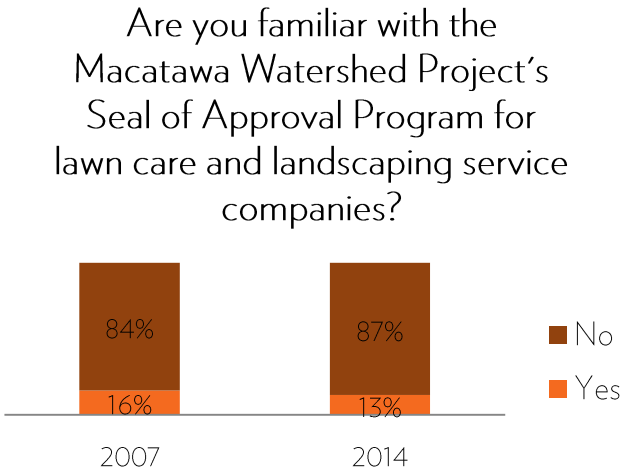


Figure 22

Of those that use a lawn care service, eighty-seven percent (87%) were not aware of the Macatawa Watershed Project's Seal of Approval Program for lawn and landscaping companies.

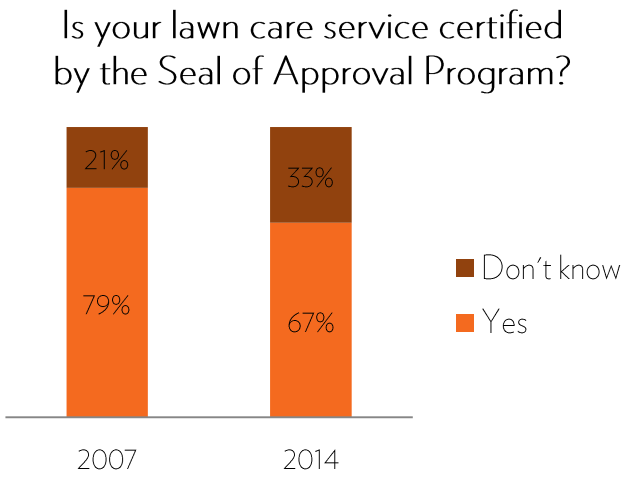


Figure 23

Of the respondents who do use a lawn care company and are aware of the Macatawa Watershed Project's Seal of Approval Program for lawn care and landscaping service companies, sixty-seven percent (67%) verified that their lawn care service has received this seal of approval. This percentage has decreased from seventy-nine percent (79%) in 2007.

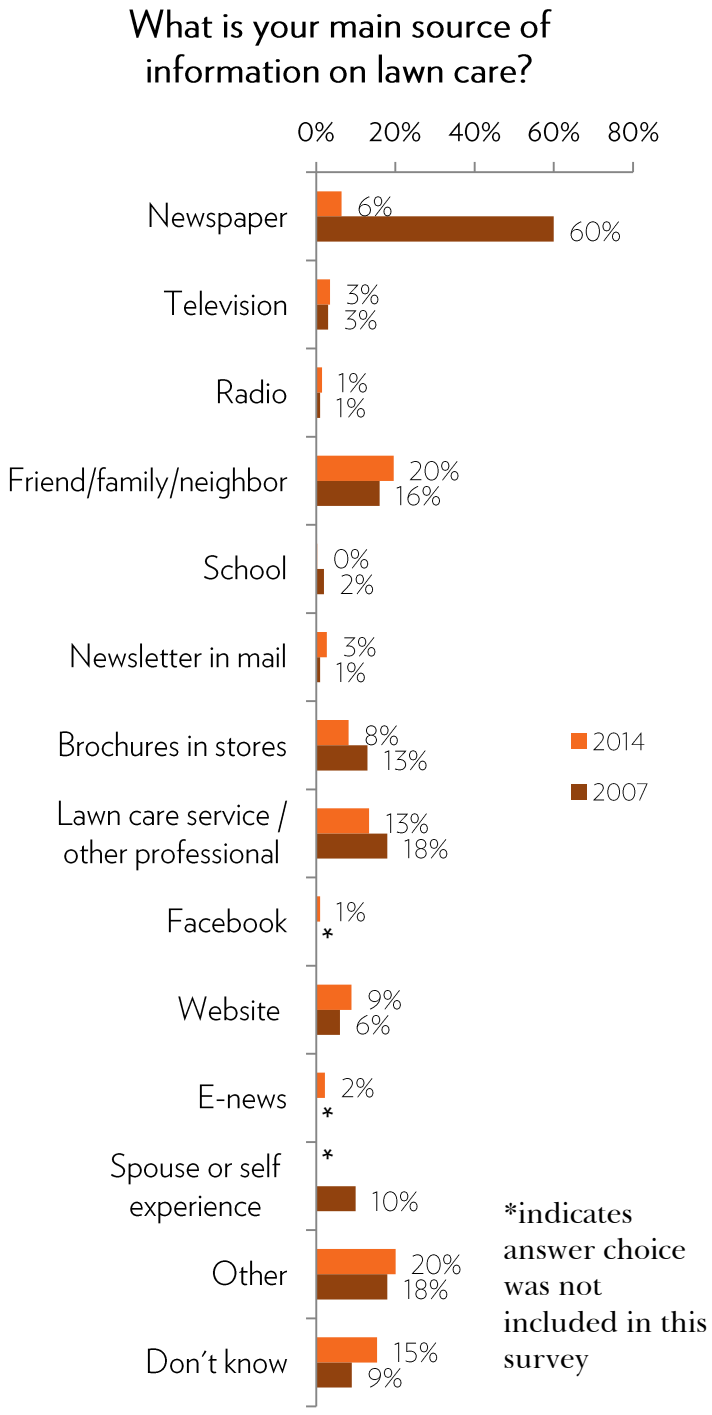


Figure 24

Respondents identified their main sources of lawn care information at similar rates from 2007 to 2014. The most dramatic difference was newspaper. In 2007, sixty percent (60%) of respondents identified the newspaper as a main

source of lawn care information and only six-percent (6%) did so in 2014.

Water Quality

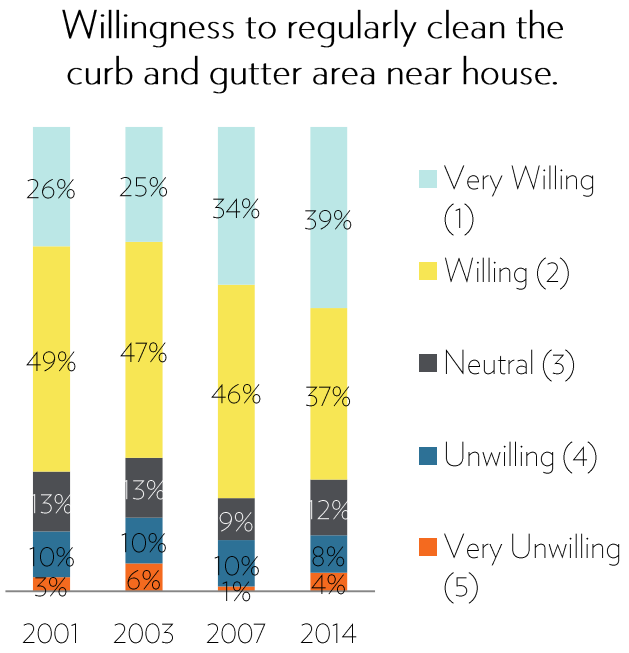


Figure 25

Respondents' willingness to clean the curb and gutter area near their home remained fairly constant. In 2001, 2003, 2007, and 2014, the percentage of respondents "very willing" or "willing" to reduce lawn fertilization frequency was seventy-five percent (75%), seventy-two percent (72%), eighty-percent (80%), and seventy-six (76%), respectively. The means for each year are in the table below. Means closer to one (1) signify respondents being more willing to make this change. Means closer to five (5) suggests respondents are less willing to do so.

Year	Mean
2001	2.15
2003	3.72
2007	3.70
2014	2.01

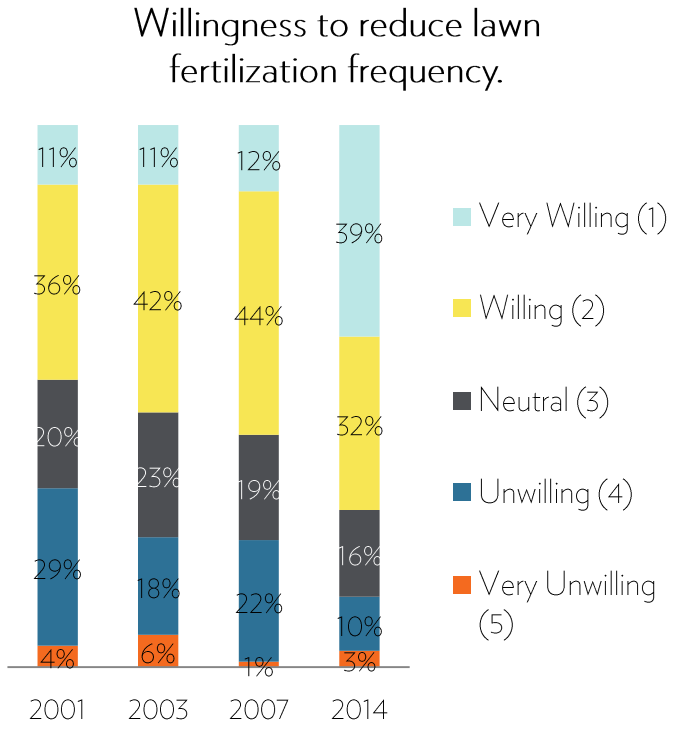


Figure 26

Respondents' willingness to reduce lawn fertilization frequency increased steadily from 2001. Seventy-one percent (71%) state they are "very willing" or "willing" to reduce fertilizer use. The mean also shows respondents' increased willingness to decrease fertilizer use.

Year	Mean
2001	2.79
2003	2.63
2007	2.60
2014	2.07

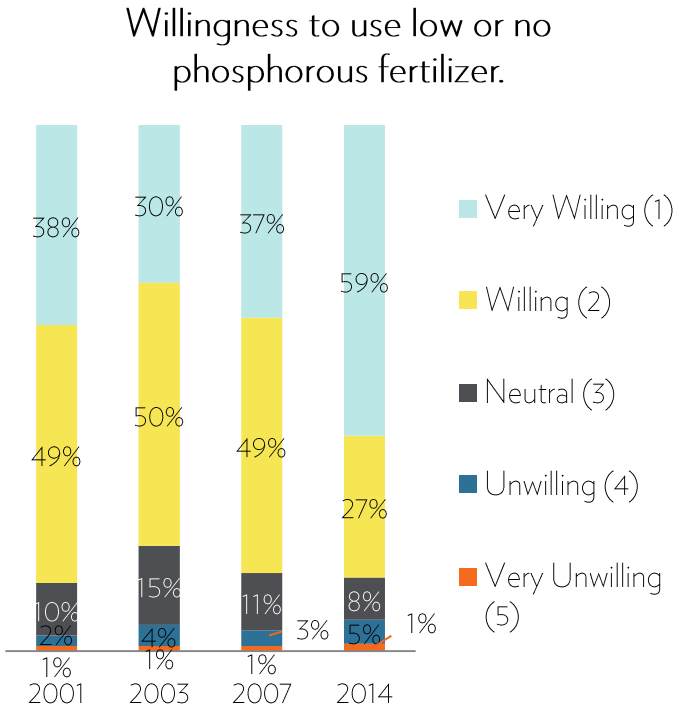


Figure 27

Respondents indicating they are "very willing" to use low or no phosphorous has increased steadily. The mean of 1.63 indicates that respondents are more willing to make these changes than in past years.

Year	Mean
2001	1.79
2003	1.96
2007	1.84
2014	1.63

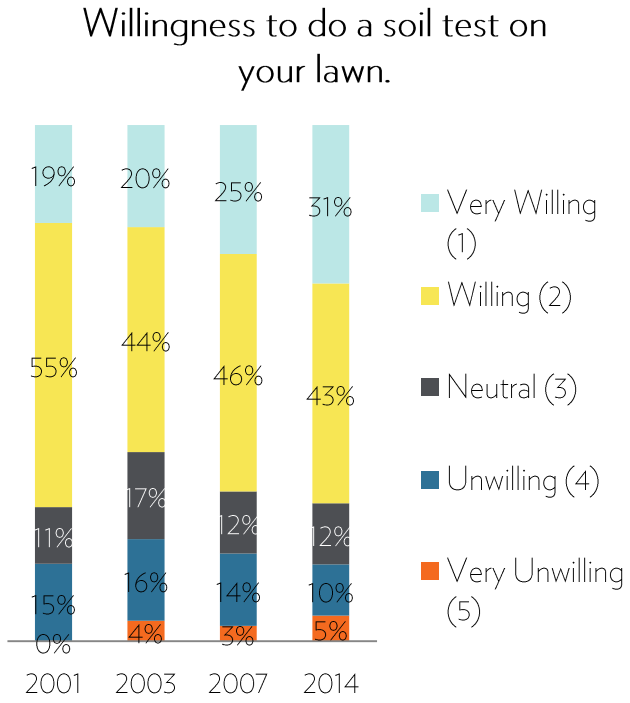


Figure 28

More respondents (31%) are "very willing" to do a soil test on their lawn than in previous years. The means table shows that participants' willingness to make these changes has increased steadily since 2001. However, respondents are least willing to make this change compared to other changes described previously.

Year	Mean
2001	2.24
2003	2.4
2007	2.24
2014	2.14

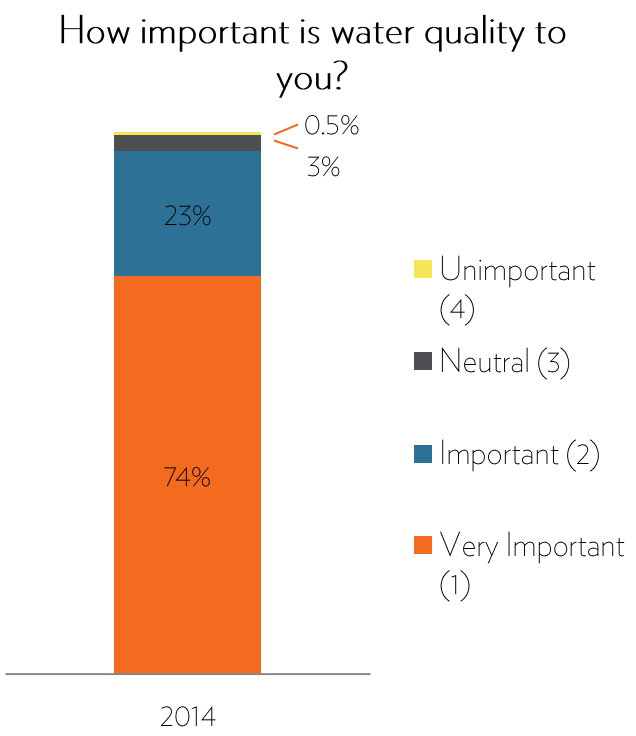


Figure 29

Nearly all respondents rated water quality as "very important" or "important." This question has a mean of 1.30.

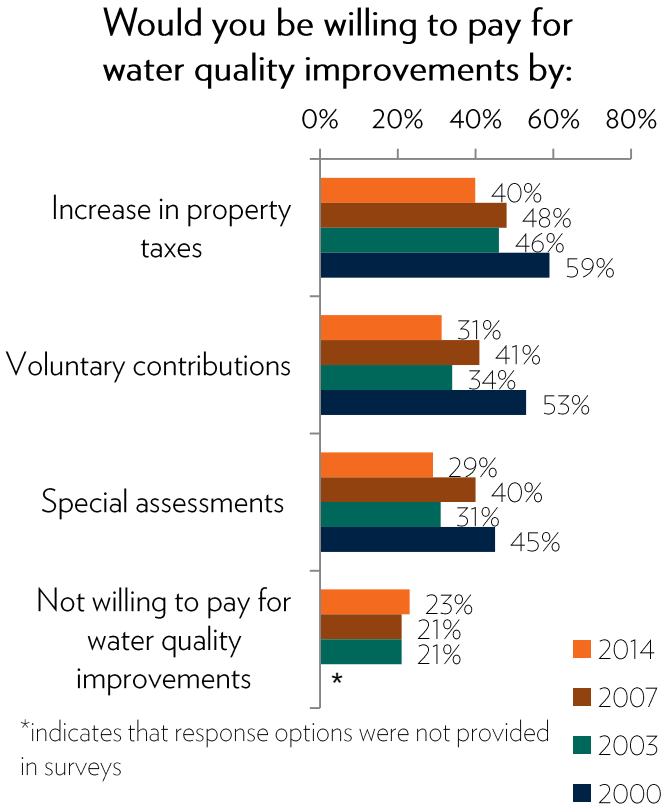


Figure 30

Survey respondents are less willing to pay for any water quality improvements than in past years. Paying for these improvements through an increase in property taxes continues to be the option selected most frequently.

The Macatawa Watershed Project has identified several activities that, if implemented in residential areas, would help improve water quality in the Macatawa Watershed. These include green infrastrucure practices like planting native vegetation, and using natural landscaping techniques such as rain gardens, eliminating hard surfaces to allow water to infiltrate into the ground and other related types of activities.

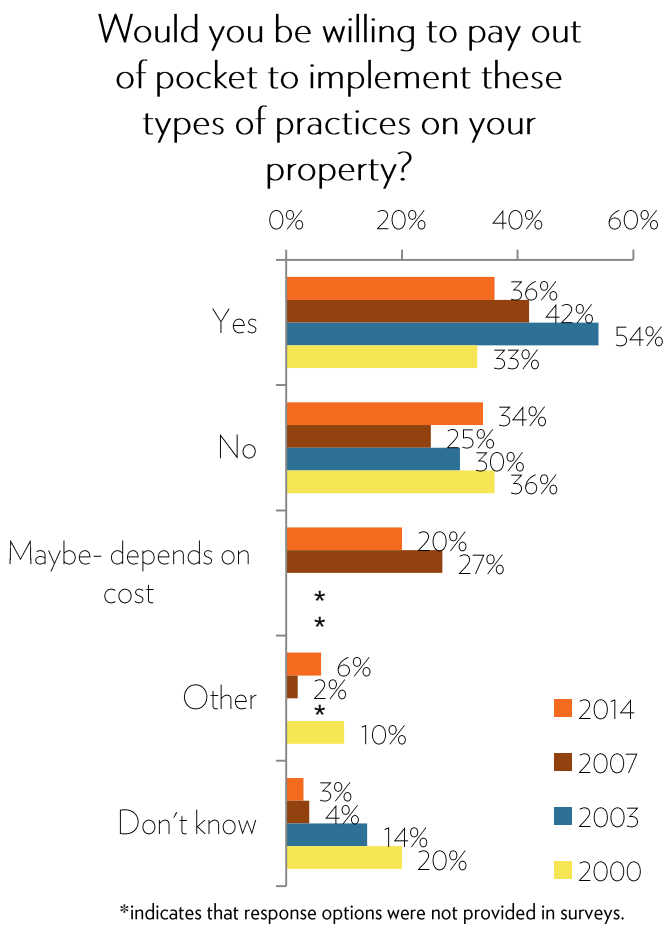


Figure 31

Respondents are less willing to pay out of pocket to implement practices to improve water quality than in past years. Data suggests that cost is a big factor in many respondents' decisions.

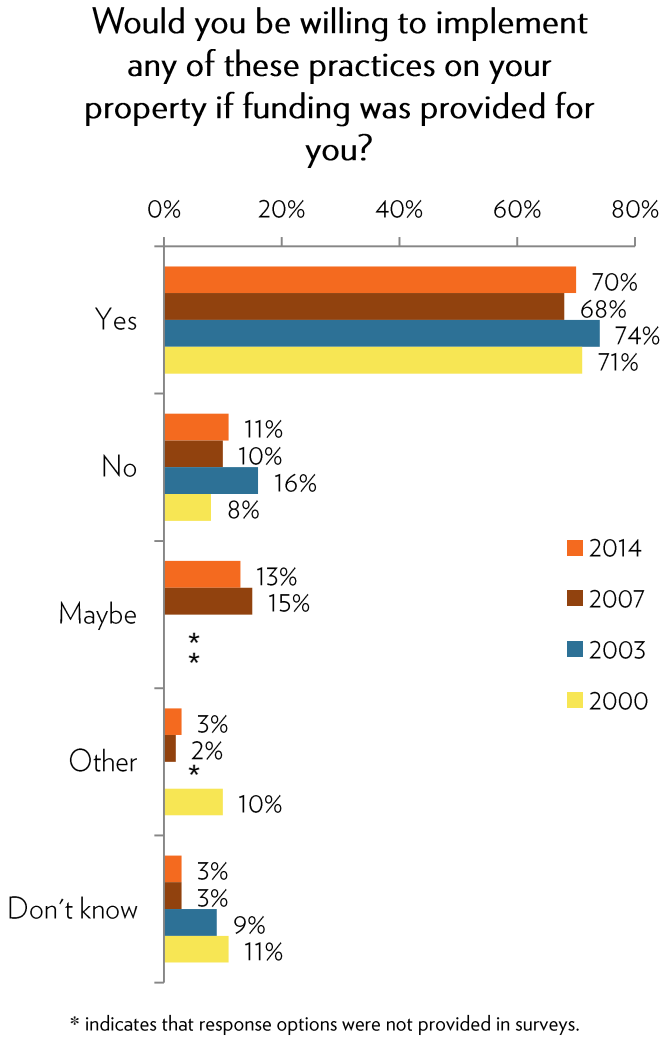


Figure 32

Respondents' willingness to implement practices to improve water quality increases significantly when funding is provided. Seventy-percent (70%) of respondents indicated they would be willing to make these changes if it did not require their own monetary contribution.

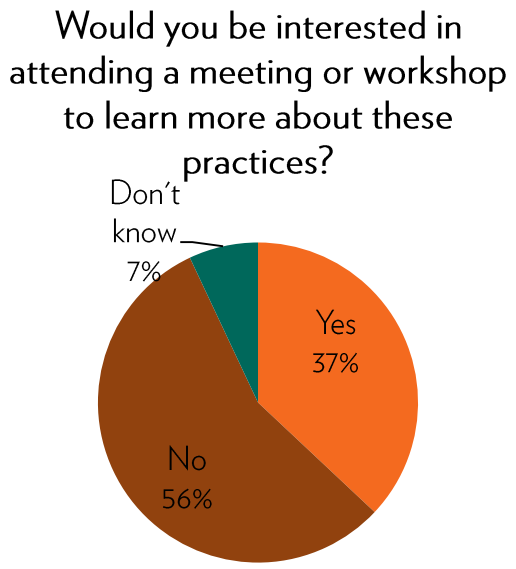


Figure 33

Most respondents would not be willing to attend a meeting or workshop to learn more about these practices. However, more than a third indicated they would be interested.

Final Thoughts

Respondents' final comments were coded to determine the most common themes and topics. Most frequently, these comments expressed a need to clean up Lake Macatawa and concern about the lake's water quality or water quality in general. Many of the respondents were willing to help by donating time or money. Respondents also frequently offered praise for MACC and the Lake Macatawa clean-up efforts. Comments also frequently focused on a need for more public education and marketing of specific projects regarding these issues.

Conclusion

Public knowledge about watershed, storm water, and lawn care is important to local water quality. The Macatawa Watershed Project aims to increase resident knowledge and improve water quality through education and outreach efforts specifically targeted to reduce phosphorus entering Lake Macatawa.

A telephone survey of residents living in the Macatawa Watershed reveals that respondents are more educated and aware of watershed, water quality, and stormwater than in past years. However, many residents are not knowledgeable about specific programs and projects such as Project Clarity or the lawn service Seal of Approval.

Respondents most often find their information on these topics in the newspaper, websites or other online resources, and informal sources such as conversations with friends or family.

Residents' willingness to make simple lifestyle changes to improve water quality such as using low or no phosphorus fertilizer or cleaning curb or gutter areas has increased over the years with the majority of respondents answering they are "very willing" or "willing" to make such changes.

Although respondents' knowledge about and willingness to make simple changes to improve water quality has increased, their inclination towards paying out of pocket, increasing property taxes, or voluntary monetary contributions for funding projects or activities to improve water quality has decreased.

An analysis of survey respondent comments reveals citizens' concerns over water quality and the inclination to clean up Lake Macatawa. Most respondents have praise for MACC and the recent improvements in water quality, with some expressing a desire to become involved. Survey comments often focused on the need for more public education and campaigns about these important issues.

Appendix A – Survey Instrument

Stormwater 2014 - Macatawa Area Coordinating Council

Q:v1
Hello, this is _____ from the Frost Research Center at Hope College. We are conducting a survey on behalf of the Macatawa Area Coordinating Council, which is interested in studying issues related to water quality in the Macatawa Watershed. The survey takes about five or six minutes to complete. Your phone number has been randomly selected. All of your answers will be confidential and anonymous. Would you be willing to take a few minutes and give us your opinion about these issues?

Are you at least 18 years old?

(If no, ask if there is someone present 18 or older who can take the survey. If not, for landline list only, ask if there is another time to call back when an older person would be available.)

1=yes

Q:v2
In order to verify you live in the Macatawa watershed, what is the name of the city or township in which you live?

1=Blendon Township
2=Fillmore Township
3=Holland City
4=Holland Township
5=Laketown Township
6=Olive Township
7=Overisel Township
8=Park Township (includes Macatawa)
9=Port Sheldon Township
10=Zeeland City
11=Zeeland Township
12=not on list/don't know/refused

if (v2 = 12) skp v46

Q:v3
Have you ever heard the term watershed?

1=yes
2=no
8=don't know
9=refused

if (v3 > 1) skp v14

Q:v4
Could you explain what a watershed is?

1=yes
2=no
8=don't know
9=refused

if (v4 > 1) skp v9

Q:v8
(Caller, enter respondent's answer / explanation of watershed)

Q:v9
How informed do you consider yourself regarding watershed issues? Would you say you are very informed, informed, uninformed, or very uninformed?

1=very informed
2=informed
3=uninformed
4=very uninformed
8=don't know
9=refused

Q:v10
Have you heard of the Macatawa Watershed Project?

1=yes
2=no
8=don't know
9=refused

Q:v11
Have you heard of Project Clarity?
1=yes
2=no
8=Don't know
9=Refused

Q:v12
Where do you get information about the watershed?
(Caller: Do not read answers unless asked - use these to classify the responses and mark all that apply.)

1=Newspaper
2=Television

3=Radio
4=Friend/family/neighbor
5=School
6=Newsletter in mail
7=Brochures in stores
8=Facebook
9=Website
10=Enews
11=Other
12=Don’t know
99=Refused

Q:v13
Where do you get information about local issues? (Caller: do not read answers unless asked-use these to classify responses and mark all that apply.)

1=Newspaper
2=Television
3=Radio
4=Friend/family/neighbor
5=School
6=Newsletter in mail
7=Brochures in stores
8=Facebook
9=Website
10=Enews
11=Other
12=Don’t know
99=Refused

Q:v14
How would you define "stormwater"?
(Caller - do NOT read responses - use other as needed.)

1=anything that ends up in the storm drain
2=water running off fields into ditches after rainstorm
3=other
8=don't know
9=refused

Q:v15
Where does rain or snowmelt go after it enters a storm drain?
1= to a treatment facility
2=to a lake or stream
8=don’t know
9=refused

Q:v16
Impervious surfaces are driveways, parking lots, roads, roofs -- any hard surface that water cannot penetrate, which then causes water to runoff into the drains. Do you think that they have a positive or negative impact on water quality?

1=positive impact
2=negative impact
3=no impact
8=don't know
9=refused

Please rate the importance of the following issues as they impact the water quality of the Macatawa River and its tributary river using one of three responses: very important, somewhat important, or not at all important.

Q:v17
Fertilizer use

1=very important
2=somewhat important
3=not at all important
8=don't know
9=refused

Q:v18
Soil erosion

1=very important
2=somewhat important
3=not at all important
8=don't know
9=refused

Q:v19
Flooding

1=very important
2=somewhat important
3=not at all important
8=don't know
9=refused

Q:v20
Industry

1=very important
2=somewhat important
3=not at all important
8=don't know
9=refused

Q:v21
Algae or weed growth in the lake

1=very important
2=somewhat important
3=not at all important
8=don't know
9=refused

Q:v22
Recreational boating

1=very important
2=somewhat important
3=not at all important
8=don't know
9=refused

Q:v23
Bacterial contamination

1=very important
2=somewhat important
3=not at all important
8=don't know
9=refused

Q:v24
Do you have a lawn that you or your family maintain?

1=yes
2=no
8=don't know
9=refused

if (v24 > 1) skp v34

Q:v25

How important is lawn care to you: very unimportant, unimportant, neutral, important, or very important?

1=very unimportant
2=unimportant
3=neutral
4=important
5=very important
8=don't know
9=refused

Q:v26
Do you use a lawn care service?

1=yes
2=no
8=don't know
9=refused

if (v26 > 1) skp v29

Q:v27
Are you familiar with the Macatawa Watershed Project's Seal of Approval Program for lawn care and landscaping service companies?

1=yes
2=no
8=don't know
9=refused

if (v27 > 1) skp v29

Q:v28
Is your lawn care service certified by the Seal of Approval Program?

1=yes
2=no
8=don't know
9=refused

Q:v29
What is your main source of information on lawn care?
(Caller: do not read answers - use to code response)

1=Newspaper

2=Television
3=Radio
4=Friend/family/neighbor
5=School
6=Newsletter in mail
7=Brochures in stores
8=lawn care service / other professional
9=Facebook
10=Website
11=Enews
12=Other
13=Don't know
99=Refused

Please indicate how willing you would be to do the following, by choosing one of the five choices--very willing, willing, neutral, unwilling or very unwilling.

Q:v30
Regularly clean the curb and gutter area near your house.

1=very willing
2=willing
3=neutral
4=unwilling
5=very unwilling
6=not applicable
8=don't know
9=refused

Q:v31
Reduce your lawn fertilization frequency.

1=very willing
2=willing
3=neutral
4=unwilling
5=very unwilling
8=don't know
9=refused

Q:v32
Use low or no phosphorus fertilizer.

1=very willing
2=willing
3=neutral

4=unwilling
5=very unwilling
8=don't know
9=refused

Q:v33
Do a soil test on your lawn

1=very willing
2=willing
3=neutral
4=unwilling
5=very unwilling
8=don't know
9=refused

Q:v34
How important is water quality to you: very unimportant, unimportant, neutral, important, or very important?

1=very important
2=important
3=neutral
4=unimportant
5=very unimportant
8=don't know
9=refused

Q:v35
Would you be willing to pay for water quality improvements by:
(Caller, read each one [first four lines] and mark all that apply)

Increase in property taxes
Voluntary contributions
Special assessments (for example, drain assessments)
Not willing to pay for water quality improvements
Don't know/Refused
Move to next question

Q:v36
The Macatawa Watershed Project has identified several activities that, if implemented in residential areas, would help improve water quality in the Macatawa Watershed. These include green infrastructure practices like planting native vegetation and using natural landscaping techniques such as rain gardens, eliminating hard surfaces to allow water to infiltrate into the ground, and other related types of activities.

Would you be willing to pay out of pocket to implement these types of practices on your property?

1=yes
2=no
3=maybe/depends on cost (don't read)
4=other
8=don't know
9=refused

Q:v37
Would you be willing to implement any of these types of practices on your property if funding was provided for you?

1=yes
2=no
3=maybe/depends (don't read)
4=other
8=don't know
9=refused

No meetings are currently being planned at this time. The Macatawa Area Coordinating Council, or MACC, is seeking to gauge community interest in the topic.

You can visit their website - www.the-macc.org - or facebook page - facebook.com/macatawawatershed - to check on upcoming meetings and to sign up for their electronic newsletter to get direct information about programs.

Q:v38
Would you be interested in attending a meeting or workshop to learn more about these practices?
1=yes
2=no
8=don't know
9=refused

Q:v39
Would you like us to record your name and contact info and give this to the MACC -- entirely separate from your survey answers -- so they can contact you if any workshops are scheduled?

Q:v40

The final set of questions is for statistical purposes only. All your answers are anonymous and confidential.

In what type of area is your residence located: urban, suburban, or rural/agricultural?

1=urban
2=suburban
3=rural/agricultural
8=don't know
9=refused

Q:v40
How many years have you lived in your current residence? [ ]

(Use 1 for 1 year or less, 888=don't know, 999=refused)

Q:v41
In what range is your age?

1=18-24
2=25-34
3=35-44
4=45-54
5=55-64
6=65 and over
8=don't know
9=refused

Q:v42
Keeping in mind that your answers are completely confidential and will only be reported in the aggregate, would you mind sharing your estimated annual household income? Is it:

1=under $10,000
2=$10,000-$19,999
3=$20,000-$34,999
4=$35,000-$49,999
5=$50,000-$75,000
6=over $75,000
8=don't know
9=refused

Q:v43
What level of education have you completed?

1=less than high school diploma
2=high school diploma or GED

3=some college or technical school
4=bachelor's degree
5=some graduate or professional school
6=graduate or professional degree
8=don't know
9=refused

Q:v44
(Caller, please code gender. DO NOT ask unless you really don't know.)

1=female
2=male

Q:v45
Is there anything else you'd like to tell us regarding stormwater management or the Macatawa watershed?

(If Q:v2>1 skp Qv:46)
Q:v46
Thank you for your time. Tonight we are only sampling residents who live in the Macatawa watershed.

Q:v47
That's all our questions. Thank you so much for your time tonight!

Q:v48
CALLER: Please choose the area code for this survey.

1=616
2=269

Q:v49
Please CAREFULLY enter the 7-digit phone number for this survey.

Appendix B – Frequency Tables

Stormwater 2014 - Macatawa Area Coordinating Council

Percentages in some tables may not match those found in the report's graphs. In order to compare graphs to years past, "don't know" answers were coded as missing values and in many cases not included in graphs. The frequency tables below include "don't know" answer categories as this can be an important indicator of respondent knowledge and attitudes.

In order to verify you live in the Macatawa watershed, what is the name of the city or township in which you live?

Township	Frequency	Percent
Blendon Township	6	1.5%
Fillmore Township	7	1.7
Holland City	123	30.5
Holland Township	88	21.8
Laketown Township	24	6.0
Olive Township	15	3.7
Overisel Township	2	0.5
Park Township (includes Macatawa)	63	15.6
Port Sheldon Township	21	5.2
Zeeland City	20	5.0
Zeeland Township	34	8.4
Total	403	100

if (v2 = 12) skp v46

Q:v3
Have you ever heard the term watershed?

Response	Frequency	Percent
Yes	322	79.9%
No	75	18.6
Don't Know	6	1.5
Total	403	100

if (v3 > 1) skp v14
Q:v4
Could you explain what a watershed is?

Response	Frequency	Percent

Yes	230	71.4%
No	83	25.8
Don't Know	9	2.8
Total	322	100

if (v4 > 1) skp v9

Q:v8
(Caller, enter respondent's answer / explanation of watershed)

Q:v9
How informed do you consider yourself regarding watershed issues? Would you say you are very informed, informed, uninformed, or very uninformed?

Response	**Frequency**	**Percent**
Very Informed	25	7.8%
Informed	134	41.7
Uninformed	108	33.6
Very Uninformed	54	16.8
Total	321	100

Q:v10
Have you heard of the Macatawa Watershed Project?

Response	**Frequency**	**Percent**
Yes	245	76.3%
No	68	21.2
Don't Know	8	2.5
Total	321	100

Q:v11
Have you heard of Project Clarity?

Response	**Frequency**	**Percent**
Yes	81	25.2%
No	231	72
Don't Know	9	2.8
Total	321	100

Q:v12
Where do you get information about the watershed?
(Caller: Do not read answers unless asked - use these to classify the responses
and mark all that apply.

Responses	**Frequency**	**Percent**
Newspaper	165	51.2%
Television	57	17.7

Radio	15	4.7
Friend/Family/Neighbor	44	13.7
School	4	1.2
Newsletter in mail	15	4.7
Brochures in stores	5	1.6
Facebook	3	0.9
Website/Internet	20	6.2
E-news	15	4.7
Other	61	18.9
Don't Know	31	9.6

Q:v13
Where do you get information about local issues? (Caller: do not read answers unless asked-use these to classify responses and mark all that apply.)

Responses	**Frequency**	**Percent**
Newspaper	255	79%
Television	158	49
Radio	49	15
Friend/family/neighbor	40	12
School	2	1
Newsletter in mail	15	5
Brochures in stores	0	0
Facebook	7	2
Website/ Internet	41	13
E-news	23	7
Other	22	7
Don't Know	10	3

Q:v14
How would you define "stormwater"?
(Caller - do NOT read responses - use other as needed.)

Responses	**Frequency**	**Percent**
Anything that ends up in the storm draining	124	30.8%
Water running off fields into ditches after rainstorm	139	34.6
Other	94	23.4
Don't Know	45	11.2
Total	402	100

Q:v15

Where does rain or snowmelt go after it enters a storm drain?

Responses	Frequency	Percent
To a treatment facility	60	15%
To a lake or stream	296	73.8
Don't Know	45	11.2
Total	401	100

Q:v16
Impervious surfaces are driveways, parking lots, roads, roofs -- any hard surface that water cannot penetrate, which then causes water to runoff into the drains. Do you think that they have a positive or negative impact on water quality?

Please rate the importance of the following issues as they impact the water quality of the Macatawa River and its tributary river using one of three responses: very important, somewhat important, or not at all important.

Responses	Frequency	Percent
Positive Impact	30	7.5%
Negative Impact	322	80.3
No Impact	20	5
Don't Know	29	7.2
Total	401	100

Q:v17
Fertilizer use

Responses	Frequency	Percent
Very Important	305	76.4%
Somewhat Important	52	13
Not At All Important	22	5.5
Don't Know	20	5
Total	399	100

Q:v18
Soil erosion

Responses	Frequency	Percent
Very Important	221	55.1%
Somewhat Important	123	30.7
Not At All Important	31	7.7
Don't Know	26	6.5
Total	401	100

Q:v19
Flooding

Responses	Frequency	Percent
Very Important	200	49.9%
Somewhat Important	135	33.7

Not At All Important	39	9.7
Don't Know	27	6.7
Total	401	100

Q:v20
Industry

Responses	**Frequency**	**Percent**
Very Important	251	62.7%
Somewhat Important	92	23
Not At All Important	33	8.3
Don't Know	24	6
Total	400	100

Q:v21
Algae or weed growth in the lake

Responses	**Frequency**	**Percent**
Very Important	219	54.6%
Somewhat Important	120	29.9
Not At All Important	25	6.2
Don't Know	37	9.2
Total	401	100

Q:v22
Recreational boating

Responses	**Frequency**	**Percent**
Very Important	122	30.3%
Somewhat Important	174	43.3
Not At All Important	86	21.4
Don't Know	20	5
Total	402	100

Q:v23
Bacterial contamination

Responses	**Frequency**	**Percent**
Very Important	286	71.3%
Somewhat Important	67	16.7
Not At All Important	20	5
Don't Know	28	7
Total	401	100

Q:v24
Do you have a lawn that you or your family maintain?

Responses	**Frequency**	**Percent**
Yes	341	84.8%

No	58	14.4
Don't Know	3	.7
Total	402	100

if (v24 > 1) skp v34

Q:v25
How important is lawn care to you: very unimportant, unimportant, neutral, important, or very important?

Responses	**Frequency**	**Percent**
Very Important	92	27%
Important	132	38.7
Neutral	92	27
Un important	18	5.3
Very Unimportant	7	2.1
Total	341	100

Q:v26
Do you use a lawn care service?

Responses	**Frequency**	**Percent**
Yes	98	28.7%
No	243	71.3
Total	341	100

if (v26 > 1) skp v29

Q:v27
Are you familiar with the Macatawa Watershed Project's Seal of Approval Program for lawn care and landscaping service companies?

Responses	**Frequency**	**Percent**
Yes	12	12.2%
No	83	84.7
Don't Know	3	3.1
Total	98	100

if (v27 > 1) skp v29

Q:v28
Is your lawn care service certified by the Seal of Approval Program?

Responses	**Frequency**	**Percent**
Yes	8	66.7%
Don't Know	4	33.3
Total	12	100

Q:v29
What is your main source of information on lawn care?

(Caller: do not read answers - use to code response)

Responses	Frequency	Percent
Newspaper	26	6%
Television	14	3
Radio	6	1
Friend/family/neighbor	79	20
School	1	0
Newsletter in mail	11	3
Brochures in stores	33	8
Lawn care service/other professional	54	13
Facebook	4	1
Website	36	9
E-news	9	2
Other	81	20
Don't Know	62	15

Please indicate how willing you would be to do the following, by choosing one of the five choices--very willing, willing, neutral, unwilling or very unwilling.

Q:v30
Regularly clean the curb and gutter area near your house.

Responses	Frequency	Percent
Very Willing	94	36.6%
Willing	90	35
Neutral	29	11.3
Unwilling	20	7.8
Very Unwilling	9	3.5
Don't Know	15	5.8
Total	257	100

Q:v31
Reduce your lawn fertilization frequency.

Responses	Frequency	Percent
Very Willing	112	37.2%
Willing	94	31.2
Neutral	45	15
Unwilling	29	9.6
Very Unwilling	10	3.3
Don't Know	11	3.7
Total	301	100

Q:v32
Use low or no phosphorus fertilizer.

Responses	Frequency	Percent

Very Willing	162	53.6%
Willing	74	24.5
Neutral	23	7.6
Unwilling	13	4.3
Very Unwilling	4	1.3
Don't Know	26	8.6
Total	302	100

Q:v33
Do a soil test on your lawn

Responses	**Frequency**	**Percent**
Very Willing	99	30.5%
Willing	135	41.5
Neutral	38	11.7
Unwilling	31	9.5
Very Unwilling	15	4.6
Don't Know	7	2.2
Total	325	100

Q:v34
How important is water quality to you: very unimportant, unimportant, neutral, important, or very important?

Responses	**Frequency**	**Percent**
Very Important	296	73.6%
Important	91	22.6
Neutral	12	3
Unimportant	2	.5
Don't Know	1	.2
Total	402	100

Q:v35
Would you be willing to pay for water quality improvements by:
(Caller, read each one [first four lines] and mark all that apply)

Responses	**Frequency**	**Percent**
Increase in property taxes	161	40%
Voluntary contributions	126	31
Special assessments	117	29
Not willing to pay for water quality improvements	93	23

Q:v36
The Macatawa Watershed Project has identified several activities that, if implemented in residential areas, would help improve water quality in the Macatawa Watershed. These include green infrastructure practices

like planting native vegetation and using natural landscaping techniques such as raingardens, eliminating hard surfaces to allow water to infiltrate into the ground, and other related types of activities.

Would you be willing to pay out of pocket to implement these types of practices on your property?

Responses	Frequency	Percent
Yes	144	36.3%
No	135	34.0
Maybe/depends on cost	81	20.4
Other	25	6.3
Don't Know	12	3.0
Total	397	100

Q:v37
Would you be willing to implement any of these types of practices on your property if funding was provided for you?

Responses	Frequency	Percent
Yes	276	69.9%
No	42	10.6
Maybe/ Depends on cost	51	12.9
Other	13	3.3
Don't Know	13	3.3
Total	395	100

No meetings are currently being planned at this time. The Macatawa Area Coordinating Council, or MACC, is seeking to gauge community interest in the topic.

You can visit their website - www.the-macc.org - or facebook page - facebook.com/macatawawatershed - to check on upcoming meetings and to sign up for their electronic newsletter to get direct information about programs.

Q:v38
Would you be interested in attending a meeting or workshop to learn more about these practices?

Responses	Frequency	Percent
Yes	41	37.3%
No	61	55.5
Don't Know	8	7.3
Total	110	100

Q:v39
Would you like us to record your name and contact info and give this to the MACC -- entirely separate from your survey answers -- so they can contact you if any workshops are scheduled?

Q:v40
The final set of questions is for statistical purposes only. All your answers are anonymous and confidential.

In what type of area is your residence located: urban, suburban, or rural/agricultural?

Responses	Frequency	Percent
Urban	103	25.8%
Suburban	181	45.3
Rural/Agricultural	108	27.0
Don't Know	8	2.0
Total	400	100

Q:v40
How many years have you lived in your current residence?

(Use 1 for 1 year or less, 888=don't know, 999=refused)

Responses	Frequency	Percent
0-5	85	21.6%
6-10	75	19.0
11-15	59	15.0
16-20	55	14.0
21 or more	120	30.5
Total	394	100

Q:v41
In what range is your age?

Responses	Frequency	Percent
18-24	23	5.7%
25-34	27	6.7
35-44	47	11.7
45-54	72	18.0
55-64	85	21.2
65 and over	147	36.7
Total	401	100

Q:v42
Keeping in mind that your answers are completely confidential and will only be reported in the aggregate, would you mind sharing your estimated annual household income? Is it:

Responses	Frequency	Percent
Under 10,000	14	4.8%
10,000-19,999	15	5.1

20,000-34,999	38	13.0
35,000-49,999	46	15.7
50,000-75,000	72	24.6
Over 75,000	108	36.9
Total	293	100

Q:v43
What level of education have you completed?

Responses	**Frequency**	**Percent**
Less Than High School Diploma	11	2.8%
High School Diploma or GED	94	23.7
Some college or technical school	115	29.0
Bachelor's Degree	87	21.9
Some graduate or professional school	21	5.3
Graduate or professional school	69	17.4
Total	397	100

Q:v44
(Caller, please code gender. DO NOT ask unless you really don't know.)

Gender	**Frequency**	**Percent**
Male	206	48.8%
Female	197	51.2
Total	403	100.0

Q:v45
Is there anything else you'd like to tell us regarding stormwater management or the Macatawa watershed?

(If Q:v2>1 skp Qv:46)
Q:v46
Thank you for your time. Tonight we are only sampling residents who live in the Macatawa watershed.

Q:v47
That's all our questions. Thank you so much for your time tonight!

Q:v48
CALLER: Please choose the area code for this survey.

1=616
2=269

Q:v49
Please CAREFULLY enter the 7-digit phone number for this survey.

Appendix C- Open-ended Responses

Could you explain watershed?

Runoff water (2)
A basin in which all water flows into
A body of water
A break in a levee?
A building with water in it
A dividing point where water flows one way from the watershed into another
A holding tank
A place where the water goes to get rid of it
A sanctuary place where water goes
A watershed is the area into which rain water and river and stream water drain into an area.
A wild, undeveloped area where water collects with plants and animals
All land that drains into particular body of water
All of the area waters that drain into a particular drain or stream
All the area of land in which all the water flows into a certain river or lake
All the area that drains into a certain waterway and exits into a bigger body of water
All the area where the water drains too
All the available ground water including the lake and any tributaries leading into it
All the water that goes into the Black River that goes into Macatawa Lake.
An area from which water drains into a lake or stream
An area in which all the rain water comes down and feeds into the lake
An area in which all the water flows towards all the rivers, creeks, and streams in that area
An area in which water drains
An area of runoff that sheds water to another area as it runs off usually into a lake or river
An area that all the lakes and rivers have water drain into them.
An area that collects water and drains into a river
An area that collects water from various sources from the areas around it and either passes it on or uses it
An area that floods and can possibly have contaminants
An area that is susceptible to flooding
An area that provides water to a particular area
An area that surrounds a river or lake that's not actually part of the river or lake
An area that would collect water if there is flooding
An area where water drains into
Any body of water that supplies another body of water
Any drainage area where water goes. It goes into a river and then the lake.
Area around the lake where the water drains
Area covered by water system, where all the water flows together

Area drained by a particular river or lake
Area impacted by water going to a lake or river
Area in which rainfall gets collected
Area in which water runs towards a certain direction towards a certain body of water
Area of land that should become a natural preserve
Area of land that water collects into the bodies of water
Area of water that comes or goes towards you when the rain falls
Area rain runs into river
Area surrounding a different area that feeds into a certain area
Area surrounding Lake Macatawa
Area that all of the water goes into a single place - streams, rivers and such
Area that drains into a river
Area that has a specific drainage with rainfall that will end up in a river or lake
Area that holds water
Area that is shedding water, in this case, Lake Michigan.
Area where ground water makes its way to main body of water
Area where the water has to come off and go towards the lake
Area where water drains
Area where water is drained into
Area where water is stagnant
Area where you have different water (streams, gullies) going into
Area with runoff and place to keep the water pure
Basically our ground water
Basin surrounding rivers that makes an integrated system in a particular location
Body of water that is usually fresh water like a river, or a lake.
Cleaning up the watershed
Drainage system
Drains in the hills and we see it flood if it rains
Essentially it is the area where a body of water spreads through the water table on the surface below the surface to saturate an area for movement from inland to nearest waterway.
Expansive land where the run off contributes to tributary
Has to do with runoff
Here it's what drains into Lake Macatawa.
Hold back sediment from entering the lake
Holding place for water
Holding pond
How the water flows into the different streams, rivers
How the water seeps into the ground
How water travels through the land
I am a hiker so I would think it’s the water going around from us to nature again
I do not really know the definition

I know it's an area that gets flooded really easily, so they're trying to get an area built that will run into Lake Mac without flooding people's basements or yards. It's more toward West Olive and the north part of Park Township where it's flooded.
I think it is where the rainwater collects.
I think it's a protected area for water, but that's probably not a very good definition.
I think of it as a basin that collects several tributaries, and goes into Lake Macatawa. All the streams and rivers that feed into the lake and the surrounding land that support it.
Includes backwater and adjoining streams, rivers, and lakes
Isn't that where the water, when it rains, it flows down into the soil and collects in a certain area?
It goes from the highest part in the township, usually from a creek to a lake or the drainage to a lake, so if you're in a watershed, your water will shed toward the lake, whether it's Lake Michigan or Lake Macatawa.
It has something to do with bodies of water and where our groundwater comes from, I don't know.
It has to do with the matter of the inweaves and outs of bodies of waters; it's the whole ecological look of where the water comes from and how its utilized including pollution.
It is a drainage system that flows into Lake Michigan.
It is the basin in which rivers run into.
It is when all the water drains from the higher points to the lower points.
It is where the water drains into a bigger body of water.
It is where tributaries dump water into a main source.
It's like a delta; the area in which the water moves to a local stream
It's the area around a body of water that drains into it
It's a dividing point
It's a drainage area where the water drains from upper land down to the lower, and then off into the lake, I guess.
It's a protected area
It's all of the land that surrounds a body of water, and feeds into the body of water.
It's all of the water that contributes to a specific body of water or river, the area surrounding it which all the water leads into.
It's all the land that's connected to a particular river, something that drains that area.
It's an area of land, when the rain falls on it, it will all go to a certain creek, then a river, then a lake. I actually have two watersheds on my property.
It's kind of the whole ecosystem around water.=
It's the runoff from the surrounding areas, where the water and the wetlands drain into.
It's the water that drains into a certain body of water. There are different watersheds in Michigan and we're in the Macatawa watershed.
It's the whole area that runs into Lake Macatawa from in the countryside and other assorted places.
Keeps water under control
Like the lake underneath the top soil
Live by a lake, a lake would be a watershed…not sure
Moving water that flows into a larger body

Natural area
Network of water that flows out to Lake Michigan
Place where run-off water goes
Point where water comes through; peak of water
Prevents flooding and possible contaminants from entering the Great Lakes
Probably the water that comes off
Property that you are not allowed to touch; private property
Protection of waterways
Rain washes fertilizer towards rivers and streams
Rainfall that falls into the river
Retention area for water that drains from somewhere else
Run off from the land into lakes, streams
Runoff from farms and monster houses. Drainage from high ground to low ground
Runoff of every day water into the lakes and rivers close by
Simple: shower drain complex: Water draining to the lake
Something to do with the quality of the water
Surrounding area of Black River
That's where the water comes from certain tributaries into a river
That's where your drains, and the stuff off the fields, drain into the lake or river.
The area a river drains into
The area around a stream where the water goes
The area around farm land where the water drains out to the drains and then ends up in the lakes
The area around the river and it is where the water goes into the larger body of water
The area before Lake Macatawa
The area impacted by water runoff within a certain geographical area
The area in which water would flow into a stream, river, or creek and migrate into the lake
The area of property or geography that drains into a particular river or steam
The area that drains from a surrounding geographic area into some body of water
The area that feeds into the river system
The area that gathers water and enters into the lake. It usually centers around a stream.
The area that holds the body of water; retains it
The area that river drains into a lake
The area that surrounds the river and Lake Macatawa
The area that water drains into
The area that water drains off from fields and moves down into the swamplands, river, etc.
The area water drains to and onto the lake
The area where all the rivers and streams drain into a body of water
The area where streams come into the river and the land surrounding those streams of water
The area where the water from all collects to a river or stream
The area where water collects after a rain

The area where water from the surface flows downstream
The area where water is collected and ends up in the lake
The body of land that brings water into one central area like a river or pond
The creeks and waterbeds that lead to lakes
The drainage of water that goes to lake
The entire area that would drain into the rivers, tributaries, and lakes
The entire area the drains into Lake Mac and Black River
The environmental protection of the water flow off
The flow of water
The lake or reservoir that feeds a certain area of people
The land area that contributes water to a certain point in the area
The marshy areas that lead out into the lake
The outlying areas that water flows into Lake Macatawa
The place where water floods, usually a lowland
The quality of water in the area
The region by a river or marsh that water runs off
The runoff that goes toward Lake Macatawa
The runoff waters from the lake
The surrounding area of the rivers and lakes
The water beneath the ground that is interconnected to the lakes and streams in the area
The water from all the sources in anywhere in the area that leads to the lake or river, and then is carried away; How the water drains
The water in a given area
The water quality of the rivers and streams that run into Lake Macatawa
The water that drains into a river or lake
The way the water is directed towards the rivers and lakes
The wetlands
The whole area (land) that runoffs into a lake or stream
They are around a body of water where another body of water flows into it
They are in areas which heavy rain would drain from, river or creek
Total drainage area of a creek or river
Tributary waters and wetlands that collect water that goes into Lake Michigan
Two parts; you can access one near 88
Visible aquifers underground and streams and creeks that would lead to a larger body of water
Water down the drain
Water goes into body of water
Water into Black River and Macatawa; draining
Water is collected or travels through connecting cities
Water run off
Water screens itself of impurities before it gets to the lake

Water seeps out
Water stem
Water supply for a general area
Water system in the area including ground water and surface water
Water that comes from the lake and cycles around in terms of lake to farmers/whoever then goes to soil then to the air then rains down goes to drains then repeats
Water that comes off the drain and travels
Water that flows into an area
Water that flows off of properties into streams
Water under the ground in a pool area
Water underground
Way the water flows from surfaces all the way back to Lake Michigan
Whatever area drains into a river or lake
When groundwater flows in rainwater and rain
When it rains, it's where the water runs into
When water falls out of the sky and drains into something
Where all the different waters from all the areas go to one place
Where all the water begins emptying and flowing into, in an area
Where all the water drains through to Lake Mac
Where all the water drains to
Where bodies of water flow to
Where everything drains down to
Where everything meets
Where most of the water and run-off water collects
Where rain water goes
Where rain water is drained to
Where the ground water moves towards a certain river or creek
Where the rain water goes
Where the run off goes into the lowest point
Where the water goes when the rain comes down. Use of hills and valleys, etc., shedding into a larger body of water
Where the water is stored
Where the water runs from the land into rivers and lakes
Where the water runs off into
Where the water runs off to
Where the water runs to
Where they hold the pumps and stuff
Where things drain down into small bodies of water and eventually into Lake Michigan
Where water accumulates
Where water comes off property into lakes and stuff or businesses
Where water is headed

Where water runs off
Where water spreads to the river
Where water stands when it runs off
Where you tested the water

Watershed Info: Website-please specify:

General
Google
Internet
Internet in general
Online in general
pollutionisntpretty.org and lovelakemichigan.org
Project Clarity or Macatawa Greenway or Outdoor Discovery

Watershed Info: Other-please specify:

Work (3)
A presentation I saw
A TED talk
Anywhere free online
At the water treatment plant
Being a teacher in the schools
Boat trip on Grand River
Boating
Chamber of Commerce
Class
Directly from the MACC
Discovery Center
Dr. Peasley from Hope College/boat tour
Events at Kollen Park
Farmers' market
Fisherman talking and sportsman clubs
Grand Rapids
Herman Miller
Herman Miller at work
Holland Rotary
Husband's co-workers
I am in education, so through education circles
I do not
I read about it somewhere, but I don't remember. And the people who do our lawn.
I went to a meeting for the farmers, a meeting w/ a free dinner last fall, and there were speakers there,
I'm a former Farmer
Involved with fundraiser
Library
Library or Chamber of Commerce
MACC
Meetings
Municipal and county news

Neighborhood Night out event, Outdoor Discovery Center
No information
No where
None
OAISD Teacher Project
On the board
Ottawa Area Resource Center
Outdoor Discovery Center
Paper
Pharmaceutical company
Professional opinion
Public presentation
Saw its office
See it first hand
Seminars, Macatawa booths, personal research, various events related to water quality issues
Street signage
The county park system
This is the first time hearing about it really.
Town hall meetings
Used to be on City Council for the City of Holland
With my water bill
Work (building environmental websites)
Work and local activities
Work at the township/council
You

Information about local issues: Website-please specify:

Google (2)
Internet (2)
Computer
Fox news
General
Internet news-sites
Internet, in general
Local news websites
Local news: Holland Sentinel, Grand Rapids Press
News websites
Wood tv.com
Woodtv.net

Information about local issues: Others-please specify:

App on cell phone
Chamber of Commerce
Flyers
Gossip
Health department
I don't

Library
Local sources
MACC
Phone
Police blog
Seminar or class put on by a vendor
Seminars and meetings
The city
Township
Township meetings
Try not to
Water quality report
Word of mouth
Work (building website)

How would you define stormwater?

Rain water (9)
Rain (5)
Water from a storm (3)
Runoff (2)
Runoff from rain (2)
Water leftover from a storm (2)
Water that comes from storms (2)
Water that comes from a storm (2)
After a rainstorm and if there's water sitting in the bottom or low areas; Water that accumulates after a storm.
After rain
After rain the water collects and it has to go somewhere
All water except sanitary sewage
Any water that accumulates after a storm and may contain pollutants and topsoil
Any water that is not absorbed by the ground
Anything coming from a rainfall and then we choose how we funnel it
Anything that is run off from the land
Anything that would puddle and runoff as opposed to absorbing
Both
Both means, by storm drains and runoff
Both of the above choices
Comes from the rain or clouds
Dirty water
Dirty water. Good for my garden.
Drainage water
Drains off a building or house
Excess water from heavy rain events that eventually ends up in the watershed
Excess water that gets dumped off the roads and into our lakes
Extreme weather conditions
Flooding
Garden water
Gross

Macatawa
Nasty stuff
Nasty wastewater
Rain from a storm
Rain from storms that runoffs into lakes and streams
Rain runoff
Rainwater runoff
Resources that are retained and kept from storms
Run off from rain that goes into the ground
Runoff from roads and buildings
Runs off the roofs of the houses
Stagnant water
Stuff dumped from Grand Rapids into Grand River
Tastes better than drinking water
The stuff that ends up in my basement when it rains really hard. Water that doesn't have anywhere to go when a heavy storm hits because the Earth isn't capable of absorbing it all.
The water that always ends up in the basement
Wash that comes into the rivers from heavy storms
Water from a heavy rainstorm
Water from rain
Water from rain that runs into lakes and streams
Water from storm
Water from storms
Water generated in excess of normal rainfall
Water stored from storm that is stored
Water that accumulates after a storm
Water that collects after a storm
Water that collects in indents or flowing creeks or waterways
Water that comes off the roof
Water that falls from the sky
Water that flows into the rivers
Water that has collected from a storm
Water that has impurities in it and takes it downstream as it goes
Water that is around after a storm.--full of pollutants
Water that runs off into the lake
Water that stops cars
Water that's left to runoff from a rainstorm
Waves
What used to be clean
When it rains

Information about lawn care – website – please specify:

Internet (4)
Google (3)
General
Hardware store
Internet in general.
Internet sites (none specific)

Information about lawn care – other – please specify:

Experience (6)
Husband (3)
Internet (3)
Magazines (2)
Personal experience (3)
Self (2)
Store (4)
Accumulated over my lifetime
Ads
Books
Common knowledge
Common sense
Condo unit
C-providers
Don't
Don't pay attention
Employment
Farmers co-op
Farmers' market
Fertilizer bag
From my head--experience--and my reading
General advertising
General knowledge
Hardware
Hardware store
I don't; I just cut it.
I don't; I just put on farm-fertilizer once in a while.
I just do it
I know something about it
I try to have as little to do with my lawn as possible.
Internet search
Just knowledge that I have
Keep grass cut and under control
Label on a bag
Lawn service
Local hardware
Magazines about natural lawn care.
My Ortho lawn care book
Myself
Myself
None
Nowhere
Parents
Past experience
Past experience which includes continual knowledge coming in
Past experience with lawncare

Pick it up over the years
Sixty years of living
Supervisor of building does the work
The condo association takes care of it
Township
Trucks
VanWieren Hardware
Water our own lawn
What he learned growing up
Whatever is cheapest
Wife
Word of mouth and experience
Work
Work. I work for a lawn care service
Years of experience

Would you be willing to pay out-of-pocket to implement these types of practices on your property? Other

Not applicable (2)
Already doing it
Already done that
Already in the process
Depends on health issue
Depends on what it looks like and how it would fit in.
I do them already.
I think we already pay through taxes
I think we've done as much as we can.
I would look for an overall assessment
If going to remodel
If I was already planning to re-landscape
If I knew it would definitely be helping, I would be more than willing to do it.
I'm already working on planting native trees on the property and I have a hedgerow to keep water from going down the drains.
It would have to come out of association dues--I live in a condo.
Landlord owns property
Lives in a condo- N/A
Lives in an apartment complex; doesn't own any property
Lives in apartment- N/A
Maybe if it looks good
No landscaping
Small amount
Some, but not a priority
We kinda already do that.

Would you be willing to implement any of these types of practices on your property if funding was provided for you? Other

Not applicable (2)
Again, it if it's in my yard where I can have a natural area, I'd be happy to but I'd have to know for sure and ask my wife if it would fit into the landscaping.

Already do
I just think if you're a landowner, you should take responsibility for that. iI should be part of education.
I think it's already happening and I don't really get a say.
If it didn't disturb my garden
Landlord owns property
Lives in a condo- N/A
Lives in an apartment complex; doesn't own any property
Lives in apartment- N/A
Maybe if it looks good
We kinda already do that.

Would you like us to record your name and contact information and give this to MACC –entirely separate from your survey answers- so they can contact you if any workshops are scheduled?

616-399-6901
Alicia Bierling: 6491 Maple Lane, Holland MI 49423
Bonita Zielke: 616-994-6206
Cecilia Sarrell: 616-422-8201
Chris Martinez: 323 E. 14th St Holland, MI 49423
David and Mary Bosscher: 441 W. Laurence Ave. Zeeland 49464
Erika Dordon: (616)796-8046
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Irvin Boersen: 616-846-0898 iboersen@sbcglobal.net
Kim Cook: 875-2818
Loue Diller: 616 848 7388
Mandy Penharmsel: 616-405-8702 knightmandy@aol.com
Nancy Lacy: 145 Columbia Ave., Holland MI 49423
Patricia Hierlwimmer: pattizam@juno.com
Rachel Kouw: Cell phone 616-836-7310
Roger Jansen: rogerandtinaj@yahoo.com
Vicky Altena: 1298 Southshore Drive

Is there anything else you'd like to tell us regarding stormwater management or the Macatawa watershed?

Address all of the homeowners on the lake. Runoff from factories is a huge problem (rust, etc.) brewers, etc.
All the houses between Lincoln and Fairbanks flood when the creek floods. Wondering if they're trying to do something to alleviate flooding.
All the people in Macatawa…if they did not have beautiful lawns, it would help improve water quality in the watershed
All those fancy water people can go jump into the lake.
Appreciate the FEMA overtaking the water problem, understanding how the water affects the entire ecosystem.
As far as drinking water, we choose to drink non-tap water. We just worry because so much gets into our water like fertilizers and chemicals. We buy distilled water.
Being as I consider myself an educated person but I didn't know much about it, it seems it deals with things that ARE important to the water quality. If there was more of an awareness campaign, ways to get people aware of it, that would help even more.
Big advocate of this, wants to put money towards positive advancements
City of Holland, clean your act up.
Clean it up! Go for it!

Clean up the lake!
Condo association is very conscious of what gets put in the pond
Don't impose any stuff without the government telling me what to do. If people were just more in tune and there were more educational programs or commercials, that would be a good thing. Educate, don't impose. Preserve our water caches since that's all the fresh water we have.
Everyone should have to pay equally for water quality, I just wish there was more transparency so we know the money is actually going towards that.
Explain what the watershed is.
Fix the creek by my house to keep my basement from flooding.
Get the drain commissioner onboard. They are not observing and are not responsive; depending on who is called.
Glad that it is being looked at and worked on. Would like to see the lake quality be kept if not improved.
Holland needs to pick up their bill. I mean they need to start paying for things. They need to get these damn water gutter cleaned. The area at the end of my driveway is always flooded during rain or snow. It backs up all over the road. It's ridiculous. It gets everywhere and I have to pay to keep my lawn green.
How can I help?
I am keeping updated on watershed issues.
I am not unhappy about it. I do not want to encourage government overreach. People not at all in the area making decisions for us.
I believe the Macatawa water is very bad.
I don't know anything about it.
I don't know that much about it, but I know something needs to be done for the people who are having the flood problems. And I hate to see chemicals and fertilizers going into the water. Everything we do here is approved so it doesn't make a mess, it doesn't get into the water. I wish everyone did what we do here.
I happen to live in one of the 100 condominiums for southwest Michigan. It would be great to target a larger audience if they offered presentations. I would be interested.
I have a pond and am very concerned about the water quality of the pond and water quality of my well.
I have seen some improvement being done and it is appreciated, but we should get rid of those plants that are directly inline of the Macatawa Bay.
I hope people in that field are doing their jobs. I am concerned about this issue but I don't know much about it.
I hope something will come of this. The lake was already in bad shape in the fifties.
I just think we should keep going with what we're doing, get more people on board. Every time we turn around we see there are projects going on and we have to keep them on the surface so everyone will see them and be involved.
I know that Macatawa Lake is one of the most polluted lakes in Michigan.
I know they've been working at it for quite a while. I don't personally see a difference in the lake other than, this year, not having to clean my boat as regularly when I take it out of the water. I don't know if there have been measurable differences aside from that. I still don't let my kids swim in the lake or eat fish from it. I'd love to see both of those things improve.
I really liked the documentary about the watershed.
I think the people who are planning these things are daft because they have an option to do it correctly and yet they do needless studies to do a dumb project that doesn't need to be done. We as residents have approached them with an easy way to fix it: there are a couple drain areas that could be done correctly but they won't hear anything about it and they don't care what the general populace wants.
I think they're doing a great job. I was absolutely thrilled to visit the Macatawa Greenway to see farmland returned to how it would be with water being drained appropriately. Right now, we're still working, but I do a lot of volunteer work and certainly would help the Council with anything that they need to have done.
I think they've done a lot already and that people appreciate it.

I think they've made a lot of good improvements. What's also important is when people pump water from the lake to irrigate their lawns. They water all day and the water just goes back into Lake Mac. The circulation can be harmful especially if septic systems aren't working well. The water picks all of that up. I'm not for new taxes at all. It seems like whenever someone has a problem it's "Let's have a new tax!"
I want to hear the results of the survey. I boat in Lake Macatawa, and I can see the changes throughout the seasons. I'm very glad this project is being taken on! I'm a schoolteacher and I'm currently teaching my students about the watershed. I'd love to have more information about this project accessible to my students.
I would be willing to participate or help or contribute to any efforts to help clean the water.
I would like to see the water be much cleaner.
I would really like to see the lake cleaned up. It would be important for the whole community. I would not let my children swim in it. It is ridiculous that we have all this water right here and are not taking care of it.
I'd be interested in more promotion around something other than lawns--like getting into natural vegetation.
I'd be willing to pay for water quality improvements if I knew who was doing what and why.
I'd like to have someone clean the drains along Lakewood Boulevard so the water will go away. The drain commissioner would know whose job it is to do that and it's not getting done.
If they're going to do a survey, it would be helpful to give out the website to find more information.
I'm glad that they're doing something about it. Glad to read that progress is being made.
I'm glad they're working on it.
I'm glad this project is being done. I'd love for the lake to be cleaner in order to be used for more recreational purposes.
I'm just always interested in what they're trying to do because the lake has gotten cleaner and hopefully we can continue getting it cleaner.
I'm just excited to hear that they're talking about it!
I'm thrilled that you're doing something about it.
I'm worried about the watershed from the Park West drain project which they're dumping into Lake Mac. They're doing it because of some flooding that occurred and they want half the County to pay for it. It's right by our condos and it dumps into Lake Mac. It bothers me.
Information about the watershed would have been better than the whole survey.
It is a good idea to protect the watershed not only for the community, but also for the existing animal life. To keep the interesting wildlife around for future generations as well as use for recreational use like hiking.
It needs to be taken care of and if I could I would, but I'm handicapped. People need to be working on it and getting others to. Water is very important and it needs to improve and the money needs to come from somewhere. I try to get my kids to do it! It is a good cause!
It would be great to find a way to not contaminate the lake with fluoride.
It would be nice to see it clean again.
I've always been interested in it and some of the things they've done over the years have helped and I think there's still things they can do with runoff upstream. The silt that comes downstream is a big contributor.
Keep up the good work.
Let me know if you are accepting contributions to this cause because I would be happy to contribute.
Let me park on my grass, gravel isn't going to stop the oil. Don't go crazy telling me where to park.
Macatawa is real bad right now due to bacteria. Used to be one of his favorite places to go fishing. Not anymore!
Macatawa lake should not be allowed to drain into the big lake. We created our own little environment: lake has no movement, allows for bacteria and algae, only agitated in certain areas
Make it happen. I look forward to seeing my feet when I stand in the lake.
No, but you made me a little more conscious of it so I'll watch now for more information.
Not really. My water ain't that bad.
Only that I'm very impressed with the work that I've read about on Project Clarity.
People need to accept not having perfect yards and not pouring chemicals on plants. Keep it natural.

Rain gardens are really great, I learned about them and I hope that the Watershed project puts them to use.
See more natural means being used to control runoff would have been good to not allow people to buy river property or floodplain property.
Shouldn't have fired Dirk for the watershed. He was the guy that I use to volunteer for.
Storms and flooding on Quincy Street and not much rain ever since. Hopefully, no more flooding
The issues are not made known to the general public very clearly.
The lake is disgusting because they took away the natural filter. My tax dollars are what ruined it and I don't want to pay more to try and fix it.
The local issues could be published better to the community. I think there is a misunderstanding in the community about the actual issues facing the pollution of Lake Mac.
The project is doing a wonderful job!
The survey is far too long and boring. You won't be able to get many people to complete it.
The whole Park West Drain Commission. We have been following since 2006.
They ought to look at the Township zoning and housing sizes when determining the amount of run-off space. There are too many areas where the houses are tightly packed together without enough run-off space between.
They've made some successful improvements in the last decade. Chemicals are a greater issue than soil.
This survey is loaded for increasing taxes in the area. Everybody cares about having clean water but followed by the question about increased property taxes will create an unrealistic response.
Water quality is very important to me. I used to work at Hermann Miller and they're very interested in keeping the water and air clean, I would be interested in attending meetings about keeping the water clean because I see lots of pollution in Pigeon Lake and with the rain this year, the flooding is getting worse. I would like to see improvements in local lakes and rivers.
We chose our lawn service since they don't use an abundance of chemicals and I'm concerned about the watershed.
Weary to pay more taxes but I really support the cause. If there were a grant, I would more than willing or more low cost changes.
Well somebody's gotta pay for it. Clean water is worth it but nobody wants to pay.
We're very satisfied with the water quality.
Where do we go for more information? (Gave her the macc.org website.)
Why did they straighten out the river at the Country Club?
Why does it smell so strong when I cross the bridge--is that because of the contaminants?
With all the hard rains, they need to be able to control erosion
Would like to be reassured that toxins from spill on 160th Street are being cleaned in Lake Macatawa
Would love to see Lake Macatawa become nicer if we take care of it