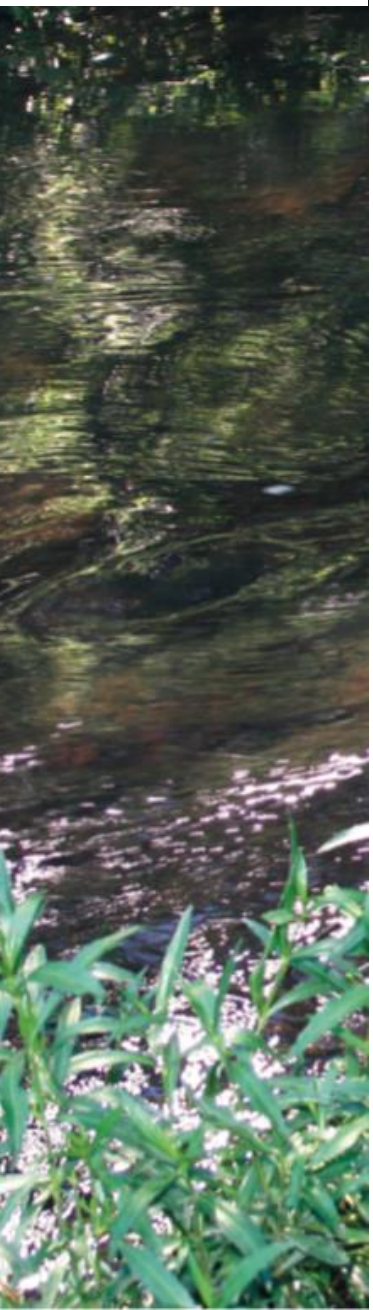

2023 Project WIN / MS4 Public Behavior Change Assessment Survey Summary

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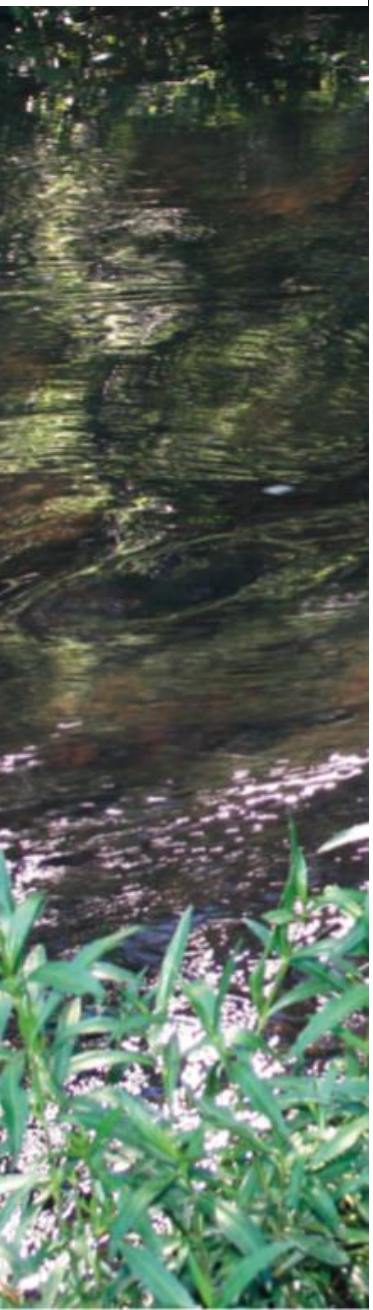
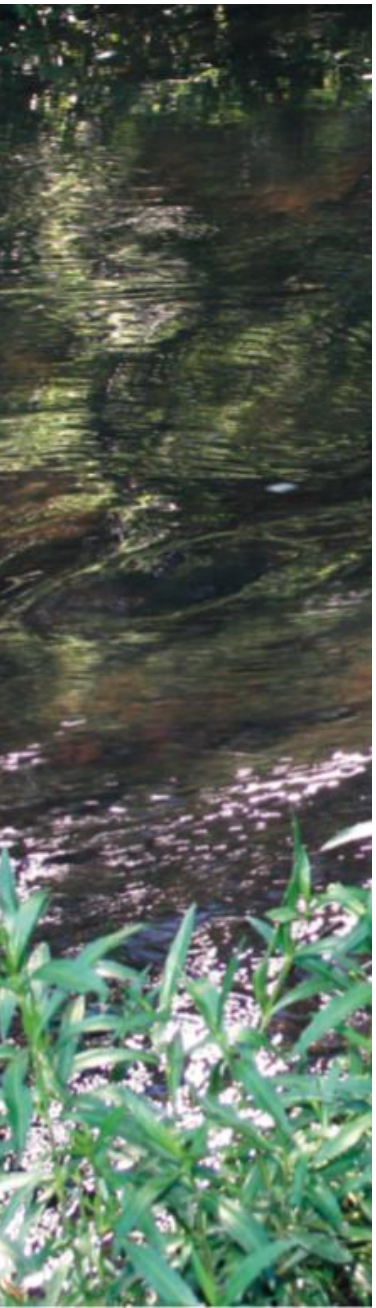
* * * PRELIMINARY * * *

April 9, 2024



REPORT CONTENTS

- Survey Objectives
- Survey Overview
- Key Findings
- Detailed Findings
- Appendix A: Online Survey
- Appendix B: Zip Code Segmentation Maps



Survey Objectives

- The purpose of the survey was to understand the following prior to developing a Project WIN public outreach communications strategy:
  - Public attitudes toward clean waterways as an environmental issue.
  - Awareness and knowledge of key water pollution issues.
  - Public willingness to change behaviors to improve and protect the community's waterways.
  - Updated elements of an effective strategic public outreach communications plan.

SURVEY OVERVIEW

OVERVIEW – Online Survey

- The survey used was the same version as 2013-2021. Due to survey length, respondents were given a $10 e-gift card after the survey was completed.
- The survey invitations were sent out over 20 days from December 22 to January 11. The survey was kept open through February 29, 2024.

	2023	2021	2019	2017	2015	2013
Invitations sent (#)	14,171	49,990	110,000	50,800	25,000	20,000
Emails bounced back	0.8%	0.7%	4.2%	13.7%	3.2%	6.5%
Respondents opted out	1.0%	0.4%	0.6%	0.8%	0.8%	0.4%
Respondents failed screener	0.5%	0.3%	0.2%	0.3%	0.9%	1.0%
Partially completed survey	2.3%	1.6%	0.6%	0.8%	1.3%	3.1%
Completed the survey	5.4%	2.1%	0.9%	1.4%	4.2%	5.4%
Survey margin of error (+/-)	3.5%	3.2%	3.1%	3.7%	3.1%	3.1%

Survey Methodology

- Respondents were required to be Jefferson County residents and not employed in any of the following industries: Advertising or Marketing, Market Research, TV or Radio Station, Public Utility.
- No quotas were placed on age, gender or zip code. However, the collected sample was an excellent demographic and geographic cross-section of Jefferson County residents.
- The e-mail list used for survey solicitations was provided by Louisville Water in 2023.
- The survey was approximately 15 minutes in length.
- The data was weighted using age, gender, rent/own residence and ZIP code area to match the current demographics of the MSD customer base. This is the same procedure used for the 2013-2021 surveys.

ZIP Code Segmentation

- ZIP codes were mapped as close as possible to the sewer and watersheds (see Appendix B).
- The segmentation resulted in 6 areas:
  - Downtown & West City [40202, 40203, 40208, 40210, 40211, 40212, 40215]
  - East City [40204, 40205, 40206, 40207, 40217, 40218, 40220]
  - Southwest [40216, 40258]
  - South County [40209, 40213, 40214, 40219, 40225, 40228, 40229, 40272, 40047, 40109, 40118, 40177]
  - East County [40018, 40023, 40243, 40245, 40291, 40299]
  - Northeast County [40025, 40059, 40222, 40223, 40241, 40242]

Demographics by ZIP Code

	Total	Downtown / West City	Southwest	East City	South Co.	North East Co.	East Co.
Age (Mean)	46.8	46.3	56.8	44.6	45.6	47.5	50.6
% Male/Female	47/53	49/51	70/30	46/54	47/53	42/58	45/55
% HH with Kids <18	43.2	40.1	44.0	41.2	48.7	36.4	44.3
% College graduate +	65.8	67.2	79.4	56.4	71.7	62.6	59.2
Income (Mean)	$75,519	$74,063	$96,718	$65,206	$79,928	$76,788	$73,142
% Own Residence	63.1	65.2	87.7	52.3	65.5	64.5	59.0
% Dog Ownership	47.8	50.4	37.4	54.4	41.8	52.7	48.5
% Use Fertilizer	30.9	22.3	62.0	22.5	38.6	30.0	23.6

KEY FINDINGS

KEY FINDINGS

Notable significant shifts

Favorable shifts in awareness or attituded (Top 2 Box)

- Since 2015, residents who rate the overall water quality or health of the waterways in Jefferson County as Good or better has steadily increased.

	2015	2017	2019	2021	2023
Overall water quality is Good or better	46%	54%	56%	60%	65%

- There are recent gains for specific actions residents are willing to take to reduce water pollution.

	2015	2017	2019	2021	2023
Don't use chemicals on lawn	46%	17%	30%	22%	25%
Clean up sewers and street drains	13%	10%	5%	9%	17%
Conserve water	6%	7%	5%	6%	13%
Be careful about what they pour down the drain	18%	11%	11%	5%	12%

KEY FINDINGS

Notable significant shifts

Favorable shifts in awareness or attitude (Top 2 Box)

- Residents want fact-based information about preventing water pollution in the Louisville community. They prefer cause-and-effect and 'ways to help' messaging more than previous years.

	2019	2021	2023
Cause and effect	16%	24%	29%
Prevention / ways to help	16%	17%	22%
Statistical data	5%	9%	12%
Any	3%	5%	8%

- Residents prefer getting MSD news from the internet and neighborhood meetings instead of TV, which can be a costlier media.

	2019	2021	2023
Internet	5%	6%	12%
Neighborhood meeting	3%	3%	7%
TV	25%	22%	17%

KEY FINDINGS

Notable significant shifts

Unfavorable shifts in awareness or attitude (Top 2 Box)

Several unfavorable shifts in the 2023 survey relate to residents' perception of *water pollution accountability* in the Louisville community.

- While 81% of residents believe human activities impact the quality of Louisville's waterways, those who believe there is no impact has increased.

	2015	2017	2019	2021	2023
Human activities have no significant impact	8%	6%	9%	5%	12%

- Fewer residents say they are personally responsible for reducing rainwater runoff pollution and sewer system overflow, and more residents say they would only do their part if everyone else did. Further, more residents agree that the utility company should provide incentives to reduce water pollution.

	2015	2017	2019	2021	2023
Personally responsible for reducing water pollutions	69%	62%	63%	66%	57%
Would only do my part if others did, too	3%	3%	6%	5%	9%
Utility company should provide incentives	65%	63%	63%	67%	73%

KEY FINDINGS

Notable significant shifts

Unfavorable shifts in awareness or attitude (Top 2 Box)

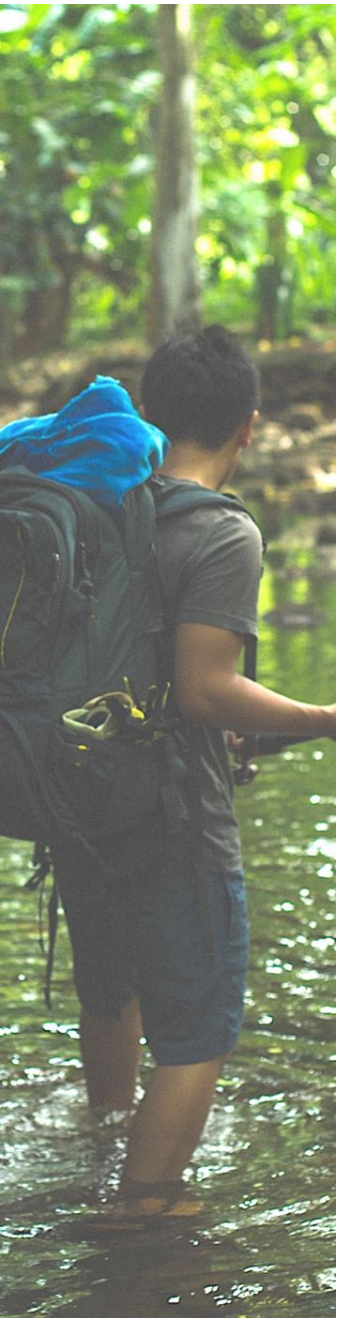
- More residents say external, or non-personal (non-behavioral) factors cause waterways to become polluted after it rains.

	2015	2017	2019	2021	2023
Runoff from streets/parking lots	11%	12%	11%	14%	19%
Air pollution	7%	12%	14%	15%	17%
Acid rain/rain with pollutants	2%	9%	6%	7%	11%
Drainage from other areas	2%	0%	4%	2%	5%

KEY FINDINGS

Public attitudes toward clean waterways

- Louisville residents (70%) continue to consider protecting our waterways from pollution the community's most important environmental issue. Reducing climate change is the second most important issue.
  - Residents under 30 (87%) and women (74%) especially consider protecting our waterways an important issue.
- Almost two-thirds (65%) of residents rate the overall quality of Louisville's waterways as Good or better, an increase from 60% in 2021. Like previous studies, many residents who rate the quality low (40%) perceive the waterways are polluted.
  - Downtown residents (47%) rate the overall water quality lowest.
- Most residents (81%) believe human activities have a significant impact on the quality of Louisville's waterways (88% in 2019).
  - Residents 60+ (87%) and those in East City (89%) believe in human impact the most.

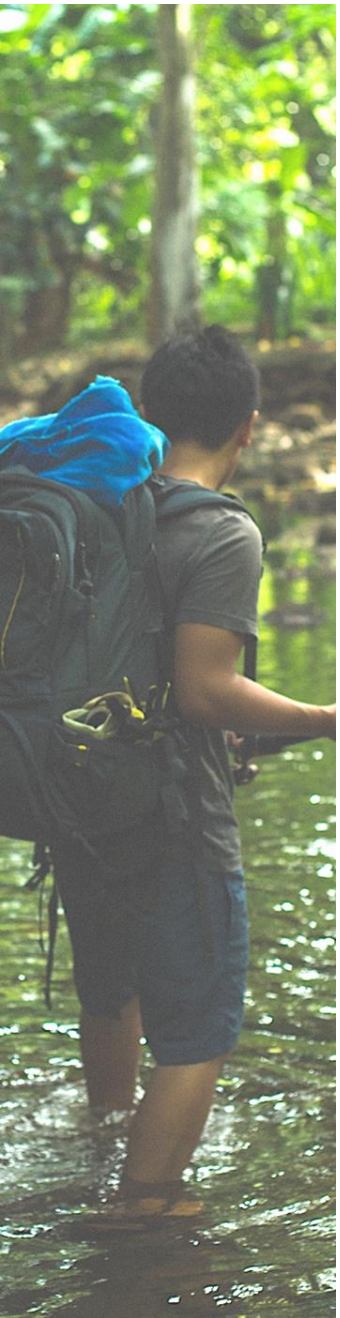


KEY FINDINGS

Knowledge of the issues

- As was found in previous surveys, residents generally are not very informed about the causes or impact of rainwater runoff pollution and sewer system overflow. Residents under 30 are especially uninformed.

Finding	2019	2021	2023	< 30
Don't know how rain affects water quality	27%	35%	34%	47%
Aren't sure it is safe to use waterways after it rains	39%	43%	44%	56%
Don't feel informed about causes of rainwater runoff pollution	51%	55%	51%	83%
Don't feel informed about causes of sewer system overflow	58%	61%	58%	84%

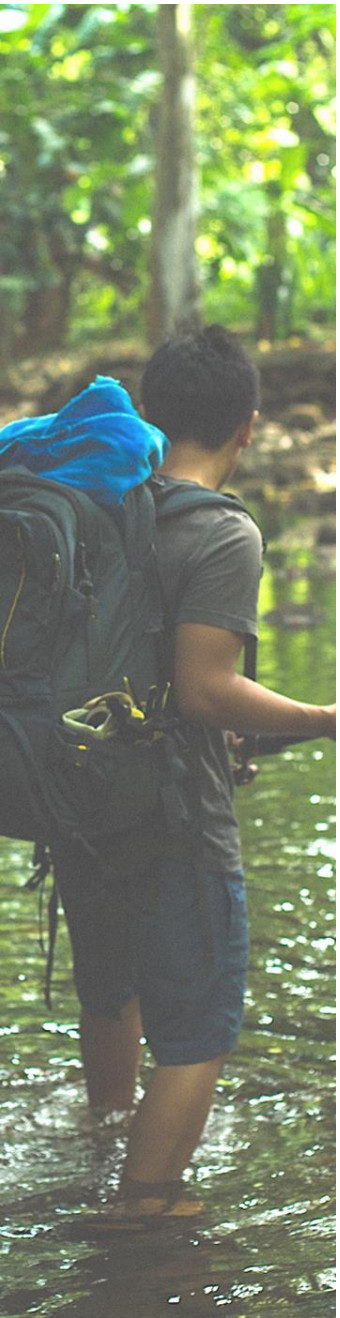


KEY FINDINGS

Knowledge of the issues *(continued)*

- Residents also do not fully understand the role of the sewer system in the rain management process.
- Further, fewer residents say the evidence they have seen for water pollution is reliable.

Finding	2019	2021	2023
Aren't sure or disagree that storm water is treated before being released back to our waterways	58%	59%	58%
Aren't sure or disagree that rainwater runoff is a leading cause of water pollution	65%	59%	63%
Aren't sure or disagree that sewer system overflow occurs frequently	72%	74%	71%
Say evidence they have seen about water pollution is reliable	60%	52%	48%



KEY FINDINGS

Knowledge of the issues *(continued)*

Key insights:

- *Louisville residents consider protecting the community's waterways from pollution the most important environmental issue. This is especially true among young adults and women.*
- *Residents currently rate the overall health of Louisville's waterways as Good or better, and understand that human activities have a significant impact on the ongoing health of those waterways.*
- *Most residents, however, remain under-informed about how rainwater runoff pollution and sewer system overflow contribute to the health of the community's waterways. They are also under-informed about the role the sewer system plays in rain management.*

KEY FINDINGS

Willingness to take action

- Most residents (77%) believe there are things they **could be doing** to reduce water pollution, but less than half of residents (47%) say they **currently take actions** to reduce water pollution, a 3% decrease over 2021. There is an increase since 2021, however, in their Top 3 current actions:

Top 3 Actions	2019	2021	2023	Change
Not littering/polluting	41%	27%	30%	+3%
Not using lawn chemicals	21%	22%	25%	+3%
Cleaning up sewers and drains	5%	9%	17%	+8%

- Also, more residents are being careful about what they pour into the ground or down the drain:

Action	2019	2021	2023	Change
Careful about what I pour into ground/down drain/dispose	12%	5%	12%	+7%

KEY FINDINGS

Willingness to take action *(continued)*

- The top 5 actions residents **would be willing to take** to reduce waterway pollution are consistent with those in 2021 and include:

Top 5 Actions	2019	2021	2023
Putting FOGs in the trash rather than the drain	89%	89%	88%
Putting wipes in the trash rather than the toilet	88%	87%	86%
Picking up trash in the street gutter where they live	87%	85%	82%
Taking hazardous wastes to a collection center	88%	84%	80%
Using environmentally friendly lawn products	82%	80%	79%

  - Residents 60+ would especially be willing to put FOGs in the trash (95%) and take household hazardous wastes to the collection center (90%).

- Significant increases in actions residents would take in 2023:

Actions	2019	2021	2023	Since 2021
Pick up pet waste in my yard	68%	64%	73%	+9%
Pick up pet waste in public spaces	46%	45%	48%	+3%

KEY FINDINGS

Willingness to take action *(continued)*

- Like previous years, residents think the following actions increase rainwater runoff pollution the most:

Action	2019	2021	2023
Improperly disposing of hazardous waste	97%	97%	93%
Putting trash/debris in the street gutter	92%	91%	89%
Leaking fluids from vehicles	94%	90%	89%
Using non-environmentally friendly chemicals	89%	89%	87%

- Residents think the following actions contribute to sewer system overflow the most:

Action	2019	2021	2023
Flushing wipes down the toilet	93%	93%	92%
Pouring FOGs down the drain	86%	81%	89%
Putting lawn clippings and leaves in the street gutter	83%	81%	81%

KEY FINDINGS

Willingness to take action *(continued)*

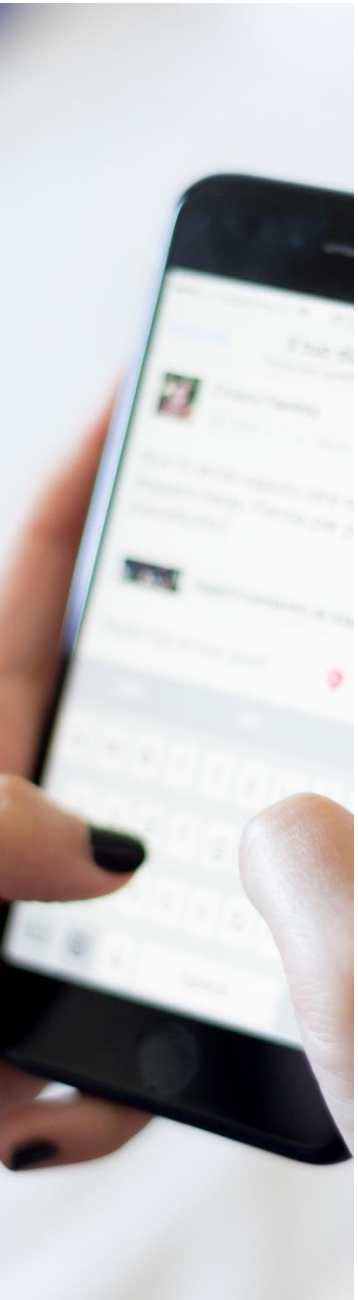
- Many residents (72%) are concerned that water pollution will cause our waterways to become un-fishable and un-swimmable for the next generation, and most (93%) believe we can all do our part to reduce the effects of water pollution.
- However, most residents hold local governments, businesses and industries more accountable for water pollution than themselves. Some residents are unsure who is accountable for water pollution.

Strongly agree / Agree	2019	2021	2023	Unsure 2023
We can all do our part to reduce the effects of water pollution	94%	92%	93%	6%
I am personally responsible for rainwater runoff pollution and sewer system overflow	63%	66%	57%	30%
Local governments, businesses and industries are responsible for rainwater runoff pollution and sewer system overflow	84%	83%	77%	20%

KEY FINDINGS

Key insights:

- *Most Louisville residents know there are actions they can take to reduce water pollution, but less than half are currently acting – a decrease from the 2021 survey.*
- *However, outreach focused on specific behaviors may be working to change behaviors. For example, at least one quarter of residents say they are not using lawn chemicals and not littering. And a growing number of residents are careful about what they pour down the drain.*
- *The ongoing gap between knowing there are actions to take to reduce water pollution and acting indicates opportunities for MSD to continue with educational outreach and persuasive campaigns targeting high opportunity audiences, such as young adults, with specific action-oriented messaging.*



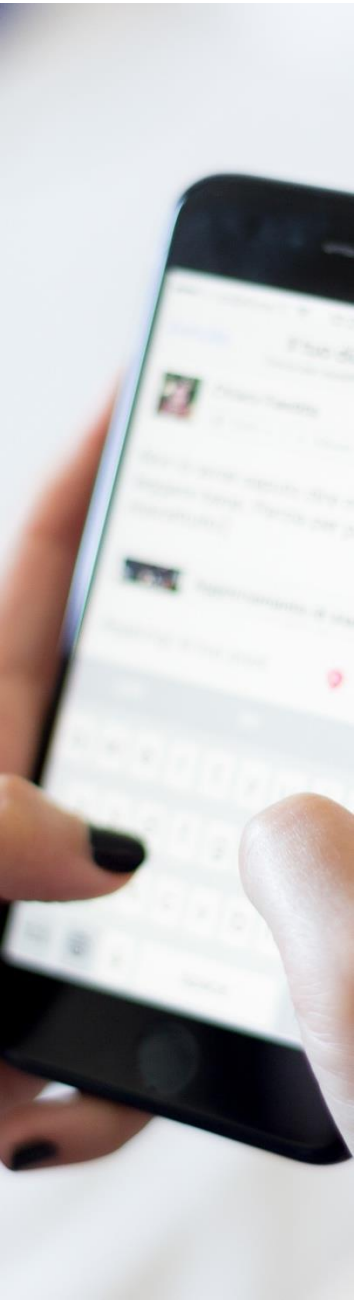
KEY FINDINGS

Communications/How to Engage

- Fewer residents have heard something in the last year about the impact of rainwater runoff pollution or sewer system overflow and ways they can prevent it (12% vs 14% in 2021). More residents have no awareness or are unsure (88% vs 86% in 2021).
  - Southwest (17%) and South County (16%) have heard something the most. Downtown (92%) and East County (91%) have heard the least or are most unsure.
- Top recall topics include:

Recall Topic	2019	2021	2023
Don't add to the problem	0.3%	7%	19%
Don't litter/pollute	5%	6%	16%
Tips/info to help water pollution	3%	10%	13%

- In 2021, residents recalled 'Avoiding waterways right after a rainfall' the most (13%). This topic was not recalled in the 2023 survey.
- Top recall channels include: Posting near a waterway (30%), Newspaper (27%), Radio (20%) and Facebook (18%).



KEY FINDINGS

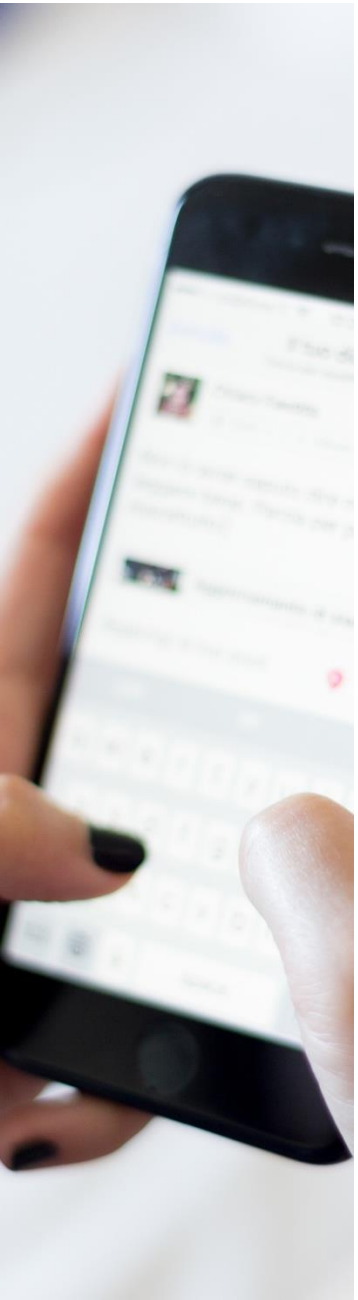
Communications/How to Engage *(continued)*

- Residents say educational information about water pollution will get their attention. Residents under 30 especially prefer fact-based information.

Information type	2019	2021	2023	< 30
General education	76%	80%	77%	71%
Statistical data	55%	51%	60%	76%
Financial reward	53%	54%	60%	79%
Environmental report	59%	57%	59%	66%
Financial consequences	30%	31%	40%	58%

- Specifically, residents say these types of messages would most likely drive them toward action:

Message type	2019	2021	2023
Cause & effect/consequences/impact	16%	24%	29%
Prevention methods/ways to help	16%	17%	22%
General information	6%	17%	20%
Fact/truth/what's really happening	28%	11%	18%



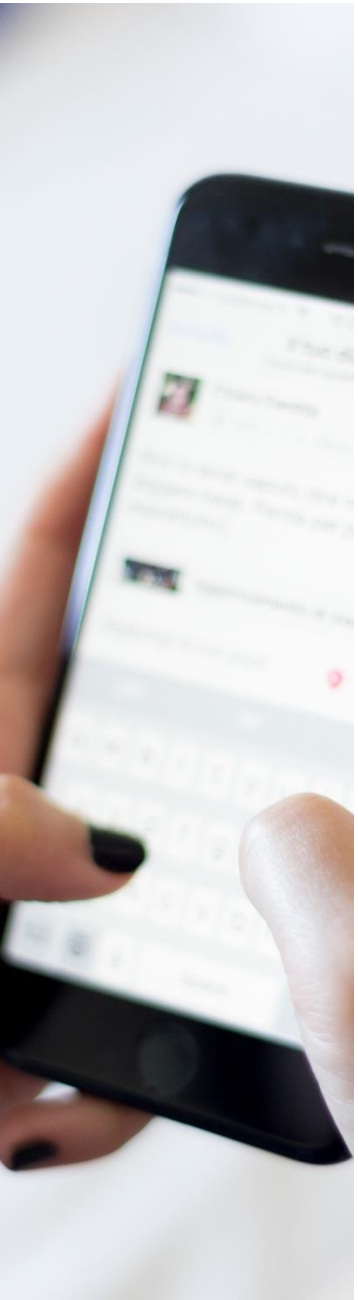
KEY FINDINGS

Communications/How to Engage *(continued)*

- Residents are varied in their media channel preferences, depending on age and type of communication. The top channel for each information type by age group appears in the chart below.
- Consistent since 2013, almost two-thirds of residents (64%) read the newsletters included with their monthly bill.

Communications Preferences by Age and Type, % Ranked 1st

Age	Emergency	%	Community News	%	How-to Info	%	General Notices	%
<30	Internet	27	Email	31	Internet	30	Email	24
30-39	Email	26	Email	30	Internet	26	Email	28
40-49	TV	21	TV	19	Email	21	Email	20
50-59	TV	30	TV	29	Email	20	Email	26
60+	TV	35	TV	25	Email	26	Email	23

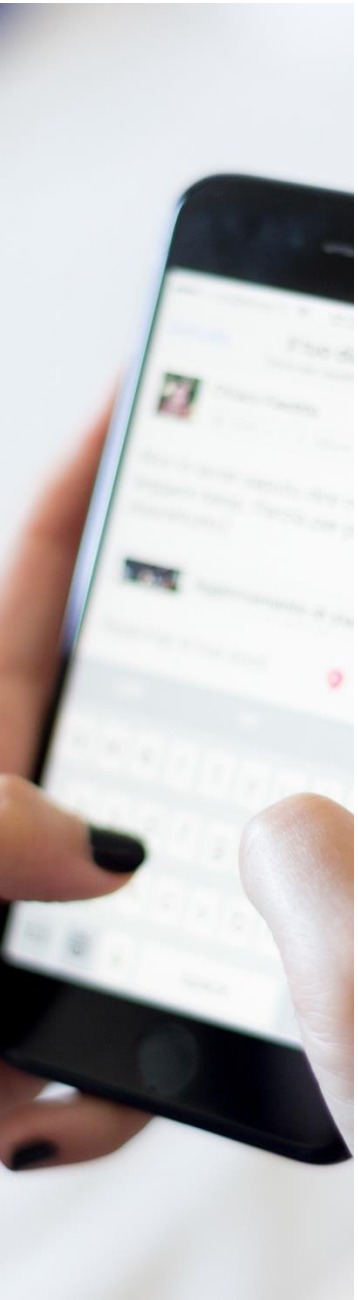


KEY FINDINGS

Communications/How to Engage *(continued)*

- Social media, the Internet and email gained as preferred channels for emergency information and community news. (Ranked Top 4)

	Social Media			Internet			Email		
	2023	2021	Change	2023	2021	Change	2023	2021	Change
Emergency information	60%	58%	+2%	59%	53%	+6%	54%	51%	+3%
Community News	62%	59%	+3%	47%	42%	+5%	57%	57%	0%
How-to information	55%	58%	-3%	67%	66%	+1%	64%	62%	+2%
General notices	55%	54%	+1%	49%	47%	+2%	65%	66%	-1%



KEY FINDINGS

Key insights:

- *Recall about the relationship between rainwater runoff pollution and sewer system overflow and their impact on waterways remains low. This indicates an opportunity to continue to educate the public around the impact and prevention of these contributors to water pollution.*
- *To build awareness, residents prefer educational and fact-based information with specific impact and 'ways to help' messages. Messages designed to help drive specific behaviors will be most effective in maintaining the health of Louisville's waterways.*
- *The newsletter included in the monthly bill remains an effective channel for reaching MSD customers.*
- *The internet and email are the preferred media channels for residents 39 and under for all types of information. Residents 40+ also prefer TV for emergency information and news. Social media preference is increasing, especially for emergency information and news.*

KEY FINDINGS

Perceptions about MSD

- The positive opinion of MSD is consistent with 2021 but Top 2 responses indicate a downward trend since the 2013 survey.

	2013	2015	2017	2019	2021	2023
What is your opinion of MSD? (Top 2)	46%	49%	40%	40%	36%	37%

- Residents were able to identify MSD's many areas of service and value in an open-ended question. However, 18% of residents say they don't know what MSD does.

	2021	2023	Change
Install and maintain sewers	30%	26%	-4%
Charge too much	13%	19%	+6%
Treat wastewater	5%	13%	+8%
Cleans sewers & ditches	9%	13%	+4%
Repair pipes / infrastructure	11%	10%	-1%
Cleans the water	13%	10%	-3%
Drainage / runoff control	8%	8%	0%

KEY FINDINGS

Perceptions about MSD *(continued)*

- As in 2021, residents want MSD to continue to educate the public and help them understand specific ways they can help protect the health of the community's waterways. In open-ended responses about MSD's role in helping residents:

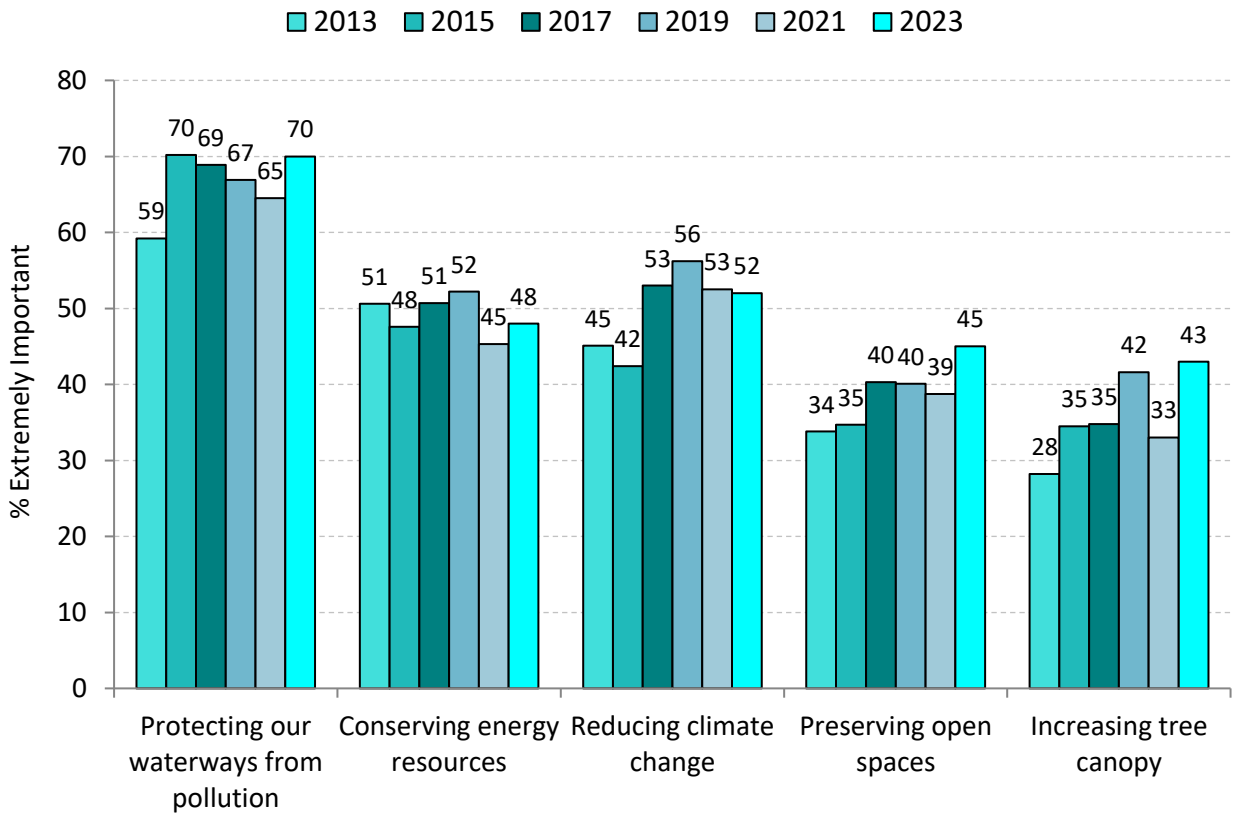
	2021	2023	Change
Education	30%	30%	0%
Inform public of ways to help	12%	18%	+6%
Provide information	26%	12%	-14%
Provide incentives	10%	11%	+1%

DETAILED FINDINGS

PUBLIC ATTITUDES ABOUT CLEAN WATERWAYS

Q3 RESULTS – Importance of Environmental Issues

For each of the following environmental issues, indicate how important you feel the issue is to you.

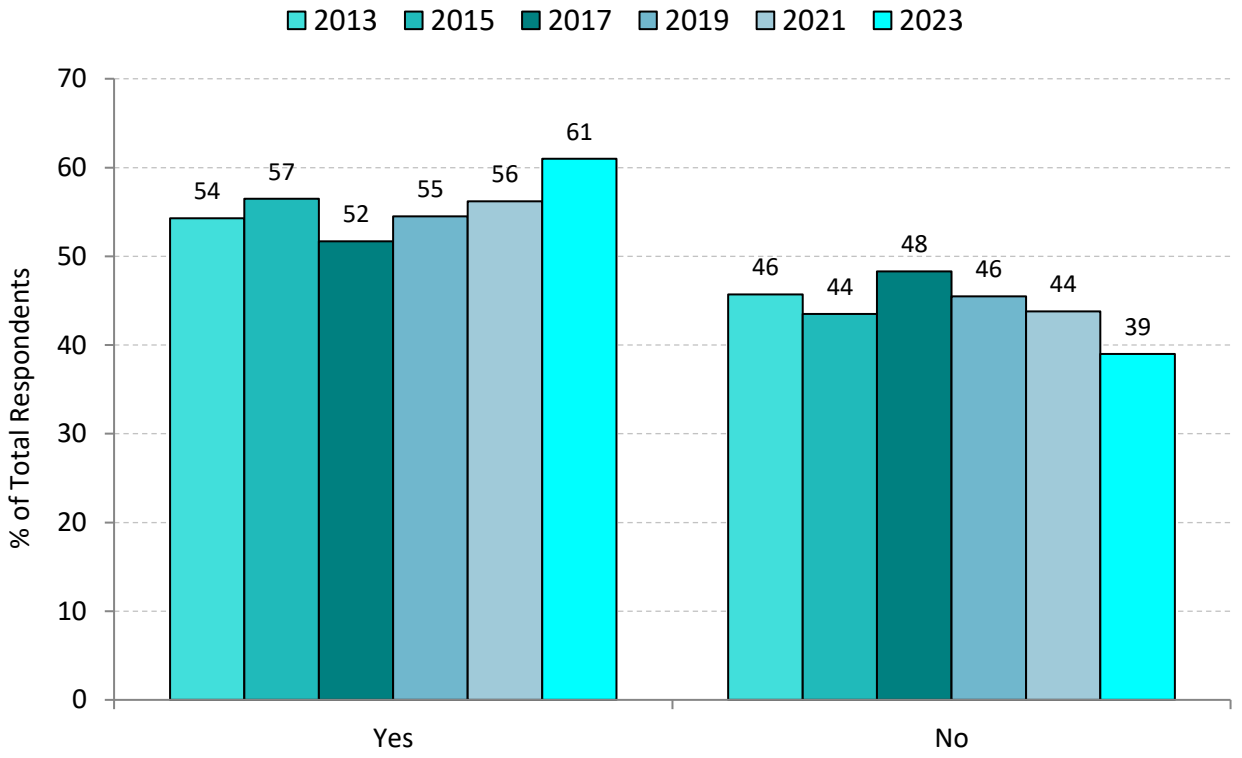


- Protecting Waterways continues to be the most important issue. The increase is driven by those Under 30 (86.7%) and Females (74.2%). Preserving open spaces rose in 2023, driven by East City (55.8%). Increasing tree canopy also rose back to the same level as 2019.

PUBLIC ATTITUDES ABOUT CLEAN WATERWAYS

Q4 RESULTS – Waterway Use

Do you use the river, creeks and ponds for recreational purposes in Jefferson County, Kentucky?



- Waterway usage continues to rise. Residents under 30 (75.4%) continue to be the biggest recreational users, while those who are age 60+ (50.3%) use waterways the least. Waterway usage is spread evenly across the county.

Q5 RESULTS – Waterway Use

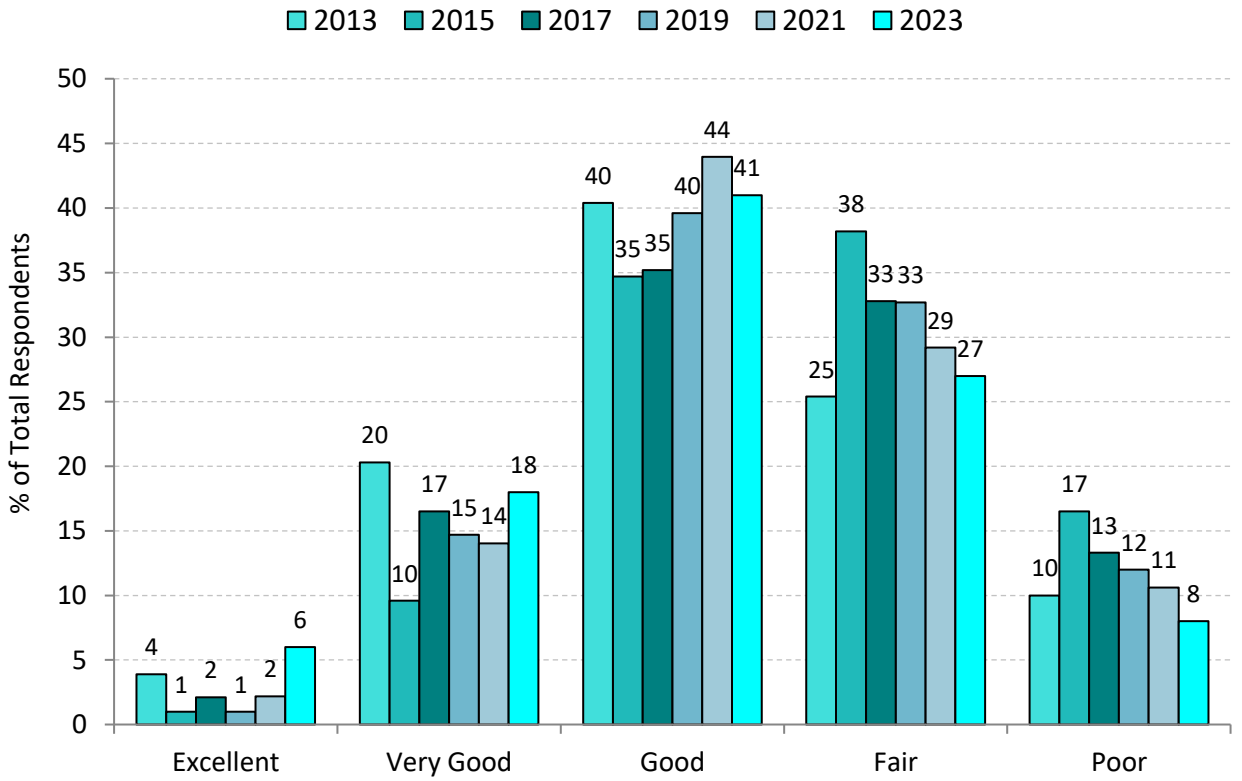
Why don't you use the river, creeks and ponds for recreational purposes? (Total Respondents, open-end)	2013 (%)	2015 (%)	2017 (%)	2019 (%)	2021 (%)	2023 (%)
Don't want to / no interest	21.6	8.2	10.3	14.4	15.1	16.2
Don't own a boat	15.0	12.4	22.3	10.5	13.9	12.4
Not an outdoor / water person	14.8	14.9	16.4	13.3	15.7	22.7
Pollution / contamination / unclean water	12.9	19.9	32.2	25.2	23.6	22.4
Don't fish	10.5	10.2	13.7	7.1	8.5	10.4
Go outside of Louisville / Jefferson County for this	8.1	6.1	2.7	5.8	4.9	4.0
Age / too old	6.8	8.9	6.6	4.6	8.0	5.9
Busy lifestyle / work too much	6.2	9.8	9.0	11.9	16.6	13.2
Not sure what's available	5.3	1.5	0.4	1.8	1.8	4.6
Don't swim	4.1	5.1	6.4	3.4	3.6	6.2
Disabled	3.6	8.1	6.0	8.2	3.4	6.5
Do not live by any	3.5	5.4	4.5	4.8	2.4	2.2

- Use of waterways for recreational purposes due to pollution/contamination remains the prohibiting factor. This continues to be driven by those Under 30 (48.6%). South County (44.2%) also contributes to the high percentage.

PUBLIC ATTITUDES ABOUT CLEAN WATERWAYS

Q6 RESULTS – Overall Quality/Health of River, Creeks and Ponds

How would you rate the overall water quality or health of the river, creeks, and ponds in Jefferson County, Kentucky?



- There continues to be a downward trend of the Fair/Poor overall water quality/health ratings over the past 8 years. These declines are driven by Southwest County and East County. Those 60+ have the lowest Fair/Poor ratings (32.0%) and Downtown residents have the highest Fair/Poor ratings (46.6%).

Q7 RESULTS – Overall Quality/Health of River, Creeks and Ponds

Why do you give that rating? (Total Respondents, open-end)	2013 (%)	2015 (%)	2017 (%)	2019 (%)	2021 (%)	2023 (%)
Lots of pollution / trash / debris / dirty	29.4	44.2	45.8	44.3	46.5	39.9
Visual observation / look of it	17.9	5.0	8.1	14.5	9.3	11.2
Lakes are ok – river is bad	7.8	0.7	2.7	3.9	4.7	2.9
Sewage / storm runoff	7.6	9.9	11.0	7.7	6.8	5.8
From what I read / hear	5.5	6.0	8.8	5.2	5.8	4.9
Clean	4.2	4.8	11.9	7.9	10.5	7.6
Well maintained	4.0	1.2	4.0	1.7	5.1	1.1
Always room for improvement	3.9	10.9	6.0	5.4	6.5	8.9
Haven't had any issues / problems	2.9	2.1	3.0	2.4	2.3	1.3
Conditions are improving	2.2	2.6	3.7	2.9	2.5	1.8
My perception / impression	2.0	2.4	2.8	2.9	1.8	3.0
All others	4.7	1.7	1.5	5.9	0.5	6.1
Don't know	13.7	0.8	2.2	4.4	4.2	7.4

- Those under 30 (58.3%) and South County (48.5%) were most likely to mention pollution/trash as a reason for their rating.
- Those age 60+ (28.9%) and East County residents (30.8%) mentioned pollution/trash the least.

Q7 RESULTS – Overall Quality/Health of River, Creeks and Ponds

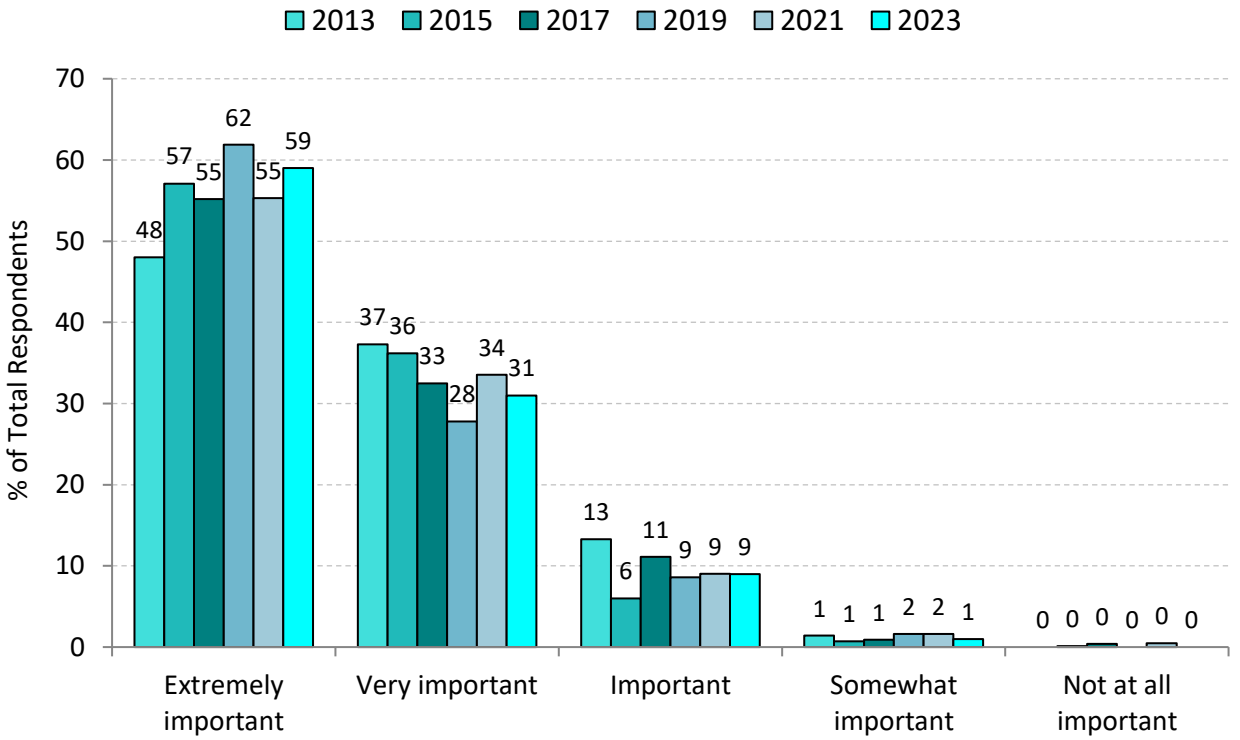
Why do you give that rating? [Those who rated Excellent or Very Good]	2013 (%)	2015 (%)	2017 (%)	2019 (%)	2021 (%)	2023 (%)
Clean	11.7	26.3	47.6	32.1	44.1	21.3
Always room for improvement	4.0	15.7	3.1	1.2	6.9	4.7
Conditions are improving	3.6	14.9	8.5	4.0	5.3	1.3
Our drinking water is good	4.0	7.0	18.1	11.8	21.6	21.5
Good quality	3.3	9.3	10.5	11.4	5.3	8.3

Why do you give that rating? [Those who rated Fair or Poor]	2013 (%)	2015 (%)	2017 (%)	2019 (%)	2021 (%)	2023 (%)
Lots of pollution / trash / debris / dirty	54.6	58.4	51.3	62.5	72.6	61.7
Sewer system overflow / rainwater runoff	13.5	15.1	17.8	10.1	13.4	10.6
Odors / smelly	3.4	11.6	13.6	1.7	3.4	7.3
Visual observation/look of it	19.0	6.6	11.3	13.3	12.6	12.1
Lack of upkeep	1.9	8.9	7.9	4.0	0.0	6.5

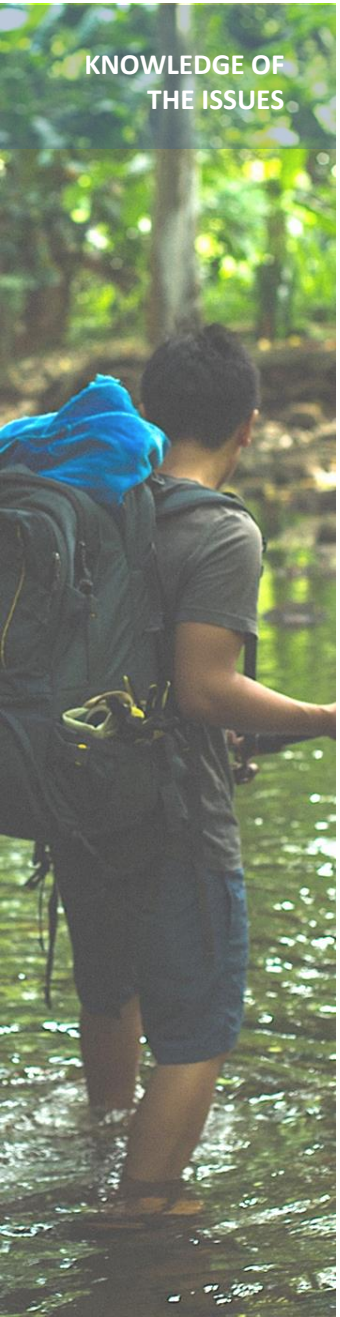
PUBLIC ATTITUDES ABOUT CLEAN WATERWAYS

Q8 RESULTS – Importance of Clean River, Creeks and Ponds

How important is it to you that your community has clean rivers, creeks and ponds?

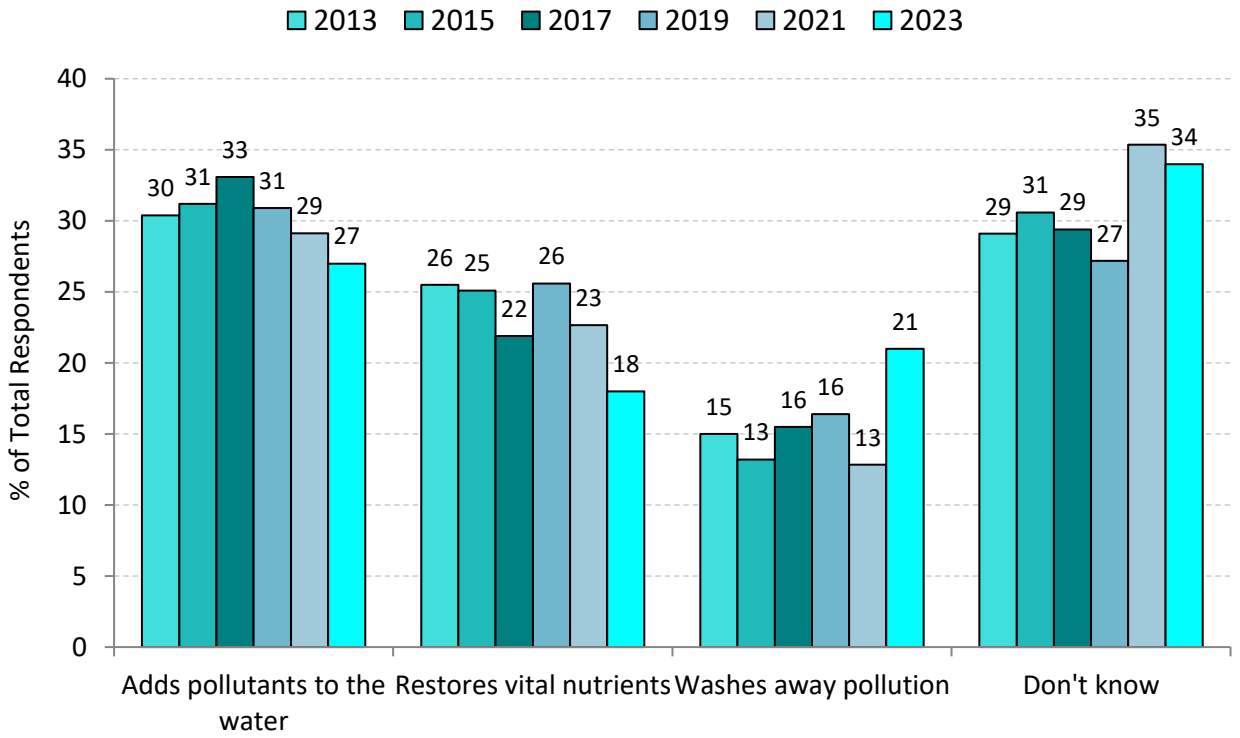


- Residents saying that it is extremely important that the community having clean rivers, creeks and ponds is generally increasing over time.
- It is extremely important to Downtown/West City residents (68.3%) to have clean rivers, creeks and ponds.



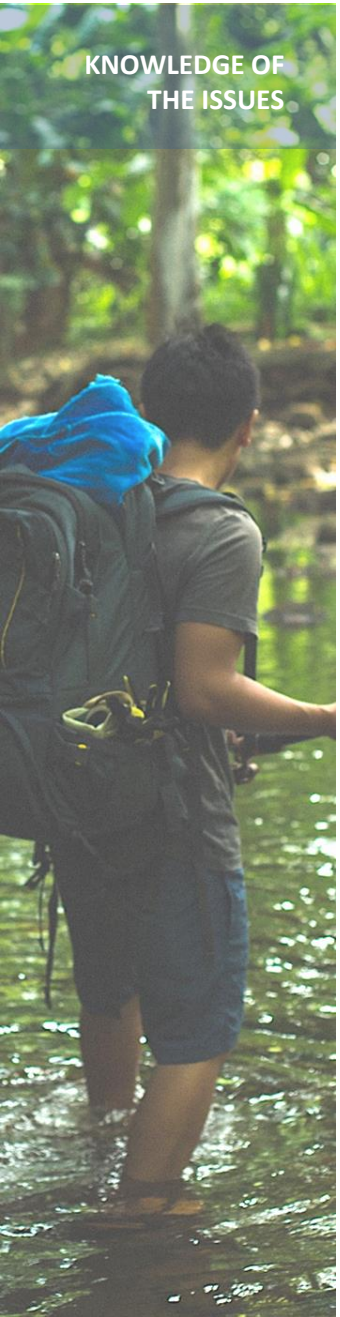
Q9 RESULTS – Effect of Rain on Quality of River, Creeks and Ponds

How does rain affect the water quality or health of our river, creeks and ponds? Please select one.



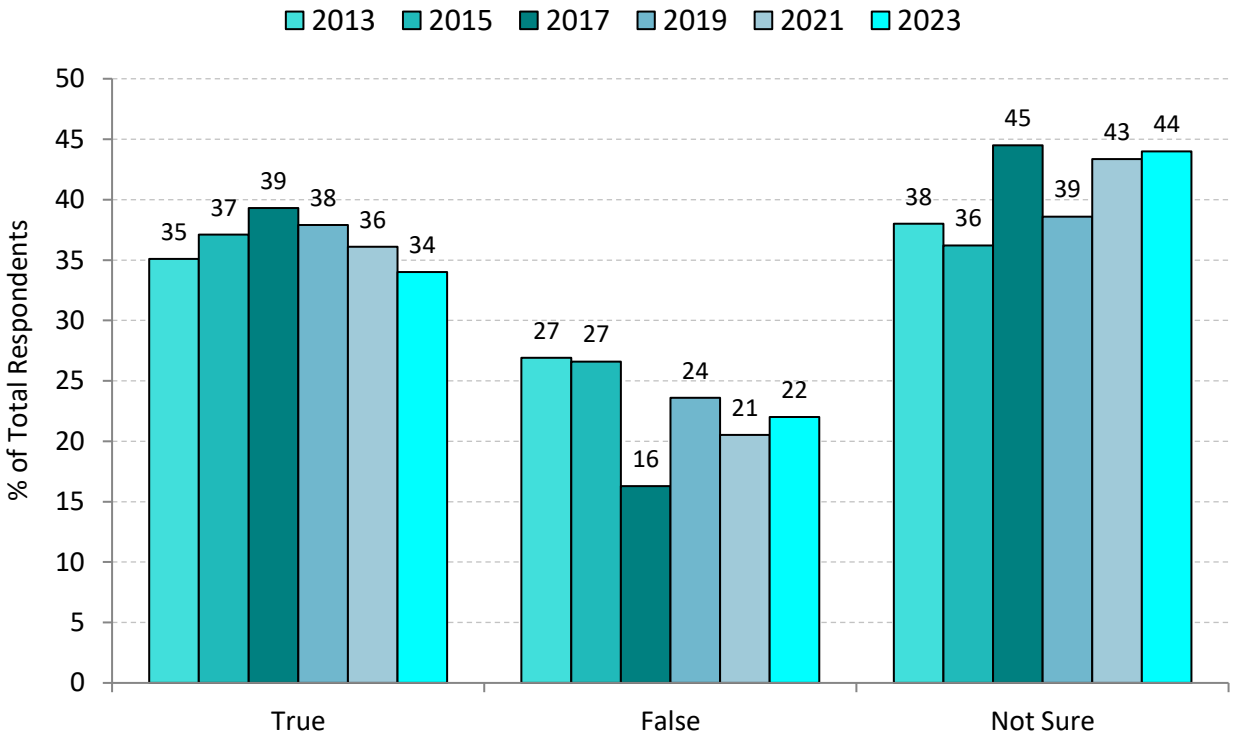
- Perceptions that rain adds pollutants to the water and restores vital nutrients both continue to decrease.
- The increase in the proportion that don’t know how rain affects water quality is driven by those under 30 (46.6%).

KNOWLEDGE OF THE ISSUES



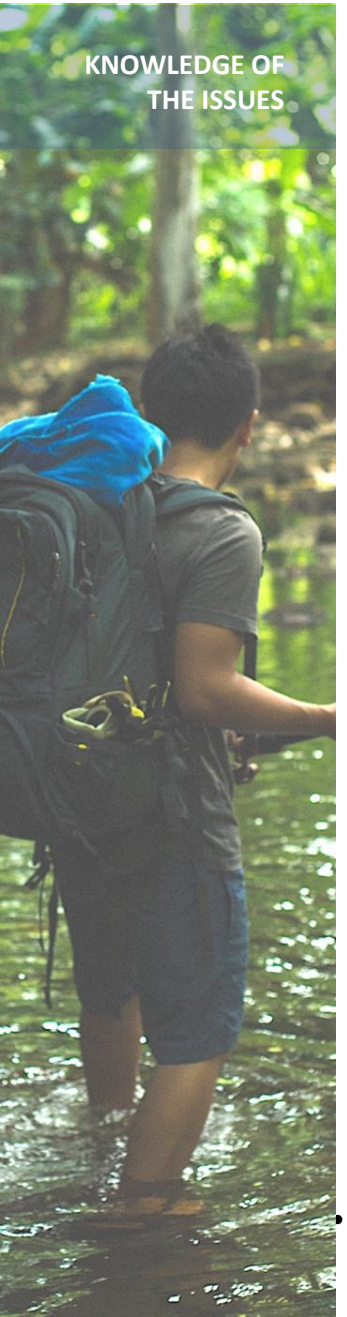
Q10 RESULTS – Post-Rain Pollution

After it rains, you should not use the local area river, creeks and ponds because they have become unsafe with increased levels of pollution and bacteria.



- Those age 30-39 (45.4%) exhibit the strongest agreement.
- Those in the Northeast County showed the strongest disagreement (30.2%).

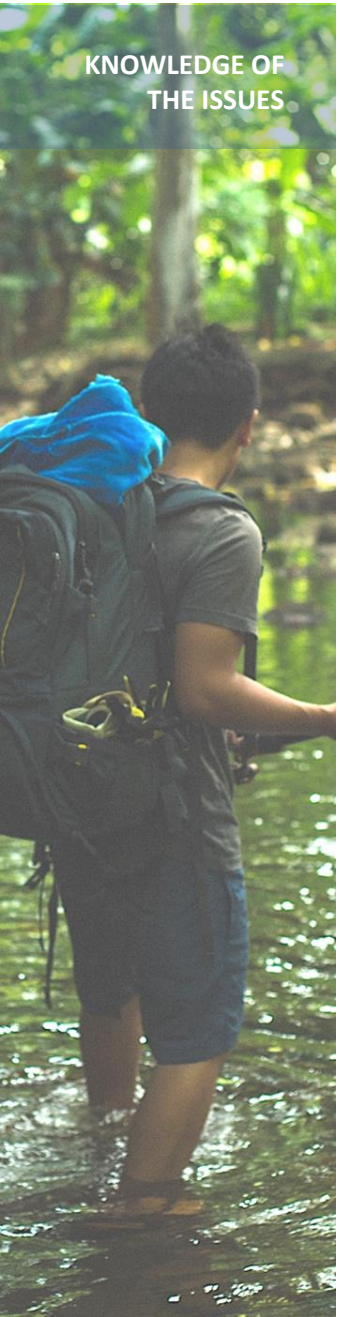
Q11 RESULTS – Post-Rain Pollution



What do you think would cause the river, creeks and ponds to become polluted after a rain? (open-end)	2013 (%)	2015 (%)	2017 (%)	2019 (%)	2021 (%)	2023 (%)
Runoff / flooding	10.8	36.6	27.8	21.1	32.1	28.5
Trash / litter / debris getting washed into it	17.1	20.6	11.6	13.3	21.7	15.0
Fertilizers / pesticides / lawn sprays/chemical runoff	14.0	20.6	16.6	14.8	20.1	17.5
Ground pollution	12.5	17.2	2.7	8.7	4.9	2.3
Sewage overflow	10.5	12.6	14.6	10.6	10.5	11.7
Run-off from streets / roads / parking lots / cars	11.4	11.3	12.3	11.1	13.8	19.4
Air pollution	7.6	7.4	11.9	13.5	14.6	16.9
Don't know	12.0	4.6	5.5	7.2	7.3	10.2
Industrial waste	3.0	2.9	6.6	4.0	4.3	5.7
Acid rain / rain carries pollutants	10.9	1.6	9.0	5.8	7.1	11.0
Run-off from farms / fields / agriculture	4.2	0.7	8.7	5.2	3.8	4.2
All others	7.8	0.2	1.0	3.3	0.9	0.5

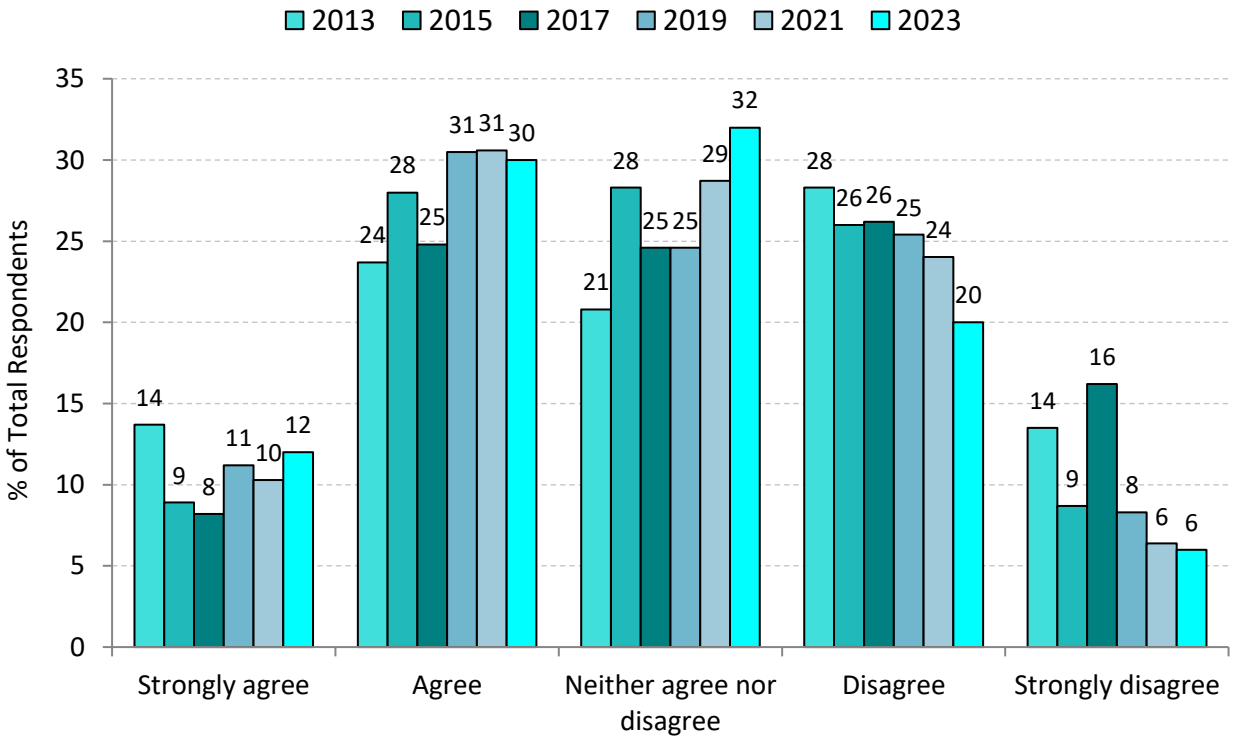
- Runoff/flooding continues to be the most likely to cause of waterway pollution.

KNOWLEDGE OF THE ISSUES

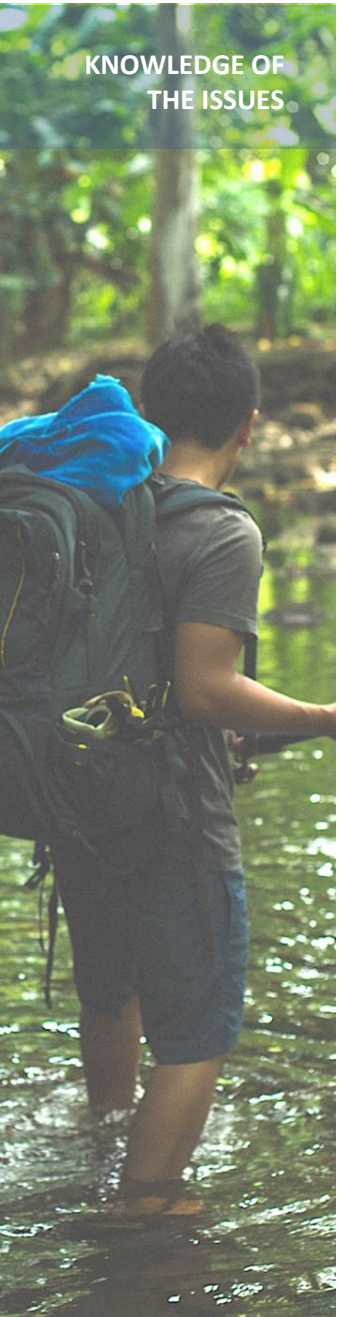


Q12a RESULTS – Pollution, Runoff, & Sewer Overflow

Water that flows through the street gutters/storm drains goes through a treatment facility before being released into our waterways.

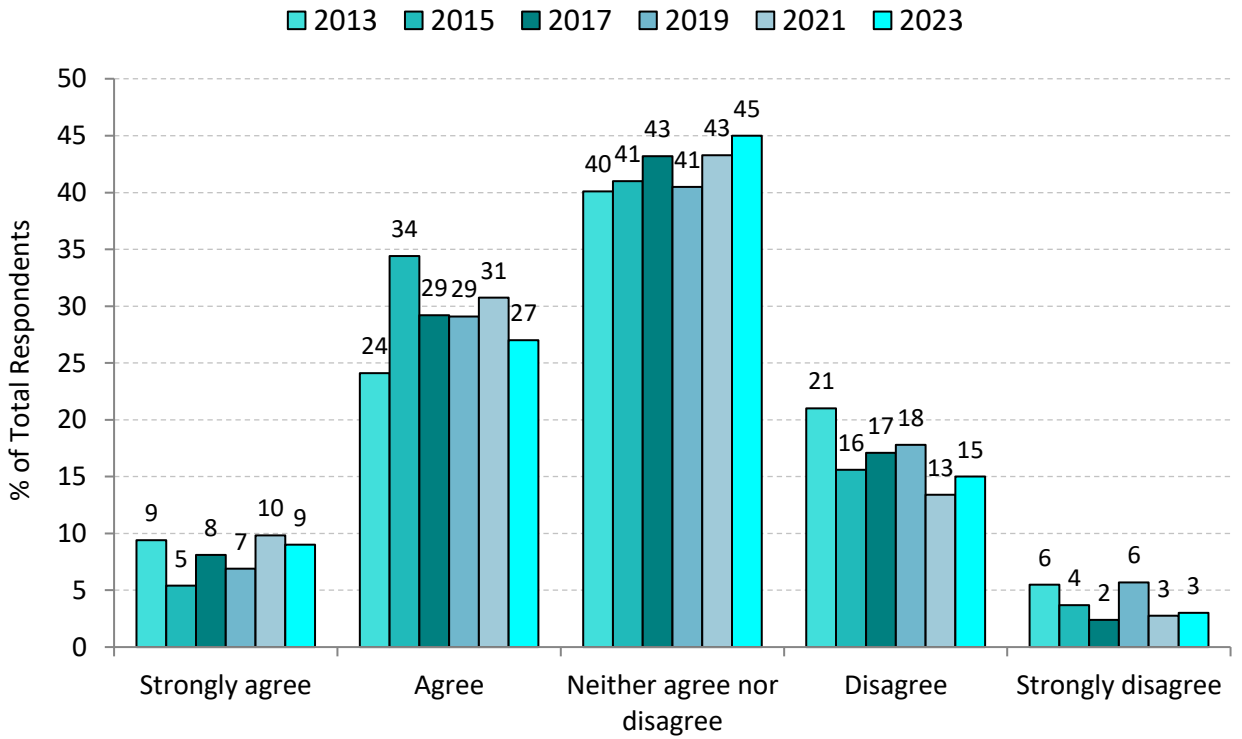


- Those who Strongly Agree that storm water is treated before being released into our waterways is highest for those in Downtown/West City (23.2%) and those with a HS or less education (25.9%).
- Those who Strongly Disagree/Disagree most are 60+ (33.8%).

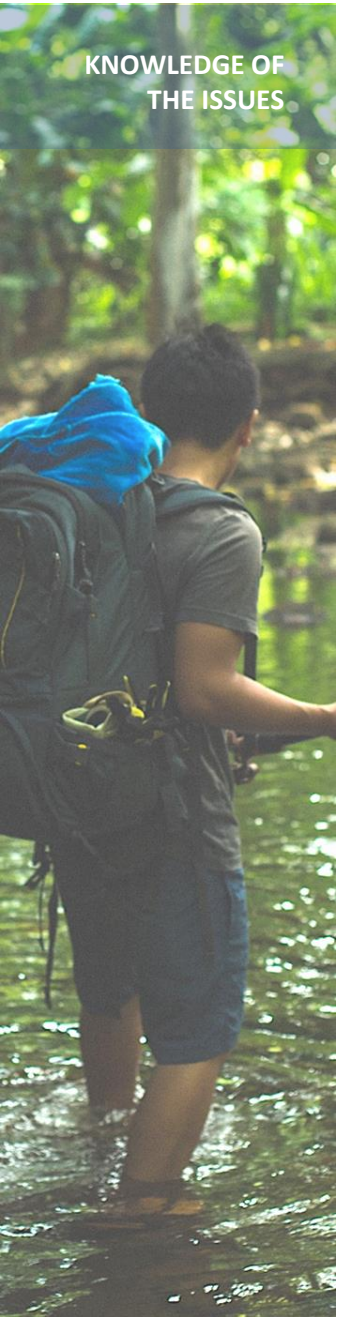


Q12b RESULTS – Pollution, Runoff, & Sewer Overflow

Rainwater runoff is a leading cause of water pollution in my area.

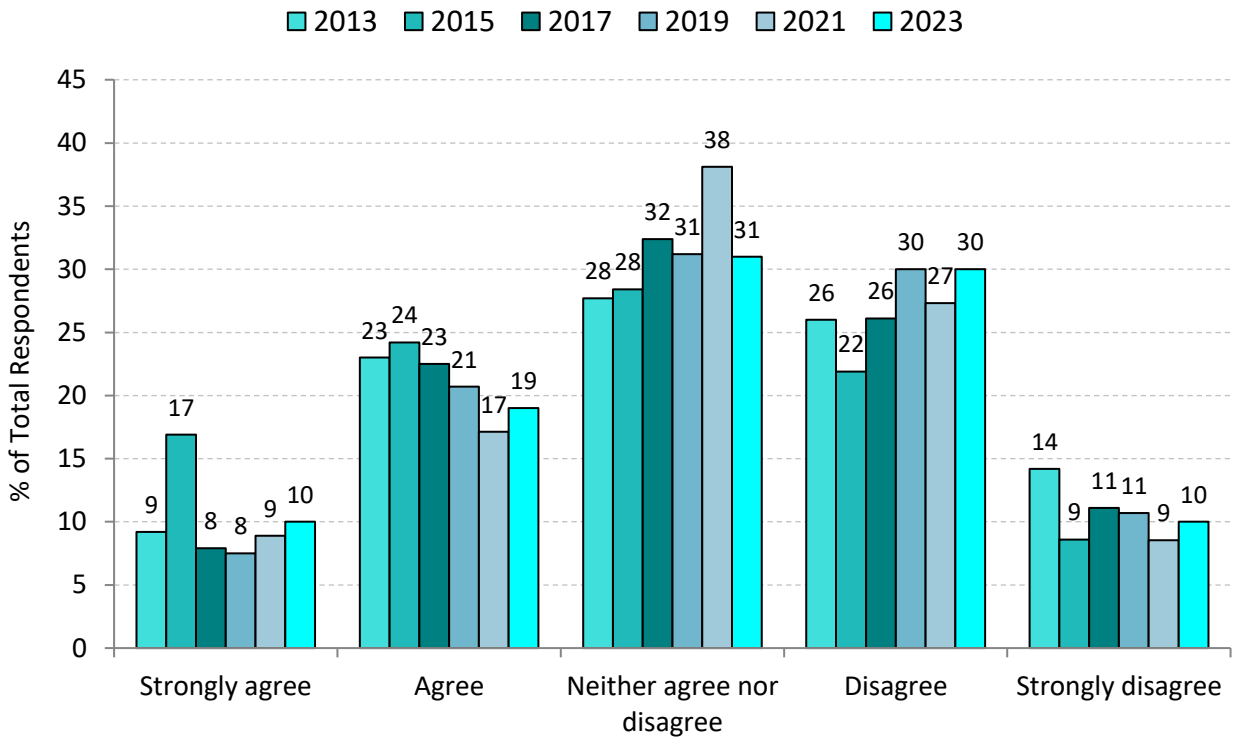


- Those with a HS or less education are strongest in overall agreement (47.0% Agree/Strongly Agree) that rainwater runoff causes pollution.
- Residents in the Northeast County (26.6%) are highest in overall disagreement (Disagree/Strongly Disagree) with this statement.



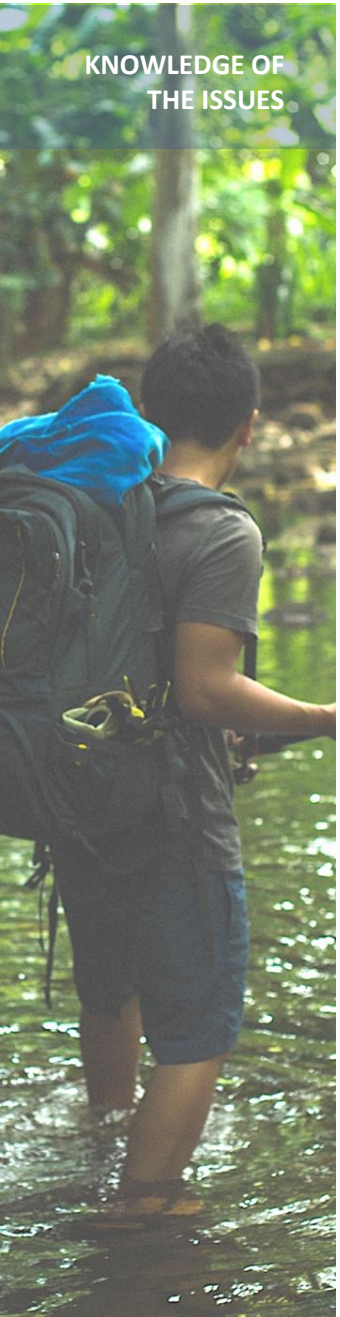
Q12c RESULTS – Pollution, Runoff, & Sewer Overflow

Sewer system overflow occurs frequently in my community.

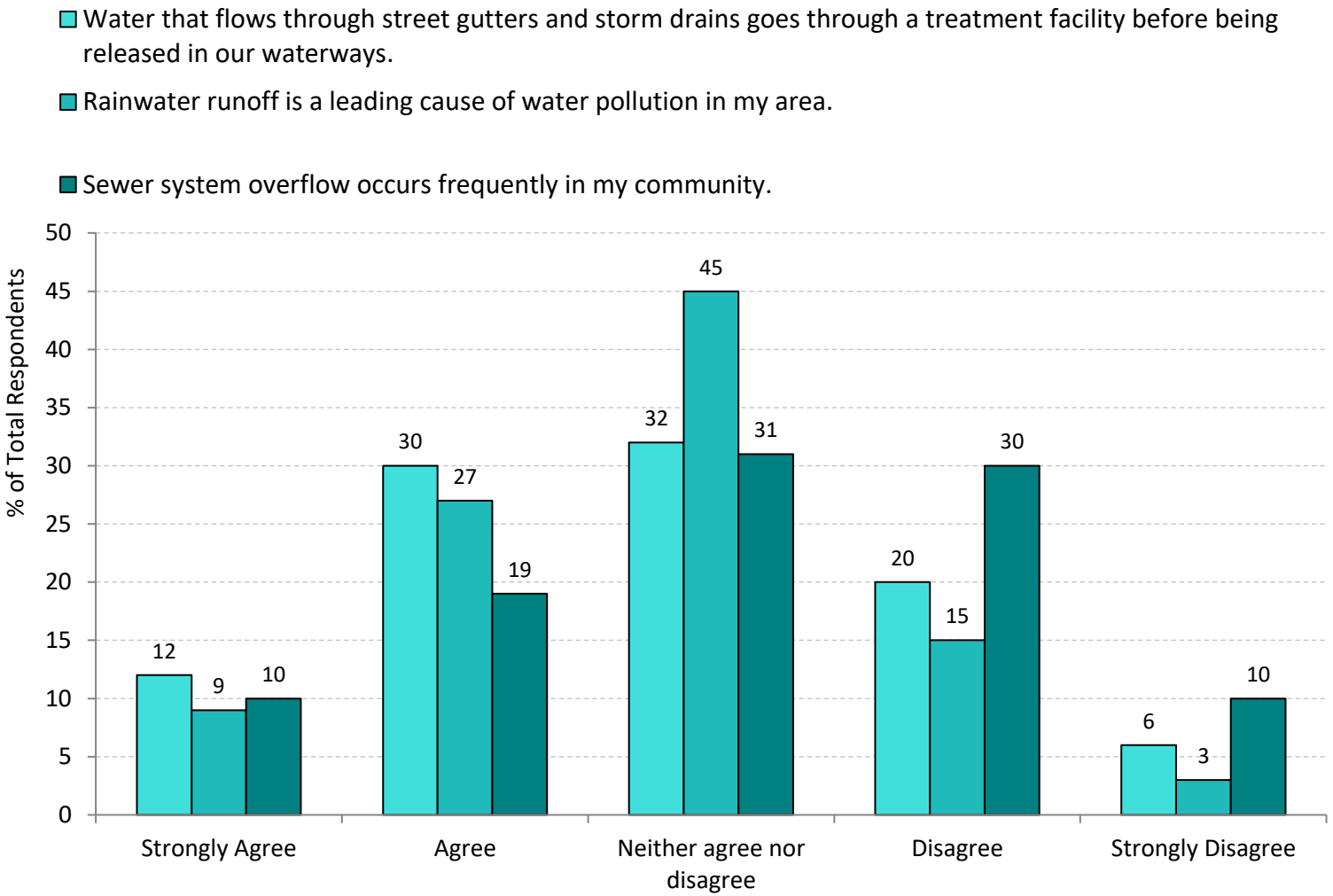


- Those who Strongly Agree that sewer system overflow occurs frequently continues to remain low in 2021. However, those who Agree/Strongly Agree about frequent overflows are located in Downtown/West City (37.5%) and renters (36.6%).
- East County residents (56.7%) Disagree/Strongly Disagree the most.

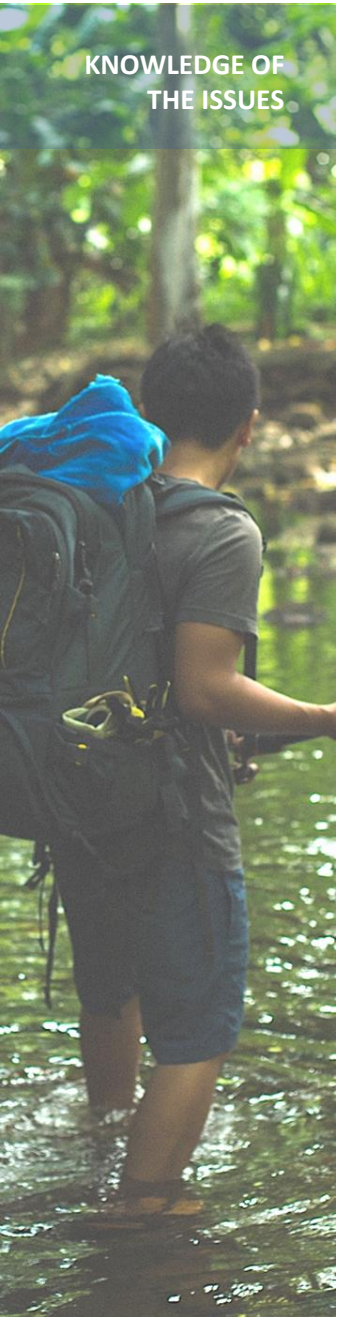
KNOWLEDGE OF THE ISSUES



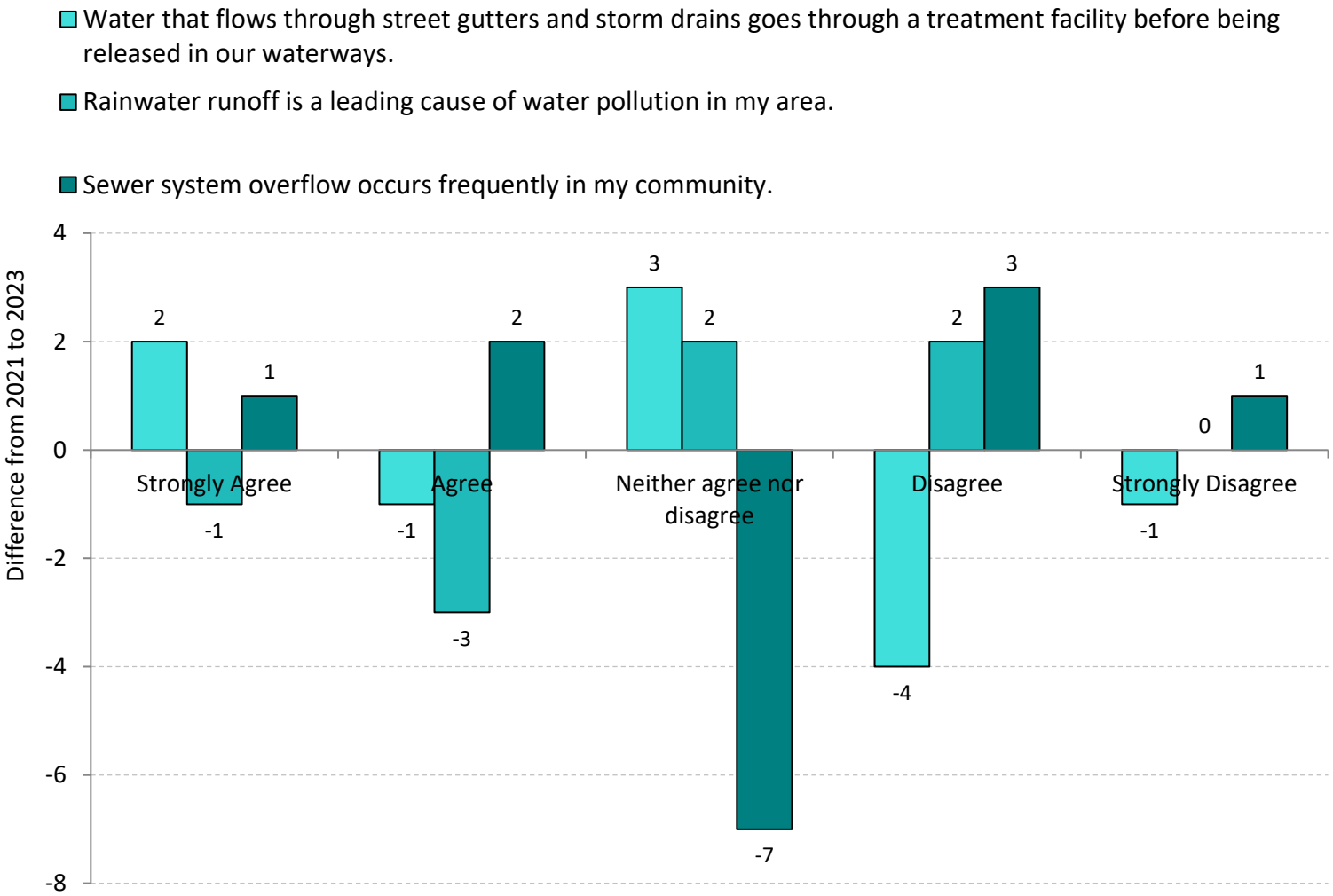
Q12 TOTAL RESULTS BY ISSUE – Pollution, Runoff, & Sewer Overflow

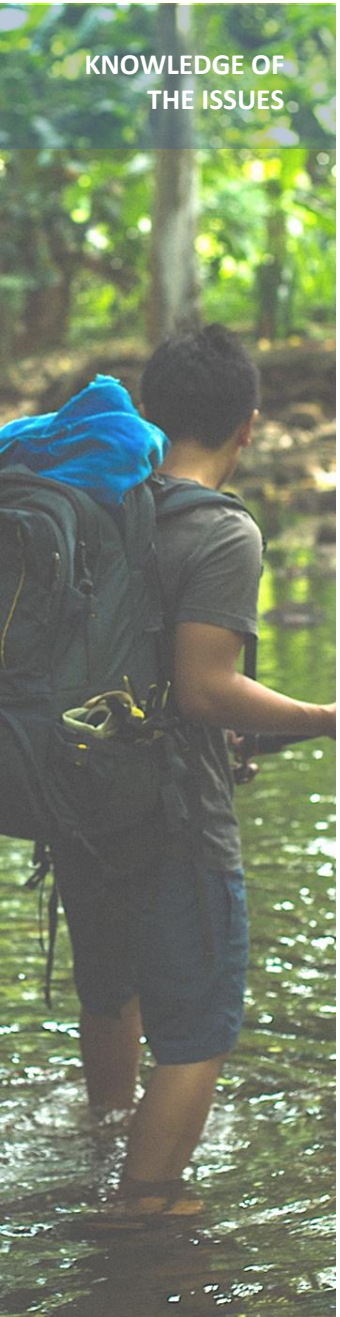


DATAMAX



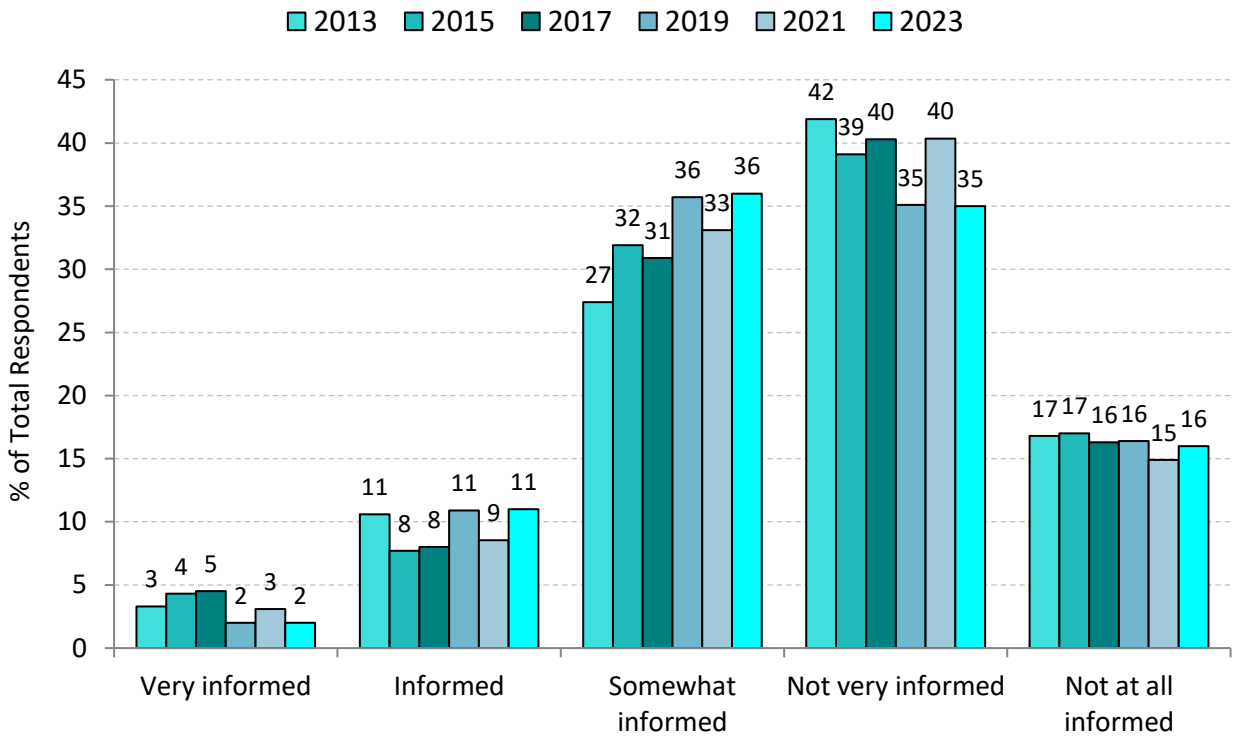
Q12 TOTAL RESULTS BY ISSUE – Pollution, Runoff, & Sewer Overflow





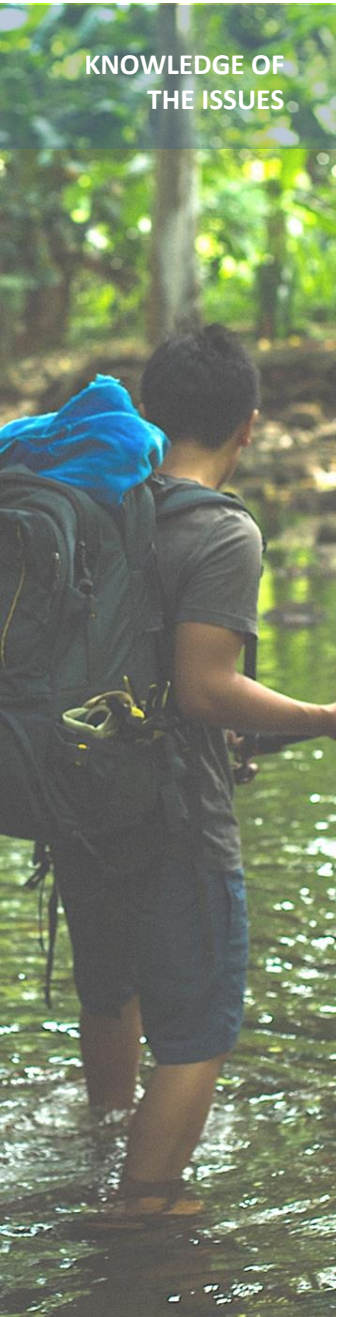
Q13 RESULTS – Causes of Rainwater Runoff Pollution

How informed do you feel about the causes of rainwater runoff pollution in your area?



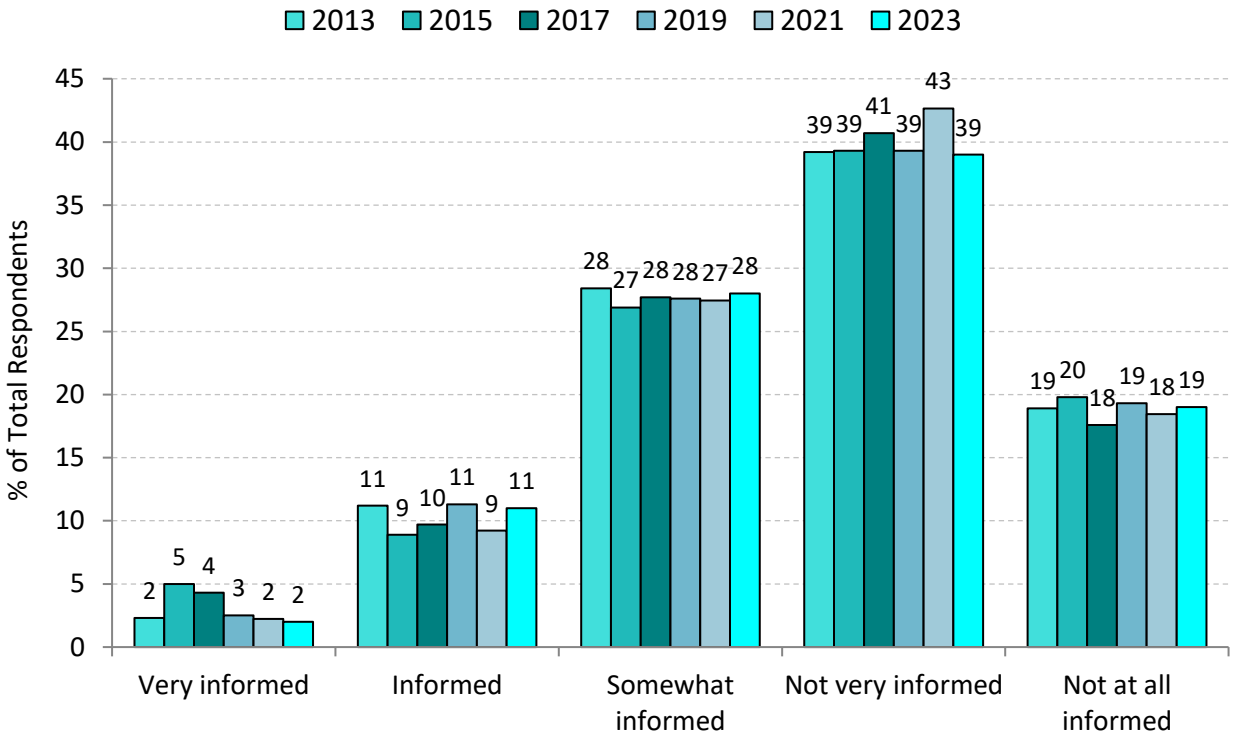
- Those in Southwest County to feel most informed (21.3% very informed/informed).
- Conversely, those under 30 feel least informed (82.9% not very informed/not at all informed).

KNOWLEDGE OF THE ISSUES



Q14 RESULTS – Causes of Sewer System Overflow

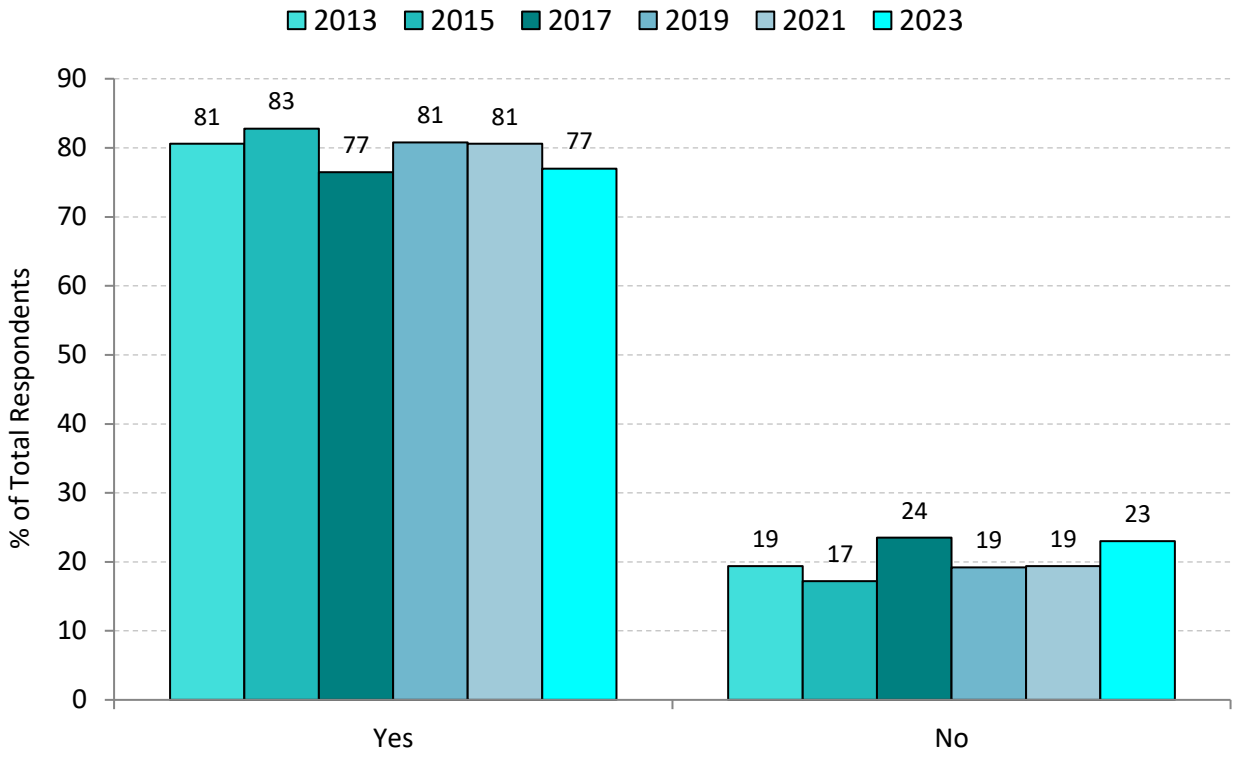
How informed do you feel about the causes of sewer system overflow in your area?



- As with rainwater runoff pollution, residents under 30 feel not very informed/not at all informed (84.2%).
- Those in Southwest County feel informed/very informed (28.6%).

Q15 RESULTS – Actions for Pollution Reduction

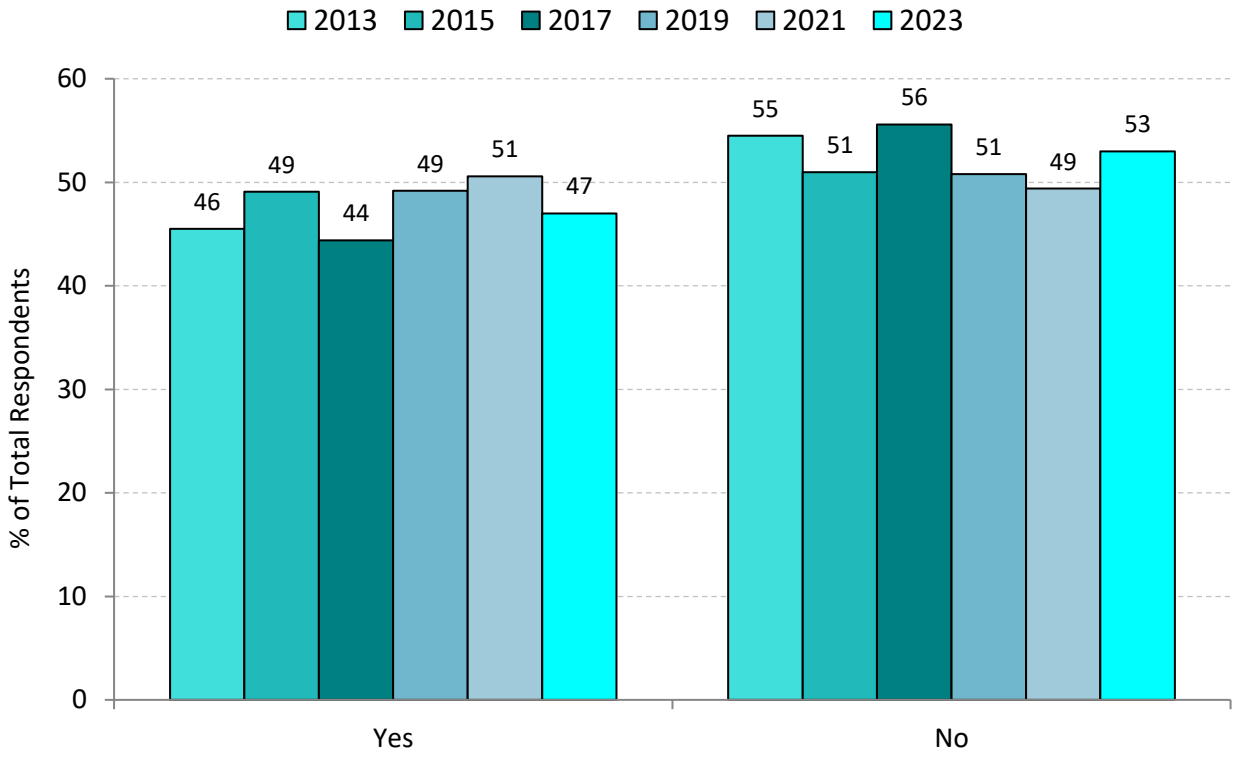
Do you think there are actions you can take to reduce water pollution in the river, creeks and ponds?



- Most favorable stance on taking action: Females (83.2%) and South County (84.1%).
- Downtown/West City (29.8%) and East County (29.2%) residents believe strongest that no actions can be taken.

Q16 RESULTS – Actions for Pollution Reduction

Rainwater runoff and sewer system overflow contribute to water pollution. Do you currently take actions to reduce water pollution?



- Those not currently taking action are Northeast County residents (59.7%) and those under 30 (63.5%).

Q17 RESULTS – Actions for Pollution Reduction (Total)

What actions do you currently take to reduce water pollution? (open-end, asked if "yes" to #16)	2013 (%)	2015 (%)	2017 (%)	2019 (%)	2021 (%)	2023 (%)
Pickup trash / litter	2.9	24.1	4.9	7.4	11.8	11.3
Careful about what I pour into ground/down drain/dispose	28.0	17.9	10.6	10.9	5.2	12.0
Don't use chemicals on lawn	16.4	16.9	29.7	20.8	22.2	25.0
By not littering/polluting/using trash cans	27.2	13.5	26.2	40.6	26.5	30.6
Clean up sewer/street drains	7.4	12.5	10.0	5.0	8.5	16.6
Recycling	8.6	10.2	4.7	5.7	4.8	4.6
Don't wash clothes/use dishwasher during rain	6.4	9.9	3.0	2.7	4.5	3.8
Conserve water	5.2	5.8	6.5	4.6	5.9	12.5
Not flushing medicines	3.2	4.7	4.9	6.6	2.6	2.2
Redirecting rain water/gutters to yard	4.3	3.3	4.0	2.6	4.1	1.7
Rain barrels	4.7	2.9	5.4	1.5	4.0	2.4
Use green products	3.7	2.4	2.2	8.9	5.2	1.1
Maintain car/vehicle	3.3	2.1	3.2	3.6	1.3	5.0

Q17 RESULTS – Actions for Pollution Reduction by Age

What actions do you currently take to reduce water pollution? (open-end, asked if "yes" to #16)	< 30	30-39	40-49	50-59	60+
Pick up trash/litter	3.9	15.4	15.9	5.8	12.6
Careful about what I pour into ground/down drain/dispose	18.5	15.0	4.3	18.0	9.4
Don't use chemicals on lawn	7.7	24.7	27.4	35.6	26.9
By not littering/polluting/using trash cans	52.0	29.0	27.3	26.0	25.5
Clean up sewer/street drains	25.7	11.8	14.0	14.2	19.7
Recycling	-	7.4	2.9	6.8	5.4
Don't wash clothes/use dishwasher during rain	7.7	4.7	6.1	-	2.8
Clean up pet waste	-	2.4	2.9	-	3.0
Conserve water	22.5	18.4	12.3	4.0	9.1
Not flushing medicines	-	0.8	3.5	5.0	2.0
Don't put grease down drain	-	-	-	-	0.5
Don't dump anything into sewers	-	12.4	7.8	8.0	10.8

Q17 RESULTS – Actions for Pollution Reduction by ZIP Area

What actions do you currently take to reduce water pollution? (open-end, asked if "yes" to #16)	Downtown / West City	South West	East City	South Co.	North-east Co.	East Co.
Pick up trash/litter	11.6	12.7	5.6	11.5	15.2	3.3
Careful about what I pour into ground/down drain/dispose	30.0	5.0	19.3	9.2	2.9	15.0
Don't use chemicals on lawn	25.7	29.4	44.9	21.7	15.7	32.1
By not littering/polluting/using trash cans	31.3	29.9	13.4	34.7	22.5	29.5
Clean up sewer/street drains	18.2	18.9	-	17.1	10.0	21.2
Recycling	2.4	3.2	7.2	7.1	1.5	6.7
Don't wash clothes/use dishwasher during rain	2.5	7.6	8.4	1.8	-	9.7
Clean up pet waste	2.7	3.2	4.3	1.2	1.5	-
Conserve water	21.4	12.1	8.4	9.0	18.4	6.2
Not flushing medicines	2.0	4.0	15.4	1.2	1.9	-
Don't put grease down drain	-	-	-	-	-	1.3
Don't dump anything into sewers	6.3	5.8	25.3	8.2	14.1	8.1

Q18 RESULTS – Actions for Pollution Reduction

Do you think any of these actions would increase the amount of pollution from rainwater runoff? (Select all that apply)	2013 (%)	2015 (%)	2017 (%)	2019 (%)	2021 (%)	2023 (%)
Improperly disposing hazardous waste, such as paint and motor oil	94.3	97.7	99.3	97.1	96.8	93.1
Putting trash in the street gutter	93.1	87.0	93.0	92.1	91.4	88.7
Allowing fluids to leak from cars and trucks	91.3	63.3	69.0	93.8	90.1	89.4
Using non environmentally friendly lawn chemicals	87.3	92.3	93.2	89.3	89.4	86.7
Leaving pet waste on the ground	71.1	69.3	76.9	75.4	68.3	68.7
Washing your car in the driveway or street	55.4	56.2	50.2	56.3	53.2	54.8

- Respondents' perception that allowing fluids to leak from cars and trucks would increase rainwater runoff pollution remains significantly higher than 2015-2017.
- The increase in leaking car/truck fluids is driven by all demographic/geographic groups.

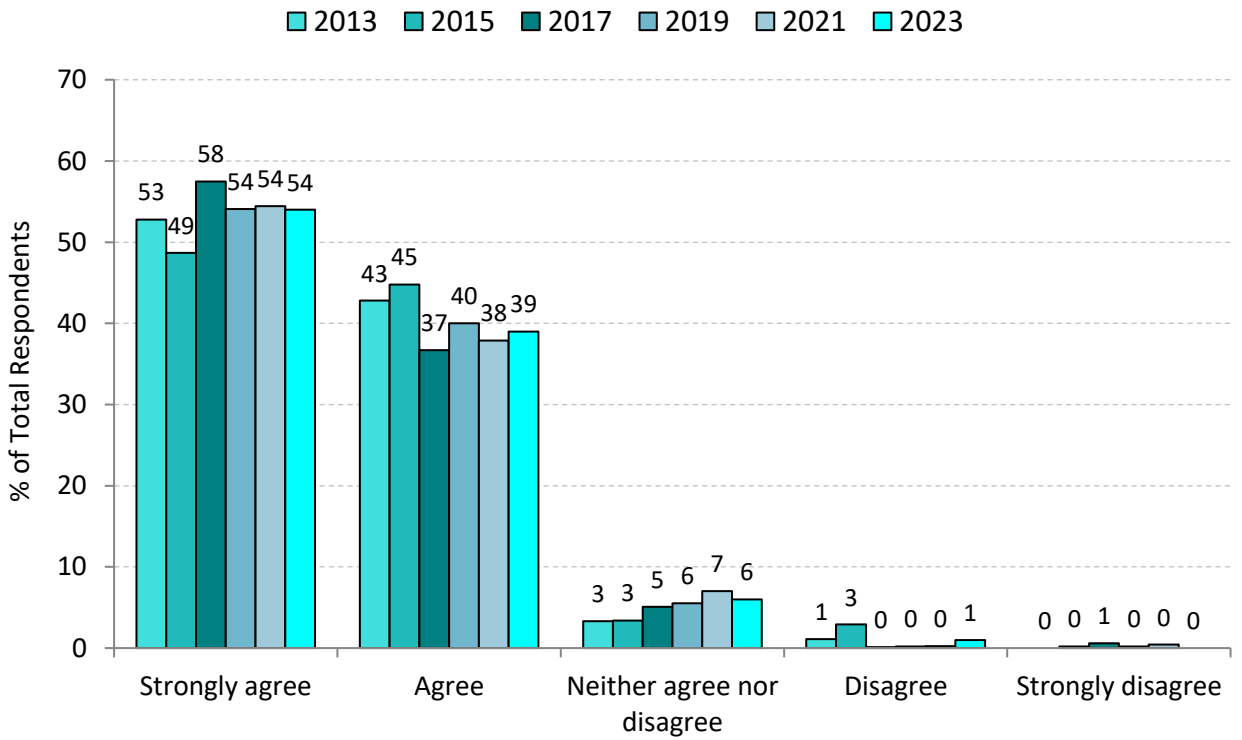
Q19 RESULTS – Actions for Pollution Reduction

Do you think any of these actions cause sewer system overflow? (Select all that apply)	2013 (%)	2015 (%)	2017 (%)	2019 (%)	2021 (%)	2023 (%)
Pouring fats, oils, greases and food particles down the sink (FOG)	84.8	78.1	83.3	85.8	81.1	89.0
Flushing diaper wipes and other wet wipes down the toilet	84.6	83.4	92.9	93.0	92.8	92.0
Putting lawn grass clippings and leaves in the street gutter	82.2	80.1	82.5	83.3	81.2	81.1
Flushing hair down the toilet	64.4	61.5	69.7	67.5	68.0	65.0
Connecting the groundwater sump pump to the basement sewer connection	56.1	51.6	49.9	53.5	48.4	51.8
Flushing dental floss down the toilet	54.3	52.6	70.1	65.3	63.2	58.1
Using water-using appliances, such as a dishwasher or clothes washer, when it is raining	36.4	36.4	38.4	39.8	31.9	29.0

- Increases in flushing wipes, dental floss, and hair down the toilet are maintained in 2023.
- Those under 30 (95.1%) residents are most likely to associate pouring FOGs down the drain with sewer system overflow.

Q20(a) RESULTS – Water Quality & Health of River, Creeks and Ponds

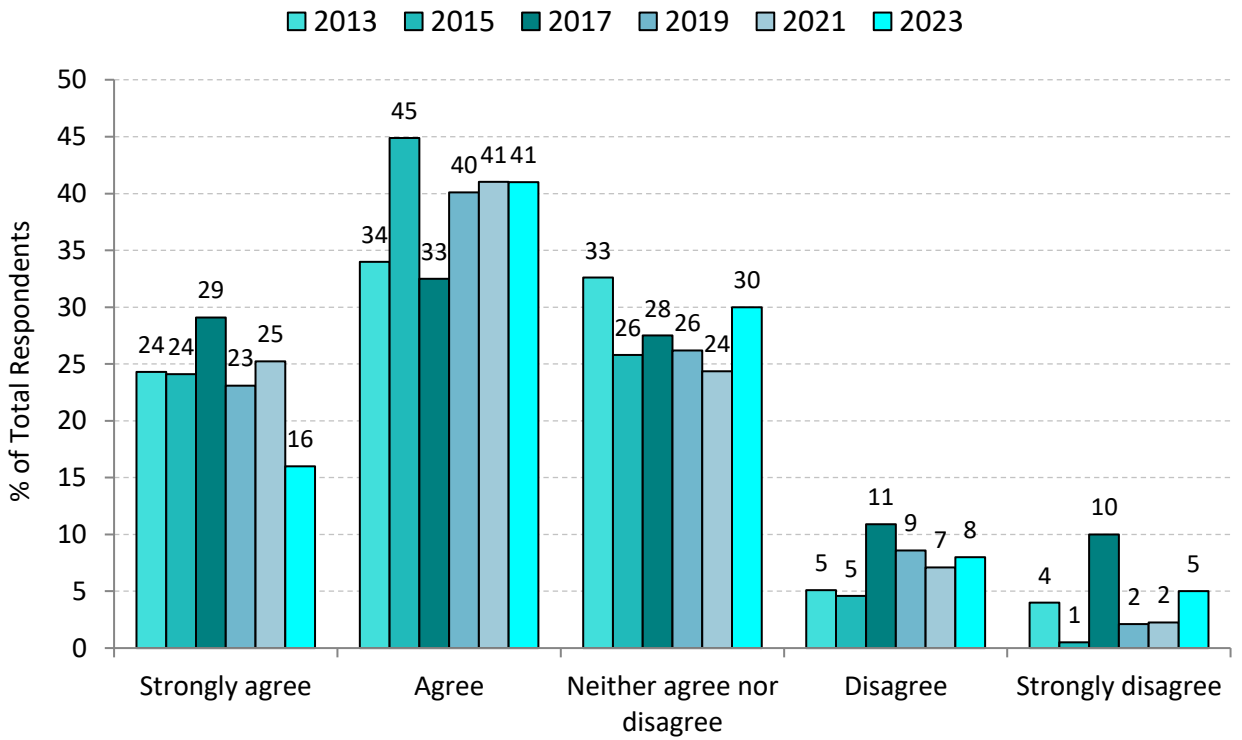
We can all do our part to reduce the effects of water pollution.



- Females continue to have stronger agreement (62.2%) than males (48.9%) about doing their part to reduce pollution.
- Those under 30 (67.2%) and Downtown/West City residents (65.4%) also account for stronger agreement.

Q20(b) RESULTS – Water Quality & Health of River, Creeks and Ponds

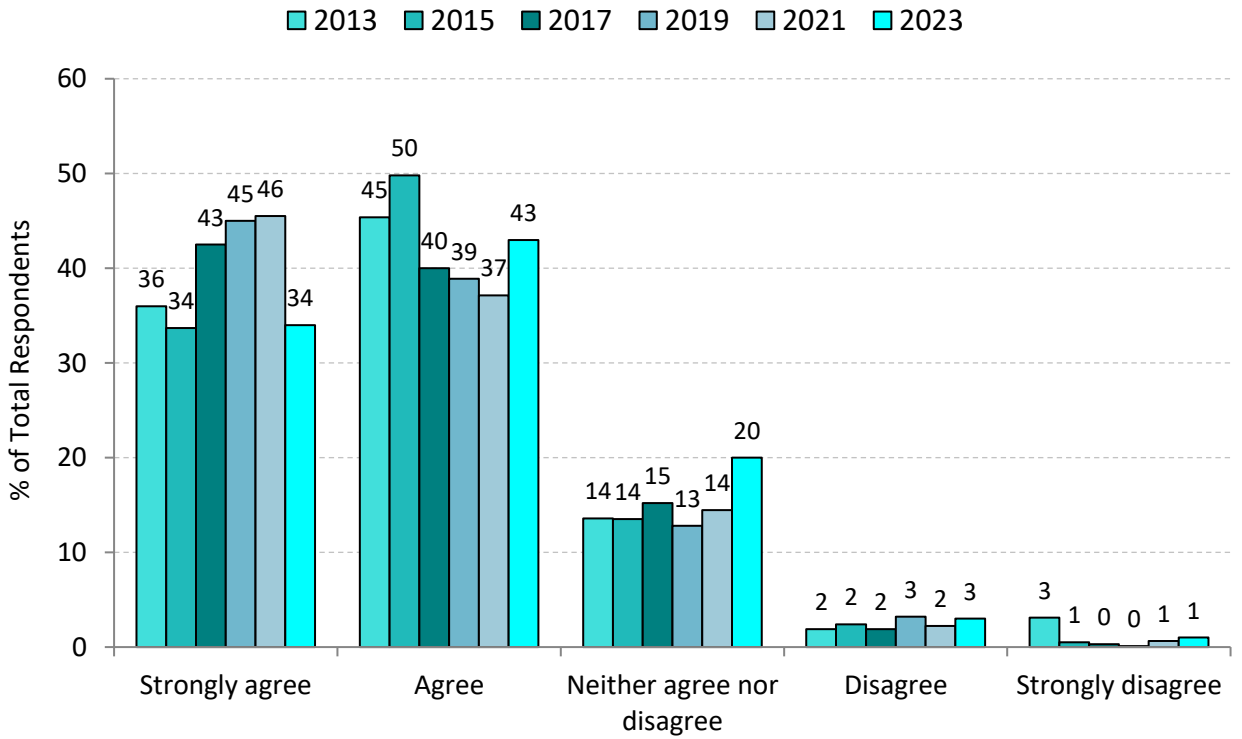
I am personally responsible for reducing rainwater runoff pollution and sewer system overflow.



- East County residents have the strongest agreement (69.4% Strongly Agree/Agree).
- Those under 30 (19.4%) have the strongest disagreement (% Disagree/Strongly Disagree).

Q20(c) RESULTS – Water Quality & Health of River, Creeks and Ponds

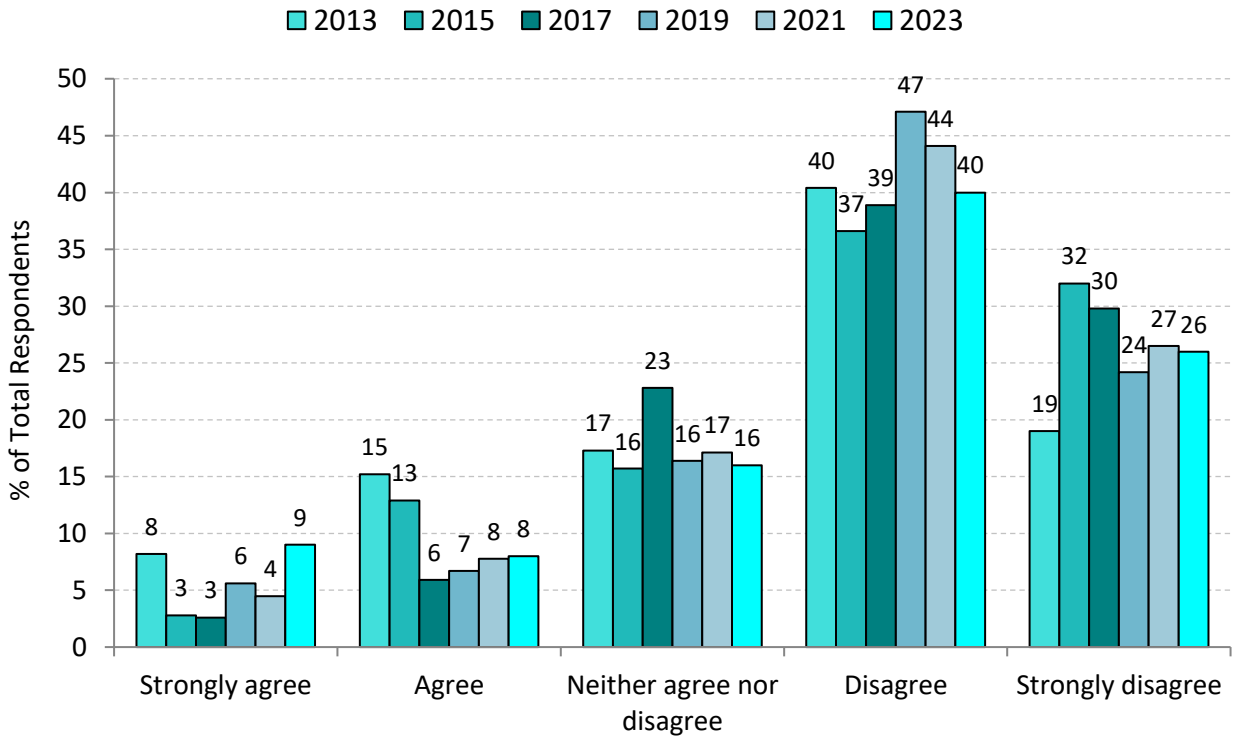
Local governments, businesses and industries are responsible for reducing rainwater runoff and sewer system overflow.



- Strongly agree perception regarding commercial entities being responsible for reducing overflow dropped sharply in 2023. This decrease was driven by Downtown/West City residents (28.2%), those 60+ (28.7%) and Females (29.8%).

Q20(d) RESULTS – Water Quality & Health of River, Creeks and Ponds

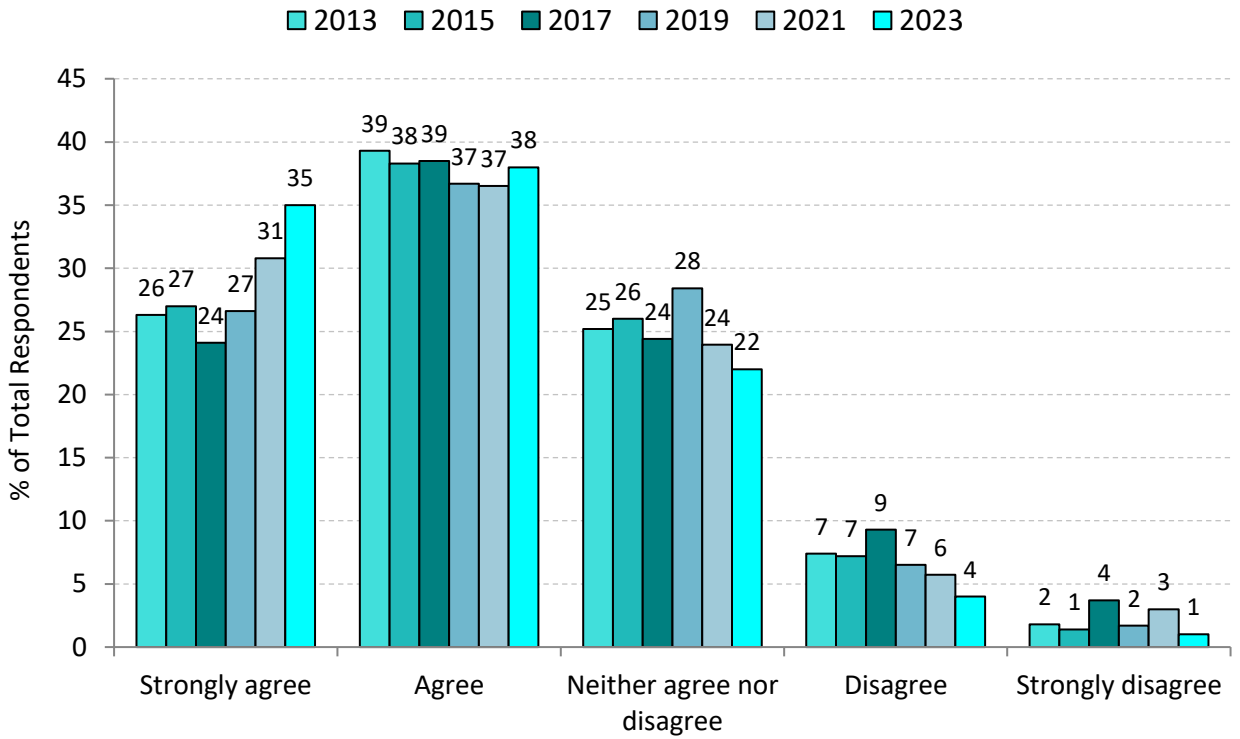
I would only do my part to reduce water pollution if everyone else did as well.



- Sentiment remained constant about respondents doing their part to reduce pollution. Most are willing to make the effort regardless of others.
- Those 60+ (72.5%) and East City residents (76.3%) are most likely to do their part independently of other people (% Disagree/Strongly Disagree).

Q20(e) RESULTS – Water Quality & Health of River, Creeks and Ponds

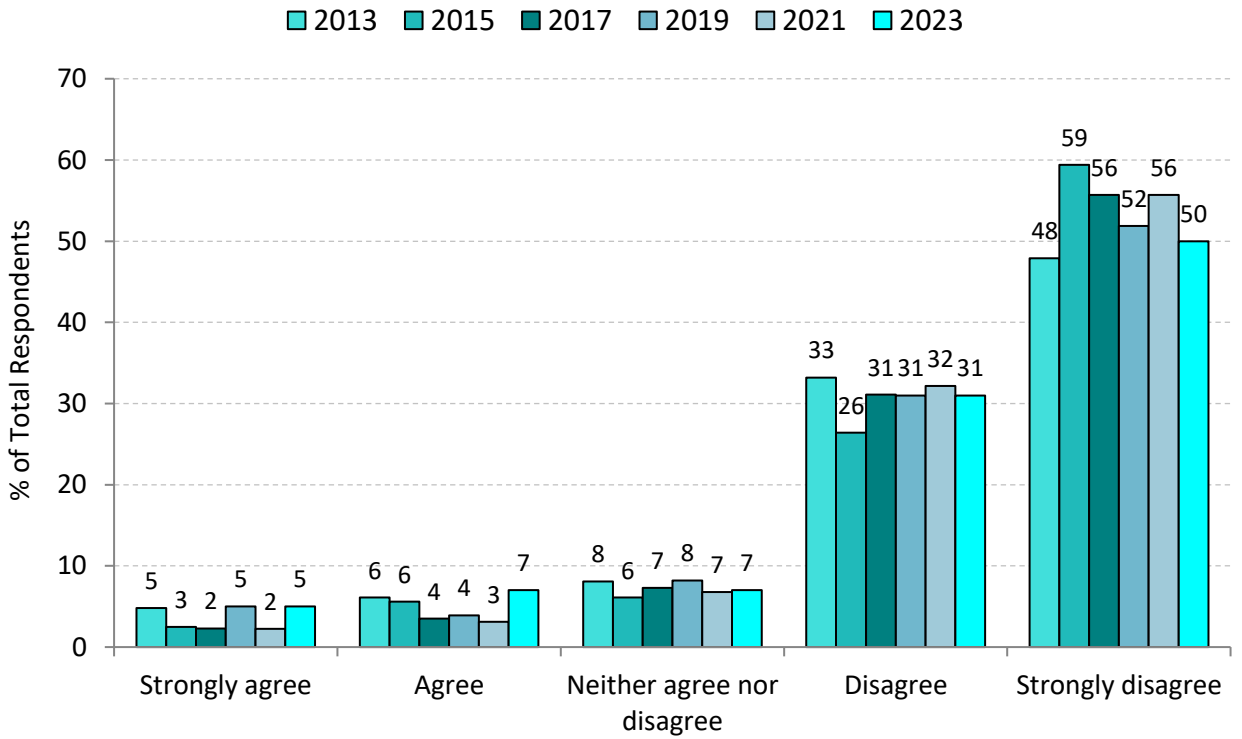
The utility company should provide incentives for people to reduce water pollution.



- The incentives appeal (% Strongly Agree) increased in 2023, driven by Downtown/West City residents (40.5%).
- Those who Strongly Agree/Agree with utilities providing incentives are strongest in those under 30 (82.0%) and East City residents (81.6%).

Q20(f) RESULTS – Water Quality & Health of River, Creeks and Ponds

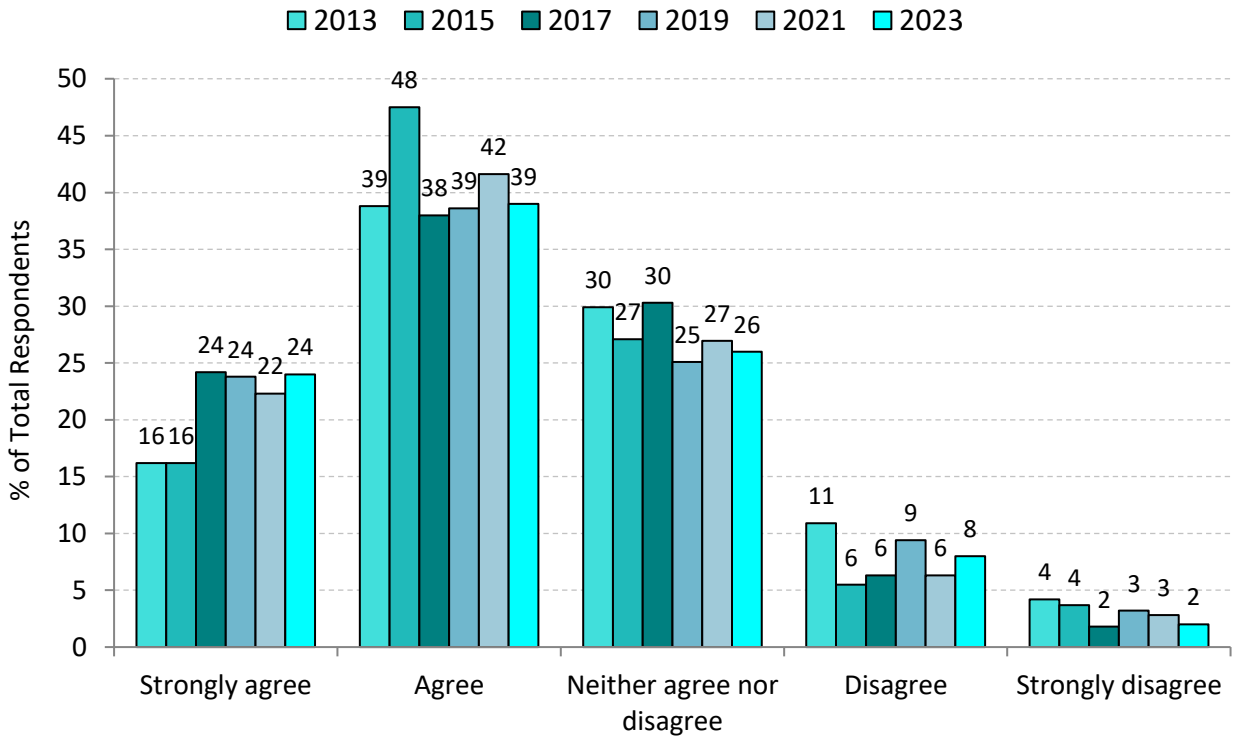
Human activities have no significant impact on the water quality of river, creeks and ponds.



- Those agreeing that human activities impact water quality (% Disagree/Strongly Disagree) are those 60+ (87%), and residents of the East City (89%) and Northeast County (88%).

Q20(g) RESULTS – Water Quality & Health of River, Creeks and Ponds

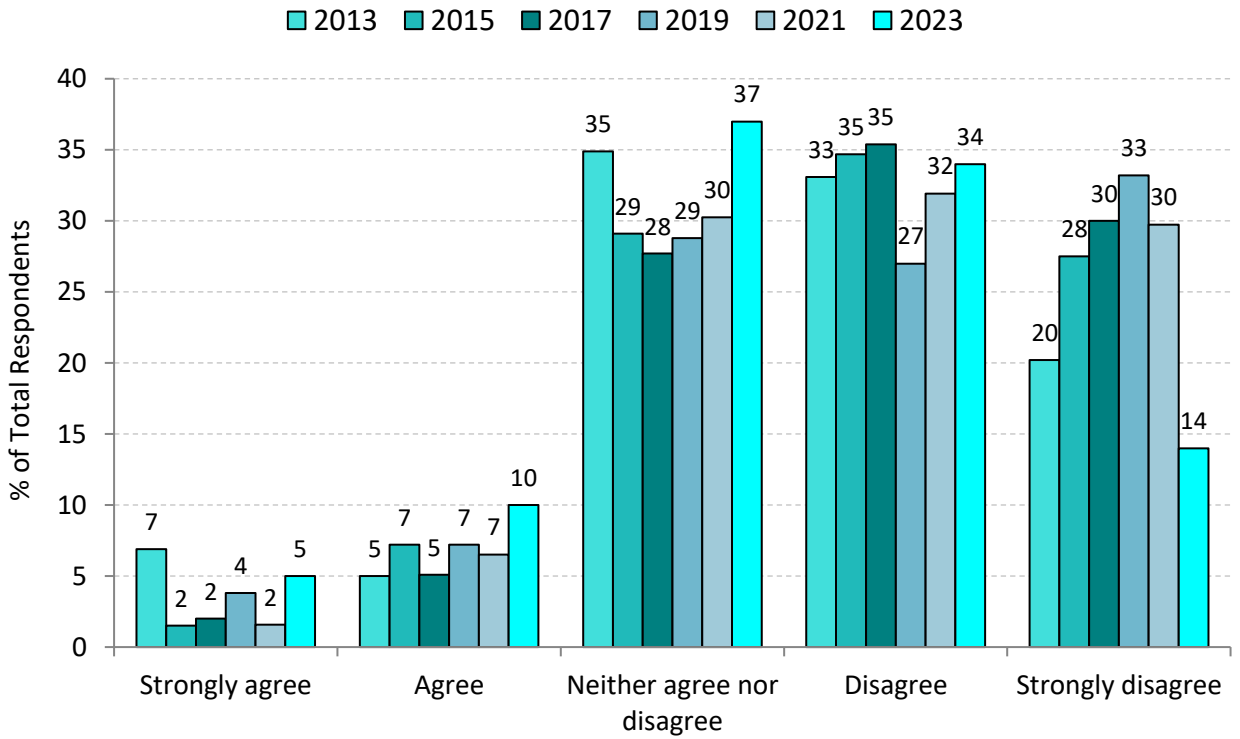
Water pollution of river, creeks and ponds frightens me.



- The percentage of those agreeing/strongly agreeing that water pollution frightens them remains high in 2021.
- Those under 30 (33.0% Strongly Agree) have the most fear of pollution.

Q20(h) RESULTS – Water Quality & Health of River, Creeks and Ponds

The evidence for water pollution of river, creeks and ponds is unreliable or insufficient.



- The percentage believing that reliable evidence exists (% Strongly Disagree) dropped sharply in 2023. This was driven by residents in Southwest County (6.5%) and those under 30 (9.9%).
- Those agreeing that evidence is unreliable is highest with those having a HS or less education (36.2% Strongly Agree/Agree).

Q21 RESULTS – Willingness of Action

I personally would be willing to take the following actions to reduce the amount of water pollution in river, creeks and streams. (Select all that apply)	2013 (%)	2015 (%)	2017 (%)	2019 (%)	2021 (%)	2023 (%)
Putting fats, oils, grease and food particles in the trash can rather than down the sink drain.	87.0	85.6	86.8	89.4	88.9	87.9
Putting baby wipes, personal wipes and other wet wipes in the trash can rather than down the toilet.	82.6	85.4	86.6	87.5	87.1	86.3
Disposing of household hazardous wastes by taking them to a collection center.	81.1	88.2	84.2	88.0	84.2	79.9
Picking up trash that is in the gutter on and/or around where I live.	80.9	84.9	83.3	86.5	84.9	82.3
Recycling my used motor oil.	77.6	84.6	82.2	75.8	74.4	75.7
Using environmentally friendly lawn products.	76.3	84.5	77.8	81.8	79.8	79.0
Washing my car at the carwash or on a lawn.	72.5	74.4	70.0	76.4	69.7	68.8
Picking up pet waste in my yard.	60.2	63.7	64.0	67.9	63.6	72.6
Waiting to run the dishwasher or washing machine 24-48 hours after the rain subsides and the sewers aren't full.	60.0	52.9	59.0	60.8	55.7	53.7
Picking up pet waste in public spaces.	39.7	42.7	40.3	46.0	44.7	48.1
Installing a rain barrel to catch rainwater from my downspouts.	35.9	47.8	42.3	43.7	43.7	43.6
Creating a rain garden on my property or in my neighborhood	33.9	30.1	33.5	35.4	36.2	37.9

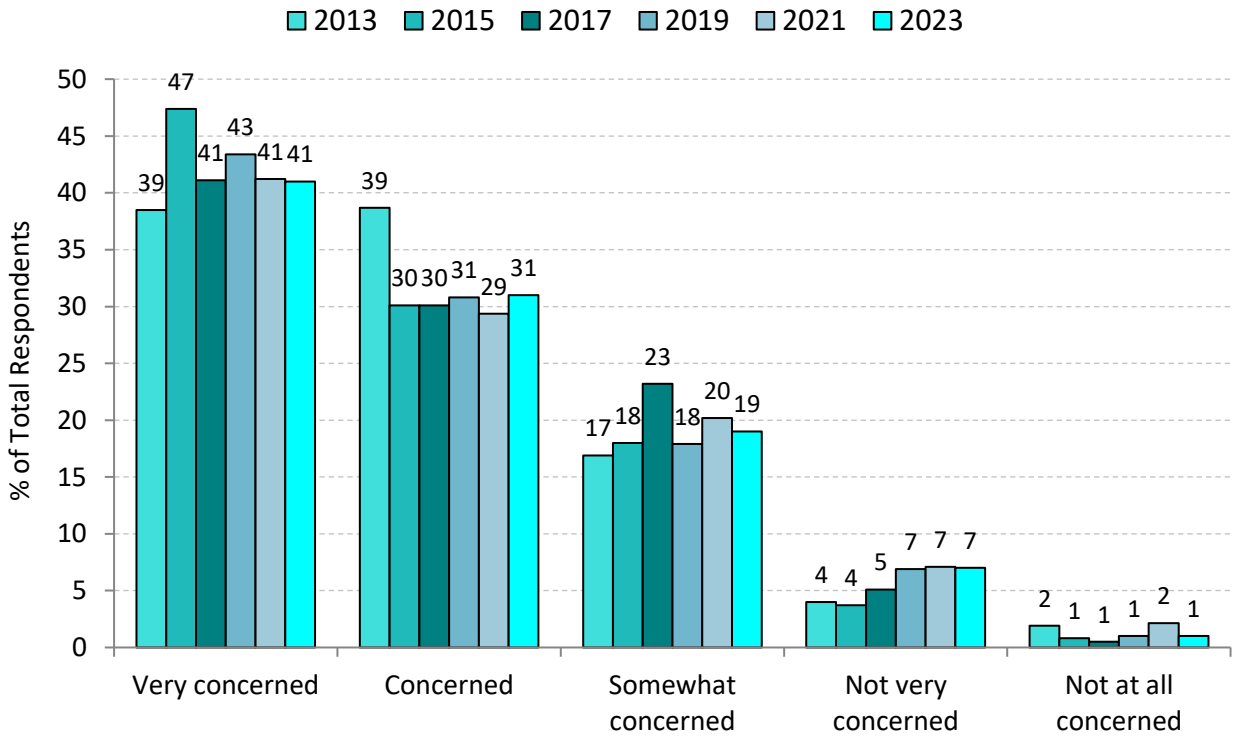
Q21 RESULTS – Willingness of Action

I personally would be willing to take the following actions to reduce the amount of water pollution in river, creeks and streams. (Select all that apply)	Percent who are age 21-39	Percent Female	Geographic area(s)
Install a rain barrel	39.3	50.8	Downtown / East City
Create a rain garden	42.3	51.1	East City / South County
Pick up pet waste	43.1	51.5	East County / East City
Wait to run the dishwasher/washing machine after rain subsides	33.7	49.3	Northeast / Downtown

- This residential cross-section indicates many demographic segments have a strong willingness to take action.
- More than one-third of young adult residents 21-39 are willing to do more to reduce water pollution. Women and men said they would take all these actions. Downtown/West City weighed in with a strong willingness to take these specific actions.

Q22 RESULTS – Pollution Concern

How concerned are you that water pollution will cause the river, creeks and ponds to become un-fishable and un-swimmable for the next generation if actions are not taken now?



- The proportion of people who are not very concerned remains unchanged.
- Those under 30 (48.8%) and Females (47.2%) are very concerned if actions are not taken now.

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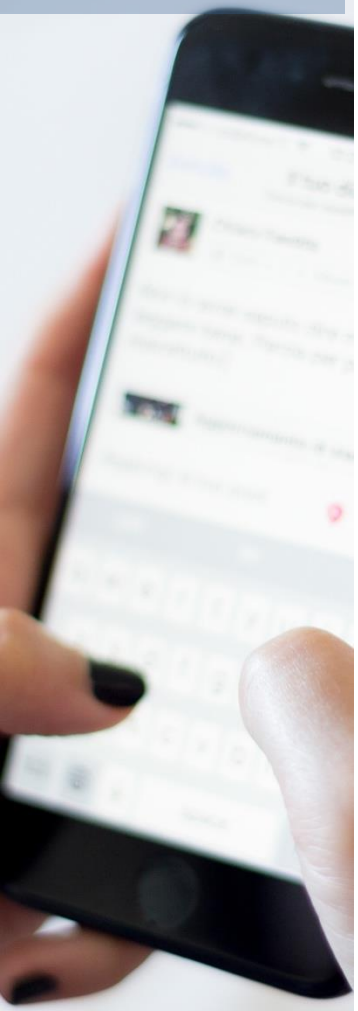
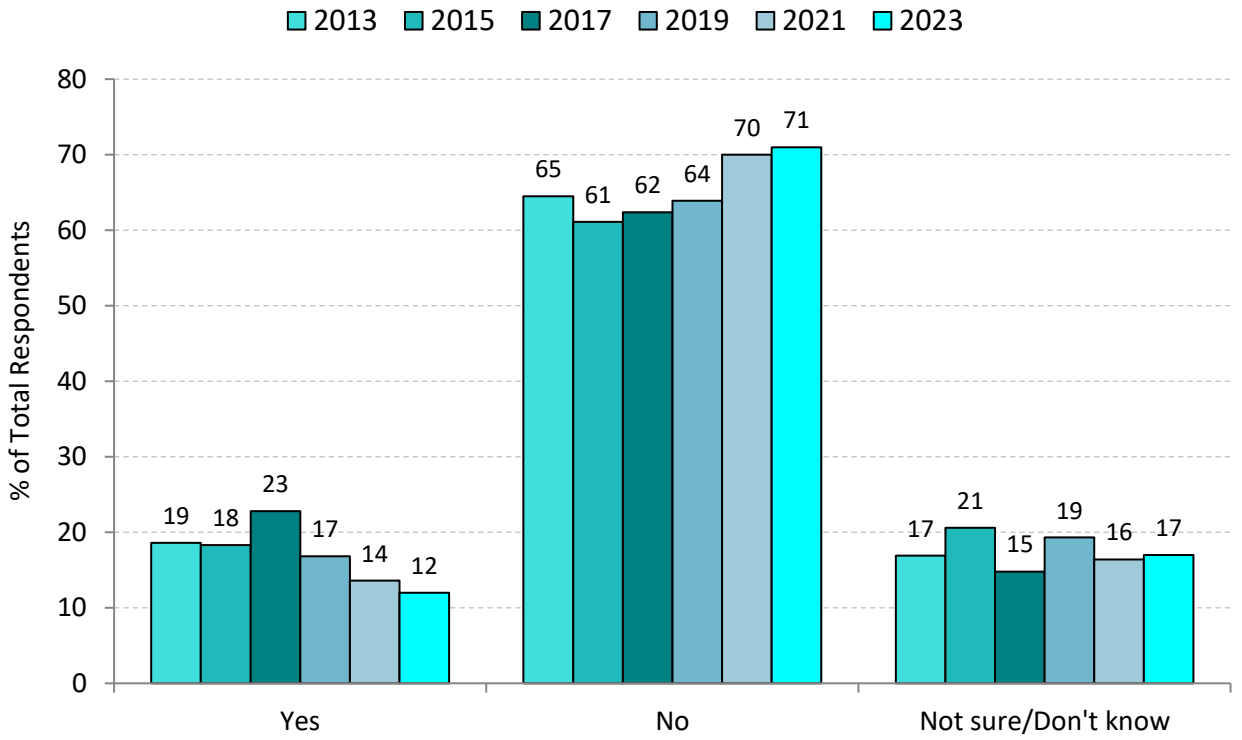


Q23 RESULTS – Awareness of Pollution Impact & Prevention

In the past 12 months have you heard anything about the impact of rainwater runoff pollution and sewer system overflow and ways that residents can prevent it?



- The percentage who have heard anything about pollution and overflow continues to decrease.
- Southwest residents (17.2%) are more likely to have heard about the impact. Residents in Downtown/West City are unlikely (7.6%) to hear about the impact.

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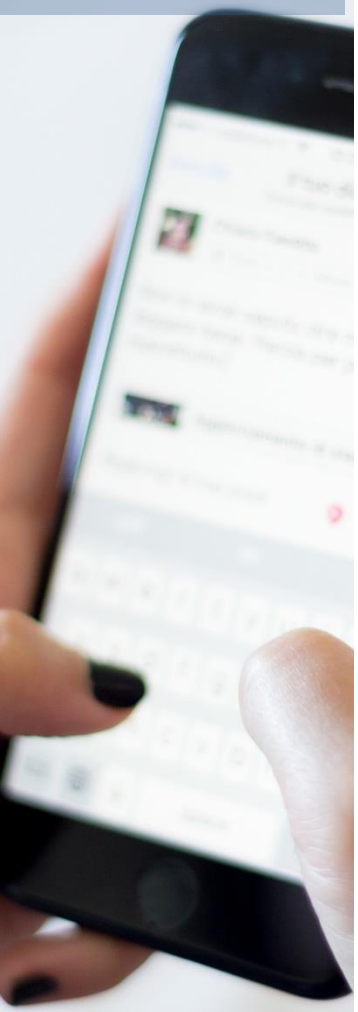

Q24 RESULTS – Source of Pollution Information

Where did you see or hear about rainwater runoff pollution and sewer system overflow? (Select all that apply; only asked if "yes" to Q23)	2013	2015	2017	2019	2021	2023
Television	52.8	58.0	52.4	47.4	51.1	47.6
Newspaper	40.0	43.1	28.0	29.1	26.7	27.1
Brochure	26.6	15.6	12.5	16.2	8.8	9.0
Radio	20.2	22.9	34.8	24.9	16.2	20.0
Website	19.2	5.0	8.3	6.0	7.4	5.1
Facebook	18.8	10.1	10.2	14.7	8.5	17.9
Other source	15.0	14.6	20.5	20.4	16.8	11.7
Posting near river, creek or pond	12.2	13.8	28.7	23.2	30.1	30.0
Not sure	6.3	17.0	3.1	4.9	1.1	7.5
Neighborhood meeting	5.8	4.6	15.1	13.1	6.0	5.3
Sign/billboard	4.6	10.6	3.7	4.4	4.7	3.6
Email	4.3	4.3	2.6	14.4	20.2	13.4
Twitter	1.7	1.3	0.4	4.5	0.8	2.6
Poster	0.7	0.1	1.6	4.3	8.4	2.9

% who heard something in the past 12 months

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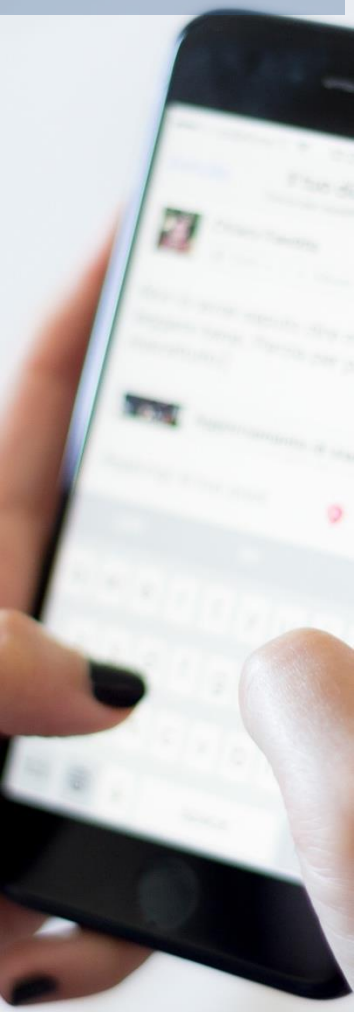

Q25 RESULTS – Source of Pollution Information

What do you remember about the information that you saw or heard? Be as detailed as possible. (Open-response; only asked if "yes" to Q23)	2013	2015	2017	2019	2021	2023
Avoiding creeks, ponds, rivers right after rainfall	2.9	0.0	16.6	2.5	13.3	0.0
Redirecting rain water/gutters to yard	3.3	10.3	1.7	0.3	1.9	1.8
Don't add to the problem	1.3	10.2	0.7	0.3	7.1	19.4
Sewer overflow issues	14.5	9.9	0.8	2.1	3.7	1.1
Tips/info to help water pollution	9.6	9.2	8.7	3.2	9.8	12.8
Don't use chemicals on the lawn	0.9	1.3	15.9	1.9	0.9	4.0
Not to flush wipes / diapers	2.6	7.3	0.5	1.0	6.5	0.0
Don't wash clothes/use dishwasher during rain	4.2	6.3	3.7	4.4	9.4	3.1
Careful about what I pour into ground/down drain/dispose	11.4	6.0	4.8	8.9	4.9	3.5
Rain barrels	0.2	6.0	3.2	0.8	3.5	6.3
Rain garden	0.9	5.7	0.0	1.0	3.7	5.5
By not littering/polluting/using trash cans	3.5	5.4	28.4	5.1	6.3	15.8
Clean up sewer/street drains	4.5	3.5	17.2	0.3	0.8	9.1

% who heard something in the past 12 months

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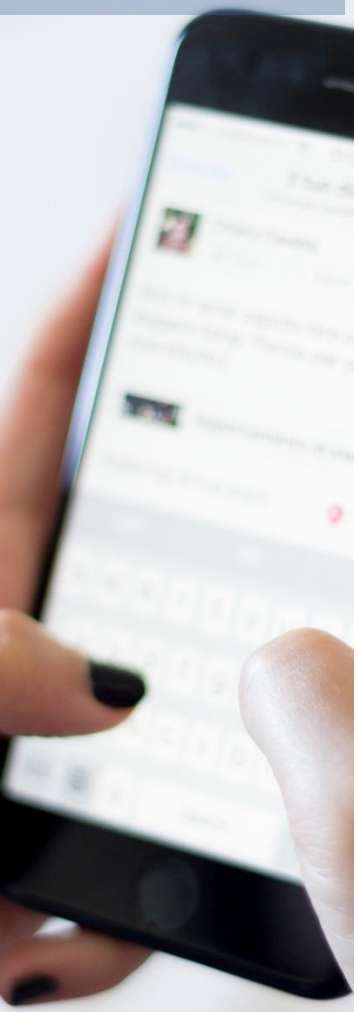

Q26 RESULTS – Methods of Information

Which of the following kinds of information would get you personally to pay attention to rainwater runoff pollution and sewer system overflow to help improve the water quality or health of river, creeks, and ponds after a storm? (Select all that apply)	2013 (%)	2015 (%)	2017 (%)	2019 (%)	2021 (%)	2023 (%)
General Education	75.5	80.3	78.2	75.6	79.6	76.8
Financial reward	50.8	63.1	58.5	53.1	54.0	59.5
Environmental report	50.0	60.8	51.7	59.1	57.4	59.3
Statistical data	50.6	49.5	49.4	55.2	51.3	60.2
Campaign with emotional/dramatic impact	31.4	41.6	38.2	32.3	31.2	29.2
Financial consequences	36.6	35.5	34.0	29.6	31.1	40.2

- Attention to information on financial consequences increased slightly but remains low. Respondents would be most likely to pay attention to General Education information.
- Respondents under 30 (78.6%) are more likely to respond to a campaign with a financial reward. Similarly, those under 30 (58.1%) most frequently indicated that they would prefer financial consequences.
- Statistical data appealed most to those under 30 (75.9%).

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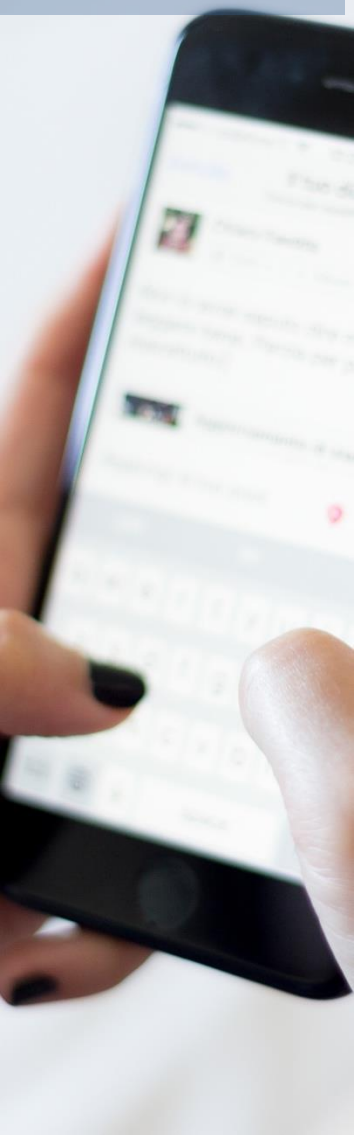

Q27 RESULTS – Methods of Information

What types of messages would you need to hear that would make you want to take action to reduce rainwater pollution and sewage system overflow? (Open-response)	2013 (%)	2015 (%)	2017 (%)	2019 (%)	2021 (%)	2023 (%)
Cause & effect/consequences/impact	21.1	29.3	28.1	15.5	23.9	28.6
Prevention methods/ways to help	22.1	16.6	17.0	16.2	17.1	21.7
Education in schools	1.3	13.4	2.4	1.2	1.0	1.7
I already do this/already take action	5.2	9.8	3.9	7.8	8.5	7.3
TV/News coverage	6.9	9.3	5.2	4.5	5.1	4.4
Rewards/incentives	4.6	9.0	5.9	5.8	9.5	7.1
Fact/truth/what's really happening	8.7	8.1	23.3	28.3	10.7	18.3
How it effects my kids / future generations	2.7	4.8	6.0	6.8	3.5	4.2
General information	17.1	4.7	26.0	5.9	16.7	19.8
Don't know	11.4	4.5	3.7	4.1	4.5	3.6

- Respondents tend to need messages relating to cause and effect, consequences and environmental impact to make them want to take action.

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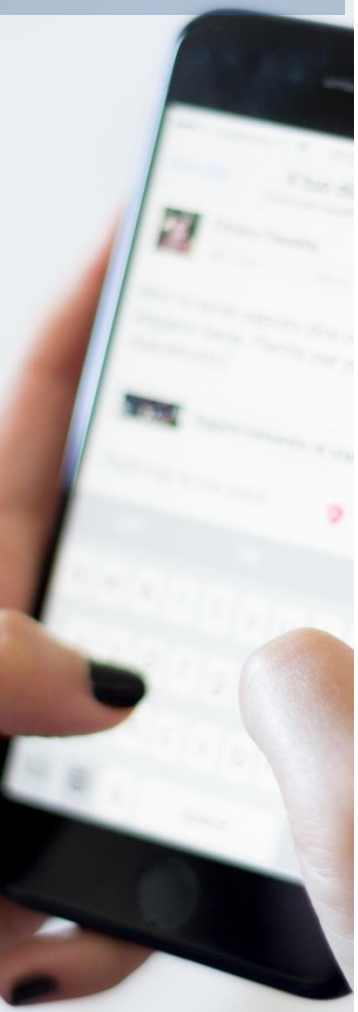

Q27 RESULTS – Methods of Information

What types of messages would you need to hear that would make you want to take action to reduce rainwater pollution and sewage system overflow? (Open-response)	Age	Education	Gender	Geography	Income	Rent /Own
Cause & effect/consequences/impact	60 + 25.7%	Coll Grad 41.3%	Female 64.2%	East City 27.5%	$90K + 41.3%	Own 58.7%
Prevention methods/ways to help	30-39 39.8%	Coll Grad 38.6%	Female 59.0%	South County 26.5%	$90K + 37.3%	Own 60.2%
Fact/truth/what's really happening	50-59 24.3%	Coll Grad 40.0%	Female 51.4%	East City 28.6%	$90K + 35.7%	Own 57.1%
General information	30-39 25.0%	Coll Grad 32.9%	Female 56.6%	East City 26.3%	$90K + 40.8%	Own 59.2%

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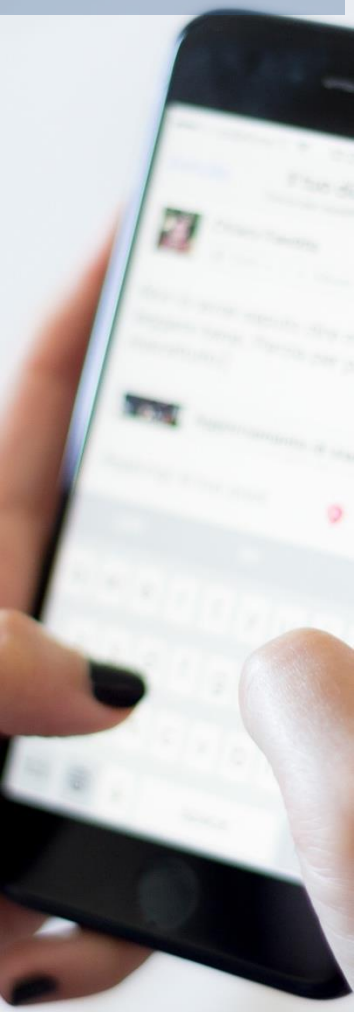

Q28 RESULTS – Source Rankings: Emergency Situation

People get their information from many different sources. Rank the sources that you would most prefer to hear from in an emergency situation (such as a weather alert). Please select at most 4 answers.	% ranked 1st	% ranked 2nd	% ranked 3rd	% ranked 4th	% ranked top 4
Television	25.1	14.5	13.8	12.8	59.8
Radio	8.6	14.0	13.0	9.4	39.6
Email	19.6	17.1	10.9	12.5	54.0
Social Media	17.0	18.9	16.6	14.7	59.6
Internet	16.4	18.5	17.4	14.6	59.2
Direct Mail	4.6	7.3	11.1	9.4	27.9
Postings at river, creek, or pond	3.3	2.3	7.1	7.5	17.2
Signs/billboards	1.6	5.2	5.9	11.7	20.4
Neighborhood meeting	3.8	2.3	4.3	7.3	15.2

- Residents preference for receiving alerts are increasing in the social media and Internet channels, but declining significantly for TV and radio.
- Those age 60+ ranked TV first 35.3% of the time (down from 45.0% in 2021).

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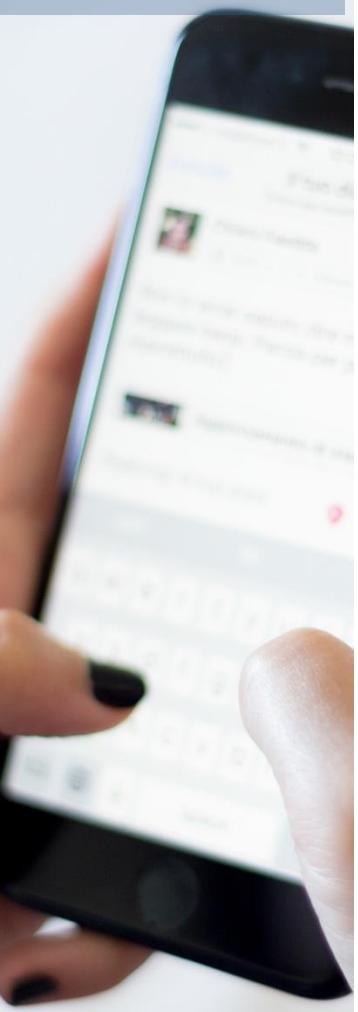

Q29 RESULTS – Source Rankings: Community News

People get their information from many different sources. Rank the sources that you would most prefer to hear from for community news (such as a river walk clean-up). Please select at most 4 answers.	% ranked 1st	% ranked 2nd	% ranked 3rd	% ranked 4th	% ranked top 4
Television	17.4	13.2	11.0	11.6	48.3
Email	23.6	14.2	14.8	9.5	57.0
Radio	6.3	12.7	10.2	9.5	34.4
Social Media	16.2	20.4	17.5	14.5	61.6
Internet	12.2	13.6	13.0	14.2	47.3
Direct Mail	7.9	10.4	11.3	13.8	38.2
Signs/billboards	5.4	7.1	10.1	10.5	29.0
Neighborhood meeting	6.7	4.5	5.1	7.2	21.0
Postings at river, creek, or pond	4.5	3.8	7.0	9.2	21.4

- Electronic methods (Social Media, Email) are the preferred methods for receiving community news.
- Of respondents age 50+, 26.5% ranked TV first.

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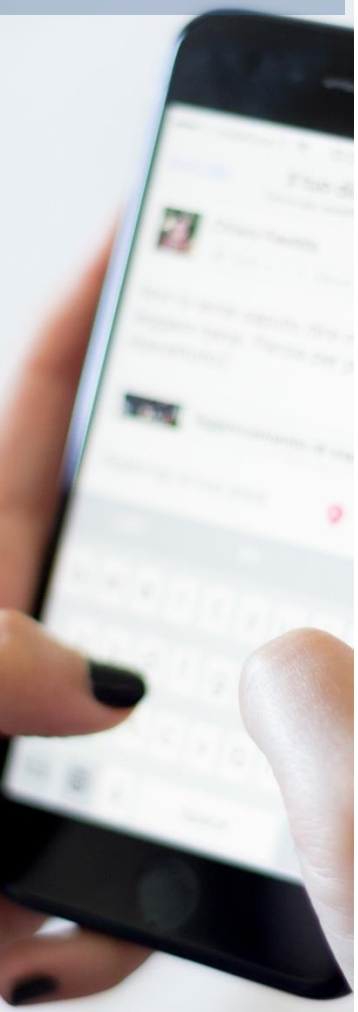

Q30 RESULTS – Source Rankings: "How To" Information

People get their information from many different sources. Rank the sources that you would most prefer to hear from for "How To" information (such as how to install a rain barrel). Please select at most 4 answers.	% ranked 1st	% ranked 2nd	% ranked 3rd	% ranked 4th	% ranked top 4
Television	12.0	12.5	15.5	12.7	46.4
Email	23.0	16.7	17.0	14.2	63.6
Social Media	13.5	18.7	17.4	12.5	55.0
Direct Mail	11.9	14.0	11.0	15.9	46.4
Internet	22.5	18.5	18.9	14.8	66.8
Radio	4.8	5.0	5.7	6.7	19.3
Neighborhood meeting	5.3	4.2	5.1	8.0	19.6
Signs/billboards	2.5	4.7	4.6	7.9	16.8
Postings at river, creek, or pond	4.5	5.7	5.0	7.4	19.6

- Email and the Internet remain the top preferences for receiving "How To" information.
- Most under 40 (75.7%) rated Internet in the top 4.

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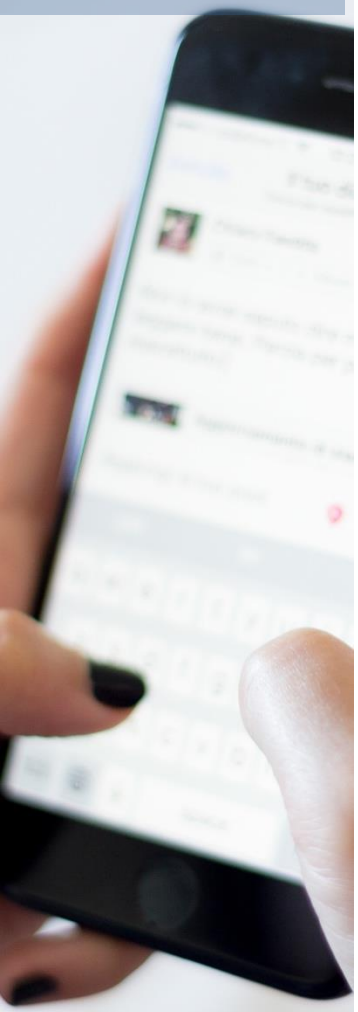

Q31 RESULTS – Source Rankings: Notices/Upcoming Dates

People get their information from many different sources. Rank the sources that you would most prefer to hear from for notices (such as upcoming dates for recycling hazardous chemicals). Please select at most 4 answers.	% ranked 1st	% ranked 2nd	% ranked 3rd	% ranked 4th	% ranked top 4
Television	11.3	11.5	12.4	11.5	41.7
Email	24.5	20.7	16.1	9.9	65.2
Direct mail	18.4	18.3	11.2	11.9	54.4
Radio	8.6	7.9	8.9	6.8	28.9
Social media	15.5	13.6	13.6	19.6	55.3
Signs/billboards	4.3	3.7	9.5	11.0	24.5
Internet	10.4	14.8	16.0	13.7	48.6
Neighborhood meeting	3.7	4.5	6.2	7.2	18.95
Postings at river, creek, or pond	3.3	5.0	6.1	8.4	19.8

- Email remains the preferred channel for important but non-urgent information.
- As with other types of information communication, TV continues to decline over time.
- Those over 60 rated TV most often as their first choice (17.6%), but down from 25.6% in 2021.

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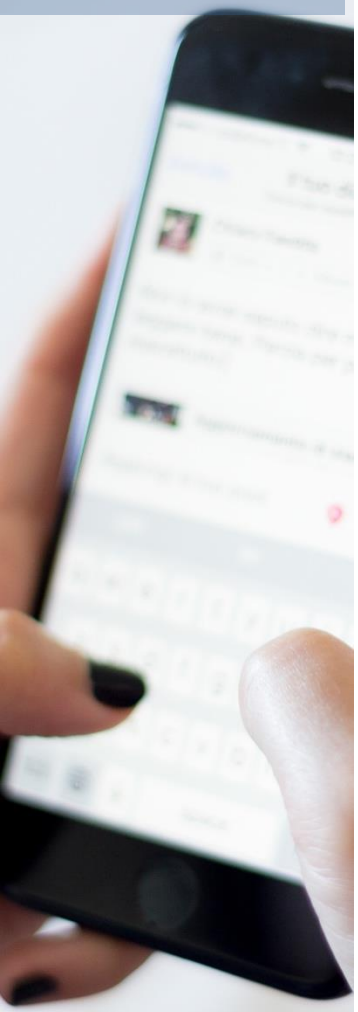
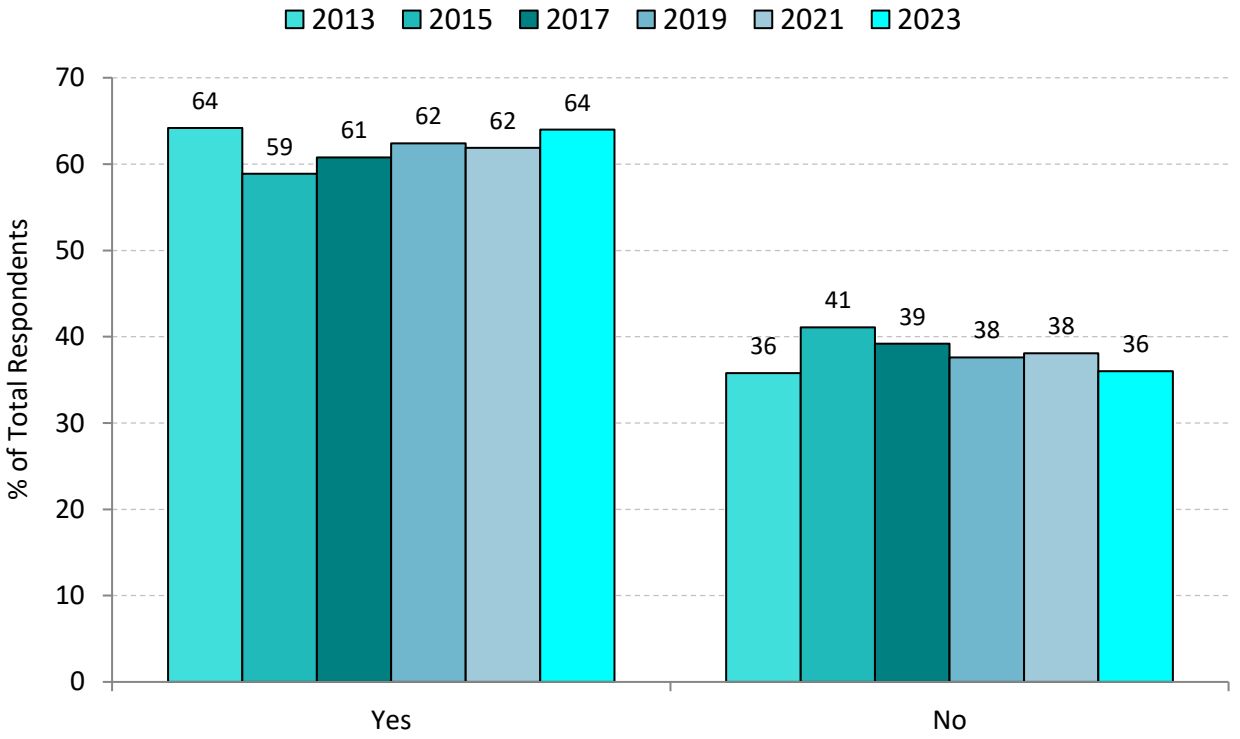


Q32 RESULTS – Newsletter

Do you read newsletters that are included in your monthly bills?



- Residents 30-39 (45.4%) are least likely to read the newsletter inserts.
- Residents over 50 (71.9%) are most likely to read the newsletter inserts.

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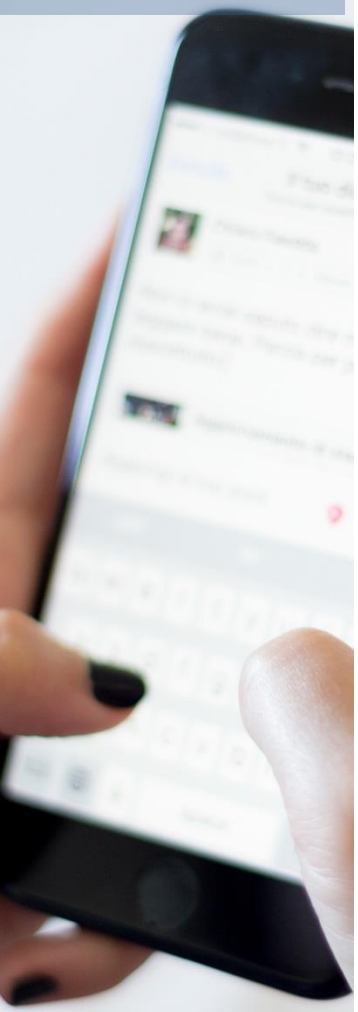
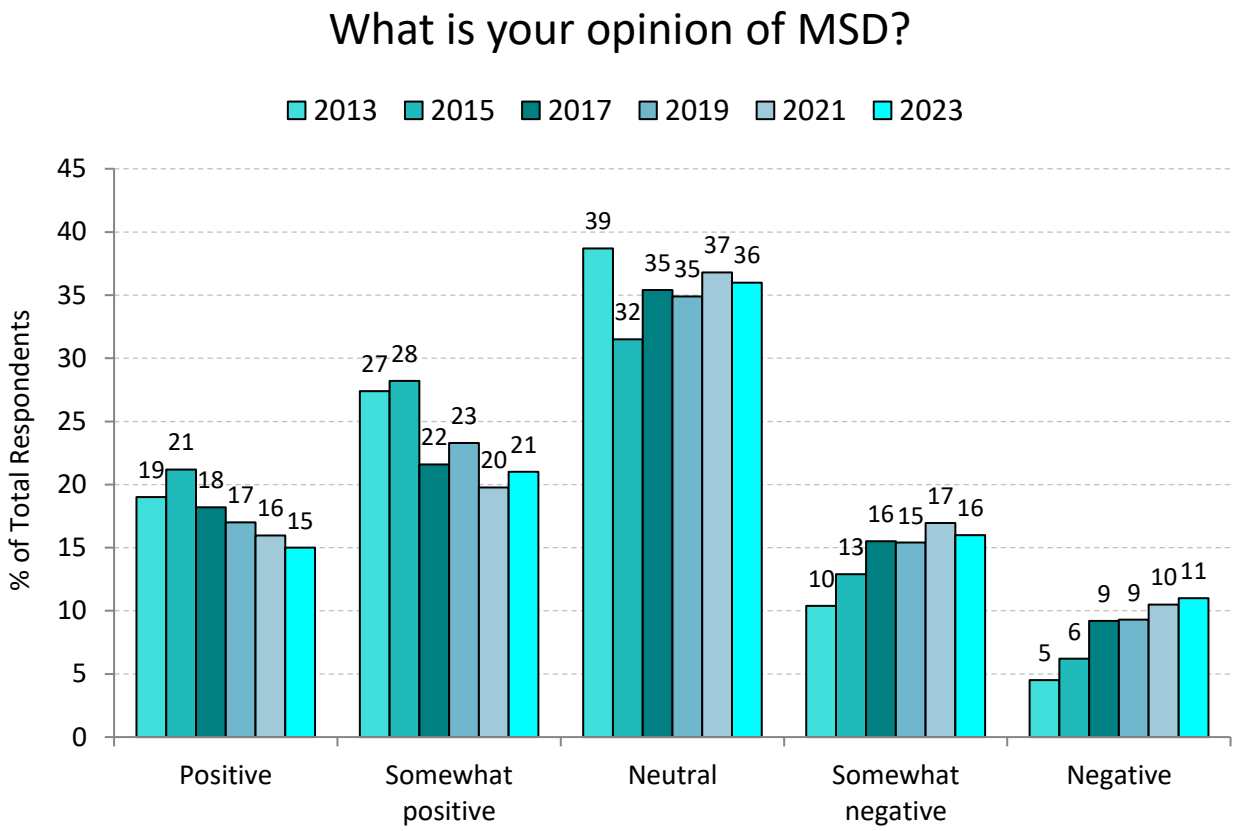


Q33 RESULTS – MSD & Your Community

What does the Metropolitan Sewer District (MSD) do for your community? (Open-response)	2013 (%)	2015 (%)	2017 (%)	2019 (%)	2021 (%)	2023 (%)
Install/handle/maintain sewers/waste water	25.7	23.5	33.6	24.6	30.0	25.6
Cleans the water/purifies/filters	6.3	15.9	8.6	5.7	12.5	9.6
Clean sewers/ditches	6.3	15.7	6.0	4.8	9.2	12.5
Provide drainage/runoff control	8.7	14.4	14.2	8.5	8.0	8.3
Prevent flooding	5.5	11.4	N/A	4.2	5.1	4.1
Treat waste water	3.9	7.1	11.8	8.8	4.7	12.5
Corrupt / inadequate	0.3	6.6	1.4	13.8	4.1	1.2
Charge too much	5.3	6.4	4.0	13.1	13.1	19.3
Repair pipes/infrastructure	4.0	6.0	15.4	6.5	10.8	10.2
Continue to raise prices	2.9	4.4	8.1	5.5	5.3	5.6
Prevents pollution	0.5	4.3	0.2	1.6	2.1	3.6
Nothing	3.7	4.3	7.0	3.1	4.5	2.8
Don’t know	16.2	12.7	12.8	9.4	18.9	17.8

MSD PERCEPTION

Q34 RESULTS – Opinion of MSD

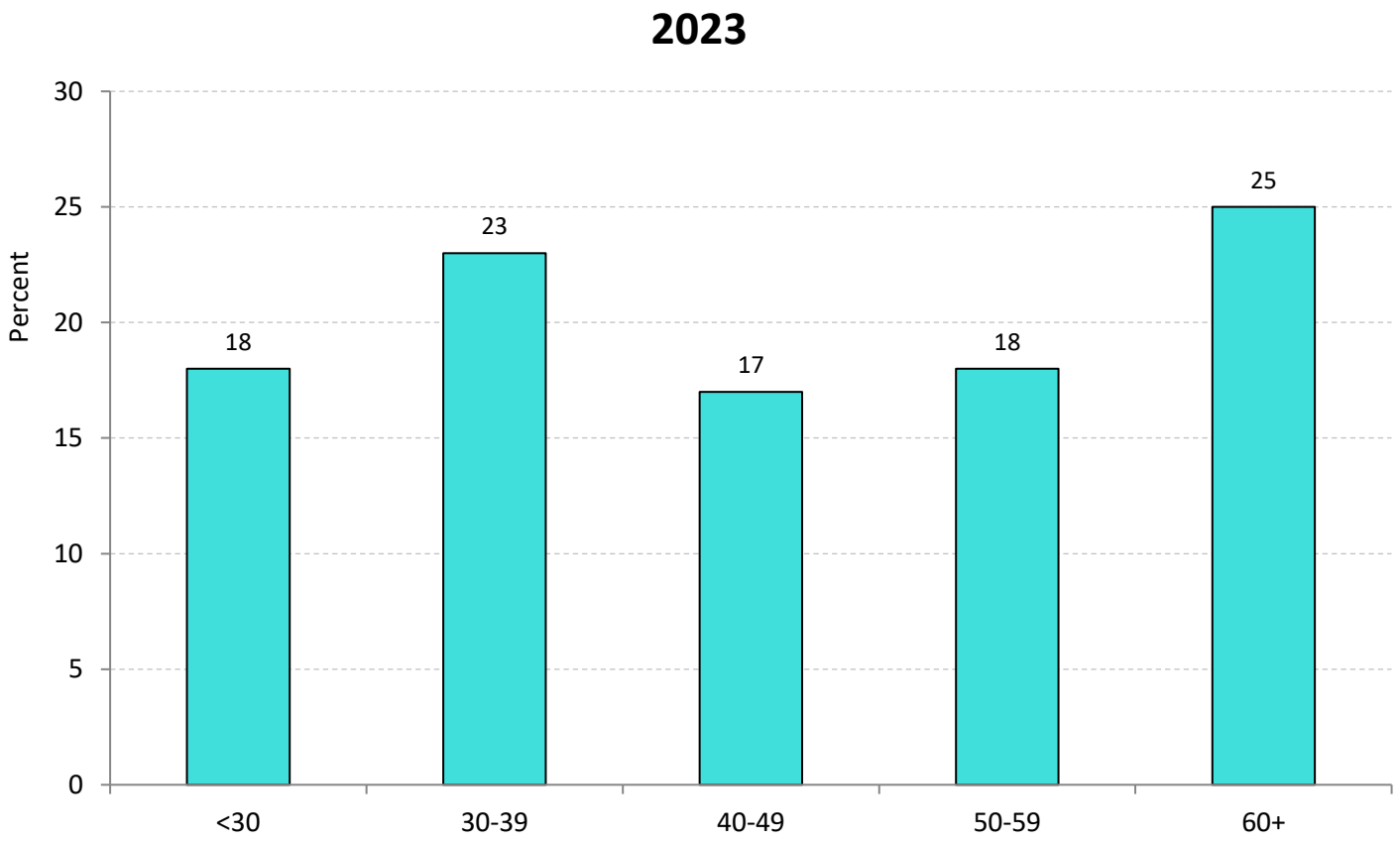


- Respondents over 60 (40.6%), Southwest residents (44.6%) and East County residents (44.1%) have the highest Positive/Somewhat Positive perceptions of MSD.
- Males (14.1%) and age 30-39 (14.2%) have the highest Negative perceptions.
- The percentage of positive responses continues to trend down.

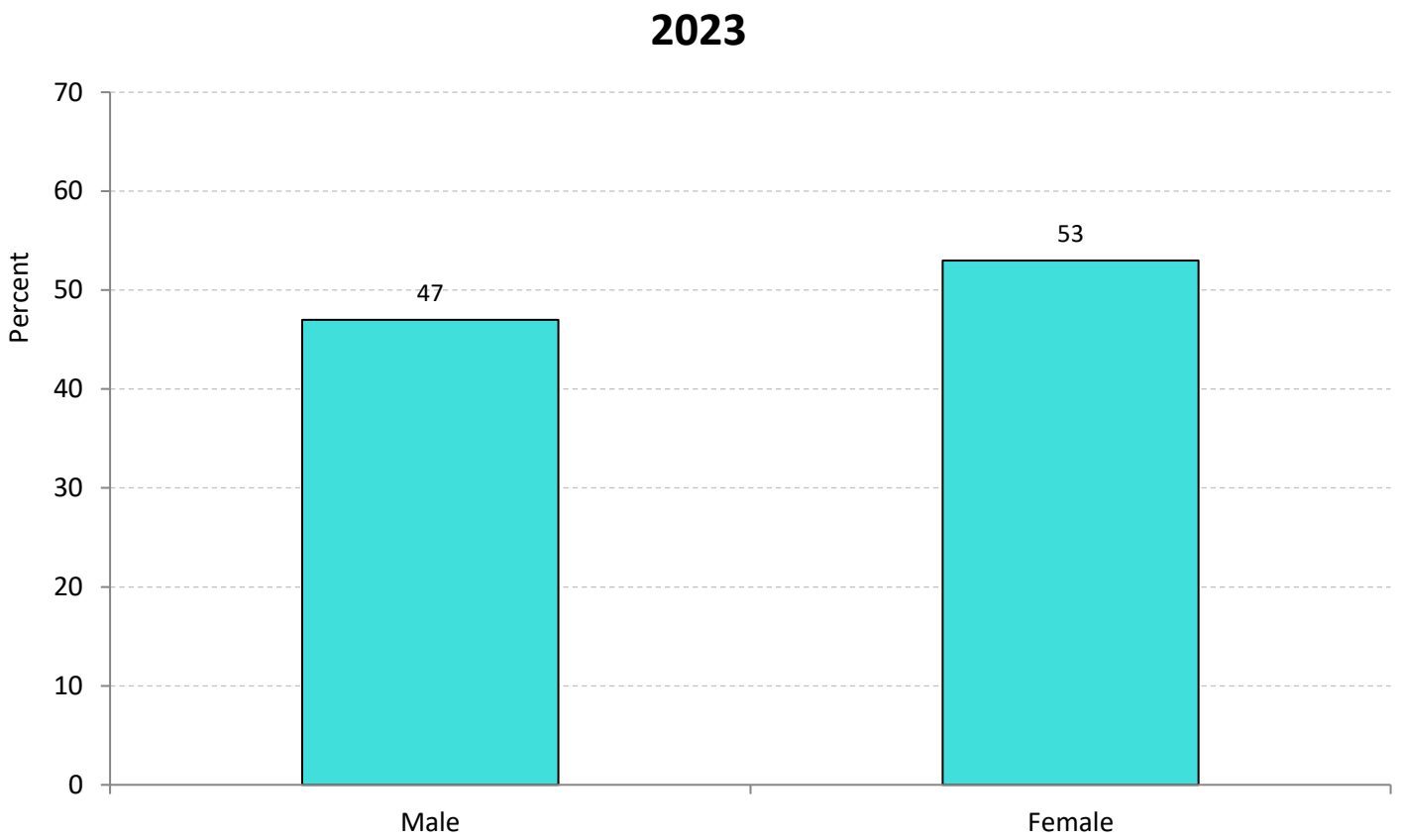
Q35 RESULTS – MSD & Your Community

MSD helps your community manage its sewer system and protect the health of the river, creeks and ponds. What role do you think MSD should take in helping residents reduce the household causes of waterway pollution? (Open response)	2013 (%)	2015 (%)	2017 (%)	2019 (%)	2021 (%)	2023 (%)
Educate	28.8	30.4	42.2	21.1	29.6	29.5
Provide more information / awareness	24.3	25.1	19.9	14.7	25.8	11.8
Provide incentives / rewards	6.3	9.5	8.4	7.9	9.9	11.1
Inform public of ways to help	10.0	8.5	18.5	7.0	12.1	17.7
Manage their resources better	0.4	6.5	0.6	2.8	0.4	1.8
Major role / a big role	3.1	5.8	7.9	8.9	6.7	3.6
Newsletters / inserts	3.2	3.8	1.3	1.6	2.5	2.0
Clean out drains / sewers	2.2	3.7	2.0	1.1	2.2	6.2
Financial incentives on water bill	2.7	3.4	N/A	2.7	0.0	1.2
Don’t know	8.3	8.8	0.9	5.0	5.3	7.1

Q36 RESULTS – Age

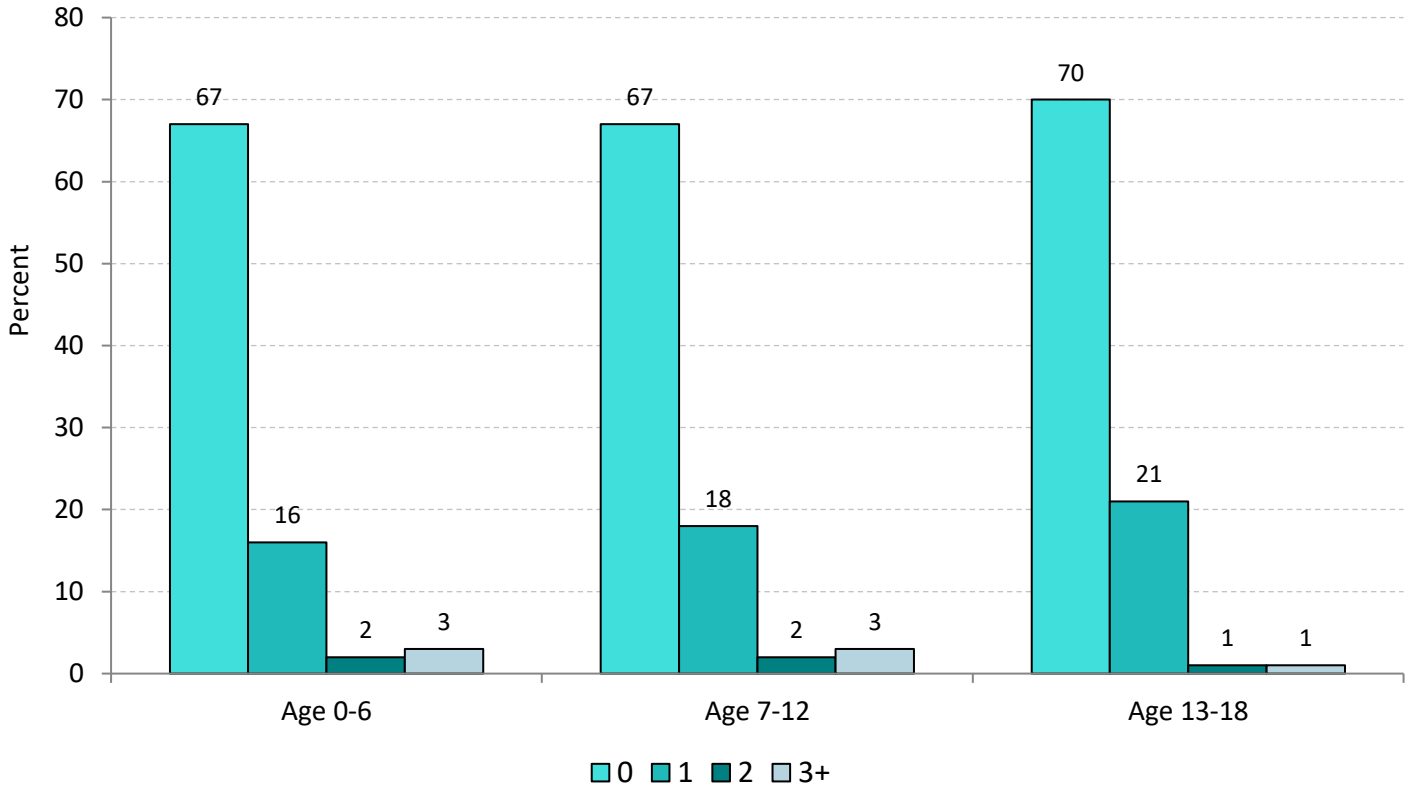


Q37 RESULTS – Gender

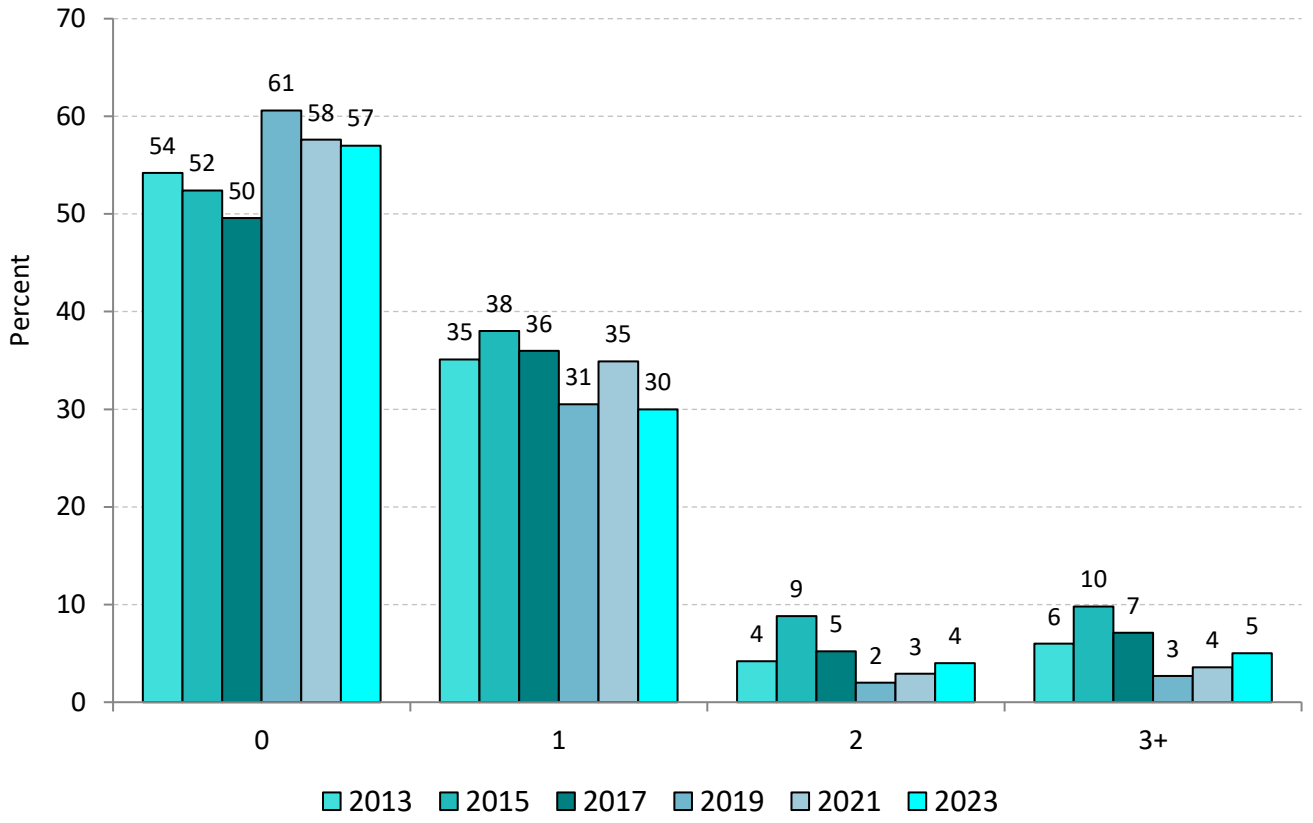


- Females tend to reside in Downtown/West City (69.3%), versus males who are more likely to live in the Northeast County (60.9%) and East County (60.2%).

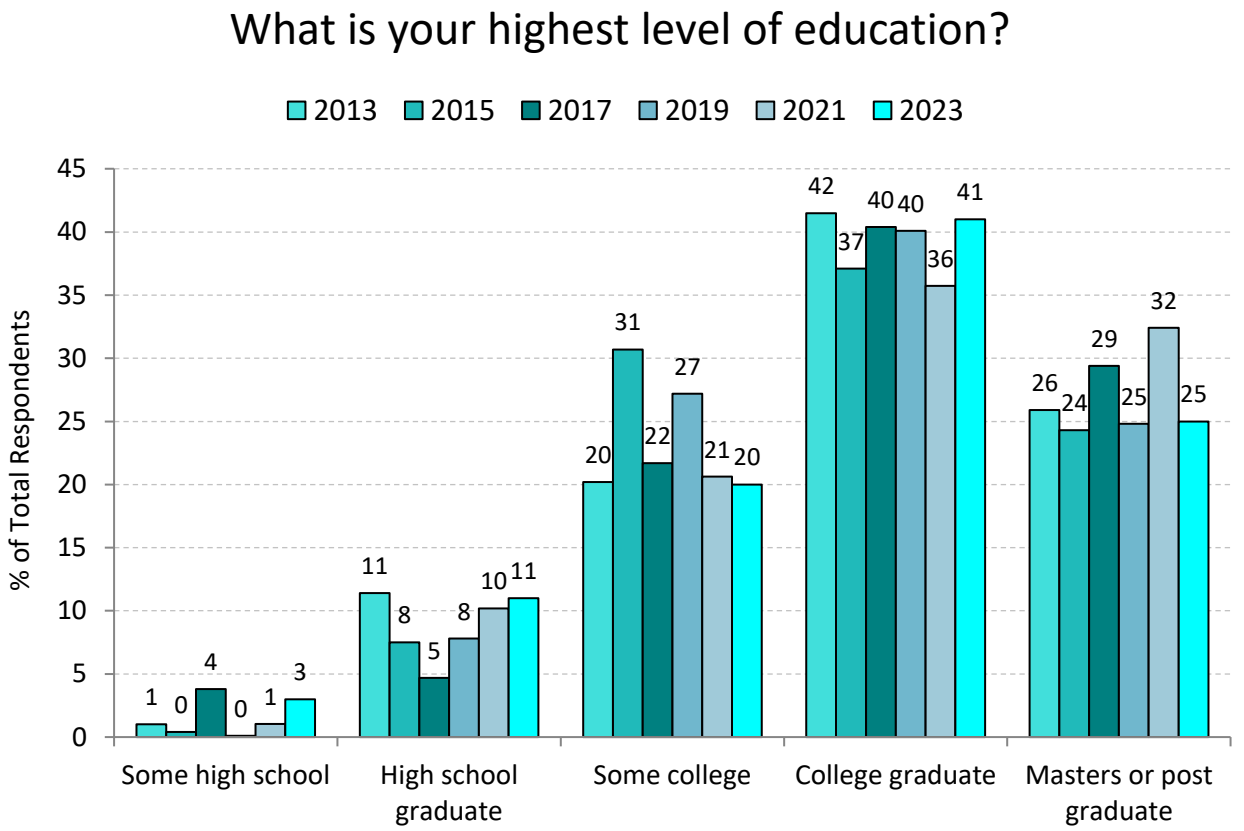
Q38 RESULTS – Presence of Children in Household, by Age



Q38 RESULTS – Total Number of Children in Household

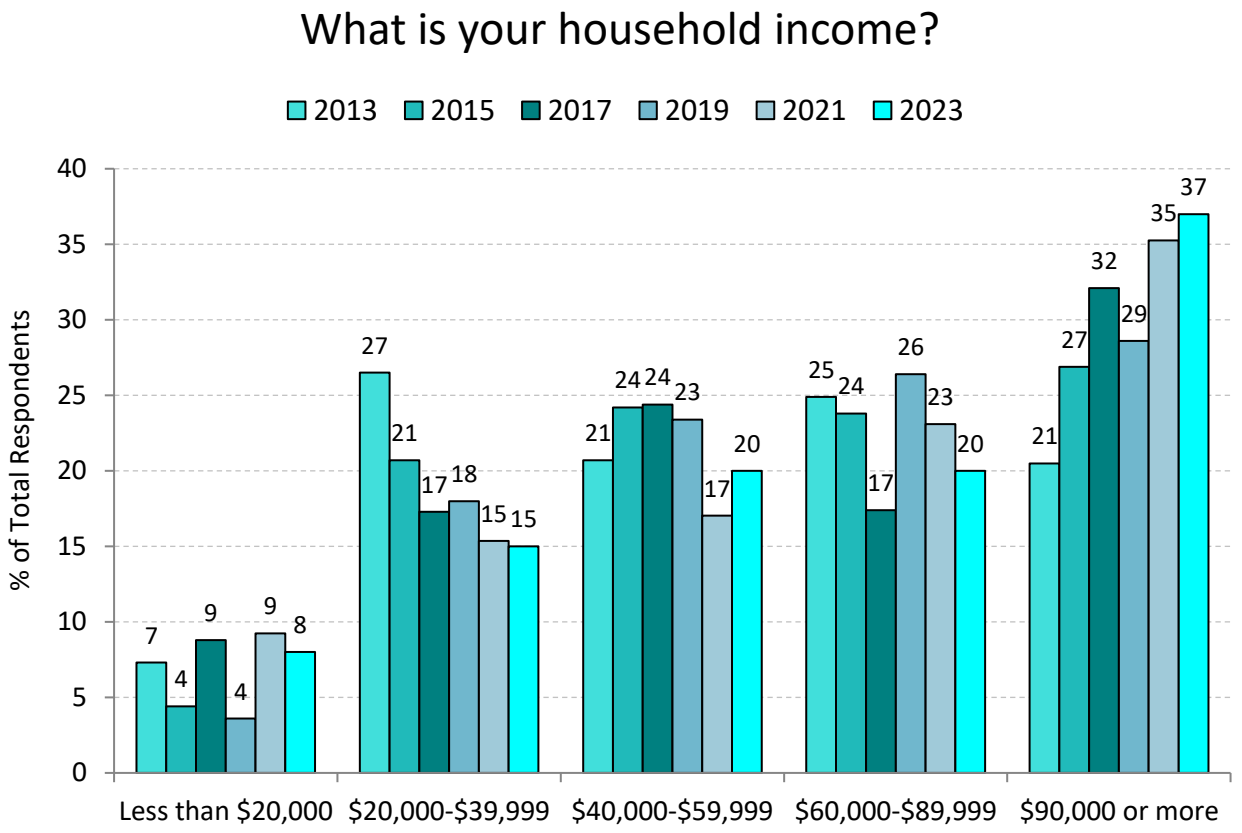


Q39 RESULTS – Education



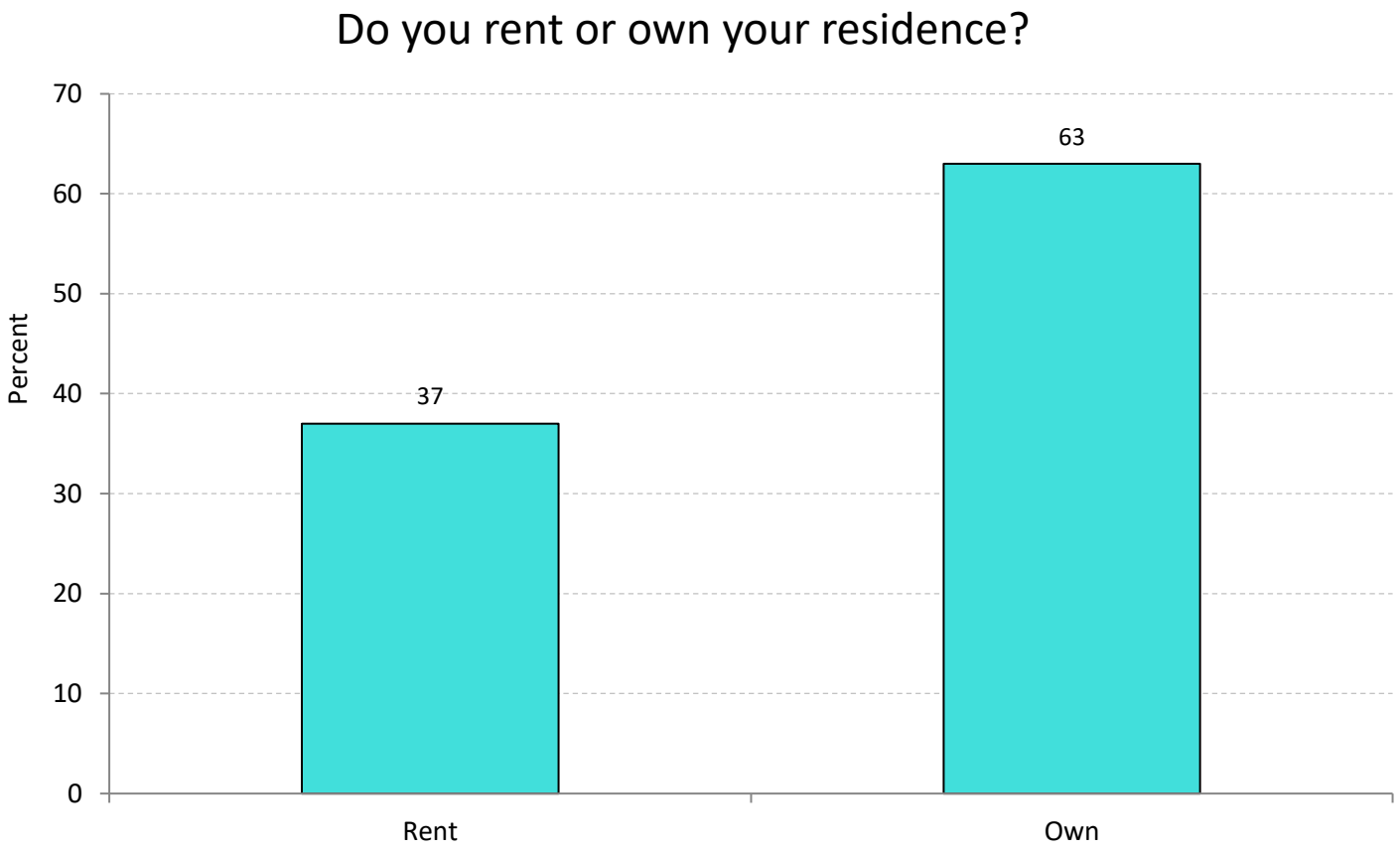
- The Northeast County has the highest proportion of Masters/Post Grads (36.7%).

Q40 RESULTS – Annual Household Income



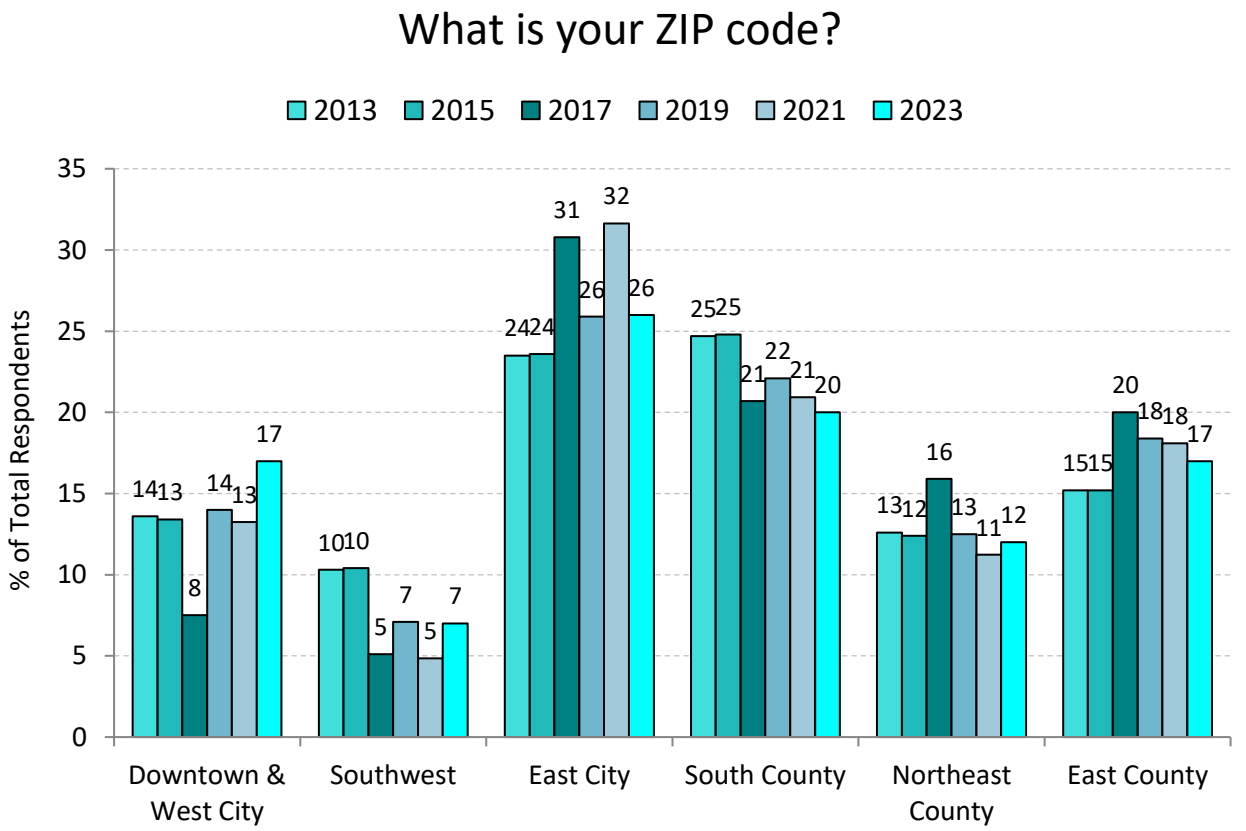
- In general, income levels did vary as expected with ZIP code geography.

Q41 RESULTS – Rent vs. Own

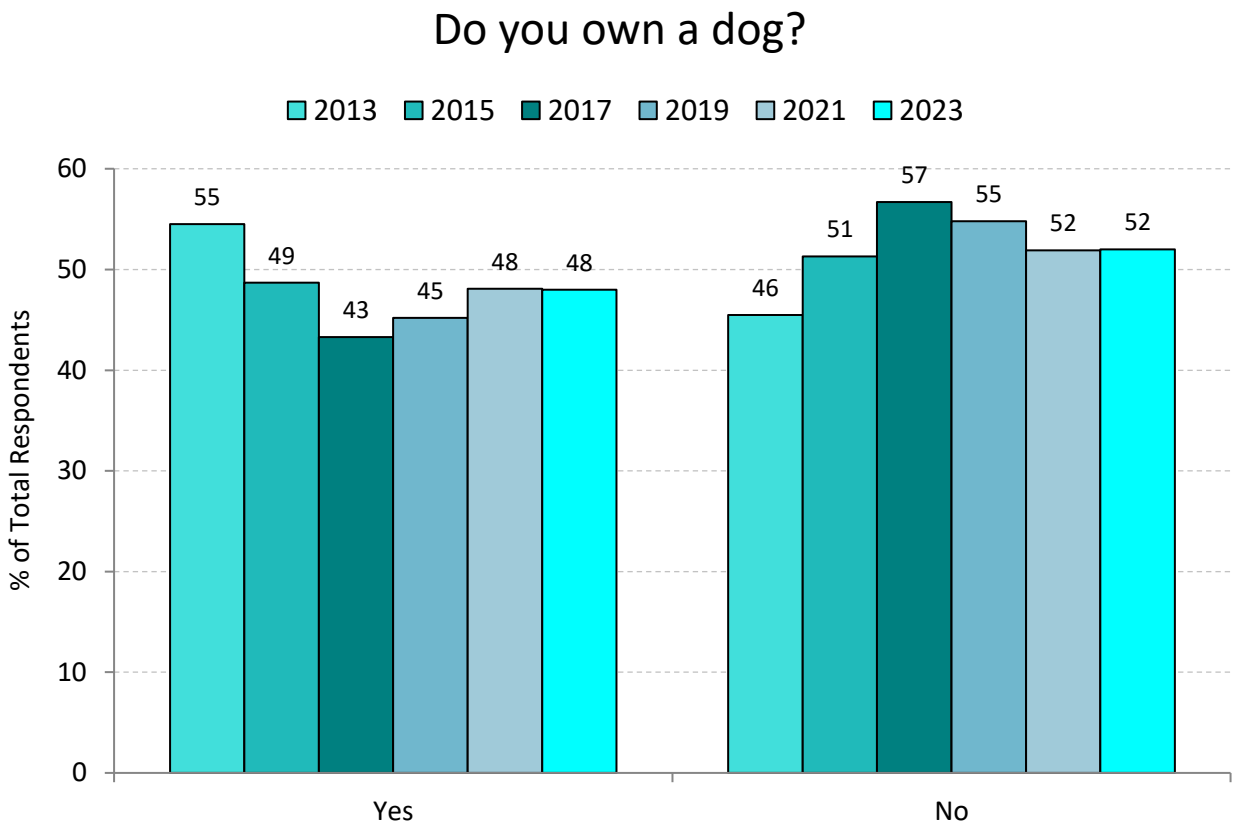


- Renters are most prevalent Downtown/West City (67.8%), as where owners are more likely to reside in East County (82.2%) and Northeast County (89.9%).

Q42 RESULTS – ZIP Code

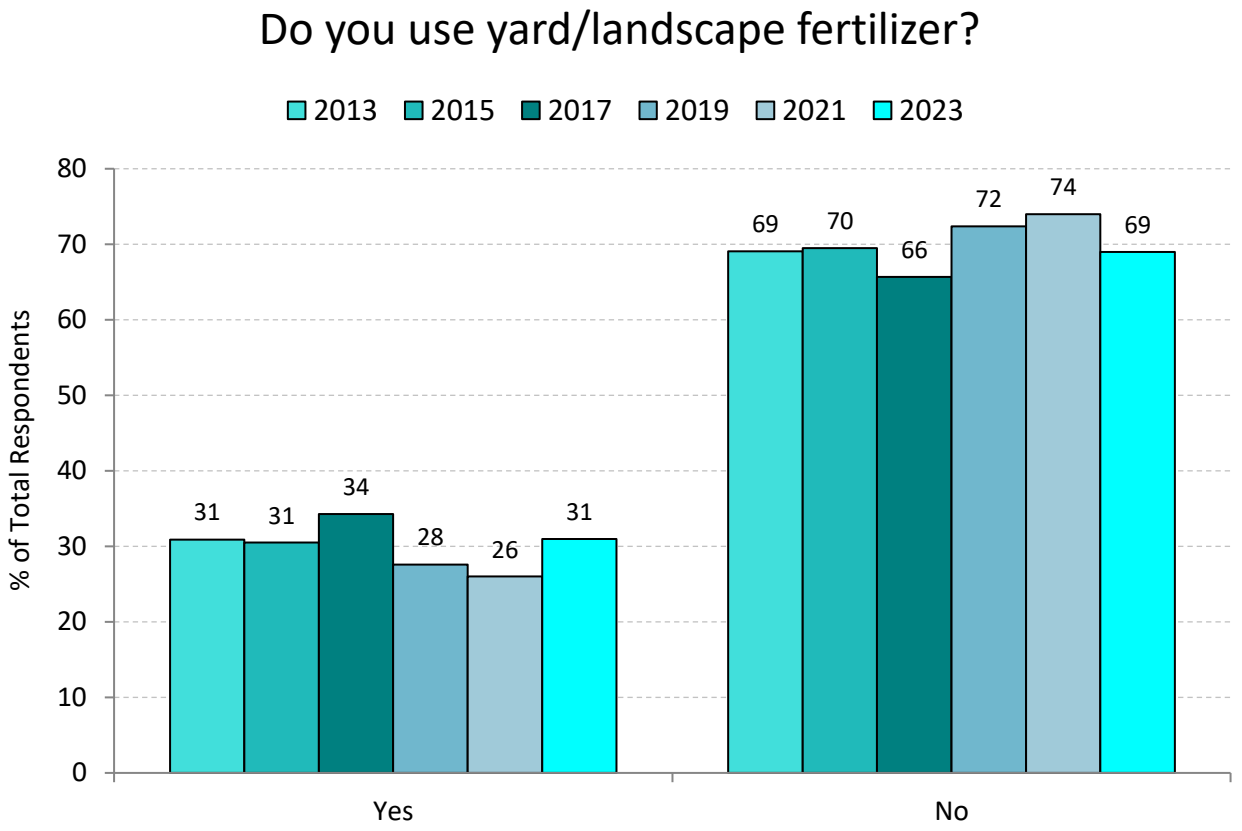


Q43 RESULTS – Dog Owner



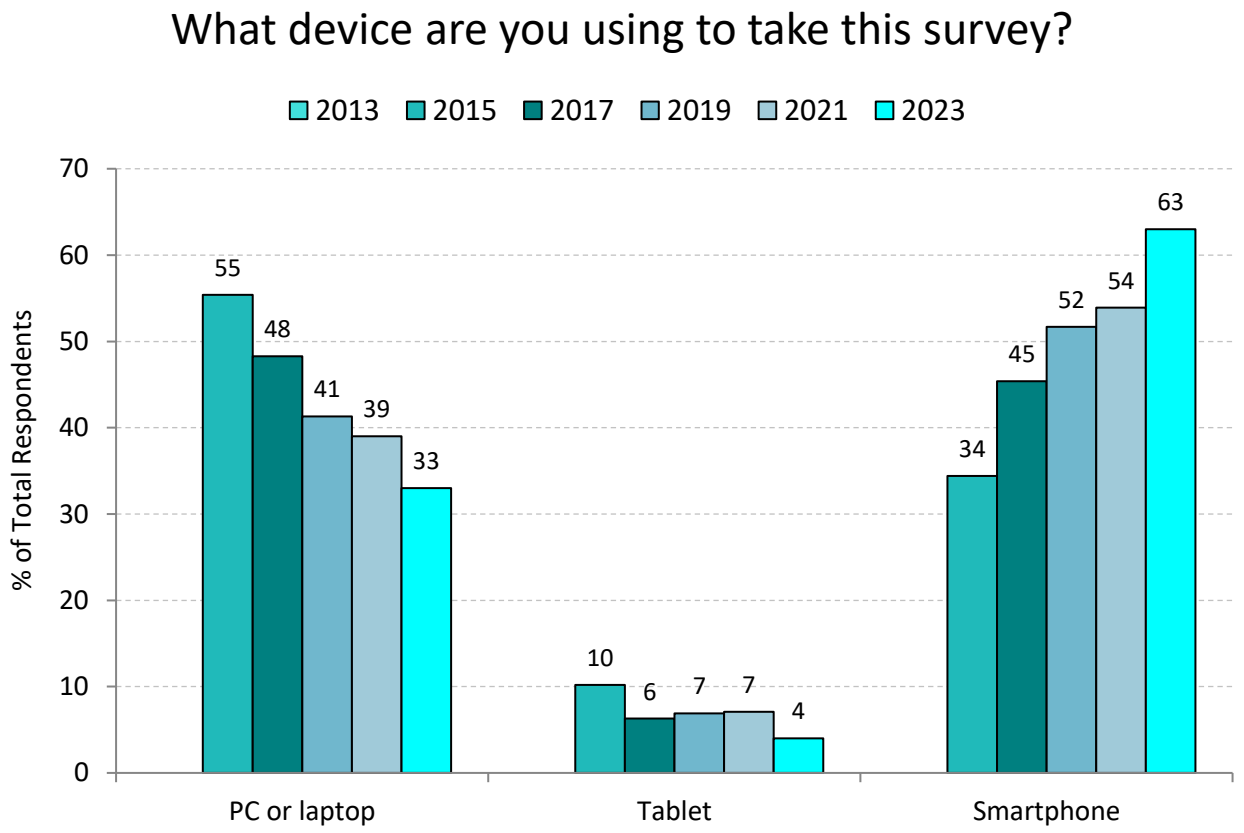
- Dog owners tend to reside in South County (63.8%), and least likely to live Downtown/West City (31.8%).

Q44 RESULTS – Use of Yard/Landscape Fertilizer



- Northeast County residents (51.5%), East County (54.2%) Homeowners (40.0%) and those age 60 + (52.8%) tend to use fertilizer the most.
- Renters (15.4%) and Downtown/West City residents (10.1%) use it the least.

Q45 RESULTS – Survey Usage Device



- Most PC or laptop users are those over 60 (41.3%), but down from 53.7% in 2021.
- Downtown/West City residents use smartphones most often (82.9%) to complete the survey.
- Smartphone usage continues to increase.

APPENDIX A
Online Survey

2023 Jefferson County Environmental Impact Survey

1. Do you live in Jefferson County, Kentucky?
   - Yes
   - No

   If no, the participant is not allowed to proceed.

2. Please indicate if you or anyone in your household work in any of the following industries:
   - Advertising or Marketing
   - Marketing Research
   - TV or Radio Station
   - Public Utility
   - Nobody in my household works in these industries

   If any of the first 4 are selected, the participant is not allowed to proceed.

3. For each of the following environmental issues, indicate how important you feel the issue is to you.
   a) Increasing tree canopy
   b) Protecting our waterways (river, creeks and ponds) from pollution
   c) Preserving open spaces
   d) Reducing climate change
   e) Conserving energy resources
      - Extremely important
      - Very important
      - Somewhat important
      - Not very important
      - Not at all important

4. Do you use the river, creeks and ponds for recreational purposes in Jefferson County, Kentucky?
   - Yes
   - No

   If no, ask #5

5. Why don't you use river, creeks and ponds for recreational purposes? Be as specific as possible.
(Open response)

6. How would you rate the overall water quality or health of the river, creeks, and ponds in Jefferson County, Kentucky?
   - Excellent
   - Very Good
   - Good
   - Fair
   - Poor

7. Why do you give that rating? (Open response)

8. How important is it to you that your community has clean rivers, creeks and ponds?
   - Extremely important
   - Very important
   - Important
   - Somewhat important
   - Not at all important

9. How does rain affect the water quality or health of our river, creeks and ponds? Please select one.
   - Restores vital nutrients
   - Washes away pollution
   - Adds pollutants to the water
   - Don’t know
   - Other [Please specify]:

10. After it rains, you should not use the local area river, creeks and ponds because they have become unsafe with increased levels of pollution and bacteria.
   - True
   - False
   - Not sure

11. What do you think would cause the river, creeks and ponds to become polluted after a rain?
(Open response)

12. Please indicate how much you agree with the following statements.
    a) Water that flows through street gutters and storm drains goes through a treatment facility before being released in our waterways.
    b) Rainwater runoff is a leading cause of water pollution in my area.
    c) Sewer system overflow occurs frequently in my community.
        - Strongly agree
        - Agree
        - Neither agree nor disagree
        - Disagree
        - Strongly disagree

13. How informed do you feel about the causes of rainwater runoff pollution in your area?
    - Very informed
    - Informed
    - Somewhat informed
    - Not very informed
    - Not at all informed

14. How informed do you feel about the causes of sewer system overflow in your area?
    - Very informed
    - Informed
    - Somewhat informed
    - Not very informed
    - Not at all informed

15. Do you think there are actions you can take to reduce water pollution in the river, creeks and ponds?
    - Yes
    - No

16. Rainwater runoff and sewer system overflow contribute to water pollution. Do you currently take actions to reduce water pollution?
    - Yes
    - No

    If yes, ask #17

17. What actions do you currently take to reduce water pollution? (Open response)

18. Do you think any of these actions would increase the amount of pollution from rainwater runoff?
    (Select all that apply)
    - Putting trash in the street gutter
    - Improperly disposing hazardous waste, such as paint and motor oil
    - Using non environmentally friendly lawn chemicals
    - Leaving pet waste on the ground
    - Allowing fluids to leak from cars and trucks
    - Washing your car in the driveway or street
    - Other [Please specify]:

19. Do you think any of these actions cause sewer system overflow? (Select all that apply)
    - Pouring fats, oils, greases and food particles down the sink
    - Flushing diaper wipes and other wet wipes down the toilet
    - Flushing dental floss down the toilet
    - Flushing hair down the toilet
    - Using water-using appliances, such as a dishwasher or clothes washer, when it is raining
    - Connecting the groundwater sump pump to the basement sewer connection
    - Putting lawn grass clippings and leaves in the street gutter
    - Other [Please specify]:

20. Please indicate how much you agree or disagree with the following statements about the water quality or health of the river, creeks, and ponds in Jefferson County, KY.
    a) We can all do our part to reduce the effects of water pollution.
    b) I am personally responsible for reducing rainwater runoff pollution and sewer system overflow.
    c) Local governments, businesses and industries are responsible for reducing rainwater runoff and sewer system overflow.
    d) I would only do my part to reduce water pollution if everyone else did as well.
    e) The utility company should provide incentives for people to reduce water pollution.
    f) Human activities have no significant impact on the water quality of river, creeks and ponds.
    g) Water pollution of river, creeks and ponds frightens me.
    h) The evidence for water pollution of river, creeks and ponds is unreliable or insufficient.
        - Strongly agree
        - Agree
        - Neither agree nor disagree
        - Disagree
        - Strongly disagree

21. I personally would be willing to take the following actions to reduce the amount of water pollution in river, creeks and streams. (Select all that apply)
    - Picking up trash that is in the gutter on and/or around where I live.
    - Disposing of household hazardous wastes by taking them to a collection center.
    - Installing a rain barrel to catch rainwater from my downspouts.
    - Creating a rain garden on my property or in my neighborhood.
    - Using environmentally friendly lawn products.
    - Picking up pet waste in public spaces.
    - Picking up pet waste in my yard.
    - Recycling my used motor oil.
    - Washing my car at the carwash or on a lawn.
    - Putting fats, oils, grease and food particles in the trash can rather than down the sink drain.
    - Putting baby wipes, personal wipes and other wet wipes in the trash can rather than down the toilet.
    - Waiting to run the dishwasher or washing machine 24-48 hours after the rain subsides and the sewers aren't full.

22. How concerned are you that water pollution will cause the river, creeks and ponds to become un-fishable and un-swimmable for the next generation if actions are not taken now?
    - Very concerned
    - Concerned
    - Somewhat concerned
    - Not very concerned
    - Not at all concerned

23. In the past 12 months have you heard anything about the impact of rainwater runoff pollution and sewer system overflow and ways that residents can prevent it?
    - Yes
    - No
    - Not sure/don't know

    If yes, ask #24 & #25

24. Where did you see or hear about rainwater runoff pollution and sewer system overflow? (Select all that apply)
    - Television
    - Radio
    - Newspaper
    - Email
    - Website [Please specify]:
    - Brochure
    - Neighborhood meeting
    - Poster
    - Facebook
    - Twitter
    - Sign/billboard
    - Posting near river, creek, or pond
    - Other source [Please specify]:
    - Not sure

25. What do you remember about the information that you saw or heard? Be as detailed as possible.

(Open response)

26. Which of the following kinds of information would get you personally to pay attention to rainwater runoff pollution and sewer system overflow to help improve the water quality or health of river, creeks, and ponds after a storm? (Select all that apply)

- General education
- Campaign with emotional/dramatic impact
- Financial reward
- Financial consequences
- Statistical data
- Environmental report

27. What types of messages would you need to hear that would make you want to take action to reduce rainwater pollution and sewage system overflow? (Open response)

28. People get information from many different sources. Rank the sources that you would most prefer to hear from in an emergency (such as a weather alert). Please select at most 4 answers.

- Radio
- Television
- Email
- Social Media
- Direct Mail
- Internet
- Neighborhood Meeting
- Signs/Billboards
- Postings at river, creek or pond

29. People get information from many different sources. Rank the sources that you would most prefer to hear from for community news (such as a river walk clean-up). Please select at most 4 answers.
    - Radio
    - Television
    - Email
    - Social Media
    - Direct Mail
    - Internet
    - Neighborhood Meeting
    - Signs/Billboards
    - Postings at river, creek or pond

30. People get information from many different sources. Rank the sources that you would most prefer to hear from for "How To" information (such as how to install a rain barrel). Please select at most 4 answers.
    - Radio
    - Television
    - Email
    - Social Media
    - Direct Mail
    - Internet
    - Neighborhood Meeting
    - Signs/Billboards
    - Postings at river, creek or pond

31. People get information from many different sources. Rank the sources that you would most prefer to hear from for notices (such as upcoming dates for recycling hazardous chemicals). Please select at most 4 answers.
    - Radio
    - Television
    - Email
    - Social Media
    - Direct Mail
    - Internet
    - Neighborhood Meeting
    - Signs/Billboards
    - Postings at river, creek or pond

32. Do you read newsletters that are included in your monthly bills?
    - Yes
    - No

33. What does the Metropolitan Sewer District (MSD) do for your community? (Open response)

34. What is your opinion of MSD?
    - Positive
    - Somewhat positive
    - Neutral
    - Somewhat negative
    - Negative

35. MSD helps your community manage its sewer system and protect the health of the river, creeks and ponds. What role do you think MSD should take in helping residents reduce the household causes of waterway pollution? (Open response)

36. What was your age on your last birthday?

37. Are you:
    - Female
    - Male

38. How many children do you have in your household:
    a) Age 0-6:
    b) Age 7-12:
    c) Age 13-18:

39. What is your highest level of education?
    - Some high school
    - High school graduate
    - Some college
    - College graduate
    - Masters or post graduate

40. What is your household income?
    - Less than $20,000 per year
    - $20,000 to $39,999 per year
    - $40,000 to $59,999 per year
    - $60,000 to $89,999 per year
    - $90,000 or more per year

41. Do you rent or own your residence?
    - Rent
    - Own

42. What is your ZIP code?

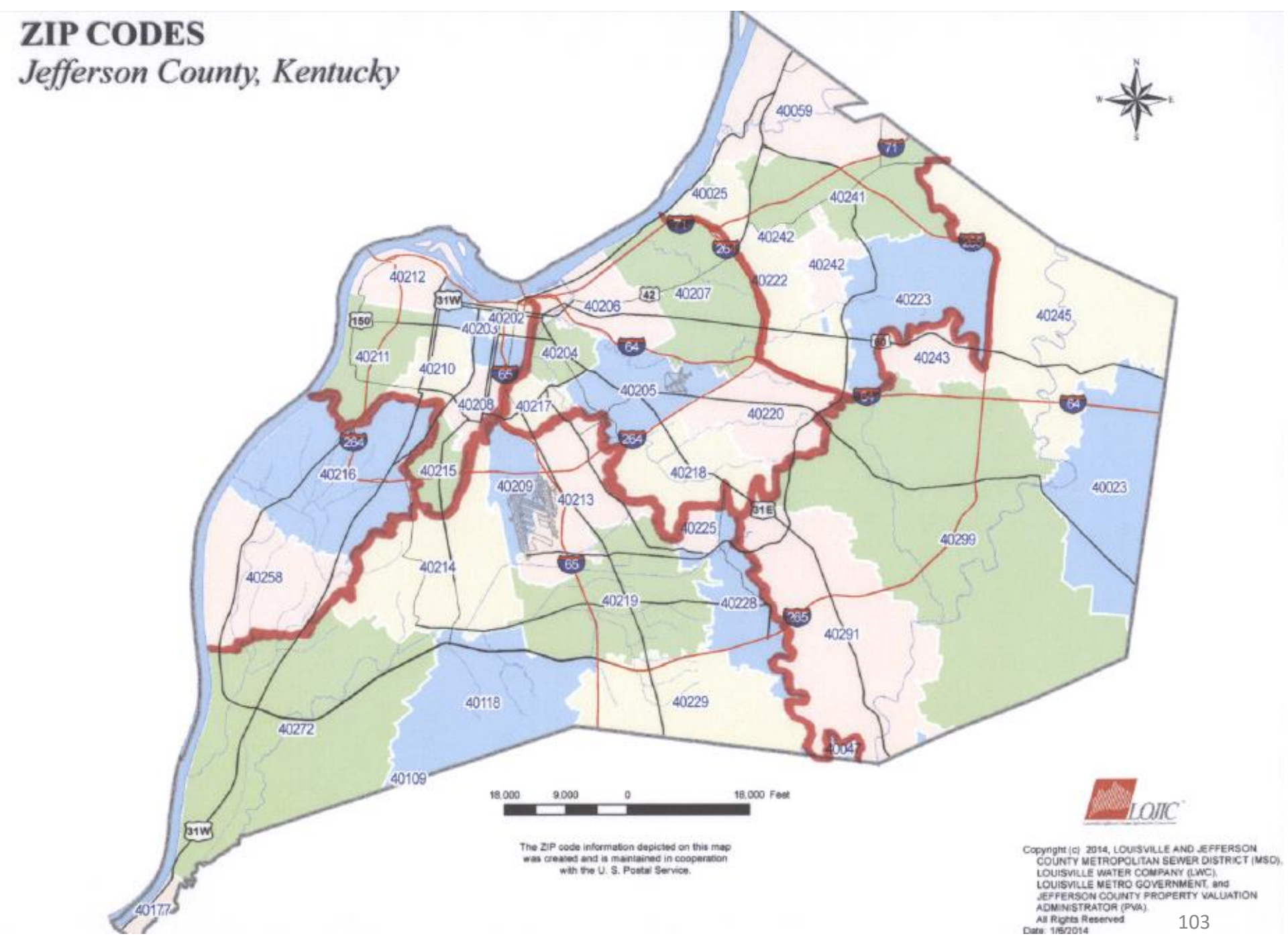
43. Do you own a dog?
    - Yes
    - No

44. Do you use yard/landscape fertilizer?
    - Yes
    - No

45. If you would like to be entered into a drawing for a prize, please provide your name, email address, and phone number so that we may contact the winners.
    a) Name:
    b) Email:
    c) Phone Number:

46. What device are you using to take this survey?
    - PC or laptop
    - Tablet
    - Smartphone

Appendix B – Zip Code Segmentation Maps


ZIP CODES
Jefferson County, Kentucky
40059
40025
40241
40242
40242
40222
40207
40206
40202
40203
40204
40212
40211
40210
40208
40217
40205
40220
40216
40215
40209
40213
40218
40225
40214
40258
40219
40228
40291
40118
40229
40272
40109
40177
40223
40245
40243
40023
40299
40047
71
265
42
64
65
264
31W
150
31E
18,000 9,000 0 18,000 Feet
The ZIP code information depicted on this map was created and is maintained in cooperation with the U. S. Postal Service.
LOJIC
Copyright (c) 2014, LOUISVILLE AND JEFFERSON COUNTY METROPOLITAN SEWER DISTRICT (MSD), LOUISVILLE WATER COMPANY (LWC), LOUISVILLE METRO GOVERNMENT, and JEFFERSON COUNTY PROPERTY VALUATION ADMINISTRATOR (PVA).
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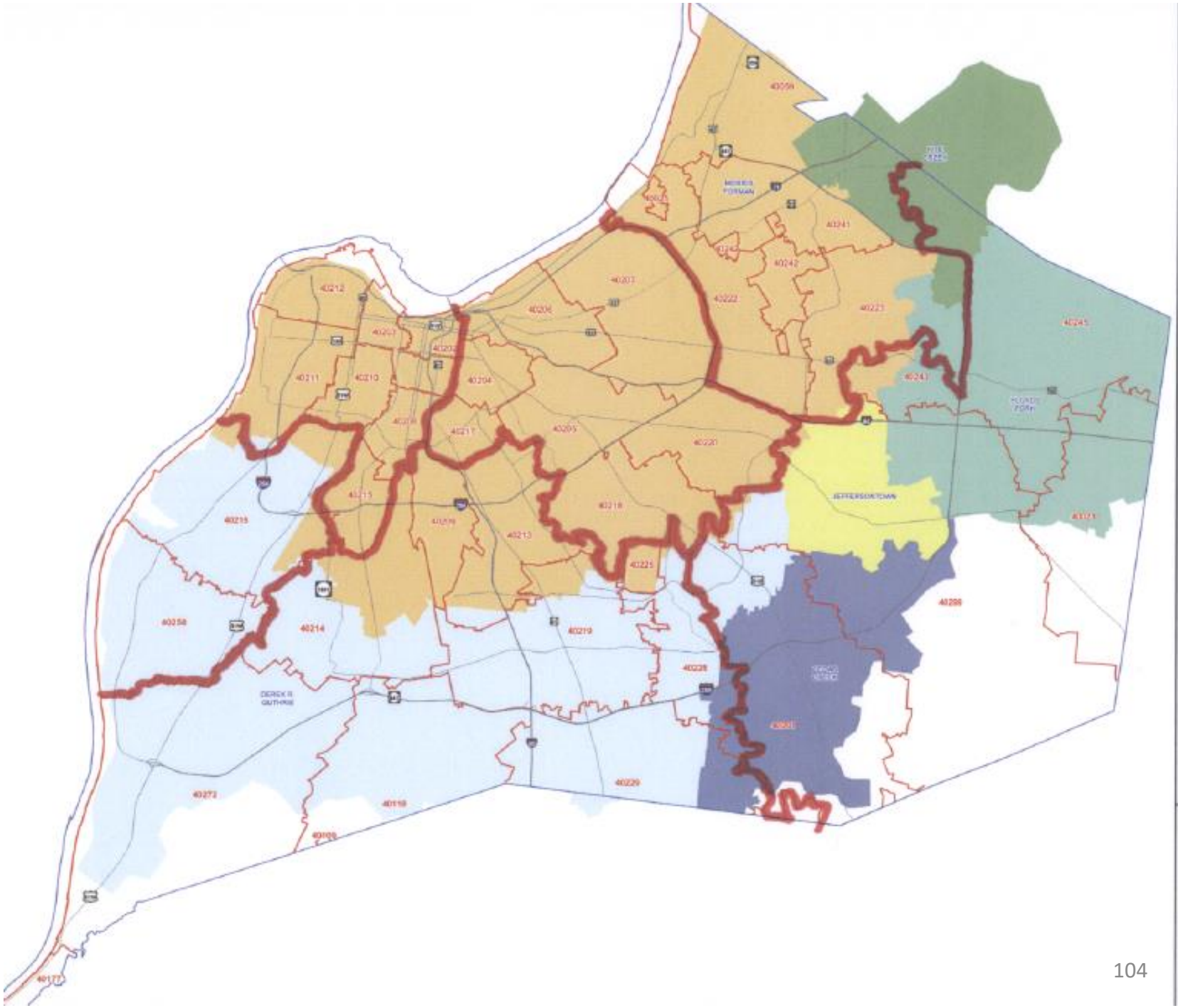
Date: 1/6/2014


MSD Sewer Service Areas By Zip Codes
Jefferson County, Kentucky
Legend
Major Roads
Interstate
Major Arterial
Minor Arterial
ZIP Codes
Sewer Service Areas
CEDAR CREEK
DEREK R. GUTHRIE
FLOYDS FORK
HITE CREEK
JEFFERSONTOWN
MORRIS FORMAN
40059
40241
40242
40243
40222
40223
40245
40212
40207
40205
40211
40210
40204
40299
40220
40218
40213
40215
40258
40214
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40272
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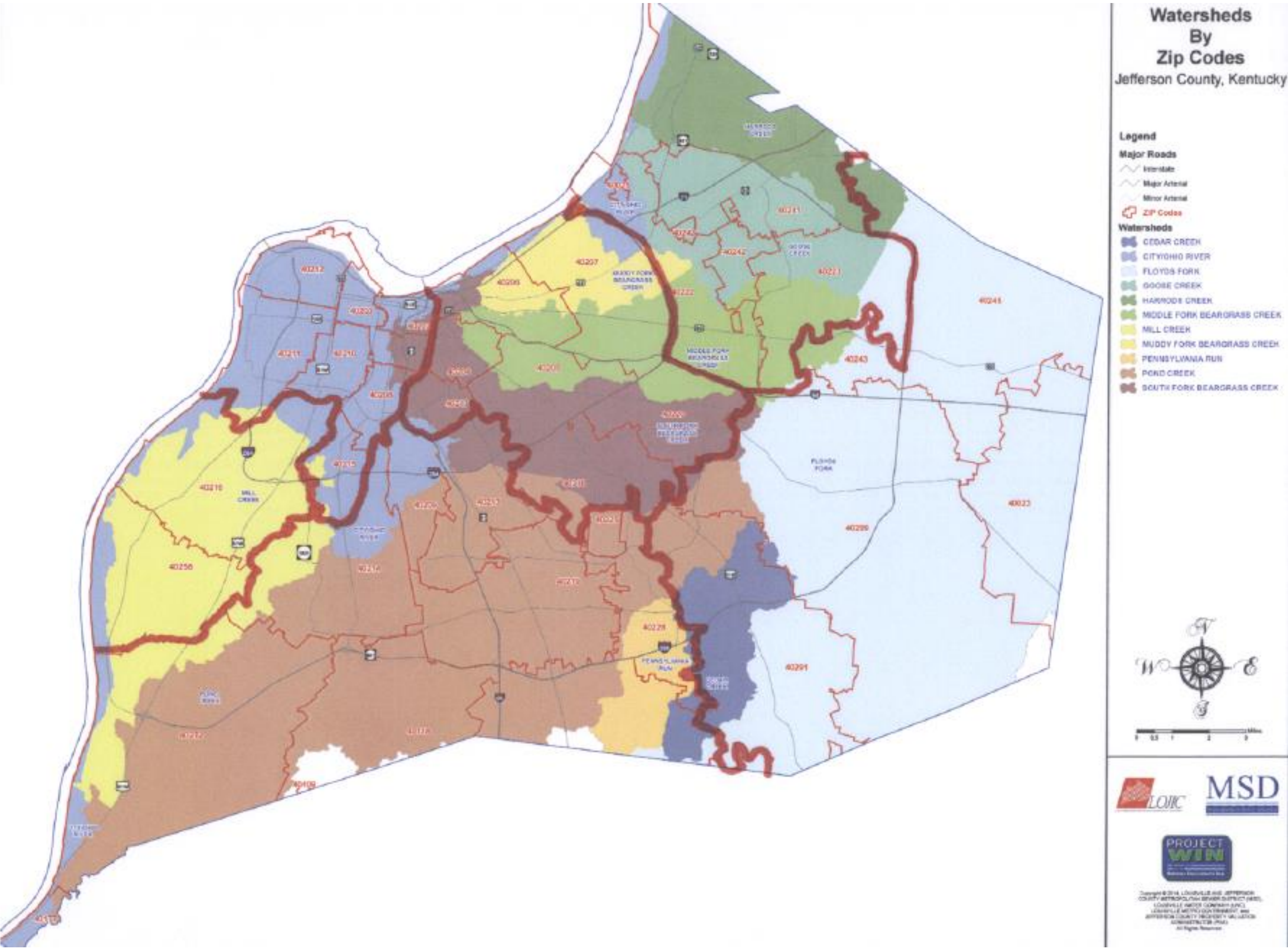
40177
JEFFERSONTOWN
FLOYDS FORK
DEREK R GUTHRIE
MSD
PROJECT WIN


Watersheds
By
Zip Codes
Jefferson County, Kentucky
Legend
Major Roads
Interstate
Major Arterial
Minor Arterial
ZIP Codes
Watersheds
CEDAR CREEK
CITY/OHIO RIVER
FLOYDS FORK
GOOSE CREEK
HARRODS CREEK
MIDDLE FORK BEARGRASS CREEK
MILL CREEK
MUDDY FORK BEARGRASS CREEK
PENNSYLVANIA RUN
POND CREEK
SOUTH FORK BEARGRASS CREEK
FLOYDS FORK
MILL CREEK
PENNSYLVANIA RUN
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E
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PROJECT WIN