



NEWS RELEASE

Local utilities urge residents to get to know their water

Survey reveals five things all metropolitan Washington residents should know about their water and wastewater infrastructure

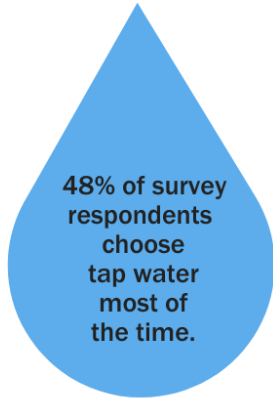
Washington, D.C. (September 8, 2020) – How often, on average, are you washing your hands these days? More than ever, metropolitan Washington residents are relying on area water utilities to provide reliable service for handwashing, sanitation, and drinking.

A [recent survey](#) of the region's residents by the Metropolitan Washington Council of Governments (COG) revealed five things all residents should know about their water, and the service and infrastructure that makes it possible.

FIVE THINGS TO KNOW ABOUT YOUR WATER

1. **Your tap water is safe, clean, and ready to drink.**
2. **The Potomac River is the region's major source of drinking water.**
3. **You can protect the water in your local streams by reducing polluted runoff from your yard and pavement.**
4. **Facial tissues, paper towels, and "flushable" wipes aren't actually flushable and can cause costly damage.**
5. **If you've noticed a rate increase on your water utility bill, it's to continue delivering quality service.**

Drinking Water and Wastewater Survey Results:
mwcog.org/watersurvey



48% of survey respondents choose tap water most of the time.

“This survey gives us—the region’s water and wastewater utilities— important insights about the public’s understanding of their water and wastewater services,” said Melissa Atwood, COG’s [Community Engagement Campaign](#) Chair, and Outreach Coordinator for Fairfax County Wastewater Management. “The findings help us shape the way we communicate with customers about the work our regional utilities do to ensure these life-sustaining services.”

FIVE THINGS TO KNOW ABOUT YOUR WATER

1. **Your water is safe, clean, and ready to drink from the tap.**

Forty-eight percent of survey respondents reported that they drink tap water most of the time. Almost a third reported that they "rarely" or "never" drink tap, mostly due to concerns about safety of the water. Drinking water is treated to meet the stringent standards required by the Safe Drinking Water Act and enforced by the U.S. Environmental Protection Agency (EPA) and state agencies. Learn more about your drinking water by checking your local utility's website for its annual water quality report.

2. The Potomac River is the major source of drinking water for metropolitan Washington residents.

Other important sources include the Patuxent River, Occoquan River, and groundwater wells. Over half of survey respondents indicated that they did not know the source of their drinking water, [mirroring national trends](#). Water is pulled from the Potomac River upstream of Great Falls, cleaned and then processed by area drinking water utilities, then delivered to your tap via miles of pipe.

3. You can protect the water in your local streams by reducing polluted runoff from your yard and pavement.

Many survey respondents recognized that chemicals like fertilizer, car fluids, herbicide, and winter salts can be harmful to the health of local waterways, some of which flow into sources of our drinking water, like the Potomac River. Preventing pollutants from entering rivers and streams is critically important to our communities, aquatic habitats, and our water supplies. The sum of our individual actions affect the health of the water supply and protecting source water protects public health, reduces the costs of water treatment, and preserves recreational areas and wildlife habitat.

4. Facial tissues, paper towels, and "flushable" wipes aren't actually flushable and can cause costly damage to your own plumbing, and the region's water infrastructure.

Frequent cleaning of surfaces, knobs, and other commonly touched areas is always encouraged, especially during the COVID-19 pandemic. Survey respondents indicated that they "sometimes" flush tissues, paper towels, and wipes down the toilet, and felt that wipes labeled "flushable" were safe to flush. All of these products contribute to clogs in residential pipes and area sewer systems. They can cause costly damage to wastewater treatment equipment and sewage overflows into homes and rivers.

For example, Frederick County Division of Utilities and Solid Waste Management has noticed an increase in pump clogging due to the amount of flushable wipes—and now disposable facemasks—in the collection system. Always dispose of these items in the trash. Learn more at protectyourpipes.org.

5. If you've noticed a rate increase on your water utility bill, it's to continue delivering quality service.

The majority of surveyed residents (66 percent) perceive the region's water and wastewater infrastructure to be in good condition. However, approximately a third of respondents aren't sure how rates benefit water infrastructure. Rates, in part, pay for repairing and replacing pipes and treatment plant equipment that have outlived their useful lifespan.

For example, Fairfax County Wastewater Collection Division personnel maintain over 3,300 miles of pipes, 95,000 sanitary sewer manholes, 63 wastewater pump stations, and 2 stormwater pump stations! Rates also support operations, ensuring quality services are delivered to customers around the clock, and preventative maintenance to keep wastewater safely moving from homes and businesses to the wastewater treatment plant, helping prevent sewer backups and overflows.

The survey was completed by 821 metropolitan Washington residents, and conducted on behalf of the 16 water and wastewater utilities and jurisdictions who collaborate on regionwide water communication and outreach as part of COG's [Community Engagement Campaign](#). The group issues a survey annually to measure changes in water awareness and behaviors to protect area water and water infrastructure.

MORE: [Drinking Water and Wastewater Survey Report](#)

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The Council of Governments is an independent, nonprofit association where area leaders address regional issues affecting the District of Columbia, suburban Maryland, and Northern Virginia.

Metropolitan Washington Council of Governments

Results of 2020 Annual Survey

Prepared

By

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Executive Summary

What follows is a summary of findings from the survey's analysis organized by question number. Specific data and statistics are included in the question-by-question analysis section of this document.

- **Screening Questions: Do you have the same utility for water and wastewater?**
 - There were respondents in nearly every district who reported having different utilities for water and wastewater services, which is clearly incorrect. While it is informative in terms of people's low information levels on their water/wastewater services, it suggests a significant amount of error in the responses for those questions (like Q17) served only to people who reported having two separate utilities.

- **Q4 & Q5: Tendency to consume tap water**
 - Men consume more than women
 - Older consumer more than younger
 - There is a racial disparity in tap water consumption, particularly when it comes to African-Americans who largely do not feel their water supply is safe. This effect is also evident in Q7, where African-Americans report the highest tendency to drink bottled water.
 - Additionally, when looking at age, gender, and ethnicity together, ethnicity was (by far) the largest factor.

- **Q7: Tendency to consume bottled water**
 - In addition to the above-mentioned effect of ethnicity, African-Americans exhibited a strong tendency to consume bottled water.
 - There is a counter-intuitive wealth effect for bottled water consumption where wealthier people drink bottled water *less*.
 - An interesting "interactive effect" of age and income shows young, lower income customers drinking the most bottled water and older, lower income customers drinking the least.
 - Preferences among higher income customers were stable across age groups.
 - When regressing age, income, and ethnicity against bottled water consumption, ethnicity was the largest factor.

- **Q8 & Q9: Disposal Behaviors and Perceived Risk of Disposal**
 - There is a significant effect for "Flushable" vs. "Regular" wipes where respondents believe flushable wipes are safer to dispose than regular and act accordingly.
 - In general, there is a pretty strong relationship between people's risk perceptions and their resulting behaviors.
 - Age and income were driving factors in disposal behaviors
 - Age, income, and ethnicity were driving factors in perceptions of safety to dispose of certain materials.

- **Q11: Promotional Image Recall**
 - 24.4% of respondents reported having some recollection of having seen at least one of the images from MWCOG’s promotional campaign.

- **Q13: Frequency of Salting**
 - The frequency with which respondents reported having salt applied to deal with snow and ice varied according to a large number of factors including age, ethnicity, income, home ownership, years living in the DC area, and dwelling type.

- **Q14: Drinking Water Source**
 - More than half (50.9%) of respondents clicked “I don’t know” when asked about the source of their drinking water.

- **Q15: Safety of runoff**
 - Salt was seen as the safest runoff material (vs. herbicide, auto fluids, pet waste, & fertilizer).
 - There was a strong, positive relationship between the perception of safety of salt runoff and salting behaviors (Q13).
 - Age was the chief driver of perceptions of safety, with older respondents viewing runoff as being less safe, generally.

- **Q16 Rate your water service**
 - All districts rated between “Average” and “Above Average” on all attributes (Quality, Taste, Customer Service Responsiveness, Customer Service Friendliness, Value of Service)
 - The only significant factor affecting these ratings was home ownership, with owners giving higher marks than renters.

- **Q19: How much do you trust utility officials and elected officials on infrastructure decisions?**
 - Utility officials are trusted more than elected officials.
 - The only demographic variable affecting trust was income. Higher income respondents trust elected officials less, on average, than lower income respondents.
 - There was a sizable and significant relationship between trust of utility officials and the perception of how often rates are raised. The more frequent someone perceived rate raises, the less they trusted utility officials, though based on the data, it could be argued that the reverse is true (less trust → perception of more rate raises).

- **Q20: Perceived efficacy of communications channels for customer service**
 - Phone and In-Person were perceived to be the most effective while social media was perceived as being the least effective.
 - Age was a driving factor in these ratings, where the older you are, the less effective you perceived social media.

- **Q22: Communications Preferences**
 - Respondents consistently preferred email and mail for communications in all contexts *EXCEPT* emergency communications. For emergencies, preference then shifted to phone and texts.

- **Q23: Belief that rate hikes are to improve infrastructure**
 - Respondents have a neutral to slightly positive opinion that when their water utility rates, it's to improve infrastructure.
 - That perception is driven by age, income, and ethnicity.

- **Q24: Perception of frequency of rate increases**
 - Respondents rated the frequency of rate increases between "Rarely" and "Occasionally."
 - Perception of more frequent rate increases was positively related to age, income, being the bill payer, and home ownership.

- **Q25: Most trusted sources of information about water/wastewater service**
 - Most media were highly rated, with Public Service Announcements (PSAs) and utility communications ranking the highest.
 - The one source not highly rated was social media and those ratings were driven by age and income.

About the Author

John Dinsmore is a marketing consultant and Associate Professor of Marketing at Wright State University in Dayton, Ohio.

Professor Dinsmore has provided marketing consulting services to many early-stage companies as well as large organizations such as The John F. Kennedy Center for the Performing Arts, the US Department of Defense, The University of Virginia, and National Geographic. He is a member of the American Marketing Association and the Association for Consumer Research and has been featured in publications such as *Forbes*, *CIO*, *CBS Marketwatch*, *US News & World Report* for his market commentary.

At Wright State University, he teaches a variety of courses including Digital Marketing, Marketing Strategy, and Creativity & Problem-Solving, garnering multiple teaching awards. Dr. Dinsmore has provided executive training services to the United States Air Force and Speedway Corporation. His academic research primarily focuses on the monetization of mobile applications, having been published in academic journals including *Psychology & Marketing*, *Journal of Business Research*, and *International Journal of Research in Marketing*. He has also published business cases focusing on strategy and analytics which are taught in MBA programs around the world.

Dr. Dinsmore holds a BA in Political Science from James Madison University, an MBA in Marketing & Decision Support Systems from University of Georgia, and a PhD in Marketing from University of Cincinnati. He lives in Dayton, Ohio with his wife, two sons, a gigantic rottweiler named "Fozzie," and performs volunteer work for local organizations including Miami Valley Community Concert Association and Temple Beth Or. Additional information about him can be found online at www.JohnDinsmore.com

Methodology

The survey instrument was completed in collaboration with, and at the direction of, Metropolitan Washington Council of Governments (MWCOC) executives. It was loaded onto an online survey platform (Qualtrics). A copy of the final survey is included at the end of the document that includes survey questions and outlines programming for display logic that dynamically altered the survey based upon individual responses. Such display logic included termination of survey for respondents outside of service areas or who did not use a utility for drinking water or wastewater services.

Additionally, wherever possible and appropriate, order of answers were randomized to avoid “order effects” such as an item presented first being selected more than subsequent items.

More than 95% of respondents were recruited via online survey panel in exchange for fair compensation. The remaining respondents were recruited via social media of districts who had a low participation rate on the online panel. These participants were also fairly compensated.

Any identifying information (in the case of those recruited via utility social media) was decoupled from responses to protect the anonymity of participants.

Sample Description

The survey received 830 complete responses. Nine responses were removed for missing the attention check in the survey, leaving final sample at 821. The survey filtered out respondents who had either private wells or septic tanks, so all analysis in this document is based on the responses of utility customers.

Age

The age of respondents ranged from 20 to 88, with a mean of 50.61 and a standard deviation of 17.65

Gender

Respondents identified their gender as follows:

	Frequency	Percent
Female	450	54.8
Male	360	43.8
Transgender Female	2	.2
Transgender Male	1	.1
Gender Variant/Non-Conforming	2	.2
Other	1	.1
Prefer Not To Answer	5	.6
Total	821	100.0

Ethnicity

Respondents identified their ethnicity as follows:

	Frequency	Percent
African American	126	15.3
Asian	71	8.6
Hispanic	58	7.1
Native American	23	2.8
Pacific Islander	14	1.7
White/Caucasian	499	60.8
Other	30	3.7
Total	821	100.0

Sample Size By Service District

	Frequency	Percent
Alexandria City	69	8.4
Arlington	70	8.5
Charles County	57	6.9
District of Columbia	70	8.5
Fairfax County	71	8.6
Frederick County	69	8.4
Loudon County	76	9.3
Montgomery County	69	8.4
Prince George's County	69	8.4
Prince William County	62	7.6
Rockville	78	9.5
Vienna	61	7.4
Total	821	100.0

Respondent Income

	Frequency	Percent
0-25K	64	7.8
25-50K	116	14.1
50-75K	132	16.1
75-100K	113	13.8
100-125K	95	11.6
125-150K	75	9.1
150-175K	61	7.4
175-200K	62	7.6
200-225K	30	3.7
225-250K	19	2.3
Over 250K	54	6.6
Total	821	100.0

Respondents Reporting Having Same or Different Utilities for Wastewater or Drinking Water

	Frequency	Percent
Same Utilities	583	71.0
Different Utilities	100	12.2
I don't know	138	16.8
Total	821	100.0

Income Distribution

Income	Frequency	Percent
0-25K	64	7.8
25-50K	116	14.1
50-75K	132	16.1
75-100K	113	13.8
100-125K	95	11.6
125-150K	75	9.1
150-175K	61	7.4
175-200K	62	7.6
200-225K	30	3.7
225-250K	19	2.3
Over 250K	54	6.6
Total	821	100.0

Number of Years in DC Area

N	Valid	819
	Missing	2
Mean		25.25
Std. Deviation		17.880
Range		78
Minimum		0 (Less than a year)
Maximum		78

Home Ownership

	Frequency	Percent	Valid Percent	Cumulative Percent
Rent Home	229	27.9	27.9	27.9
Own Home	592	72.1	72.1	100.0
Total	821	100.0	100.0	

Dwelling Type

	Frequency	Percent
Single Family Home	408	49.7
Town home	162	19.7
Condo/Apartment	244	29.7
Other	7	.9
Total	821	100.0

Question-By-Question Analysis

Q4. How often do you drink tap water?

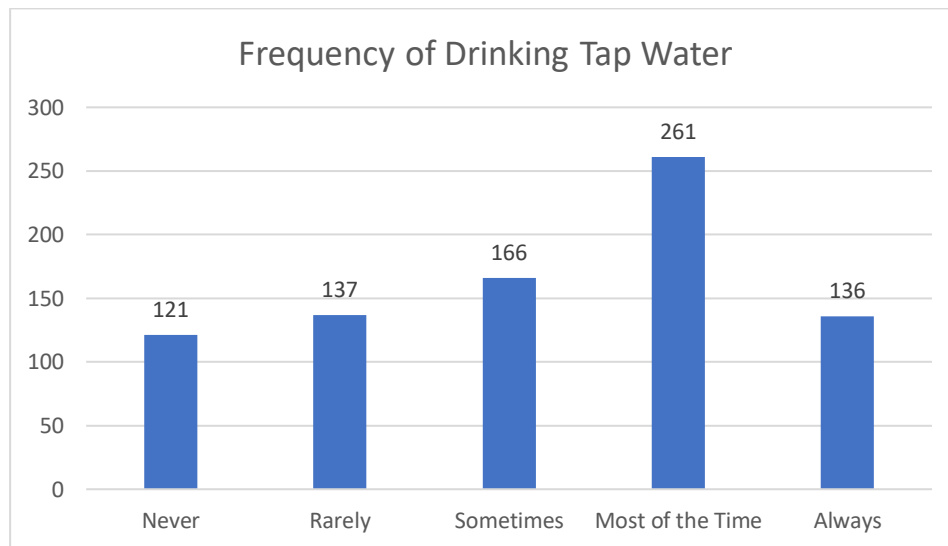
Scale: 0-Never, 1-Rarely, 2-Sometimes, 3-Most of the Time, 4-Always

Overall Analysis

Mean Rating: 2.19

Frequency of Responses

	Frequency	Percent
Never	121	14.7
Rarely	137	16.7
Sometimes	166	20.2
Most of the Time	261	31.8
Always	136	16.6
Total	821	100.0

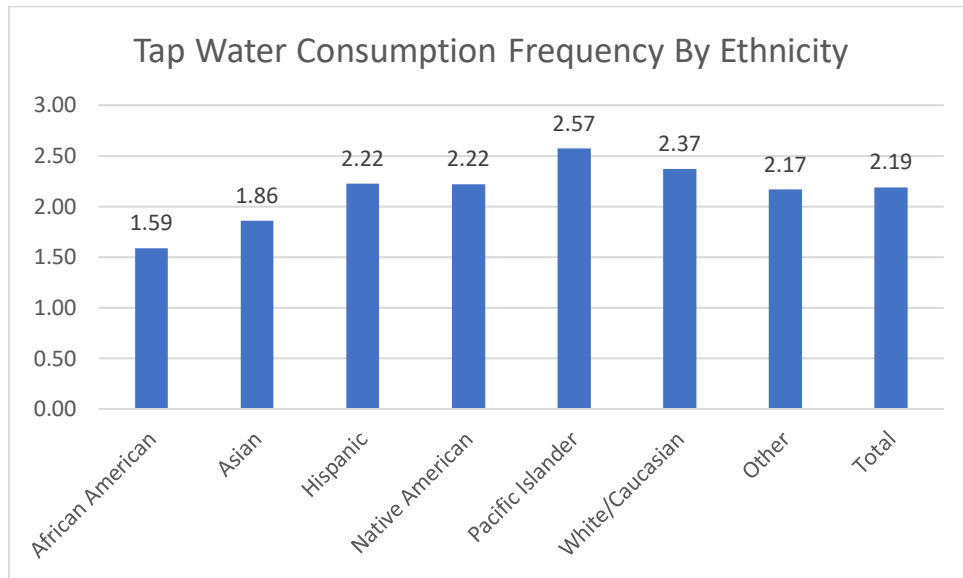


Ad-Hoc Analysis: Drivers of Tap Water Consumption By Age & Gender

There is an effect for age and tap water consumption ($R^2=.117$, $p=.001$) where the older you are, the more likely you are to drink tap water. There was no effect for consumption by income, home ownership status, or whether or not someone was responsible for paying the water bill. There was also an effect for gender, where men ($M_{\text{TapConsumption}}=2.36$) reported a significantly higher tendency to consumer tap water than women ($M_{\text{TapConsumption}}=2.06$; $t(80)= -3.264$, $p=.001$).

Ad-Hoc Analysis: Drivers of Tap Water Consumption By Ethnicity

There was a disparity in consumption by ethnicity, with African-Americans showing a much lower tendency to drink from the tap.



Additionally, given that age and gender were also found to be factors, a regression of age, gender, and ethnicity against tap water consumption was conducted. Results showed age ($b = .052$, $p = .156$) and gender ($b = .029$, $p = .402$) were rendered non-significant factors when accounting for ethnicity, while ethnicity remained a significant and large effect ($b = .191$, $p = .000$). In other words, ethnicity—more than any other factor—was driving consumption.

Additional analysis was conducted to attempt to ascertain why African-Americans are the least likely to drink tap water. Here are the responses by ethnicity for those who said they either “Rarely” or “Never” drank tap water.

	<u>Never</u>	<u>Pct. Of Responses within that Ethnicity</u>	<u>Rarely or Never</u>	<u>Pct. Of Responses within that Ethnicity</u>
African American	42	33.33%	62	49.21%
Asian	13	18.31%	30	42.25%
Hispanic	9	15.25%	14	24.14%
Native American	0	0.00%	4	17.39%
Pacific Islander	0	0.00%	1	3.33%
White/Caucasian	52	10.42%	136	27.25%

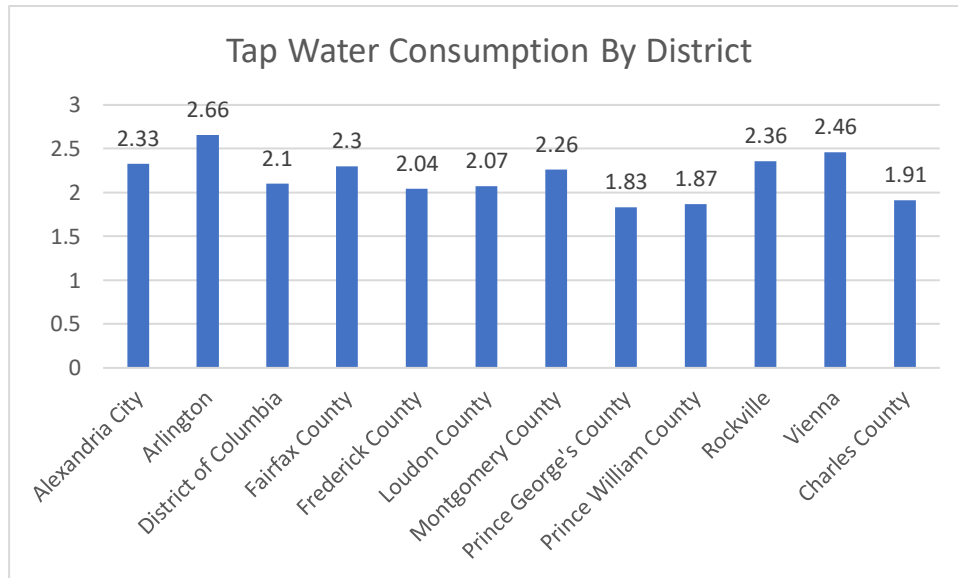
One-third of African-American respondents—almost twice the rate of the next closest group and more than three times the rate of whites—said they “never” drank tap water. In terms of reasons for not drinking tap water (Q5), African-Americans who responded “rarely” or “never” answered:

	<u>Never</u>	<u>Pct. Of “Never” Respondents</u>	<u>Rarely or Never</u>	<u>Pct. Of “Rarely” or “Never” Respondents</u>
Taste	24	57.14%	38	61.29%
Odor	5	11.90%	11	17.74%
Safety	34	80.95%	46	74.19%
Convenience	1	2.38%	4	6.45%
Other	2	4.76%	3	4.84%

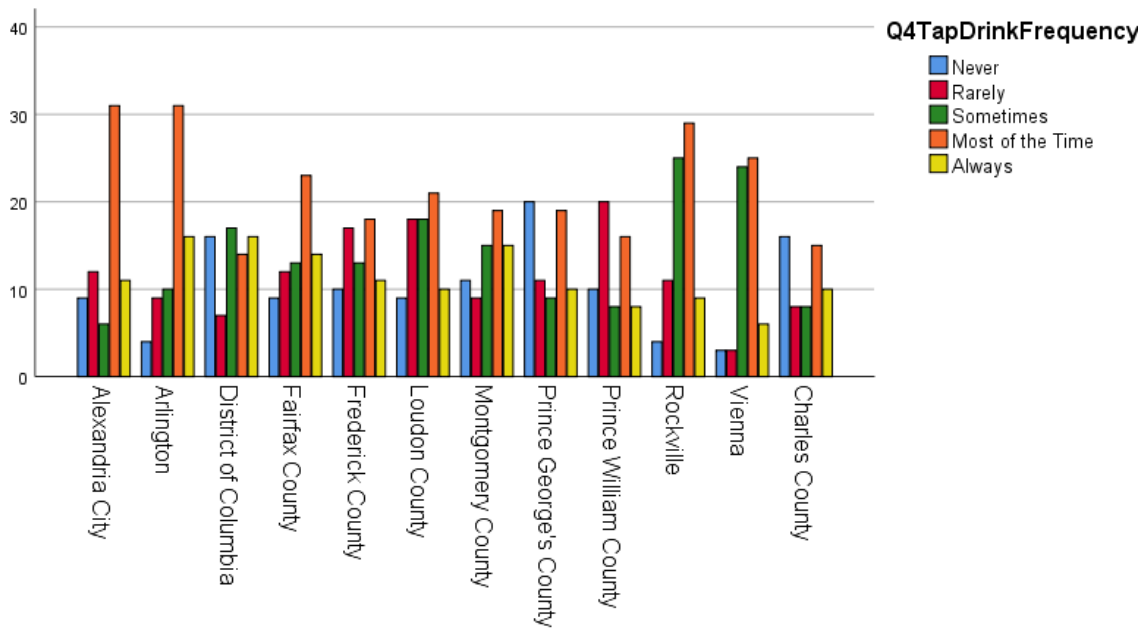
The results suggest a need for utilities to communicate the safety of the drinking water supply, particularly within the African-American community.

Analysis By District

Mean Ratings By District



Frequencies of Responses



Frequency of Responses By District

	Never	Rarely	Sometimes	Most of the Time	Always	Total
Alexandria City	9	12	6	31	11	69
Arlington	4	9	10	31	16	70
District of Columbia	16	7	17	14	16	70
Fairfax County	9	12	13	23	14	71
Frederick County	10	17	13	18	11	69
Loudon County	9	18	18	21	10	76
Montgomery County	11	9	15	19	15	69
Prince George's County	20	11	9	19	10	69
Prince William County	10	20	8	16	8	62
Rockville	4	11	25	29	9	78
Vienna	3	3	24	25	6	61
Charles County	16	8	8	15	10	57
Total	121	137	166	261	136	821

Q5. Why don't you drink tap water often?

This question was served only to those who answered "Rarely" or "Never" in Q4, rendering 258 Responses

Overall Responses

	Frequency	Percent
Taste	157	60.85%
Odor	46	17.83%
Safety	159	61.63%
Convenience	12	4.65%
Other	36	13.95%

Analysis: Of those who rarely or never drink tap water, "Taste" and "Safety" are (by far), the most commonly cited reasons.

Analysis By District

Frequency of Responses By District

	Taste	Odor	Safety	Convenience	Other	TOTAL
Alexandria City, VA	12	2	14	2	3	33
Arlington County, VA	8	3	5	1	2	19
Charles County, MD	17	3	16	1	1	38
District of Columbia	10	3	20	1	2	36
Fairfax County, VA	13	7	12	1	5	38
Frederick County, MD	20	4	11	3	2	40
Loudon County, VA	17	5	14	1	4	41
Montgomery County, MD	11	5	13	0	6	35
Prince George's County, MD	16	5	24	0	4	49
Prince William County, VA	19	2	16	2	6	45
Rockville City, MD	10	5	10	0	0	25
Vienna, VA	4	2	4	0	1	11
TOTAL	157	46	159	12	36	

Analysis of "Other" Responses in Q5

Of those who clicked "Other" in Q5, 30 respondents offered an explanation of that response.

	Frequency	Comment
"I have a water filter"	14	Respondents did not appear to view filtered water from either a Brita or Refrigerator as tap water or view "tap water" meaning to drink straight from the tap with out use of a filter.
General preference for bottled water	7	
Tap water not cold enough	4	
Concern about contamination	2	
General mistrust of tap water	2	
Color	1	
TOTAL	30	

Q6. For those who answered “Safety” in Q5, please explain.

159 respondents answered that perceived lack of safety affected their inclination to drink tap water. They were then asked to explain why they thought tap water was unsafe. Doing a text analysis of the responses, here are the most frequently used terms:

Frequency	Word/Term
36	Unclean
19	Chemicals
17	Lead
16	Contaminated
12	Pipes
16	Filter
11	Bacteria
9	Unsafe
7	Taste
6	Chlorine
6	Minerals
5	Sick
4	Advisories
4	Bad
4	Flouride
3	Brown
3	Odor
3	Particles
3	Toxic
2	Bottled Water
1	Afraid
1	Carcinogen
1	Flint
1	Lake

“Word Cloud” Visualization of Responses



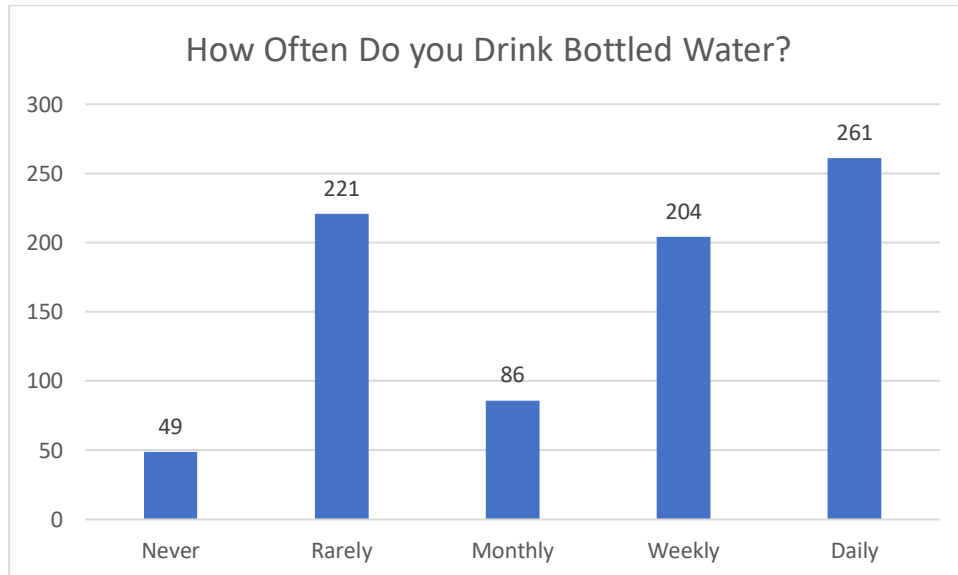
Q7 How often do you drink bottled water?

Scale: 0-Never, 1-Rarely, 2-Monthly, 3-Weekly, 4-Daily

Overall Analysis

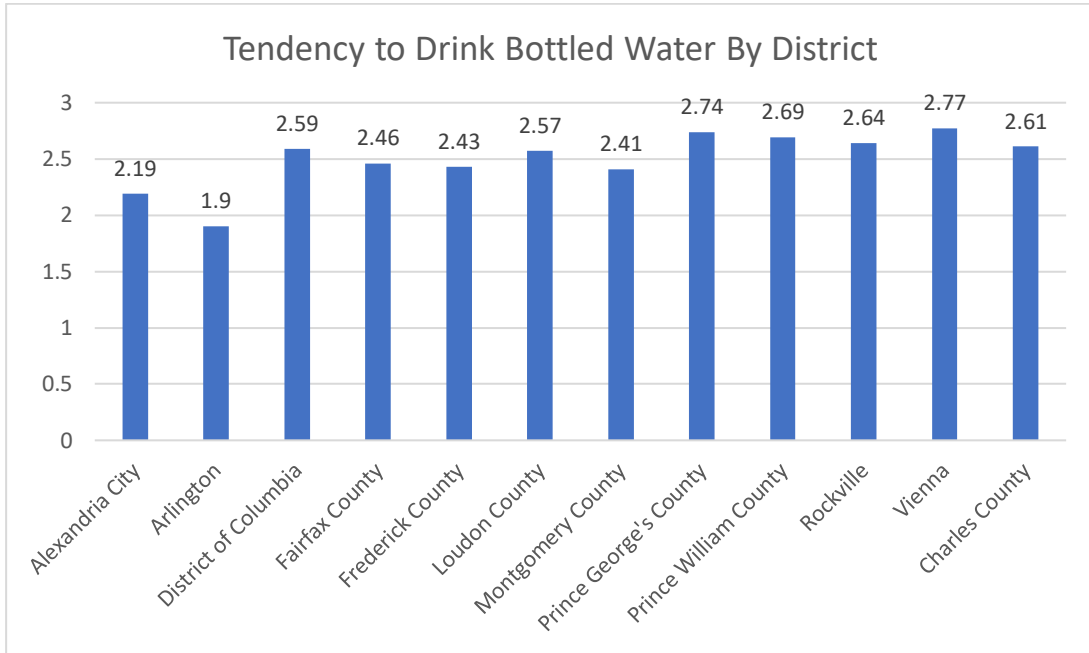
Mean Rating: 2.50

	Frequency	Percent
Never	49	6.0
Rarely	221	26.9
Monthly	86	10.5
Weekly	204	24.8
Daily	261	31.8
Total	821	100.0



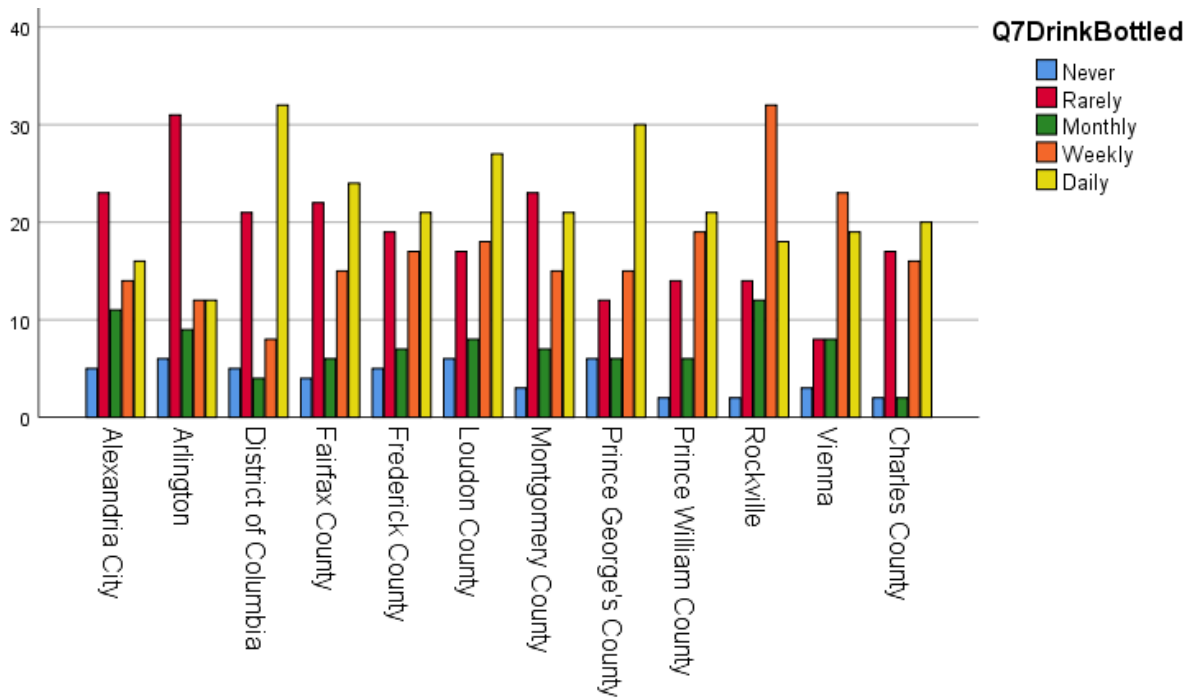
Analysis By District

Mean Ratings By District



Frequencies of Responses By District

	Never	Rarely	Monthly	Weekly	Daily	Total
Alexandria City	5	23	11	14	16	69
Arlington	6	31	9	12	12	70
District of Columbia	5	21	4	8	32	70
Fairfax County	4	22	6	15	24	71
Frederick County	5	19	7	17	21	69
Loudon County	6	17	8	18	27	76
Montgomery County	3	23	7	15	21	69
Prince George's County	6	12	6	15	30	69
Prince William County	2	14	6	19	21	62
Rockville	2	14	12	32	18	78
Vienna	3	8	8	23	19	61
Charles County	2	17	2	16	20	57
Total	49	221	86	204	261	821



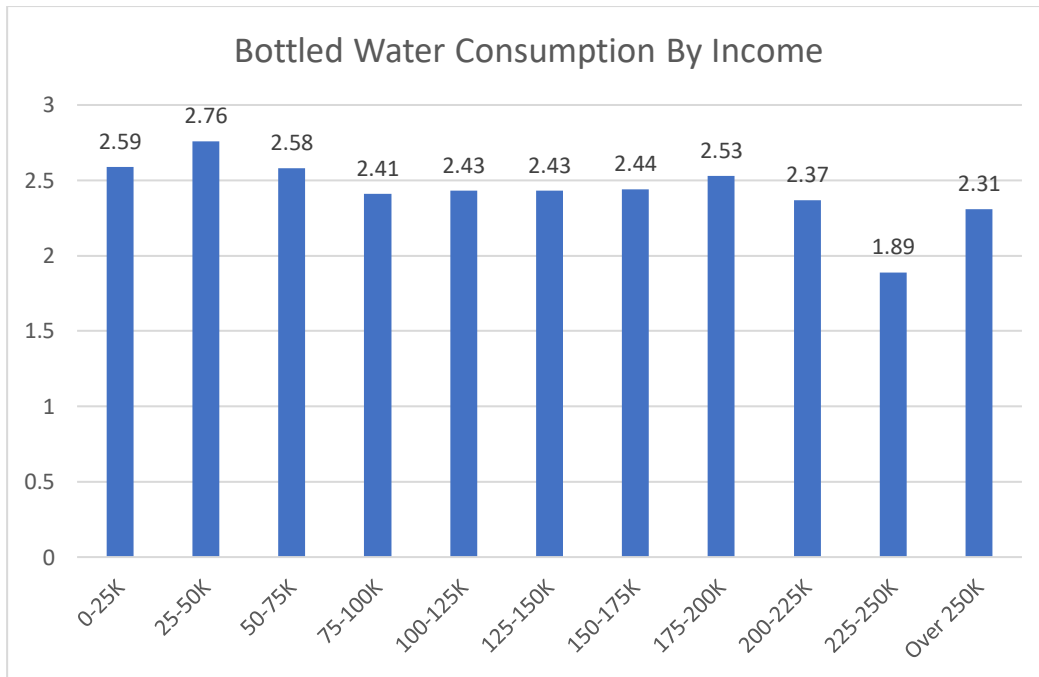
Ad Hoc Analysis: Bottled Water Drinking By Income, Age

In looking at bottled water consumption by district, it appeared that traditionally wealthier districts were actually drinking bottled water *less*. This is counterintuitive as you would think more expensive bottled water would be drunk more by wealthier people. So, it was decided to analyze the relationship between income and bottled water consumption.

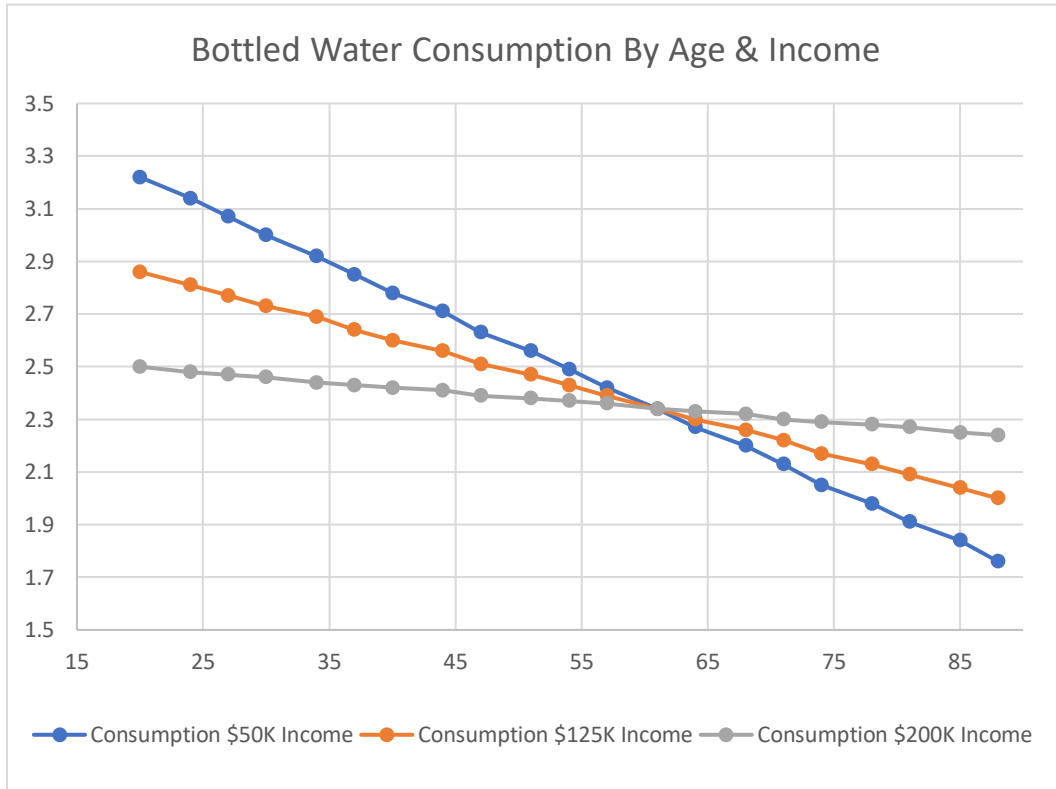
There is a significant (albeit small), negative relationship between the drinking of bottled water and income ($R^2 = -.086$, $p = .014$), implying that wealthier people drink bottled water less. The reasons could be related to:

- Greater environmental (anti-plastic bottle) sentiment among wealthier households
- Greater mistrust of water supply by less wealthy households

Mean Bottled Water Consumption By Income



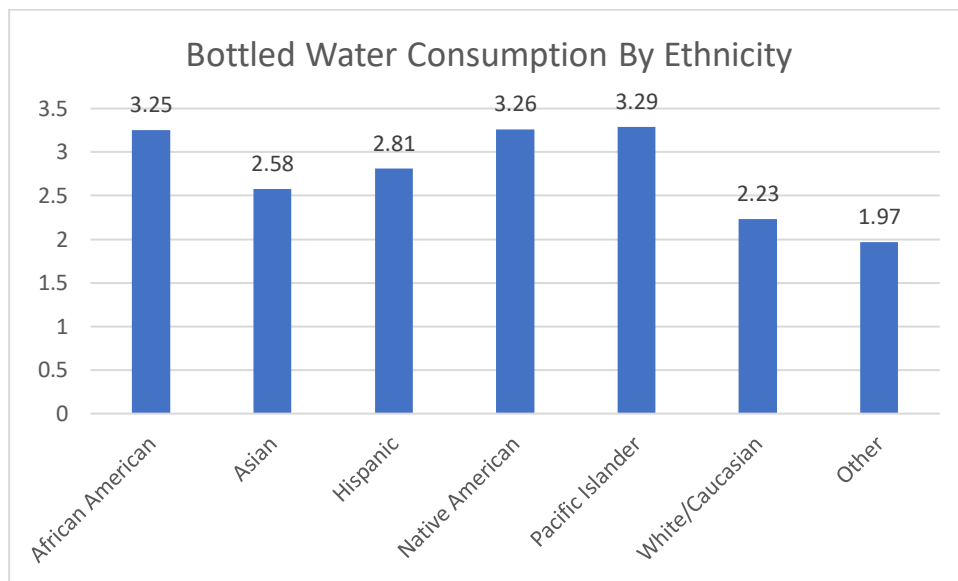
When a regression of age and income were run against bottled water consumption, it revealed significant, negative main effects for age ($b = -.028, p = .000$), income ($b = -.191, p = .000$), and a small, but significant interaction between those two variables ($b = .003, p = .001$). Visualization (below) reveals a “crossover” interaction where lower income respondents drink the most bottled water at a younger age, but drink the most at a higher age. High income respondents drink a consistent amount of bottled water across all age groups.



Ad Hoc Analysis: Bottled Water Consumption By Ethnicity

African Americans reported a high tendency toward drinking bottled water that was consistent with their mistrust of tap water exhibited in Q4. Other ethnicities (Native Americans & Pacific Islanders) also reported a high tendency toward drinking bottled water, but their representation in this sample (23 & 14 responses, respectively) is so low that it is risky to draw conclusions regarding driving factors for these groups.

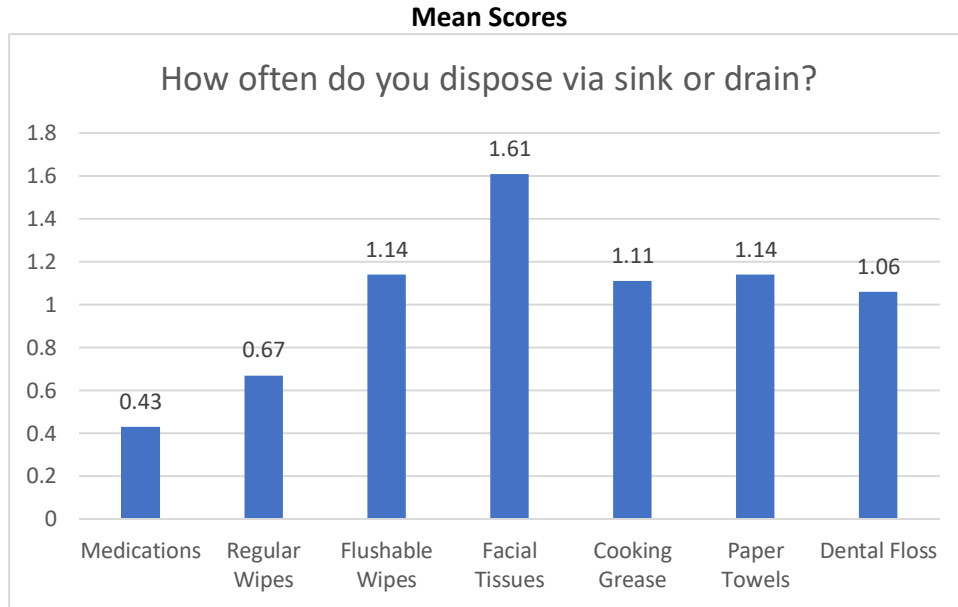
Additionally, as ethnicity, age and income are correlated, a regression of ethnicity, age and income against bottled water consumption was conducted. Having those variables in a regression rendered income a non-significant factor ($b = -.021, p = .194$), and age a significant factor ($b = -.10, p = .005$) in bottled water consumption, while ethnicity remained a large and highly significant ($b = -.237, p = .000$) factor. In other words, ethnicity is driving bottled water consumption much more than age or income.



Q8 How often does your household dispose of the following via drain or toilet?

Scale: 0=Never, 1=Rarely, 2=Sometimes, 3=Most of the Time, 4=Always

Overall Analysis



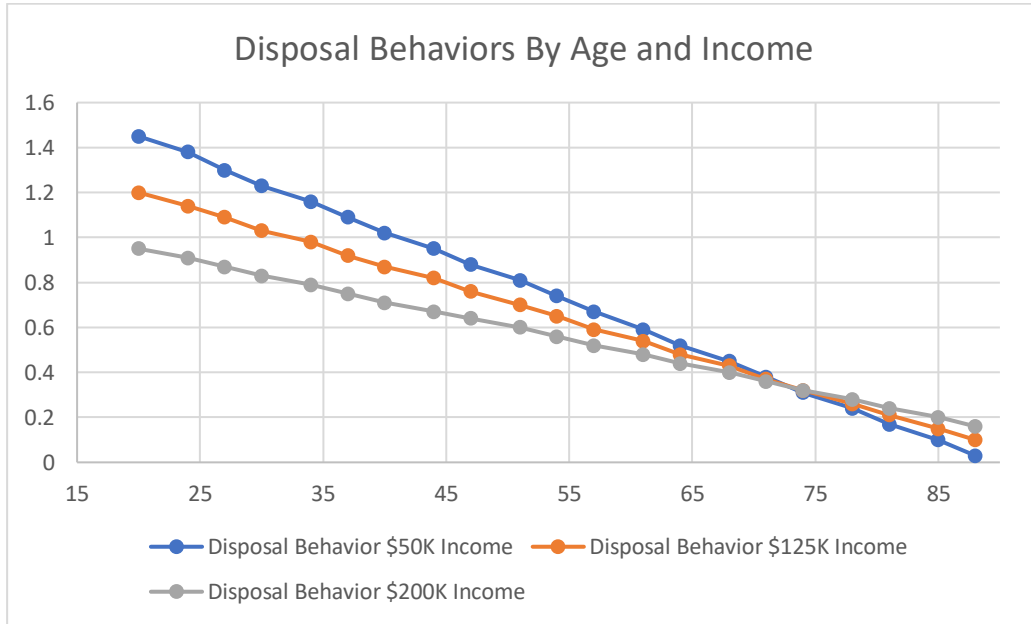
Results suggest that items scoring the highest could benefit from communications regarding those items being not safe for disposal.

Frequency Distribution of Answers

	Medications	Regular Wipes	Flushable Wipes	Facial Tissues	Cooking Grease	Paper Towels	Dental Floss
Never	630	576	405	450	476	607	628
Rarely	100	80	127	148	155	69	70
Sometimes	43	64	135	130	108	59	52
Most of The Time	27	60	79	60	54	46	39
Always	21	41	75	33	28	40	32
Total	821	821.0	821.0	821.0	821.0	821.0	821.0

Ad-Hoc Analysis: Age & Income Driving Disposal Behaviors

A regression of age, income and their interaction was conducted against the composite variable of disposal behaviors. Results showed significant, negative main effects for age ($b = -.024$, $p = .000$) and income ($b = -.1215$, $p = .000$) and a small but significant effect for the interaction ($b = .002$, $p = .003$). A visualization shows the interaction slightly crossing over, but mostly where income has a significant effect for younger participants, while age drives behaviors later in life.



A regression of age, income and ethnicity against the disposal behavior composite revealed that all three factors remained significant when accounting for each other with age ($b = -.323$, $p = .000$) have the largest effect, followed by income ($b = -.113$, $p = .001$) and ethnicity ($b = -.08$, $p = .018$).

Analysis by District

Mean Ratings By District

DISTRICT		Meds	Regular Wipes	Flushable Wipes	Facial Tissue	Cooking Grease	Paper Towels	Dental Floss
Alexandria City	Mean	.25	.13	.96	.70	.64	.16	.28
	N	69	69	69	69	69	69	69
	Std. Deviation	.604	.540	1.333	.990	1.014	.504	.838
Arlington	Mean	.17	.44	.91	.74	.40	.31	.17
	N	70	70	70	70	70	70	70
	Std. Deviation	.481	1.002	1.305	1.031	.824	.733	.722
District of Columbia	Mean	.39	.47	.93	.81	.57	.37	.50
	N	70	70	70	70	70	70	70
	Std. Deviation	.856	.989	1.220	1.133	1.030	.871	1.126
Fairfax County	Mean	.35	.62	1.11	.76	.52	.35	.49
	N	71	71	71	71	71	71	71
	Std. Deviation	.812	1.291	1.450	1.189	1.054	1.016	1.170
Frederick County	Mean	.12	.33	.93	.57	.57	.10	.19
	N	69	69	69	69	69	69	69
	Std. Deviation	.557	.965	1.252	.947	.947	.489	.733
Loudon County	Mean	.55	.75	1.20	.83	.76	.62	.61
	N	76	76	76	76	76	76	76
	Std. Deviation	1.112	1.234	1.255	1.136	1.082	1.243	1.167
Montgomery County	Mean	.41	.45	.78	.67	.52	.38	.25
	N	69	69	69	69	69	69	69
	Std. Deviation	.810	.993	1.305	.950	.964	1.030	.715
Prince George's County	Mean	.32	.46	1.00	.77	.74	.41	.23
	N	69	69	69	69	69	69	69
	Std. Deviation	.795	.979	1.339	1.087	1.120	1.005	.645
Prince William County	Mean	.42	.61	1.16	.76	.89	.60	.37
	N	62	62	62	62	62	62	62
	Std. Deviation	1.064	1.285	1.381	1.224	1.229	1.207	.979
Rockville	Mean	.97	1.60	1.71	1.68	1.50	1.68	1.26
	N	78	78	78	78	78	78	78
	Std. Deviation	1.195	1.262	1.349	1.304	1.203	1.363	1.242
Vienna	Mean	.79	1.66	1.70	1.54	1.61	1.70	1.41
	N	61	61	61	61	61	61	61
	Std. Deviation	1.253	1.425	1.383	1.219	1.201	1.395	1.359
Charles County	Mean	.35	.49	1.28	.63	.74	.37	.33
	N	57	57	57	57	57	57	57
	Std. Deviation	.855	1.054	1.497	1.112	.936	.975	.893

Frequencies of Responses By District

Disposal of Medications

	Never	Rarely	Sometimes	Most of The Time	Always	Total
Alexandria City	57	8	3	1	0	69
Arlington	61	6	3	0	0	70
District of Columbia	56	5	5	4	0	70
Fairfax County	56	9	3	2	1	71
Frederick County	65	2	1	0	1	69
Loudon County	56	9	4	3	4	76
Montgomery County	50	14	2	2	1	69
Prince George's County	56	8	2	2	1	69
Prince William County	52	2	3	2	3	62
Rockville	38	18	12	6	4	78
Vienna	37	13	3	3	5	61
Charles County	46	6	2	2	1	57
Total	630	100	43	27	21	821

Disposal of Regular Wipes

	Never	Rarely	Sometimes	Most of the time	Always	Total
Alexandria City	64	3	0	2	0	69
Arlington	55	6	5	1	3	70
District of Columbia	55	3	7	4	1	70
Fairfax County	56	1	5	3	6	71
Frederick County	60	2	3	1	3	69
Loudon County	50	10	5	7	4	76
Montgomery County	53	8	4	1	3	69
Prince George's County	53	7	3	5	1	69
Prince William County	49	1	4	3	5	62
Rockville	20	18	18	17	5	78
Vienna	18	14	7	15	7	61
Charles County	43	7	3	1	3	57
Total	576	80	64	60	41	821

Disposal of Flushable Wipes

	Never	Rarely	Sometimes	Most of the time	Always	Total
Alexandria City	39	11	8	5	6	69
Arlington	43	6	8	10	3	70
District of Columbia	37	14	10	5	4	70
Fairfax County	40	6	9	9	7	71
Frederick County	37	14	9	4	5	69
Loudon County	33	12	17	11	3	76
Montgomery County	45	9	7	1	7	69
Prince George's County	38	10	10	5	6	69
Prince William County	31	7	13	5	6	62
Rockville	18	19	21	8	12	78
Vienna	16	12	16	8	9	61
Charles County	28	7	7	8	7	57
Total	405	127	135	79	75	821

Disposal of Cooking Grease

	Never	Rarely	Sometimes	Most of the time	Always	Total
Alexandria City	41	13	11	3	1	69
Arlington	43	6	18	2	1	70
District of Columbia	39	15	9	4	3	70
Fairfax County	43	15	4	5	4	71
Frederick County	47	9	10	2	1	69
Loudon County	43	14	10	7	2	76
Montgomery County	41	14	11	2	1	69
Prince George's County	42	8	13	5	1	69
Prince William County	40	8	7	3	4	62
Rockville	18	20	17	15	8	78
Vienna	14	19	13	11	4	61
Charles County	39	7	7	1	3	57
Total	450	148	130	60	33	821

Disposal of Paper Towels

	Never	Rarely	Sometimes	Most of the time	Always	Total
Alexandria City	46	8	9	6	0	69
Arlington	54	7	6	3	0	70
District of Columbia	48	11	7	1	3	70
Fairfax County	52	10	3	3	3	71
Frederick County	46	12	7	3	1	69
Loudon County	43	18	7	6	2	76
Montgomery County	49	9	8	1	2	69
Prince George's County	42	12	9	3	3	69
Prince William County	36	8	10	5	3	62
Rockville	18	25	19	10	6	78
Vienna	12	20	13	12	4	61
Charles County	30	15	10	1	1	57
Total	476	155	108	54	28	821

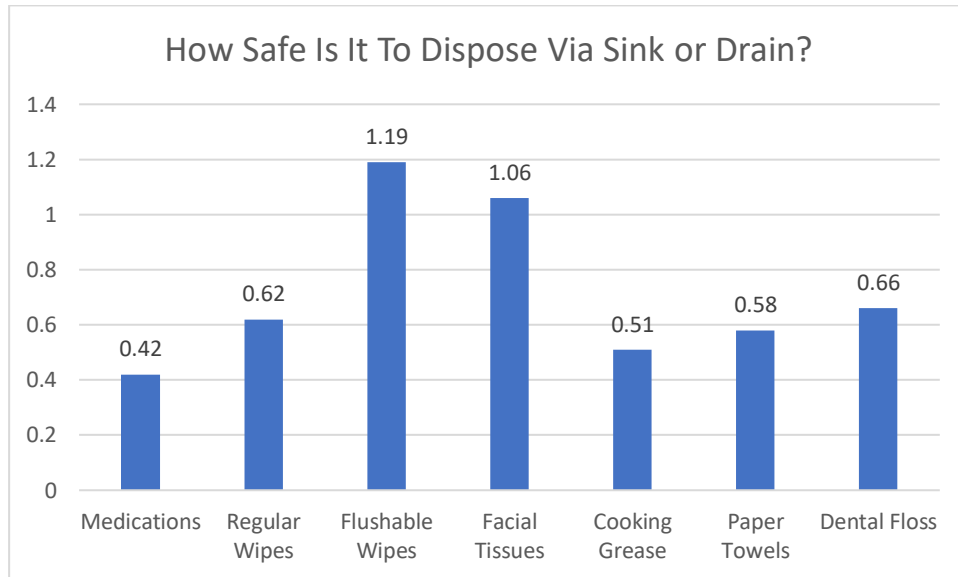
Disposal of Dental Floss

	Never	Rarely	Sometimes	Most of the time	Always	Total
Alexandria City	62	3	4	0	0	69
Arlington	56	8	5	0	1	70
District of Columbia	56	7	3	3	1	70
Fairfax County	61	4	1	1	4	71
Frederick County	66	0	2	1	0	69
Loudon County	57	6	4	3	6	76
Montgomery County	58	5	1	1	4	69
Prince George's County	57	4	2	4	2	69
Prince William County	47	4	4	3	4	62
Rockville	21	16	17	15	9	78
Vienna	18	9	14	13	7	61
Charles County	48	3	2	2	2	57
Total	607	69	59	46	40	821

Q9 Perceived Safety of Disposing of Items Via Sink/Drain

Scale: 0=Not at all safe, 1=Somewhat unsafe, 2=Somewhat safe, 3=Completely Safe

Overall Analysis



Higher numbers indicate areas where consumers have the least understanding that a given material is unsafe to dispose via sink or drain. “Flushable” wipes, due to their name and how their marketed, are unsurprisingly perceived as being the safest of any of these materials, followed by facial tissues.

In their communications, utilities may want to place special emphasis on “Flushable” wipes not actually being safe for flushing.

Ad Hoc Analysis: Age, Income, & Ethnicity in Perceived Disposal Safety

Correlational analysis revealed significant effects for age, income, & ethnicity in perceived safety of disposing of all of the items. In general, the older and wealthier you were, the less likely to view disposal of these items as safe.

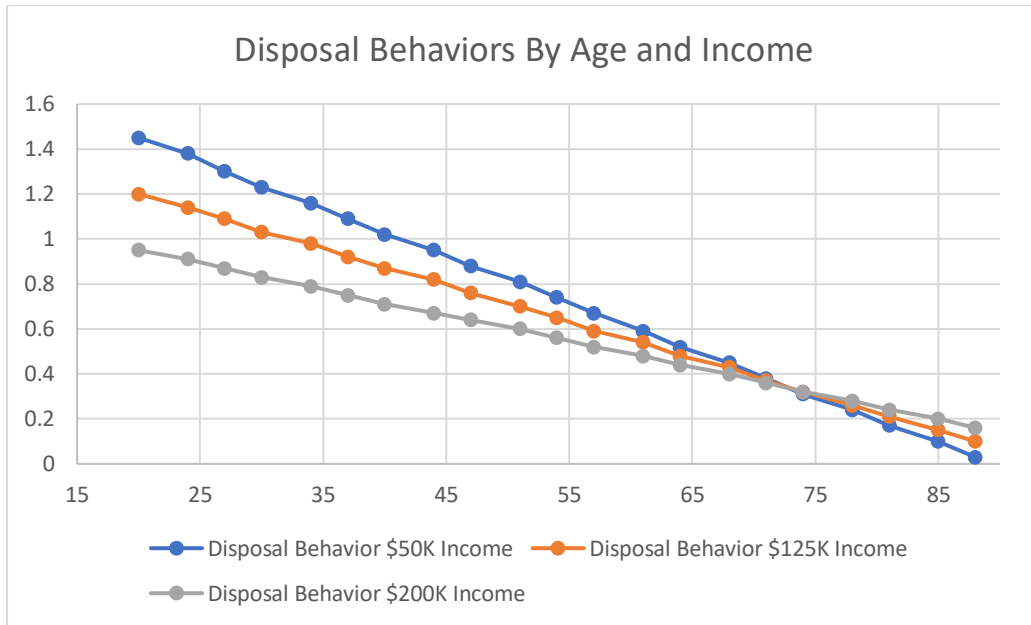
Mean Ratings of Safety

		Meds	Reg Wipes	Flush Wipes	Face Tissue	Grease	Paper Towels	Floss
African American	Mean	.49	.62	1.33	1.10	.53	.52	.75
	N	126	126	126	126	126	126	126
	Std. Deviation	.874	1.003	1.158	1.099	.836	.910	1.019
Asian	Mean	.48	1.00	1.44	1.15	.68	.86	.82
	N	71	71	71	71	71	71	71
	Std. Deviation	.843	1.108	1.038	1.051	.858	.975	.961
Hispanic	Mean	.55	.93	1.41	1.26	.81	.88	.81
	N	58	58	58	58	58	58	58
	Std. Deviation	.841	1.006	1.027	1.117	.982	.957	.945
Native American	Mean	1.04	1.65	1.61	1.65	1.30	1.78	1.48
	N	23	23	23	23	23	23	23
	Std. Deviation	1.065	.775	1.033	.935	.974	1.126	1.039
Pacific Islander	Mean	.71	1.43	1.71	1.79	1.14	1.71	1.64
	N	14	14	14	14	14	14	14
	Std. Deviation	.825	.938	.914	.802	1.027	.914	.929
White/Caucasian	Mean	.34	.49	1.06	.97	.41	.45	.55
	N	499	499	499	499	499	499	499
	Std. Deviation	.712	.860	1.069	1.015	.743	.811	.869

To look at general perceptions of safety of disposal, a composite variable was formed which represented the average rating across these items. Mean scores revealed Native Americans as the most likely to rate an item as safe to dispose, with whites/Caucasians tending to rate items as the least safe.

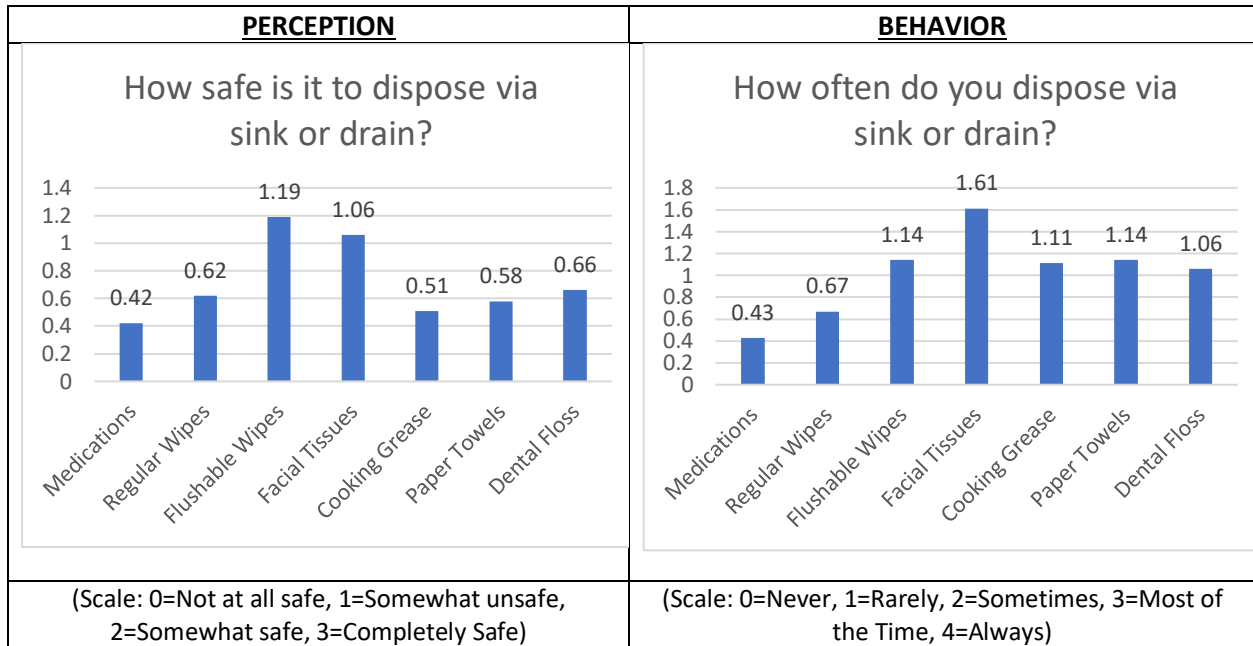
Ethnicity	Mean	N	Std. Deviation
African American	.7619	126	.65999
Asian	.9175	71	.72025
Hispanic	.9507	58	.70928
Native American	1.5031	23	.57122
Pacific Islander	1.4490	14	.36682
White/Caucasian	.6098	499	.63746

A regression of age, income and their interaction against that composite variable was run, revealing negative main effects for age ($b = -.019$, $p = .000$) and income ($b = -.091$, $p = .000$) and a significant (albeit small) interactive effect ($b = .001$, $p = .001$). A visualization of this cross-over interaction is below and reveals younger, lower-income respondents having the highest safety perceptions, while older, lower income respondents had the lowest. Perception remained relatively stable among higher income respondents.



A regression of age, income and ethnicity was run against the composite variable. Results showed that when taking all three items into account, ethnicity was rendered a non-significant factor ($b = -.049$, $p = .159$), income was marginally significant ($b = -.061$, $p = .070$), while age remained a large and significant factor ($b = -.303$, $p = .000$). In other words, age was driving these perceptions.

Ad Hoc Analysis: Perception vs. Behavior in Disposal



*****Please note that the first table is rate on a scale of 0-3, while the second is rated on a scale of 0-4. So, the numbers are only “apples-to-apples” in a proportional sense.***

The strength of the correlations between perception and behavior are all significant and positive, but vary:

	R²	p-value
Medications	0.559	.000
Regular Wipes	0.653	.000
Flushable Wipes	0.618	.000
Facial Tissues	0.592	.000
Cooking Grease	0.589	.000
Paper Towels	0.647	.000
Dental Floss	0.582	.000

The weaker correlations indicate areas where enhancing people’s understanding of risks may translate the least into behavior, but correlations were very strong throughout.

Analysis By District

Perceived Safety of Disposing Medications

	Not Safe	Somewhat Unsafe	Likely Safe	Completely Safe	Total
Alexandria City	60	2	6	1	69
Arlington	50	12	8	0	70
District of Columbia	51	6	8	5	70
Fairfax County	55	10	4	2	71
Frederick County	61	2	5	1	69
Loudon County	49	9	16	2	76
Montgomery County	52	10	6	1	69
Prince George's County	51	10	7	1	69
Prince William County	48	8	4	2	62
Rockville	47	19	9	3	78
Vienna	38	15	5	3	61
Charles County	41	8	6	2	57
Total	603	111	84	23	821

Perceived Safety of Disposing Regular Wipes

	Not Safe	Somewhat unsafe	Likely Safe	Completely Safe	Total
Alexandria City	61	4	3	1	69
Arlington	47	14	7	2	70
District of Columbia	47	9	9	5	70
Fairfax County	51	10	4	6	71
Frederick County	54	9	5	1	69
Loudon County	41	13	15	7	76
Montgomery County	50	8	10	1	69
Prince George's County	52	9	6	2	69
Prince William County	42	8	8	4	62
Rockville	25	21	18	14	78
Vienna	18	20	17	6	61
Charles County	39	6	7	5	57
Total	527	131	109	54	821

Perceived Safety of Disposing “Flushable” Wipes

	Not Safe	Somewhat Unsafe	Likely Safe	Completely Safe	Total
Alexandria City	31	16	13	9	69
Arlington	28	11	25	6	70
District of Columbia	29	12	20	9	70
Fairfax County	31	18	15	7	71
Frederick County	31	17	21	0	69
Loudon County	20	16	25	15	76
Montgomery County	33	7	18	11	69
Prince George's County	30	9	21	9	69
Prince William County	23	15	14	10	62
Rockville	13	25	29	11	78
Vienna	11	22	14	14	61
Charles County	24	6	15	12	57
Total	304	174	230	113	821

Perceived Safety of Disposing Facial Tissues

	Not Safe	Somewhat Unsafe	Likely Safe	Completely Safe	Total
Alexandria City	36	16	11	6	69
Arlington	33	9	24	4	70
District of Columbia	29	15	21	5	70
Fairfax County	34	14	17	6	71
Frederick County	30	17	17	5	69
Loudon County	30	12	25	9	76
Montgomery County	35	10	21	3	69
Prince George's County	35	14	14	6	69
Prince William County	26	14	16	6	62
Rockville	13	28	27	10	78
Vienna	12	11	27	11	61
Charles County	26	8	16	7	57
Total	339	168	236	78	821

Perceived Safety of Disposing Cooking Grease

	Not Safe	Somewhat Unsafe	Likely Safe	Completely Safe	Total
Alexandria City	48	13	8	0	69
Arlington	55	10	3	2	70
District of Columbia	54	10	4	2	70
Fairfax County	55	9	4	3	71
Frederick County	53	12	3	1	69
Loudon County	41	19	12	4	76
Montgomery County	55	10	3	1	69
Prince George's County	50	13	5	1	69
Prince William County	48	6	7	1	62
Rockville	31	25	16	6	78
Vienna	17	20	16	8	61
Charles County	36	16	5	0	57
Total	543	163	86	29	821

Perceived Safety of Disposing Paper Towels

	Not Safe	Somewhat Unsafe	Likely Safe	Completely Safe	Total
Alexandria City	61	6	1	1	69
Arlington	52	7	10	1	70
District of Columbia	51	7	9	3	70
Fairfax County	55	10	4	2	71
Frederick County	59	8	0	2	69
Loudon County	40	14	18	4	76
Montgomery County	51	13	4	1	69
Prince George's County	47	13	7	2	69
Prince William County	44	8	7	3	62
Rockville	19	23	25	11	78
Vienna	20	13	17	11	61
Charles County	39	8	9	1	57
Total	538	130	111	42	821

Perceived Safety of Disposing Dental Floss

	Not Safe	Somewhat Unsafe	Likely Safe	Completely Safe	Total
Alexandria City	51	10	5	3	69
Arlington	44	12	12	2	70
District of Columbia	47	7	11	5	70
Fairfax County	44	15	8	4	71
Frederick County	58	5	5	1	69
Loudon County	38	13	20	5	76
Montgomery County	44	11	11	3	69
Prince George's County	45	15	6	3	69
Prince William County	42	11	5	4	62
Rockville	30	24	20	4	78
Vienna	21	16	18	6	61
Charles County	37	5	12	3	57
Total	501	144	133	43	821

Q10 How does your household dispose of unwanted medications (check all that apply)?

Of the 630 respondents who said they “never” disposed of meds via drain or toilet in Q8, 620 answered this question explaining how they did dispose of medications.

	<u>Drug Take-Back Day</u>	<u>Pharmacy Dropbox</u>	<u>Gov't Dropbox</u>	<u>Trash</u>	<u>Other</u>
Number of Responses:	105	152	73	344	50

Q10 Text entry responses for those who said “Other”

Of the 50 who responded “Other” in Q10, 45 offered explanations of that answer.

<u>Response</u>	<u>Frequency</u>
Not applicable, I don't use any medication	19
I don't dispose of medications, I keep them and/or finish them	18
Put in coffee grounds and THEN put in trash	2
Hold for future disposal	1
Follow directions on FDA website	1
Dropbox at sheriff's station	1
Direct mail program	1
Compost	1
Add water to it THEN throw in trash	1

Q11 Which of the following promotional images have you seen before? (check all that apply)

200 people (24.4% of respondents) indicated having seen at least one of the promotional images.

	<u>Grease</u>	<u>Medicine</u>	<u>Wipes</u>	<u>Protect Your Pipes</u>
Number of Responses:	124	80	82	131

Q12 If you recalled seeing a promo image, where did you see it? (check all that apply)

This question was dynamically served to the 200 people who said they recalled having seen one of MWCOG's promotional images.

	<u>Signs/Ads</u>	<u>Utility Communications</u>	<u>Social Media</u>	<u>I Don't Recall</u>
Number of Responses:	116	65	117	36

Q13. During snowy and icy conditions, how often does someone apply salt at your residence?

Scale: 0-Never, 1-Rarely, 2-Sometimes, 3-Most of the time, 4-Always

Overall Analysis

	Frequency	Percent
Never	108	13.2
Rarely	131	16.0
Sometimes	206	25.1
Most of the time	215	26.2
Always	161	19.6
Total	821	100.0

Ad-Hoc Analysis: Drivers of Salting

A correlational analysis reveals a variety of factors significantly related to frequency of salting to deal with snow and ice:

- Age ($R^2 = -.277$, $p = .000$)—the older you are, the less likely you are to salt
- Income ($R^2 = -.119$, $p = .000$)—the wealthier you are, the less likely you are to salt
- Ethnicity ($R^2 = -.227$, $p = .000$)—see analysis below for breakdown
- Home Ownership ($R^2 = -.214$, $p = .000$)—Home owners were less likely to salt than renters
- Dwelling Type ($R^2 = .318$, $p = .000$)—see analysis below for breakdown
- Years Living in DC Area ($R^2 = -.189$, $p = .000$)—the less time you had lived in the area, the more likely you were to salt.

Mean Frequency of Salting By Ethnicity

Whites (by far) reported salting the least, while African-Americans reported salting the most.

Ethnicity	Mean	N	Std. Deviation
African American	2.75	126	1.150
Asian	2.42	71	1.227
Hispanic	2.72	58	1.105
Native American	2.83	23	.887
Pacific Islander	2.64	14	.929
White/Caucasian	1.96	499	1.318

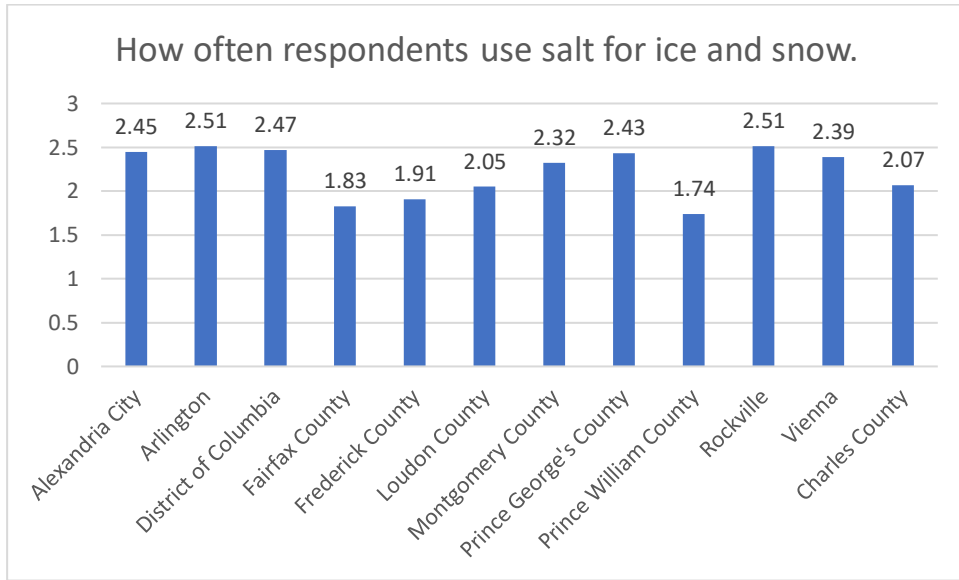
Mean Frequency of Salting By Dwelling Type

Those living in single family homes were the least likely to have salt applied.

DwellingType	Mean	N	Std. Deviation
Single Family Home	1.87	408	1.285
Town home	2.25	162	1.246
Condo/Apartment	2.81	244	1.128
Other	3.00	7	1.000

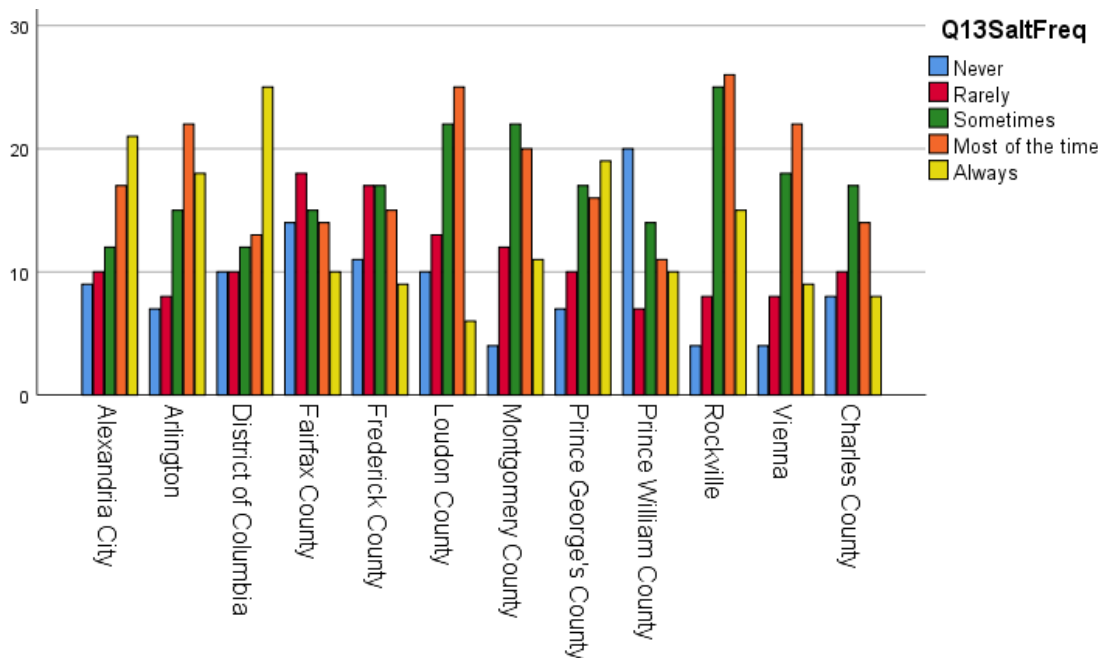
Analysis By District

Mean Ratings By District



Frequencies By District

	Never	Rarely	Sometimes	Most of the time	Always	Total
Alexandria City	9	10	12	17	21	69
Arlington	7	8	15	22	18	70
District of Columbia	10	10	12	13	25	70
Fairfax County	14	18	15	14	10	71
Frederick County	11	17	17	15	9	69
Loudon County	10	13	22	25	6	76
Montgomery County	4	12	22	20	11	69
Prince George's County	7	10	17	16	19	69
Prince William County	20	7	14	11	10	62
Rockville	4	8	25	26	15	78
Vienna	4	8	18	22	9	61
Charles County	8	10	17	14	8	57
Total	108	131	206	215	161	821



A couple of service areas at either extreme include the District of Columbia which has the most people reporting “always” using salt and Prince William County which has the most people saying they “never” use salt.

Q14 The source of my drinking water is (check all that apply):

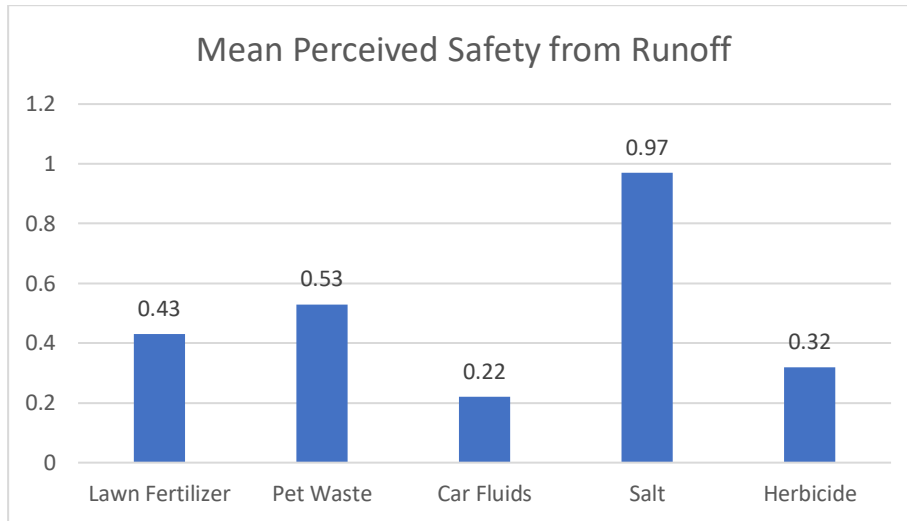
	<u>Number of Responses</u>
Occoquan Reservoir	83
Area Lakes & Streams	78
Atlantic Ocean	52
Chesapeake Bay	85
Potomac River	223
Patuxent & reservoirs	59
Ground Water	65
I Don't Know	418

Over half of respondents admit to now knowing where their drinking water originates, while a significant number of others have erroneous beliefs. Clearly, there is room to enhance public knowledge of drinking water sources if that's something MWCOG agrees is of importance.

Q15 How safe are the following materials for local waterways when they enter stormdrains or through runoff?

Scale: 0-Not Safe, 1-Somewhat Unsafe, 2-Likely Safe, 3-Completely Safe

Overall Analysis



Frequency of Response

	<u>Not Safe</u>	<u>Somewhat Unsafe</u>	<u>Likely Safe</u>		<u>Completely Safe</u>
Lawn Fertilizer	562	179	64		16
Pet Waste	513	199	90		19
Car Fluids	698	78	34		11
Salt	302	298	168		53
Herbicide	642	120	37		22

Comment: Salt is perceived as the safest.

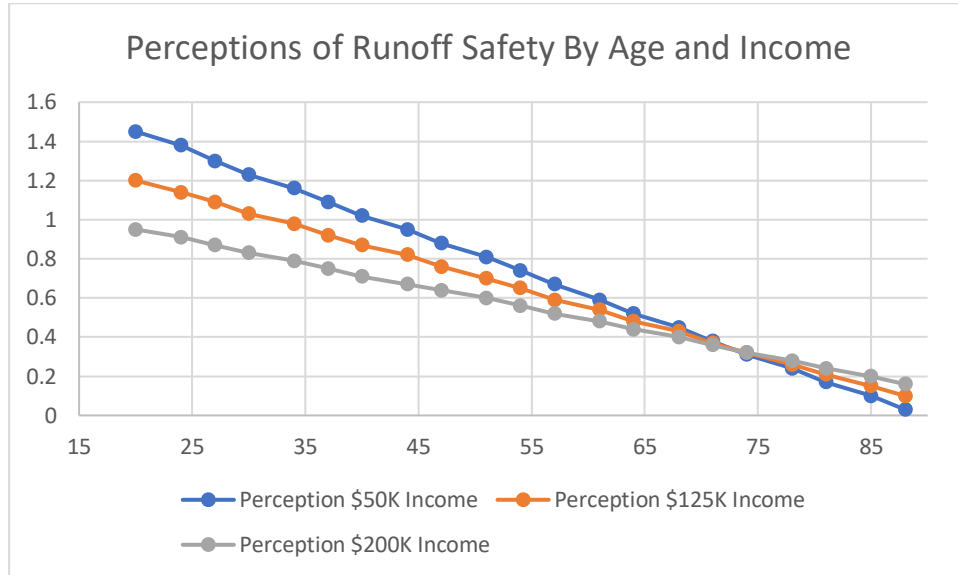
Ad Hoc Analysis: Relationship between salting behavior and perception of salt runoff.

There is a significant and positive relationship ($R^2=.260$, $p=.000$) between salting behavior and the perceived safety of salt runoff. This could mean either:

- The safer people perceive salt runoff to be, the more likely they are to salt.
- The more people salt, the more likely they are to believe/rationalize it's a safe thing to do.

Ad Hoc Analysis: Effect of Age & Income on Perception of Runoff

A composite variable of perceptions of safety of runoff was formed by averaging the ratings across these five materials. Age, income, and ethnicity were found to be significant correlates, additional analysis was conducted.



Similar to other questions related to safety of disposal, income drove perceptions at younger ages, while it was less of a factor for older respondents.

Ad Hoc Analysis: Effect of Ethnicity on Perception of Runoff

An analysis of perception by ethnicity revealed the following mean perceptions by ethnic group.

Ethnicity	Mean	N	Std. Deviation
African American	.5873	126	.66393
Asian	.6338	71	.50482
Hispanic	.6966	58	.55975
Native American	.9478	23	.57908
Pacific Islander	1.2714	14	.52977
White/Caucasian	.3896	499	.54740

When taking ethnicity, age, and income into account at the same time via regression analysis, income is rendered non-significant ($b = -.043$, $p = .199$), ethnicity is rendered marginally significant ($b = -.063$, $p = .066$), and age has a large, significant effect ($b = -.330$, $p = .000$). In other words, age is the chief driver of these perceptions.

Analysis By District

DISTRICT		Mean Ratings By District				
		LawnFert	PetWaste	CarFluids	Salt	Herbicide
Alexandria City	Mean	.25	.39	.10	.84	.20
	N	69	69	69	69	69
	Std. Deviation	.526	.669	.349	.851	.531
Arlington	Mean	.29	.36	.07	.50	.16
	N	70	70	70	70	70
	Std. Deviation	.542	.660	.310	.631	.404
District of Columbia	Mean	.41	.51	.34	.89	.39
	N	70	70	70	70	70
	Std. Deviation	.752	.794	.759	.910	.839
Fairfax County	Mean	.41	.48	.13	.79	.25
	N	71	71	71	71	71
	Std. Deviation	.709	.734	.505	.844	.603
Frederick County	Mean	.25	.32	.10	.77	.16
	N	69	69	69	69	69
	Std. Deviation	.604	.630	.425	.789	.441
Loudon County	Mean	.61	.70	.30	.91	.41
	N	76	76	76	76	76
	Std. Deviation	.834	.910	.731	.867	.734
Montgomery County	Mean	.28	.35	.09	.77	.14
	N	69	69	69	69	69
	Std. Deviation	.511	.614	.332	.710	.355
Prince George's County	Mean	.46	.49	.22	1.06	.38
	N	69	69	69	69	69
	Std. Deviation	.759	.797	.565	.873	.730
Prince William County	Mean	.24	.47	.23	.71	.26
	N	62	62	62	62	62
	Std. Deviation	.670	.804	.638	.930	.745
Rockville	Mean	.74	.76	.47	1.74	.58
	N	78	78	78	78	78
	Std. Deviation	.844	.809	.679	.904	.890
Vienna	Mean	.84	1.05	.36	1.57	.57
	N	61	61	61	61	61
	Std. Deviation	.778	.825	.708	.903	.865
Charles County	Mean	.39	.51	.18	1.02	.28
	N	57	57	57	57	57
	Std. Deviation	.726	.805	.539	.935	.648
Total	Mean	.43	.53	.22	.97	.32
	N	821	821	821	821	821
	Std. Deviation	.720	.780	.578	.911	.684

Frequencies By District

Perceived Safety of Fertilizer Runoff

	Not Safe	Somewhat Unsafe	Likely Safe	Completely Safe	Total
Alexandria City	55	11	3	0	69
Arlington	53	14	3	0	70
District of Columbia	50	13	5	2	70
Fairfax County	49	17	3	2	71
Frederick County	57	8	3	1	69
Loudon County	45	18	11	2	76
Montgomery County	52	15	2	0	69
Prince George's County	47	13	8	1	69
Prince William County	53	5	2	2	62
Rockville	36	30	8	4	78
Vienna	24	23	14	0	61
Charles County	41	12	2	2	57
Total	562	179	64	16	821

Perceived Safety of Pet Waste Runoff

	Not Safe	Somewhat Unsafe	Likely Safe	Completely Safe	Total
Alexandria City	49	13	7	0	69
Arlington	51	14	4	1	70
District of Columbia	45	16	7	2	70
Fairfax County	46	17	7	1	71
Frederick County	52	13	3	1	69
Loudon County	42	19	11	4	76
Montgomery County	50	14	5	0	69
Prince George's County	46	14	7	2	69
Prince William County	43	11	6	2	62
Rockville	36	26	15	1	78
Vienna	16	29	13	3	61
Charles County	37	13	5	2	57
Total	513	199	90	19	821

Perceived Safety of Car Fluid Runoff

	Not Safe	Somewhat Unsafe	Likely Safe	Completely Safe	Total
Alexandria City	63	5	1	0	69
Arlington	66	3	1	0	70
District of Columbia	56	6	6	2	70
Fairfax County	66	2	2	1	71
Frederick County	65	1	3	0	69
Loudon County	63	5	6	2	76
Montgomery County	64	4	1	0	69
Prince George's County	58	8	2	1	69
Prince William County	53	6	1	2	62
Rockville	48	24	5	1	78
Vienna	46	9	5	1	61
Charles County	50	5	1	1	57
Total	698	78	34	11	821

Perceived Safety of Salt Runoff

	Not Safe	Somewhat Unsafe	Likely Safe	Completely Safe	Total
Alexandria City	30	21	17	1	69
Arlington	40	25	5	0	70
District of Columbia	29	24	13	4	70
Fairfax County	30	30	7	4	71
Frederick County	29	29	9	2	69
Loudon County	28	31	13	4	76
Montgomery County	26	34	8	1	69
Prince George's County	20	29	16	4	69
Prince William County	34	16	8	4	62
Rockville	10	14	40	14	78
Vienna	7	22	22	10	61
Charles County	19	23	10	5	57
Total	302	298	168	53	821

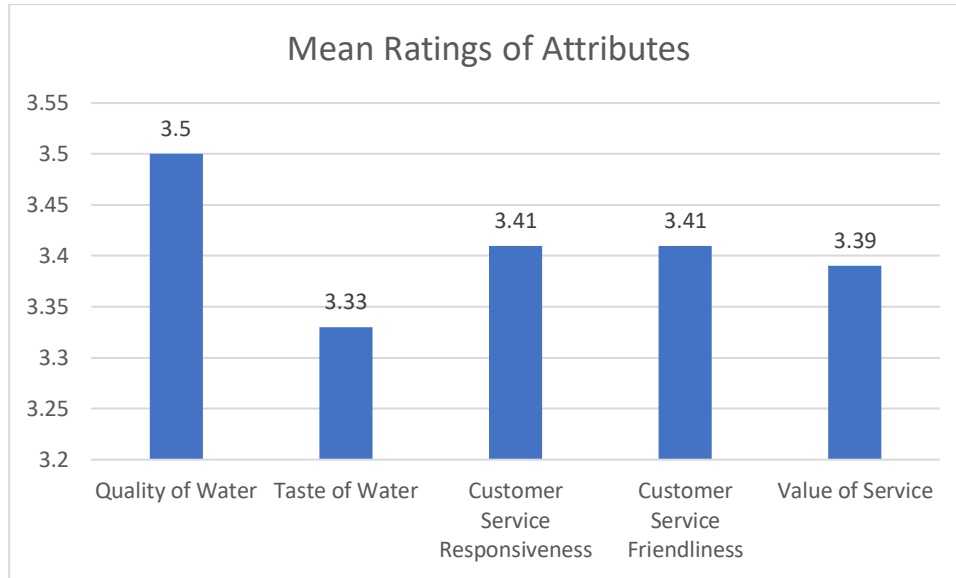
Perceived Safety of Herbicide Runoff

	Not Safe	Somewhat Unsafe	Likely Safe	Completely Safe	Total
Alexandria City	58	9	1	1	69
Arlington	60	9	1	0	70
District of Columbia	55	7	4	4	70
Fairfax County	57	12	0	2	71
Frederick County	60	7	2	0	69
Loudon County	55	12	8	1	76
Montgomery County	59	10	0	0	69
Prince George's County	51	12	4	2	69
Prince William County	54	3	2	3	62
Rockville	50	15	9	4	78
Vienna	38	14	6	3	61
Charles County	45	10	0	2	57
Total	642	120	37	22	821

Q16 Rate water service on attributes.

Scale: 1—Poor, 2—Below Average, 3—Average, 4—Above Average, 5—Excellent

Overall Analysis



Frequency of Responses

	<u>Poor</u>	<u>Below Average</u>	<u>Average</u>	<u>Above Average</u>	<u>Excellent</u>	<u>TOTAL</u>
Quality of Water	26	45	389	215	144	819
Taste of Water	45	79	382	189	124	819
Customer Service Responsiveness	14	45	460	192	106	817
Customer Service Friendliness	15	34	471	191	106	817
Value of Service	23	56	434	188	118	819

As you will see from the analysis by district, all districts were rated between “Average” and “Above Average” on all attributes.

Ad Hoc Analysis: Effect of Home Ownership On Service Ratings

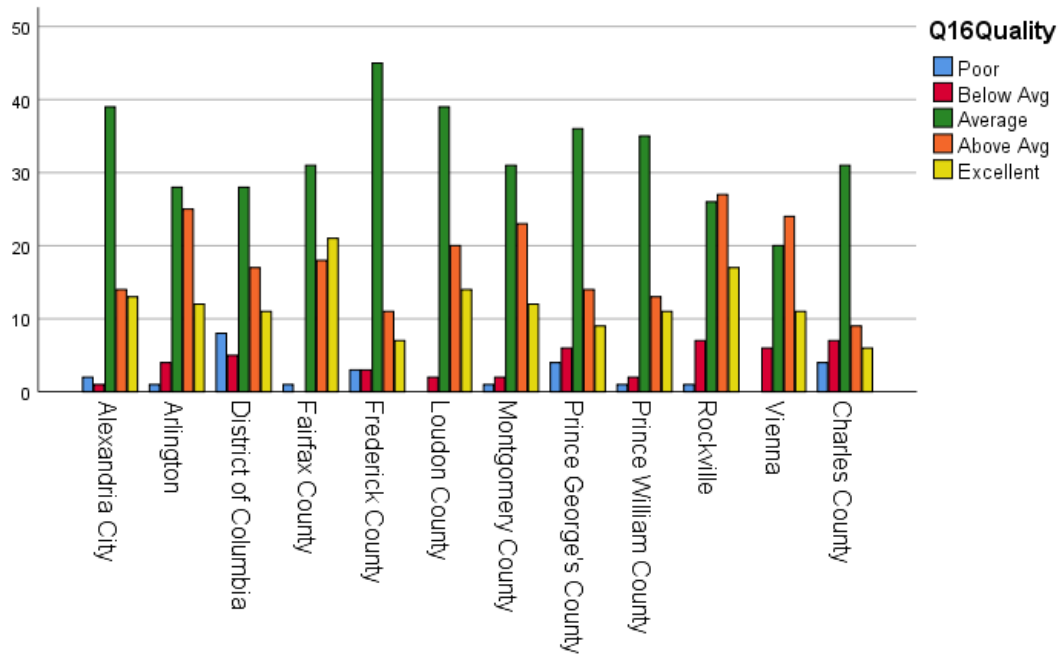
To get a general sense of what factors were driving ratings of water service(s), a variable was formed averaging the ratings across these five attributes. The only factor related to these ratings was home ownership. Home owners had significantly higher average ratings ($M_{\text{rating}} = 3.46$) than those who rented ($M_{\text{rating}} = 3.28$; $t = -3.01$, $p = .003$).

Analysis By District

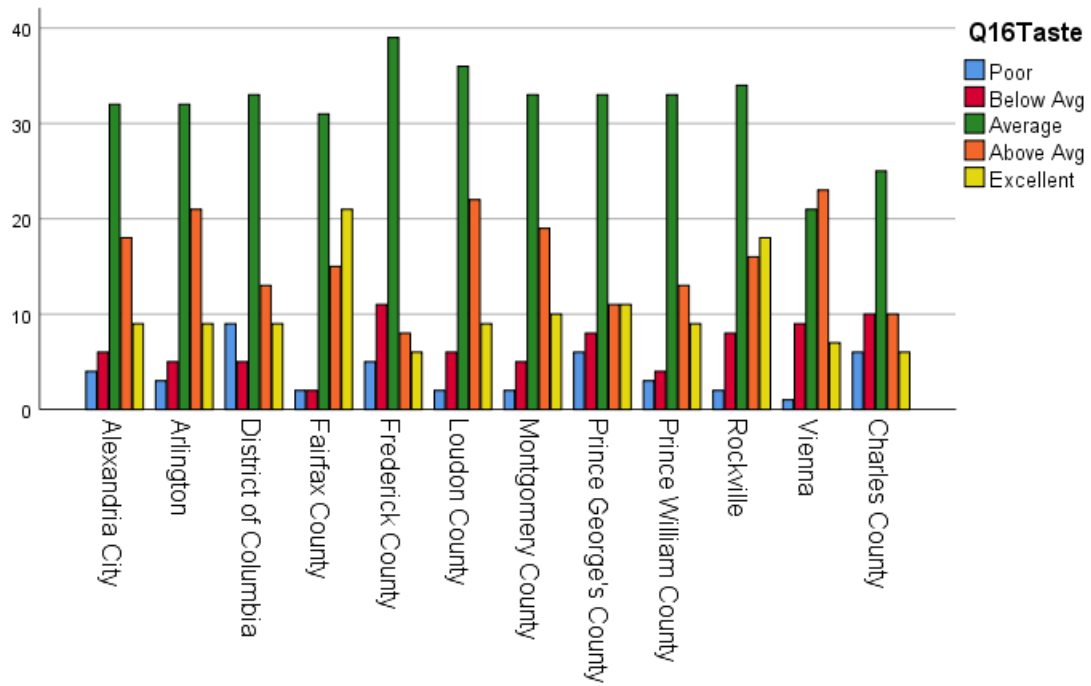
DISTRICT		Mean Ratings By District				
		Quality	Taste	Responsive	Friendly	Value
Alexandria City	Mean	3.51	3.32	3.22	3.22	3.33
	N	69	69	69	69	69
	Std. Deviation	.918	1.007	.764	.725	.869
Arlington	Mean	3.61	3.40	3.30	3.34	3.46
	N	70	70	70	70	70
	Std. Deviation	.889	.954	.688	.657	.793
District of Columbia	Mean	3.26	3.12	3.30	3.36	3.29
	N	69	69	69	69	69
	Std. Deviation	1.171	1.145	.912	.907	.956
Fairfax County	Mean	3.82	3.72	3.59	3.58	3.66
	N	71	71	71	71	71
	Std. Deviation	.915	1.017	.855	.856	.909
Frederick County	Mean	3.23	2.99	3.32	3.35	3.19
	N	69	69	68	68	69
	Std. Deviation	.860	.962	.679	.686	.827
Loudon County	Mean	3.61	3.40	3.60	3.63	3.55
	N	75	75	75	75	75
	Std. Deviation	.820	.900	.838	.835	.874
Montgomery County	Mean	3.62	3.43	3.48	3.35	3.46
	N	69	69	69	69	69
	Std. Deviation	.859	.931	.815	.764	.815
Prince George's County	Mean	3.26	3.19	3.25	3.28	3.19
	N	69	69	69	69	69
	Std. Deviation	.995	1.115	.898	.838	.896
Prince William County	Mean	3.50	3.34	3.44	3.48	3.40
	N	62	62	62	62	62
	Std. Deviation	.882	.974	.880	.825	1.016
Rockville	Mean	3.67	3.51	3.50	3.38	3.53
	N	78	78	78	78	78
	Std. Deviation	.963	1.041	.922	.943	.950
Vienna	Mean	3.66	3.43	3.52	3.60	3.43
	N	61	61	60	60	61
	Std. Deviation	.892	.939	.911	.995	.921
Charles County	Mean	3.11	3.00	3.32	3.42	3.16
	N	57	57	57	57	57
	Std. Deviation	.994	1.102	.890	.885	1.049

Frequencies of Responses By District

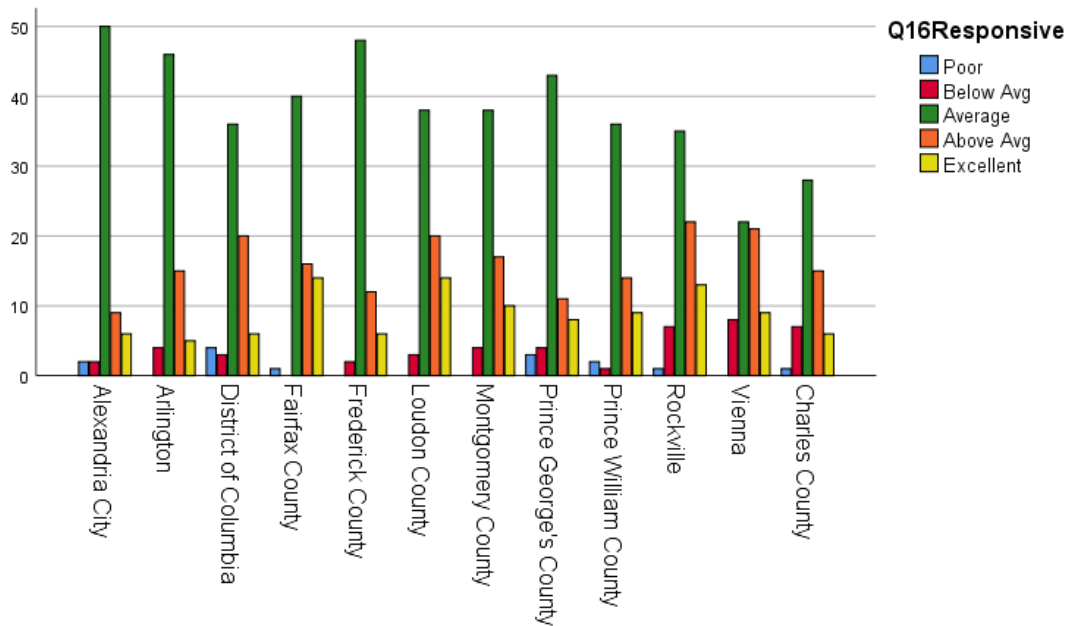
	Quality of Water					Total
	Poor	Below Avg	Average	Above Avg	Excellent	
Alexandria City	2	1	39	14	13	69
Arlington	1	4	28	25	12	70
District of Columbia	8	5	28	17	11	69
Fairfax County	1	0	31	18	21	71
Frederick County	3	3	45	11	7	69
Loudon County	0	2	39	20	14	75
Montgomery County	1	2	31	23	12	69
Prince George's County	4	6	36	14	9	69
Prince William County	1	2	35	13	11	62
Rockville	1	7	26	27	17	78
Vienna	0	6	20	24	11	61
Charles County	4	7	31	9	6	57
Total	26	45	389	215	144	819



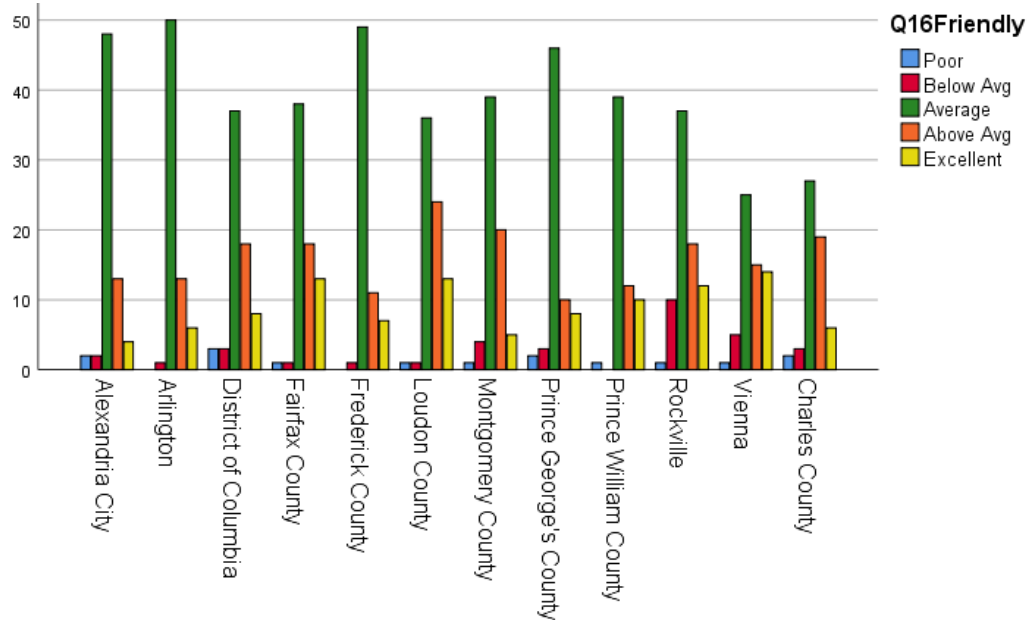
Taste of Water						
	Poor	Below Avg	Average	Above Avg	Excellent	Total
Alexandria City	4	6	32	18	9	69
Arlington	3	5	32	21	9	70
District of Columbia	9	5	33	13	9	69
Fairfax County	2	2	31	15	21	71
Frederick County	5	11	39	8	6	69
Loudon County	2	6	36	22	9	75
Montgomery County	2	5	33	19	10	69
Prince George's County	6	8	33	11	11	69
Prince William County	3	4	33	13	9	62
Rockville	2	8	34	16	18	78
Vienna	1	9	21	23	7	61
Charles County	6	10	25	10	6	57
Total	45	79	382	189	124	819



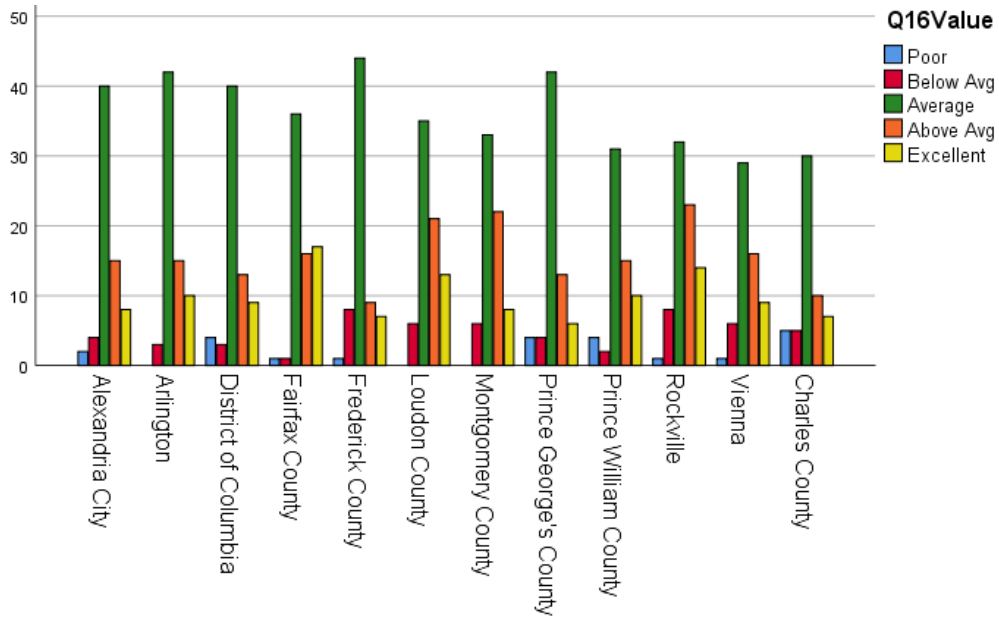
Customer Service Responsiveness						
	Poor	Below Avg	Average	Above Avg	Excellent	Total
Alexandria City	2	2	50	9	6	69
Arlington	0	4	46	15	5	70
District of Columbia	4	3	36	20	6	69
Fairfax County	1	0	40	16	14	71
Frederick County	0	2	48	12	6	68
Loudon County	0	3	38	20	14	75
Montgomery County	0	4	38	17	10	69
Prince George's County	3	4	43	11	8	69
Prince William County	2	1	36	14	9	62
Rockville	1	7	35	22	13	78
Vienna	0	8	22	21	9	60
Charles County	1	7	28	15	6	57
Total	14	45	460	192	106	817



Friendliness of Customer Service						
	Poor	Below Avg	Average	Above Avg	Excellent	Total
Alexandria City	2	2	48	13	4	69
Arlington	0	1	50	13	6	70
District of Columbia	3	3	37	18	8	69
Fairfax County	1	1	38	18	13	71
Frederick County	0	1	49	11	7	68
Loudon County	1	1	36	24	13	75
Montgomery County	1	4	39	20	5	69
Prince George's County	2	3	46	10	8	69
Prince William County	1	0	39	12	10	62
Rockville	1	10	37	18	12	78
Vienna	1	5	25	15	14	60
Charles County	2	3	27	19	6	57
Total	15	34	471	191	106	817



	Value of Service					Total
	Poor	Below Avg	Average	Above Avg	Excellent	
Alexandria City	2	4	40	15	8	69
Arlington	0	3	42	15	10	70
District of Columbia	4	3	40	13	9	69
Fairfax County	1	1	36	16	17	71
Frederick County	1	8	44	9	7	69
Loudon County	0	6	35	21	13	75
Montgomery County	0	6	33	22	8	69
Prince George's County	4	4	42	13	6	69
Prince William County	4	2	31	15	10	62
Rockville	1	8	32	23	14	78
Vienna	1	6	29	16	9	61
Charles County	5	5	30	10	7	57
Total	23	56	434	188	118	819

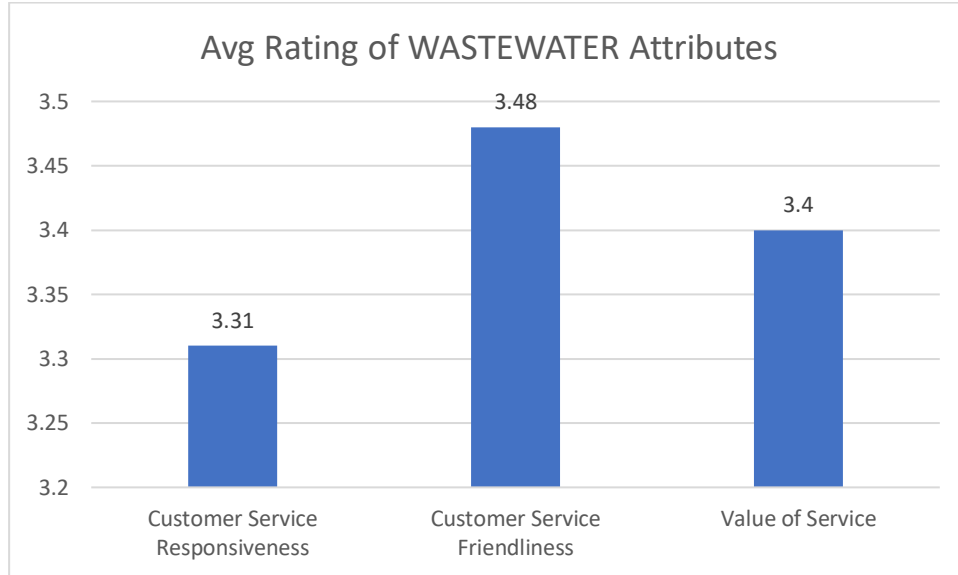


Q17 Rate WASTEWATER (for those with separate utilities)

Scale: 1—Poor, 2—Below Average, 3—Average, 4—Above Average, 5—Excellent

Overall Analysis

Question served to the 100 respondents who indicated they had separate utilities for drinking water and wastewater.



Frequency of Responses

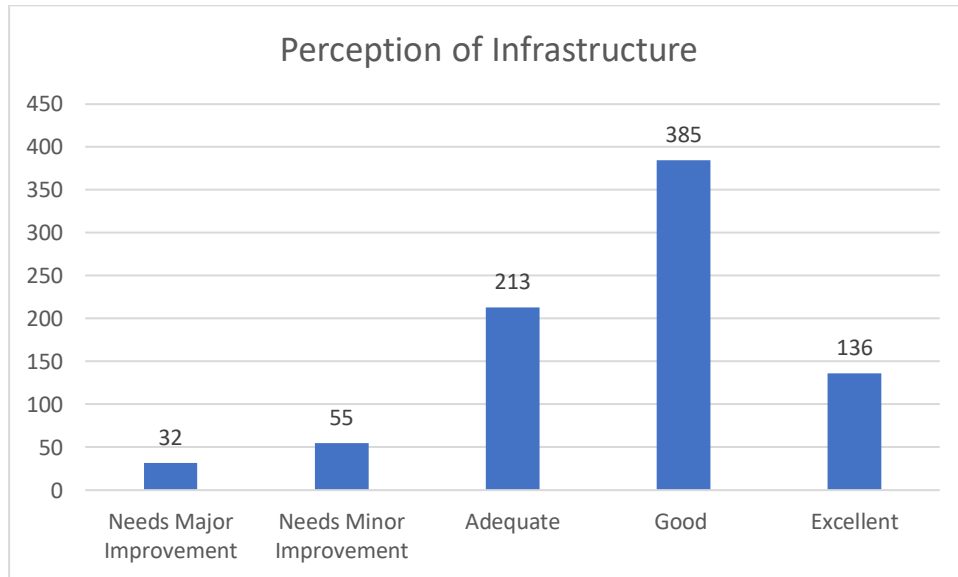
	Poor	Below Average	Average	Above Average	Excellent	TOTAL
Customer Service Responsiveness	1	12	58	13	16	100
Customer Service Friendliness	1	7	56	15	21	100
Value of Service	1	12	51	18	18	100

Q18 What is the condition of water and wastewater infrastructure in your community?

Scale: -2—Needs Major Improvements, -1—Needs Minor Improvements, 0—Adequate, 1—Good, 2—Excellent

Overall Analysis

Mean Score: .66



Ad-Hoc Analysis: Drivers of Perception of Infrastructure

To look at possible drivers of peoples' perception of infrastructure, a correlation table between infrastructure perception and potential drivers was created.

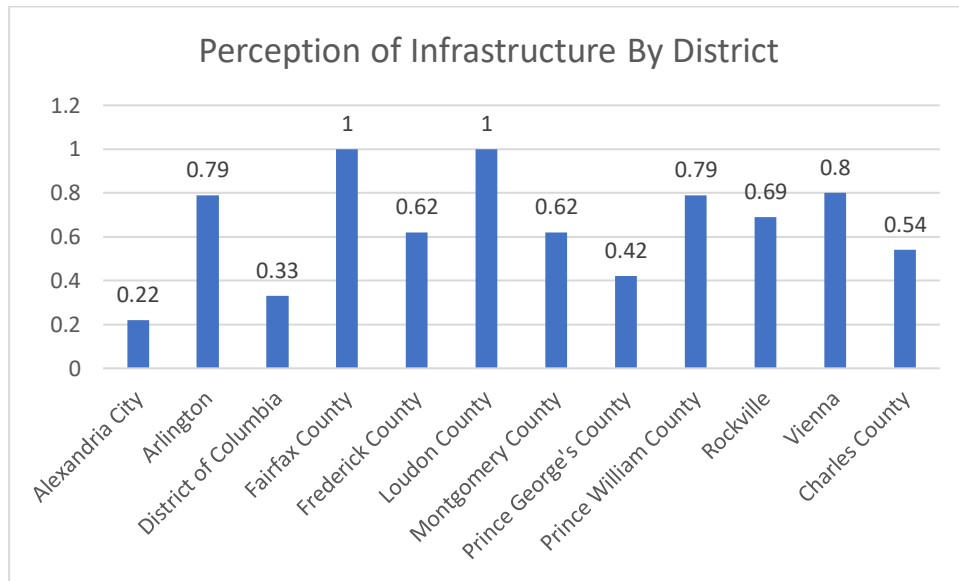
		Q16Quality	Q16 Taste	Q16 Responsive	Q16 Friendly	Q16 Value	Q4Tap Drink Freq	Q7 Drink Bottled
Q18 Infrastructure	Pearson Corr.	.399**	.326**	.399**	.410**	.417**	.119**	.133**
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.001	0.000
	N	819	819	817	817	819	821	821

All hypothesized consumption and perception-related drivers were positively and significantly related. Interestingly, it was the customer service perceptions that were most tightly-related to perception of infrastructure, followed by perceived quality/taste of the water. The amount someone drank tap water was a relatively minor factor. Additionally, the one factor found with a *negative* influence on perception of infrastructure was the perceived frequency with which rates were raised (Q24) ($R^2 = -.136$, $p = .000$). What this data suggests is that a perception of infrastructure is derived from a general perception of the utility—the quality of customer service, the taste of tap water and the overall perceived value of the service.

What the data does not clarify is a causal chain. If someone likes the taste of their tap water and has a good customer service interaction, are they more likely to view the infrastructure favorably? Or, is the reverse true? It is likely that the causal chain runs in both directions, where each factor influences the other.

Analysis By District

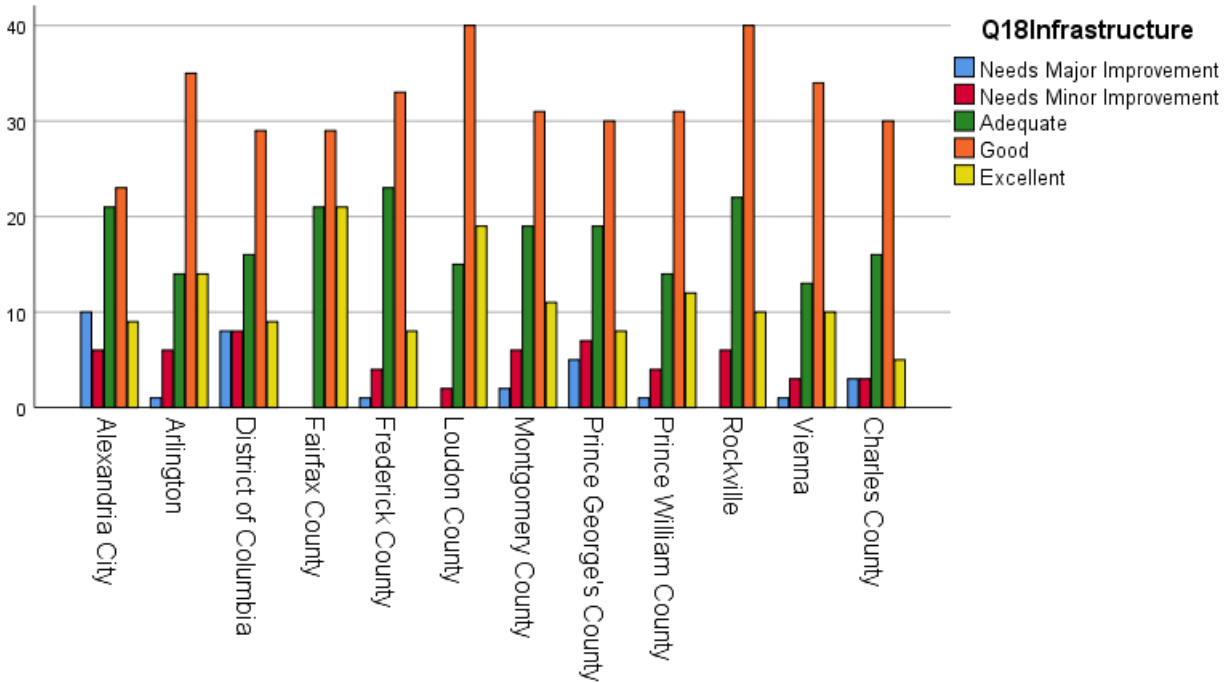
Mean Ratings of Infrastructure By District



No district had a mean rating below “Average” (0), with Alexandria City ranking lowest and both Fairfax and Loudon counties ranking highest.

Frequencies of Responses By District

	Needs Major Improvement	Needs Minor Improvement	Adequate	Good	Excellent	Total
Alexandria City	10	6	21	23	9	69
Arlington	1	6	14	35	14	70
District of Columbia	8	8	16	29	9	70
Fairfax County	0	0	21	29	21	71
Frederick County	1	4	23	33	8	69
Loudon County	0	2	15	40	19	76
Montgomery County	2	6	19	31	11	69
Prince George's County	5	7	19	30	8	69
Prince William County	1	4	14	31	12	62
Rockville	0	6	22	40	10	78
Vienna	1	3	13	34	10	61
Charles County	3	3	16	30	5	57
Total	32	55	213	385	136	821



Q19 How much do you trust the following groups to make smart decisions about infrastructure investments such as new pipes, pumps, or treatment processes?

Scale: 0-Not Trusted, 1-Somewhat Trusted, 2-Mostly Trusted, 3-Completely Trusted

Overall Analysis

Utility Officials, Mean Rating: 1.57

Elected Officials, Mean Rating: 1.22

Is there a statistically significant difference between these ratings?

Yes. Utility officials are significantly more trusted than Elected Officials ($t=8.875$, $p=.000$).

Ad-Hoc Analysis: Drivers of Trust

The only demographic variable found to influence trust was income, which had a negative relationship ($R^2 = -.103$, $p=.003$) with trust of elected officials. This infers that that the more money you had, the less you trusted elected officials, suggesting that utility officials are better messengers for news about infrastructure investments, particularly with wealthier customers.

What drove trust of Utility Officials?

Not surprisingly, the perceived frequency of rate raises (Q24) was negatively and significantly related to trust of utility officials ($R^2 = -.133$, $p=.003$). What's not clear from this data is which is a cause and which is an effect. Do people trust utility officials less because of rate raises? OR, do people believe their rates are raised more frequently because they don't trust utility officials? Either is plausible.

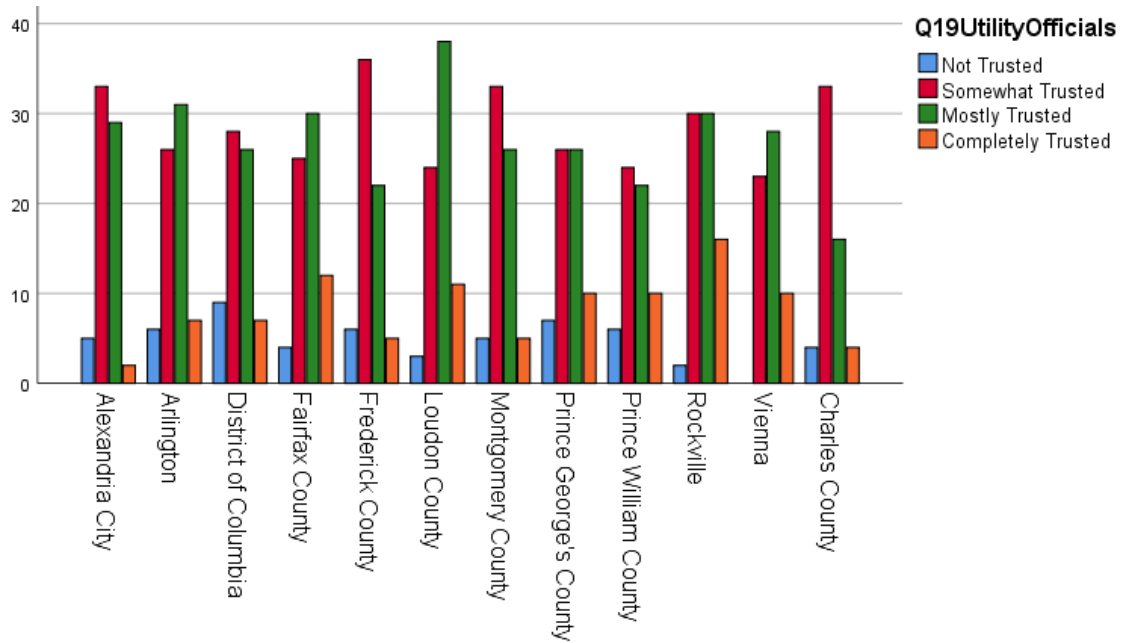
Analysis By District

Mean Ratings By District

DISTRICT		Utility Officials	Elected Officials
Alexandria City	Mean	1.41	1.09
	N	69	69
	Std. Deviation	.671	.658
Arlington	Mean	1.56	1.34
	N	70	70
	Std. Deviation	.792	.759
District of Columbia	Mean	1.44	1.19
	N	70	70
	Std. Deviation	.845	.822
Fairfax County	Mean	1.70	1.07
	N	71	71
	Std. Deviation	.818	.781
Frederick County	Mean	1.38	1.06
	N	69	69
	Std. Deviation	.750	.856
Loudon County	Mean	1.75	1.21
	N	76	76
	Std. Deviation	.751	.838
Montgomery County	Mean	1.45	1.09
	N	69	69
	Std. Deviation	.738	.680
Prince George's County	Mean	1.57	1.04
	N	69	69
	Std. Deviation	.866	.736
Prince William County	Mean	1.58	1.11
	N	62	62
	Std. Deviation	.879	.889
Rockville	Mean	1.77	1.60
	N	78	78
	Std. Deviation	.805	.762
Vienna	Mean	1.79	1.79
	N	61	61
	Std. Deviation	.710	.777
Charles County	Mean	1.35	1.02
	N	57	57
	Std. Deviation	.719	.767

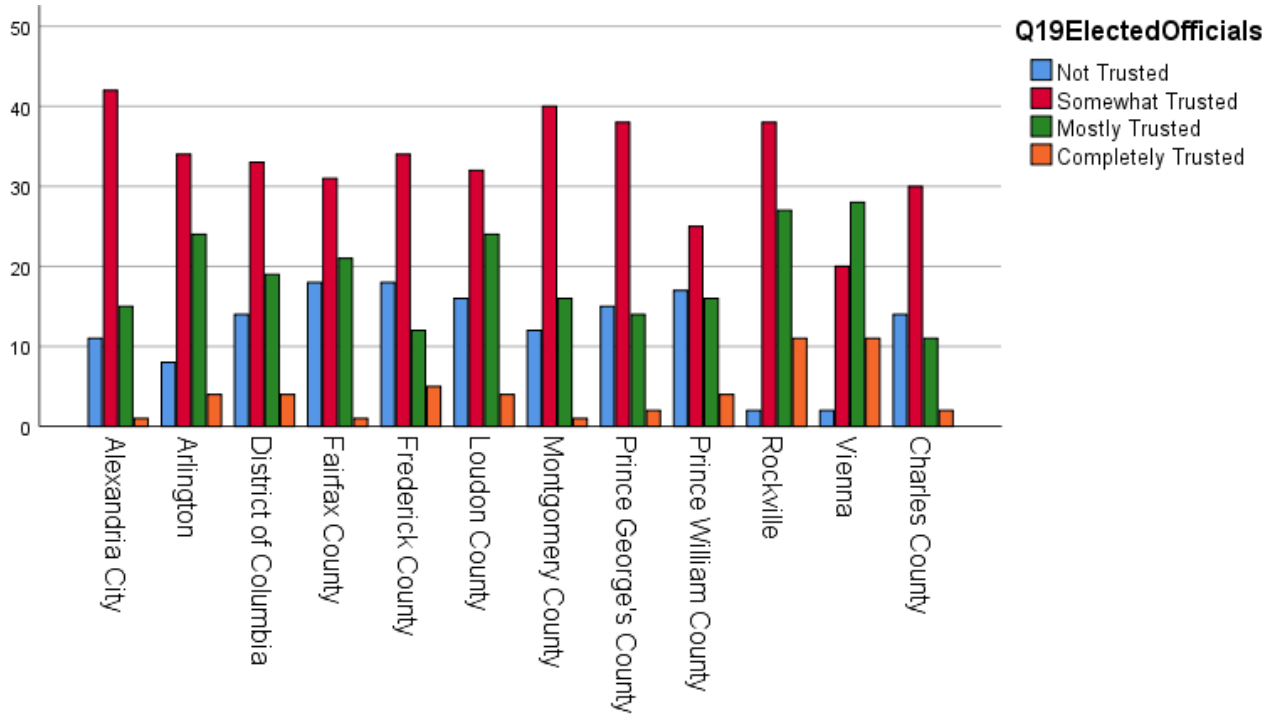
Frequency of Responses By District

	Utility Officials				Total
	Not Trusted	Somewhat Trusted	Mostly Trusted	Completely Trusted	
Alexandria City	5	33	29	2	69
Arlington	6	26	31	7	70
District of Columbia	9	28	26	7	70
Fairfax County	4	25	30	12	71
Frederick County	6	36	22	5	69
Loudon County	3	24	38	11	76
Montgomery County	5	33	26	5	69
Prince George's County	7	26	26	10	69
Prince William County	6	24	22	10	62
Rockville	2	30	30	16	78
Vienna	0	23	28	10	61
Charles County	4	33	16	4	57
Total	57	341	324	99	821



Elected Officials

	Not Trusted	Somewhat Trusted	Mostly Trusted	Completely Trusted	Total
Alexandria City	11	42	15	1	69
Arlington	8	34	24	4	70
District of Columbia	14	33	19	4	70
Fairfax County	18	31	21	1	71
Frederick County	18	34	12	5	69
Loudon County	16	32	24	4	76
Montgomery County	12	40	16	1	69
Prince George's County	15	38	14	2	69
Prince William County	17	25	16	4	62
Rockville	2	38	27	11	78
Vienna	2	20	28	11	61
Charles County	14	30	11	2	57
Total	147	397	227	50	821



Q20 How effective are the following for getting your questions answered by your water utility

Scale: 0-Not at all Effective, 1-Somewhat Effective, 2-Mostly Effective, 3-Completely Effective

Overall Analysis

Mean Ratings

	Mean	Std. Deviation
Phone	1.71	.853
Web	1.49	.869
Email	1.49	.829
Facebook	.81	.899
Twitter	.79	.884
In Person	1.69	.901

Frequency of Responses

	Not at all Effective	Somewhat Effective	Mostly Effective	Completely Effective	TOTAL
Phone	51	296	310	164	821
Website	95	341	273	112	821
Email	85	344	298	94	821
Facebook	376	278	117	50	821
Twitter	381	271	127	42	821
In-Person	72	282	294	173	821

Analysis By District

Mean Ratings By District

		Phone	Web	Email	Facebook	Twitter	In Person
Alexandria City	Mean	1.80	1.46	1.43	.64	.68	1.62
	N	69	69	69	69	69	69
	Std. Deviation	.797	.759	.795	.766	.757	.893
Arlington	Mean	1.47	1.41	1.40	.60	.56	1.49
	N	70	70	70	70	70	70
	Std. Deviation	.775	.825	.806	.710	.651	.775
District of Columbia	Mean	1.64	1.50	1.39	.81	.66	1.57
	N	70	70	70	70	70	70
	Std. Deviation	.933	.897	.873	1.011	.915	.972
Fairfax County	Mean	1.72	1.56	1.51	.63	.63	1.66
	N	71	71	71	71	71	71
	Std. Deviation	.881	.890	.860	.849	.797	.877
Frederick County	Mean	1.58	1.43	1.41	.81	.65	1.59
	N	69	69	69	69	69	69
	Std. Deviation	.812	.848	.773	.791	.703	.828
Loudon County	Mean	1.86	1.61	1.59	.67	.64	1.87
	N	76	76	76	76	76	76
	Std. Deviation	.844	.865	.769	.806	.795	.929
Montgomery County	Mean	1.61	1.41	1.33	.43	.51	1.46
	N	69	69	69	69	69	69
	Std. Deviation	.790	.863	.700	.696	.740	.884
Prince George's County	Mean	1.70	1.32	1.42	.67	.75	1.71
	N	69	69	69	69	69	69
	Std. Deviation	.880	.849	.881	.798	.914	.925
Prince William County	Mean	1.71	1.40	1.45	.68	.66	1.71
	N	62	62	62	62	62	62
	Std. Deviation	.930	.896	.862	.864	.904	.912
Rockville	Mean	1.83	1.64	1.79	1.46	1.62	1.94
	N	78	78	78	78	78	78
	Std. Deviation	.859	.821	.779	.893	.929	.917
Vienna	Mean	1.92	1.52	1.69	1.43	1.34	1.97
	N	61	61	61	61	61	61
	Std. Deviation	.822	1.010	.847	1.102	.929	.930
Charles County	Mean	1.75	1.58	1.40	.84	.77	1.70
	N	57	57	57	57	57	57
	Std. Deviation	.872	.925	.942	.862	.824	.844
Total	Mean	1.71	1.49	1.49	.81	.79	1.69
	N	821	821	821	821	821	821
	Std. Deviation	.853	.869	.829	.899	.884	.901

Ad-Hoc Analysis: Age Effect on Communications Preferences

		Phone	Web	Email	Facebook	Twitter	InPerson
AGE	Pearson Correlation	-.090*	-.113**	-.129**	-.244**	-.298**	-0.055
	Sig. (2-tailed)	0.010	0.001	0.000	0.000	0.000	0.116
	N	821	821	821	821	821	821

Customer service industry research has shown there is a negative relationship between age and more interactive/online platforms for communications, which is what is seen here. There is a negligible (in terms of both size and significance) effect for age and the embrace of either phone or in-person service interactions. Significant negative effects exist for age on other, more interactive platforms. These effects are particularly sizable for use of social media (Facebook & Twitter).

This suggests that for older audiences, utilities will want to emphasize more traditional means of communication for service interactions.

Q21 For those with a different utility for wastewater, how do you rate the following media for service interactions.

Scale: 0-Not at all Effective, 1-Somewhat Effective, 2-Mostly Effective, 3-Completely Effective

Overall Analysis

Descriptive Statistics

	N	Mean	Std. Deviation
Q21Phone	100	1.86	.954
Q21Web	100	1.52	.959
Q21Email	100	1.63	.861
Q21Facebook	100	.97	.881
Q21Twitter	99	1.00	.904
Q21InPerson	100	1.67	.965

Q22 Please indicate your SINGLE preferred method for your water utility to contact you about EACH of the following issues:

Scale: Individuals checked the box beneath the most-preferred communications medium for a given context.

Overall Analysis

Frequency of Responses

	<u>Email</u>	<u>Facebook</u>	<u>Phone</u>	<u>Twitter</u>	<u>Text</u>	<u>Mail</u>
Billing/Payment Updates	380	14	79	20	55	268
Non-Urgent Service Updates	404	21	75	30	81	207
Emergency Updates	267	26	201	25	231	67
Water Quality Reports	386	24	70	28	61	247
Rate Increase	360	20	71	22	51	292

Responses By Percentage

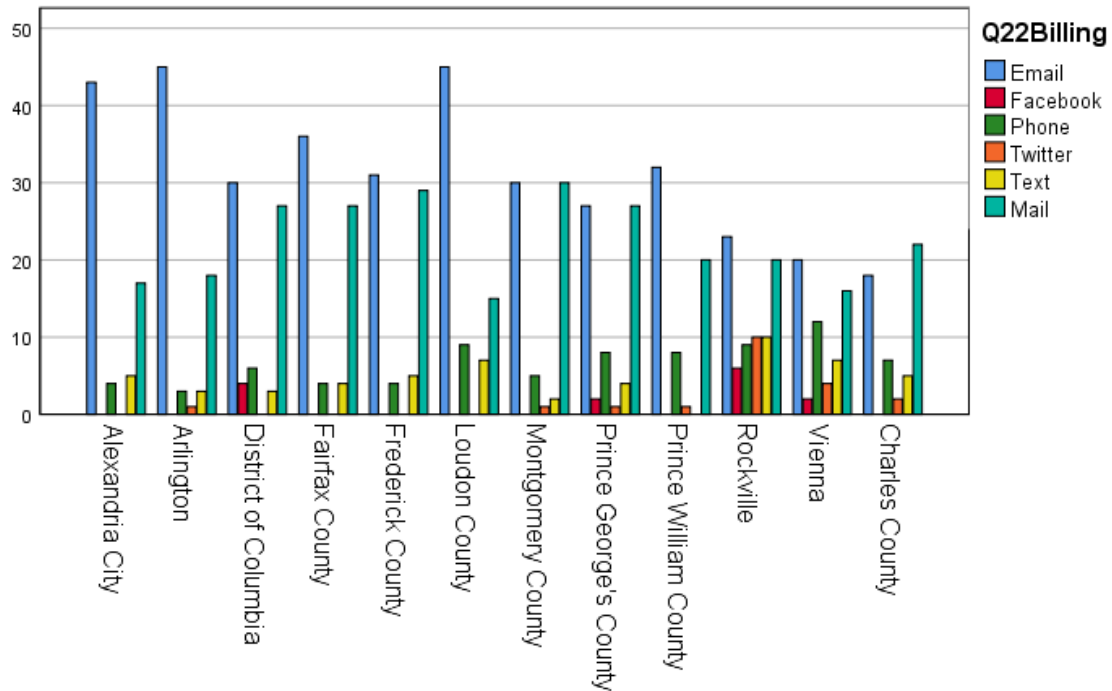
	<u>Email</u>	<u>Facebook</u>	<u>Phone</u>	<u>Twitter</u>	<u>Text</u>	<u>Mail</u>	<u>TOTAL</u>
Billing/Payment Updates	46.57%	1.72%	9.68%	2.45%	6.74%	32.84%	100.00%
Non-Urgent Service Updates	49.39%	2.57%	9.17%	3.67%	9.90%	25.31%	100.00%
Emergency Updates	32.68%	3.18%	24.60%	3.06%	28.27%	8.20%	100.00%
Water Quality Reports	47.30%	2.94%	8.58%	3.43%	7.48%	30.27%	100.00%
Rate Increase	44.12%	2.45%	8.70%	2.70%	6.25%	35.78%	100.00%

Communications preferences were pretty stable EXCEPT in that instance of emergency updates. While email and traditional mail were the overall most preferred medium, preference shifted away from those two in favor of phone calls and text messages in the instance of emergencies.

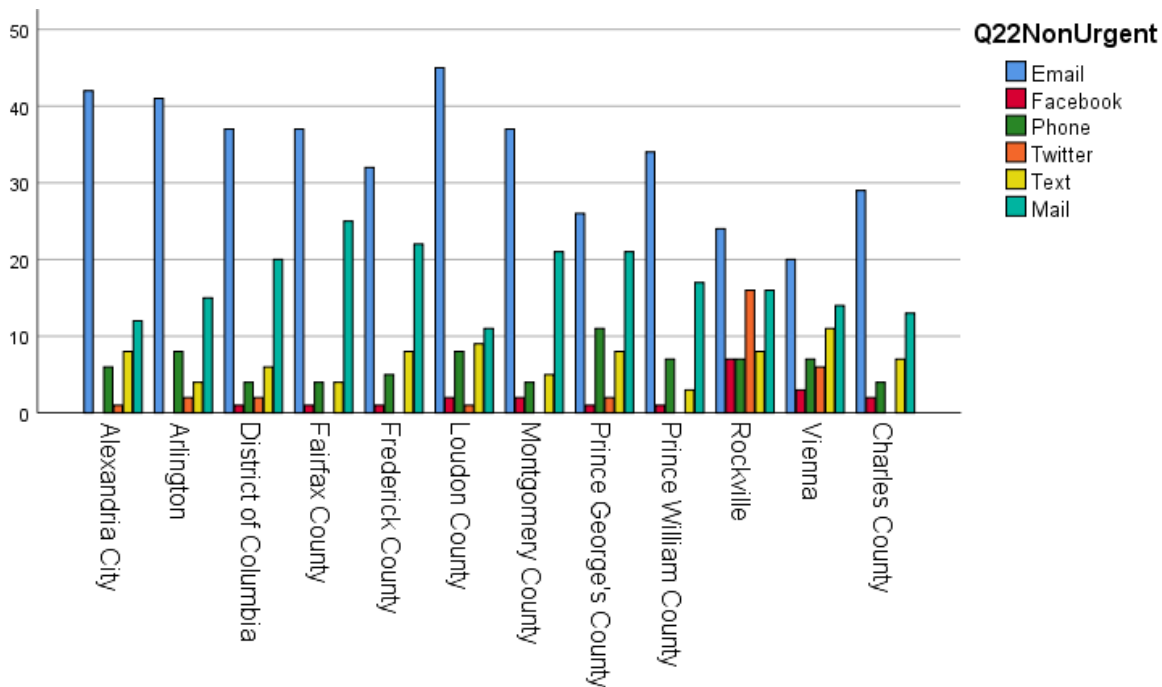
Analysis By District

Frequency of Responses By District

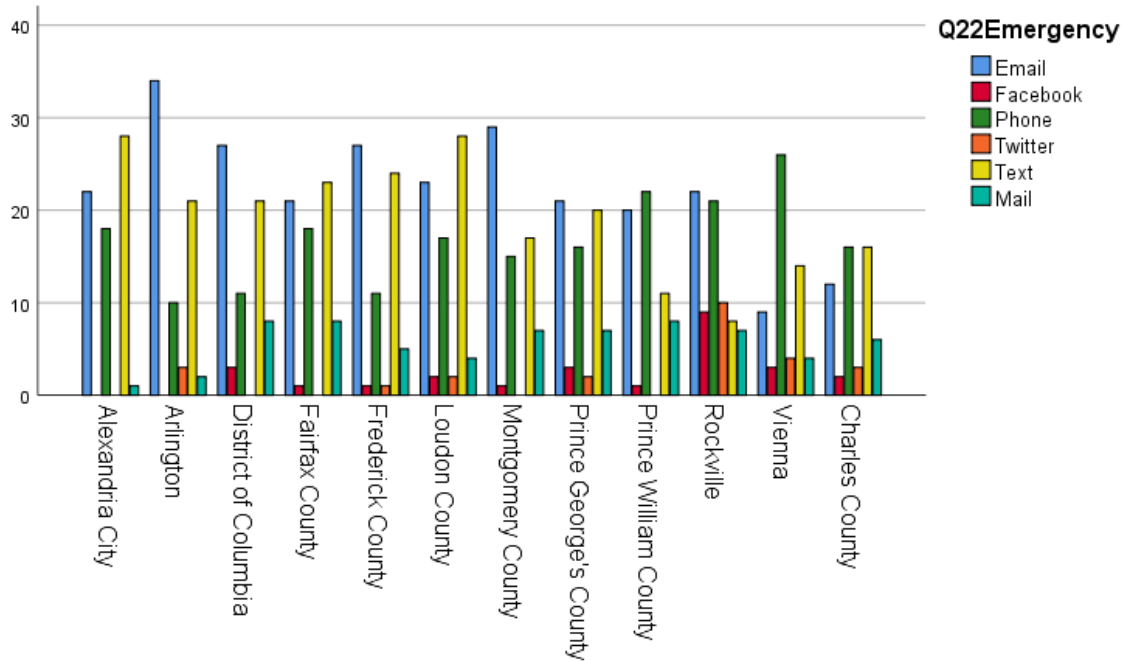
	Billing						Total
	Email	Facebook	Phone	Twitter	Text	Mail	
Alexandria City	43	0	4	0	5	17	69
Arlington	45	0	3	1	3	18	70
District of Columbia	30	4	6	0	3	27	70
Fairfax County	36	0	4	0	4	27	71
Frederick County	31	0	4	0	5	29	69
Loudon County	45	0	9	0	7	15	76
Montgomery County	30	0	5	1	2	30	68
Prince George's County	27	2	8	1	4	27	69
Prince William County	32	0	8	1	0	20	61
Rockville	23	6	9	10	10	20	78
Vienna	20	2	12	4	7	16	61
Charles County	18	0	7	2	5	22	54
Total	380	14	79	20	55	268	816



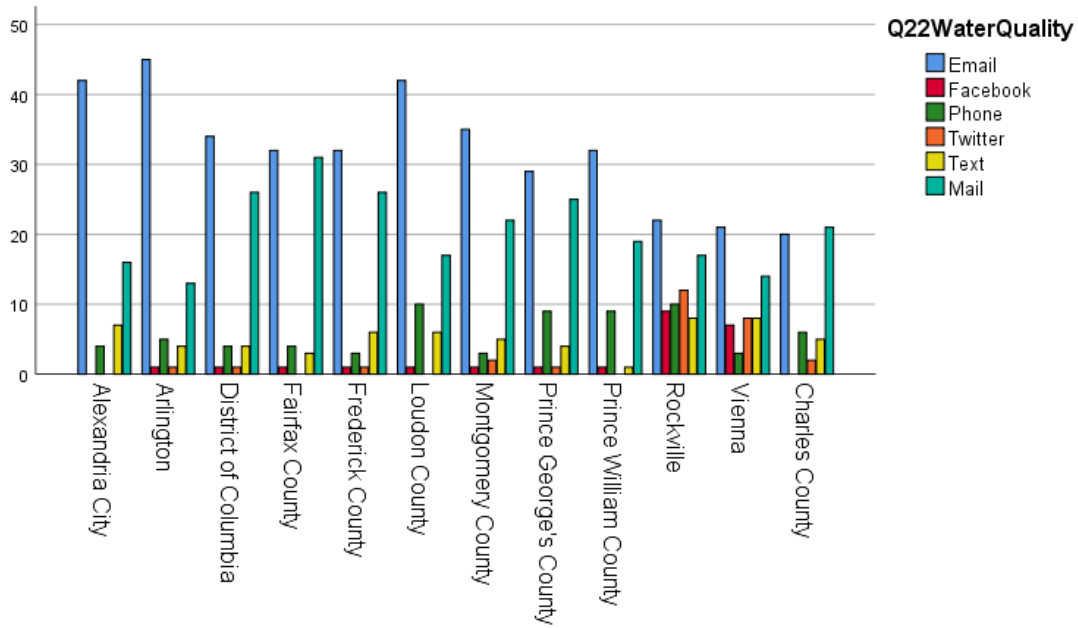
	Non Urgent						Total
	Email	Facebook	Phone	Twitter	Text	Mail	Total
Alexandria City	42	0	6	1	8	12	69
Arlington	41	0	8	2	4	15	70
District of Columbia	37	1	4	2	6	20	70
Fairfax County	37	1	4	0	4	25	71
Frederick County	32	1	5	0	8	22	68
Loudon County	45	2	8	1	9	11	76
Montgomery County	37	2	4	0	5	21	69
Prince George's County	26	1	11	2	8	21	69
Prince William County	34	1	7	0	3	17	62
Rockville	24	7	7	16	8	16	78
Vienna	20	3	7	6	11	14	61
Charles County	29	2	4	0	7	13	55
Total	404	21	75	30	81	207	818



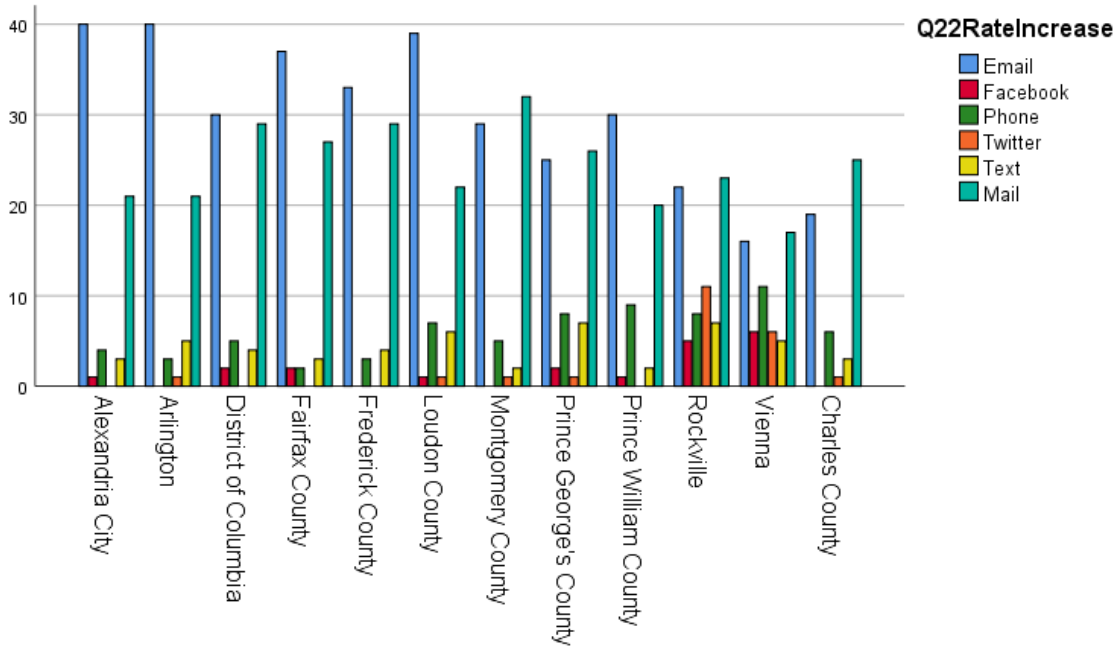
	Emergency						Total
	Email	Facebook	Phone	Twitter	Text	Mail	
Alexandria City	22	0	18	0	28	1	69
Arlington	34	0	10	3	21	2	70
District of Columbia	27	3	11	0	21	8	70
Fairfax County	21	1	18	0	23	8	71
Frederick County	27	1	11	1	24	5	69
Loudon County	23	2	17	2	28	4	76
Montgomery County	29	1	15	0	17	7	69
Prince George's County	21	3	16	2	20	7	69
Prince William County	20	1	22	0	11	8	62
Rockville	22	9	21	10	8	7	77
Vienna	9	3	26	4	14	4	60
Charles County	12	2	16	3	16	6	55
Total	267	26	201	25	231	67	817



	Water Quality						Total
	Email	Facebook	Phone	Twitter	Text	Mail	
Alexandria City	42	0	4	0	7	16	69
Arlington	45	1	5	1	4	13	69
District of Columbia	34	1	4	1	4	26	70
Fairfax County	32	1	4	0	3	31	71
Frederick County	32	1	3	1	6	26	69
Loudon County	42	1	10	0	6	17	76
Montgomery County	35	1	3	2	5	22	68
Prince George's County	29	1	9	1	4	25	69
Prince William County	32	1	9	0	1	19	62
Rockville	22	9	10	12	8	17	78
Vienna	21	7	3	8	8	14	61
Charles County	20	0	6	2	5	21	54
Total	386	24	70	28	61	247	816



	Rate Increase						Total
	Email	Facebook	Phone	Twitter	Text	Mail	
Alexandria City	40	1	4	0	3	21	69
Arlington	40	0	3	1	5	21	70
District of Columbia	30	2	5	0	4	29	70
Fairfax County	37	2	2	0	3	27	71
Frederick County	33	0	3	0	4	29	69
Loudon County	39	1	7	1	6	22	76
Montgomery County	29	0	5	1	2	32	69
Prince George's County	25	2	8	1	7	26	69
Prince William County	30	1	9	0	2	20	62
Rockville	22	5	8	11	7	23	76
Vienna	16	6	11	6	5	17	61
Charles County	19	0	6	1	3	25	54
Total	360	20	71	22	51	292	816

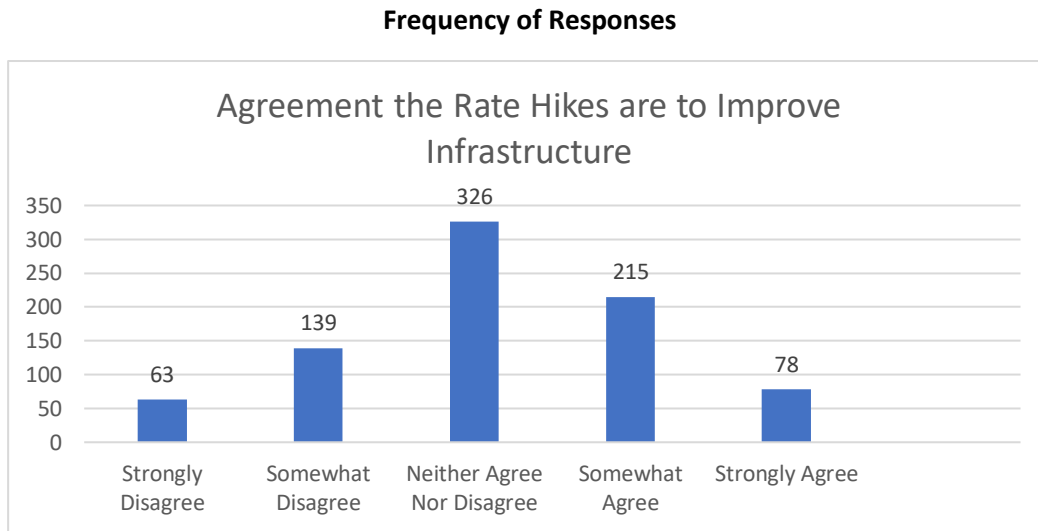


Q23 When my water and/or wastewater utility raises rates, it's to enhance the quality of its service.

Scale: -2—Strongly Disagree, -1—Somewhat Disagree, 0—Neither Agree Nor Disagree, 1—Somewhat Agree, 2—Strongly Agree

Overall Analysis

Mean Score: .13



The distribution follows a typical bell-shaped curve (aka “a normal distribution”).

Ad-Hoc Analysis: Demographic Drivers of Perceptions of Rate Hike Rationale

A correlational analysis revealed that demographic variables of age, income, and ethnicity were related to perceptions for the reasons for rate hikes. When it came to believing that rate hikes were for the benefit of enhancing infrastructure, older people ($R^2 = -.159$, $p = .000$) and wealthier people ($R^2 = -.131$, $p = .000$) were less likely to believe.

Mean ratings by ethnic groups suggest Whites/Caucasians were the most suspect of motivations behind rate increases.

Ethnicity	Mean	N	Std. Deviation
African American	.34	126	1.075
Asian	.34	71	.970
Hispanic	.62	58	1.089
Native American	1.17	23	.576
Pacific Islander	1.14	14	.770
White/Caucasian	-.05	499	.988

Analysis By District

DISTRICT	Mean	N	Std. Deviation
Alexandria City	-.14	69	.974
Arlington	-.07	70	.873
District of Columbia	.20	70	1.016
Fairfax County	-.06	71	1.027
Frederick County	-.22	69	.937
Loudon County	.16	76	.925
Montgomery County	.00	69	1.029
Prince George's County	-.17	69	.969
Prince William County	-.06	62	.921
Rockville	.94	78	1.049
Vienna	.84	61	.934
Charles County	.11	57	1.220
Total	.13	821	1.050

Districts with a negative mean score can infer that they are not receiving the benefit of the doubt from consumers as it pertains to the justification for rate raises. Those districts may want to consider extra community outreach related to any proposed rate hikes.

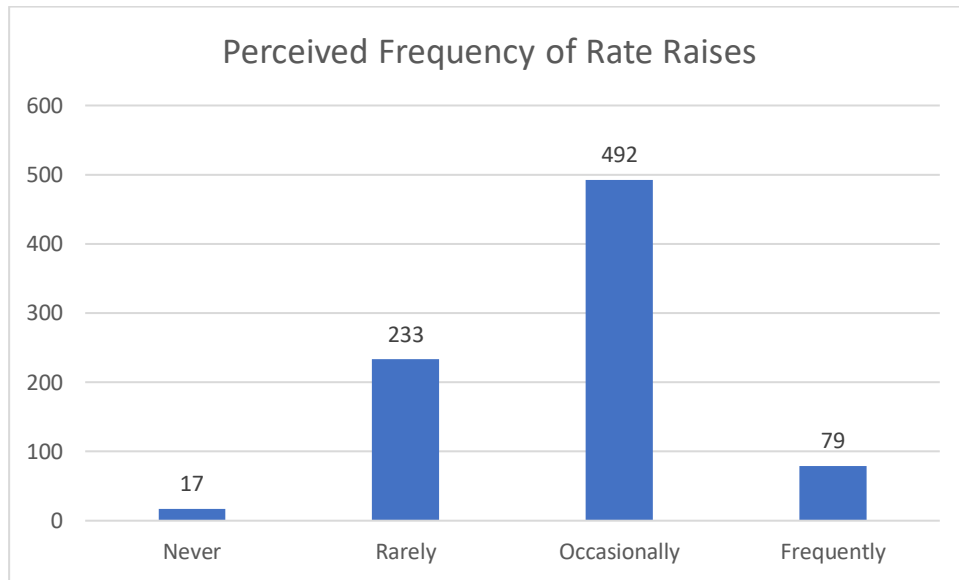
	Strongly Disagree	Somewhat Disagree	Neither Agree Nor Disagree	Somewhat Agree	Strongly Agree	Total
Alexandria City	8	11	36	11	3	69
Arlington	5	12	38	13	2	70
District of Columbia	4	11	29	19	7	70
Fairfax County	6	15	33	11	6	71
Frederick County	6	19	30	12	2	69
Loudon County	4	12	31	26	3	76
Montgomery County	7	11	30	17	4	69
Prince George's County	8	13	33	13	2	69
Prince William County	4	15	25	17	1	62
Rockville	3	6	9	35	25	78
Vienna	1	4	14	27	15	61
Charles County	7	10	18	14	8	57
Total	63	139	326	215	78	821

Q24 How often does your water and/or wastewater utility raise its rates?

Scale: 0-Never, 1-Rarely, 2-Occasionally, 3-Frequently

Overall Analysis

Mean Rating: 1.77



Ad-Hoc Analysis: Drivers Of Rate Hike Perceptions

As it relates to perception of rates being raise more frequently, age ($R^2=.090$, $p=.005$), income ($R^2=.098$, $p=.005$), being the bill payer ($R^2=.113$, $p=.001$), and home ownership ($R^2=.083$, $p=.017$) were positively related. So, older, wealthier home owners responsible for paying the water bill were most likely to believe their rates were being raised more frequently.

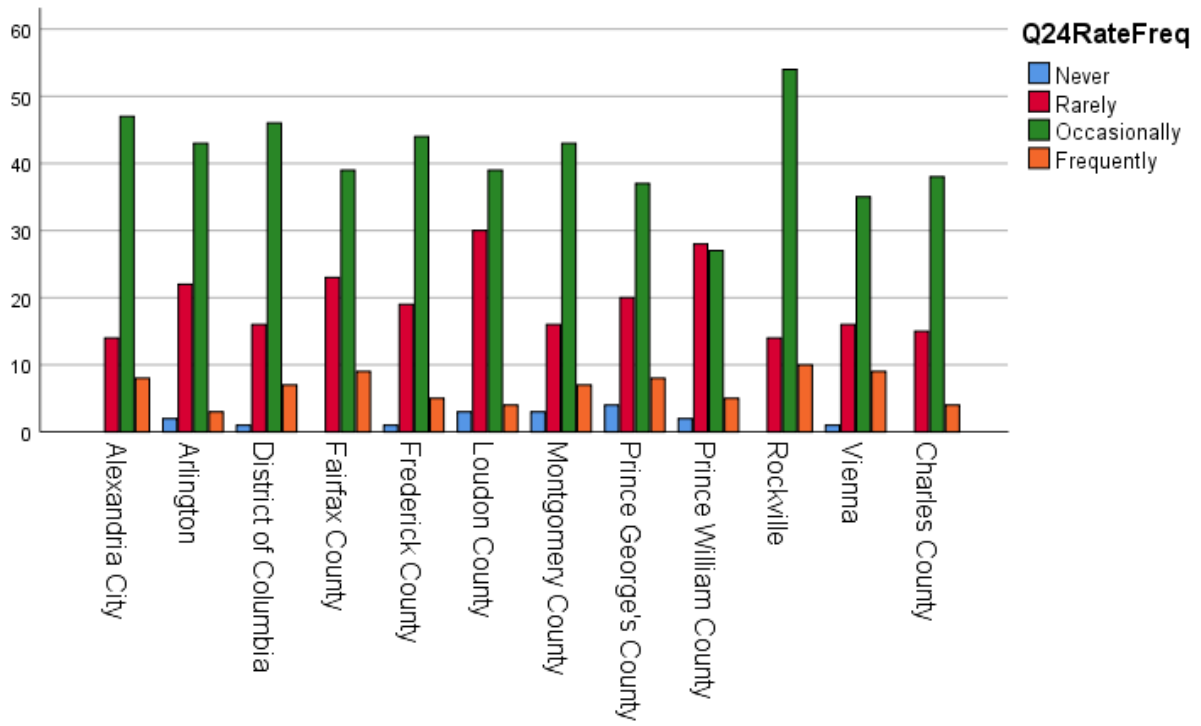
Analysis By District

Mean Scores By District

DISTRICT	Mean	N	Std. Deviation
Alexandria City	1.91	69	.562
Arlington	1.67	70	.607
District of Columbia	1.84	70	.605
Fairfax County	1.80	71	.646
Frederick County	1.77	69	.598
Loudon County	1.58	76	.659
Montgomery County	1.78	69	.683
Prince George's County	1.71	69	.750
Prince William County	1.56	62	.692
Rockville	1.95	78	.556
Vienna	1.85	61	.679
Charles County	1.81	57	.549
Total	1.77	821	.641

Response Frequency By District

	Never	Rarely	Occasionally	Frequently	Total
Alexandria City	0	14	47	8	69
Arlington	2	22	43	3	70
District of Columbia	1	16	46	7	70
Fairfax County	0	23	39	9	71
Frederick County	1	19	44	5	69
Loudon County	3	30	39	4	76
Montgomery County	3	16	43	7	69
Prince George's County	4	20	37	8	69
Prince William County	2	28	27	5	62
Rockville	0	14	54	10	78
Vienna	1	16	35	9	61
Charles County	0	15	38	4	57
Total	17	233	492	79	821

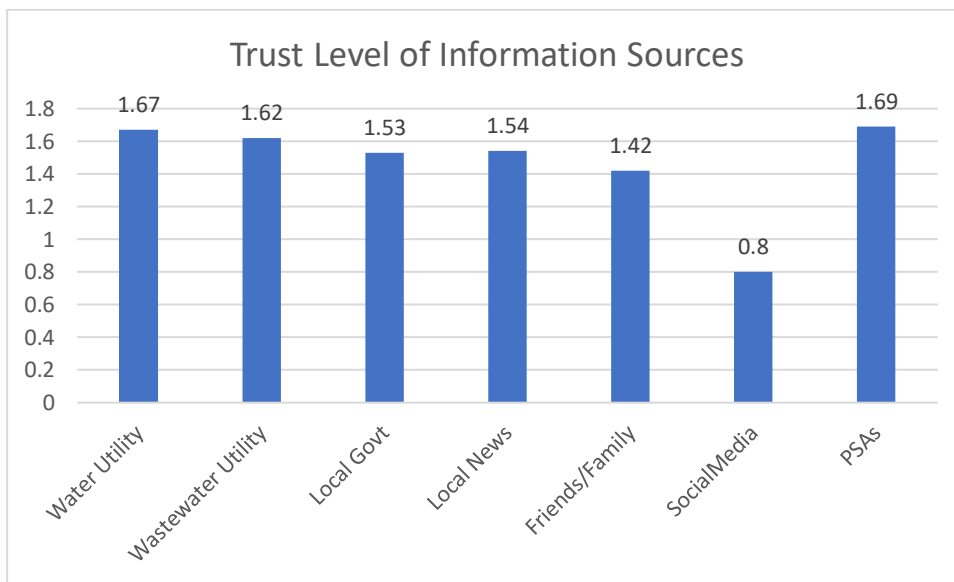


Q25 The sources I trust most for information about my drinking water or wastewater service are:

Scale: 0-Not Trusted, 1-Somewhat Trusted, 2-Mostly Trusted, 3-Completely Trusted

Overall Analysis

Mean Ratings



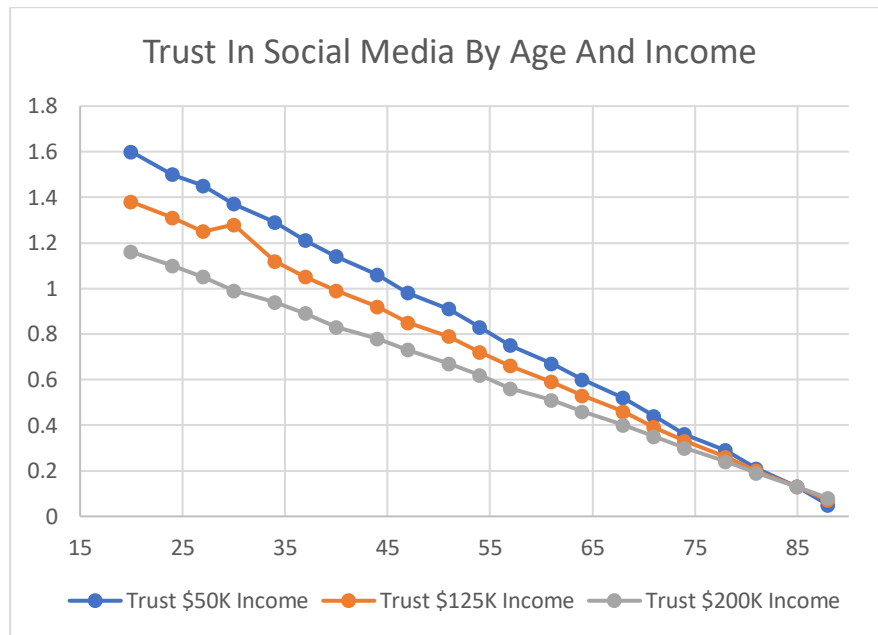
Frequency of Responses

	<u>Not Trusted</u>	<u>Somewhat Trusted</u>	<u>Mostly Trusted</u>	<u>Completely Trusted</u>	<u>TOTAL</u>
Water Utilities	47	303	347	124	821
Wastewater Utilities	57	311	338	115	821
Local Govt	80	330	304	107	821
Local News	68	332	330	91	821
Friends/Family	106	366	250	99	821
Social Media	375	289	105	52	821

Ad-Hoc Analysis: Drivers of Information Source Trust

Age and income had significant, negative relationships with trust in certain information sources. Large, negative effects for age were found indicating older respondents had less trust in Friends and Family ($R^2 = -.268$, $p = .000$) and Social Media ($R^2 = -.405$, $p = .000$) as sources of information related to their water service(s). Income also had negative effects, suggesting that higher income respondents have lower trust in Friends and Family ($R^2 = -.116$, $p = .001$) and Social Media ($R^2 = -.186$, $p = .000$).

A regression was run against Trust in Social Media using age, income, and an interactive effect between the two. Results showed negative main effects for age ($b = -.0254$, $p = .000$) and income ($b = -.1043$, $p = .000$), plus a small, but significant positive effect for the interaction of the two ($b = .0012$, $p = .03$). The graph below visualizes the effect. Income has a significant effect earlier in life, but respondents become closer in their outlook—regardless of income—the older they were.



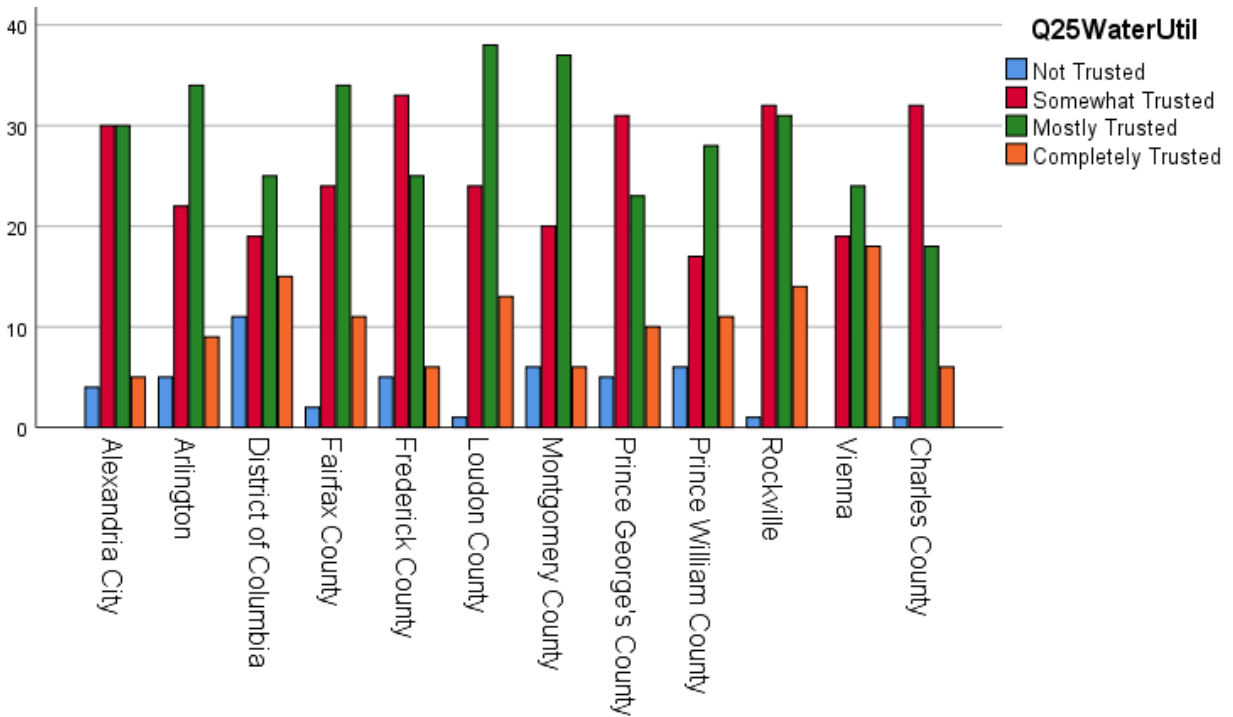
Analysis By District

Mean Ratings By District

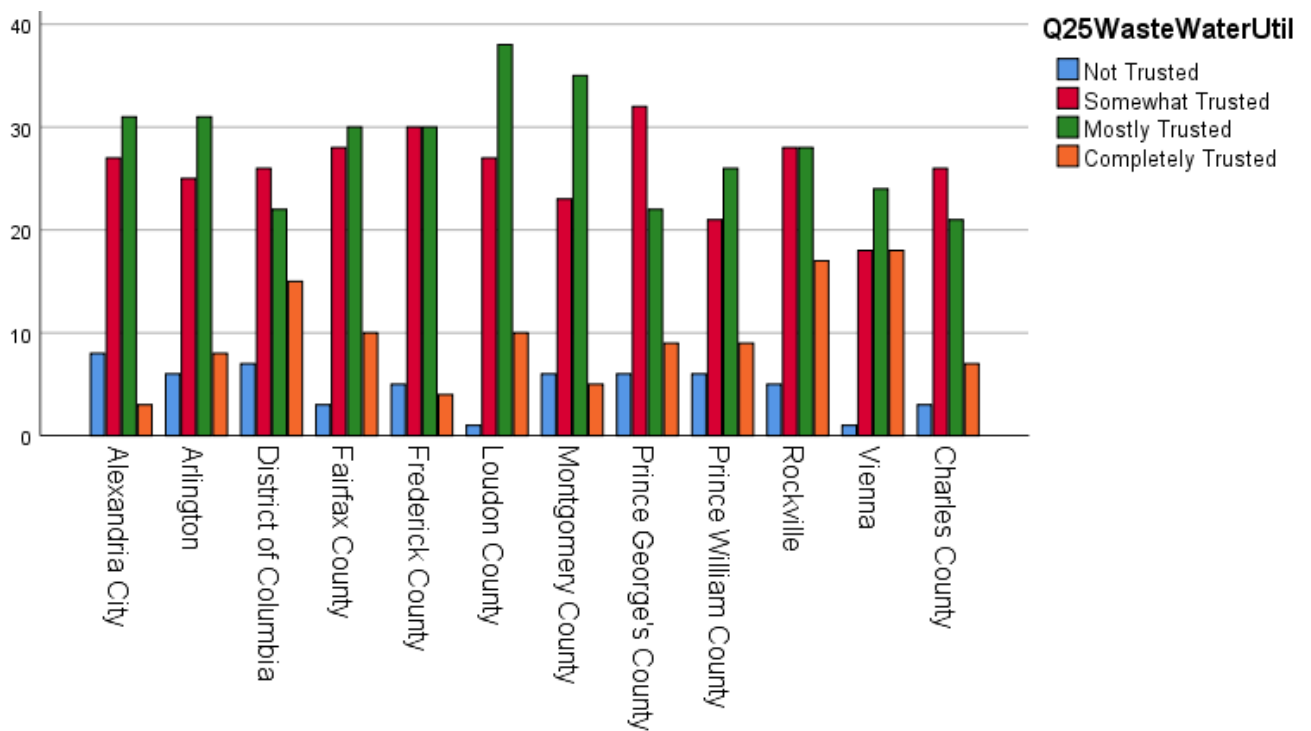
		Water Utility	Wastewater Utility	Local Govt	Local News	Friends/Family	Social Media	PSAs
Alexandria City	Mean	1.52	1.42	1.45	1.58	1.25	.61	1.65
	N	69	69	69	69	69	69	69
	Std. Deviation	.720	.755	.777	.736	.775	.752	.744
Arlington	Mean	1.67	1.59	1.76	1.64	1.39	.64	1.76
	N	70	70	70	70	70	70	70
	Std. Deviation	.793	.807	.711	.660	.873	.723	.690
District of Columbia	Mean	1.63	1.64	1.56	1.61	1.30	.76	1.69
	N	70	70	70	70	70	70	70
	Std. Deviation	.995	.933	.911	.952	.874	.892	.860
Fairfax County	Mean	1.76	1.66	1.46	1.44	1.30	.55	1.68
	N	71	71	71	71	71	71	71
	Std. Deviation	.746	.774	.808	.788	.835	.650	.732
Frederick County	Mean	1.46	1.48	1.25	1.30	1.30	.61	1.61
	N	69	69	69	69	69	69	69
	Std. Deviation	.759	.720	.812	.792	.845	.752	.712
Loudon County	Mean	1.83	1.75	1.42	1.45	1.32	.64	1.64
	N	76	76	76	76	76	76	76
	Std. Deviation	.719	.695	.804	.839	.787	.743	.725
Montgomery County	Mean	1.62	1.57	1.46	1.54	1.28	.46	1.62
	N	69	69	69	69	69	69	69
	Std. Deviation	.769	.757	.778	.698	.802	.632	.788
Prince George's County	Mean	1.55	1.49	1.49	1.39	1.30	.64	1.59
	N	69	69	69	69	69	69	69
	Std. Deviation	.832	.834	.885	.808	.863	.785	.846
Prince William County	Mean	1.71	1.61	1.29	1.47	1.45	.77	1.73
	N	62	62	62	62	62	62	62
	Std. Deviation	.876	.856	.876	.918	.803	.999	.872
Rockville	Mean	1.74	1.73	1.85	1.87	1.76	1.51	1.82
	N	78	78	78	78	78	78	78
	Std. Deviation	.763	.878	.807	.745	.840	1.003	.752
Vienna	Mean	1.98	1.97	2.07	1.79	1.87	1.52	1.87
	N	61	61	61	61	61	61	61
	Std. Deviation	.785	.816	.772	.661	.974	1.058	.866
Charles County	Mean	1.51	1.56	1.32	1.37	1.54	.88	1.67
	N	57	57	57	57	57	57	57
	Std. Deviation	.710	.780	.805	.771	.888	.908	.715

Frequency of Response By District

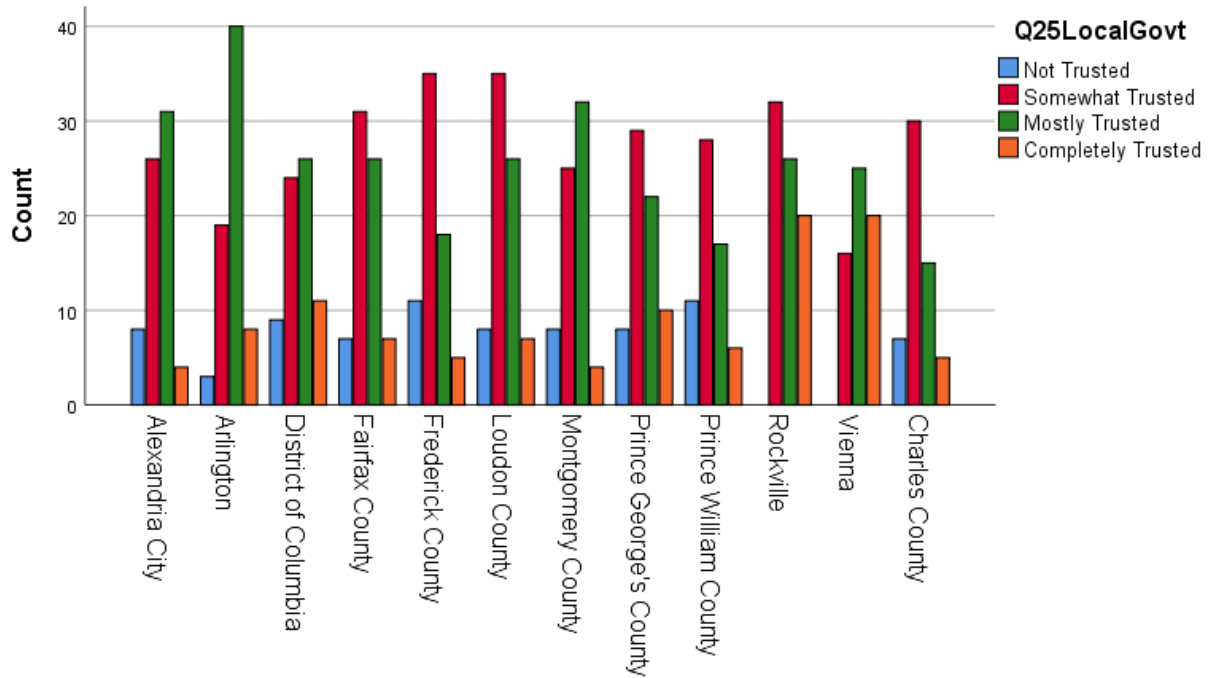
	Water Utilities				Total
	Not Trusted	Somewhat Trusted	Mostly Trusted	Completely Trusted	
Alexandria City	4	30	30	5	69
Arlington	5	22	34	9	70
District of Columbia	11	19	25	15	70
Fairfax County	2	24	34	11	71
Frederick County	5	33	25	6	69
Loudon County	1	24	38	13	76
Montgomery County	6	20	37	6	69
Prince George's County	5	31	23	10	69
Prince William County	6	17	28	11	62
Rockville	1	32	31	14	78
Vienna	0	19	24	18	61
Charles County	1	32	18	6	57
Total	47	303	347	124	821



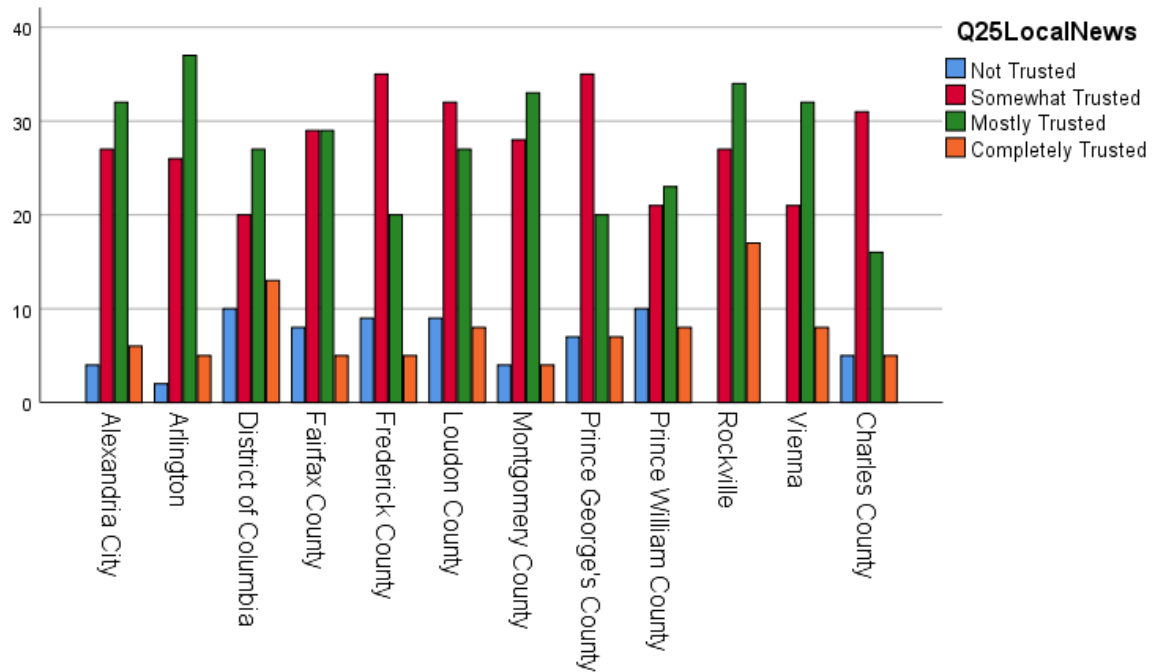
	Wastewater Utilities				Total
	Not Trusted	Somewhat Trusted	Mostly Trusted	Completely Trusted	
Alexandria City	8	27	31	3	69
Arlington	6	25	31	8	70
District of Columbia	7	26	22	15	70
Fairfax County	3	28	30	10	71
Frederick County	5	30	30	4	69
Loudon County	1	27	38	10	76
Montgomery County	6	23	35	5	69
Prince George's County	6	32	22	9	69
Prince William County	6	21	26	9	62
Rockville	5	28	28	17	78
Vienna	1	18	24	18	61
Charles County	3	26	21	7	57
Total	57	311	338	115	821



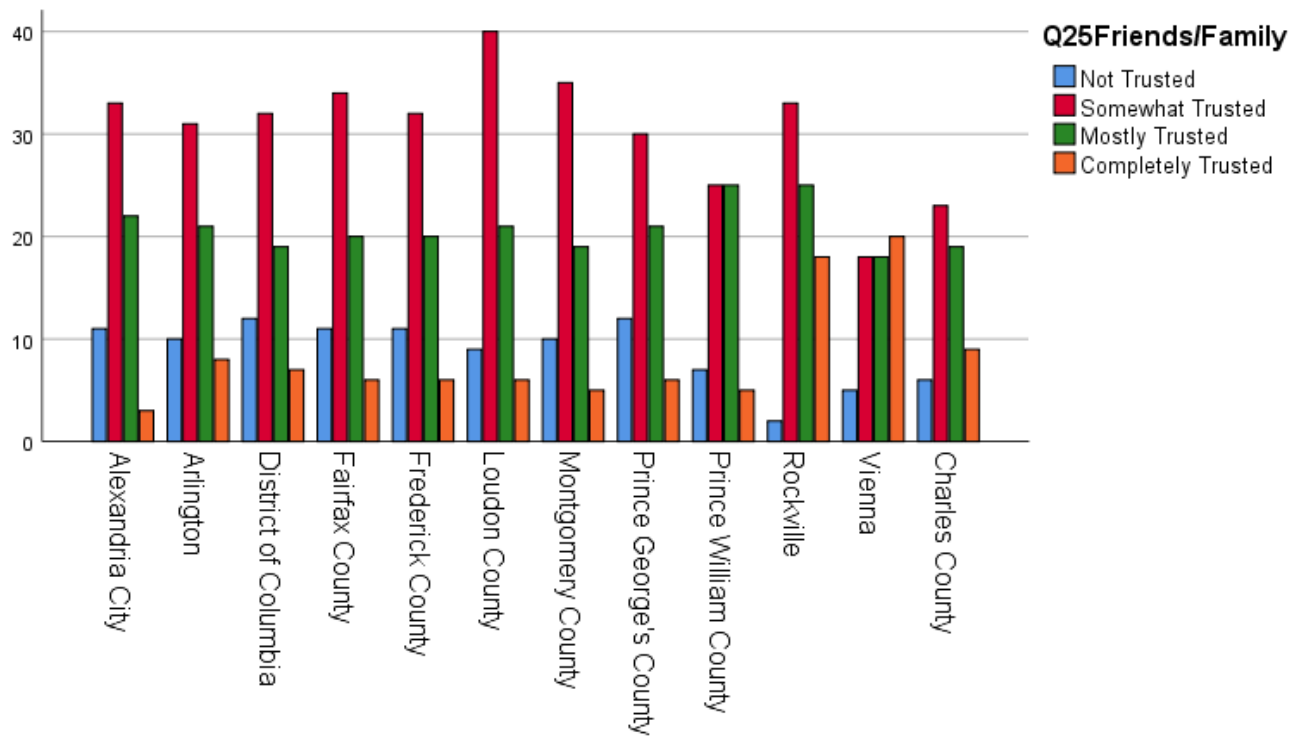
	Local Govt				Total
	Not Trusted	Somewhat Trusted	Mostly Trusted	Completely Trusted	
Alexandria City	8	26	31	4	69
Arlington	3	19	40	8	70
District of Columbia	9	24	26	11	70
Fairfax County	7	31	26	7	71
Frederick County	11	35	18	5	69
Loudon County	8	35	26	7	76
Montgomery County	8	25	32	4	69
Prince George's County	8	29	22	10	69
Prince William County	11	28	17	6	62
Rockville	0	32	26	20	78
Vienna	0	16	25	20	61
Charles County	7	30	15	5	57
Total	80	330	304	107	821



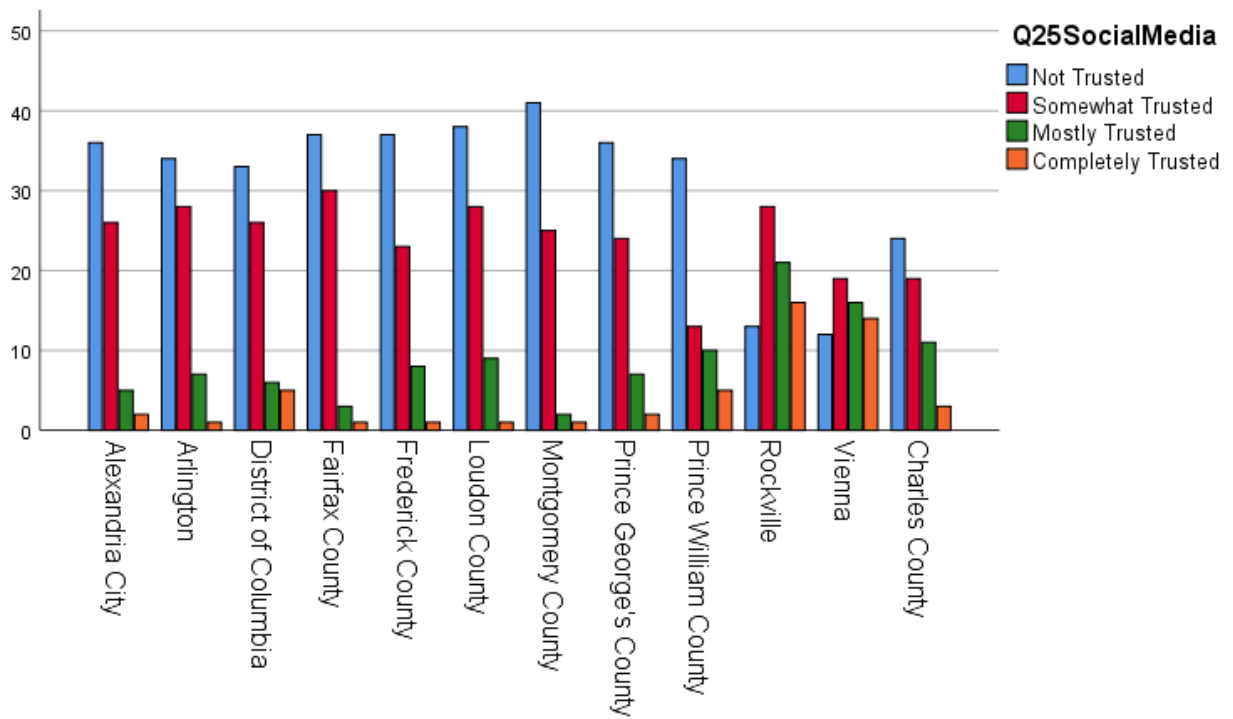
	Local News				Total
	Not Trusted	Somewhat Trusted	Mostly Trusted	Completely Trusted	
Alexandria City	4	27	32	6	69
Arlington	2	26	37	5	70
District of Columbia	10	20	27	13	70
Fairfax County	8	29	29	5	71
Frederick County	9	35	20	5	69
Loudon County	9	32	27	8	76
Montgomery County	4	28	33	4	69
Prince George's County	7	35	20	7	69
Prince William County	10	21	23	8	62
Rockville	0	27	34	17	78
Vienna	0	21	32	8	61
Charles County	5	31	16	5	57
Total	68	332	330	91	821



	Friends/ Family				Total
	Not Trusted	Somewhat Trusted	Mostly Trusted	Completely Trusted	
Alexandria City	11	33	22	3	69
Arlington	10	31	21	8	70
District of Columbia	12	32	19	7	70
Fairfax County	11	34	20	6	71
Frederick County	11	32	20	6	69
Loudon County	9	40	21	6	76
Montgomery County	10	35	19	5	69
Prince George's County	12	30	21	6	69
Prince William County	7	25	25	5	62
Rockville	2	33	25	18	78
Vienna	5	18	18	20	61
Charles County	6	23	19	9	57
Total	106	366	250	99	821



	Social Media				Total
	Not Trusted	Somewhat Trusted	Mostly Trusted	Completely Trusted	
Alexandria City	36	26	5	2	69
Arlington	34	28	7	1	70
District of Columbia	33	26	6	5	70
Fairfax County	37	30	3	1	71
Frederick County	37	23	8	1	69
Loudon County	38	28	9	1	76
Montgomery County	41	25	2	1	69
Prince George's County	36	24	7	2	69
Prince William County	34	13	10	5	62
Rockville	13	28	21	16	78
Vienna	12	19	16	14	61
Charles County	24	19	11	3	57
Total	375	289	105	52	821



MWCOG Survey 2020

Start of Block: Default Question Block

Q1 Metropolitan Washington Drinking Water and Wastewater Use Survey The Metropolitan Washington Council of Governments, on behalf of its member drinking water and wastewater utilities, is conducting this survey to help the agencies better communicate with you—their customers—on a number of topics. It should take you no more than 10 minutes to complete. Your answers are strictly anonymous. Definitions of survey terms: “Drinking water utility” means the same as “water utility”. “Drinking water” means the same as “tap water” or water that comes from a faucet.

End of Block: Default Question Block

Start of Block: Screening Questions



Q32YearOfBirth In what year were you born? (four-digit year)

Skip To: End of Block If Condition: In what year were you born?... Is Greater Than or Equal to 2002. Skip To: End of Block.



Q1waterprovider My drinking water service is provided by:

- A utility (1)
- A private well (0)

Skip To: End of Block If My drinking water service is provided by: = A private well



Q2sewerprovider My wastewater service is provided by:

- A utility (1)
- A private septic system (0)

Skip To: End of Block If My wastewater service is provided by: = A private septic system



Q26Zipcode Please enter your five-digit home zip code

End of Block: Screening Questions

Start of Block: Block 3

Q3SameUtility Does the same utility provide both your drinking water and wastewater service, or are they different for each?

- Same utility (1)
- Different utilities for each (2)
- I don't know (3)



Q4TapDrinkFrequency When I want to drink water, I drink water from a faucet (i.e. “tap water”):

- Always (4)
- Most of the time (3)
- Sometimes (2)
- Rarely (1)
- Never (0)

End of Block: Block 3

Start of Block: WhyNeverDrink

Display This Question:

If When I want to drink water, I drink water from a faucet (i.e. “tap water”): = Rarely

Or When I want to drink water, I drink water from a faucet (i.e. “tap water”): = Never



Q5WhyNeverDrink If you chose “rarely” or “never” in the previous question, please indicate why. (Check all that apply)

- Taste (1)
- Odor (2)
- Safety Concerns (3)
- Convenience (4)
- Other (5) _____

Display This Question:

If If you chose “rarely” or “never” in the previous question, please indicate why. (Check all that a... = Safety Concerns

Q6SafetyExplain What concerns you about the safety of drinking water from your faucet?

End of Block: WhyNeverDrink

Start of Block: Block 4



Q7DrinkBottled How often do you drink bottled water?

- Daily (4)
- Weekly (3)
- Monthly (2)
- Rarely (1)
- Never (0)



Q8HowYouDispose How often does your household dispose of the following via drain or toilet?

	Never (0)	Rarely (1)	Sometimes (2)	Most of the Time (3)	Always (4)
Medications (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Regular Wipes (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Flushable Wipes (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Facial Tissues (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cooking Grease (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Paper Towels (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dental Floss (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Page Break



Q9SafeToFlush In terms of the integrity of your household's plumbing and the quality of your community's water supply and the environment, how safe do you think it is to dispose of the following via drain or toilet?

	Not Safe (0)	Somewhat Unsafe (1)	Likely Safe (2)	Completely Safe (3)
Medications (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Regular Wipes (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Flushable Wipes (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Facial Tissues (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cooking Grease (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Paper Towels (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dental Floss (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Display This Question:
If How often does your household dispose of the following via drain or toilet? = Medications [Never]



Q10DisposeMeds How does your household dispose of unwanted medications? (Check all that apply)

- Semi-annual drug take back day (1)
- Use permanent dropbox at pharmacy (2)
- Use permanent dropbox at government facility (3)
- Throw them in the trash (4)
- Other (5) _____

End of Block: Block 4

Start of Block: Block 5



Q11ImageRecall Area water and wastewater utilities have launched a regional advertising campaign to help remind consumers how to protect their pipes from fats, oils and grease, wipes, and medication. Which of the following images can you recall having seen before?

	I recall seeing this image (1)	I DO NOT recall seeing this image (0)
Image:Pyp characters fog (Q11Grease)	<input type="radio"/>	<input type="radio"/>
Image:Pyp characters meds (Q11Medicine)	<input type="radio"/>	<input type="radio"/>
Image:Pyp characters wipes (Q11Wipes)	<input type="radio"/>	<input type="radio"/>
Image:Protectyourpipes (Q11ProtectOurPipes)	<input type="radio"/>	<input type="radio"/>

Display This Question:

If Area water and wastewater utilities have launched a regional advertising campaign to help remind... = I recall seeing this image



Q12WhereSawImages Can you recall where you saw any of those images? Please check all that apply.

- Signs/Advertisements (1)
- Utility communications (events/school outreach) (2)
- Social media (3)
- I don't recall (4)

End of Block: Block 5

Start of Block: Block 6



Q13SaltFreq During snowy and icy conditions, how often (if at all) does someone apply salt at your residence?

- Always (4)
- Most of the time (3)
- Sometimes (2)
- Rarely (1)
- Never (0)



Q14WaterSource The source of my drinking water is (check all that apply):

- Occoquan Reservoir (1)
- Area Lakes and Streams (2)
- Atlantic Ocean (3)
- Chesapeake Bay (4)
- The Potomac River (5)
- The Patuxent River and reservoirs (6)
- Groundwater (7)
- I Don't Know (8)



Q15Runoff How safe are the following materials for local waterways when they enter stormdrains or through runoff?

	Not Safe (0)	Somewhat Unsafe (1)	Likely Safe (2)	Completely Safe (3)
Lawn Fertilizer (Q15LawnFert)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pet Waste (Q15PetWaste)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Car Fluids (oil, antifreeze, brake fluid) (Q15CarFluids)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Salt (for de-icing driveways and walkways) (Q15Salt)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Attention Check: Please check "Completely Safe" (Q15AttnChk3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Herbicide/Weed Killer (Q15Herbicide)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Skip To: End of Block If How safe are the following materials for local waterways when they enter stormdrains or through r... != Attention Check: Please check "Completely Safe" [Completely Safe]

Page Break



Q16RateWaterUtil Please rate your drinking water utility on the following:

	Poor (1)	Below Average (2)	Average (3)	Above Average (4)	Excellent (5)
Quality of Water (Q16Quality)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Taste of Water (Q16Taste)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Customer Service Responsiveness (Q16Responsive)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Customer Service Friendliness (Q16Friendly)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Value of Service (Q16Value)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Display This Question:

If Does the same utility provide both your drinking water and wastewater service, or are they differ... = Different utilities for each



Q17RateWastewater Please rate your wastewater utility on the following:

	Poor (1)	Below Average (2)	Average (3)	Above Average (4)	Excellent (5)
Customer Service Responsiveness (Q17WasteResponsive)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Customer Service Friendliness (Q17WasteFriendly)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Value of Service (Q17WasteValue)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Page Break



Q18Infrastructure What is the condition of your water and wastewater infrastructure (mains, pipes, water pumps, treatment facilities, etc.) in your community?

- Excellent (2)
- Good (1)
- Adequate (0)
- Needs Minor Improvements (-2)
- Need Major Improvements (-1)



Q19TrustedOfficials How much do you trust the following groups to make smart decisions about infrastructure investments such as new pipes, pumps, or treatment processes?

	Not Trusted (0)	Somewhat Trusted (1)	Mostly Trusted (2)	Completely Trusted (3)
Utility Officials (Q19UtilityOfficials)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Elected Officials (Q19ElectedOfficials)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



Q20EffectiveComms How effective are the following for getting your questions answered by your water utility:

	Not at all Effective (0)	Somewhat Effective (1)	Mostly Effective (2)	Very Effective (3)
Phone (Q20Phone)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Website (Q20Web)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Email (Q20Email)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Facebook (Q20Facebook)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Twitter (Q20Twitter)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In-Person (Q20InPerson)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Display This Question:
If Does the same utility provide both your drinking water and wastewater service, or are they differ... = Different utilities for each



Q21WasteComms How effective are the following for getting your questions answered by your wastewater utility:

	Not at all Effective (0)	Somewhat Effective (1)	Mostly Effective (2)	Very Effective (3)
Phone (Q21Phone)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Website (Q21Web)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Email (Q21Email)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Facebook (Q21Facebook)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Twitter (Q21Twitter)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In-Person (Q21InPerson)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Page Break



Q22SinglePreferred Please indicate your SINGLE preferred method for your water utility to contact you about EACH of the following issues:

	Email (1)	Facebook (2)	Phone (3)	Twitter (4)	Text (5)	Mail (6)
Billing and payment updates (Q22Billing)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Non-urgent service updates (routine maintenance, new service or payment options) (Q22NonUrgent)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Emergency updates (boil advisories, disruptions in service) (Q22Emergency)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Water quality reports (Q22WaterQuality)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Rate increases (Q22RateIncrease)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



Q23RaiseService When my water and/or wastewater utility raises rates, it's to enhance the quality of its service.

- Strongly agree (2)
 - Somewhat agree (1)
 - Neither agree nor disagree (0)
 - Somewhat disagree (-1)
 - Strongly disagree (-2)
-



Q24RateFreq How often does your water and/or wastewater utility raise its rates?

- Frequently (3)
 - Occasionally (2)
 - Rarely (1)
 - Never (0)
-



Q25TrustInfo The sources I trust most for information about my drinking water or wastewater service are:

	Not Trusted (0)	Somewhat Trusted (1)	Mostly Trusted (2)	Completely Trusted (3)
Drinking Water Utility (Q25WaterUtil)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Wastewater Utility (Q25WasteWaterUtil)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Local Government (Q25LocalGovt)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Local News (Q25LocalNews)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Friends/Family (Q25Friends/Family)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Social Media (Q25SocialMedia)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Public Service Announcement (Q25PSAs)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



Q27YearsInDC How many years have you lived in the Metro DC area? (one or two digit number)



Q28OwnOrRent Do you own or rent your residence?

Own (1)

Rent (0)



Q29Billpayer Are you the person in the household who typically pays the bill for water and/or wastewater service?

Yes (1)

No (0)



Q30DwellingType Which of the following best describes your dwelling?

Single family home (1)

Townhome (2)

Apartment/Condominium (3)

Other (4) _____



Q31BilledDirectly Is your household billed directly by the utility for its water and/or wastewater service, or is it included in another fee such as monthly rent, condo fees, or homeowner association fees?

- The household is billed directly by the utility (1)
 - Water and wastewater service are included in another fee such as rent or homeowner association fees (2)
 - N/A, I don't know (3)
-

Q33Ethnicity Which of the following best describes your ethnicity?

- African-American/Black (1)
 - Asian (2)
 - Hispanic/Latino (3)
 - Native American (4)
 - Pacific Islander (5)
 - White/Caucasian (6)
 - Other (7) _____
-

Q34Income What is your household's average annual combined income?

- \$0-\$25,000 (1)
 - \$25,001-\$50,000 (2)
 - \$50,001-\$75,000 (3)
 - \$75,001-\$100,000 (4)
 - \$100,001-\$125,000 (5)
 - \$125,001-\$150,000 (6)
 - \$150,001-\$175,000 (7)
 - \$175,001-\$200,000 (8)
 - \$200,001-\$225,000 (9)
 - \$225,001-\$250,000 (10)
 - More than \$250,000 (11)
-

Q35 Gender In terms of gender, I identify as:

- Female (1)
- Male (2)
- Transgender Female (3)
- Transgender Male (4)
- Gender Variant/Non-Conforming (5)
- Other (6) _____
- Prefer Not to Answer (7)

End of Block: Block 6
