

Northeast Ohio Regional Sewer District

Advertising and Rate Change Perception Survey

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The Baldwin-Wallace College Community Research Institute

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## **Executive Summary**

In late November-early December 2011 the Community Research Institute at Baldwin-Wallace College conducted a survey of the residents of the service area of the Northeast Ohio Sewer District. A total of 508 adults from owner-occupied residences were interviewed from November 28 – December 9, 2011. For the data collected from those 508 answers, the approximate confidence level was 95 percent and the confidence interval was  $\pm 4.4\%$ . The sample was derived from a customer address database provided by the Northeast Ohio Regional Sewer District, and represents sampling from all of the communities served by the NEORSD.

The survey involved new questions for 2011 concerning awareness of planned NEORSD rate increases and reasons for this, as well as asking about usage of social media. Questions concerning priorities for the NEORSD, public campaign awareness, and demographics were continued from the 2009 and 2010 surveys, allowing for comparative analysis of three years of data.

Highlights of the 2011 survey findings:

- 81% of respondents were aware of planned rate increases for the NEORSD; 70% believe the increase will occur in 2012, and 48% think the increase will be more than \$15/month;
- 78% think the increase is needed to pay for improvements to the NEORSD, while 68% think it is due to increased operating costs to the NEORSD; the actual reasons for the increase were identified by 45% (EPA requirements) and 57% (stopping sewage flow into Lake Erie) of respondents;
- 54% of respondents are aware of the affordability program, with higher levels of awareness among low and middle income households compared to higher income households;
- Awareness of the ‘Where Does It Go?’ campaign increased from 19% in 2010 to 23% in 2011, as did exposure to the ‘Pick Up Poop’ campaign (30% in 2010; 36% in 2011); awareness of the ‘Once Grey, Now Green’ campaign was steady (18% in 2010; 17% in 2011), while exposure to the ‘Wally Waterdrop’ campaign was less than 9% for each year;
- Direct mail and print media had the highest gains as sources of awareness of NEORSD campaigns, with direct mail identification increasing from 17% in 2010 to 38% in 2011, and print media increasing from 33% in 2009 to 40% in 2011. Billboard recognition increased from 15% to 18%; radio declined 8 percentage points, and TV declined 11 percentage points during this period, while Internet recognition remained roughly the same at 8%;

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- Social media were used by 64% of respondents in 2011; YouTube had the highest usage at 41%, followed closely by Facebook at 38%, and Google+ at 19%, while other social media (Twitter, MySpace, Flickr, LinkedIn) came in at less than 10%;
  - ‘Cleanliness of the lake (Erie)’ continues to be the highest priority concern for respondents, rising from 55% in 2009 to 66% in 2011. The proportion of respondents willing to pay an additional \$10/month to address this issue declined from 44% in 2009 to 37% in 2011. Erosion rose as a top concern from 21% in 2009 to 38% in 2011, with increases in respondent willingness to pay an additional \$10/month to address the issue (33% in 2009; 44% in 2011);
  - Respondent identification of agencies responsible for handling their concerns continues to demonstrate that, with aided recall, the NEORSD has the highest level of identification (87% in 2009, 83% in 2010, 86% in 2011).

## **Survey and Sample Overview**

### **A. Survey overview**

The Northeast Ohio Regional Sewer District (NEORS) contracted with the Baldwin-Wallace College Community Research Institute (CRI) to provide a randomized telephone survey of NEORS ratepayers designed to measure their opinions about the recent advertising campaign of the NEORS, their perceptions about the messages that the campaign conveyed and the different functions of the agency, their usage of social media, and their knowledge of the upcoming rate increase. The survey was conducted between the hours of 6:00 p.m. – 9:00 p.m. on November 28<sup>th</sup> – December 9<sup>th</sup> (excluding Saturday and Sunday evenings) by students from Baldwin-Wallace College in the CRI survey lab under the supervision of Drs. Pierre David and Thomas Sutton, principal investigators for this study. The survey resulted in collection of 508 completed responses from a randomized list of phone numbers generated from a service address database provided by the NEORS.

The survey margin of error for a sample of this size is  $\pm 4.4\%$  with a 95% confidence level for those questions where the answers are near 50 percent (when respondents are evenly divided between yes and no, or pro and con); nevertheless, the margin of error is at or below  $\pm 3.1\%$  with a 95% confidence level for those questions where the answer distribution is at or below 15% - 85% proportionality.

### **B. Sample procedures**

The NEORS provided a database of addresses for the District's service area. The NEORS also provided separate lists for Berea, North Royalton and Cleveland Heights. There were more than 150,000 records in the main database, which included service and billing addresses. A random sample was taken from the list of accounts in the database, with the following constraints:

1. The account had to be active.
2. The account had to be residential.
3. The service and billing addresses had to be identical, to insure that responses were only gathered from owner-occupied households.

The random sample was stratified by taking random respondents from all ZIP codes and cities listed to ensure a good geographical coverage of the District's service area. For most combinations of cities and ZIP codes, exactly nine (9) responses were generated, with a few exceptions, such as combinations of cities and ZIP codes for which there were a very small number of households. In those cases, either three (3) or four (4) respondents were interviewed. For a few very large-population ZIP codes, two samples were taken, for a total of eighteen (18) households polled.

For all cities, the sampling procedure was the following:

1. A list was generated of all residential active accounts for which the service and billing addresses were identical.

2. A random number generator was used to select one address in that list. That particular address and twenty-four others that were immediately following it in the database were selected. Since the database was ordered by neighborhood, the neighbors can be assumed to have been relatively similar to the person whose name and address had been randomly selected. This process is identical to the one followed by the company generating the television Nielsen Ratings.
3. The phone numbers of these twenty-five addresses were subsequently researched using the electronic white pages. At least twelve good phone numbers were found in every instance; good phone numbers were those for which a match was found between the owner's name and the white pages' listing.
4. The first twelve numbers found were then consecutively called until a respondent was willing to take the survey. Good surveys were one where the respondent completed at least 85% of the questions.
5. The process was repeated nine times for each combination of city and ZIP code.
6. Phone lists provided to survey callers were divided into blocks of twelve phone numbers; callers were instructed to complete one survey for each block, and to then move to the next block of numbers. In all cases, there was one respondent willing to take the survey in each of the blocks generated.

For the cities of Berea, North Royalton and Cleveland Heights, the procedure was identical, but applied on a different electronic database; the lists generated were conceptually and practically identical to the ones generated from the main database.

The report compares data collected in the 2011 survey with data collected in 2009 and 2010. The cumulative data comparison involves questions about the following topics:

- Respondent service priorities for the NEORS D;
- Willingness to pay higher fees to address service priorities;
- Awareness of agencies responsible for service priorities;
- Awareness of the NEORS D as a service provider;
- Exposure to NEORS D promotional campaigns;
- Respondent demographic data;

New questions for the 2011 survey were added concerning the following topics:

- Awareness of respondents about impending increases in NEORS D service rates;
- Perceptions of respondents concerning reasons for rate increases;
- Awareness of NEORS D affordability programs;
- Usage of social media by respondents (e.g., Facebook, Twitter.)

Topics not included in the 2011 survey that were included in the 2010 NEORS D survey:

- Respondent usage of radio, TV, and print media;
- Perceptions of NEORS D promotional campaigns through use of these media;

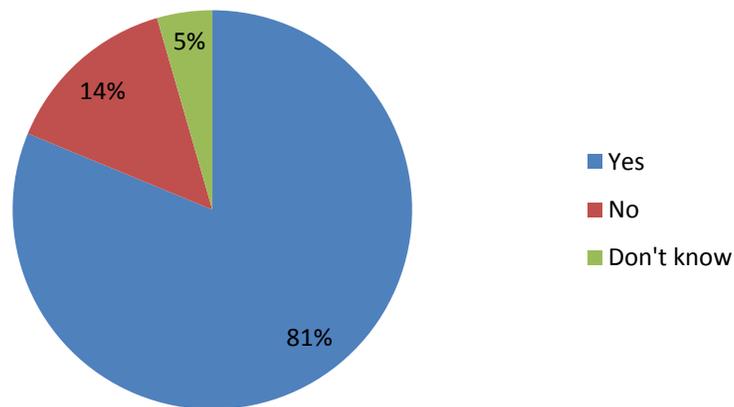
The report is divided into six parts. The first three parts report the results of the new questions asked in the 2011 survey concerning respondent awareness of planned rate

increases, rationale for the increases, affordability programs, and usage of social media. This is followed by comparative analysis of the data collected in 2009, 2010, and 2011, concluding with analysis of sample demographics.

## Part I: Respondent Perceptions of Planned NEORSD Rate Increases

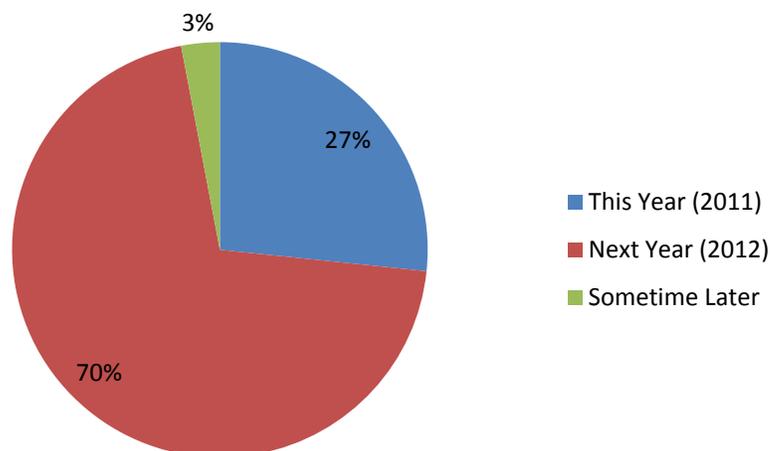
Respondents were asked a series of questions gauging their awareness and perceptions of planned rate increases by the Northeast Ohio Regional Sewer District. The results shown in Figure 1 are responses to the question, “In the past few months, have you read or heard anything about an increase in your bill for your sewer service?”

**Figure 1: Awareness of future NEORSD rate increases**



It is clear from Figure 1 that respondents were aware of planned rate increases, with 81% reporting yes.

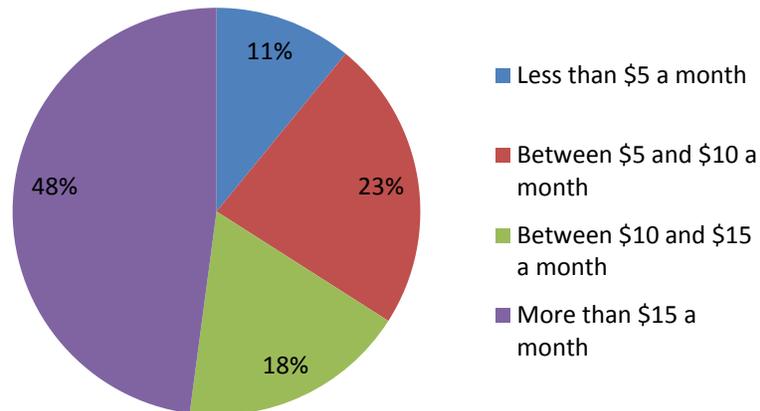
**Figure 2: When Respondents think the rate increase will occur**



Respondents were asked, “Do you recall when this is likely to take place? Is this increase going to take place this year (2011), next year (2012), the year after that (2013), or sometime later than that?” A substantial majority of 70% believe the increase will occur in 2012, while

27% believe the increase would occur in 2011. Only 3% thought the increase would occur in 2013 or after.

**Figure 3: Respondent perceptions concerning amount of rate increase**

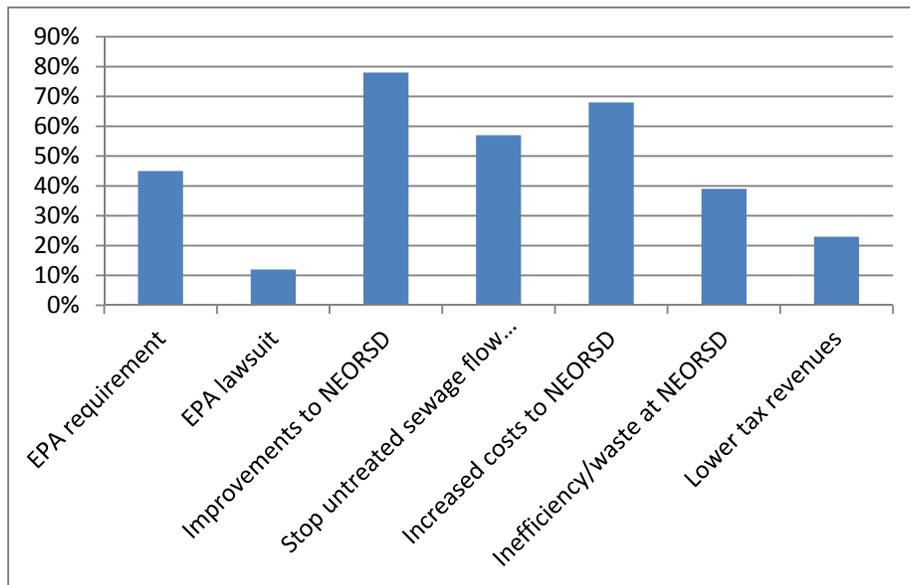


48% of respondents thought the rate increase would be higher than \$15/month, while only 11% thought it would be less than \$5/month. 23% thought the increase would be between \$5 and \$10/month, while 18% thought it would be between \$10 and \$15/month. The results may be explained by the following figures showing respondent perceptions of the reasons for planned rate increases.

Figure 4 shows the results of the following question asked of respondents: “I am going to list a number of reasons for this increase. Could you tell me which reasons you have heard?” This was followed by a list of causal factors:

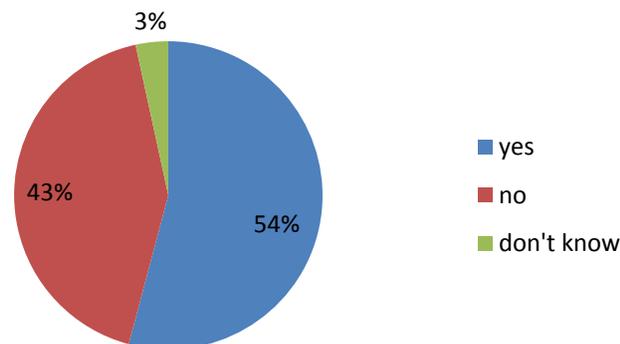
- EPA requirements
- EPA lawsuit settlement
- Improvements to the sewer system
- Stop the flow of untreated sewage into the lake
- Increased costs to the sewer district
- Inefficiencies and waste in the sewer district
- Lower tax revenues

**Figure 4: Reasons for NEORSD rate increase identified by Respondents**



The results in Figure 4 are presented in the order that each reason was given to respondents taking the survey. The actual reasons for the rate increase (EPA requirements and stopping the flow of untreated sewage into Lake Erie) received significant recognition at 45% and 57%. The highest response of 78% for improvements to the NEORSD could be considered a broad recognition of the actual reasons for the increase, without detailed identification. 68% identified increased costs to the NEORSD as the reason for the rate change, which parallels the responses that identified improvements to the NEORSD. Smaller percentages of respondents identified an EPA lawsuit (12%), lower tax revenues (23%) and inefficiency and waste at the NEORSD (39%) as reasons for the increase. The results suggest that public awareness education efforts by the NEORSD have been fairly effective at getting ratepayers to understand the reasons for increasing sewer rates.

**Figure 5: Percentage of Respondents who are aware of the NEORSD Affordability Program**



A majority of respondents are aware of the NEORSD affordability program. However, with 43% not being aware, more could be done to educate ratepayers about this option as a means of cushioning the effect of future rate increases for low and moderate income customers.

**Figure 6: Awareness of NEORSD affordability programs by respondent income level**

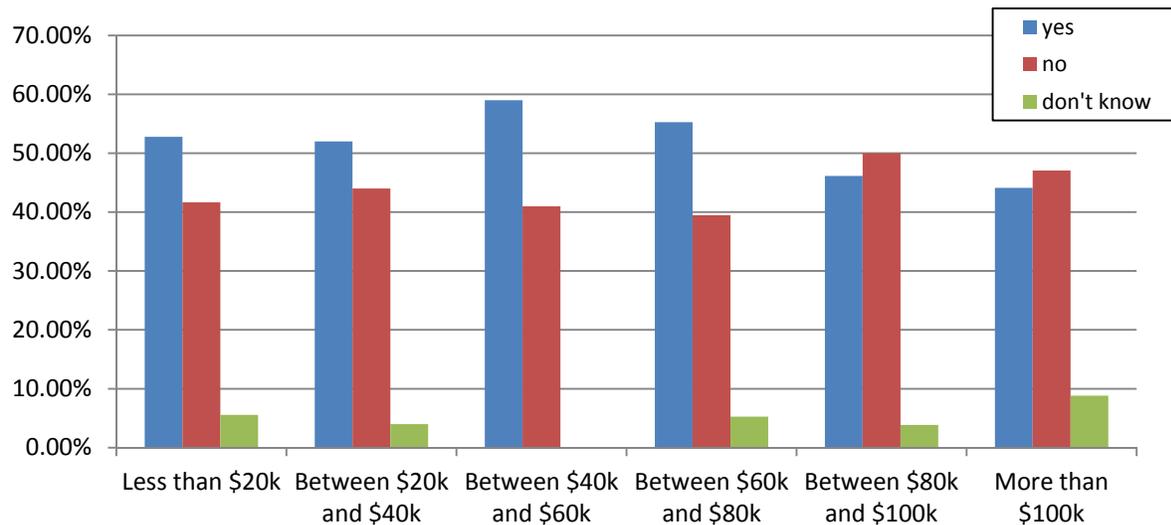
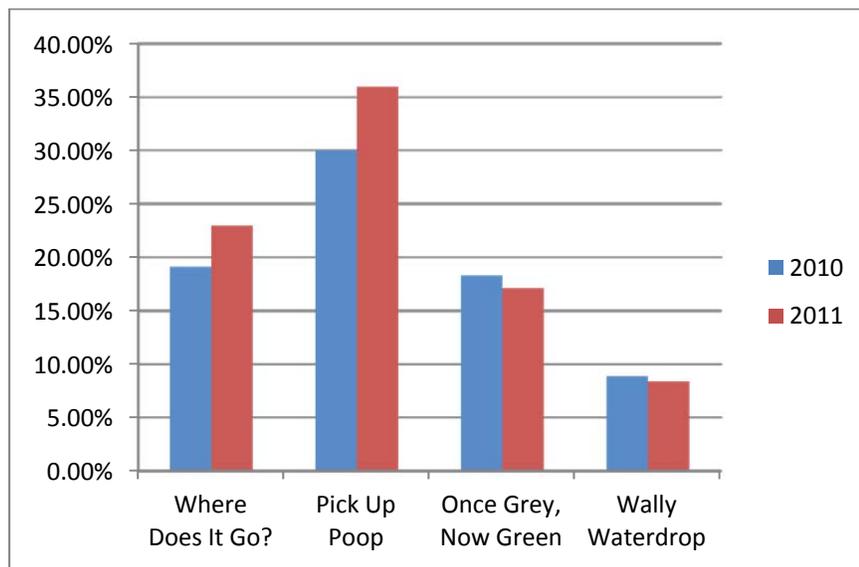


Figure 6 shows interesting results concerning awareness of the NEORSD affordability program by categories of household income. A majority of respondents with incomes ranging from less than \$20,000/year (53%) up to \$80,000/year (55%) were aware of the affordability program. However, less than half the respondents in the upper two income categories were aware of the affordability program (46% and 44%). The highest level of awareness was the middle income bracket of \$40,000 - \$60,000/year at 59%, while the lowest majority awareness category was the \$20,000 - \$40,000/year bracket at 52%.

## Part II: Respondent Perceptions of NEORSD Public Awareness Campaigns

Respondents were asked a series of questions in the 2010 and 2011 surveys gauging their awareness of a series of NEORSD public awareness campaigns: ‘Where Does It Go?’, ‘Pick Up Poop,’ ‘Once Grey, Now Green,’ and ‘Wally Waterdrop.’ Respondents were asked if they had heard of each of the campaigns, and on what type of media (radio, TV, Internet, print, billboard/sign, community event, mail.) A final set of questions asked if the campaigns had any effect on their behavior.

**Figure 7: Respondent awareness of NEORSD campaigns**



Awareness of NEORSD campaigns ranged from about one third of respondents recognizing the ‘Pick Up Poop’ campaign, to less than 9% having heard of the ‘Wally Waterdrop’ campaign. Survey results also show that awareness of the ‘Where Does It Go’ and ‘Pick Up Poop’ campaigns increased from 2010 to 2011. Awareness of the ‘Where Does It Go’ campaign increased from 19% in 2010 to 23% in 2011. Growing awareness of the ‘Pick Up Poop’ campaign was also evidenced, with 30% of respondents recognizing the campaign in 2010 and 36% having heard of the campaign in 2011. The low awareness of the ‘Wally Waterdrop’ campaign may be due to this being targeted at young children, while the majority of the respondent sample had no children in the household (70% in 2010; 76% in 2011). It is not clear why respondent awareness of the ‘Once Grey, Now Green’ campaign was lower, with a one percent drop in awareness from 2010 to 2011 (18% to 17%). However, the range of awareness of the campaigns compared to industry standards for customer recognition rates is considered quite good.

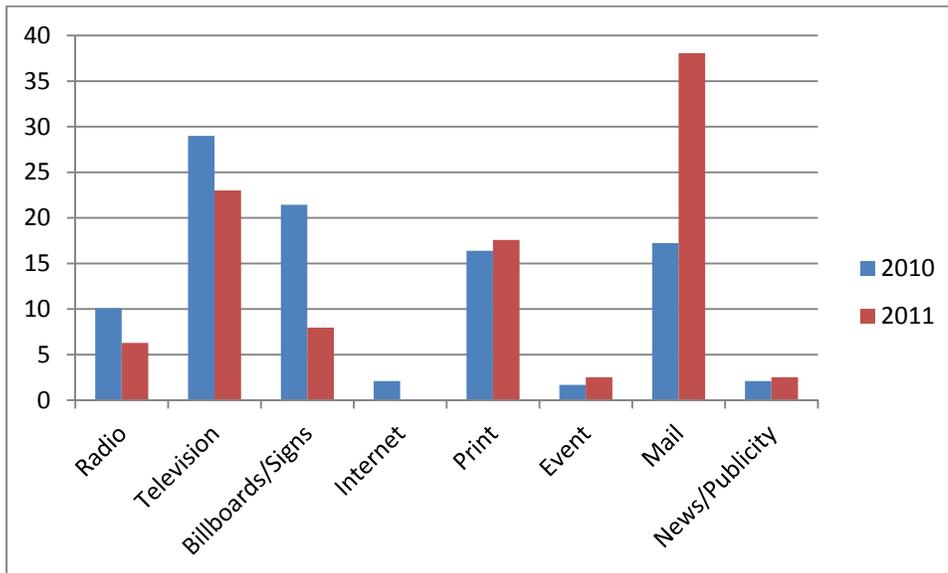
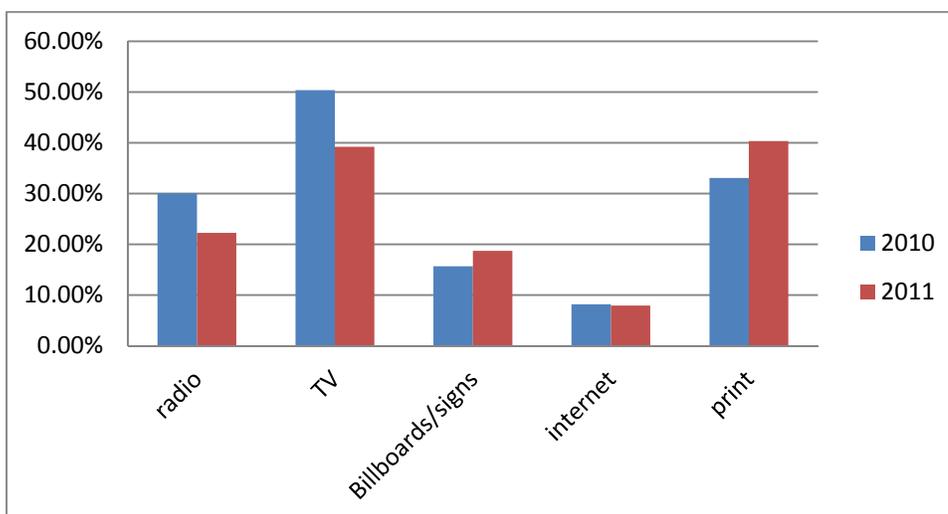
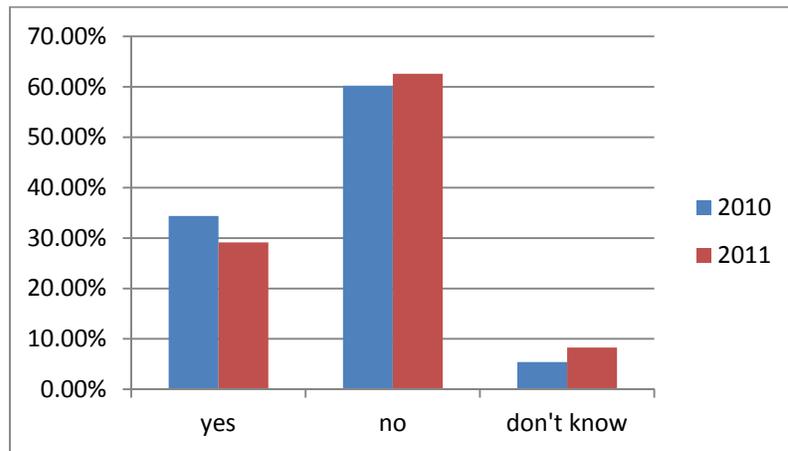
**Figure 8: Types of media where one or more of the campaigns was seen by respondents**

Figure 8 shows the unaided responses to the question, ‘Where did you see or hear the advertisement?’ following the question about whether respondents had seen an ad concerning the NEORSD (Figures 7-10). For 2010, TV had the highest identification at 29%, while for 2011 it was ‘mail’ that was identified by the most respondents (38%). With the exception of billboards/signs, all other non-electronic media increased slightly as sources of awareness from 2010 to 2011. The biggest source of increased awareness was mail, which more than doubled, rising from 17% to 38%. Electronic media as sources of awareness all dropped from 2010 to 2011: TV awareness dropped by 7 percentage points, radio by 4 percentage points, and Internet by 1.7 percentage points. The biggest decrease in awareness source was in billboard/signs, dropping from 21% in 2010 to 8% in 2011, a 13 percentage point decrease.

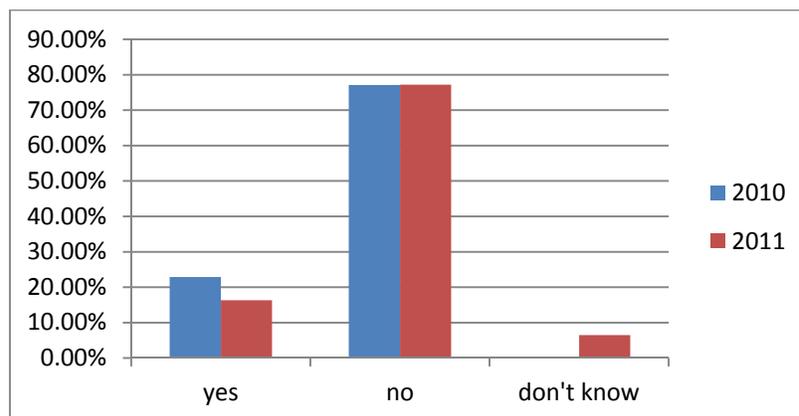
**Figure 9: Respondent media awareness of NEORSD campaigns**

Respondents were asked specifically if they had heard the NEORSD campaign on each of the media listed in Figure 9: radio, TV, billboards/signs, internet, and print (events, mail, and news/publicity identified in Figure 11 were identified by respondents independent of questions about specific types of media.) TV had the highest identification in 2010, with 50% of respondents saying they had seen an NEORSD campaign ad. TV was second in recognition in 2011 at 39%, only one point below print for that year. Electronic media as a source of recognition fell from 2010 to 2011, while billboards/signs and print each rose significantly. The decreases from 2010 to 2011 in electronic media were as follows: radio decreased 8 percentage points; TV decreased 11 percentage points, and Internet decreased very slightly, by .28 percentage points. The highest increase in recognition was for print, which rose 7 percentage points from 33% to 40%. Billboard/signs had a smaller increase of 3 percentage points, from 15% to 18%.

**Figure 10: Percentage of Respondents who have ‘learned something’ from the NEORSD campaign**



**Figure 11: Percentage of Respondents who have ‘changed something’ because of the NEORSD campaign**



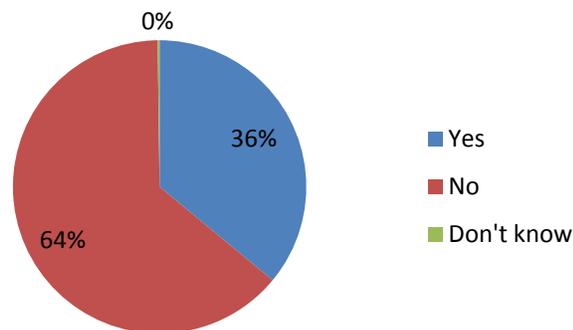
The effects of the NEORSD campaign appear to have decreased from 2010 to 2011. Respondents who agreed that they had 'learned something' from the NEORSD campaign dropped from 34% in 2010 to 29% in 2011. Those that said they had 'changed something' in their behavior as a result of the NEORSD campaigns declined from 23% in 2010 to 16% in 2011. These declines may be due to the initial success of the campaigns. As respondent awareness increases, the percentage who are newly exposed and therefore change their behavior may decline over time, a sign of success of the campaign. Growing public awareness of environmental issues and personal responsibility (e.g., community recycling, 'green' initiatives) may also be a factor in the relative decline of respondents identifying that they had either 'learned something' or changed their behavior as a result of exposure to the NEORSD campaign.

### Part III: Respondent Usage of Social Media

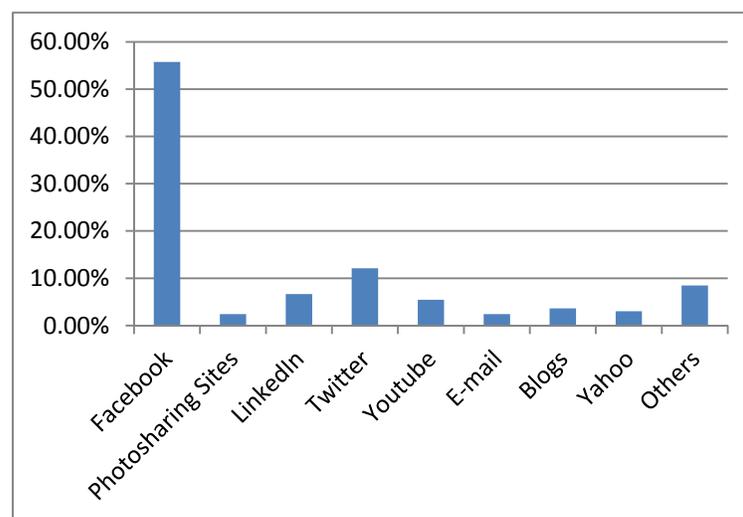
A new set of questions was added to the 2011 survey, seeking information about respondent usage of social media. The growing popularity of these platforms, along with increasing usage of portable devices such as smart phones and tablet computers, makes understanding usage of such media by NEORSD customers important for future campaigns. The relative low cost of using such media is also an important factor to consider.

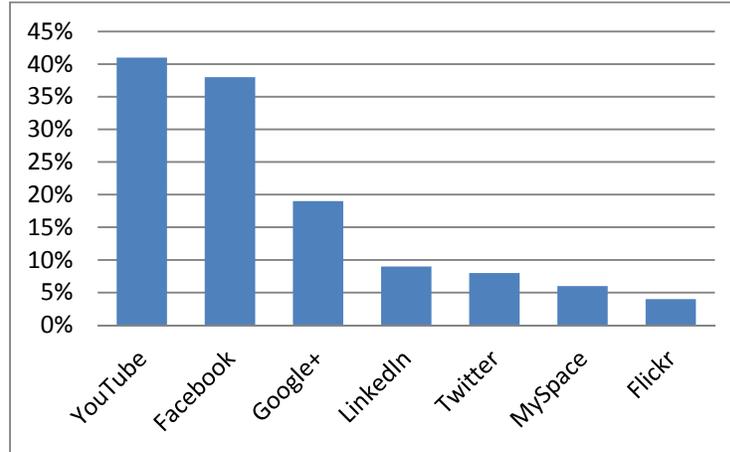
Respondents were first asked if they use any type of social media (the results are reported in Figures 12 and 13.) This was followed by questions about usage of specifically named social media: Facebook, Flickr, Google+, LinkedIn, Twitter, MySpace, and YouTube (results found in Figure 14.)

**Figure 12: ‘In the past year have you used any type of social media, such as blogs, social networking, video or photo sharing websites?’**



**Figure 13: Percentage of Respondents who use social media (unaided recall)**



**Figure 14: Types of social media used by Respondents**

It is clear that Facebook and YouTube are the most commonly used forms of social media. It appears that when asked as an open question (Figure 13), Facebook is the most commonly identified type of social media used by respondents (56%), while YouTube is identified by only 5% of respondents (Twitter was second at 12%.) This may be due to semantics; YouTube is not usually clearly identified as a form of social media, but rather as a video sharing tool. Unaided recall of other types of social media was low, ranging from 2% for email and photosharing sites, to 3% for Yahoo and 4% for blogs, to 7% for LinkedIn and 8% for 'others.'

When asked about specific forms of social media (Figure 14), respondents identified YouTube the most frequently (41%), closely followed by Facebook (38%). Google+ was third at 19%, while other forms of social media were all below 10% in usage. It is possible that the high response rate for Google+ was due to the high recognition level for Google as a search engine. Overall, internationally, the number of Facebook users is 450 million, and Google+ is at 60 million (December 2011 figures),<sup>1</sup> which would indicate that the 2:1 ratio found in the sample is not correct. If the international trends hold for Cleveland, the percentage of respondents who actually use Google+ may be closer to 5% of respondents than it is to the 19% found in the survey. The remaining social media tools were identified by less than 10% of respondents: 9% have used LinkedIn, 8% have used Twitter, 6% have used MySpace, and 4% have used Flickr.

The results indicate that social media-based awareness campaigns should concentrate on usage of Facebook and YouTube. LinkedIn and Twitter may be useful as a tool for connecting with customers with specific concerns or questions.

<sup>1</sup> Sorkin, Andrew, "Those millions on Facebook? Some may not actually visit," Dealbook, New York Times, February 6, 2012, and Eldon, Eric, "Another Report shows Google+ with 60M+ users, but active user count still unknown," Techcrunch.com, December 27, 2011.

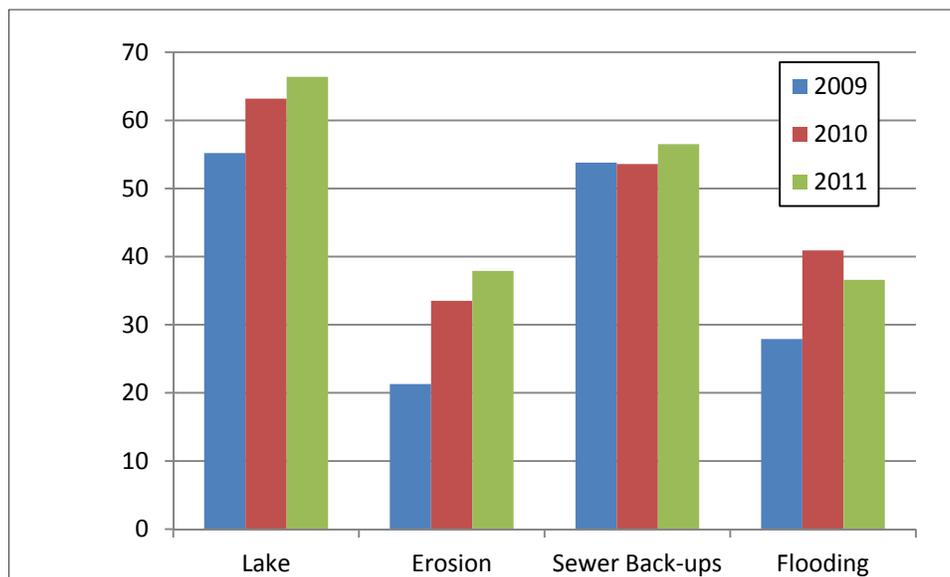
### Part IV: Respondent Priorities for NEORS D Activity

As in 2009 and 2010, respondents were asked to identify which of four issues facing Northeast Ohio were most important to them. The four issues were:

- The cleanliness of Lake Erie
- The erosion and flooding of streams and rivers
- Sewer back-up or water in your basement
- Street and yard floods

Figure 15 shows the percentage of respondents who listed each of these issues as “very important:” there was an increase in three issues, with the flooding issue being the only one for which there was a decrease (since respondents were asked to give two responses, the totals add up to more than 100%).

**Figure 15: Changes in the percentage of Respondents listing issues as “Very Important”**

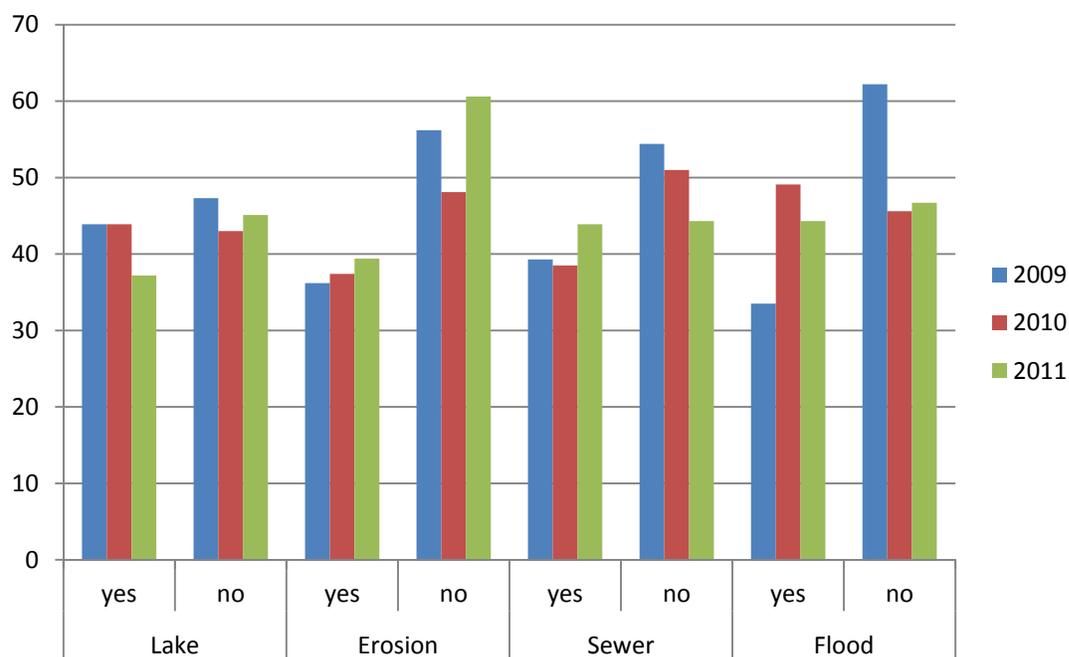


None of the differences observed from 2010 to 2011 were statistically significant; however, three of the changes between 2009 and 2011 were statistically significant, especially the change in the percentage of respondents who considered that the lake cleanliness was “very important,” an increase from 55% to 66%, and the change in the percentage of respondents who considered that the erosion of streams and rivers was very important, which increased from 21% to 38%. The respective statistical p-values of these changes in percentage were

0.1% and 0.02%.<sup>2</sup> Statistical tests were less conclusive about the change in the percentage of people who consider street and yard flooding as “very important” (from 28% to 37%, with a p-value of 5%), and not conclusive for the change in the percentage of people who considered sewer back-ups as “very important.” It is possible to speculate that the percentage of the population concerned about sewer back-ups is unchanged because only that portion of the population affected by this problem will consider it as very important.

Regarding people’s willingness to spend \$10 a month on each of these issues (a question that was asked only if respondents had listed that specific issue as one of the two that was most important to them), there were also some significant changes. Figure 16 illustrates the percentage of respondents who were willing to spend \$10 to improve the cleanliness of the lake, reduce erosion of rivers and stream, reduce basement sewer back-ups and decrease backyard and street floods, and the changes that occurred in those responses between 2009 and 2011.

**Figure 16: Changes in the percentage of Respondents willing to pay \$10 a month for specific improvements**



<sup>2</sup> A p-value of 1 percent means that there is only a one-percent chance that the percentage in the population has not actually changed, and that the difference observed between the two dates is due to chance alone.

Although there are some changes in the support for an additional fee, it is difficult to draw broad conclusions about the increase in the percentage of people willing to pay an extra \$10 a month for improvements in each of these areas:

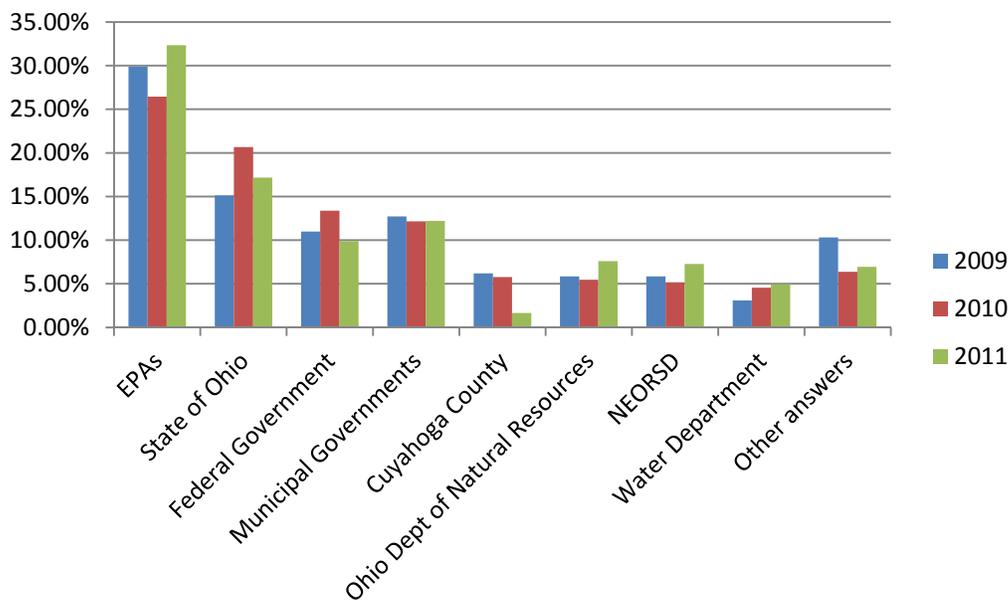
- The percentage of respondents who were willing to pay \$10 to support the cleanliness of Lake Erie decreased from 44% to 37% from 2010 to 2011, a significant decrease (p-value of 3%), but there was no significant increase in the percentage who were unwilling to do so (43% to 45%, with a p-value of 28%). The respondents who were no longer supportive were now undecided (responded that they “did not know”), which shows a decrease in support, which shows a reluctance to make the sacrifice, but not an opposition to it.
- The percentage of respondents who supported a \$10 fee for improvements in stream and river erosion did not statistically change (from 37% to 29%, p-value of 36%), but the percentage opposed to such a fee increased significantly (from 48% to 61%, with a p-value of 1%). The increase in the opposition came from respondents who previously were undecided about their support.
- The support for a fee to improve the situation regarding sewer back-ups was unchanged, and so was the opposition to it. Although the percentages changed slightly, they do not show statistically-significant differences. This shows that the respondents who are concerned about sewer back-ups are consistent in their answers and whether they are willing to pay to alleviate the problem.
- There were no statistically significant changes in the support of a \$10 fee to improve backyard and street floods, but the support seen in 2011 was statistically different from the support obtained in 2009 (from 33% to 44%, with a p-value of 3%), and so was the decrease in the percentage of people who were **not** willing to pay \$10 for floods (from 62 to 47 percent, with a p-value of 0.4 percent).

While the awareness results are very strong, the respondents’ willingness to pay for improvements in the cleanliness of the lake, or erosion, or sewer back-ups has not increased, or, at least, not increased commensurately with awareness. However, since the respondents were faced with generally-negative coverage in *The Plain Dealer*, the *Sun-Post*, and the *Akron-Beacon Journal*, as well as negative news reports on the local news channels, and a negative discourse from the political leadership, decreases in the level of support should have been anticipated. It is therefore very likely that the efforts at communication by the Regional Sewer District have had a positive impact on results.

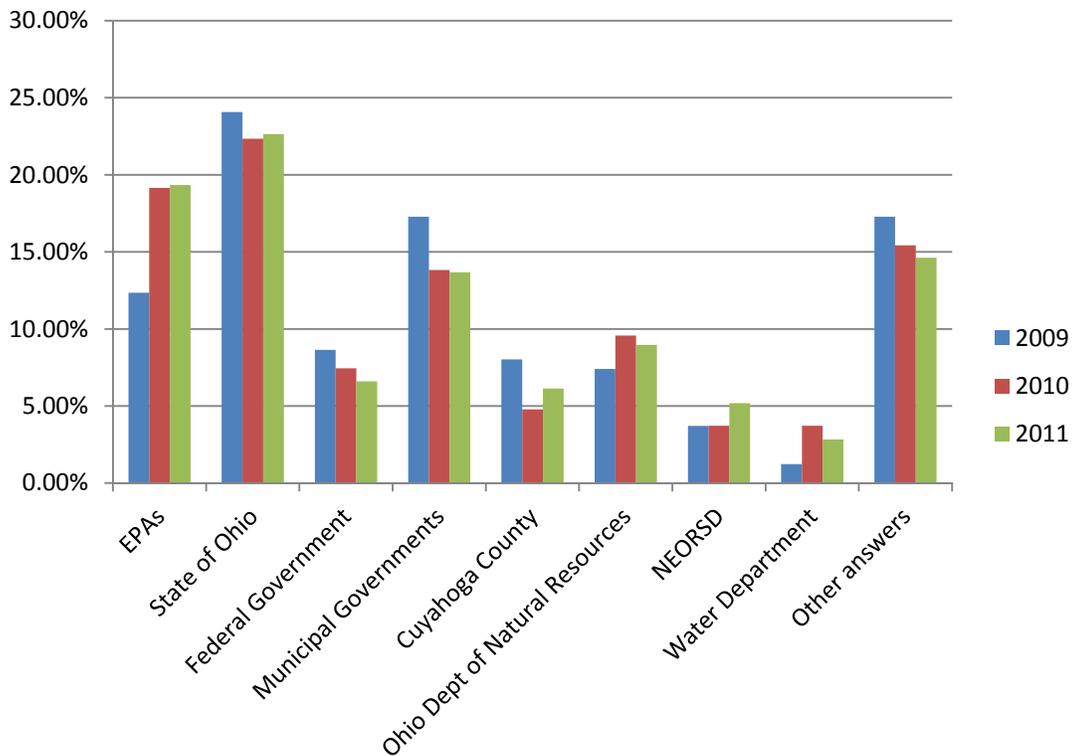
## Part V: Respondent Perceptions of Agency Functions

Respondents were asked a series of questions in each of the three years of the survey about which public agency they thought was responsible for handling the two primary issues they had identified as being the most important (results of issue identification are found in Part IV.) These were open-ended questions, phrased as follows: ‘In your opinion, which of the government agencies has the primary responsibilities for...?’ First and second responses were recorded by survey staff, and then compiled into a common set of agency responses listed in Figures 17 – 20. The four issues of concern are cleanliness of the lake, erosion control, sewer back-ups, and street flooding. Figure 21 provides results of agency identification when respondents were prompted with a list of possible agencies responsible for handling their primary issues of concern.

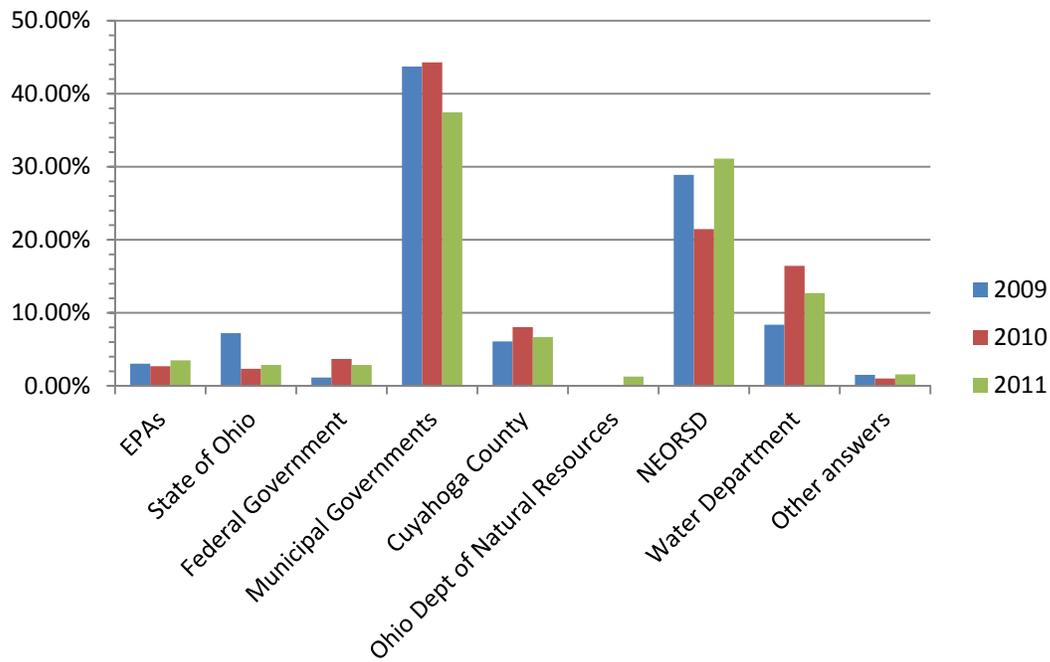
**Figure 17: Agency responsible for cleanliness of the lake**



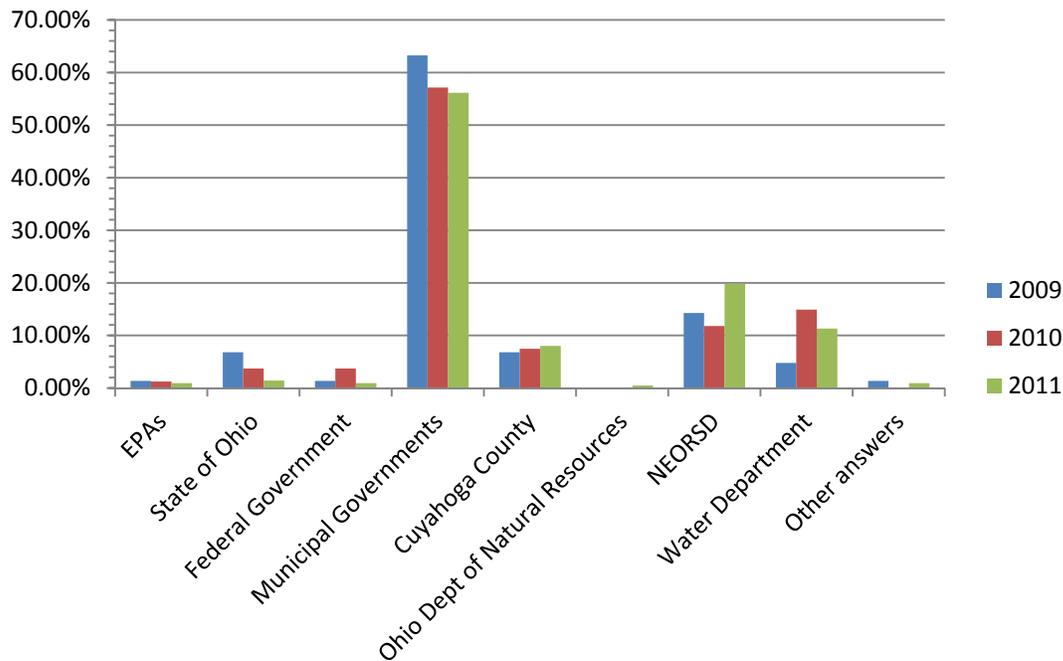
The NEORS ranked among the lowest in unaided recognition, with 6% identification in 2009, 5% in 2010, rising to 7% in 2011. The agency with the highest identity in each year of the study was ‘EPAs’ (including federal and state agencies.) Identification of ‘EPA’s was 30% in 2009, 26% in 2010, and 32% in 2011. The State of Ohio was second in recognition at 15% in 2009, 21% in 2010, and 17% in 2011. The Federal government came in third at 11% in 2009, 13% in 2010, and 10% in 2011. Municipal governments were close behind, at 13% in 2009, and 12% in the following two years. The Ohio Department of Natural Resources had about half the level of recognition of municipal governments, at 6% in 2009, 5% in 2010, and rising to 8% in 2011. Generic ‘water department’ was the lowest at 3% in 2009, and 5% in 2010 and 2011.

**Figure 18: Agency responsible for erosion control**

The State of Ohio was first in recognition for handling erosion control, named by 24% of respondents in 2009, 22% in 2010, and 23% in 2011. EPAs and municipal governments followed: EPAs were named by 12% of respondents in 2009, rising to 19% in 2010 and 2011, while municipal governments were named by 17% of respondents in 2009, falling to 14% in 2010 and 2011. The remaining agencies identified are a mix: the federal government, Cuyahoga County, and the Ohio Department of Natural Resources were identified by between 7% and 10% of respondents for each year. Water departments and the NEORS had the lowest recognition, ranging between 1% and 5%. There was also greater dispersion of miscellaneous agency identification ('other'), although this showed a decline from 17% in 2009 to 15% in 2010 and 2011.

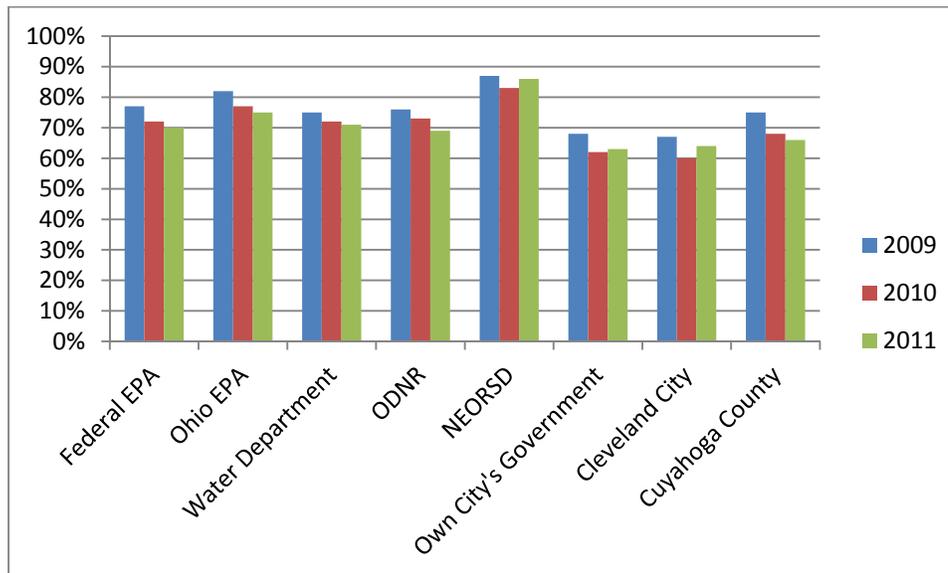
**Figure 19: Agency responsible for sewer back-ups**

NEORS had higher recognition as being responsible for handling sewer back-ups, with 29% identifying the agency in 2009, 21% in 2010, and rising to 31% in 2011. Municipal governments had the highest level of identification at 44% in 2009 and 2010, dropping to 37% in 2011. Water departments came in third at 8% in 2009, 16% in 2010, and 13% in 2011. Cuyahoga County was next at 6% in 2009, 8% in 2010, and 7% in 2011. The state of Ohio was identified by 7% in 2009, dropping to 2% in 2010 and 3% in 2011. The federal government was only identified by 1% in 2009, 4% in 2010 and 3% in 2011, while ODNR was only identified by 1% in 2011. Other agency identification dropped to 2% in 2009 and 2011 and 1% in 2010.

**Figure 20: Agency responsible for street flooding**

Municipal governments were strongly identified as being responsible for handling street flooding, with 63% identification in 2009, 57% in 2010, and 56% in 2011. NEORSD and water departments followed, with NEORSD identified by 14% in 2009, 12% in 2010, and 20% in 2011. Water departments were identified by 5% in 2009, 15% in 2010, and 11% in 2011. Cuyahoga County had smaller but steady recognition at 7% in 2009 and 2010, and 8% in 2011. The state of Ohio had smaller, declining recognition: at 7% in 2009, 4% in 2010, and 1% in 2011. EPAs, the federal government, and ODNR had little recognition at all, ranging from 0% (ODNR), to 4% (federal government in 2010). Similar to the previous issue of sewer back-ups, there were very few ‘other answers’ to this question (1% in 2009 and 2011, and 0% in 2010.)

**Figure 21: Respondent identification of agencies responsible for addressing top respondent concerns (aided responses)**



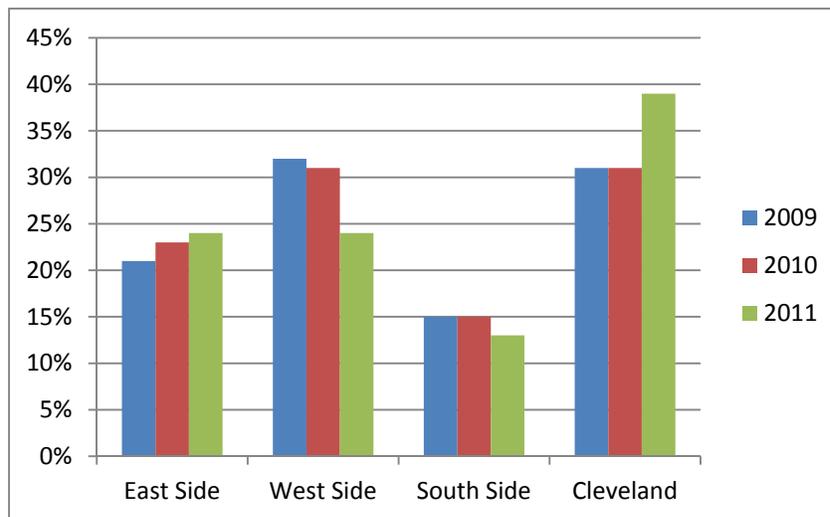
Respondents were asked again about which agencies were responsible for handling their top two concerns (cleanliness of the lake, erosion control, sewer back-ups, street flooding.) However, in this question they were provided with a list of possible agencies and asked to identify which they thought handled their concerns (multiple answers were allowed.) The identification rate increased considerably compared to the unaided responses reported in Figures 17 – 20.

The NEORSD was first in recognition for each year, at 87% for 2009, 83% for 2010, and 86% for 2011. The lowest recognition was for the respondent's 'own city government' and Cleveland city government. Respondents' 'own city government' was identified by 68% in 2009, 62% in 2010, and 63% in 2011, while Cleveland city government was identified by 67% in 2009, 60% in 2010, and 64% in 2011. Next highest was Cuyahoga County, identified by 75% in 2009, 68% in 2010, and 66% in 2011. The next pair with slightly higher recognition was water departments and the Ohio Department of Natural Resources (ODNR). Water department recognition declined from 75% in 2009 to 72% in 2010 and 71% in 2011. ODNR had a similar decline, identified by 76% in 2009, 73% in 2010, and 69% in 2011. EPA recognition came in second behind NEORSD, with the federal EPA identified by 77% in 2009, 72% in 2010, and 70% in 2011, and the Ohio EPA identified by 82% in 2009, 77% in 2010, and 75% in 2011.

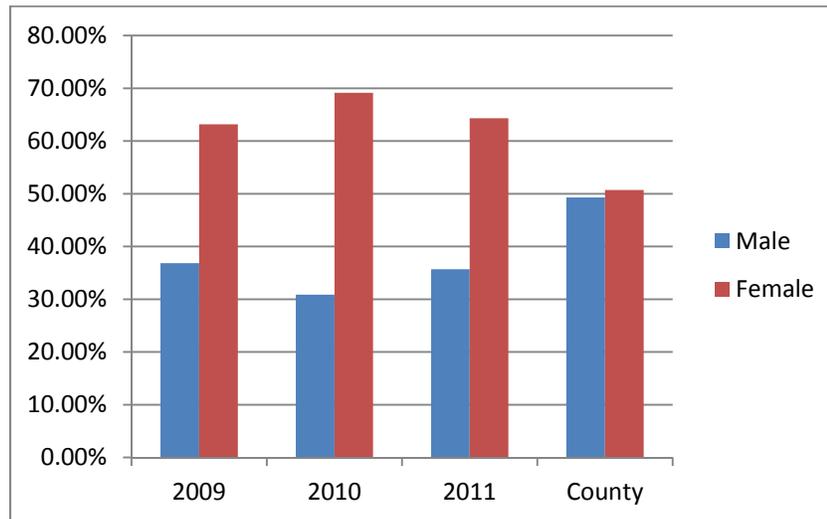
## Part VI: Demographics

The NEORS D surveys collected demographic data about respondents for each of the three years of the survey. Data categories include gender, educational attainment, annual household income, race/ethnicity, and the number of children and adults in each household. Census data for Cuyahoga County are included for comparison purposes for each category (except for the last two, which do not have available census data similar to what was collected in the surveys.)

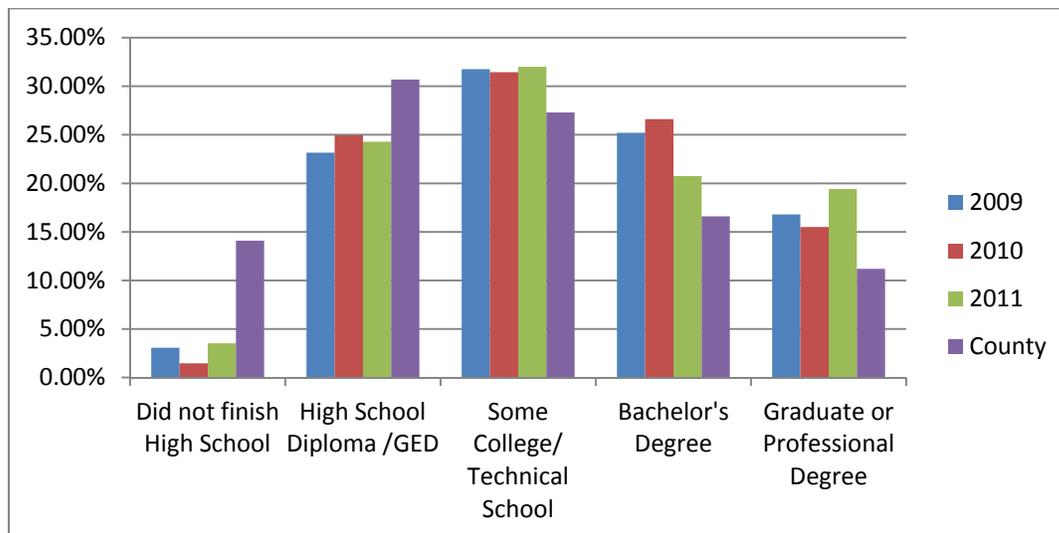
**Figure 22: Respondent community of residence**



Communities outside of Cleveland were grouped by geographic region (east side includes communities in Summit County, such as Richfield.) There were slight changes in the proportion of residential communities represented in the survey sample for each year. Most significant was the increase in Cleveland residents, from 31% in 2009 and 2010 to 39% in 2011. East Side communities increased from 21% of the 2009 sample, to 23% in 2010, and were 24% of the sample in 2011. West Side communities declined slightly from 32% in 2009 to 31% in 2010, and then dropped further, to 24% in 2011. South side communities remained stable at 15% for 2009 and 2010, and then dropped a bit to 13% in 2011.

**Figure 23: Gender of Respondents**

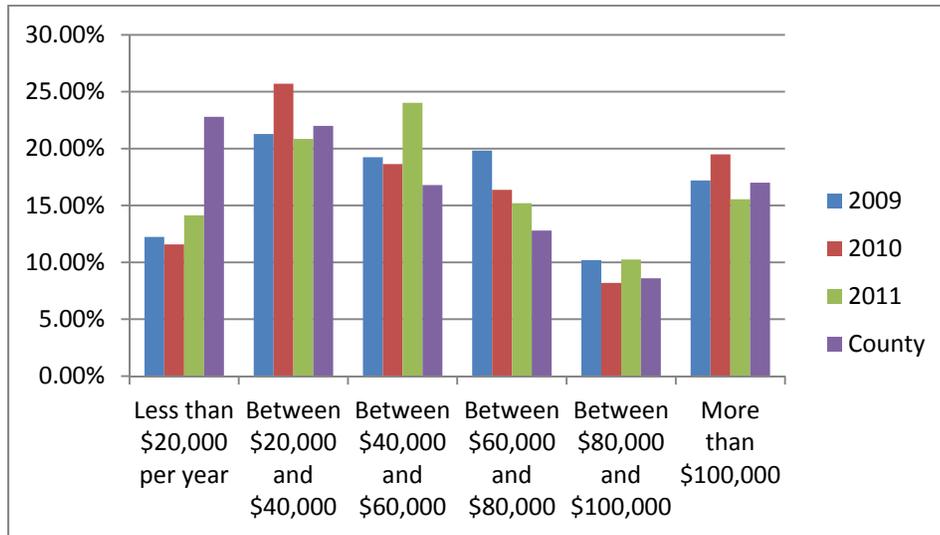
Respondent samples continue to over-represent females, as is typical in landline phone surveys. The percentage of females declined from 69% to 64% from 2010 to 2011, bringing the ratio to males a bit closer to the ratio for Cuyahoga County (49% male, 51% female.)

**Figure 24: Respondent levels of education**

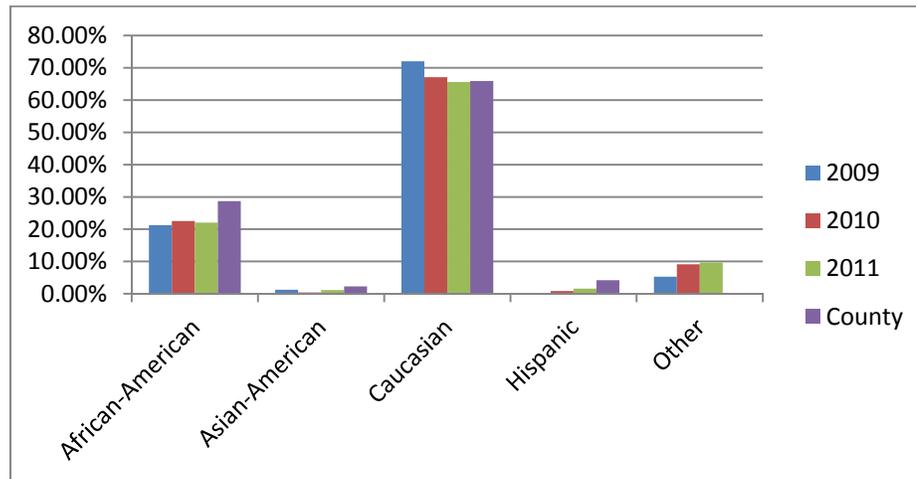
The respondent sample for each of the survey years over-represents people with higher levels of education relative to residents of Cuyahoga County. This is likely due to the sample being of home owners with higher incomes, which correlates with higher levels of educational attainment. The percentage of respondents with a bachelor's degree or graduate or professional degrees remained relatively steady through the three years of surveys: 42% for 2009, 42% for 2010, and 40% for 2011, compared to 28% for County residents. Respondents with a high school diploma and/or some college or technical school totaled 55% for 2009, 56% for 2010, and 56% for 2011, compared to 58% of County residents. Those that did not

finish high school totaled 3% in 2009, 1% in 2010, and 4% in 2011, compared to 14% for the County.

**Figure 25: Respondent annual household income**



Annual household income varies across the three years of the survey, with some levels showing change, and others remaining steady. Higher income households of \$80,000 and above stayed fairly steady, totaling 27% in 2009, 28% in 2010, and 26% in 2011, compared to 26% for Cuyahoga County. The same steady pattern occurs with middle income households. Respondents with reported incomes in the \$40,000 - \$80,000 range totaled 39% in 2009, 35% in 2010, and 39% in 2011, compared to 30% for the County. Households with \$20,000 - \$40,000 reported income totaled 21% for 2009, 26% for 2010, and 21% for 2011, compared to 22% for the County.

**Figure 26: Respondent ethnicity**

The ethnic and racial composition of the samples for each year changed slightly over time. African-American respondents were steady at 21% for 2009, 23% for 2010, and 22% for 2011, compared to 29% for Cuyahoga County. Similar steadiness is noted for Asian-Americans, who constituted 1% of the respondent sample in 2009, less than 1% in 2010, and 1% in 2011, compared to 2% of the County. There was some decrease in the Caucasian respondent size, decreasing from 72% in 2009 to 67% in 2010, to 66% in 2011, which matched the County proportion of 66%. While still a very small part of the sample, the percentage of Hispanics grew, from less than 1% in 2009 and 2010 to 2% in 2011 (still below the County census of 4%). Respondents identifying as 'other' increased from 5% in 2009, to 9% in 2010, to 10% in 2011.

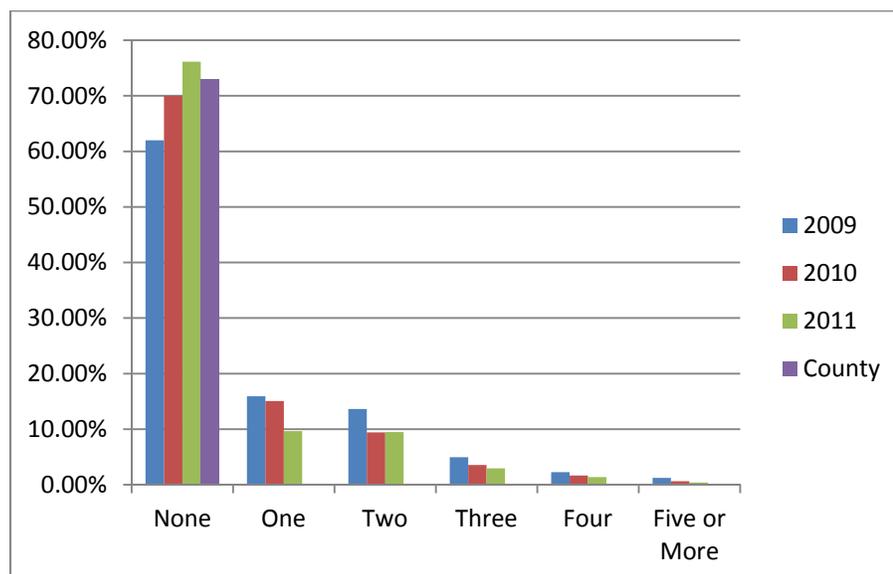
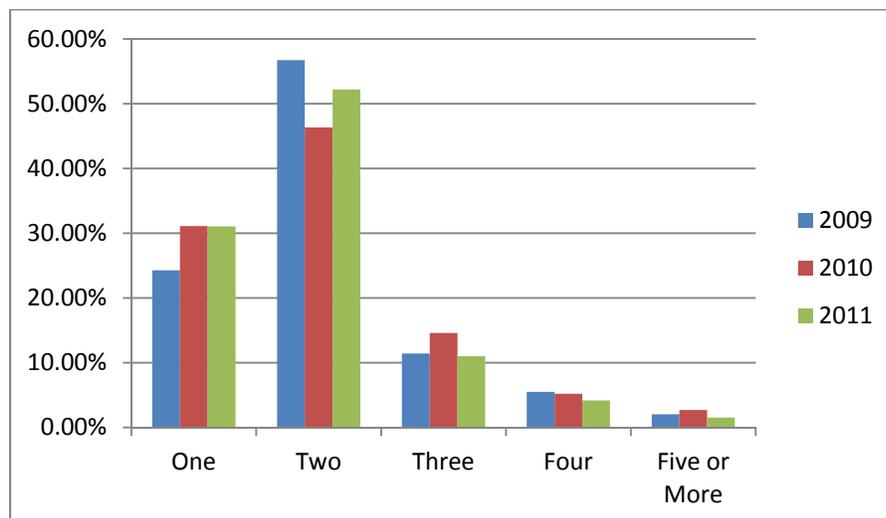
**Figure 27: Number of children in Respondents' households**

Figure 27 shows the changes in the number of children in respondent households. Households with no children remain a substantial majority of the sample, increasing from 62% in 2009 to 70% in 2010, and rising further to 76% in 2011 (somewhat similar to the County census of 73%). Households with one child declined slightly from 16% in 2009 to 15% in 2010, and then dropped by a third to 10% in 2011. Declines also occurred in households with two or more children. Households with two children declined from 14% of the sample in 2009, to 9% in 2010 and remained at this rate in 2011. Households with three or more children declined, from 8% in 2009, to 6% in 2010, down to 5% in 2011. This is an important set of data for focus regarding future NEORS D usage. With three quarters of households having no children, and the percentage of the remaining quarter having declining numbers of children means likely decreases in sewer service usage, which means lower revenue. This data should be explored in more detail to project future usage and attendant revenue for the NEORS D.

**Figure 28: Number of adults in Respondents' households**



The composition of adults in respondent households over the three year survey period change in various ways. One-adult households increased from 24% in 2009 to 31% in 2010, and held at this rate at 31% in 2011. Two adult households declined from 57% in 2009 to 46% in 2010, and rose to 52% in 2011. Households with three adults increased from 11% in 2009 to 15% in 2010, but dropped back to 11% in 2011. There was a slight decline in households with four adults, from 6% in 2009 to 5% in 2010, to 4% in 2011. Households with five or more adults increased slightly from 2% in 2009 to 3% in 2010, and dropped to the lowest level of the survey in 2011 to 2%.

## Appendix

### 2011 NEORSO Survey Instrument

Hello!

My name is .....and I am a student at Baldwin-Wallace College. I am participating in a research project for a non-profit organization. I am not selling anything. I would like to talk to a person who is older than 18 in your household. Are you older than 18?

**Interviewer** (if No)

Is there anyone older than 18 who can come to the phone now? Thank you.

**Interviewer** (repeat only if new person) I am a student at Baldwin-Wallace College, and I am participating in a research project for a non-profit organization. I am not selling anything.

I would like you to help me by answering a few questions. Could I please ask you for about ten minutes of your time?

Thank you very much.

There are a number of issues facing Northeast Ohio in the near future. I am going to read a list of a few of those issues, and I will then ask you to rank them in order of importance to you, according to your preferences. Some of these issues may not be related to one another, but that is the reason for this survey.

Are you ready?

They are:

- The cleanliness of Lake Erie
- The erosion and flooding of streams and rivers
- Sewer back-up or water in your basement
- Street and yard floods

I am going to repeat each of these alternatives now, and I would like you to tell me which TWO are most important to you and your family.

**Interviewer** Please repeat as many times as needed.

They are:	Cleanliness of the lake	1	2
	Erosion and flooding of streams and rivers	1	2

Sewer back-up or basement water problems	1	2
Street and yard floods	1	2

**Interviewer** Please go to the section corresponding to the first of the two alternatives that the respondent selected, then to the second. If only one answer, please ask only one set of questions.

### Cleanliness of the Lake

When compared to all other problems facing Northeast Ohio today (not just the four that I listed at the beginning of this questionnaire), how important to you is the cleanliness of the lake?

Very important      Important      Not that important      Not important at all

In which of the following ways do you use Lake Erie?

Do you use the lake for fishing? Know	Yes	No	Don't
Do you use the lake for swimming? Know	Yes	No	Don't
Do you use the lake for boating? Know	Yes	No	Don't
Do you go to Lake Erie beaches? Know	Yes	No	Don't
Do you use the lake for any other purposes? Know	Yes	No	Don't

**Interviewer** Please list those other purposes, in the order in which the respondent gave them.

Which ones?

First Response: \_\_\_\_\_

Second Response (if any): \_\_\_\_\_

Don't Know: \_\_\_\_\_

Would you be willing to spend an additional \$ 10 a month to improve the cleanliness of the water in Lake Erie?

Yes                                      No                                      Don't Know



### Erosion and Flooding of Streams or Rivers

When compared to all other problems facing Northeast Ohio today (not just the four that I listed at the beginning of this questionnaire), how important to you is the erosion and flooding of streams and rivers?

Very important      Important      Not that important      Not important at all

In which of the following ways do you use Northeast Ohio's streams and rivers?

Do you use them for fishing?      Yes    No    Don't  
Know

Do you use them for swimming or wading?      Yes    No    Don't  
Know

Do you use them for kayaking or canoeing?      Yes    No    Don't  
Know

Do you visit a Northeast Ohio park where there is a stream or a river?      Yes    No    Don't  
Know

In which of the following ways have you noticed erosion and flooding of streams and rivers?

Is there a stream next to your property?      Yes    No    Don't  
Know

**Interviewer** (if Yes) Has stream erosion affected your property?      Yes    No    Don't  
Know

**Interviewer** (if Yes) Has stream flooding affected your property?      Yes    No    Don't  
Know

Would you be willing to spend an additional \$ 10 a month to reduce erosion and flooding of Northeast Ohio's streams and rivers?

Yes                                  No                                  Don't Know



Yes

No

Don't Know

### Street and Yard Floods

When compared to all other problems facing Northeast Ohio today (not just the four that I listed at the beginning of this questionnaire), how important to you are street or yard floods?

Very important      Important      Not that important      Not important at all

In which of the following ways have you noticed or been affected by street floods?

Have you experienced a flood in your street?      Yes      No      Don't Know

**Interviewer** (if Yes)

Since you have been in this home, how many times has this occurred?

Once      Twice      Three Times      More than Three Times

Have you experienced a flood in your yard?      Yes      No      Don't Know

**Interviewer** (if Yes)

Since you have been in this home, how many times has this occurred?

Once      Twice      Three Times      More than Three Times

Would you be willing to spend an additional \$ 10 a month to reduce or eliminate the possibility of a basement flooding in your home, or in the houses of your neighbors?

Yes      No      Don't Know

### Government Questions

I am now going to ask you a couple of questions about the government entities responsible for the problems we just discussed.

**Interviewer** (Ask only if one of the top two concerns)

**Cleanliness of the Lake**

In your opinion, which of the government agencies has the primary responsibilities for the cleanliness of the lake?

First response: \_\_\_\_\_

Second response (if any): \_\_\_\_\_

Don't know

**Erosion and Flooding**

In your opinion, which of the government agencies has the primary responsibilities for the control of erosion and flooding of North-East Ohio streams?

First response: \_\_\_\_\_

Second response (if any): \_\_\_\_\_

Don't know

**Sewer Back-ups and Basement Flood**

In your opinion, which of the government agencies has the primary responsibilities for the prevention of sewer back-ups and basement floods?

First response: \_\_\_\_\_

Second response (if any): \_\_\_\_\_

Don't know

**Street and Yard Floods**

In your opinion, which of the government agencies has the primary responsibilities for the prevention of street and yard floods?

First response: \_\_\_\_\_

Second response (if any): \_\_\_\_\_

Don't know

I am now going to list a number of government agencies and organizations. For each one, tell me whether you think they are involved in the (Interviewer (list only the top two concerns):

Please answer with just YES or NO.

Federal Environmental Protection Agency Know	Yes	No	Don't
State Environmental Protection Agency Know	Yes	No	Don't
Water Department Know	Yes	No	Don't
Ohio Department of Natural Resources Know	Yes	No	Don't
Northeast Ohio Regional Sewer District Know	Yes	No	Don't
Your city's Municipal Government Know	Yes	No	Don't
Cleveland's Municipal Government Know	Yes	No	Don't
Cuyahoga County's Government Know	Yes	No	Don't

## Marketing and Advertising

In the past year have you seen or heard any advertisements for the Northeast Ohio Regional Sewer District?

Yes

No

Don't Know

**Interviewer** (If yes)

Where did you see/hear the advertisement?

First response: \_\_\_\_\_

Second response (if any): \_\_\_\_\_

Don't know

I am now going to list a number of advertising slogans. For each one, tell me whether or not you have heard or seen them:

Please answer with just YES or NO.

“Where does it go?” Know	Yes	No	Don't
“P.U.P.! (Pick Up Poop!)” Know	Yes	No	Don't
“Once Gray, Now Green” Know	Yes	No	Don't
“Wally Waterdrop” Know	Yes	No	Don't

**Interviewer** (if yes to any of the questions on this page)

Have you learned anything from these ads? Know	Yes	No	Don't
---	-----	----	-------

Have you changed the way you do things because of these ads?

	Yes	No	Don't
Know			

I am now going to list a variety of media. For each one, tell me whether or not you have seen or heard any of the ads we have discussed.

Please answer with Yes, No, or Don't Know.

Have you heard them on the Radio? Know	Yes	No	Don't
---	-----	----	-------

Have you seen them on Television? Know	Yes	No	Don't
---	-----	----	-------

Have you seen them on Billboards? Know	Yes	No	Don't
---	-----	----	-------

Have you seen them on Internet? Know	Yes	No	Don't
---	-----	----	-------

Have you seen them in a Newspaper or a Magazine? Know	Yes	No	Don't
--	-----	----	-------

Have you seen them at a Community Event? Know	Yes	No	Don't
--	-----	----	-------

Have you seen them anywhere else? Know	Yes	No	Don't
---	-----	----	-------

**Interviewer** (if Yes)

First response: \_\_\_\_\_

Second response (if any): \_\_\_\_\_

## Rate Increases

I am now going to ask you about your sewer bill.

In the past few months, have you read or heard anything about an increase in your bill for your sewer service?

Yes

No

Don't Know

**Interviewer** (If yes)

Do you recall when this is likely to take place? Is this increase going to take place:

This year (2011)  
that

Next year (2012)

The year after that (2013)

Sometime later than

Do you know the approximate amount of your increase?

Less than \$5 per month

Between \$5 and \$10 per month

Between \$10 and \$15 per month

More than \$15 per month

I am going to list a number of reasons for this increase. Could you tell me which reasons you have heard?

EPA requirements? Know	Yes	No	Don't
EPA lawsuit settlement? Know	Yes	No	Don't
Improvements to the sewer system? Know	Yes	No	Don't
Stop the flow of untreated sewage into the lake? Know	Yes	No	Don't
Increased costs in the sewer district? Know	Yes	No	Don't
Inefficiencies and waste in the sewer district? Know	Yes	No	Don't
Lower tax revenues? Know	Yes	No	Don't

Any other reason you have heard?

**Interviewer** (if Yes)

First response: \_\_\_\_\_

Second response (if any): \_\_\_\_\_

Are you aware of affordability programs that the sewer district offers for people who cannot afford the sewer rate increase?

Yes

No

Don't Know



## Social Media

In the past year have you used any type of social media, such as blogs, social networking, video or photo sharing websites?

Yes

No

Don't Know

**Interviewer** (If yes)

Could you tell me the names of the social media you have used in the past year?

First response: \_\_\_\_\_

Second response (if any): \_\_\_\_\_

Third response (if any): \_\_\_\_\_

Fourth response (if any): \_\_\_\_\_

Don't know

I am now going to list a number of social networking websites. For each one, tell me whether or not you visited it in the last year.

**Interviewer** (If yes, please ask if the respondent has an account)

Please answer with just YES or NO.

Facebook account	Yes	No	Don't Know	Has an
Flickr account	Yes	No	Don't Know	Has an
Google + account	Yes	No	Don't Know	Has an
Linked-In account	Yes	No	Don't Know	Has an
Myspace account	Yes	No	Don't Know	Has an
Twitter account	Yes	No	Don't Know	Has an

Youtube  
account

Yes

No

Don't Know

Has an

### Demographic Questions

We are almost finished with the survey. I am now going to ask you a few questions about yourself:

In which city do you live?

Beachwood	Bedford	Bedford Heights	Berea
Bratenahl	Brecksville	Broadview Heights	Brooklyn
Brooklyn Heights	Brook Park	Cleveland	Cleveland Heights
Cuyahoga Heights	East Cleveland	Garfield Heights	Gates Mills
Highland Heights	Highland Hills	Hudson	Independence
Linndale	Lyndhurst	Macedonia	Maple Heights
Mayfield Heights	Mayfield Village	Middleburg Heights	Newburgh Heights
Northfield	North Randall	North Royalton	Oakwood
Olmsted Falls	Olmsted Township	Orange Village	Parma
Parma Heights	Pepper Pike	Richfield Township	Richmond Heights
Sagamore Hills	Seven Hills	Shaker Heights	Solon
South Euclid	Strongsville	University Heights	Valley View
Walton Hills	Warrensville Heights		
<b>OTHER:</b>			

In which ZIP code do you live?

44022	44040	44067							
	44101	44102	44103	44104	44105	44106	44107	44108	44109
44110	44111	44112	44113	44114	44115	44116	44117	44118	44119
44120	44121	44122	44123	44124	44125	44126	44127	44128	44129
44130	44131	44132	44133	44134	44135	44136	44137	44138	44139
44140	44141	44142	44143	44144	44145	44146	44147		44149

OTHER:

What is your gender?

Male

Female

What is your level of education?

- A. Did not finish high school
- B. High school diploma / G.E.D.
- C. Some college or technical school
- D. Bachelor's degree
- E. Graduate or professional degree

What range best characterizes your household income?

- A. Less than \$ 20,000 a year
- B. Between \$ 20,000 and \$ 40,000
- C. Between \$ 40,000 and \$ 60,000
- D. Between \$ 60,000 and \$ 80,000
- E. Between \$ 80,000 and \$ 100,000
- F. More than \$ 100,000

What best characterizes your ethnic background?

- A. African - American
- B. Asian - American
- C. Caucasian
- D. Hispanic
- E. Other or More than one of the other choices

Are you a registered voter?

Yes

No

Don't Know

How many children (under the age of 18) are there in your household?

None            1                    2                    3                    4                    5 or more

How many adults (18 or over 18) are there in your household?

                  1                    2                    3                    4                    5 or more

Thank you very much for your time and have a good day!