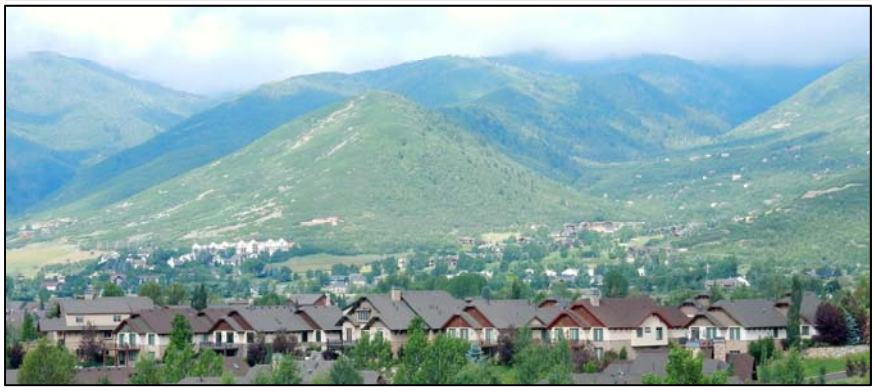
Utah's Water Future

Local Perspectives on Water Issues in Heber Valley & Beyond

Summary Report of the 2014 Household Survey Findings



Dr. Douglas Jackson-Smith, Dr. Courtney Flint,
Andrea Armstrong, and Taya Carothers
Utah State University
February 2015

Overview

In the summer of 2014, researchers from Utah State University, the University of Utah and the iUTAH Project (innovative Urban Transitions and Aridregion Hydro-sustainability) undertook a large survey of households on water issues across 23 neighborhoods in Cache Valley, Salt Lake Valley, and Heber Valley. Our goal was to assess household water use and resident perspectives on water issues within their city, valley, and state.

We used a "Drop-off/Pick-up" method where 16-page surveys were dropped off with willing, eligible participants at randomly selected households in the study neighborhoods and picked up from their front door within a day or two. When we were unable to reach residents, surveys were sent by mail. Participants had the option to request results, and those reports will be sent in early 2015.

The following topics that were included in the survey are presented in this report:

I. Household Water Uses & Perspectives
- A. Familiarity with Water Use
- B. Lawn and Outdoor Watering
- C. Use of Water Conservation Practices
- D. Motivations to Conserve
- E. Secondary Water Systems

II. Water Perspectives & Experiences
- A. Perceptions of Water Supply
- B. Risk Perceptions
- C. Perceptions about Water Use and Water Quality
- D. Experience with Flooding
- E. Climate Change Perspectives

III. Water Policy & Management Perspectives
- A. Support for Local Water Management Strategies and Policies
- B. Support for State Water Strategies

IV. Additional Information
- A. Water Information Sources
- B. Satisfaction with Neighborhood and Community

This report highlights findings from the survey data for the **Heber Valley in Wasatch County, Utah**, with comparisons between two neighborhoods in Heber City and Midway City. We also include comparisons with results from neighborhoods in the Cache Valley and Salt Lake Valley[1]. Additional reports and highlights from the study can be found at www.iutahepsecor.org/hhsurvey.

[1] More detailed information is available upon request from the project coordinator, Dr. Douglas Jackson-Smith who can be reached at (435) 797-0582 or doug.jackson-smith@usu.edu.

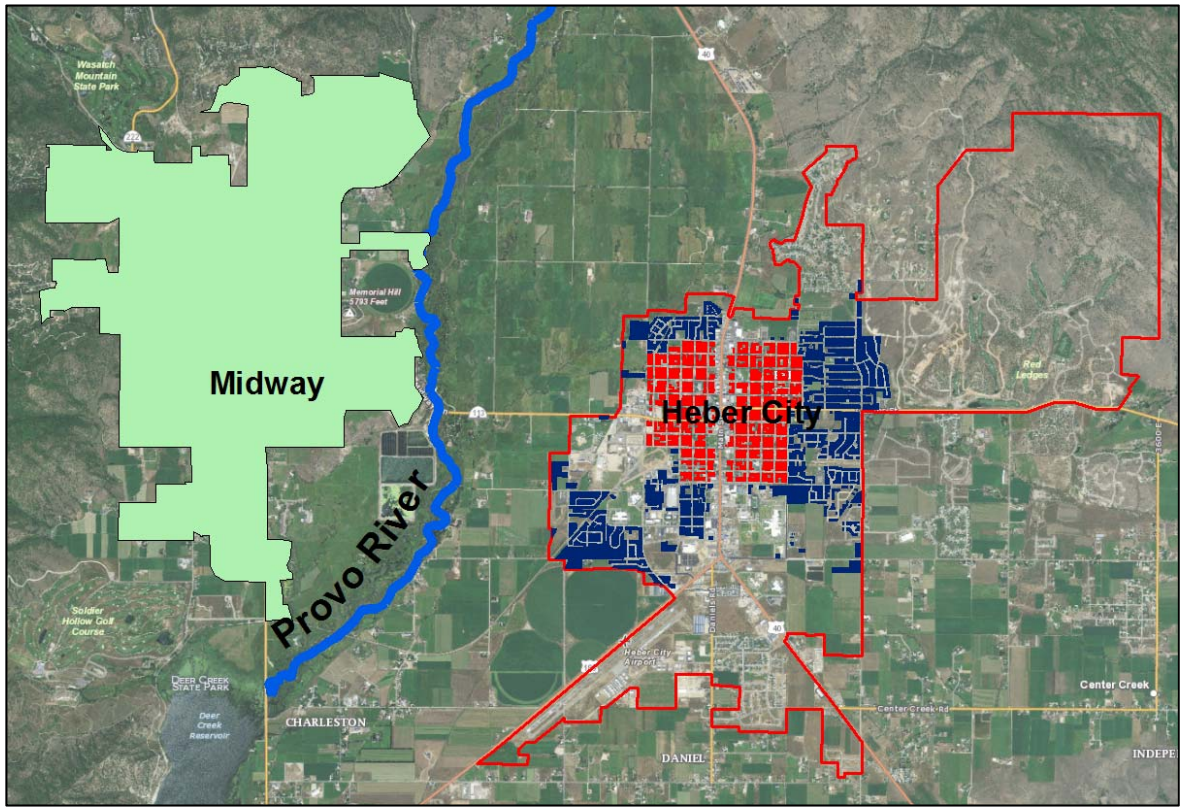
METHODS

In the Heber Valley, the survey was conducted in late June and early July 2014. We randomly sampled 180 households in each of two neighborhood areas within Heber City (see map below): the Historic Heber City Core (in red; where property tax rolls indicate there are 1,125 households) and several newer developments in outlying parts of Heber City (the 'Non-Core' areas in blue, where we sampled from a list of 1,552 households). We also drew a sample of 200 households from across all of Midway City (a city of roughly 1,938 households). Samples of this size can estimate the characteristics of the neighborhood residents with an accuracy of within +/- 9%.

After accounting for vacant homes, our final response rates[2] were:

- Heber City Core = 60% (97 respondents)
- Heber City Non-Core Areas = 59% (97 respondents)
- Midway City = 70% (117 respondents)

Map of Study Neighborhoods in Heber Valley



[2] We found 17 households to be ineligible in the Heber City Core, 15 in Heber City Non-Core, and 34 in Midway due to vacancy. In comparison, the response rate from Cache Valley and Salt Lake Valley averaged 73% and 56% respectively. Across the entire three-county study area, we received 2,411 useable surveys, with an overall response rate of 62%.

Who Did We Hear From in the Heber Valley?

The characteristics of the 311 respondents from the three Heber Valley neighborhoods that were included in the survey are summarized in Table 1 below.

As was true in most of our other study areas, Heber respondents were predominantly non-Hispanic whites, more than half were female, and a majority report being members of the Church of Jesus Christ and Latter Day Saints (LDS) faith. Most own their home and roughly half have children under 18 living at home. While 47-62% of respondents are Utah natives, a minority of respondents (10 to 38 %) are originally from the Heber Valley. Moreover, a sizeable share (38-59%) of respondents has lived in their current home less than 5 years.

The education and household income levels of respondents were much higher in Midway City than in the Heber City Core neighborhood, where almost a third were renting their home. Respondents in the non-core Heber City neighborhoods were much more likely to have children living at home. Midway respondents were much more likely to be from outside the area and to have recently moved into their home. A majority of Midway respondents also belong to homeowner or condominium owner associations (HOA or COAs).

Table 1: Characteristics of Heber Valley Survey Respondents

	HEBER VALLEY NEIGHBORHOODS			*Comparisons*	
Characteristic of Respondent	**Heber City Core**	**Heber City Non-Core**	**Midway City**	*Cache Valley*	*Salt Lake Valley*
		Percent of Respondents			
Female	57	52	63	55	50
Non-Hispanic White	88	91	97	87	81
LDS Religion	55	61	55	66	52
Has 4-year college degree	28	45	66	50	47
Has household income >$75,000	23	41	59	29	41
Has household income <$25,000	19	9	6	20	15
Rents their home	29	16	18	29	24
Is a member of HOA or COA	10	23	53	22	14
Is a seasonal resident	2	0	13	2	2
Has children under 18 in home	49	65	46	48	44
Has lived in this home < 5 years	38	44	59	50	42
Is originally from this valley	38	19	10	32	45
Is originally from Utah	62	57	47	56	58
Grew up in rural place or farm	72	60	43	56	34
		Average Reported Value			
Age of respondent	52.0	47.7	53.3	46.8	48.2
Number of people living in household	2.9	3.9	3.5	3.2	3.1

Representativeness of Respondents

By comparing the characteristics of survey respondents with information from the US Census, we see how representative our sample is of the actual population (Table 2).

For Heber City, this comparison indicates that our survey respondents are generally representative in terms of average household size and income. The results slightly under-represent renters, and over-represent older residents, women, non-Hispanic whites, and those with a college degree (see Table 1 below). It should be noted that we did not sample from all neighborhoods in Heber City (see map above), so some differences might reflect unique characteristics of people living in non-sampled areas.

For Midway, comparisons between survey respondents and census information suggest findings may over-represent older residents, females, non-Hispanic whites, college educated adults, and those with household incomes over $75,000. The results may under-represent those with incomes under $25,000 and renters. The average household size of survey respondents was somewhat larger than census information indicates for Midway.

Table 2. Characteristics of Heber Survey Respondents Compared with the 2010 Decennial Census and the American Community Survey (2008-2012).

	Combined Heber Survey Respondents	**Heber City Census Estimates***	**Midway Survey Respondents**	**Midway City Census Estimates***
		Percent of adults or households		
Percent under 35	19	36	14	25
Percent over 65	22	10	30	17
Female Adults	55	50	63	51
Non-Hispanic White Adults	90	79	97	93
Adults w/ College Degree	36	25	66	34
Households with Income Over $75,000	32	35	59	50
Households with Income Under $25,000	14	14	6	14
Households that Rent their Home	23	28	18	25
Mean Household Size (#)	3.3	3.4	3.5	3.0

** = from Decennial Census (2010) or American Community Survey (2008-2012)*

RESULTS

I. Household Water Uses & Perspectives

The survey included questions about how households currently use water, and their perspectives about a range of water issues.

A. Familiarity with Water Use

The survey asked how 'familiar' residents are with the amount of water they use and the cost of their water bill each month. Most respondents report a fairly high degree of familiarity with how much they *spend* on water each month, but fewer are familiar with the volume of water they *use* (Table 3). Compared to other valleys, respondents from Heber City are generally more familiar with the cost and amount of their water use. However, familiarity is higher among respondents in the Heber City neighborhoods than in Midway City.

Table 3: Familiarity with Water Use and Cost by Neighborhood.

	HEBER VALLEY NEIGHBORHOODS			*Comparisons*	
	Heber City Core	**Heber City Non-Core**	**Midway City**	*Cache Valley*	*Salt Lake Valley*
	Percent of respondents familiar or very familiar				
Respondent familiar with amount of water their household uses	**33**	**34**	**23**	*26*	*33*
Respondent familiar with how much household spends on water monthly	**67**	**76**	**61**	*59*	*66*

B. Lawn & Outdoor Watering

Nearly all respondents report having a lawn on the property where they live, and all but a handful regularly water that lawn. The survey asked people to indicate who is responsible for watering the lawn on their property. Results are shown in Table 4. Most people in Heber City (89-94%) water their lawn themselves, but nearly a third of households in Midway City report that lawn watering is handled by a homeowners or condominium association (HOA or COA). A small number of lawns in each city are watered by landlords of rental property. This means that in Heber City, residents primarily make decisions about outdoor watering, but in Midway, HOAs and COAs are important decision-makers.

Table 4: Responsibility for Lawn Watering

	HEBER VALLEY NEIGHBORHOODS			*Comparisons*	
Who is responsible for watering the lawn?	**Heber City Core**	**Heber City Non-Core**	**Midway City**	*Cache Valley*	*Salt Lake Valley*
	Percent of respondents with lawns				
Lawn is not watered	**1**	**3**	**0**	*3*	*4*
Household waters	**94**	**89**	**68**	*83*	*85*
Landlord waters	**4**	**2**	**1**	*8*	*7*
Homeowners or Condo Association or other entity	**1**	**5**	**31**	*5*	*4*

Lawn Watering Practices

To get a sense of the rules of thumb used by residents watering their own lawns, we asked them to think about a typical July week. On average, people report watering their lawns roughly every other day. Respondents in Heber City's Non-Core areas water the most frequently (nearly 4 times a week) while those in the core Heber City area water the least (3.4 times a week – equal to the average for our overall 3-valley study).

Heber Valley residents were also asked what time of day they typically water their lawns. Responses suggest that over 90% of respondents in all three study neighborhoods usually water their lawns in the morning, evening, or at night.

The proportion of households with underground sprinklers and automatic lawn watering timers differs widely across the three Heber Valley neighborhoods (Table 5). While just 40 percent of homes in the Heber City Core have underground sprinklers (and 47% reported automatic timers), nearly twice as many households (80%) in Heber City Non-Core areas and in Midway City report using these irrigation technologies on their lawn.

Table 5: Irrigation Systems Used to Water Lawns

	HEBER VALLEY NEIGHBORHOODS			*Comparisons*	
	Heber City Core	**Heber City Non-Core**	**Midway City**	*Cache Valley*	*Salt Lake Valley*
	Percent of respondents with lawns				
Uses underground sprinkler system to water lawn	**40**	**83**	**79**	*74*	*75*
Has automatic timer for lawn watering	**47**	**78**	**82**	*68*	*71*

Lawn Watering Considerations

To get a better feel for the factors that influence when and how much residents water their lawns, we asked respondents to indicate how important each of several common reasons are to their lawn watering decisions. The results, shown in Table 6 on the next page, suggest that most (80-90%) of households try to vary their lawn watering behaviors based on weather, and between 70-75% are trying to conserve the amount of water they use. About two-thirds of households are interested in maintaining their property value. More than half want to keep a regular watering schedule and seek to minimize the time they spend watering the lawn. A relatively small proportion of respondents (28-38%) suggest that keeping their neighbors happy is an important goal of their lawn watering decisions.

The things that households consider when watering their lawns differ somewhat by neighborhood. Respondents from the newer neighborhoods in Heber City Non-Core Areas are somewhat more likely to care about property values, and less likely to adjust to the weather or prioritize conservation than in the Heber City Core or in Midway City. Respondents from the older core area of Heber City are also less likely to cite 'keeping a regular schedule' or 'keeping neighbors happy' as important factors in their decisions. By contrast, respondents from Midway City are more likely to indicate that avoiding brown spots and pleasing their neighbors are important considerations.

Table 6: Factors Shaping Lawn Watering Decisions

How important is each reason to your decisions about when and how much to water your lawn?	HEBER VALLEY NEIGHBORHOODS			*Comparisons*	
	Heber City Core	**Heber City Non-Core**	**Midway City**	*Cache Valley*	*Salt Lake Valley*
	Percent indicating important (4-5)				
Varying based on weather	**89**	**81**	**91**	*86*	*88*
Conserve amount of water used	**75**	**70**	**73**	*68*	*72*
Maintain property value	**63**	**75**	**67**	*71*	*66*
Prevent brown spots on lawn	**62**	**64**	**69**	*73*	*59*
Keep regular watering schedule	**58**	**67**	**64**	*61*	*63*
Minimize time spent watering	**58**	**52**	**59**	*57*	*60*
Keep neighbors happy	**28**	**35**	**38**	*32*	*31*

C. Use of Water Conservation Practices

Indoor Water Use

Several questions in the survey explored the use of practices that are designed to reduce water consumption (Table 7). Respondents were asked how often people in their household do each of five types of conservation behaviors. An 'indoor conservation index'[3] score was computed for each household. Interestingly, the scores on this index do not vary much across neighborhoods or across the three valleys in the study. Respondents from the Heber City Core report slightly fewer indoor conservation behaviors than respondents from the other areas.

When asked how their household indoor water use has changed over the last 5 years, between 15-30 percent of respondents indicate that they decreased their indoor water consumption. People in Midway City are the most likely to report decreased indoor water use, while respondents from the Non-Core neighborhoods of Heber City are the least likely. Roughly half of all households indicate that they believe they could do more to reduce indoor water use, though people in the Heber City Core are somewhat less likely to agree than those in the other two neighborhoods.

[3] The conservation index has a minimum value of 5 for people who never use any practice, and a maximum of 25 for people who always use each of the 5 practices.

Outdoor water use

A similar set of questions explored the use of conservation practices in outdoor irrigation behaviors (Table 7). We asked if they used one of three recommended strategies to reduce lawn watering: sprinkler testing, irrigation planning, and installation of more efficient irrigation systems. About 42 percent of respondents from the Heber City Core report use of at least one of these practices; this rises to 60 percent in the Heber City's Non-Core areas. Outdoor watering conservation practices are most commonly used in Midway City, where nearly two-thirds of households report use of one of these three practices.

Few households report a decline in outdoor water use over the last five years. Fewer than 20 percent of Heber City respondents (in both neighborhoods) say they decreased outdoor water use, while less than 10 percent of Midway respondents reduced outdoor use. At the same time, roughly 30 percent of respondents in each of the three Heber Valley neighborhoods feel they could do more to conserve outdoor water. Finally, between 25-40 percent of respondents believe they use less water than their neighbors.

Table7: Water Conservation Behaviors and Perceptions

	HEBER VALLEY NEIGHBORHOODS			*Comparisons*	
	Heber City Core	**Heber City Non-Core**	**Midway City**	*Cache Valley*	*Salt Lake Valley*
Use of Conservation Practices					
Mean score on index of use of indoor water conservation practices*	**18**	**19**	**19**	*18*	*19*
Percent using ANY of three outdoor water conservation practices**	**42**	**60**	**64**	*54*	*61*
Changes in Water Use					
Percent who decreased household indoor water use over last 5 years	**21**	**15**	**30**	*21*	*21*
Percent who decreased household outdoor water use over last 5 years	**19**	**19**	**9**	*17*	*20*
Percent who believe they can do more to conserve water INDOORS	**46**	**56**	**56**	*55*	*54*
Percent who believe they can do more to conserve water OUTDOORS	**33**	**28**	**31**	*34*	*43*
Believes they use LESS than average households in neighborhood	**39**	**25**	**40**	*37*	*35*

** = taking fewer or shorter showers, running dishwasher only when full, turning off water when brushing teeth, buying low water use appliances & fixtures, fixing leaky toilets and faucets (all measured on 5 point scale from never to always, minimum score = 5, maximum = 25)*

*** = Testing sprinklers to gauge amount of water applied; developing a plan to estimate amount of water needed by lawn, installation of a more efficient law watering system*

An illustration of how Heber Valley respondents compare to the two other study valleys on indoor and outdoor water conservation beliefs is shown on Figure 1. In general, respondents from the Heber Valley are less likely to think they can reduce outdoor water use than those in the other two study areas.

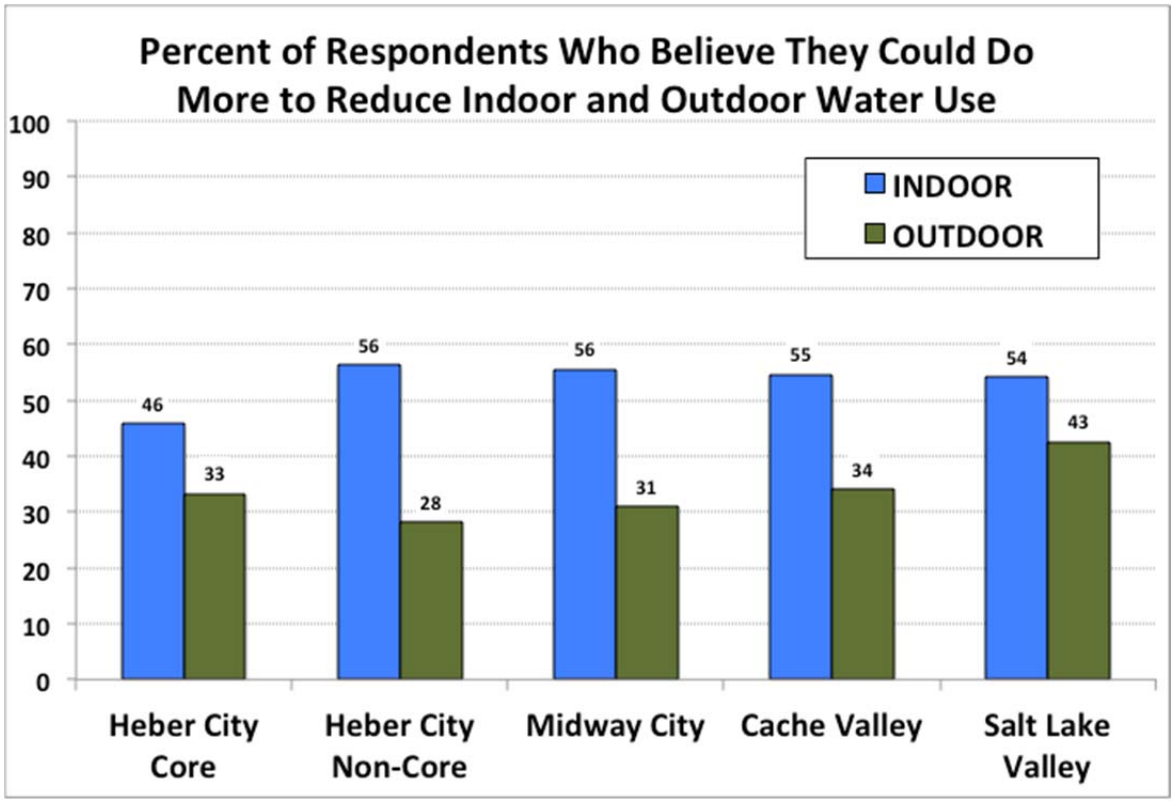


Figure 1: Percent of respondents who believe they can reduce water use.

D. Motivations to Conserve

The households in the study were asked how willing they would be to reduce their water use if they knew the water they conserved would be used for different purposes. The results are shown in Table 8. Overall, people are most willing to reduce water use if the savings were used to secure future local water supplies. Conversely, people are least willing to conserve if the water they save is used to encourage new development in the area. For nearly two-thirds of respondents, conserving water is attractive if they knew it would reduce their water bill.

There is widespread support in the Heber Valley for using conserved water to improve fish and wildlife habitat, particularly in Midway City. Midway respondents are also very supportive of conservation as a way to ensure a future supply of water for agriculture. Compared to others in the Heber Valley and the other two study valleys, respondents from Heber City's Non-Core areas are much less supportive of conserving water as a means to improve parks and open spaces, improve outdoor recreation, or ensure a future supply for agriculture.

Table 8: Willingness to Conserve Water Based on How Water Savings are Used.

How willing would you be to reduce your own water use if you knew the water you conserved would…	HEBER VALLEY NEIGHBORHOODS			*Comparisons*	
	Heber City Core	**Heber City Non-Core**	**Midway City**	*Cache Valley*	*Salt Lake Valley*
	Percent indicating willing or very willing (4-5)				
Ensure future supplies for your home	**78**	**80**	**86**	*79*	*81*
Improve fish & wildlife habitat	**65**	**64**	**73**	*64*	*70*
Ensure future supply for agriculture	**64**	**49**	**71**	*66*	*66*
Reduce your water bill	**65**	**66**	**67**	*73*	*75*
Improve urban parks & open spaces	**52**	**46**	**65**	*58*	*63*
Improve opportunities for outdoor recreation.	**48**	**48**	**55**	*45*	*47*
Allow increased development in this area	**32**	**18**	**23**	*27*	*30*

Based on input from Heber and Midway City leaders, we included a question in the survey that asked residents about their thoughts on how savings from household water conservation would likely be used by water managers. Two options were given: (a) water savings would be stored upstream for future use in their city, or (b) savings would be sold or transferred to water users downstream in Utah County. Results suggest that roughly 75% of respondents expect that gains from household water conservation would not necessarily improve water supplies for their own community.

Table 9: Perspectives on What Would Happen to Water Saved by Conservation.

If residents were able to cut their water use by 20%, what do you think would most likely happen to the water they saved?	**Heber City Core**	**Heber City Non-Core**	**Midway City**
	Percent of respondents		
It would be stored upstream in reservoirs for future use in city	**28**	**21**	**27**
It would be sold or transferred to downstream users in Utah County	**72**	**79**	**73**

E. Secondary Water Systems

Access to and Use of Secondary Water

Many homes in the Heber Valley have access to a 'secondary' water system for outdoor irrigation purposes (Table 10). This non-drinkable water is often provided by a different company than their indoor water (like an irrigation or canal company, but sometimes the city). Results of the survey suggest that secondary water use is widespread in Heber City's Non-Core neighborhoods with almost 70% of respondents reporting they have access and Midway City with over half reporting access[4]. Only a third of respondents from the Heber City Core neighborhood report access to a source of secondary water for irrigation, and nearly 20 percent of those do not use their secondary water. Most households who have access to secondary water systems use the water for irrigating their lawn and other landscaping. Between 40-60 percent also use this water on a vegetable garden. Relatively few area respondents report using secondary water for agricultural purposes (watering pastures, crops or livestock).

Satisfaction with Service

Respondents in the outlying areas of Heber City and those in Midway City who have secondary water service are generally satisfied with their systems with roughly 75% indicating they are satisfied or very satisfied. By contrast, a minority of respondents from the downtown area of Heber City (39%) are satisfied with their secondary water system. However, only 41% of Midway City respondents and roughly 30% of Heber City respondents say they are confident in the future security of their secondary water supply.

Relatively few people who have secondary water service have attended any meetings with their secondary water provider. Roughly 15% of those in Heber City have attended meetings, compared to nearly 30% in Midway City.

Pressure Problems

Most respondents with secondary water access in Heber City's core neighborhoods get their water through an open ditch, while nearly all secondary water in the other two neighborhoods are supplied with pressurized pipes. These differences reflect the fact that older irrigation infrastructure in the older Heber City neighborhoods has not yet been upgraded to pipes to pressurize the secondary water supply. A number of written comments on the surveys from downtown Heber City respondents express frustration at their lack of access to a pressurized system, and many rely instead on pressurized culinary water to water their lawns and yards.

Among those who report access to a pressurized secondary water supply, between 72-77 percent report no problems with pressure. Most of those who do report problems indicate

[4] In Midway, this may underestimate the actual use of secondary water since many residents live in housing complexes where a homeowner or condominium owner association manages the water, some respondents may not know how their irrigation water is provided.

that low pressure can be a problem in their area. Pressure problems are not reported by many overall, but are more common in Midway City, where nearly a quarter say they had a problem with low pressure in their secondary irrigation line. Between 5-7 percent of those in Midway City and the Non-Core areas of Heber City report problems with high pressure.

Table 10: Use and Perceptions of Secondary Water Systems in the Heber Valley

	HEBER VALLEY NEIGHBORHOODS			*Comparisons*	
	Heber City Core	**Heber City Non-Core**	**Midway City**	*Cache Valley*	*Salt Lake Valley*
	Percent of respondents				
Has Access to Secondary water	**33**	**69**	**56**	**21**	**13**
Secondary water use:					
Has but does not use	**19**	**2**	**0**	**13**	**10**
Used for lawn and yard landscaping	**65**	**97**	**98**	**79**	**84**
Used for vegetable garden	**42**	**50**	**60**	**53**	**60**
Used to water pasture/crops	**13**	**3**	**13**	**7**	**10**
Used to water livestock	**7**	**2**	**6**	**4**	**4**
How secondary water received					
Open ditch or canal	**71**	**5**	**3**	**47**	**29**
Pressurized pipe	**26**	**93**	**97**	**50**	**70**
Of those with pressurized pipe service:					
No pressure problems	*n.a.*	**77**	**72**	*n.a.*	*n.a.*
Problems with LOW pressure	*n.a.*	**16**	**23**	*n.a.*	*n.a.*
Problems with HIGH pressure	*n.a.*	**7**	**5**	*n.a.*	*n.a.*
Percent of secondary water users that:					
Are satisfied with secondary water system	**39**	**73**	**76**	**53**	**56**
Have attended a meeting with secondary water provider	**16**	**15**	**27**	**45**	**16**
Are confident in the future security of their secondary water supply	**28**	**31**	**41**	**38**	**30**

II. Water Perceptions & Experiences

A. Perceptions of Water Supply

Since planning for future water challenges is a major focus for local and state government officials, the survey included a block of questions that asked whether the respondent agreed with a set of statements that 'there is enough water to meet the needs of all people and businesses' in their city, valley and the state as a whole (Table 11).

Overall, the findings suggest about half of Heber Valley respondents are confident about the current sufficiency of the water supply to meet the needs of people and businesses in their city. Confidence drops significantly when asked about sufficiency of future supplies. Just over half of Heber City Non-Core respondents (54%) feel their city has sufficient water supplies, but that number cuts in half to 27% when responding about future city water. A similar pattern is seen for Heber City Core (46% to 17%) and Midway City respondents (42% to 18%) with regard to confidence in current and future city water supplies. Confidence in current valley water supplies is generally slightly lower than for cities.

By contrast, a small percentage of Heber Valley respondents believe that there is a sufficient current or future supply of water to meet needs at the state level.

There is also significant ambivalence about the sufficiency of local water supplies. As shown in Figure 2 on the next page, 35-40% of respondents indicate they neither agree nor disagree with the statements about overall water sufficiency for their city.

Table 11: Percent of Respondents Agreeing that Water Supply is Sufficient

	HEBER VALLEY NEIGHBORHOODS			*Comparisons*	
There is enough water to meet the needs of all people and businesses in…	**Heber City Core**	**Heber City Non-Core**	**Midway City**	*Cache Valley*	*Salt Lake Valley*
	Percent indicating AGREEMENT with statement				
CURRENTLY					
This City	**46**	**54**	**42**	*46*	*36*
Heber Valley	**39**	**49**	**39**	*39*	*28*
Utah	**11**	**11**	**20**	*19*	*18*
IN THE FUTURE					
This City	**17**	**27**	**18**	*23*	*13*
Heber Valley	**13**	**23**	**18**	*18*	*10*
Utah	**8**	**4**	**9**	*11*	*7*

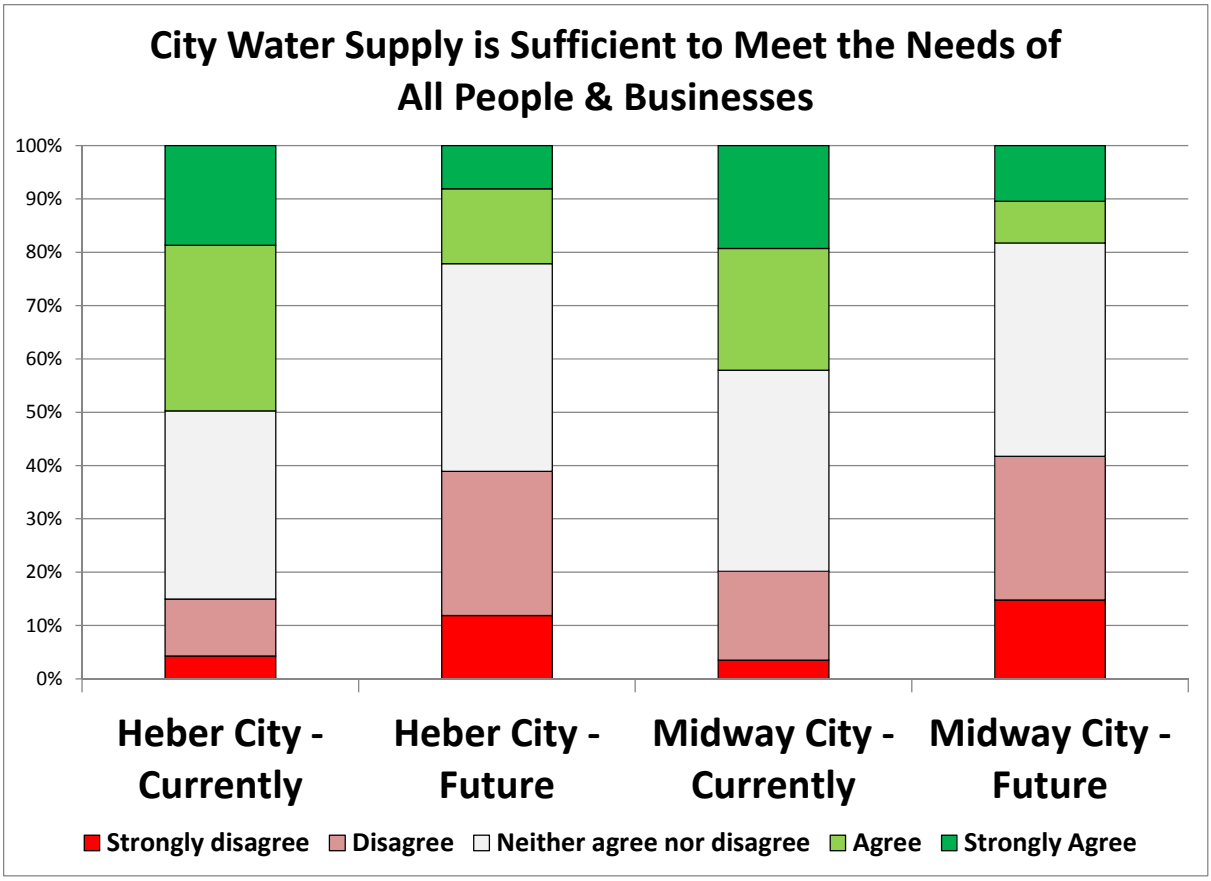


Figure 2: Distribution of Agreement or Disagreement with Statement that City Water Supply is Sufficient to Meet the Needs of All People and Businesses

B. Risk Perceptions

While water issues are likely to be important policy challenges for local and state governments in the coming years, there are a host of other important issues that compete for the attention of the public. To compare water issues to other topics, we asked respondents to indicate 'how concerned' they were about each of ten possible issues (Table 12).

In general, Heber Valley respondents report higher levels of concern about issues surrounding growth and development than about any of the five types of water issues or climate change. The most pressing concerns among downtown Heber City and Midway City respondents relate to a perceived loss of open space. By contrast, the highest levels of concern relate to traffic congestion among respondents living in Heber City's Non-Core areas. Compared to respondents from Cache and Salt Lake valleys, Heber Valley respondents overall have higher levels of concern about growth issues, but lower levels of concern about air pollution.

Among the water-related issues, the greatest level of concern relates to the perceived high cost of water. Concerns about water shortages and infrastructure tend to be notably higher than concerns about water quality. By far the lowest level of concern is expressed about flooding problems.

Table 12: Percent of Respondents Concerned about Various Issues

	HEBER VALLEY NEIGHBORHOODS			*Comparisons*	
	Heber City Core	**Heber City Non-Core**	**Midway City**	*Cache Valley*	*Salt Lake Valley*
	Percent Indicating Concern				
Loss of open space	**81**	**75**	**77**	*72*	*78*
Population growth	**79**	**75**	**76**	*64*	*72*
Traffic congestion	**78**	**81**	**68**	*80*	*82*
Air pollution	**74**	**68**	**66**	*77*	*86*
High cost of water	**72**	**67**	**69**	*65*	*75*
Deteriorating water infrastructure	**64**	**52**	**58**	*52*	*63*
Water shortages	**63**	**55**	**61**	*56*	*70*
Climate change	**57**	**41**	**55**	*48*	*64*
Poor water quality	**54**	**48**	**53**	*45*	*64*
Flooding	**21**	**25**	**15**	*28*	*24*

Water issues listed in bold text.

C. Perceptions about Water Use and Water Quality

Given the concerns about water shortages discussed above, the survey included a block of questions designed to capture public perceptions about which, if any, sectors are responsible for using 'too much' water (Table 13). The results suggest that most of the 'blame' for overuse of water is attributed to residential lawns, parks, and golf courses. By contrast, very few people (between 7-18 percent) have the impression that agriculture is using too much water. Compared to those from Cache and Salt Lake valleys, respondents from Heber Valley are less likely to think residential lawns use too much water, but somewhat more likely to see agriculture as an excessive user of water.

Table 13: Perceived 'Excessive' Water Use by Sector

	HEBER VALLEY NEIGHBORHOODS			*Comparisons*	
Too much water is used for…	**Heber City Core**	**Heber City Non-Core**	**Midway City**	*Cache Valley*	*Salt Lake Valley*
	Percent indicating agreement (4-5)				
Residential lawns	**44**	**38**	**49**	*51*	*64*
Parks and golf courses	**48**	**40**	**40**	*44*	*52*
Industry	**27**	**15**	**16**	*22*	*40*
Agriculture	**7**	**14**	**18**	*10*	*10*

Water Quality

We also assessed public perceptions of the water quality of different types of water bodies (Table 14 and Figures 3 and 4). Overall, people are much more likely to assess all types of water in their area as 'good quality' than 'bad quality'. With respect to their drinking water supply, between 70-79 percent of Heber valley respondents see their water quality as good, while just 6-11 percent rate it as poor or bad. The drinking water supply is rated more positively in the Heber Valley than among respondents from Salt Lake Valley. In general, Midway City respondents report more positive water quality ratings than people living in Heber City.

For Heber City respondents, there is slightly less indication that water in nearby irrigation canals and ditches and downstream reservoirs is seen as 'good', but still fewer than 15% of respondents indicate they believe these sources have 'bad' water quality. There is a relatively high degree of uncertainty about the water quality of groundwater reserves underlying the study neighborhoods (58-74% of respondents are unsure or rate it as neither good nor bad).

Table 14: Perceived Water Quality of Different Types of Water Resources.

How would you rate the water quality of the following types of water in your area?	HEBER VALLEY NEIGHBORHOODS			*Comparisons*	
	Heber City Core	**Heber City Non-Core**	**Midway City**	*Cache Valley*	*Salt Lake Valley*
	Percent rating quality good or very good				
Drinking water supply	**70**	**79**	**71**	*79*	*63*
Water in rivers and lakes upstream	**52**	**58**	**64**	*56*	*42*
Water in streams and creeks in neighborhood	**50**	**51**	**65**	*53*	*29*
Water in streams or rivers downstream	**44**	**45**	**53**	*38*	*22*
Water in reservoirs and lakes downstream	**44**	**39**	**46**	*36*	*23*
Water in nearby irrigation canals or ditches	**37**	**39**	**47**	*41*	*15*
Groundwater in neighborhood	**23**	**25**	**37**	*27*	*14*

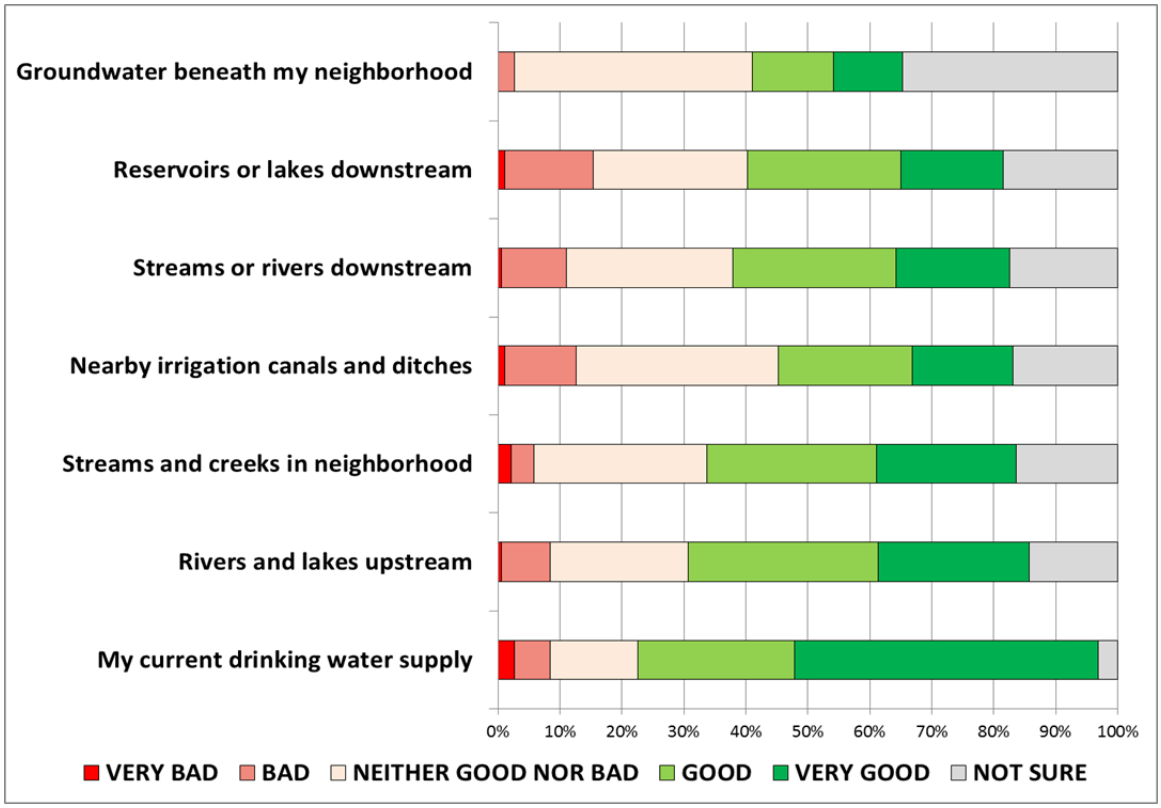


Figure 3: Water quality perceptions among Heber City respondents (combined)

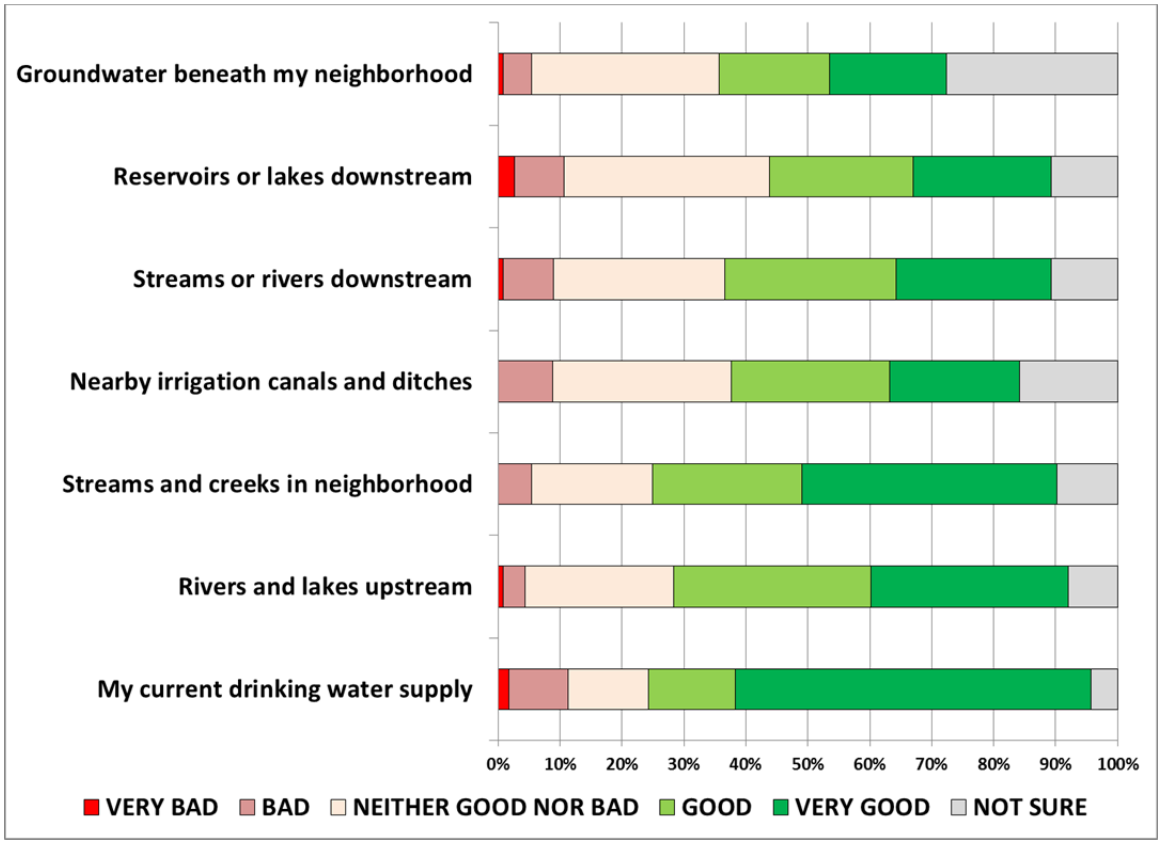


Figure 4: Water quality perceptions among Midway City respondents.

D. Experience with Flooding

Relatively few respondents from this area (15-25%) list flooding as a major concern. However, when asked if they or members of their household have experienced property damage over the last 10 years, nearly a third of households listed impacts such as flooded basements or other property damage (Table 15). Roughly 40 percent indicated any type of impact to their household. The survey only asked about impacts from flooding and/or stormwater and did not differentiate between flooding originating inside the home from external flooding sources.

About half of the respondents in Heber Valley indicate that their community has experienced impacts by flooding or stormwater damage. Respondents of the Heber City and Midway City study neighborhoods are generally equally likely to report flooding impacts to their households or community. However, they are somewhat less likely to report flooding impacts to their household than those from Cache or Salt Lake valleys.

Table 15: Percent of Respondents indicating Impacts from Flooding on Household or Community.

	HEBER VALLEY NEIGHBORHOODS			*Comparisons*	
	Heber City Core	**Heber City Non-Core**	**Midway City**	*Cache Valley*	*Salt Lake Valley*
	Percent of respondents listing impacts				
Household suffered property damage from flooding or stormwater in last 10 years	**32**	**31**	**30**	*38*	*33*
Any household impact from flooding or stormwater damage in last 10 years*	**37**	**40**	**42**	*43*	*46*
Any community impact from flooding or stormwater damage in last 10 years*	**48**	**54**	**51**	*80*	*72*

** = Combines all types of impacts, including flooded basement or other property damage, injury or loss of life, damage to public roads or infrastructure, contamination of drinking water or area streams. Listed if at least one type of impact was reported.*

E. Climate Change Perceptions

Climate change has received significant attention in the media and political debate. The respondents in Heber Valley were asked their views on climate change, and whether they were worried that climate change will significantly impact the water supplies in their valley. Results demonstrate a wide diversity of views on this topic. Overall, most respondents believe that climate change is happening (70-85%), but respondents are split evenly as to whether they see climate change as human-caused or part of a natural process (Table 16). Between 30-43 percent of respondents see climate change as a possible threat to water supplies in the valley.

Table 16: Respondent Views on Climate Change Issues

	HEBER VALLEY NEIGHBORHOODS			*Comparisons*	
	Heber City Core	**Heber City Non-Core**	**Midway City**	*Cache Valley*	*Salt Lake Valley*
		Percent of respondents			
How would you characterize your views on climate change?					
Climate change is happening, and is caused mainly by human activities	**46**	**37**	**38**	41	55
Climate change is happening, and is caused both by human and natural causes	**5**	**5**	**6**	3	5
Climate change is happening and is caused mainly by natural processes	**19**	**34**	**41**	29	22
Climate change is not happening	**4**	**5**	**4**	5	4
I do not know enough to say if climate change is happening	**26**	**18**	**11**	21	15
Respondent is worried that climate change will significantly impact water supplies in this valley	**43**	**30**	**43**	*39*	*54*

III. Water Policy and Management Perspectives

A. Support for Local Water Management Strategies and Policies

Many survey questions assessed the levels of support or opposition to a wide range of local water management policies and programs.

Addressing Short Term Water Shortages

Respondents were asked, "If your city faced a short-term water shortage, how much would you oppose or support each of the following possible local policies or strategies?" (Table 17 and Figures 5 and 6). There is very high level of support (80-95%) for educational and voluntary conservation programs across all three Heber Valley communities. Support for restrictions on watering in parks, golf courses, and public properties is lower, but still ranges from 69-77 percent. Mandatory restrictions on watering to respond to short-term shortages is the least supported, but still has support from 60-67 percent of respondents and opposition is less than 20%.

Table 17: Percent of Respondents Supporting Various Local Policy Options

	HEBER VALLEY NEIGHBORHOODS			*Comparisons*	
	Heber City Core	**Heber City Non-Core**	**Midway City**	*Cache Valley*	*Salt Lake Valley*
	Percent indicating support or strong support				
Educate public on water conservation	**89**	**90**	**95**	*89*	*90*
Encourage voluntary reductions in outdoor water use	**84**	**82**	**90**	*84*	*86*
Restrict watering in parks, golf courses, and other public properties	**72**	**77**	**69**	*76*	*77*
Mandatory watering restrictions	**65**	**60**	**67**	*69*	*66*

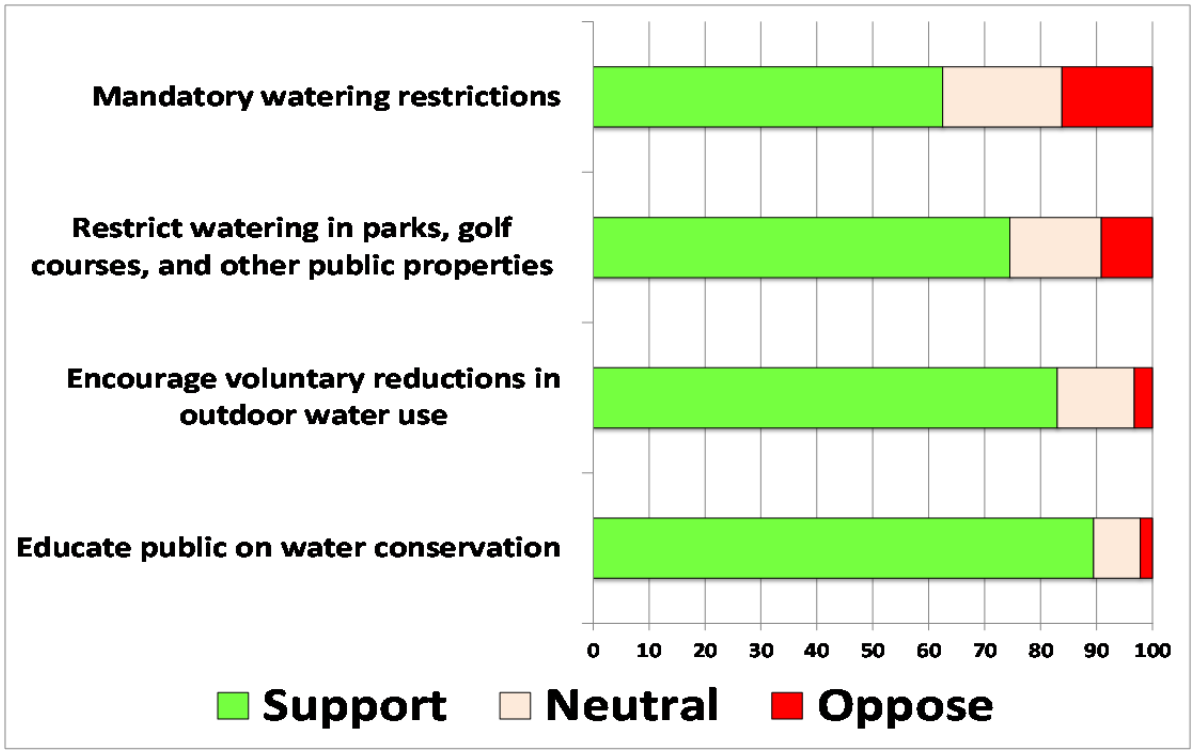


Figure 5: Percent of Heber City Respondents who Support or Oppose Various City Responses to Short Term Water Shortage.

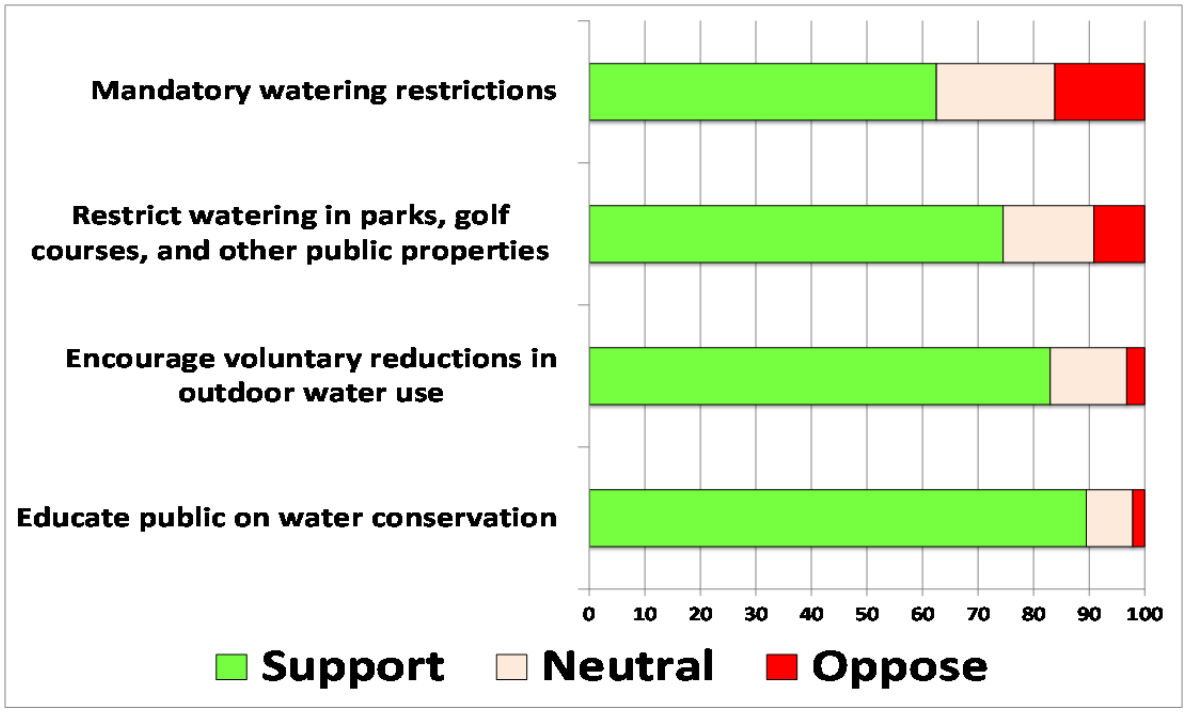


Figure 6: Percent of Midway City Respondents who Support or Oppose Various City Responses to Short Term Water Shortage.

Long Term Water Management Strategies.

Residents were also asked about the extent to which they supported a range of potential long-term approaches to water policy and management (Table 18 and Figures 7 and 8). The most popular policy across the three study neighborhoods is to 'limit future housing development unless water supplies are secured,' which is supported by 73-80 percent of respondents. There is also considerable support, particularly in Midway City, for using treated wastewater to supply residential irrigation.

Building new water storage facilities is supported by 49-64% of Heber Valley respondents, with Heber's Core neighborhood indicating less support than Heber City's Non-Core or Midway City respondents. There is only modest support all of the other local water policy options, and support is generally lower in Heber Valley than among respondents in the other two study valleys. The least support is for buying water rights from farms to use in the city. However, Midway respondents are considerably more likely to support water rights transfers from farms to cities than other Heber Valley respondents or those from the other study valleys.

Roughly 50 percent of Heber City respondents have access to secondary water for outdoor irrigation. People without access to secondary water, and those with inconvenient secondary systems, often use culinary drinking water to irrigate their lawns and outdoor plants. One policy item asked whether residents supported a fee to provide access to pressurized secondary water for households currently using culinary water to irrigate. Overall, roughly 30 percent of Heber City respondents support this type of policy. Figure 9 below breaks out the level of support or opposition for Heber respondents based on their access to secondary water. It is apparent that people with no access to any secondary water are most supportive (and least opposed) to such a fee, while those who currently have access to unpressurized secondary water are least supportive of this policy.

Table 18: Percent of Respondents Supporting Various Local Policy Options

	HEBER VALLEY NEIGHBORHOODS			*Comparisons*	
Long Term Local Policy Options	**Heber City Core**	**Heber City Non-Core**	**Midway City**	*Cache Valley*	*Salt Lake Valley*
	Percent indicating support or strong support				
Limit future housing development unless water supplies are secured	**73**	**80**	**79**	*67*	*73*
Develop a system to reuse treated wastewater for residential irrigation	**64**	**62**	**80**	*71*	*75*
Build new water storage facilities	**49**	**57**	**64**	*61*	*64*
Charge more per gallon for large water users	**44**	**40**	**50**	*43*	*53*
Reduce requirements for environmental protection to facilitate new water projects	**41**	**44**	**48**	*31*	*35*
Build structures to reduce storm water runoff	**41**	**44**	**48**	*54*	*63*
Subsidize purchase of low water use irrigation systems and appliances	**44**	**36**	**47**	*50*	*58*
Implement ordinances to require low-water landscaping	**37**	**37**	**49**	*40*	*49*
Encourage housing development that uses less water per person	**41**	**30**	**41**	*37*	*53*
Increase budgets for storm water management	**34**	**34**	**36**	*48*	*53*
Charge a fee to upgrade outdoor culinary water irrigation systems to pressurized pipes for secondary water	**32**	**28**	**42**	*n.a.*	*n.a.*
Buy water rights from farms to use in the city	**18**	**22**	**39**	*24*	*24*

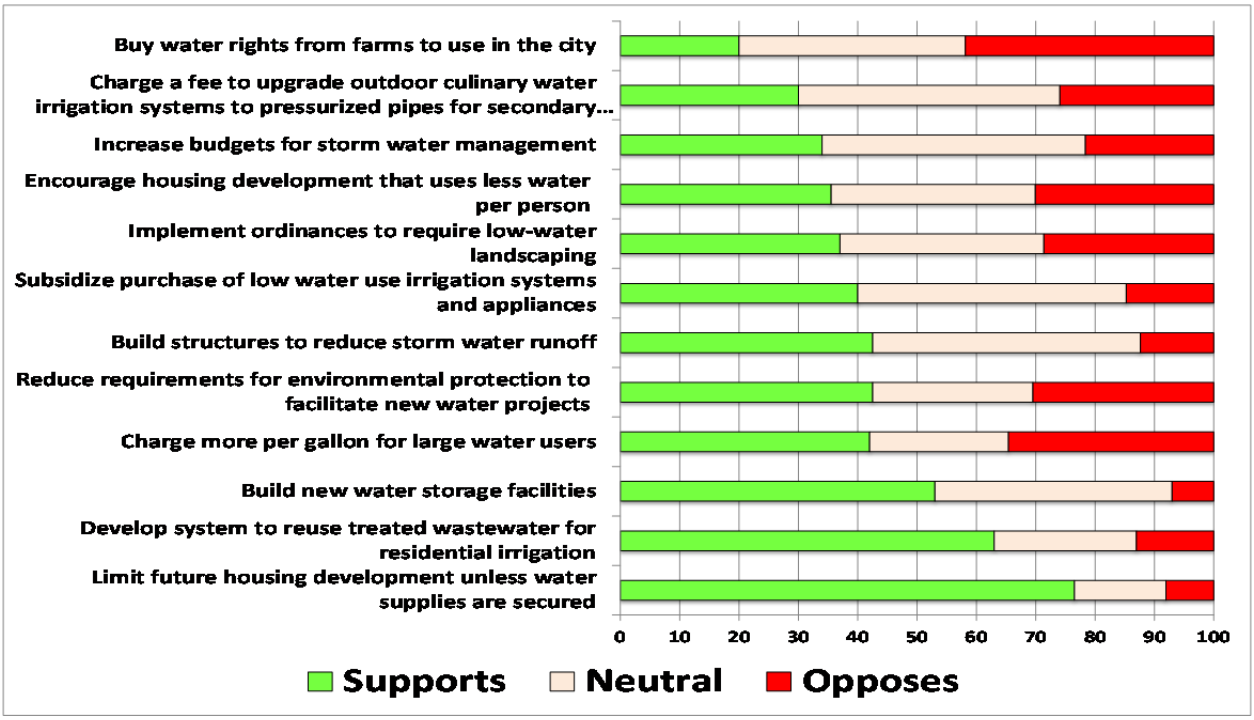


Figure 7: Heber City Respondent Support for Various Long-Term City Water Management Strategies.

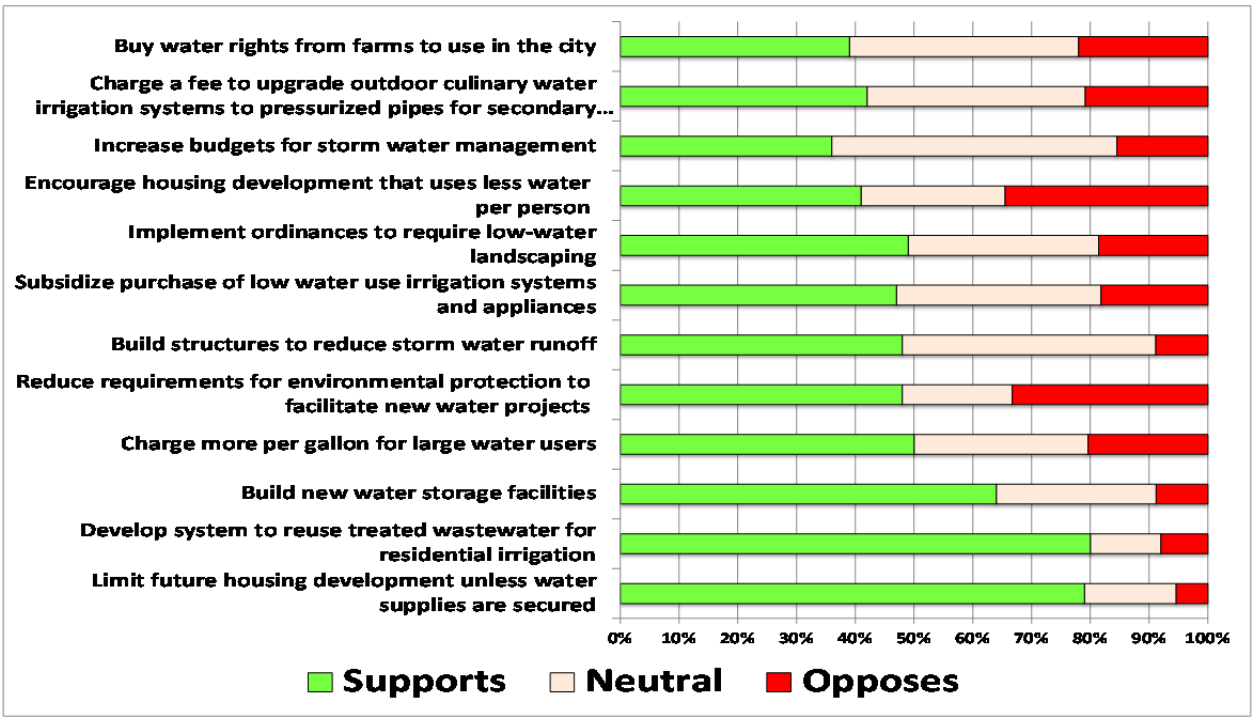


Figure 8: Midway City Respondent Support for Various Long-Term City Water Management Strategies.

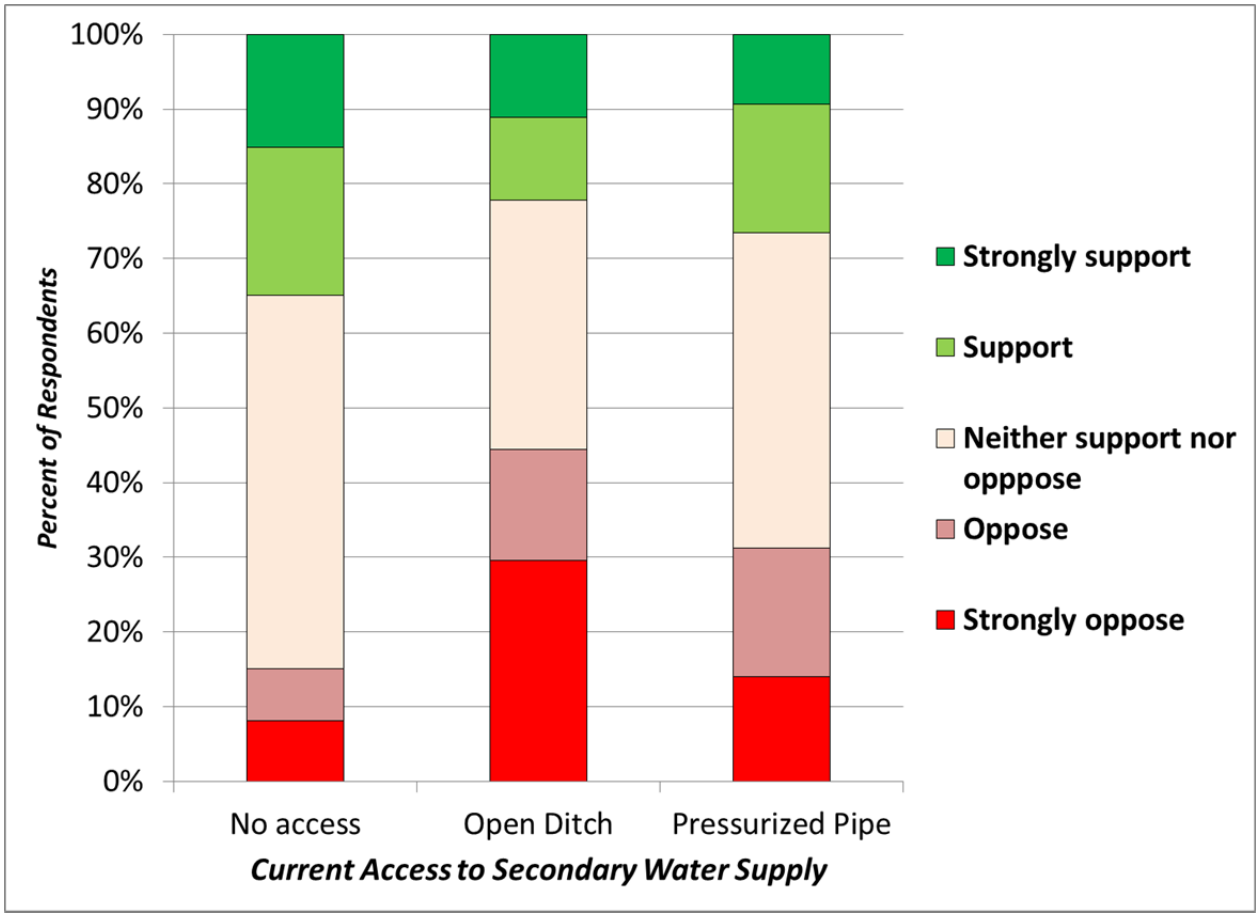


Figure 9: Heber City Respondent Support for "Charging a fee to upgrade outdoor culinary water irrigation systems to pressurized pipes for secondary water" by Type of Current Access to Secondary Water.

B. Support for State Water Policies

State Water Policy Goals

The survey asked residents to indicate their level of support for a variety of state water policy goals (Table 19). Protecting water quality and ensuring a supply of drinking water are overwhelmingly supported across Heber, Cache, and Salt Lake City valleys. Heber Valley respondents are similar to those from Cache Valley in terms of support for ensuring water supply for agriculture. Protecting wetlands and wildlife habitat is slightly more supported by Heber City Core respondents than by those from the rest of Heber Valley neighborhoods. Midway respondents are slightly more supportive of policies to ensure the supply for water for economic development than those from other locations.

Table 19: Percent of Respondents Supporting Different Goals for State Water Policies

	HEBER VALLEY NEIGHBORHOODS			*Comparisons*	
	Heber City Core	**Heber City Non-Core**	**Midway City**	*Cache Valley*	*Salt Lake Valley*
	Percent indicating support or strong support				
Protecting water quality	**96**	**97**	**94**	*94*	*95*
Ensure supply of drinking water	**95**	**95**	**97**	*97*	*96*
Ensure the supply of water for agriculture	**87**	**86**	**86**	*86*	*80*
Protecting the wetlands and wildlife habitat	**80**	**73**	**74**	*68*	*75*
Saving taxpayer money	**65**	**60**	**53**	*56*	*52*
Ensure the supply of water for economic development	**49**	**41**	**53**	*47*	*41*

State Water Policy Strategies

We also assessed support for a range of which are currently being considered by state water planners and policy makers (Table 20). Among the Heber Valley respondents, the strategies receiving support from a majority of respondents in each of the three study communities include state funding to replace aging city water infrastructure, building new water storage reservoirs, setting standards for new residential construction, ensuring minimum flows in streams to protect fish habitat, and investing in more efficient agricultural irrigation systems. Relatively few Heber Valley respondents support efforts to transfer water from agriculture to urban users.

Midway City respondents indicate more support for using state funds to help replace aging water system infrastructure in cities and build new reservoirs or storage projects than those from Heber City. Respondents from Non-Core Heber are generally less likely than those from other Heber Valley neighborhoods to support a variety of policies as seen in the table. Similar to the findings regarding local water policies, the least amount of support across the board is found with regards to transferring water from agriculture to urban uses.

Table 20: Percent of Respondents Supporting State Water Policy Strategies

	HEBER VALLEY NEIGHBORHOODS			*Comparisons*	
	Heber City Core	**Heber City Non-Core**	**Midway City**	*Cache Valley*	*Salt Lake Valley*
	Percent indicating support or strong support				
Use state funds to help replace aging water system infrastructure in cities	**65**	**61**	**72**	*69*	*77*
Use state funds to build new reservoirs or storage projects	**58**	**60**	**70**	*60*	*62*
Set minimum state standards for new private residential construction to reduce water use	**64**	**50**	**67**	*55*	*67*
Establish minimum flow requirements for streams to protect fish habitat	**62**	**54**	**61**	*53*	*64*
Invest in research on new water conservation technologies and practices	**62**	**49**	**64**	*59*	*67*
Use state funds to pay for efficiency improvements in agricultural irrigation systems	**61**	**50**	**63**	*57*	*60*
Allow people with water rights to sell water saved from using conservation practices	**53**	**45**	**66**	*55*	*55*
Ensure state policy prioritizes the efficient use of water over protecting existing water rights	**34**	**38**	**43**	*42*	*49*
Use state funds to construct pipelines to bring water to urban areas from other regions	**30**	**22**	**39**	*34*	*39*
Facilitate transfers of water from agriculture to urban users	**19**	**26**	**30**	*26*	*29*

While there are some differences in support for state-level policy strategies between Midway and Heber City respondents, the overall patterns remain fairly similar. A more detailed illustration of both support and opposition to these strategies for the combined sample of Heber Valley respondents is shown in Figure 10 below.

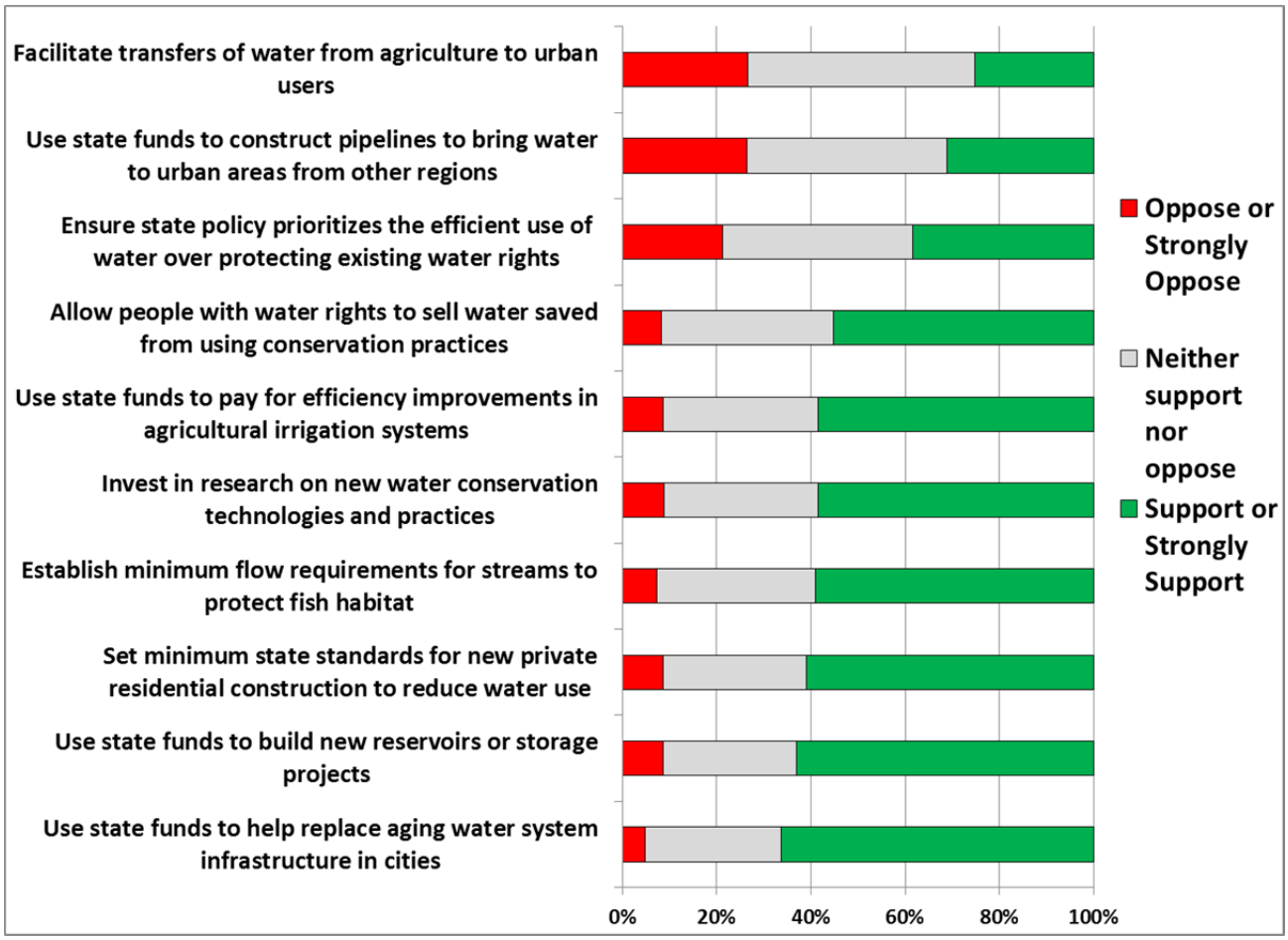


Figure 10: Percent of Heber Valley Respondents Opposing or Supporting Various State Water Policy Strategies.

IV. Additional Information

A. Water Information Sources

Residents were asked to indicate where they find information about water issues (Table 21). TV and radio are the most common information sources, followed by friends and neighbors, newspapers (particularly the Wasatch Wave), internet/social media, and mailings from providers. Midway respondents were particularly more likely to rely on friends and neighbors for information than those from other Heber Valley respondents or those from Cache and Salt Lake valleys.

Table 21: Sources of Information about Water Issues

	HEBER VALLEY NEIGHBORHOODS			*Comparisons*	
Sources of Information about Water Issues	**Heber City Core**	**Heber City Non-Core**	**Midway City**	*Cache Valley*	*Salt Lake Valley*
	Percent indicating use of the source				
Any newspaper	**58**	**50**	**59**	50	45
Salt Lake Tribune	**22**	**17**	**26**	13	38
Deseret News	**16**	**17**	**21**	11	17
Wasatch Wave	**51**	**40**	**43**	n.a.	n.a.
TV/Radio	**73**	**63**	**64**	65	73
Internet/social media	**48**	**53**	**62**	54	60
Mailings from providers	**48**	**44**	**51**	47	52
HOA/COA	**5**	**10**	**42**	12	9
Friends and neighbors	**59**	**52**	**72**	58	50

B. Satisfaction with Neighborhood and Community

Survey respondents were asked to assess their level of satisfaction with various aspects of their neighborhood and community (Table 22). A high percentage of respondents in each community are satisfied with their overall quality of life. In general, Midway respondents are more satisfied with all aspects of their community. Heber City Non-Core respondents are significantly less satisfied than Heber City's Core respondents with regard to the number of shade trees and the quality of parks and common spaces.

Table 22: Percent of Respondents Satisfied with Aspects of their Neighborhood

	HEBER VALLEY NEIGHBORHOODS			*Comparisons*	
Aspect of Neighborhood	**Heber City Core**	**Heber City Non-Core**	**Midway City**	*Cache Valley*	*Salt Lake Valley*
	Percent satisfied or very satisfied				
Appearance of homes and yards	**59**	**62**	**81**	65	56
Opportunities to interact with neighbors	**60**	**66**	**75**	65	55
Number of shade trees	**67**	**34**	**71**	63	57
Quality of parks and common spaces	**72**	**49**	**84**	73	64
Overall quality of life	**82**	**82**	**97**	85	76

Summary

This concludes our preliminary reporting of findings from the 2014 iUTAH Household Water Survey for the Heber Valley. We anticipate continued analysis of data from the survey and we will post additional findings as they become available at www.iutahepsecor.org/hhsurvey. Please contact us if you have any questions. Dr. Douglas Jackson-Smith can be reached at (435) 797-0582 or doug.jackson-smith@usu.edu.