Santa Fe River Watershed
Stakeholder Assessment: Preliminary Report

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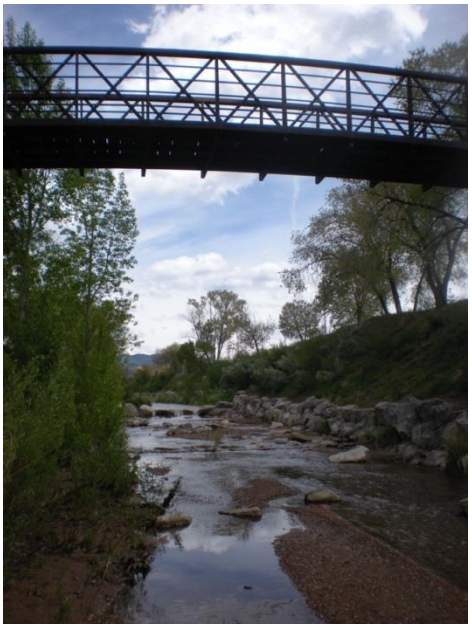

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Executive Summary

Stakeholders are people or entities with an interest in or an influence on a decision or activity. This stakeholder assessment sought to identify stakeholders relating to the Santa Fe River and Watershed and to better understand their perspectives and the relationships among them. The Santa Fe Watershed Association (SFWA) leads a current US Bureau of Reclamation funded effort to better understand stakeholders in the area and their range of perspectives pertaining to Santa Fe River watershed management priorities. The primary objective was to apply assessment results, in collaboration with resource managers, to tailor outreach efforts toward addressing the most salient issues raised by specific stakeholder groups.

SFWA contracted with GeoSystems Analysis, Inc. and researchers from Utah State University to carry out a two-year assessment effort. This report summarizes part of the assessment process and thus is only a preliminary report. It does not reflect the views or opinions of the Santa Fe Watershed Association or its partners; rather it offers observations and lessons that can be utilized by all parties to inform effective collaboration, communication, outreach, and planning.

Researchers from Utah State University conducted interviews with identified stakeholders and facilitated an online process to sort priorities related to the Santa Fe River and Watershed. Participants in this assessment process were not meant to be fully representative of all views, nor illustrative of issues that have emerged since the assessment work was done, but merely an illustration of perspectives within the watershed in 2020-2021 when we spoke and worked with participants. Effort was made to include key stakeholders from government entities, business, environmental groups, and local civic interests in different parts of the watershed. This study was not meant to be representative of watershed demographics.

This report outlines in detail the findings from this stakeholder assessment. In summary:

- A variety of issues were raised by participants from all or nearly all stakeholder groups, including climate change, ongoing drought, stormwater management, erosion, floods, wildfire threats, groundwater recharge, invasive species, soil health, water supply, water quality, water conservation, population growth and development, and the impacts of water infrastructure on riparian habitats and social wellbeing.

- Considerable differences were found across stakeholders and interest groups who participated, particularly relating to priorities for the upper watershed, perspectives on water quality, utilization of San Juan-Chama water, and the role of Acequias and Pueblos. There were contradictions among the priorities, suggesting opportunities for clarifying mutual understanding within the watershed.

- Funding, assumptions of opposition, and concerns about public participation and inclusion were perceived as significant barriers to achieving desired priorities that were highlighted in stakeholder interviews.

- Not everyone who participated in the assessment felt they had a “seat at the table” in terms of key interactions related to the Santa Fe River and Watershed. There was considerable lack of satisfaction in the power dynamics within the watershed. That said, there are clearly important informal coalitions within the watershed.

- Five distinct groups emerged from the priority sorting process conducted with 42 participants in an online Q-Sort process. These groups have different assemblages of priorities for the Santa Fe River and Watershed, showing that one-size-does-not-fit-all when it comes to future goals and interests. Care will be needed to navigate this diversity in planning and engagement efforts.

    - The five groups resulting from the Q-Sort of priorities were labeled as follows:
        1) Multi-Use, Equity
        2) Urban, Technological Management
        3) Ecocentric Management
        4) Traditional, Cultural Management
        5) Lower Watershed, Collaborative Management

1. Project Description:

In a collaborative effort funded by a US Bureau of Reclamation WaterSMART grant, we conducted a stakeholder assessment in the Santa Fe River Watershed. The goal was to hear from perspectives representing a diverse group related to multiple sectors and watershed geographies about issues, concerns, and values related to the Santa Fe River and its surrounding watershed. The objective is to apply assessment results, in collaboration with the City of Santa Fe and other partners, to tailor outreach efforts toward addressing the most salient issues raised by specific stakeholder groups.

The project was conducted in two phases. First, after identifying stakeholder groups with the help of the Santa Fe Watershed Association, the City of Santa Fe, and Santa Fe County, we contacted as many stakeholder representatives on the lists as we could in a nine-month time period. We invited stakeholder group representatives to participate in an online or phone interview. These 56 interviews with 63 people were recorded and transcribed. Questions asked in interviews can be found in Appendix A. Questions were open ended and no specific issue was raised first by the interviewers. The map below (Figure 1) highlights the upper, middle and lower watersheds and various key geographic locations in the watershed. It was used to guide the discussion to orient issues and priorities to various areas within the watershed.

Second, we extracted river and watershed priorities out of the interview transcripts. We distilled them down to a manageable number (63) and used a methodology called a Q-Sort to have stakeholders sort through the full list of priorities. This tool allowed us to see how many different groupings of people there are related to shared perspectives on the priorities. For the online Q-sort process, 41 people participated in an online effort and one person did the sorting process by hand.

The COVID-19 pandemic presented complications for the project. In-person interviews were not possible and all interactions occurred remotely. Constructing a project-specific online mechanism for the Q-sort delayed the data gathering process. This report highlights preliminary findings from both phases of the stakeholder assessment. Feedback from Santa Fe Watershed stakeholders is welcome.

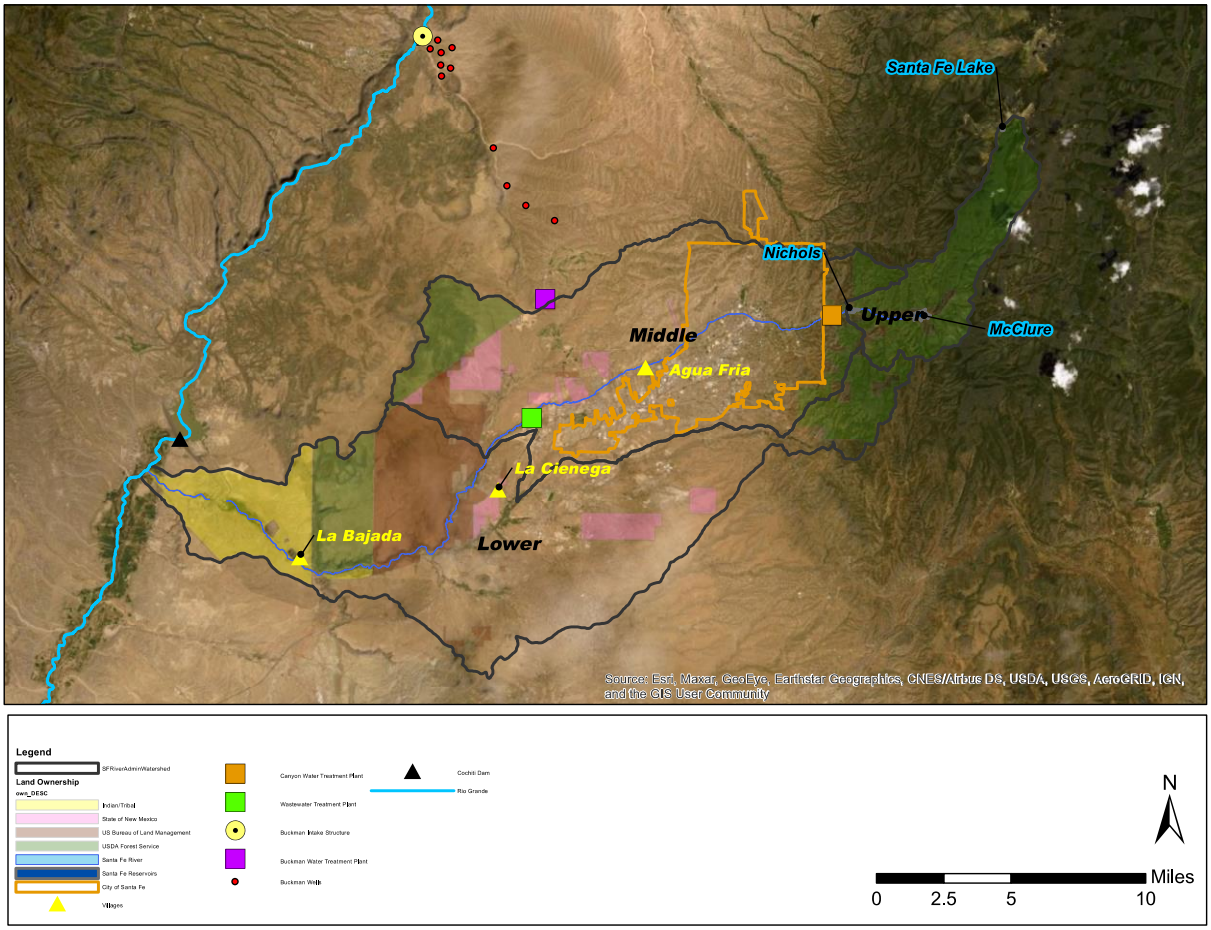


Figure 1: Map of the Santa Fe Watershed

2. Assessment Phase 1 - Stakeholder Interviews

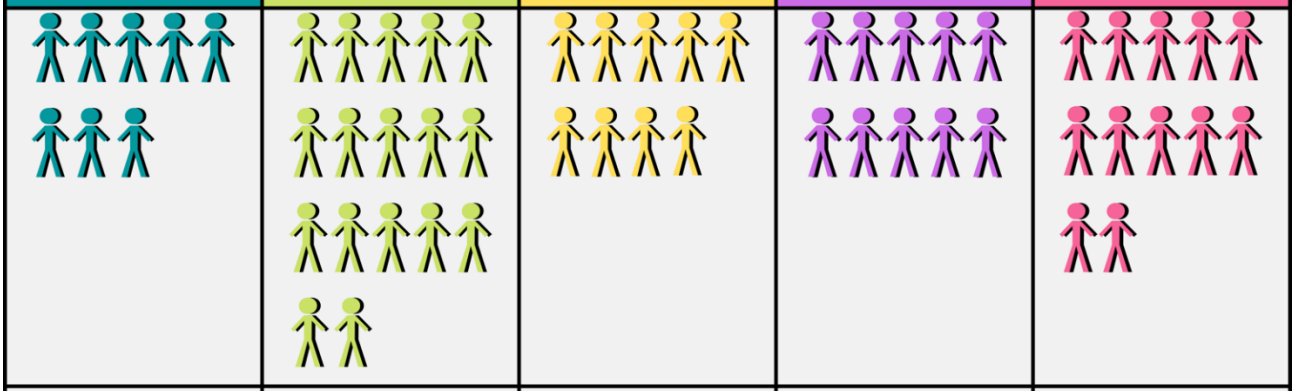
Between February and June 2021, the research team conducted 56 in depth interviews with 63 individuals from a variety stakeholder groups and interests within the Santa Fe River Watershed. These interviews covered questions regarding issues, concerns, and values in the watershed, top management priorities, obstacles to those priorities, perceptions of essential collaborators to complete priorities, and perceptions of accessibility and participation in decision making practices. These interviews represent the time in which they were conducted, and as such priorities have potentially adjusted and shifted in response to dynamic factors within the watershed and surrounding communities.

The 63 individuals who participated in the interviews represented five different general interest groups as shown in Figure 2. These groups included: 1) Environmental Civic Groups – those whose work centered on environmental issues; 2) Non-Environmental Civic Groups – local organizations and associations which were not explicitly environmental; 3) Business Groups – for-profit and related associations (where appropriate, this group is separated between "water related businesses" and "non-water related businesses" for accuracy, though because the relatively smaller size of this group it is condensed herein to protect participant confidentiality); 4) City of Santa Fe – elected and staff positions; and 5) other Government Groups – Acequias, State, Federal, and sovereign Pueblo stakeholders. For a list of stakeholder organizations represented amongst interview participants see Figure 2. The City of Santa Fe was treated as a separate group given their key role in the watershed. After preliminary meetings with County representatives, we were unable to connect for their formal participation.

With the help of the Santa Fe Watershed Association, and drawing upon City of Santa Fe reports and input, 132 stakeholders within these interest groups were identified and 105 were contacted to participate. Importantly, many participants do not fit neatly into only one interest group, as many stakeholders in the watershed hold positions in several organizations and a myriad of affiliations. As such, we organized participants with their "best fit" – often their primary role, or a role that they spoke most often about.

Throughout the interviews there was a consistent theme of deep care for Santa Fe River and the watershed itself. While specific priorities, issues, and concerns varied throughout interviews, and were at times in opposition with one another, the underlying and common goal reflected responsible management and community benefit. As the following analysis illustrates, what responsible management entails and where the boundaries of community begin and end are subject to interpretation.

Stakeholder Interest Groups From Interviews



Non-Environmental Civic (8)	Environmental Civic (17)	Business (9)	City (10)	Government (12)
• Canyon Neighborhood Association • Community Educators • New Mexico Coalition to End Homelessness • Santa Fe Girls School • Santa Fe Traditional Communities Collaborative	• Audubon Southwest • Forest Stewards Guild • Institute for Applied Ecology • New Mexico Wildlife Federation • Reunity Resources • Rivers Run Through Us • Santa Fe Watershed Association • SF Conservation Trust • Sierra Club • Water Culture Institute	• Ecotone • Hydrology Contractors • Realty Groups • River Source • San Isidro Permaculture • Santa Fe Homebuilders Association • Seeds of Wisdom • The Rain Catcher	• Buckman Direct Diversion • City Councilors • Parks • River Commission • Water Division • Water Utility	• Acequia del Llano • Acequia Madre • Acequia Muralla • Acequia Real • New Mexico Land Office • New Mexico State Outdoor Recreation Department • Pueblo de Cochiti • Pueblo of Tesuque • US BLM • US Forest Service • Village of Agua Fria

Figure 2: Assemblage of Participants Representing Stakeholder Interests in Assessment Interviews. List of organizations is not comprehensive, but reflects entities, organizations, or interest groups for people who agreed to be identified in project reporting.

2.1. Diversity of Issues, Concerns, and Priorities

Like most riverine landscapes, the Santa Fe River Watershed is host to a wide range of perceptions about water issues held by diverse individuals, environmental organizations, civic groups, businesses interests, and local, municipal, county, state, federal, tribal and other governments. In interviews with stakeholders, many of the issues at the forefront of peoples' minds reflect common concerns throughout arid regions in the southwestern U.S. including the planning pressures of climate change, ongoing drought, stormwater management, erosion, floods, wildfire threats, groundwater recharge, invasive species, soil health, water supply, water quality, water conservation, population growth and development, and the impacts of water infrastructure on riparian habitats and social wellbeing. And at the same time, priorities more specific to Santa Fe were also mentioned such as water utilization within water agreements like San-Juan Chama and Rio Grande compacts, management of the Upper Watershed, and collaboration and recognition of the cultural, historical, and legal significance of Acequias and Pueblos within the watershed.

Figures 3a-3c below show the distribution of themes from the interviews that represent various water issues and concerns. These themes emerged in response to open ended questions about issues, concerns, values, and priorities, and therefore represent themes that participants brought up on their own. The absence of a mention does not reflect disagreement, but rather a difference in perceived immediacy of issues. Each stick figure indicates one interview and not necessarily one person. As shown, some issues had more cross-cutting mentions than others (see Figure 3a). Water flow, wildfire threats, water quality, ecosystem health, and conservation were all consistently mentioned across groups.

At the same time, there were significant disparities regarding many other priorities (Figures 3b & 3c). Holistic planning, urban design, respecting cultural uses, affordable housing and development, issues associated with homelessness, recreation, and more centralized watershed management were mentioned in several interviews, but with less frequency. Fixing a public swimming pool, opposition to beavers and cottonwoods below the wastewater treatment plant, and bringing Santa Fe County water to La Cienega Springs were only mentioned once.

Perceptions of Key Watershed Issues

"It's a watershed that is threatened, in some ways, is threatened… by wildfire, by flood, by erosion, by human use, by development, by paved roads. … Development is the huge threat in my opinion." (Environmental)

"Looking at climate models and knowing that this part of the country is supposed to get drier even still, that's going to put a lot more pressure on it and the river and water in general." (Government – Acequia)

"The watershed number one issue, do we have water? And do we have enough water? Will my son have enough water? Will there be enough water for people to continue to live here? How do we really balance some of the needs that we have? We need to be smart about how we are utilizing our water and we need to be innovative in some of the water conservation strategies." (City Government)

"The Santa Fe wastewater treatment plant [has] generated a significant amount of waste and contamination contributing to water quality impairments in the Santa Fe River. The Pueblo is concerned about the potential and irreversible contamination to the aquifer, spring sites, and the Rio Grande." (Government – Pueblo)

"I've heard of this return flow pipeline and I think that it's ill conceived." (Environmental)

"Our goal is to have a steady certain flow of water, of clean water that goes in the river." (Civic)

"We have a high priority of protecting that upper watershed area a lot." (Environmental)

"The highest priority for the water division…is to fully utilize its San Juan-Chama Project water." (City Government)

"The saddest part about this is not only are we pumping the groundwater, not replenishing it, but we're filling every bit of water that's coming up the cities with as much pollution as possible. It's really backwards." (Business)

"River health from the top of the watershed to the bottom." (Civic)

"I don't want our living river flows to be limited." (City Government)

General Coverage of Issues/Concerns/Priorities	Non-Enviro Civic (8)	Enviro Civic (17)	Business (9)	City (10)	Government (12)
Water Flow in River	6	11	7	8	10
Wildfire & Forest Management	5	13	6	6	8
Water Quality & Pollution	3	8	4	6	7
Habitat & Healthy Ecosystem	4	9	5	4	5
Efficient Water Use/Conservation	5	7	7	5	6
Education & Awareness	6	11	3	3	1
Climate Change Concern	2	9	3	5	5
Stormwater Mgt, Erosion, Floods	4	5	10	6	0
Aquifer Recharge	3	6	6	7	1
Drought	2	7	6	5	3
Improve Stakeholder Engagement	1	10	3	4	3
Recognize Lower Communities	6	9	1	1	4
Pueblo Sovereignty & Concerns	2	10	3	1	4
Population Growth & Development	3	7	3	3	4
Soil Health, Erosion & Arroyos	3	6	5	2	3
Return Flow Pipeline – Against	2	8	2	0	6
Reliable Water Supply	2	2	2	6	4
Ecological Aspects of the River	2	6	0	4	1

Figure 3a: Dominant Issues, Concerns, and Priorities Raised in Stakeholder Interviews.

General Coverage of Issues/Concerns/Priorities	Non-Enviro Civic (8)	Enviro Civic (17)	Business (9)	City (10)	Government (12)
Holistic, Long-term Water Plan	3	7	1	1	2
Upper Watershed Management	1	4	2	2	3
Urban Design for Water Infiltration	4	2	1	4	1
Remove Invasive Species	0	6	2	1	1
Plant Native Trees, Shrubs Plants	1	4	1	2	1
Housing Issues	3	1	1	3	2
Homeless Issue	3	2	2	1	1
Healthy Lower Riparian Ecosystem	2	2	1	0	4
Respect Cultural Uses of Water	1	1	0	1	4
River Restoration	0	2	2	2	1
Recognize Acequia Interests	1	1	2	0	3
Recreation Access Upper Watershed	0	2	0	2	2
Framework/Plan for Lower Watershed	1	1	1	1	1
Centralized Watershed Management	1	3	1	0	0
Return Flow Pipeline – Pro	0	0	0	4	0
Healthy, Equitable River Access	0	2	0	1	1
Wetland Restoration	1	2	1	0	0
Keep Upper Watershed Closed	1	0	0	0	2

Figure 3b: Less Common Issues, Concerns and Priorities Raised in Stakeholder Interviews.

General Coverage of Issues/Concerns/Priorities	Non-Enviro Civic (8)	Enviro Civic (17)	Business (9)	City (10)	Government (12)
Water Civilian Conservation Corps		1	2		
Enforce Catchment & Well Rules	1	1	1		
Prioritize Agriculture	1	2			
Upgrade Dams, Reservoirs		2		1	1
More City Funding into Watershed			2		
More Accountability by City		2			
Recreation Potential Downstream		1			
Incentivize No Irrigation in Dry Years				1	
Fix Leaky City Swimming Pool				1	
Cooperation Among City Water Departments				1	
Fix Danger on Canyon Road			1		
Public Health				1	
Oppose Beavers, Cottonwoods	1				
Pass WERS (Commercial, Multi Family)			1		
Low-Income Water Efficiency Program			1		
Don't Raise Water Prices			1		
County Water to La Cienega, Springs	1				
Fully Utilize San Juan-Chama Water				1	

Figure 3c: Rare Issues, Concerns, and Priorities Raised in Stakeholder Interviews.

2.2. Nuances Within Issues

Within broader topics such as wildfire threats and upper watershed management, Acequia rights and importance, water quality, conservation practices, and collaboration, there were considerable differences in how stakeholders perceived and defined more specific problems and solutions. While there was large consensus that fire threats to municipal, ecological, and cultural water services required immediate attention, there were different perspectives on the kind of attention or action required. The cultural and historical importance of Acequias was largely agreed upon amongst stakeholders, but Acequia water rights specifically represent an important point of divergent opinions. Geographic focus across the upper, middle, and lower watersheds led to different perspectives on water quality. Table 1 shows differences of opinions within broader issues:

Table 1: Varying Perspectives on Key Watershed Issues from Interviews

Wildfire and Forest Management		
Desire for much more aggressive thinning	vs	Concern about ecological impacts of thinning practices to biodiversity
More prescribed burns	vs	Concern about the health impacts of smoke
Maintain restrictions on upper watershed as means of fire prevention	vs	Desire to open up upper watershed for recreation and fostering community care for space and not an inherent fire threat
Incorporate more Indigenous led forest and fire maintenance	vs	Westernized forestry practices

Acequia Water Rights		
Some Acequias have litigated water rights	vs	Others relying on good faith relations and agreements with the City of Santa Fe
Historical and cultural importance of Acequias and guarantee of water	vs	Concern over diminishing water supplies
More traditional agriculturally focused, communally-governed ditches	vs	Water delivery for home gardens and landscaping

Water Quality				
Upper watershed water quality concerns	vs	Concern about point sources of pollution within city	vs	Concerns about water quality below the wastewater treatment plant
Confidence in the quality of water in the watershed and denial of any quality issues below the wastewater treatment plant	vs	Frustration about perceived inadequate water quality standards	vs	Concern about denial or dismissal of water quality concerns

Water Infrastructure			
Full utilization of San Juan-Chama water via return flow pipeline	Need for further information on return flow pipeline	Focus more on local water conservation rather than return flow pipeline	Concern about environmental and social impacts of return flow pipeline on lower watershed interests
Aquifer Recharge	Upgrade dams and reservoirs	Water efficiency programs and regulations	Increase green infrastructure and stormwater management

2.3. Obstacles

In addition to the considerable breadth and depth in the issues, concerns, and priorities of stakeholders, there were also strong perceptions of obstacles preventing priorities from being met. These barriers were often funding, misrepresented assumptions of the priorities of other social groups, and access and representation within decision making processes. There were, of course, environmental obstacles cited as well. Continuing drought, climate change, and invasive species were seen as impeding the completion of priority items, but there was a large emphasis put on more social obstacles.

Funding:

Across stakeholder issues and priorities, there was a common sentiment about a lack of funding for their specific concern. There were divergent opinions over how to triage water needs in the face of increasingly scarce water and other resources. While most did not deny the importance of other priorities, nor seek to eliminate the funding for other priorities, some saw their own priorities as more urgent or pressing. The framing of efficient resource expenses seemed dependent on position. Critics of the Buckman Return Flow Pipeline saw it as a costly infrastructural project with little guaranteed benefit while withholding water from lower watershed communities, while proponents stressed the significance of the return flow credits as critical for water security in increasingly dry years. Some highlighted the need for more funding

generally for municipal, ecological, and cultural water projects, including stormwater management, green infrastructure, native plant restoration, community art related to water, and other initiatives.

Assumptions of Opposition:

Another commonly cited obstacle was often a general assumption of opposition to their priorities from other social groups and actors within the watershed. When speaking about other groups of people most stakeholders clarified that they didn't mean to generalize, that there were of course exceptions, but the perception of opposition was often assigned to another group. For example, narratives that "environmental groups" (or "enviros") were impractical or idealistic, or homebuilders and developers were unconcerned with population growth and more concerned with a bottom dollar, or that the City and County have little regard for downstream communities, or that traditional communities and Pueblos are unrealistic with their expectations, all emerged as stories that painted another group with a broad and likely inaccurate brush. At the same time, the persistence of this generalization in interviews, even when reluctantly conveyed, may have been employed to mask a particular instance, person, or organization within a larger assumed trend. To be clear, most stakeholder largely spoke fondly of other actors in the watershed, and because of community ties and coalitions, there seemed to be a reluctance to "name names," and instead speak about a larger group, even if less was sometimes known about priorities of other groups.

Barriers to Participation:

The perception of barriers that prevented more stakeholders from participating in decision making processes was a common theme in the interviews. There were examples of desires for more similarly-minded stakeholders to participate more easily, but there were also often desires for more stakeholder participation overall. In fact, we explicitly asked "who needs to be involved for your priorities to be met." Many stakeholders did not profess to know all the answers, but felt a current plan or proposal was misguided, or desired a larger plurality of voices for both ethical and strategic reasons. Some active decision makers expressed concern that they did not get to hear enough perspectives, though some cautioned about the inefficiency of constant public debate or even the lack of specified knowledge from those they perceived to be more opinionated than informed. A handful of stakeholders even expressed a perception that everyone who needed a seat at the table had one. Nonetheless, perceptions that coalition partners were not being taken seriously, or that public input processes were inaccessible or performative, or simply that not enough people had a seat at the table for the best possible solution to be reached were all commonly reported obstacles to carrying out stakeholder priorities.

2.4. Perspectives on Power:

Stakeholders were asked about their level of participation in watershed related processes. We asked them if they felt they had a seat at the proverbial "table." Many stakeholders acknowledged that there are multiple arenas of power in the watershed, though many identified the City, and to some extent the County, as the most powerful decision makers in the watershed. Federal and state agencies were framed as collaborative partners, having a seat at the table, but not setting the table. However, echoing the perception that barriers to participation operated as obstacles, there was a resounding lack of satisfaction with the power dynamics within the watershed. Official channels of communication, and even collaboration, were often seen as proforma processes when decisions had already been made.

Stakeholders shared perspectives that public input processes were either materially inaccessible, or not worth the time and resources because more powerful actors had already set a course of action in place.

In response to questions about whether stakeholders felt they themselves had a seat at the table, there was a mix of responses ranging from "yes, at the table," "at the table, but only performatively or at the table for some things," "not at the table, but could be through collaboration with others as a vehicle for influence or moving towards the table", to sentiments of outright exclusion or "no." Figure 4 represents these four generalized positions in response to this question. To be clear, this question did not measure actual positionality, but rather the perceptions of participants. Some stakeholders spoke about groups or organizations which they perceived as at the table, but expressed to us that they did not have an immediate seat at the table or that their participation was invited, but not taken seriously or that they were merely advisors in the process. Some felt they did have a seat at the table, but may not be perceived by others as having institutional power to make decisions.

A few of the interviewed stakeholders saw the table as too large, though most felt it was too small and/or actively protected through gatekeeping. Many stakeholders did not take issue with their peripheral position to the table. Several felt they were not well informed enough to speak to every issue and trusted at least one perceived decision maker to advocate for positions they aligned with. Others felt they could have a seat at the table, but choose not to if their values were already represented. There was a common sentiment that specific organizations, associations, and even individuals operated as vehicles for their voices at the proverbial table. This social network reliance was often expressed as, "I may not have a seat at the table, but I know people who can advocate for my positions." In other words, there are important unofficial coalitions within the watershed.

Quotes on Power Dynamics

"Right now, we have a good relationship with the City and they give us the water we need when we need it." (Government – Acequia)

"So, it's like, all right, I've got a seat at the table, but the audience that has the opportunity to make those decisions isn't even sticking around for the full meeting." (Business – Hydrology)

"I would like to not see projects move forward until the work has been done to build consensus." (City Government)

"Engagement of traditional and Pueblo communities is also important because they have a lot of traditional ecological knowledge and that could be provided in terms of what did the lower Santa Fe River look like? What's their vision?" (Environmental)

"One of the biggest obstacles that we see is … collaboration between government – city government, state government, federal government, and tribal government – for the same goal, common reason to protect the watershed." (Government – Pueblo)

Quotes on Public Input

"It just seems like we are going through the motions of public input, because it seemed to us like the decision had already been made." (Government – Acequia)

"The City of Santa Fe, I feel like they are similar to other government agencies that work locally, in that they quite often get lots of stakeholder and public input and then they just do the same thing they were going to do anyway, without actually truly reflecting on that input." (Environmental)

"I mean, it's the reverse. It's like, this is the decision, and then everybody is given a chance to talk about it, but yet there's no process by which that can be used to change the decision at that point, or to influence the decision." (City Government)

"I don't think anybody's input is really sought out. I mean, you see a little notice in the Federal Register, and you either get on board and prepare to fight like hell and file lawsuits, or you're not listened to." (Environmental)

These unofficial coalitions are particularly important given the prevalence of the perceptions that public input processes were generally pro forma. Specifically, several stakeholders we spoke to emphasized that if they participated in public input forums it was only after a decision had been made – for some it felt as though the input process was more aimed at "selling" the public on a decision rather than seeking their perspectives.

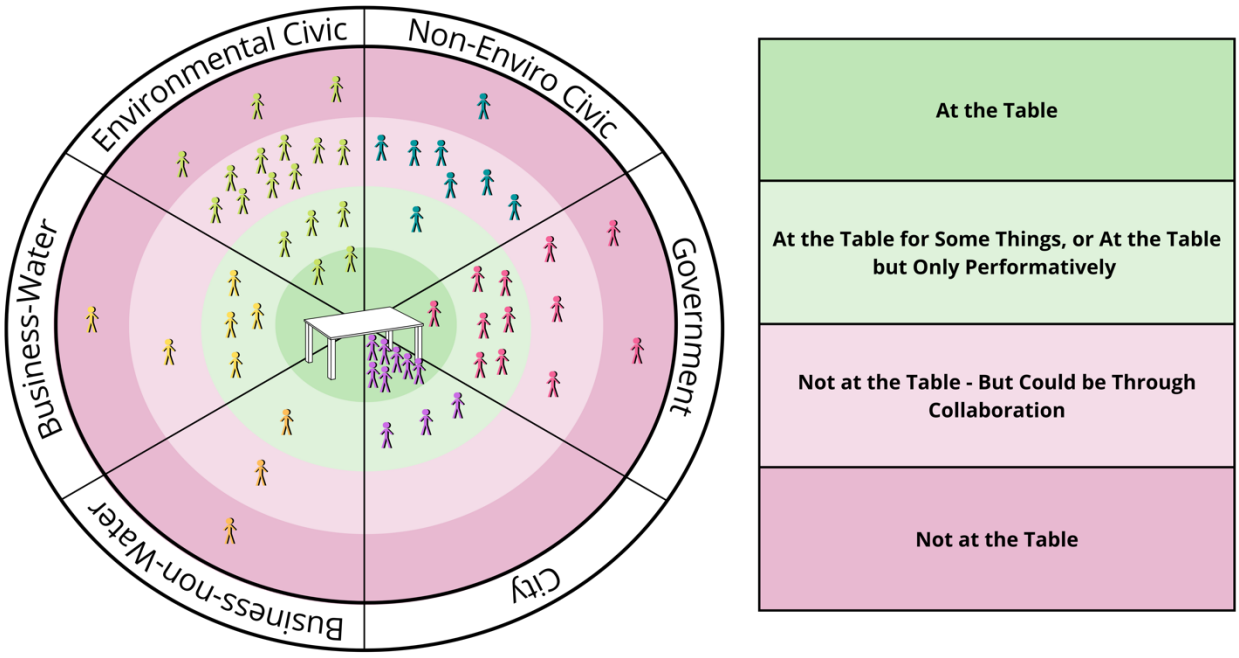


Figure 4: Perceptions of Proximity to Decision Making Processes by Interview Participants

Overall, even among people with a more core position at the table, there were regular expressions that the table was imperfect. There also appeared to be some disconnect in application and many core decision makers identified the need to better incorporate and collaborate with the some of the stakeholders who themselves felt excluded from the table. However, often those excluded felt there had been little, if anything, meaningfully done to engage them as partners or take their positions seriously. Other stakeholders echoed this sentiment, regardless of their relationship to the table, noting there was always ongoing discussions about engaging those historically excluded from decision making processes – some even framed as legal mandates. However, some stakeholders felt that little had changed and some were skeptical as to whether or not current power dynamics could facilitate such a change.

Finally, while not raised as questions in our interviews, there was a common portrayal of upstream/downstream power relations throughout the watershed. Several stakeholders explicitly conveyed that social and economic hierarchies could be neatly mapped along the direction of the flow of the river, with neighborhoods near the upper watershed along Canyon Road representing the wealthiest residents, and downstream communities more and more socially and economically marginalized or disadvantaged. This did not necessarily represent where stakeholders' priorities were focused geographically. Some who worked or lived in the upper reaches of the watershed expressed priorities related to the lower watershed and downstream communities. However, it was a common perception that geographies of power and priorities were related. There were also more structural environmental explanations of this perception, because of the ecology of the watershed and the downstream effects of activity upstream, it seemed stakeholders were more likely to express concerns about the watershed upstream of their homes or work, than downstream. At the same time, several stakeholders felt these

geographic power dynamics and spatial privileging was often overlooked, expressing a desire for more humility and accountability from upstream users.

3. Assessment Phase 2 - Q-Sort of Priorities

3.1. Summary

After the interviews were transcribed and processed for further analysis, we worked toward a process for sorting priorities for the Santa Fe River Watershed. We used a particular method called a "Q-sort." This method helps to identify agreement and disagreement more accurately amongst stakeholders. While the interview process identifies commonly mentioned priorities, this method allows for the comparison of the weight and rank of priorities that were not necessarily mentioned in all interviews.

From 56 in-depth interviews with 63 identified stakeholders, we extracted 193 independent priority statements. To arrive at a more manageable number of priority statements, we identified overlap and commonalities between statements and synthesized the 193 statements down to 63. We separated original statements that mentioned more than one distinct priority into multiple statements. For example, "more forest thinning and erosion control in the upper watershed" was separated into distinct priorities ("more forest thinning in upper watershed" and "more erosion control in the upper watershed"). While there was considerable diversity among the initial priority statements, there were also numerous themes and trends which facilitated an accurate synthesis that reflected the large body of initial priorities. We incorporated unique and possibly outlier priority statements as much as possible while striving for clarity so as not to privilege more popular perspectives and to ensure a more accurate representation.

All 63 stakeholders from the interviews were asked to participate in the Q-sort process involving priority statements. Due to the ongoing COVID-19 pandemic we shifted to an online approach.

3.2. Q-Sort Participants

Each of the initial 63 participants were invited to participate in the Q-sort process. Our interview analysis treated each interview as the unit of measure, because several group interviews did not allow for the assignment of particular priorities to specific individuals. However, every individual who participated in the interview process was nonetheless sent a participation code and link even if they participated in a group interview. Only one of the participants of each group interview completed the priority sorting process, allowing for comparison between Q-Sort and interviews in terms of representation of the six interest groups.

In total, 42 people completed the priority sorting process (Figure 5). Each interest group was represented in the Q-sort. Q-sort participants represented an active stakeholder group in the watershed, completed an initial interview and decided to take part in the sorting process. Demographic data was gathered from Q-sort participants, revealing that this group was more likely to be white and non-Hispanic, own their home and have a graduate or professional degree.

Figure 6 shows the template that was used in the online Q-sort. Priority statements were sorted into the template from a low of -6 to a high of +6. The shape of the template generates more neutral or middle-range priorities than high/low priorities. It is important to note that priorities ranked lower are not

necessarily priorities to which respondents were opposed, but simply ranked as “least important.” The distinction between opposition and low to neutral prioritization is not clearly captured by the Q-sort.

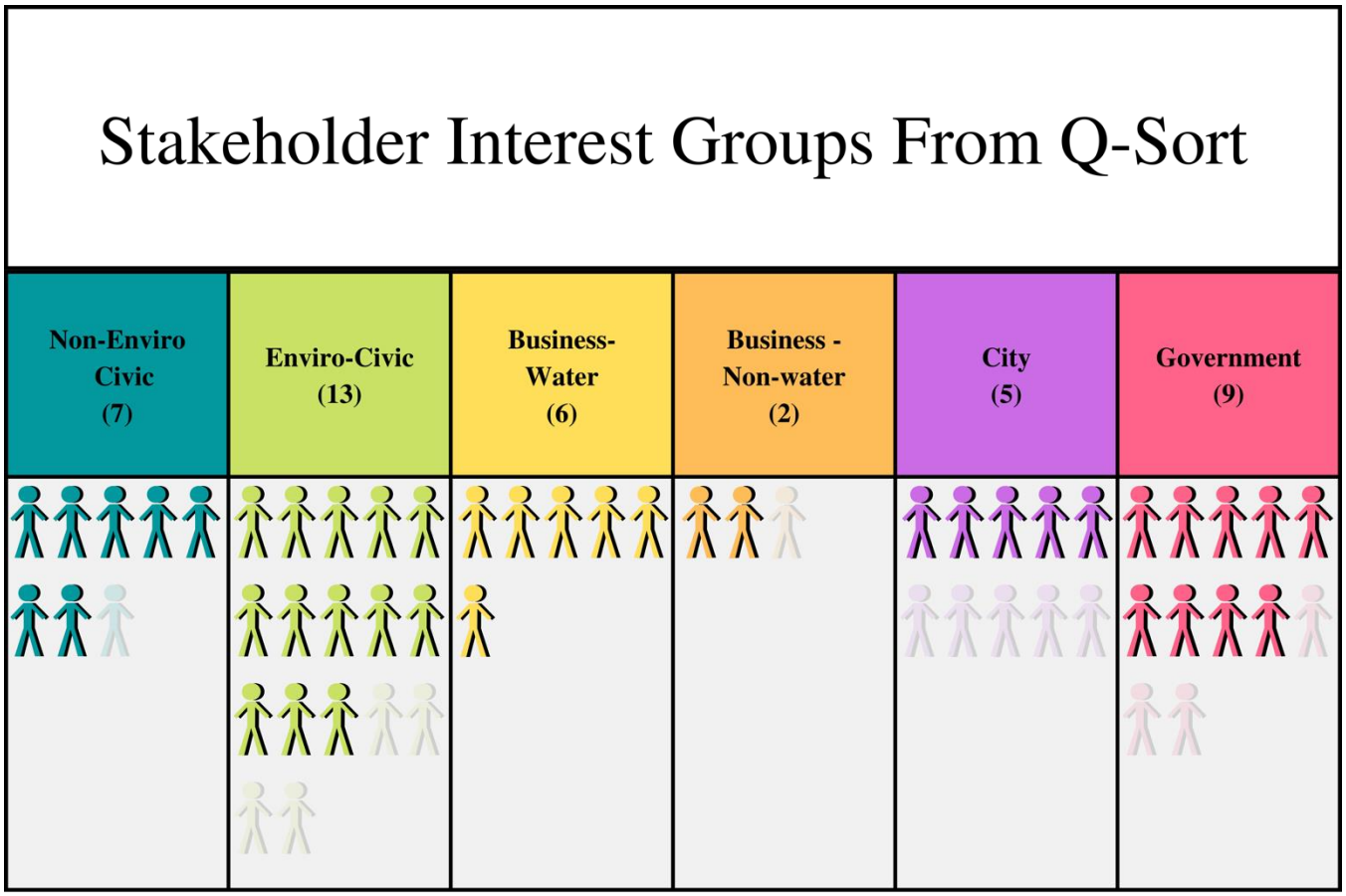


Figure 5: Representation of Q-Sort Participants Across Interest Groups. Faded figures represent people from interviews who declined to participate in the Q-Sort process.

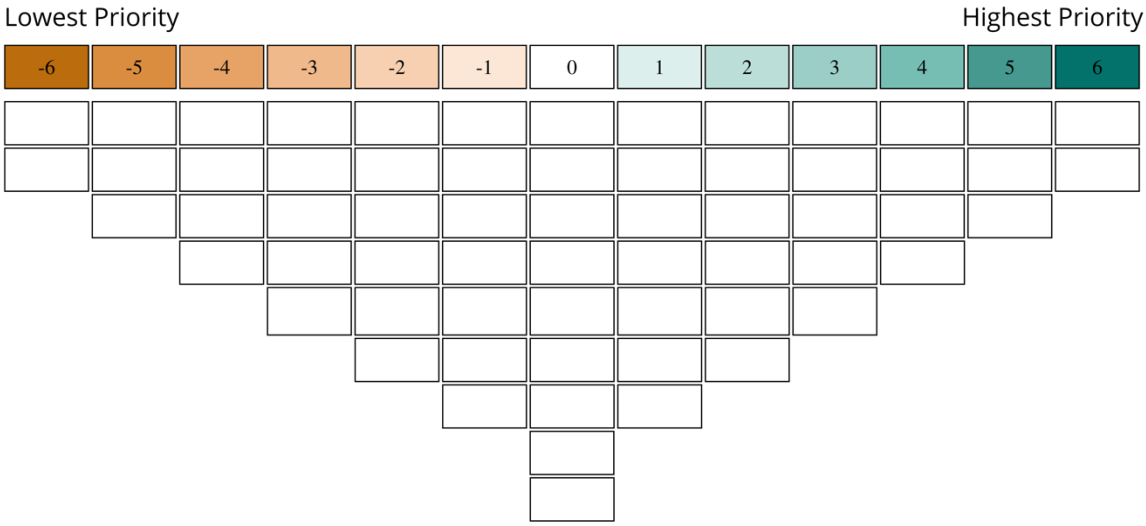


Figure 6: Q-Sort Template Used to Sort Priority Statements from Phase 1 Interviews.

3.3. Interpreting the Q-Sort Data

Each priority was a high priority for at least one of our interview participants. We cannot interpret any of the statements as “not a priority.” The analysis is focused on understanding clusters of people who sort priorities similarly, but they do not perfectly match any specific respondent. The resulting clusters are technically called “Factors” (herein referred to as groups). In fact, it is possible for someone to be included in a group because they are more different from the others in that group than they are similar to another group. This happened with one person in the Q-sort process.

The Q-sort analysis produces something called "z-scores” that represent the strength and weight of agreement on the priorities. More extreme ranks are weighted more heavily and priorities that were ranked similarly within groups influence z-scores. Distinguishing statements are those that have z-scores that are significantly different from those in other factors. That is, while one group may have cumulatively ranked a priority -2 while other groups ranked the same statement 0, +1, +2, and +2, this statement may not be statistically distinct if the seemingly divergent factor did not have enough alignment in the ranking of that priority, and thus the difference in z-scores would not meet the threshold of statistical distinction. Some pivotal statements with strong alignment and extreme ranks may not be identified as distinct if they are similarly ranked in other factors.

In the pages that follow, we describe the five statistically unique groupings of people that emerged from the analysis. **We caution that this simply reflects the findings based on the 42 people who participated in the Q-sort and could be different with wider participation.** Thus, it is just meant to be illustrative of one way to think about stakeholder clusters and their priorities within the watershed. We are happy to explain the details of the analysis to anyone who is interested. In the interest of space, we jump to explaining the patterns and findings from the analysis.

It should be noted that there is an inherent subjectivity in the processes of ranking priorities. To some, ranking Priority A over Priority B may appear to be a contradiction if A is assumed to be dependent on B. However, people often hold many contradictory positions, and the assumption of the apparent contradiction may also reflect a difference in framing, understanding, and ultimately, viewpoint. It is the difference in these viewpoints that the Q-Sort methodology and following analysis highlights.

3.4. Groups Based on Q-Sort of Santa Fe River and Watershed Priorities

A Q-sort reveals groups of people who sort items similarly. **It provides an opportunity to see whether or not people from different stakeholder groups share priorities or see things differently**. From the analysis of this Q-sort data, five groups emerged as statistically distinct (names are purely descriptive based on interpretation of distinguishing elements):

1) Multi-Use, Equity
2) Urban, Technological Management
3) Ecocentric Management
4) Traditional, Cultural Management
5) Lower Watershed, Collaborative Management

These groups are described in detail starting on page 22. Of particular note, no group directly corresponded to the original stakeholder interest groups, indicating stakeholders may have more in common with stakeholders in other interest groups than they do with stakeholders in their own “sector,” and that within stakeholder sectors there are diverse opinions, understandings, and priorities.

In Table 2 below, each priority statement is shown in order based on its overall rank across all groups. Statements with teal shading indicate high priority scores whereas statements with brown shading indicate low priority scores. The table also shows how the groups differed on the various statements.

While the primary result of the Q-Sort method is to highlight different and generalized viewpoints and about the watershed, the forced rank choices also allow for some general population level observations.

Highest Priorities Overall:

- *Planning for Climate Change*
- *Protecting Native Species*
- *Ensuring City Compliance with Pollution Standards*
- *Greater Emphasis on Ecological Justice and Social Equity*
- *Fire Management and Planning in the Upper Watershed*

Lowest Priorities Overall:

- *Incorporating More Community Art in Water Infrastructure*
- *Stopping the Importing of Water into Santa Fe*
- *Humility and Accountability from Upstream Users*
- *Outreach About Camping Hazards*
- *Completing the Buckman Return Flow Pipeline*

Respondents had to sort all 63 priorities into the exact Q-sort matrix. This means that even if they were in favor of every priority, the rankings would still appear as highest to lowest. In other words, ***priorities ranked low in the Q-sort do not necessarily indicate opposition***, but could also indicate neutrality, a lack of understanding, or simply low importance.

Table 2: Priority Statements and Resulting Groups and Average Scores Based on Q-Sort Process

Statement	Multi-User	Urban/Tech	Ecocentric	Traditional	Collaborative	Average	Rank
Plan for climate change impacts on water resources	6	3	5	4	4	4.4	6
Protect native species, including birds, fish, and amphibians	3	4	4	4	5	4	6
Ensure city compliance with pollution standards	2	2	3	4	4	3	5
Place greater emphasis on ecological justice and social equity in water management	5	0	0	3	5	2.6	5
Fire management and planning in the upper watershed	3	4	2	0	2	2.2	5
Maintain flow of water in the Santa Fe River	4	2	3	0	2	2.2	4
Identify and address contaminated sites and other sources of pollution	3	2	2	2	2	2.2	4
Establish better wildlife corridors to river	-1	3	4	2	2	2	4
Increase permeable surfaces, rain gardens, and green spaces for better water infiltration and stormwater management	2	6	3	-1	0	2	4
Restore native riparian habitat in lower watershed below wastewater treatment plant	-2	3	1	2	5	1.8	3
Balance water needs of the city of Santa Fe with environmental needs	4	-1	6	-1	1	1.8	3
Recognize Acequia rights as well as cultural and historical significance	4	-3	1	5	2	1.8	3
Sustainable development and urban design to reduce water use and risks to watershed	3	6	2	0	-2	1.8	3
Respect traditional and cultural uses and spaces of river and watershed	5	0	-4	6	1	1.6	3
Aquifer recharge	0	5	0	6	-3	1.6	2
Acknowledge senior water rights of Pueblos	3	-4	3	5	0	1.4	2
Support beavers, cottonwood and bosque in lower watershed	0	4	4	-4	3	1.4	2
Arroyo restoration and stabilization	0	5	0	2	0	1.4	2
Extend water efficiency programs and infrastructure upgrades throughout the city and watershed	1	5	5	-1	-3	1.4	2
Involve lower watershed users in full watershed decisions	1	-1	-1	1	6	1.2	2
Address water quality downstream of Wastewater Treatment Plant below the city of Santa Fe	-2	0	2	3	3	1.2	1
Better collaboration and communication with Pueblos	1	0	0	3	1	1	1
Recognize the rights of the river itself (e.g. legal personhood for river)	-3	-3	6	1	4	1	1
Increase coordination and integration in water management	1	2	1	1	0	1	1
Maintain water production capacity through water recycling efforts	4	2	0	-1	0	1	1
More proactive watershed planning	2	3	-1	3	-2	1	1
Remove invasive species such as russian olive along Santa Fe River and arroyos and revegetate with native species	0	4	-3	0	3	0.8	1
More forest thinning in the upper watershed	5	1	0	-2	0	0.8	0
Continuity and transparency in government position and processes	1	-2	1	3	1	0.8	0
Have a civilian conservation corps for watershed	-2	1	1	-1	4	0.6	0
Provide accessible river trails and recreation opportunities for all residents	6	1	-2	-3	1	0.6	0
Prioritize local access to water over industrial or corporate interests	2	0	2	1	-2	0.6	0
More water conscious industrial practices	-1	2	4	-2	-1	0.4	0
Manage the Buckman Diversion in a way that recognizes downstream needs	0	-1	0	0	2	0.2	0
Work to avoid erosion from storms in the upper watershed	2	3	-4	0	0	0.2	0
More active efforts by city and county to gather input from the public as part of decision making processes rather than after the fact	-3	-3	-1	4	3	0	0
Prioritize clean water in upper watershed management	-1	1	-1	2	-3	-0.4	-1
Regulation of private wells	-1	-1	-3	-2	3	-0.8	-1
Plant more trees along the Santa Fe River	0	1	-1	-3	-1	-0.8	-1
More water flow dowsntream Wastewater Treatment Plant below City of Santa Fe	-2	-1	-3	0	1	-1	-1
Stop development of homes in wildland-urban interface	-3	-2	-6	5	1	-1	-1
Maintain restrictions on access to upper watershed	-6	1	5	1	-6	-1	-1
Stop development in the Santa Fe Watershed	-5	1	-2	1	-1	-1.2	-1
Increase the price of water	-2	0	2	-5	-2	-1.4	-2
Address homelessness and associated water impacts through more affordable housing	-1	0	-5	0	-1	-1.4	-2
Accessible and bilingual water information and education for all	0	-2	0	-4	-1	-1.4	-2
Allocate more funding for public water education	-3	-2	0	2	-4	-1.4	-2
Equitable water rates to make water affordable for low-income households	0	-4	-2	-1	0	-1.4	-2
Provide water quality information and data to the public	-1	-1	-2	1	-4	-1.4	-2
Implement and enforce rules about water catchment systems	-3	-1	3	-4	-3	-1.6	-3
Stop the Buckman return flow pipeline	-5	-6	-2	-2	6	-1.8	-3
Bring county water to upper La Cienega	0	-5	-2	0	-2	-1.8	-3
Pass the multi-family and commercial water efficiency rating system standards	-4	0	1	-6	-2	-2.2	-3
Continued structural assessment of dams	2	0	-4	-5	-5	-2.4	-3
Keep open bypass channel from McClure Reservoir	-5	-2	-3	-1	-1	-2.4	-4
Enforce split home (e.g. duplex) regulations on metering	-4	-4	1	-2	-4	-2.6	-4
Fully utilize San Juan - Chama water	1	-4	-1	-4	-5	-2.6	-4
Explore opportunities to open up upper watershed for recreation	1	-5	-6	-5	0	-3	-4
Incorporate more community art in water infrastructure	-6	-3	-3	-3	-1	-3.2	-5
Stop importing of water to the Santa Fe Watershed	-4	-6	-1	-2	-3	-3.2	-5
Humility and accountability by upstream users	-1	-5	-4	-3	-4	-3.4	-5
Provide outreach to mitigate hazards of camping along the river	-4	-2	-5	-3	-5	-3.8	-6
Complete the Buckman return flow pipeline	-2	-3	-5	-6	-6	-4.4	-6

3.5. Related Priority Themes

Some of the priority statements can be clustered by themes, either thematically related or contrasting sets of priorities, allowing for further examination of overall patterns. These thematic clusters and contrasting priorities are broken down and compared across groups.

There were also several **thematically related** sets of priority clusters that consolidate patterns within the long list of individual statements. For this categorization, the average of two or more thematically similar statements was taken and ranked. See Table 3 for a list of statements included in each thematic area. Q-Sort group descriptions reference these thematic areas as well as distinct priority statements.

Table 3: Priority Statements Clustered into Thematic Areas

Thematic Areas	**Priority Statements**
Cultural	Recognize Acequia rights as well as cultural and historical significance
	Respect traditional and cultural uses and spaces of river and watershed
Technological Solutions	Increase permeable surfaces, rain gardens, and green spaces for better water infiltration and stormwater management
	Sustainable development and urban design to reduce water use and risks to watershed
	Extend water efficiency programs and infrastructure upgrades throughout the city and watershed
	Maintain water production capacity through water recycling efforts
Pueblos	Acknowledge senior water rights of Pueblos
	Better collaboration and communication with Pueblos
Government Process	Ensure city compliance with pollution standards
	Increase coordination and integration in water management
	Continuity and transparency in government position and processes
	More active efforts by city and county to gather input from the public as part of decision-making processes rather than after the fact
Upper Watershed Specific Goals	Fire management and planning in the upper watershed
	More forest thinning in the upper watershed
	Work to avoid erosion from storms in the upper watershed
	Prioritize clean water in upper watershed management
Lower Watershed Specific Goals	Restore native riparian habitat in lower watershed below wastewater treatment plant
	Support beavers, cottonwood and bosque in lower watershed
	Involve lower watershed users in full watershed decisions
	Address water quality downstream of Wastewater Treatment Plant below the city of Santa Fe
	Manage the Buckman Diversion in a way that recognizes downstream needs
	More water flow downstream Wastewater Treatment Plant below City of Santa Fe
Social Equity	Place greater emphasis on ecological justice and social equity in water management
	Address homelessness and associated water impacts through more affordable housing
	Equitable water rates to make water affordable for low-income households
Recreation	Provide accessible river trails and recreation opportunities for all residents
	Explore opportunities to open up upper watershed for recreation
Education	Provide water quality information and data to the public
	Allocate more funding for public water education
	Accessible and bilingual water information and education for all

Table 4 shows how the various thematic clusters varied across groups that emerged from the Q-sort analysis. White cells are for the median groups with higher comparative rankings in teal and lower comparative rankings in brown.

Table 4: Comparison of Ranking of Thematic Clusters Across Groups. [1]

	Multi-User	Urban	EcoCentric	Traditional	Collaborative
Culture	2nd Highest	Lowest	Lowest	Highest	Median
Tech Solution	Median	Highest	Median	2nd Lowest	Lowest
Pueblo	2nd Highest	Lowest	Median	Highest	2nd Lowest
Gov. Process	Median	Lowest	2nd Highest	Highest	Median
Upper Focus	Highest	2nd Highest	Lowest	2nd Lowest	Median
Lower Focus	Lowest	Median	2nd Lowest	2nd Highest	Highest
Social Equity	Highest	2nd Lowest	Lowest	Median	Highest
Recreation	Highest	Median	Lowest	Lowest	2nd Highest
Education	Median	2nd Lowest	2nd Highest	Highest	Lowest

Within the list of priorities there were three sets of **contrasting statements**, which allowed for the comparison of ranked priorities such as maintaining restrictions or opening the upper watershed for recreation, increasing the cost of water or implementing equitable water rates, and completing or stopping the return flow pipeline. Like all the priority statements in the sorting process, these contrasting statements resulted from the synthesis of Phase 1 interviews. As illustrated in Table 1, there was considerable nuance within priorities with apparent consensus across stakeholders, yet, these priorities were the handful of contrasting positions expressed in interviews and were thus both included in the sorting process to avoid biasing positions. The ranking of contrasting statements may oversimplify the

[1] Table 4 Compares how groups ranked *thematic clusters* in relation to other groups. For example, compared to other groups, the Multi-User group ranked culturally related priorities the 2nd highest – the Tradition group was the highest. Note: two groups may have the same Highest/Lowest designation if they ranked clusters the same.

complex viewpoints of stakeholders. This oversimplification was expressed by several participants via email to the research team expressing some of these issues were more complicated than "either/or" and were dependent on contextual updates – that a priority may be ranked higher if certain factors were included. In response, the research team instructed participants to rank the priorities as they best understood them at that time (Q-sorts were done in late 2021 and early 2022).

Investigating contrasting statements across all stakeholders participating in the Q-Sort:

- "Maintaining Restrictions on Upper Watershed" was ranked higher than "Exploring Opportunities to Open for Recreation."
- "Increasing the Cost of Water" was ranked slightly higher than "Equitable Water Rates to Make Water More Affordable for Low-Income Households," ***though both were ranked moderately low overall.***
- "Stopping Buckman Return Flow Pipeline" ranked higher than "Completing It," ***though both were ranked as low priorities overall.***

At the end of the online sorting process, we were able to include a section for feedback so that participants to expand on and contextualize the decisions they made while sorting – which is more commonly done during the sorting process when Q-Sort methodologies are administered in person. While not all participants utilized this section, and is therefore not a systematic representation of stakeholder priority rankings, this data does further illuminate the nuance within the contrasting statements, specifically regarding the Buckman Return Flow Pipeline. One stakeholder made this point in their Q-Sort feedback:

> "Some statements are significantly nuanced. For example, the statement "stop the Buckman pipeline project": the project itself is a high priority for us but the choice of "stop" or "complete" the project doesn't quite get at the point. I think most stakeholders are concerned about the potential effects of the project and want to ensure they appropriately evaluated and addressed both for environmental purposes and harm to downstream communities. If the interests of the City and County as well as downstream communities and the environment can coexist, then it is possible we would support or not oppose the reuse pipeline" (Environmental).

Table 5 compares the ranking of contrasting statements across groups, reflecting where groups ranked one contrasting statement higher or lower than the other groups. Numbers refer to the aggregate group score for each item. This table should be read across rows.

Table 5: Comparison of the Ranking of Contrasting Themes Across Groups[2]

	Multi-User	**Urban**	**Ecocentric**	**Traditional**	**Collaborative**
Maintain Upper Watershed Restrictions (-1 Overall)	Lowest -6	Median 1	Highest 5	Median 1	Lowest -6
Explore Opening Upper Watershed (-4 Overall)	Highest 1	Second Lowest -5	Lowest -6	Second Lowest -5	Second Highest 0
Stop Buckman Return Flow Pipeline (-3 Overall)	Second Lowest -5	Lowest -6	Second Highest -2	Second Highest -2	Highest 6
Complete Buckman Return Flow Pipeline (-6 Overall)	Highest -2	Second Highest -3	Second Lowest -5	Lowest -6	Lowest -6
Increase Price of Water (-2 Overall)	Second Lowest -2	Second Highest 0	Highest 2	Lowest -5	Second Lowest -2
More Equitable Price of Water (-2 Overall)	Highest 0	Lowest -4	Second Lowest -2	Second Highest -1	Highest 0

[2] Table 5 compares how groups ranked contrasting statements compared to other groups. Numbers represent each group's priority rank (see table 2 for all group priority rankings), and designation (highest/lowest) represents the priority rank in relation to other groups – if two groups ranked the priority the same, they received the same designation. For example, compared to other groups, the Multi-User group *and* the Collaborative group ranked "Maintain Upper Watershed Restrictions" the lowest.

3.6. Q-Sort Group Descriptions

Group 1: Multi-User, Equity Viewpoint ("Multi-User")

Group 1
Multi-User, Equity

Enviro-Civic (3)	City (3)	Government (3)
		
Return Flow Pipeline: "Complete" is Ranked Higher	Upper Watershed: "Explore Openning" is Ranked Higher	Water Pricing: "More Equitable" is Ranked Higher
Avg. Annual Income: Highest	Percent Homeowner: Highest	

Highest and Lowest Statements	Rank	z-score
Plan for climate change impacts on water resources	6	2.50855
Provide accessible river trails and recreation opportunities for all residents	6	1.89673
Place greater emphasis on ecological justice and social equity in water management	5	1.32808
Respect traditional and cultural uses and spaces of river and watershed	5	1.25702
More forest thinning in the upper watershed	5	1.24806
Recognize Acequia rights as well as cultural and historical significance	4	1.24243
Maintain water production capacity through water recycling efforts	4	1.2242
Balance water needs of the city of Santa Fe with environmental needs	4	1.18137
Maintain flow of water in the Santa Fe River	4	1.12655
Provide outreach to mitigate hazards of camping along the river	-4	-1.07242
Pass the multi-family and commercial water efficiency rating system standards	-4	-1.17031
Enforce split home (e.g. duplex) regulations on metering	-4	-1.46397
Stop importing of water to the Santa Fe Watershed	-4	-1.48982
Stop development in the Santa Fe Watershed	-5	-1.55977
Stop the Buckman return flow pipeline	-5	-1.65451
Incorporate more community art in water infrastructure	-6	-1.91228
Maintain restrictions on access to upper watershed	-6	-2.19367

Figure 7: "Multi-User" Group Information

The first group that emerged from analysis represents an approach of balancing Multi-User priorities and social equity. The "Multi-User" approach was most closely related to the "Urban, Technological" approach, and most distinct from the "Ecocentric" approach. This was the largest group, representing 9 Environmental, City, and Government viewpoints.

This group's highest priorities included *Planning for Climate Change* and *Accessible Recreation Opportunities*. Compared to other groups, this group was most concerned with recreation and issues concerning the upper watershed. *Ecological Justice and Social Equity* was a high priority for this group and compared to other groups they more highly prioritize social equity issues overall. Similarly, this group highly prioritized both *Respecting Traditional and Cultural Uses and Spaces* and *Recognizing Acequia Rights and their Cultural and Historical Significance* and, compared to other groups, ranked cultural priorities the second highest. Even more, this viewpoint also ranked priorities regarding Pueblos higher most other groups except one.

Maintaining Production Through Water Recycling and *Sustainable Development* were higher priorities for this group. In terms of contrasting statements, this group ranked *Exploring Opportunities to Open up the Upper Watershed* higher than *Maintaining Restrictions*, and ranked *Completing the Return Flow Pipeline* higher than other groups. They ranked *More Equitable Water Rates* higher than *Increasing the Price of Water*.

This group's lowest priorities included *Stopping the Return Flow Pipeline*, *Incorporating Community Art in Water Infrastructure*, and *Maintain Restrictions on the Upper Watershed*, and compared to other groups they were less concerned about addressing issues of government process than most other groups, and the least concerned with issues directly relating to the lower watershed. This lower prioritization of lower watershed issues seems counter to the weight given to issues of social equity, culture, and Pueblos.

Group 2: Urban, Technological Viewpoint ("Urban")

Group 2
Urban, Technological

Non-Enviro Civic (4)	Business-Water (3)	Business - Non-water (1)
		
Return Flow Pipeline: "Complete" is Ranked Higher	Upper Watershed: "Maintain Restrictions" is Ranked Higher	Water Pricing: "Increase" is Ranked Higher
Avg. Annual Income: Median	Percent Homeowner: 2nd Highest	

Highest and Lowest Statements	Rank	z-score
Increase permeable surfaces, rain gardens, and green spaces for better water infiltration and stormwater management	6	2.30924
Sustainable development and urban design to reduce water use and risks to watershed	6	2.26399
Aquifer recharge	5	1.9815
Extend water efficiency programs and infrastructure upgrades throughout the city and watershed	5	1.49512
Arroyo restoration and stabilization	5	1.48241
Remove invasive species such as Russian Olive along Santa Fe River and arroyos and revegetate with native species	4	1.36906
Protect native species, including birds, fish, and amphibians	4	1.3645
Support beavers, cottonwood and bosque in lower watershed	4	1.31314
Fire management and planning in the upper watershed	4	1.29463
Equitable water rates to make water affordable for low-income households	-4	-1.01668
Fully utilize San Juan - Chama water	-4	-1.12246
Enforce split home (e.g. duplex) regulations on metering	-4	-1.1965
Acknowledge senior water rights of Pueblos	-4	-1.20007
Explore opportunities to open up upper watershed for recreation	-5	-1.36874
Humility and accountability by upstream users	-5	-1.42399
Bring county water to upper La Cienega	-5	-1.55361
Stop importing of water to the Santa Fe Watershed	-6	-1.72145
Stop the Buckman return flow pipeline	-6	-2.17026

Figure 8: "Urban" Group Information

The second group emerging from analysis reflects an Urban, Technological Management prioritization. This group shared more in common with the "Ecocentric" group (though those two groups shared little correlation), and had the least in common with the "Collaborative" group.

This was the second largest group, representing eight viewpoints from Non-Environmental Specific Civic Groups, Water Focused Businesses, and Development Businesses.

This group's highest priorities were *Increasing Permeable Surfaces, Rain Gardens, and Green Spaces for Infiltration and Stormwater Management* and *Sustainable Development and Urban Design to Reduce Water Use and Risks to the Watershed*, as well as highly prioritizing *Extending Water Efficiency Programs and Infrastructure Upgrades.* As such, this group more highly prioritized technological solutions than any other group.

This group ranked concerns regarding the upper watershed higher than most other groups and held the median position among all groups in priorities related to the lower watershed. They were less immediately concerned with education and social equity than most other groups, and prioritized government process, cultural, and Pueblo values lower than all other groups. On contrasting statements, like "Multi-User", they ranked *Completing the Return Flow Pipeline* higher than stopping it – in fact *Stopping the Return Flow Pipeline* was their lowest priority. Additionally, they ranked *Maintaining Restrictions on the Upper Watershed* higher than exploring opportunities to open it and ranked *Increasing the Cost of Water* higher than *More Equitable Water Rates*.

This group was more immediately concerned with addressing water management approaches in urban areas, which may be less of a geographic preference and more of an approach that sees urban development practices as more influential on the ecology of the watershed than social and cultural issues.

Group 3: Ecocentric Viewpoint ("Ecocentric")

Group 3
Ecocentric

Non-Enviro Civic (1)	Business-Water (1)	City (1)	Government (3)
			

Return Flow Pipeline: "Stop" is Ranked Higher	Upper Watershed: "Maintain Restrictions" is Ranked Higher	Water Pricing: "Increase" is Ranked Higher

Avg. Annual Income: Lowest	Percent Homeowner: Lowest

Highest and Lowest Statements	Rank	z-score
Recognize the rights of the river itself (e.g. legal personhood for river)	6	2.28376
Balance water needs of the city of Santa Fe with environmental needs	6	1.97351
Maintain restrictions on access to upper watershed	5	1.92222
Plan for climate change impacts on water resources	5	1.81761
Extend water efficiency programs and infrastructure upgrades throughout the city and watershed	5	1.56529
Protect native species, including birds, fish, and amphibians	4	1.4672
Establish better wildlife corridors to river	4	1.19903
More water conscious industrial practices	4	1.11325
Support beavers, cottonwood and bosque in lower watershed	4	0.97997
Work to avoid erosion from storms in the upper watershed	-4	-0.9252
Respect traditional and cultural uses and spaces of river and watershed	-4	-0.97087
Continued structural assessment of dams	-4	-1.26428
Humility and accountability by upstream users	-4	-1.44756
Provide outreach to mitigate hazards of camping along the river	-5	-1.5306
Complete the Buckman return flow pipeline	-5	-1.61055
Address homelessness and associated water impacts through more affordable housing	-5	-1.90456
Stop development of homes in wildland-urban interface	-6	-1.94919
Explore opportunities to open up upper watershed for recreation	-6	-2.76263

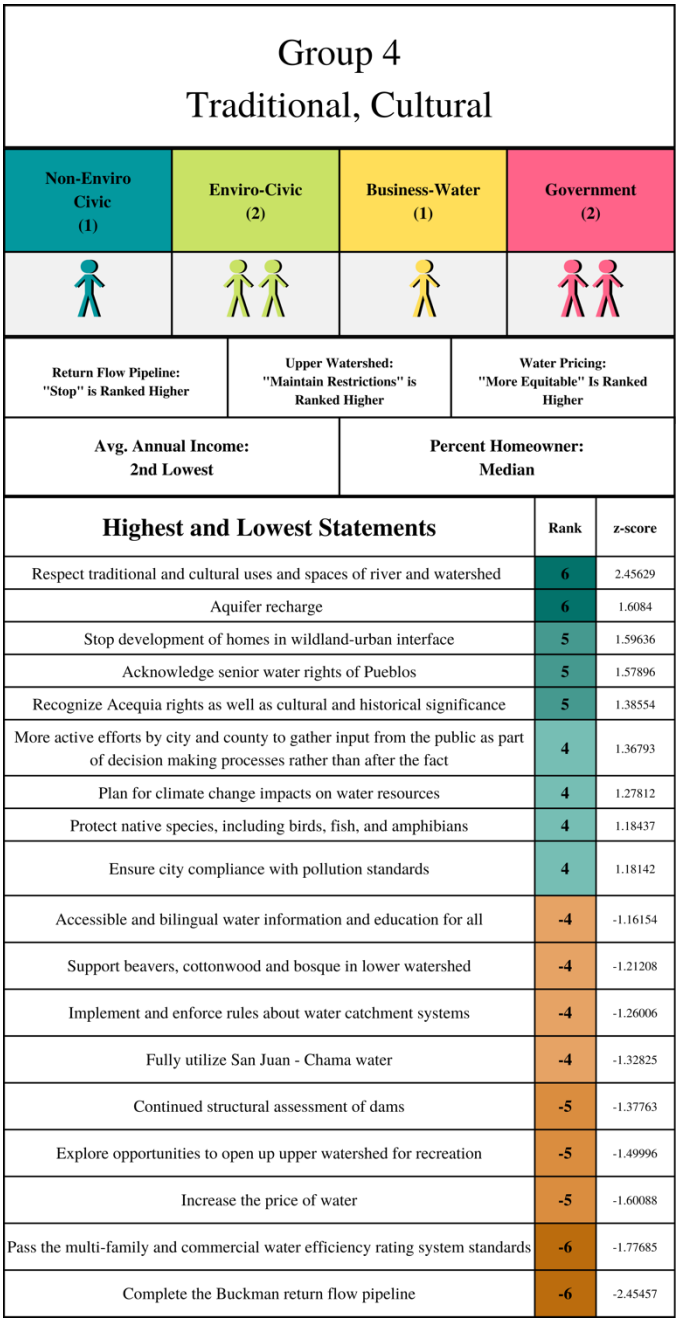
Figure 9: "Ecocentric" Group Information

The third group emerging from the analysis represents a more "Ecocentric" viewpoint, in that this group more highly prioritized ecologically-oriented approaches than socially-oriented concerns. This group was most aligned with the "Urban" group and least aligned with the "Multi-User" group.

This group represents viewpoints from mostly Government perspectives, with one representative each from City, Water Focused Business, and Non-Environmental Specific Civic Groups. Their highest priorities were *Recognizing the Rights of the River Itself (e.g., Legal Personhood)* and *Balancing the Water Needs of the City and the Environment*. Overall, this group consistently placed higher priority on ecological concerns over social and cultural issues, and compared to other groups, they ranked social equity, cultural, and recreation values the lowest.

While this group more highly prioritized ecological values, they ranked upper watershed specific priorities lower than all other groups despite a high ranking for *Maintain Restriction on the Upper Watershed.* In fact, this group was the most polarized regarding this issue (with restrictions as a high priority and *Opening the Upper Watershed* as their lowest priority). This seems to imply a desired "hands off" approach to the management of the upper watershed, as they felt strongly about maintaining restrictions, but overall ranked upper watershed management priorities such as fire management, forest thinning, erosion control, and water quality lower than all other groups. This group generally ranked *Increasing the Cost of Water* higher than *More Equitable Water Rates* and *Stop the Return Flow Pipeline* over completing it. This "Ecocentric" group ranked educational priorities higher than most other groups, and reflected the median position regarding Pueblos, government process, and technological solutions.

Group 4: Traditional, Cultural Viewpoint ("Traditional")



Group 4
Traditional, Cultural

Non-Enviro Civic (1)	Enviro-Civic (2)	Business-Water (1)	Government (2)

Return Flow Pipeline: "Stop" is Ranked Higher	Upper Watershed: "Maintain Restrictions" is Ranked Higher	Water Pricing: "More Equitable" Is Ranked Higher

Avg. Annual Income: 2nd Lowest	Percent Homeowner: Median

Highest and Lowest Statements	Rank	z-score
Respect traditional and cultural uses and spaces of river and watershed	6	2.45629
Aquifer recharge	6	1.6084
Stop development of homes in wildland-urban interface	5	1.59636
Acknowledge senior water rights of Pueblos	5	1.57896
Recognize Acequia rights as well as cultural and historical significance	5	1.38554
More active efforts by city and county to gather input from the public as part of decision making processes rather than after the fact	4	1.36793
Plan for climate change impacts on water resources	4	1.27812
Protect native species, including birds, fish, and amphibians	4	1.18437
Ensure city compliance with pollution standards	4	1.18142
Accessible and bilingual water information and education for all	-4	-1.16154
Support beavers, cottonwood and bosque in lower watershed	-4	-1.21208
Implement and enforce rules about water catchment systems	-4	-1.26006
Fully utilize San Juan - Chama water	-4	-1.32825
Continued structural assessment of dams	-5	-1.37763
Explore opportunities to open up upper watershed for recreation	-5	-1.49996
Increase the price of water	-5	-1.60088
Pass the multi-family and commercial water efficiency rating system standards	-6	-1.77685
Complete the Buckman return flow pipeline	-6	-2.45457

Figure 10: "Traditional" Group Information

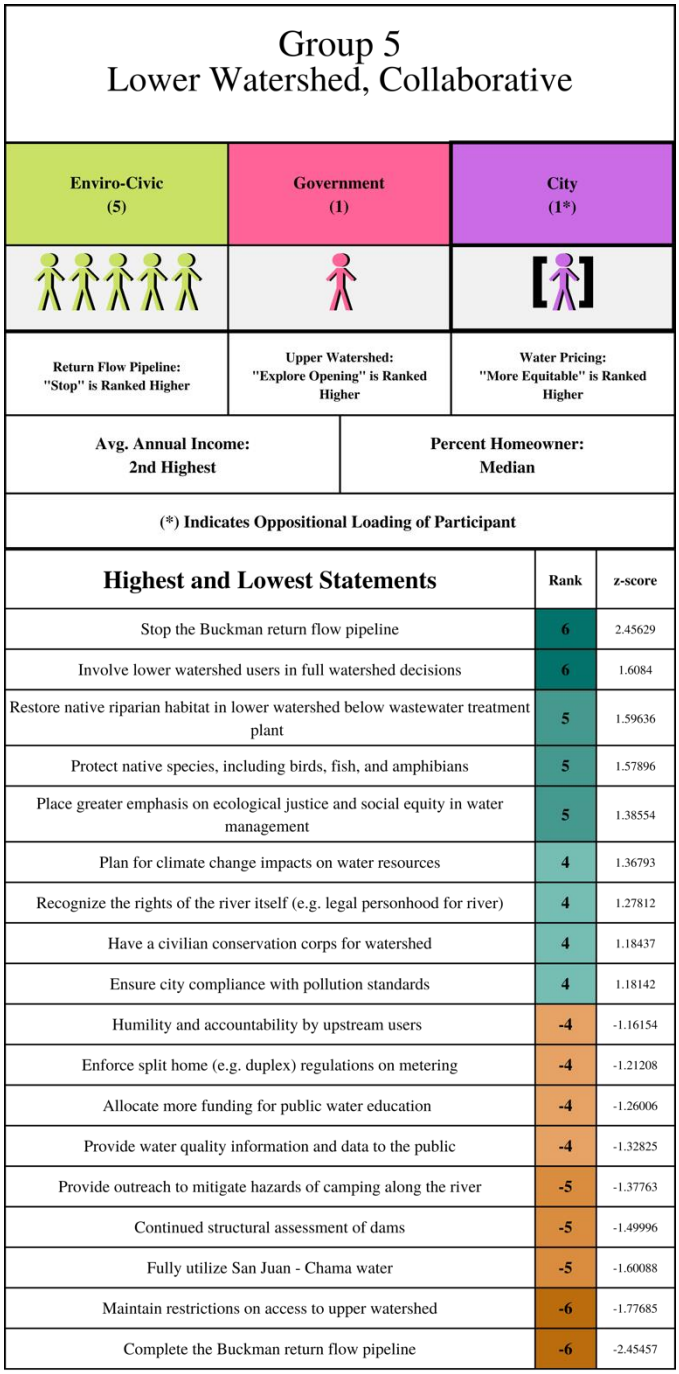
The fourth group emerging from the analysis represented a more traditionally and socially focused management approach. This viewpoint was more correlated with the "Collaborative" group than any other group and was markedly different from all other viewpoints.

This group represents viewpoints from Environmental Groups and Government perspectives, as well as one Non-Environmental Civic Group and one Water Focused Business. Overall, they had the 2nd lowest average income, and were the median group for percent of homeowners.

Their highest priorities were *Respecting Traditional and Cultural Uses and Spaces* and *Aquifer Recharge.* They highly prioritized *Acknowledge Senior Water Rights of Pueblos, Recognizing Acequia Rights and Cultural and Historical Importance,* and *More Active Efforts by City and County to Gather Public Input as Part of Decision-Making Practices Rather Than After the Fact.* They more highly prioritized cultural and Pueblo values, and education and government process than all other groups.

They also ranked priorities relating to the lower watershed higher than most other groups. Compared to other groups they were the least concerned with recreation values, and ranked upper watershed and technological solutions lower than most other groups. In terms of contrasting statements, like the "Urban" and "Ecocentric" groups, they ranked *Maintain Upper Watershed Restrictions* higher than opening it up. At the same time, they ranked *Stop the Return Flow Pipeline* higher than completing it and ranked *More Equitable Water Rates* higher than *Increase the Cost of Water*.

Group 5: Lower Watershed, Collaborative Viewpoint ("Collaborative")



Group 5
Lower Watershed, Collaborative

Enviro-Civic (5)	Government (1)	City (1*)
Return Flow Pipeline: "Stop" is Ranked Higher	Upper Watershed: "Explore Opening" is Ranked Higher	Water Pricing: "More Equitable" is Ranked Higher
Avg. Annual Income: 2nd Highest	Percent Homeowner: Median	

(*) Indicates Oppositional Loading of Participant

Highest and Lowest Statements	Rank	z-score
Stop the Buckman return flow pipeline	6	2.45629
Involve lower watershed users in full watershed decisions	6	1.6084
Restore native riparian habitat in lower watershed below wastewater treatment plant	5	1.59636
Protect native species, including birds, fish, and amphibians	5	1.57896
Place greater emphasis on ecological justice and social equity in water management	5	1.38554
Plan for climate change impacts on water resources	4	1.36793
Recognize the rights of the river itself (e.g. legal personhood for river)	4	1.27812
Have a civilian conservation corps for watershed	4	1.18437
Ensure city compliance with pollution standards	4	1.18142
Humility and accountability by upstream users	-4	-1.16154
Enforce split home (e.g. duplex) regulations on metering	-4	-1.21208
Allocate more funding for public water education	-4	-1.26006
Provide water quality information and data to the public	-4	-1.32825
Provide outreach to mitigate hazards of camping along the river	-5	-1.37763
Continued structural assessment of dams	-5	-1.49996
Fully utilize San Juan - Chama water	-5	-1.60088
Maintain restrictions on access to upper watershed	-6	-1.77685
Complete the Buckman return flow pipeline	-6	-2.45457

Figure 11: "Collaborative" Group Information

The fifth and final group emerging from the analysis represented a Lower Watershed and Collaborative Environmental Management focus. This group shared most in common with the "Traditional" group and was most distinct from the "Urban" group. This group represents viewpoints from mostly Environmental Groups, though it also reflects one perspective from a Government Position (Acequia). Overall, the "Collaborative" viewpoint had 2nd highest average income and were the median position for percent of homeowners.

This group is unique in that it had one participant from a City position who had more statistical commonality with opposition to this group than they had in common with any other viewpoint.

This group's highest priorities were *Stopping the Return Flow Pipeline* and *Involving Lower Watershed Users in Full Watershed Position*. In fact, the return flow pipeline was a defining issue for this group as its completion was inversely their lowest priority. Overall, compared to other groups they more highly prioritized issues specific to the lower watershed and like "Multi-User", prioritized social equity higher than all other groups. They also similarly prioritized recreation higher than most groups, and like "Multi-User", ranked *Exploring Opportunities to Open the Upper Watershed* higher than maintaining restrictions. Despite their high prioritization of lower watershed issues, this group ranked Pueblo related priorities lower than most other groups and were the median group regarding cultural related priorities. At the same time, they prioritized upper watershed related issues higher than both the "Ecocentric" and "Traditional" groups. Additionally, they prioritized educational initiatives lower than all other groups, and ranked *More Equitable Water Rates* higher than *Increasing the Cost of Water*.

3.7. Comparing Q-Sort Groups

A correlation matrix (Figure 12) helps to validate and identify relationships between groups. Generally, no two groups should have a correlation score greater than 0.60. A score of 1 would mean that the group is exactly the same as another group, while a score of 0 means the two groups are exact opposites.

	Multi-User	Urban	Ecocentric	Traditional	Collaborative
Mulit-User	1				
Urban	0.38934	1			
Ecocentric	0.18626	0.40007	1		
Traditional	0.28703	0.25241	0.25169	1	
Collaborative	0.26484	0.15696	0.24132	0.41011	1

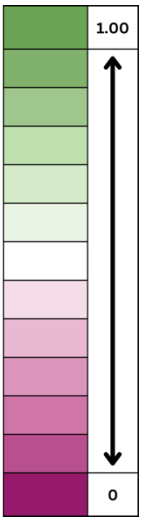


Figure 12: Correlation Matrix for Q-Sort Groups. Darker magenta colors indicate more difference between groups.

Among the five groups found in the Q-Sort analysis, the greatest similarity was found between the "Traditional" and "Collaborative" groups. There were also similarities between "Urban" and "Ecocentric" groups and the "Urban" and "Multi-User" groups. The lowest similarity (or the greatest difference) among groups was found between the "Urban" and "Collaborative" groups. The "Ecocentric" and "Multi-User" groups were also quite different.

These scores are important for not conflating relationships between groups. For example, the "Urban" group is relatively similar to both the "Ecocentric" and "Multi-User" groups, but these two groups are very distinct from one another. Therefore, the identified correlation helps make sense of alignment with some groups.

Priority groups can also be compared based on how they prioritized the different thematic areas and how they generally see the contrasting issues (Table 4). It is important to note that every group was comprised of multiple stakeholder categories, which illustrates the complexity and diversity of viewpoints even among general stakeholder groups.

3.8. Perceptions of Power Among Groups

Since the discussion of power dynamics and proximity to decision making positions was so prominent in the stakeholder interviews, we additionally organized the different groups within this framework. Based on the relationship to the "table" discussed in section 2.4 above, the positions of the Q-Sort participants are again mapped in Figure 13.

This is meant to be illustrative of a general perceived representation of different viewpoints in the decision-making process. Because of the different group assemblages, it can't be determined whether

one group has more power than another. However, it can be observed that the "Collaborative," "Ecocentric," and "Urban" group participants generally don't perceive themselves to be at the decision-making table, while the "Traditional" and "Multi-User" groups have two participants who perceive themselves to be at the table, though from different general interest groups. It is important to note that within the "Collaborative" group there is one participant who is included in an oppositional position. Therefore, there is at least one person at the decision-making table, who is significantly opposed to the viewpoints and priorities of the rest of their group.

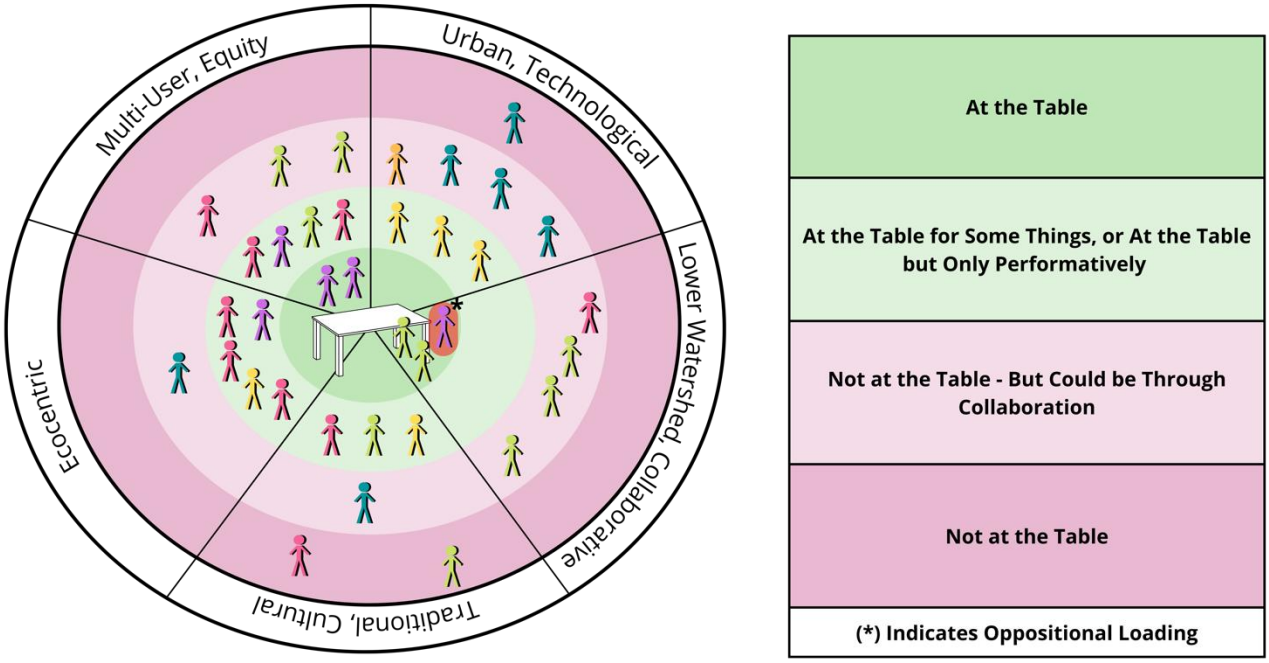


Figure 13: Perceptions of Proximity to Decision Making Processes By Q-Sort Participants. The shaded figure with * represents a stakeholder with oppositional inclusion in the Traditional, Cultural group.

4. Conclusion

This stakeholder assessment sought to identify stakeholders relating to the Santa Fe River and Watershed and to better understand their perspectives and the relationships among them. The primary objective is to apply assessment results, in collaboration with the City of Santa Fe and other resource managers, to tailor outreach efforts toward addressing the most salient issues raised by specific stakeholder groups.

This report is preliminary as it is important to receive feedback before finalizing the project reports. Plans are underway for in-person meetings in October 2022 to discuss these results. It is hoped that the group as a whole will articulate key take-away messages and recommendations based on the findings. What can be distilled at this point is that there are diverse perspectives among Santa Fe Watershed stakeholders. Care will be needed to consider these diverse voices and priorities in planning processes that look to the critical issues that have major implications for the future of the Santa Fe River and Watershed.

Appendix A. Interview Questions

Santa Fe Watershed – Interviews on Stakeholder Water Issues & Priorities

[Black text represents main interview protocol, Blue text represents amendments for Pueblo stakeholders, Red text represents amendments made for Government stakeholders]

Interview protocol and amendments were approved by Utah State University's Institutional Review Board [Protocol #11738]

Introduction

As you have probably heard from the Santa Fe Watershed Association, this project is focused on hearing from stakeholders in the Santa Fe Watershed about how they relate to the river and watershed and what their priorities are. Out of these interviews, our plan is to gather a set of statements that reflect everyone's priorities. Then, we will come back around to everyone with a priority sorting process in a few months.

1.0. **Can you please tell us about [organization/yourself]? Yourself and your role with the Pueblo? Yourself and the agency/department you work for?**

2.0. **Our focus here today is on the Santa Fe River and watershed. How [does organization/do you] relate to the Santa Fe River and Watershed? Generally speaking, what issues, concerns, or values are important to you? Where in the watershed are your issues most focused?**

3.0. **Thinking about the next 10 years or so, what are your [organization's] top priorities for the river and watershed? What would you like to see happen, be maintained, or changed with regards to the river and watershed? Do you have priorities for the watershed thinking further in the future? 40+ years out?**

4.0. **What do you see as the biggest obstacles to addressing your priorities?**

5.0. **Is there anything that you do NOT want to see happen in regard to the watershed in the next 10 years?**

6.0. **Shifting towards thinking about participation, how involved have [you or organization] been in discussions or planning or management of these issues in the watershed?**

6.1. Do you feel as though you have a seat at the "proverbial table?"
6.2. How would you describe communication surrounding water governance with other government agencies?
6.3. What kinds of collaboration are present?
6.3. How involved have you and your department/agency been with other governmental departments/agencies in regard to planning and management?
6.4. What does inter-governmental and intra-governmental collaboration look like with regard to the watershed?
6.5. And non-governmental entities – non-profits, businesses, communities

7.0. **What entities do you think are key to accomplishing your priorities?** i.e. Who do you think has to be involved if your priorities are to be addressed?

8.0. **Are there any other stakeholders or groups whose interests and priorities should be considered in trying to fully assess priorities for watershed management looking into the future?**

9.0. **Is there anything else we haven't talked about that you'd like to mention before we finish up?**

Thank you very much for your time.