



Upper San Juan Integrated Water Management Plan, Phase II
WRP and WSRF Grants – POGG1 PDAA 2020-3065

Final Report
May 2021



Prepared For:
Colorado Water Conservation Board
Southwest Basin Roundtable

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Introduction

In 2015, the Colorado Water Plan (CWP) and Southwest's Basin Implementation Plan (BIP) identified a significant gap in information necessary to understand and protect environmental and recreational (E&R) water needs in Colorado. Through the generous support of the Colorado Water Conservation Board (CWCB) and Basin Roundtables, local watershed groups have been encouraged to develop evaluation tools and explore new resources to address these gaps and needs through their own unique Stream Management Plan (SMP) or Integrated Water Management Plan (IWMP) processes.

In 2018, the CWCB and Southwest Basin Roundtable awarded funding for Mountain Studies Institute (MSI), Trout Unlimited (TU), and Western Wildscapes (WW) to coordinate a stakeholder group to begin the critical first steps of facilitating a community-led process to assess water values, needs, and priorities for the San Juan River Basin. Envisioned as a three-phase process, the ultimate purpose of this project is to implement the SMP/IWMP process to seek opportunities to best utilize San Juan Basin streams, with wide-ranging community support and decisions based on local input and current scientific analysis.

Phase I (May 2018-April 2020) directly supported the CWP and Southwest Basin's BIP goals by tackling the first critical steps in the process: initiation of community engagement; establishment of a steering committee and stakeholder groups to guide the process; a review of existing data and information; and an outline for next phases. This group of local and diverse water users is now called the Upper San Juan Watershed Enhancement Partnership, or WEP. Building upon the E&R water needs focus of SMPs, the WEP's process has evolved to consider agricultural and municipal water needs and planning applications to create what the state now calls an Integrated Water Management Plan (IWMP).

In Phase II, MSI, WW, and TU continued project coordination and stakeholder engagement initiated in Phase I, while project partners Lotic Hydrologic (Lotic) and San Juan Conservation District (SJCD) developed assessments of E&R water supply needs and agricultural irrigation structures for input into hydrologic models analyzing current and future water scenarios. These assessments will be utilized in Phase III to identify opportunities for cooperative projects that address multiple water needs in a comprehensive IWMP with specific options for projects, actions, and potential challenges.

Objectives and Tasks

Objectives/Outcomes:

The primary outcomes of Phase II include:

- 1) An understanding of the hydrology of the upper San Juan watershed project area and the interactions between stream flows, environmental and recreational attributes, and consumptive uses under existing and potential future conditions – including forest health and climate change;

- 2) An inventory of agricultural structural needs, such as ditch/diversion improvements and other measures that have the potential to improve irrigation practices and irrigation efficiency;
- 3) An understanding of E&R water supply needs and gaps;
- 4) A well-coordinated process that informs and incorporates input from stakeholders and the community as a whole;
- 5) A scope of work for the Phase III management plan.

Primary Phase II Tasks:

We have successfully completed the three tasks CWCB funded for this project, including:

- 1) Coordination & Stakeholder Engagement
- 2) Agricultural Water Needs/Infrastructure Analysis
- 3) Technical Analysis & Modeling

This report describes Phase II accomplishments, challenges, lessons learned, and next steps as the group advances to Phase III in June 2021. Changes and restrictions from the COVID-19 pandemic, fortunately, did not delay project progress due to partners' and steering committee members' proactive adaptation to remote meetings and ability to conduct field work with social distancing, smaller teams, disinfection protocols, and wearing masks.

Accomplishments

Task 1 – Coordination & Stakeholder Engagement

Over the past year (May 2020-2021), Mountain Studies Institute (MSI) and Western Wildscapes (WW), with the additional guidance of Trout Unlimited (TU), facilitated a variety of stakeholder and program management meetings to ensure Phase II tasks were coordinated; timeline goals upheld; and updates were regularly conveyed to committee members, project partners, and community stakeholders. All meetings were hosted remotely through video conferencing or in outside settings for groups of 10 people or less in order accordance with Colorado state COVID-19 protocols.

Deliverable 1: Eight steering committee meetings and ten project management meetings, with partners Lotic and SJCD, were convened in Phase II. In addition to regular steering committee meetings, members were invited to attend project management meetings. Two public meetings were held virtually in May 2020 and March 2021. Notes and presentations from these meetings are publicly available on the group's website at www.mountainstudies.org/sanjuan/smp.

Steering Committee Meeting highlights/accomplishments:

- Solidified WEP brand and Steering Committee members as an active watershed group in the Southwest Basin, San Juan Sub-Basin and as part of the Colorado SMP/IWMP network.
- Tailored public outreach and presentations for different audiences, including the general public, smaller communities, and individual property owners to facilitate discussion of complex water topics and WEP's multi-phased efforts.

- Collected stakeholder feedback via public surveys or direct communication, requesting feedback on Phase II steps, as well as community water values, needs, and areas of interest (Appendix A). Specific questions, project ideas, or locations were compiled by MSI and shared with committee members and partners throughout Phase II. Feedback ensured planning steps, notable findings, and clarification were incorporated into analysis and assessment reporting.
- Assisted in fundraising nearly \$5,000 in donations through a national crowd-funding website, the Great Outdoors Fund, towards the [San Juan River Public Access Enhancement Project](#). Donations helped public and private partners leverage funds towards a total budget of \$92,600 to construct a new boat ramp, channel shaping, boulder structure within the river, and parking lot enhancements/signage in Fall 2021.
- Provided representation of watershed goals and priorities through participation in cross-collaborative efforts on landscape scale projects (e.g., Collaborative Forest Landscape Restoration Program) on the San Juan National Forest to ensure forest and watershed group goals are communicated and aligned.
- Most importantly, maintained local representation, oversight, expertise, and feedback throughout Phase II. Informal and formal evaluations from the steering committee and public during Phase II and into Phase III will be essential to ensure this planning process and partnerships align with local values and priorities. Phase II evaluations are included in Appendix A.

Site Visits/Field Trips:

Two small group site visits/field trips were hosted in outdoor settings to allow steering committee members to explore existing projects that may be applicable in other areas as well as congruent projects WEP helped support and raise funds for in 2020/2021.

- August 2020-Banded Peak Ranch: Committee members explored opportunities, benefits, challenges, and considerations for the following sites/projects: stream gauge on the Navajo River, San Juan Cutthroat trout habitat, fire modeling and conservation easements, and irrigated hay pasture restored from an oil production field.
- May 2021-Mesa Canyon: committee members and partners floated the San Juan River from Yamaguchi Park to an existing access point on Trujillo Road to explore progress on a project to formally develop primitive seasonal access to a popular river segment, reduce conflicts between recreational users, improve the recreational experience for all users, and eliminate trespassing issues on private and Tribal lands.
- Viewing and discussing implemented or in-progress projects during these field trips offered the committee insight into what types of demonstration or prioritized projects may be possible during or after the planning process.

Project Management Meetings between MSI, WW, TU, Lotic, and SJCD focused on maintaining coordinated field and reporting schedules, sharing and aligning data needs, addressing issues (e.g., property or database access), organizing public outreach strategies, and documenting progress. Conversations during these meetings on engagement activities and tools used by

other SMP/IWMP groups continue to inform methods and options the WEP may utilize in Phase III.

Deliverable 2: Based on discussions in both steering committee and project management meetings, a scope of work and budget were detailed in Phase III grant applications. The WEP was fortunate to receive continued support from the CWCB, Southwest Basin Roundtable and multiple local partners to complete the third and final IWMP planning process in 2021/2022. Part of Phase III tasks includes a long-term plan for the group, IWMP, and projects.

Public Meetings or Additional Presentations highlights:

- May 2020: Presentations focused on reviewing WEP’s Phase I accomplishments and explaining partners and tasks for Phase II.
- March 2021: While the primary goal of this public meeting was to update the public on Phase II progress, stakeholder survey results ranked other topics of interest to cover during public meetings. Presentations on overviews of Colorado water law and hydrology and local water administration, conservation, and drought planning from WEP steering committee members Joe Crabb (DWR) and Justin Ramsey (PAWSD) provided context for the detailed Phase II steps and assessment results presented by MSI, SJCD, and Lotic.
- Multiple presentations and progress reports were given either by MSI staff, WW, Lotic, or SJCD to local funders (Archuleta County, San Juan Water Conservancy District, Town of Pagosa Springs Town Council and Tourism Board, San Juan Headwaters Forest Health Partnership, Southwestern Water Conservation District in 2020/21), as well as the Environmental & Recreation Subcommittee of the Southwest Basin Roundtable (6/15/20).

Next Steps: Rather than host a third virtual public meeting to wrap up Phase II, the committee and partners opted to instead provide more regular project updates via multiple platforms (newspaper articles, radio ads, social media) and options to host/participate in smaller group meetings to discuss Phase II results and outcomes in more detail. This was designed around the concept of going to the stakeholders rather than always requesting them to come to us. With signs of more in-person activities becoming a possibility in the near future, the WEP hopes to offer a broader portfolio of options for stakeholders to learn more and get engaged in the planning process.

Task 2 – Agricultural Water Needs/Infrastructure Analysis

The WEP partnered with San Juan Conservation District (SJCD), to conduct an inventory and analysis of existing agricultural infrastructure on the upper San Juan River, due to their expertise and rapport with agricultural water users, and familiarity with local water systems. This partnership allowed the SJCD, with technical assistance from National Resources Conservation Service (NRCS) to complete necessary evaluations of major ditches and their laterals along the San Juan River mainstem and its tributaries. SJCD’s team worked with ditch representatives, water right holders and agricultural water users to assess current conditions of their irrigation delivery system and identify opportunities to improve system efficiency (Appendix B).

Infrastructure Analysis Highlights & Deliverables:

- In summary, the team inventoried and mapped approximately 71.4 miles of ditch and identified 508 structures along these ditches to determine potential deficiencies within each system, identify possible candidate and priority areas for improvement, and develop cost estimates and alternatives.
- In total, 160 irrigators, consisting of 322 irrigated fields (5,374 total acres), were provided a free evaluation of their current irrigation system with suggestions for improvement and cost estimates.
- The grand total cost estimate for improvements on both major ditches and on farm improvements is \$8,802,450.
- To assist ditch companies and irrigators with these significant costs, SJCD and NRCS began outlining potential funding strategies to tailor improvement project requests to grant opportunities, such as:
 - Whole Ditch: improvements on ditch proper with or without on-farm improvements
 - Highest Priorities Within Each Ditch: improvements on structures rated poor or fair
 - Replace Headgates at Diversion Point on Each Ditch: improvements for safe fish passage and other environmental/recreational aspects

Public Outreach:

- SJCD and NRCS staff participated in project management and steering committee meetings to convey regular updates, express partner needs, clarify the inventory/evaluation process, and determine what information is appropriate for public audiences versus private information/data retained only for discussion with ditch representatives and property owners.
- Cynthia Purcell of SJCD presented at both Phase II public meetings, providing process steps, tables, maps, and narratives suitable for public stakeholders. No private information details were disclosed at public meetings. Rather, sample reports and tables summarizing infrastructure attributes, location, and alternatives were used to discuss how this analysis may inform Phase III project identification and prioritization.

Next Steps:

- SJCD will present the agriculture water system map and results to each ditch lead/representative to get feedback on their priorities versus the inventory findings, gauge interest to implement improvement recommendations, and funding needed from grants to accomplish the goals of each irrigation system.
- SJCD will continue agricultural infrastructure evaluations for sites within the Blanco watershed, and within the Navajo watershed, if time and budget allow, in Phase III.
- Findings and interest from SJCD's inventory in the upper San Juan, Blanco, and possibly Navajo watersheds will help identify potential infrastructure improvement projects to be considered and prioritized in Phase III. Any projects progressing from this infrastructure inventory would be voluntary. Please see Appendix B to read SJCD's complete report and deliverables.

Task 3 – Technical Analysis & Modeling

The WEP partnered with Lotic Hydrological to collect various data and information needed to assess current components of hydrological, geomorphic, ecological, and recreational conditions and to simulate potential future conditions/scenarios for the upper San Juan, Blanco, and Navajo watersheds. Lotic’s team was selected for their extensive technical expertise, experience working with SMP/IWMP processes and watershed groups, and staff who hold personal connection/understanding of this Basin’s community and landscape.

Technical Analysis & Modeling Highlights, Deliverables: Please see Lotic’s detailed report in Appendix C for extensive narratives, methodology, notable findings, and management issues/areas to consider in Phase III efforts. Lotic’s report provides all deliverables outlined in Phase II’s scope of work, including an annotated bibliography, simulation model results, data tables, graphics, maps of known high-value attributes, high priority planning issues and stream reaches.

Public Outreach:

- Seth Mason from Lotic participated in project management and steering committee meetings to convey regular updates, express partner needs, clarify methodologies, and offer tools and project outcomes for the WEP to consider in efforts to turn assessment information into actions.
- Seth Mason presented at both Phase II public meetings and to the E&R Southwest Basin Roundtable Subcommittee, providing process steps, tables, maps, and narratives suitable for public stakeholders. Seth rapidly addressed stakeholder questions via meetings or direct correspondence and used feedback from the steering committee, SJCD, and stakeholders to inform final reporting.

Next Steps:

- Lotic Hydrological’s team will continue to support WEP efforts in Phase III, leading tasks to complete an Integrated Water Management Plan and select priority projects to be formatted for inclusion into the Southwest Basin’s Implementation Plan’s (BIP) Identified Projects and Processes (IPP) list.

Issues, Corrective Actions, and Lessons Learned

This project’s Phase II CWCB six-month Progress Report provides other detailed responses on issues, corrective actions, and lessons learned from May 2020 to November 2020. These applied to the subsequent remaining six months of Phase II. Two new major lessons learned are outlined below:

Consistent scheduling

In attempts to make meeting activities more productive or relevant to attendees roles and tasks, while simultaneously organizing different committee and partner schedule needs, MSI convened separate meetings on every other first Friday of the month and third Tuesday each month. Both steering committee and partners were invited to attend either or both meetings, and meeting

dates were occasionally adjusted based on group and project needs. Intentions to offer flexibility and reduce meeting fatigue many experienced during the pandemic instead sometimes created confusion over inconsistent schedules.

In Phase III, the group voted on the corrective action to have all committee members and partners meet on the same day each month, with options to cancel or change dates if needed. In addition to a more consistent meeting schedule, the WEP hopes to host stakeholder workshops and potentially more site visits/field trips to keep members and partners regularly updated and benefitting from WEP activities.

Limitations of virtual stakeholder engagement/outreach

Although Phase II efforts ensured the WEP steering committee and partners maintained regular engagement in the planning process, we recognize there will be a much greater need to expand and formalize stakeholder engagement plans and activities for Phase III. Pivoting interactions and dispersal of information to online or printed materials during the pandemic had/has its advantages (i.e. travel cost savings, sharable presentation recordings). However, the WEP acknowledges not all stakeholders readily use or are aware of these online events or resources. WEP Steering Committee members assisted in bridging this gap by bringing forth WEP updates and goals to other public venues or direct contact with interested landowners or residents.

The WEP has recognized the need to participate in already scheduled stakeholder meetings, understanding that time is limited and stakeholders have many demands on that time. The members of the steering committee have been generous with their time and have made themselves available to present to existing stakeholder groups.

The group hopes to employ a combination of online and in-person options moving forward to ensure public health, comfort, and flexibility are retained while also offering additional in-person or smaller virtual gatherings to ensure more opportunities to provide feedback are provided. Better survey and mapping tools, such as Esri's Survey 123, may offer a standardized set of questions stakeholders can interact with on their own or that the WEP may use as an outline of baseline data to collect when conducting more thorough interviews in person or on the phone.

Lastly, MSI staff and steering committee members attend SMP peer calls hosted by River Network when possible and appropriate. Learning about the tools, funding, plans, challenges, and corrective actions other SMP/IWMP groups have utilized across Colorado informs what approaches WEP may tailor to its own goals and objectives. For example, the WEP's stakeholder engagement strategies have mainly been informal discussions, compiled via meeting notes, learning by trial and error which types of outreach and methods work best for the upper San Juan Basin communities. A more formal set of strategies may be necessary and a part of the Phase III task to develop a long-term plan for the WEP as a group and for projects outlined in the IWMP. To this end, the group may rely on other [Coloradosmp.org resources](https://coloradosmp.org/resources) and group examples, such as the [Yampa River Basin IWMP's Stakeholder Engagement Plan](#).

Budget Accounting

Through the Colorado Watershed Restoration Program (CWRP) and Water Supply Reserve Fund (WSRF) grants, the CWCB generously contributed to components of this broader stream management planning effort (Tables 1-2). These project tasks were successfully accomplished. The Upper San Juan Watershed Enhancement Partnership greatly appreciates the support of the CWCB and Southwest Basin Roundtable for helping the WEP conduct these critical steps to understanding the San Juan Basin's current and future water needs.

Table 1: Phase II Budget Overview

Task	Description	CWCB Funds WRP	CWCB Funds WSRF	Other Funding Cash	Other Funding In- Kind	Total
1	Coordination & Stakeholder Engagement	\$ 21,800	\$ 10,900	\$ 10,900	\$18,027	\$61,626
	Grant Administration	\$ 7,810	\$ 3,905	\$ 3,913		\$15,628
2	Agricultural Water Needs Analysis	\$ 19,705	\$ 9,853	\$ 9,853	\$10,030	\$49,440
3	Technical Analysis + Modeling	\$ 36,599	\$ 18,299	\$ 18,299		\$73,197
TOTALS		\$ 85,914	\$ 42,957	\$ 42,965	\$28,057	\$199,892

Table 2: Cost Distribution of CWRP & WSRF Funds

Task	Combined CWRP & WSRF Funds Available	CWRP & WSRF Grant Funds utilized as of 5/31/2021					Total CWCB Funds
		Mountain Studies Institute	Western Wildscapes	Lotic Hydrological	San Juan Conservation District		
1	Coordination & Stakeholder	\$ 32,700	\$ 27,255	\$ 5,445			\$ 32,700
	Grant Administration	\$ 11,715	\$ 2,726	\$ 545	\$ 5,490	\$ 2,956	\$ 11,716
2	Agricultural Water Needs Analysis	\$ 29,558				\$ 29,557	\$ 29,557
3	Technical Analysis + Modeling	\$ 54,898			\$ 54,898		\$ 54,898
Total	\$ 128,871	\$ 29,981	\$ 5,990	\$ 60,388	\$ 32,513	\$ 128,871	

*In addition to combined CWCB grants, cash match funding (\$42,965) supported all four project partners to complete Phase II tasks.

Table 3: In-kind Matching Funds

Year	Tracking	Mtg. Count	# of Participants	Rate	Time (hrs)	Total
2020	Steering Committee Meetings	4	6-11 (avg. 8.5)	\$ 25.96	2	\$ 1,765
	Public Meetings	1	~30/each	\$ 25.96	2	\$ 1,558
	Trout Unlimited Advising Services			\$ 50.00	80	\$ 4,000
	SJCD Staff Time			\$ 35.00	60	\$ 2,100
	NRCS Staff Time			\$ 40.00	185	\$ 7,400
	Lotic Staff Time			\$ 120.00	2.42	\$ 290
	Project Management Meetings (May-Nov)	6	5			-
2021	Steering Committee Meetings	4	6-11 (avg. 8.5)	\$ 25.96	2	\$ 1,765
	Public Meetings	1	~30/each	\$ 25.96	2	\$ 1,558
	Trout Unlimited Advising Services			\$ 50.00	80	\$ 4,000
	SJCD Staff Time			\$ 35.00	150	\$ 5,250
	NRCS Staff Time			\$ 40.00	65	\$ 2,600
	Lotic Staff Time			\$ 140.00	7.5	\$ 1,050
	Project Management Meetings (Jan-Apr)	4	5			-
*Colorado hourly volunteer rated based on independentsector.org. **Grand total in-kind matching funds exceeded the original \$28,057 included in grant contracts by \$5,279, thanks to the generosity of WEP steering committee members and partners and public stakeholders.					Total In-kind match	\$ 33,336

Appendix A – Mountain Studies Institute/Western Wildscapes: Stakeholder Feedback Collection

During Phase II, the WEP pursued multiple stakeholder outreach efforts, one of which was a public survey launched in early summer 2020 and marketed again in fall of 2020, with limited results. Compared to Phase I survey participant numbers (n=40), there was limited participation and data derived in Phase II surveys (n=15), even with prize incentives from Pagosa Brewing Company. While some of this reduction may be influenced by the lowered capacity to collect in-person responses due to COVID 19 pandemic guidelines, as partners leading the stakeholder engagement and public outreach components for the WEP, Mountain Studies Institute and Western Wildscapes hope to reinvigorate and increase community involvement in this planning process in Phase III.

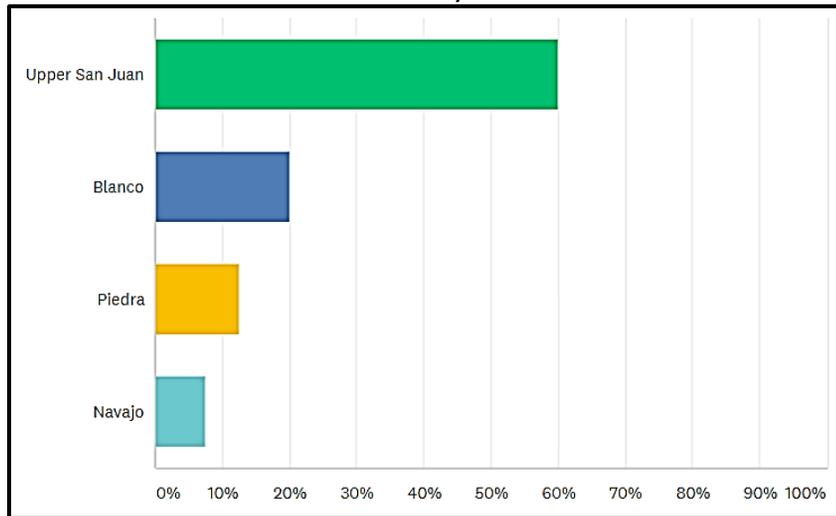
We relied heavily on the valuable guidance the WEP steering committee and local funders and partners provided throughout Phase II to uphold regular stakeholder engagement, but recognize additional outreach efforts will be necessary to accomplish Phase III goals and ensure broader community buy-in. New tools and strategies described in the Lesson Learned section are already in development and may be implemented starting in Summer 2021.

Examples of stakeholder feedback results are illustrated below, with comparison of responses between Phase I and Phase II survey results as well as compiled public feedback and questions shared with the WEP to guide Phase II analysis and reporting.

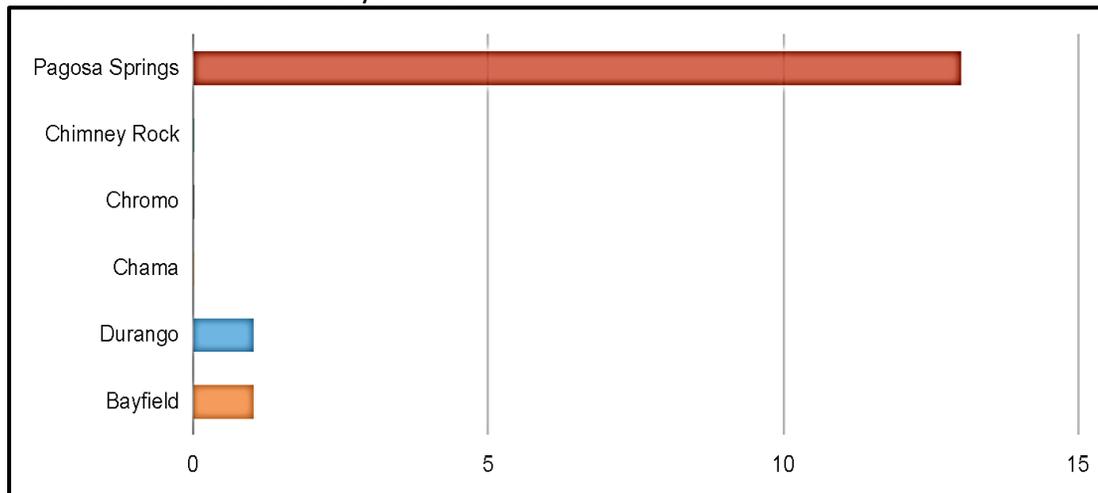
Phase I vs Phase II Example Results: Note, survey question phrasing and focus did evolve between phases. Similar questions and responses are highlighted below.

The evolution of survey phrasing and word choice reflect the WEP's goals to identify stakeholder engagement, location, concerns, and priorities throughout the IWMP process. Responses below demonstrate Phase I's goal to identify of the project's broader geographic scope, while Phase II's questions shifted towards identifying locations of interest and/or where to focus engagement of stakeholder groups.

Phase I-Which watershed area do you live in?

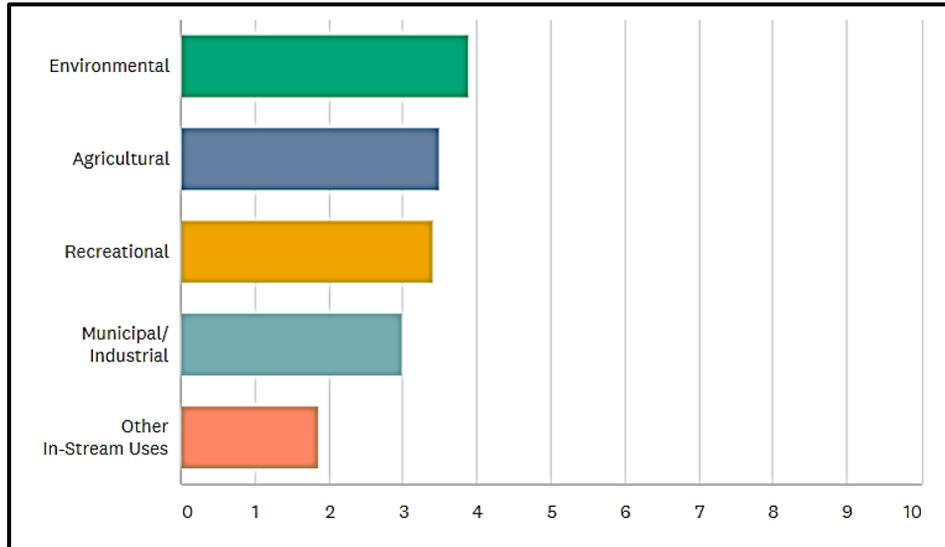


Phase II-Which location do you live in?

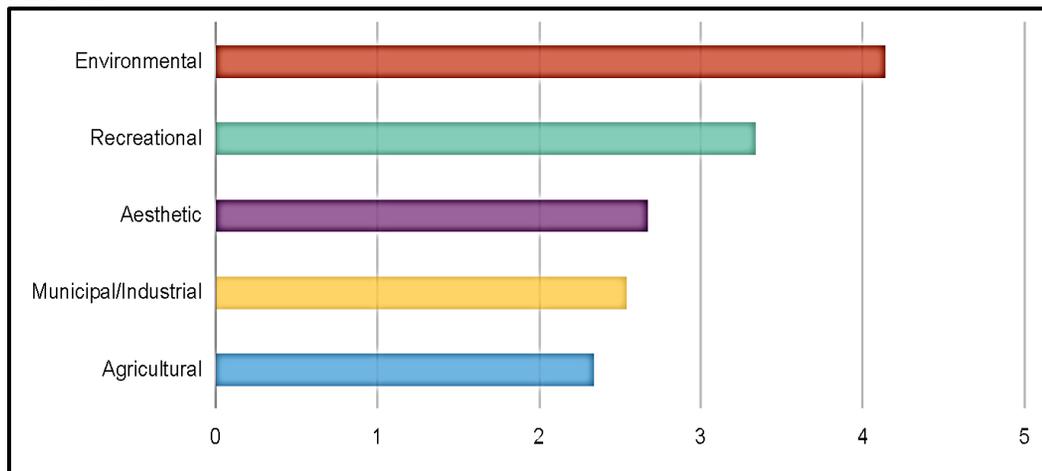


Phase I questions captured water-related values and concerns from stakeholders through a ranking of water use categories they valued and/or wanted prioritized in water planning efforts. This question was repeated in Phase II to determine if values had changed since Phase I and if this would inform project identification and prioritization in Phase III.

Phase I

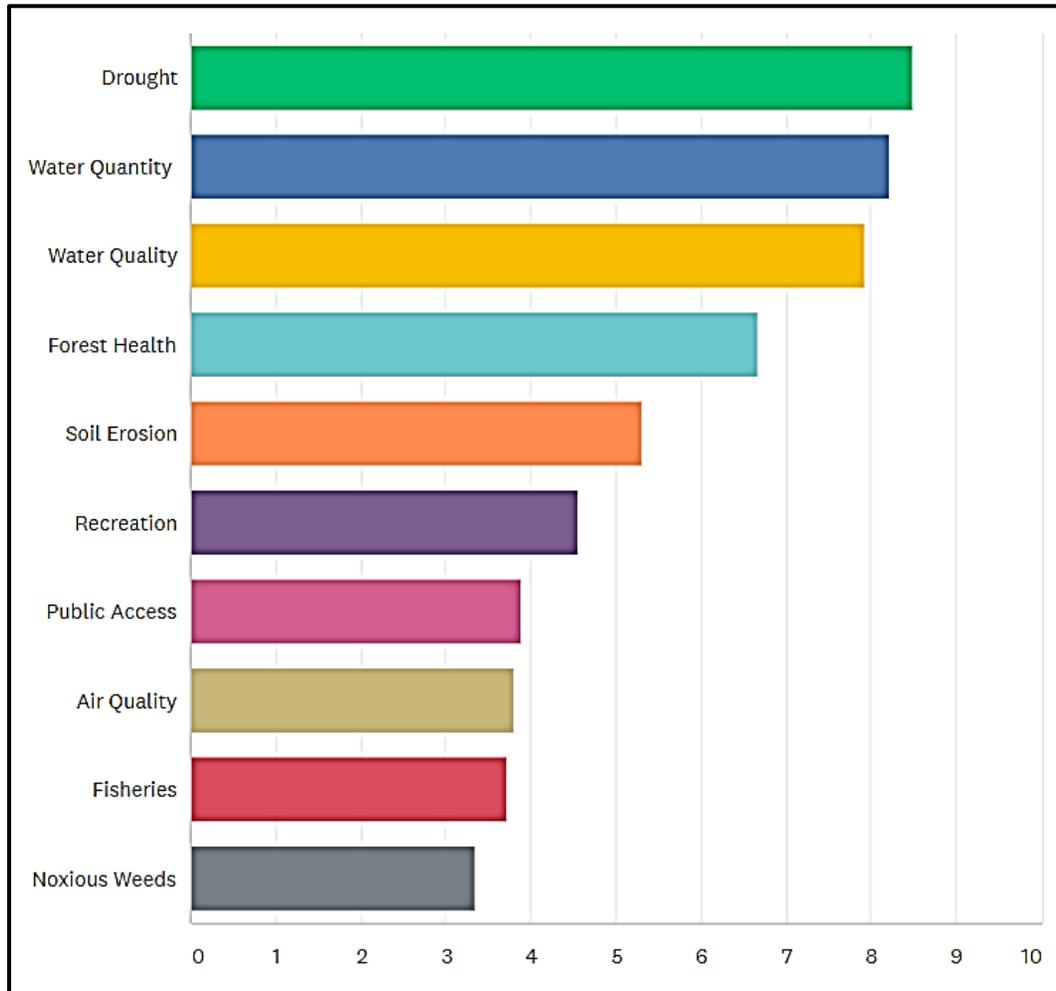


Phase II

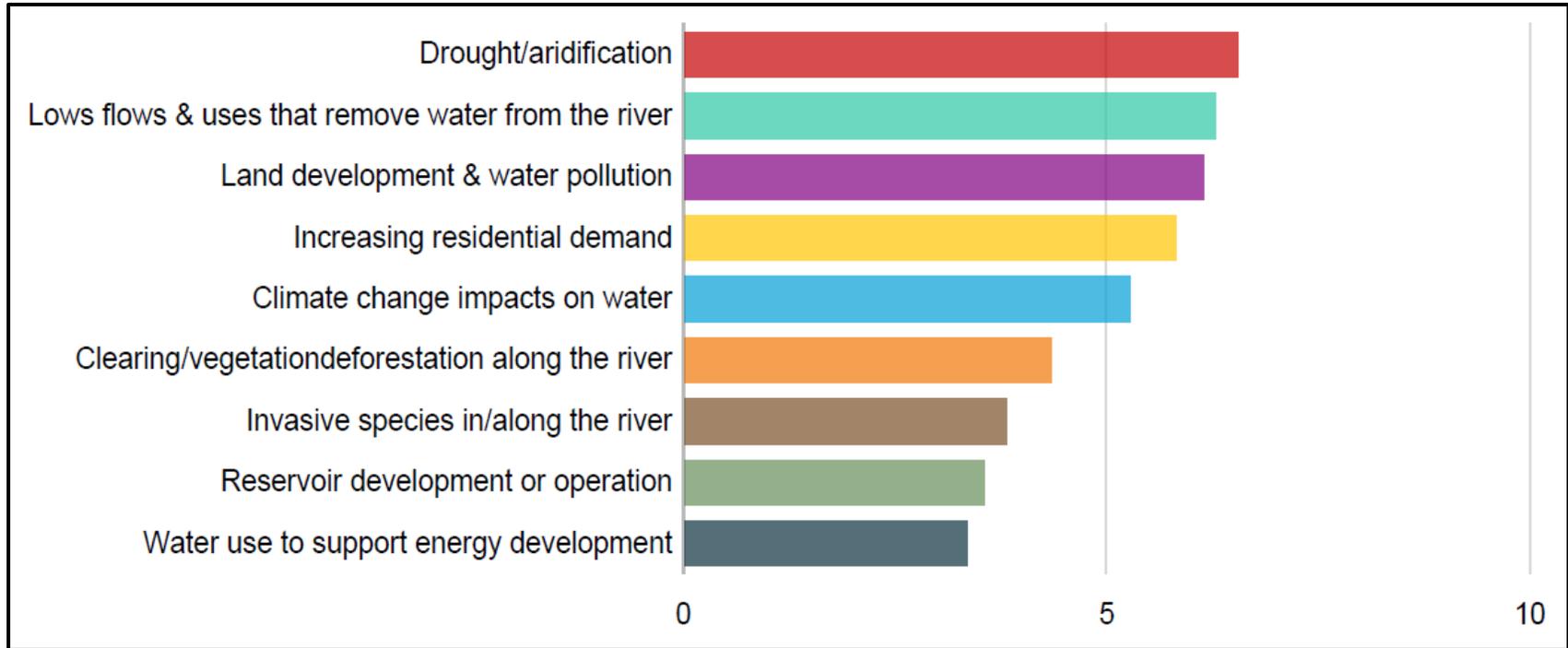


Phase I questions asked what watershed health issues stakeholders ranked as of highest to lowest concern. Phase II questions refined this evaluation by asking participants to rank issues of most concern for river health and for a community's ability to use water and rivers. This process of narrowing which watershed issues stakeholders prioritize allowed the WEP to determine which types of data and assessments were needed in Phase II. Phase II's assessment results on current and possible future watershed conditions will allow stakeholders to use both community values and scientific analysis to prioritize projects and processes that will support the diverse water uses in the upper San Juan Basin.

Phase I



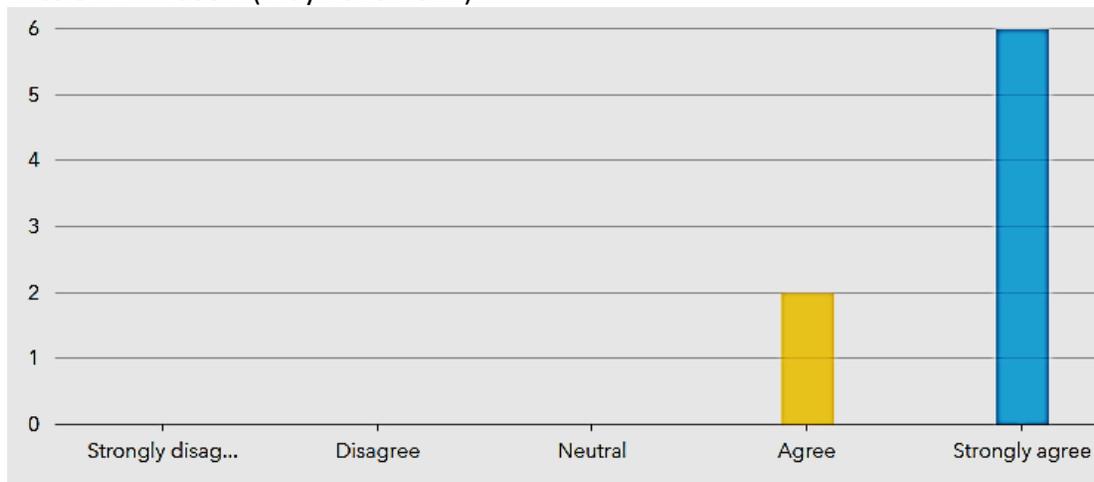
Phase II



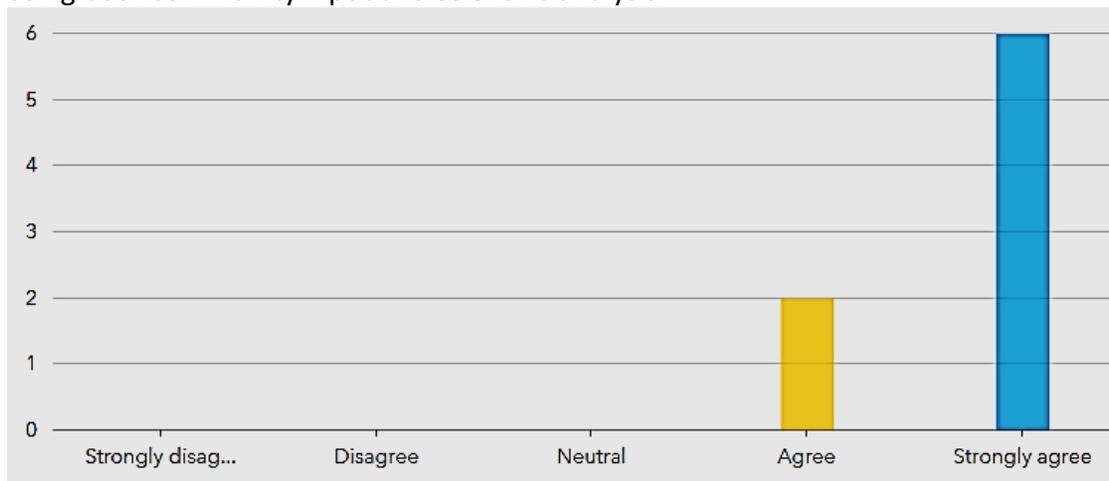
*Complete Phase II survey results and compiled [Phase II stakeholder feedback and questions](http://www.mountainstudies.org/sanjuan/smp) will be shared at <http://www.mountainstudies.org/sanjuan/smp>.

Phase II Steering Committee/Partner Survey Results (n=8)

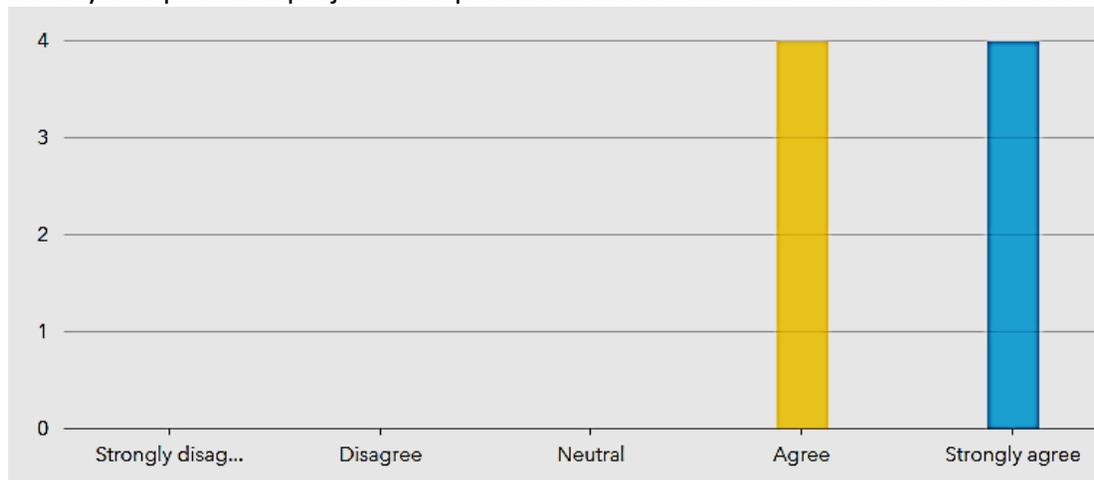
1. WEP formed as a community-led, voluntary process to understand local water supply needs in the San Juan River Basin and to identify opportunities to engage in collaborative projects that benefit multiple water uses. Please rank the statement, "the WEP advanced its mission in Phase II (May 2020-2021)."



2. Please rank the following statement, "WEP's activities accomplished its primary Phase II goal to evaluate current and future water needs using both community input and scientific analysis."



3. Please rank the following statement, "WEP's activities accomplished its primary Phase II objective to outline assessments that can help identify and prioritize projects and processes to address water needs in the San Juan Basin."



4. Please rate the statement, "WEP meetings and activities helped moved our initiatives forward in Phase II."



5. Do you know of any individuals or groups that should be included in the WEP or be more involved in Phase III activities? Have there been position changes at organizations with new contacts we should be aware of?

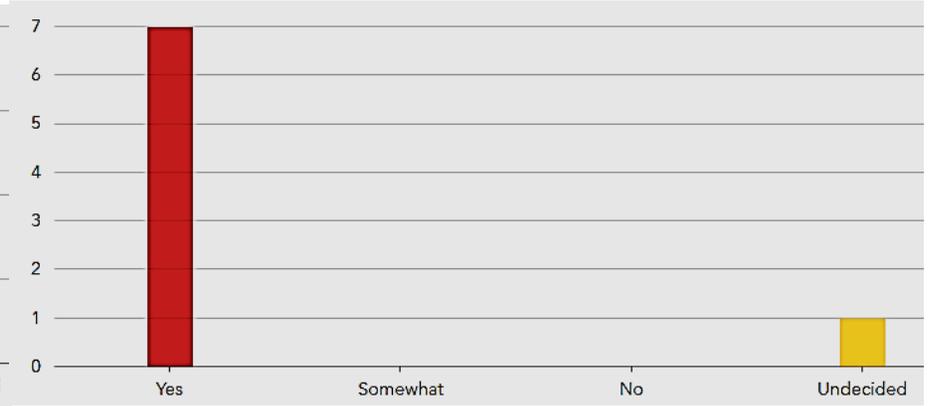
Answer 1: Steve Laverty – New President of Park Ditch Company

6. Please be honest and let us know if you think each project manager or partner accomplished their tasks and helped WEP progress in Phase II (select Yes, Somewhat, No, or Undecided).

Mountain Studies Institute



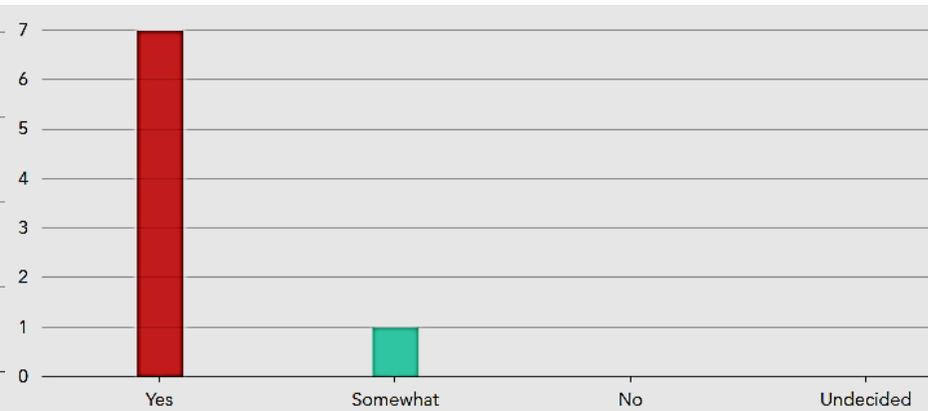
Western Wildscapes



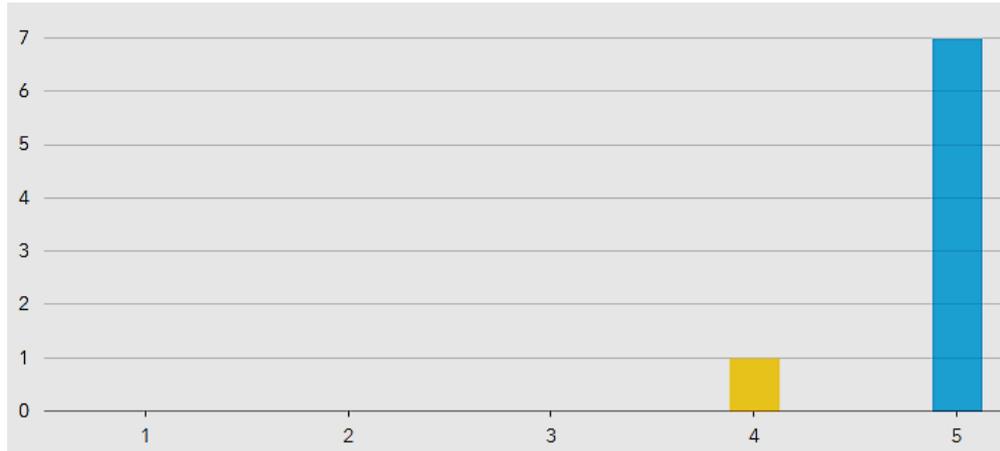
Lotic Hydrological



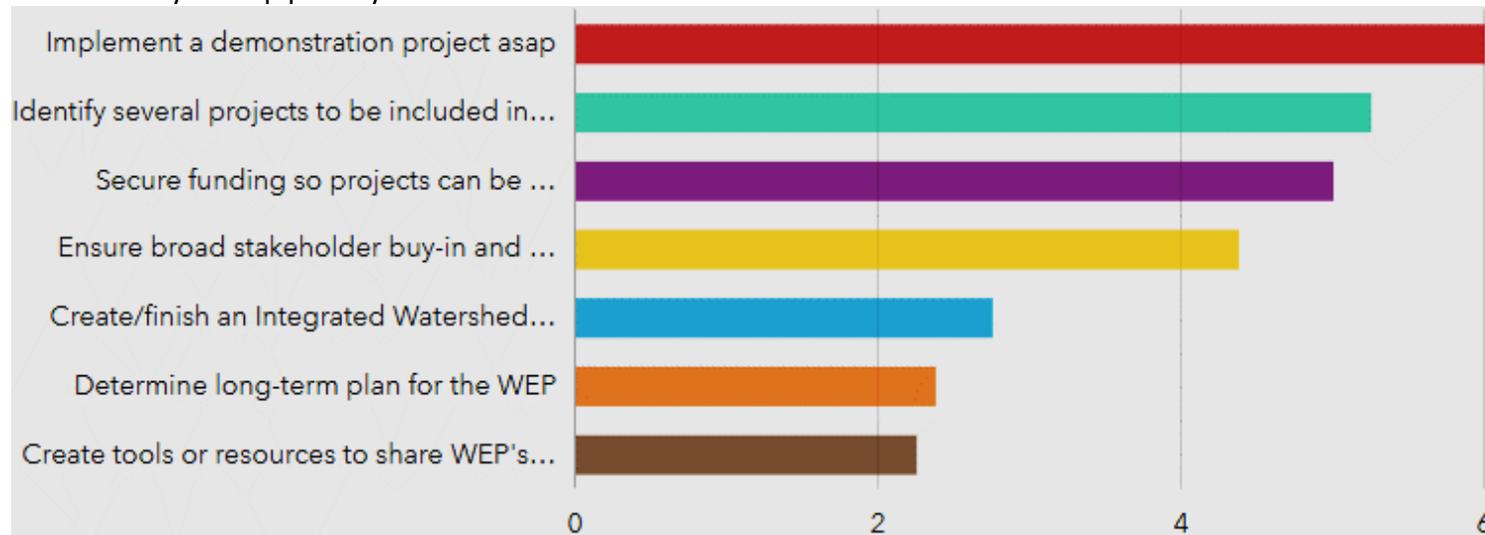
San Juan Conservation District



7. Out of five stars, how would you rank WEP as a watershed collaborative group compared to other partnerships you may be aware of or involved with?



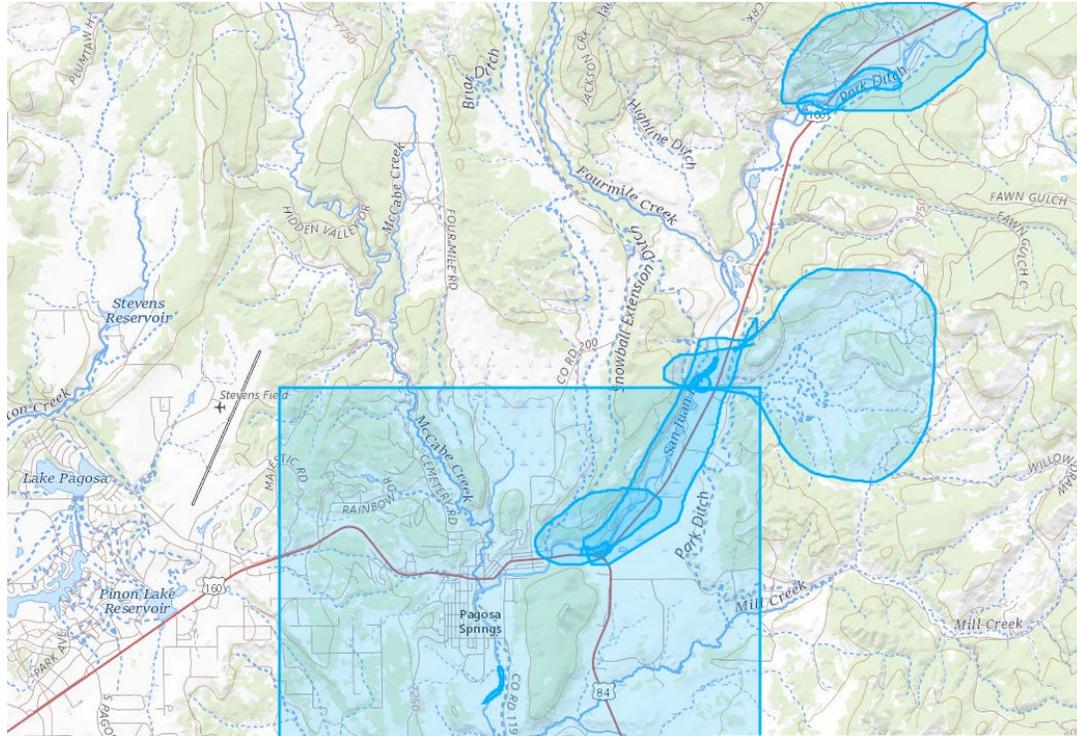
8. What are your top priority outcomes for Phase III?



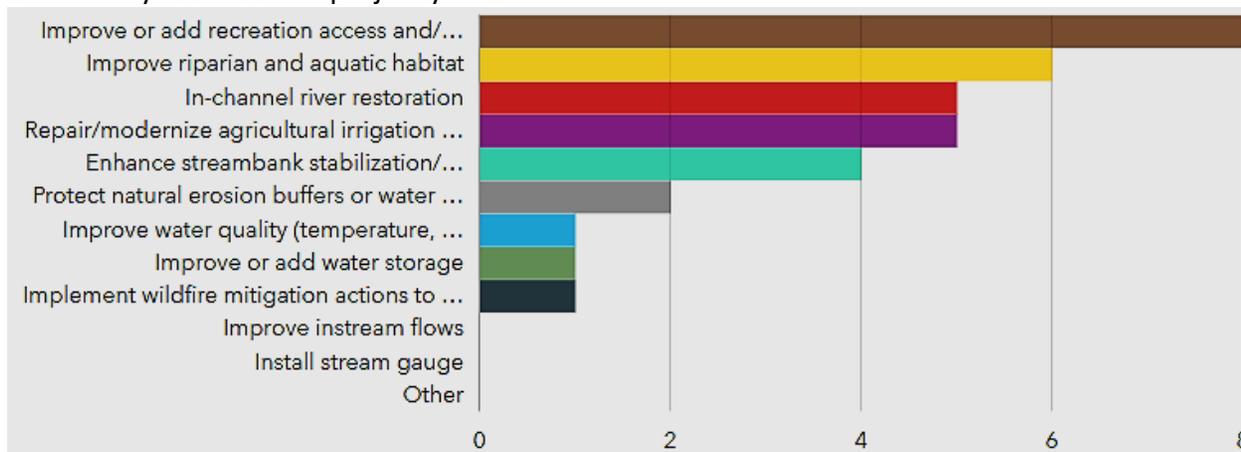
Mountain Studies Institute
 Upper San Juan Integrated Water Management Plan, Phase II

Rank	Answers	1	2	3	4	5	6	7	Average score
1	Implement a demonstration project asap	50% 4	12.5% 1	25% 2	12.5% 1	0% 0	0% 0	0% 0	6.00
2	Identify several projects to be included in the Basin's Identified Projects & Processed List	0% 0	37.5% 3	50% 4	12.5% 1	0% 0	0% 0	0% 0	5.25
3	Secure funding so projects can be implemented right away	25% 2	25% 2	12.5% 1	12.5% 1	12.5% 1	12.5% 1	0% 0	5.00
4	Ensure broad stakeholder buy-in and consensus	12.5% 1	12.5% 1	12.5% 1	37.5% 3	12.5% 1	12.5% 1	0% 0	4.38
5	Create/finish an Integrated Watershed Management Plan	0% 0	12.5% 1	0% 0	25% 2	0% 0	37.5% 3	25% 2	2.75
6	Determine long-term plan for the WEP	12.5% 1	0% 0	0% 0	0% 0	25% 2	12.5% 1	50% 4	2.38
7	Create tools or resources to share WEP's work & data with others	0% 0	0% 0	0% 0	0% 0	50% 4	25% 2	25% 2	2.25

9. What areas do you want discussed and/or prioritized in Phase III planning (draw a polygon on the map)?



10. Identify what kind of project you would like to occur at this location.



Answers	Count	Percentage
Improve or add recreation access and/or passage	8	100%
Improve riparian and aquatic habitat	6	75%
In-channel river restoration	5	62.5%
Repair/modernize agricultural irrigation structures	5	62.5%
Enhance streambank stabilization/restoration	4	50%
Protect natural erosion buffers or water filtration areas (wetlands, floodplains)	2	25%
Improve water quality (temperature, turbidity, etc)	1	12.5%
Improve or add water storage	1	12.5%
Implement wildfire mitigation actions to protect water sources or infrastructure	1	12.5%
Improve instream flows	0	0%

11. Are there any individuals or groups you would like to hear from in Phase III meetings who may bring good ideas or beneficial partnerships when identifying or implementing projects? For example, some committee members shared interest in hearing from/learning about how the [Yampa River Fund](#) was created to implement multiple and large river projects.

Answer 1: Growing Water Smart Steering Committee and agriculture water users

Appendix B – San Juan Conservation District: Agricultural Infrastructure Inventory Report

San Juan Conservation District's (SJCD) report describes the assessment process and cost estimates for the evaluations provided from the agricultural infrastructure inventory of major ditches and some individual on farm parcels on the San Juan River. As the information contained in this inventory is private and confidential, the detailed data will only be shared with its respectful owners or representatives. Instead, samples of data collected for the inventory are included within SJCD's report.



The San Juan Conservation District (SJCD), in cooperation with Mountain Studies Institute, conducted field surveys to inventory current conditions of irrigation systems and agricultural water use for the Upper San Juan River. This analysis is to be incorporated into Lotic Hydrological’s watershed assessment and modeling for the San Juan Basin.

As drought is becoming a more frequent issue in our area, water availability has become an increasing concern. Compounding this issue is the increased demand for other uses of water. This situation has created a need to find balance for all water uses including irrigation, domestic, recreational, and environmental. We believe conservation is the best alternative to achieve this balance. Also, with increased development, ditch maintenance becomes more difficult and overflow/seepage from these ditches can and has impacted the adjacent residences and infrastructure. This project addressed the efficient delivery of water to critical ditches on the San Juan River and subsequently the individual water users along them with best management practices.

SJCD worked with agricultural water users, appropriate ditch representatives and water right holders to inventory current conditions of irrigation systems and agricultural water use with the project area. The ditches inventoried included Snowball, Mesa, Four Mile, Echo, Highline, Park, Snook, Earl Adams, Colton Montroy, Valley View, Dutton, Hershey, Horse Gulch, and Hidden Valley. On farm irrigation conditions that receive their water from the above ditches were also evaluated. See Attachment 1 for maps of each ditch and on farm parcel irrigation method.

SJCD georeferenced the location of each ditch and all structures or points of interest along each ditch. Each structure/point was marked, the existing structure/condition was noted, and photos were taken. This data was then used to develop cost estimates to address the deficiencies on each ditch.

Inventoried Ditch Length, Miles (Approximate)

Echo, Echo North and Echo South Ditches	12.9
Earl Adams Ditch	1.9
Valley View Ditch	2.9
Mesa Ditch	6.1
Park Ditch	12.8
Snowball Ditch	6.2
Fourmile Ditch	8.5
Horse Gulch Ditch	2.3
Dutton Ditch	8.1
Highline Ditch	3.0
Snooks Lateral	1.7
Colton Montroy	2.0
Hershey Lateral	2.1
Hidden Valley	0.9

TOTAL: 71.4 miles

Structure/Inventory Points

Echo, Echo North and Echo South Ditches	49
Earl Adams Ditch	29
Valley View	11
Mesa Ditch	70
Park Ditch	133
Snowball Ditch	90
Fourmile Ditch	39
Horse Gulch Ditch	11
Dutton Ditch	25
Highline Ditch	12
Snooks Lateral	13
Colton Montroy Ditch	14
Hershey Lateral	7
Hidden Valley	5

TOTAL STRUCTURES/POINTS: 508 consisting of the below:

- Division Box
- Headgate
- Diversion (ft)
- Irrigation Pipeline (ft)
- Structure for Water Control - Inlet (no)
- Structure for Water Control - Diversion (no)
- Structure for Water Control - Measuring (no)
- Structure for Water Control – Check Dam (no)
- Structure for Water Control - Culvert (no)
- Earthen Ditch

Approximate # of Irrigators – Total: 160 consisting of 322 irrigated fields (5,374 total acres)

SJCD also contacted each property owner that irrigated with water received from the inventoried ditches. They were offered a free evaluation of their current irrigation system with suggestions for improvement along with cost estimates. Their current irrigation method was mapped (as reflected in Attachment 1). The on farm irrigated fields were broken out into one of three irrigation types: ditch, gated pipe, or sprinkler. Within the project area the total acreage and percent efficiency for each irrigation method is shown below:

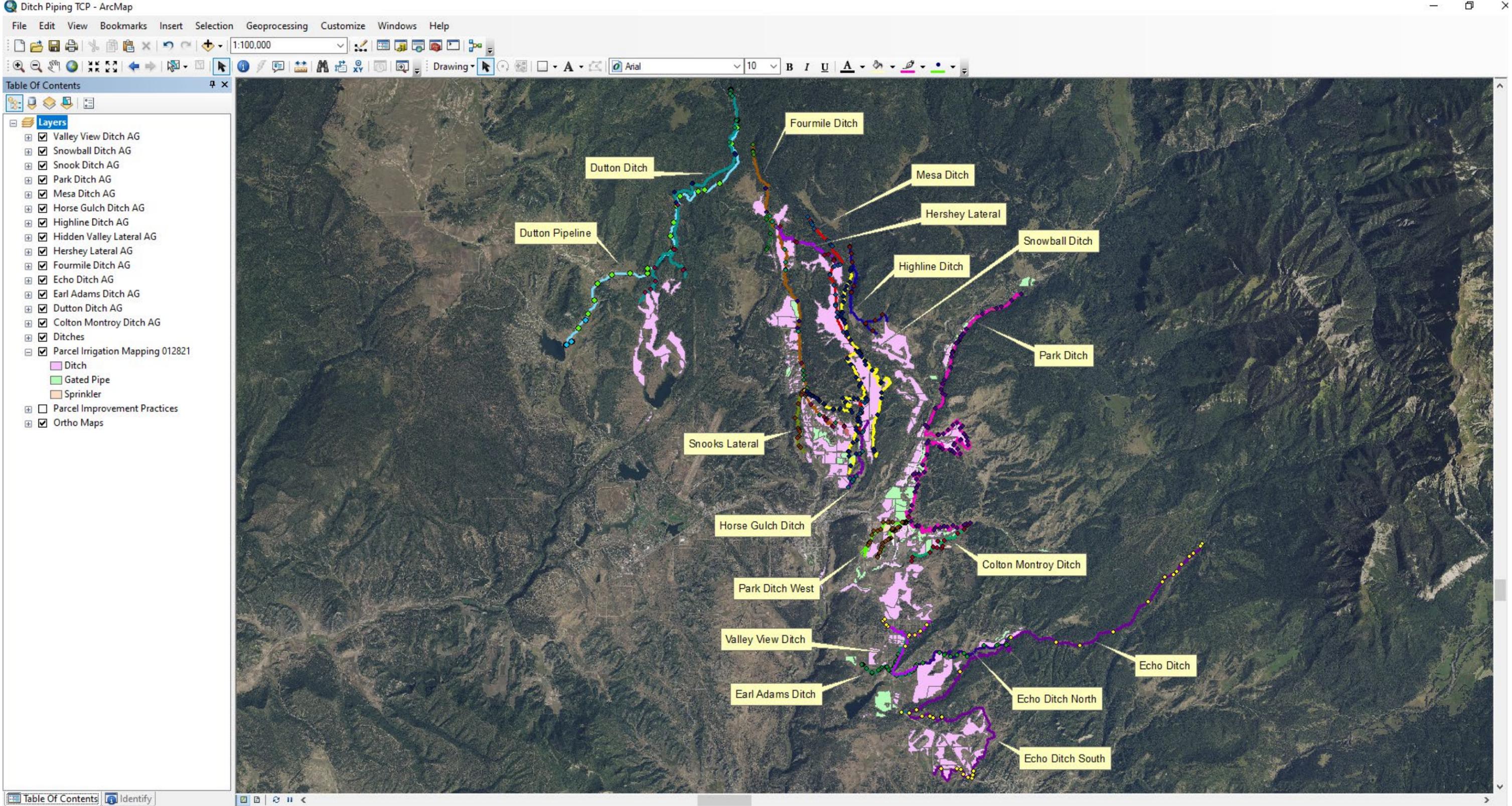
Irrigation Method	Acreage	Percent Efficiency
Ditch	4,664 acres	30%-50%
Gated Pipe	683 acres	50%-60%
Sprinkler	27 acres	70%-75%

Cost estimates were developed to improve each irrigated field to its highest potential efficiency. In most cases this was moving from a ditch irrigation method to gated pipe. There were only a few instances where a sprinkler was suitable. The table below shows the total estimated cost (in descending order from most expensive to the least) for ditch improvements and on farm improvements.

Ditch	Ditch Improvements	On Farm Improvements (OFI)
Snowball	\$ 1,141,120.98	
Mesa	\$ 1,028,709.10	
Four Mile	\$ 1,007,938.80	
Echo South/SW	\$ 818,085.90	
Highline	\$ 603,220.00	
Park	\$ 390,401.82	
Snook	\$ 99,540.00	
Snowball West	\$ 86,474.80	
Earl Adams	\$ 62,127.20	
Park West	\$ 60,084.10	
Colton Montroy	\$ 46,226.00	
Valley View/West	\$ 38,239.62	
Dutton	\$ 30,591.20	
Hershey	\$ 16,528.00	
Mesa East	\$ 12,072.40	
Horse Gulch	\$ 7,041.44	
Echo Ditch North	\$ 6,923.00	
Snowball Southwest	\$ 6,834.30	
Earl Adams West	\$ 5,829.52	
Hidden Valley	\$ 2,222.00	
Snowball South	\$ -	
Echo OFI		\$ 795,011.20
Four Mile OFI		\$ 611,684.00
Mesa OFI		\$ 549,211.30
Colton Montroy OFI		\$ 520,650.40
Snowball OFI		\$ 302,808.90
Park OFI		\$ 288,192.60
Park West OFI		\$ 149,590.00
Dutton OFI		\$ 100,819.45
Horse Gulch OFI		\$ 14,271.60
TOTALS	\$ 5,470,210.18	\$ 3,332,239.45
GRAND TOTAL FOR ALL IMPROVEMENTS		\$ 8,802,449.63

The agriculture water system map and results will be presented to each ditch lead/representative to get feedback on their priorities vs the inventory findings. We will gauge interest in moving forward with installing improvement practices and what level of funding is needed from grants to accomplish the goals of each ditch. We will then seek funding to implement improvements! As the information contained in this inventory is private and confidential, the actual data will only be shared with its respectful owners or representatives. See Attachment 2 for a sample of the data that was collected.

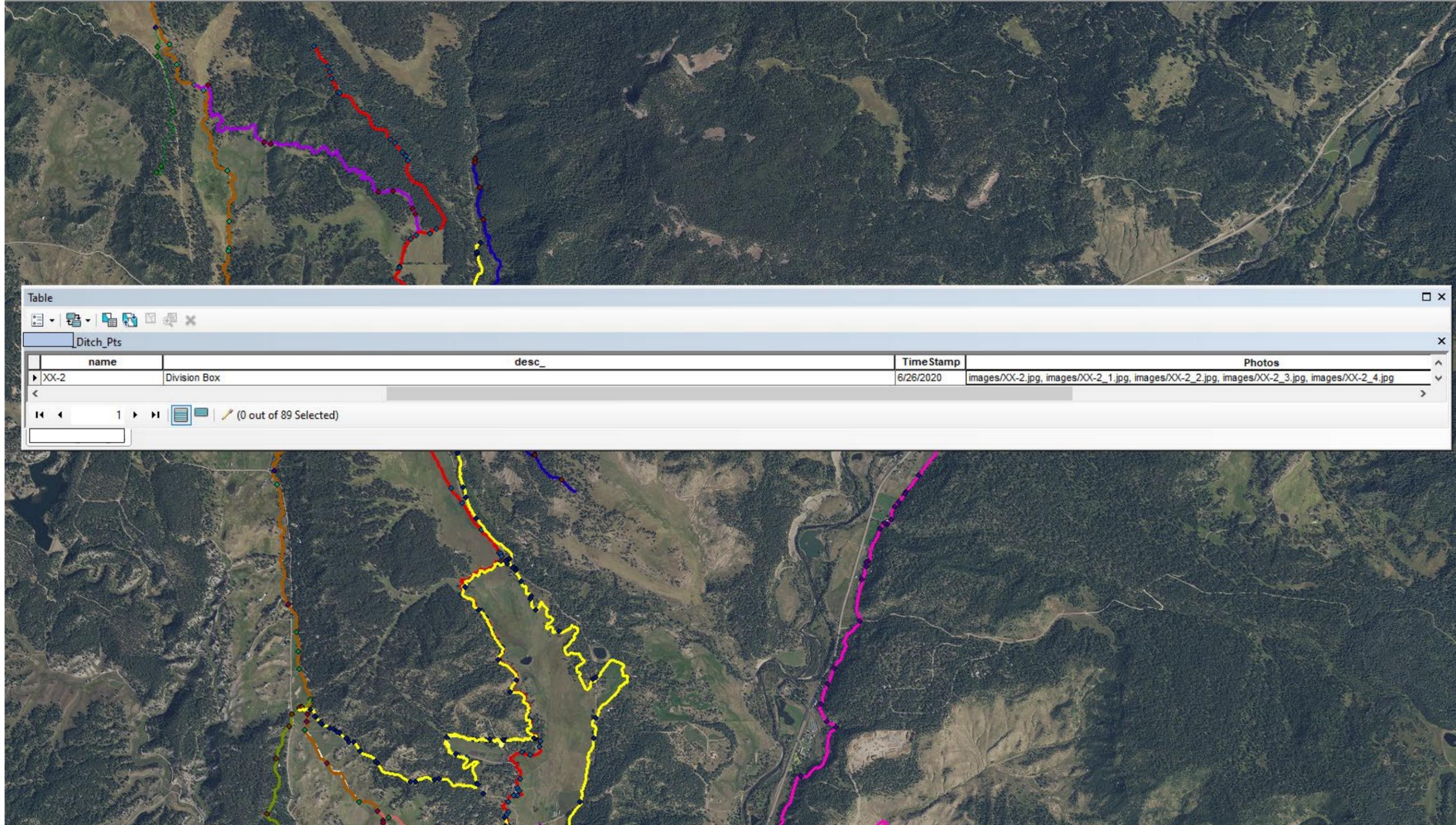
ATTACHMENT 1



ATTACHMENT 2

The data collected for each ditch and on farm irrigation condition is depicted in the sample below.

Sample Point that denotes the structure along ditch and photos taken:



Photos that correspond to above Sample Point:

Division Box Photos



XX-2



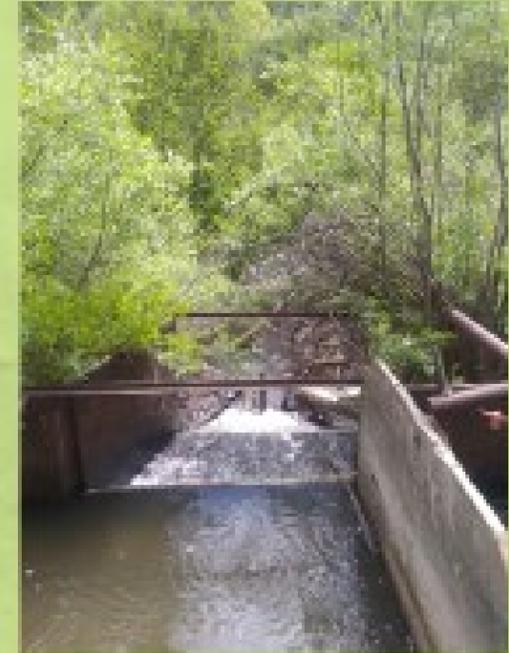
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XX-2_2



XX-2_3



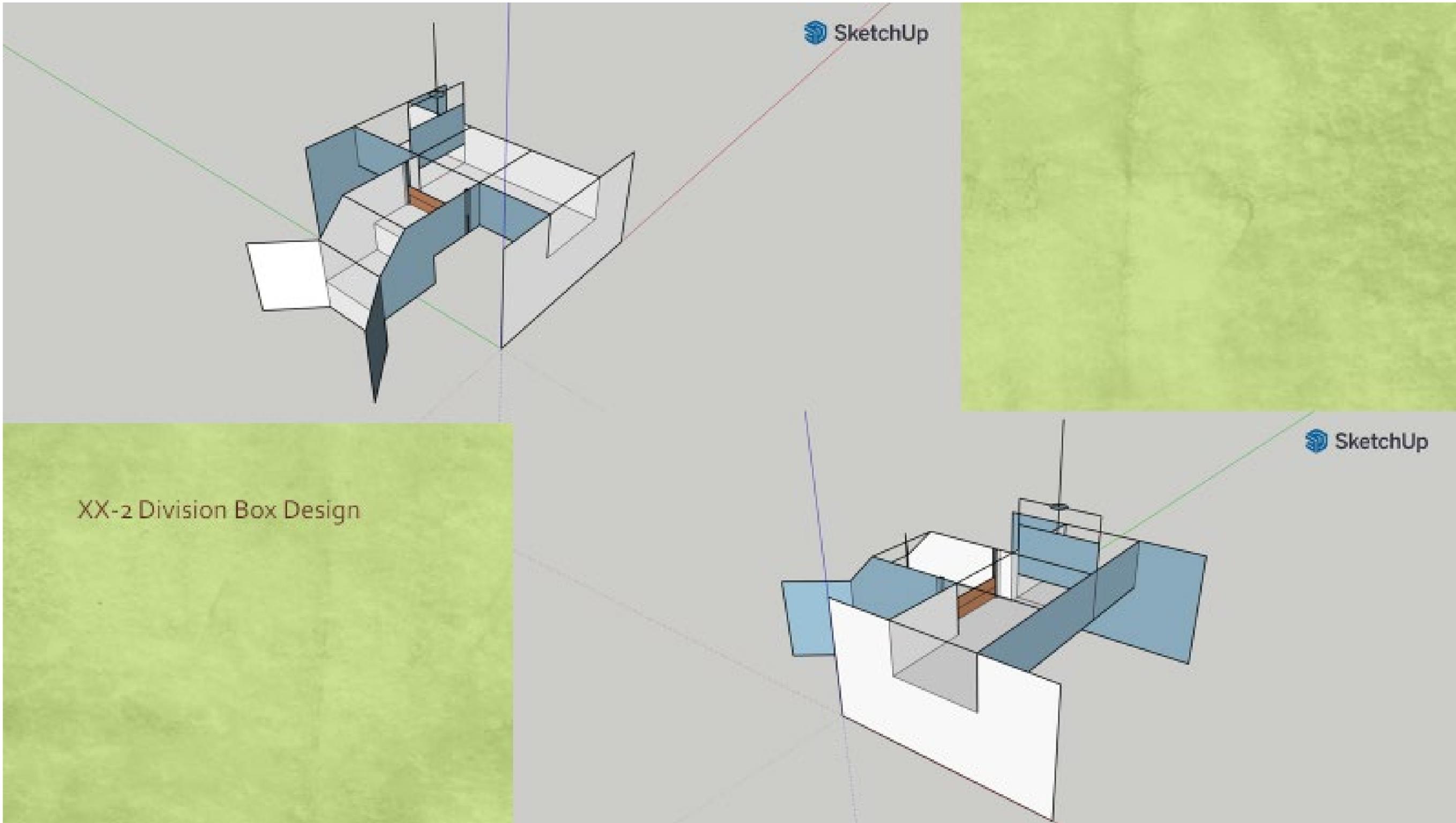
XX-2_4

Continuation of spreadsheet entry that corresponds to sample point with alternative improvement practice:

	AE	AF	AG	AH	AI	AJ	AW	AX	AY	AZ	BA	BB	BC	BD
1	Improvement Practice 2	Quantity 2	Units 2	Unit Cost 2	Estimate 2	Improvement Practice 2 Notes	Total Cost	Priority	Comments	WGS 84 13 N Easting	Northing			
3	Division Box	1	no	22728	\$ 22,728.00	concrete box, same dimensions as steel box alternative, 8" thick, 12 cubic yards concrete	\$ 23,870.00		working in spite of age and condition of metal and wood, but could be replaced	322656	4134634			
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The total cost depicted is the most expensive alternative prescribed for the condition.

Design that corresponds to improvement practice in above spreadsheet (dimensions are listed in spreadsheet description):



Once the agricultural inventory has been presented to each ditch leader, the improvement practices will be prioritized.

Appendix C – Lotic Hydrological: Technical Analysis & Modeling Report

Lotic Hydrological’s detailed [WEP Phase II Report: Non-Consumptive Needs Assessment](#) can be viewed and downloaded in its entirety at www.mountainstudies.org/sanjuan/smp. Contents include information on the WEP and area’s background, project purpose, conditions and risks, next steps, as well as supporting data, maps, and graphics. For a quick overview, an executive summary and notable findings can be found in pages V-XI.