Plaza Project Phase 2: McDonald Ditch Rehabilitation Project

Final Report prepared for CWCB - December 2015

Colorado Rio Grande Restoration Foundation
Rio Grande Headwaters Restoration Project

The Mission of the Rio Grande Headwaters Restoration Project is to restore and conserve the historical functions and vitality of the Rio Grande in Colorado for improved water quality, agricultural water use, riparian health, wildlife and aquatic species habitat, recreation, and community safety while meeting the requirements of the Rio Grande Compact

Final Report Executive Summary
Project Title: Plaza Project Phase 2 - McDonald Ditch Rehabilitation Project
CWCB WSRA Grant Contract Number: C150492
CWCB Loan Contract Number: C150334

Project Start Date: January 1, 2012
Project Completion Date: December 31, 2015

FUNDING	
Total CWCB WSRA - Cash	$726,000.00
Total Landowner (CWCB Loan) - Cash	$100,000.00
NRCS - Cash	$400,000.00
Subtotal Cash	$1,226,000.00
In-kind Contributions	$140,700.00
Subtotal In-kind	$140,700.00
TOTAL FUNDING	**$1,366,700.00**

EXPENDITURES	
Expenditures of CWCB WSRA Funds	$726,000.00
Expenditures of CWCB Loan Funds	$100,000.00
Other Expenditures	$540,700.00
TOTAL EXPENDITURES	**$1,366,700.00**

Summary Accomplishments
The Plaza Project: Phase 2 - McDonald Ditch Implementation Project (Phase 2) was a diversion dam and headgate replacement project completed through a partnership with the Rio Grande Headwaters Restoration Project (RGHRP) and the McDonald Ditch Company. The goal of Phase 2 was to replace the aging and inefficient McDonald Ditch diversion and headgate with a new concrete structure and automated water gates, while improving the riparian and wetland condition throughout the project area. Phase 2 included the construction of a new concrete diversion dam and headgate, and pipeline for the McDonald Ditch Company. In addition to replacing the diversion, Phase 2 included reclamation of a 2-acre wetland and stabilization of 3,000 feet of streambank in the Project area. The McDonald Ditch Company plans to remove the old McDonald Ditch diversion and build a low profile rock grade control weir in 2016, completing the final remaining project objective. Throughout project implementation the RGHRP gave tours, developed outreach materials, and provided updates to local newspapers and community groups as part of outreach and education. The RGHRP will continue to give tours and complete long-term monitoring to ensure that Phase 2 objectives stand the test of time. Benefits of Phase 2 include improved diversion efficiency and reduced maintenance, enhanced water quality, improved riparian and wetland condition, increased capacity for sediment transport, improved aquatic and wildlife habitat, improved public safety and recreation opportunity, and increased public involvement in water improvement activities.

INTRODUCTION and BACKGROUND

The Colorado Rio Grande Restoration Foundation (Foundation) is the fiscal agent for the Rio Grande Headwaters Restoration Project (RGHRP). The RGHRP was formed to implement the recommendations of the 2001 Study. The 2001 Study was prompted by a group of citizens who were concerned that the Rio Grande had been impaired. The 2001 Study, sponsored by the San Luis Valley Water Conservancy District and funded by the Colorado Water Conservation Board, analyzed 91 miles of the Rio Grande from South Fork to the Alamosa/Costilla County line. This reach was identified as the portion of the Rio Grande in Colorado that has been most impacted by human intervention over the past 100 years. The 2001 Study analyzed the vegetation, human impact, agricultural disturbance, geomorphology, hydrology, wildlife habitat, condition of structures, and aquatic habitat within the 91-mile study reach.

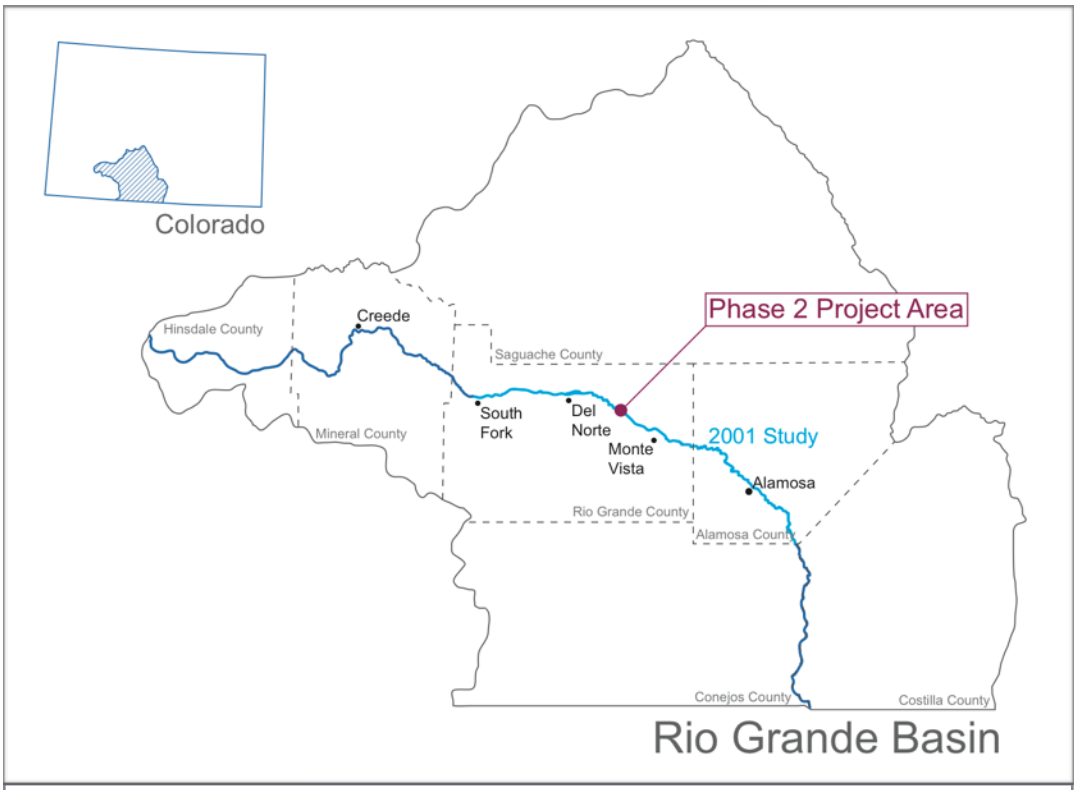

Figure 1: Location of Plaza Project - Phase 2: McDonald Ditch Implementation Project.

Since 2001, the RGHRP has accrued a successful record of working with landowners, and local, state, and federal entities to improve the condition and function of the Rio Grande. To date the RGHRP has completed 10 cost-share restoration projects on 62 sites to improve the condition of over 11 miles of streambanks on the Rio Grande. These projects reduce sediment loading by stabilizing the streambanks, improve the riparian and upland habitat by increasing willow and riparian vegetation cover, enhance the fishery, increase the capacity of the Rio Grande to transport sediment, and recover the condition of wetlands located throughout the riparian area. In 2010, the RGHRP began working with ditch companies to address concerns surrounding aging and inefficient diversion and headgate structures. The first of these projects was the Plaza Planning Project – Phase 1 (Phase 1) in the Sevenmile Plaza area of Rio Grande County. Phase 1 was administered by a partnership between the McDonald Ditch Company and

the RGHRP. The RGHRP worked with stakeholders to determine the primary issues in the area, identify remediation methods, and develop an implementation plan (The Plaza Plan) to improve the health and function of the Rio Grande in the Sevenmile Plaza area. The identified issues include streambank instability in the 2.8-mile project reach, a degraded wetland, and aging, hazardous, and inefficient diversion structures.

The Plaza Project - Phase 2: McDonald Ditch Implementation Project (Phase 2) is the first phase of implementation of the Plaza Plan. The project area is located within the Sevenmile Plaza in Rio Grande County. As designated by the 2001 Study, the project area is located within Subreach C1 of Reach C, which was ranked “poorest” in channel stability and condition of the floodplain and was identified as a high priority for restoration. The channel at Sevenmile Plaza is greatly impacted by piers and concrete rubble from the old Sevenmile Plaza Bridge, which were left in place to form part of the old McDonald Ditch diversion. The diversion obstructs flood flows, causes channel movement and instability, and negatively impacts downstream reaches. Phase 2 addressed these issues by building a new concrete diversion dam and headgate upstream with a pipeline to deliver water to the ditch, adding automation on the headgates to improve diversion efficiency, restoring an adjacent wetland and riparian habitat, and stabilizing streambanks. The project will be completed in 2016 with the McDonald Ditch Company’s planned removal of the aging McDonald Ditch infrastructure and construction of a low-profile rock grade control weir below the County Road 5 Bridge. Phase 2 integrated the rehabilitation of the McDonald Ditch diversion with the multiple objectives of the 2001 Study, the rehabilitation of the downstream Prairie Ditch diversion, and the stabilization and restoration of the surrounding riparian areas and wetland.

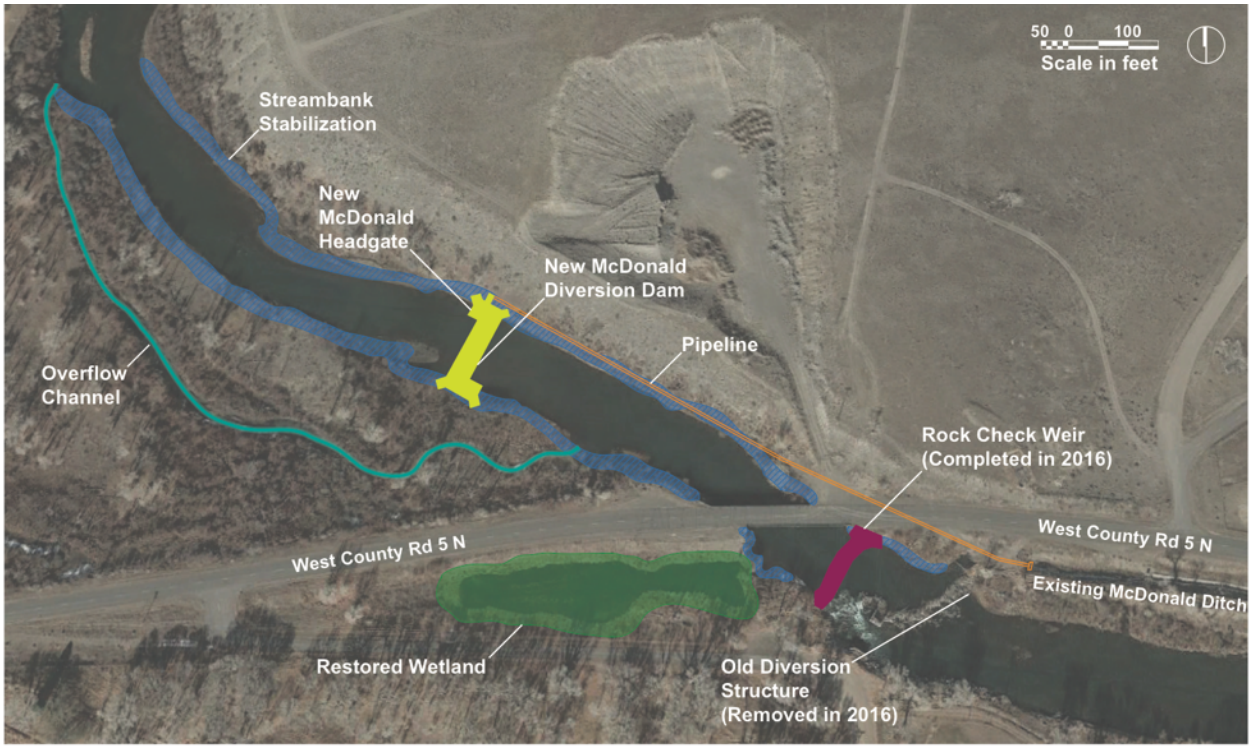

Figure 2: Phase 2 Project Elements.

PROJECT OBJECTIVES, TASKS, and ACTIVITIES

The proposed objectives of the Project were to:

1. Improve diversion efficiency and reduce maintenance by replacing the aging McDonald Ditch headgate, installing a solar-powered automated water gate, and constructing a new diversion dam and pipeline upstream of the current diversion location;
2. Enhance water quality by reducing erosion and sediment input;
3. Improve riparian and wetland condition by reclaiming a 2-acre wetland, building a rock weir at the current diversion point, and stabilizing up to 2,000 linear feet of streambanks;
4. Increase the capacity of the Rio Grande to transport sediment;
5. Improved aquatic and wildlife habitat;
6. Encourage local recreation by including fish and boat passage in the new diversion structure;
7. Promote public involvement in water improvement activities through public outreach and education.

The following passages detail how these objectives were met, modified, and in some cases exceeded, through the completion and planned completion of Project Tasks.

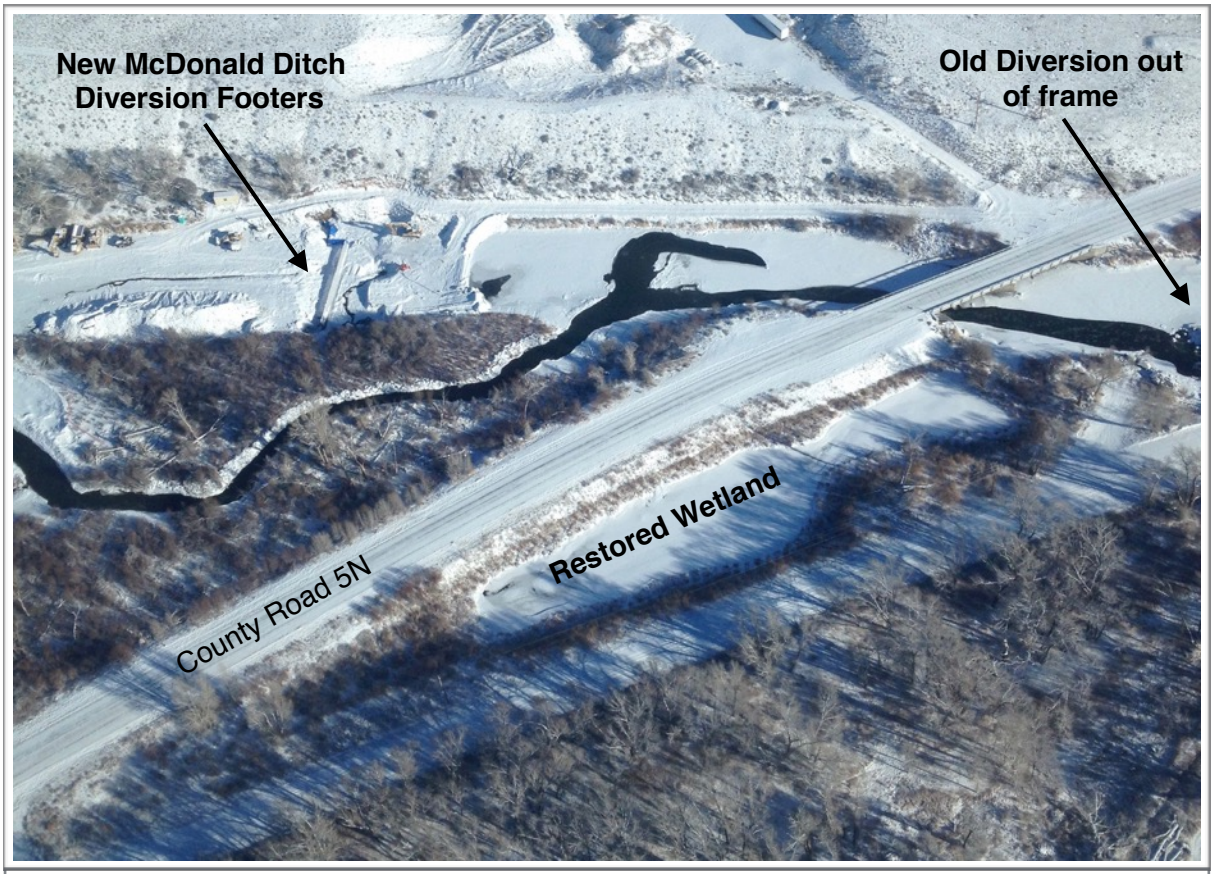

Figure 3: Arial photograph of Phase 2 Project Area during construction, preparing to pour the footers for the new diversion structure (December 2014).

Task 1: Finalize Design for Project Elements

Description of Task: Finalize the design for the McDonald Ditch headgate, diversion, and pipeline, the rock weir to replace the existing diversion, the Sevenmile Plaza Bridge streambank stabilization, and the Rio Grande County wetland reclamation.

Activities: District, area, state, and national NRCS engineers completed designs for the diversion dam, headgate, streambanks, and wetland. In 2012, project engineers consulted with geology, hydraulic, and vegetation specialists, completed HEC-RAS hydraulic modeling, and performed a load analysis for the diversion and headgate structures. Stantec Engineering was hired to analyze the relationship between the proposed McDonald Ditch Diversion and at the Sevenmile Plaza Bridge. The NRCS analysis showed that a concrete diversion at the original diversion site would cause flooding at the bridge and in the surrounding community.

Because of this, a different design approach was used. The new NRCS design included a diversion upstream of the current dam, that was passable by fish and boats, an attached headgate, and a pipeline to deliver water to the existing ditch. Riverbend Engineering was hired to design the rock check dam to hold the grade at the old diversion site and protect the upstream bridge from scour after the removal of the old diversion structure.

The changes to the design increased the project costs and the RGHRP and McDonald Ditch Company secured additional needed funds. An additional $431,000 of CWCB WSRA grant funds was obtained and the loan was increased by $30,000. These increases in grant and loan amounts were approved in September 2013. The designs were completed by the NRCS and Riverbed Engineering engineers in Fall 2014.

Figure 4: Site visit with NRCS Project engineers and partners.

Task 2: McDonald Ditch Diversion Construction
Description of Task: Construct the McDonald Ditch Diversion upstream of the bridge; diversion will be concrete and allow for fish and boat passage.

Activities: The McDonald Ditch Company and the RGHRP hired Robins Construction to complete all project construction, including the new concrete diversion dam upstream of the existing diversion. Robins mobilized in December 2014 and began by diverting the river into an old river channel, building coffer dams, and installing pumps to remove water from the project site. Robins then cleared and shaped the channel, enacted pollution control measures, and began the earthwork and foundation work for the new diversion structure. The construction crew framed a large tarp tent to cover and heat the site as they framed, tied rebar reinforcement, and poured concrete for the diversion dam. The construction conditions were favorable with mild weather and better water removal conditions than anticipated. Robins poured the dam footers in December 2014 and the dam floor in early January 2015. Construction of the remaining diversion features (sluice gate, fish passage, back wall and slope, and energy dissipators) was completed in February 2015. Robins then installed rock rip-rap around the diversion structure. Completing this task met the objectives of improving diversion efficiency, reducing maintenance, improving community safety, enhancing aquatic and wildlife habitat, and providing boat and fish passage.

Figure 5: Construction of the new McDonald Ditch Diversion Dam.

TASK 3 : McDonald Ditch Headgate Replacement

Description of Task: Construct the McDonald Ditch headgate at new diversion site; headgate will be concrete and include solar-powered automated gates. The headgate will divert water into a pipeline that will parallel the river and deliver water into the McDonald Ditch.

Activities: Robins Construction began work on the headgate in late January 2015, while completing the remaining diversion structure features. Robins used a trench box for the completion of the headgate works to ensure crew safety. The crew poured the concrete for the head gate and installed water control gates. They were delayed from installing the pipeline from the headgate to the existing ditch due to a warm spring and high runoff. Therefore, the pipeline work was delayed until after the 2015 irrigation season. Robin's remobilized in December 2015 to dig the trench and install the pipeline from headgate, under the road, and into the ditch. Due of cold temperatures, digging the trench took longer than anticipated with the pipeline construction completed in January 2016. The McDonald Ditch Company worked with Dynotech to install solar panels and automation on the headgate. All work was complete and structure was functional by March 2016, in time for the McDonald Ditch Company to divert their allotted water at the start of the the 2016 irrigation season. Completing this task met the objectives of improving diversion efficiency and reducing headgate maintenance.

Figure 6: Construction of the McDonald Ditch Headgate and Pipeline, and the completed pipeline bringing water to the McDonald Ditch.

TASK 4: Channel Shaping and Streambank Stabilization

Description of Task: Implement channel and streambank stabilization techniques upstream and downstream of the Sevenmile Plaza Bridge, upstream and downstream of the new McDonald Ditch diversion and headgate structures, and at the site of the current diversion dam.

Activities: Robins Construction implemented streambank stabilization upstream of the Sevenmile Plaza Bridge during and after the construction of the diversion and headgate structures. Because of early runoff and high river flows that occurred in 2015, and the resulting delays in the pipeline installation, the McDonald Ditch Company postponed the removal of the old diversion structure to allow the Ditch Company to divert water for the 2015 irrigation season. With the completion of the pipeline, the McDonald Ditch Company is now able to utilize their new diversion and headgate structures for the 2016 irrigation season, making it possible for Robins Construction to remove the old diversion structure and construct a new rock grade control structure downstream of the bridge. This will occur later in the season when the river flows are low. Associated channel shaping, streambank stabilization, and bioengineering will be completed in conjunction with the removal of the old diversion structure and the instillation of the rock grade control structure by the end of 2016. Additionally, the San Luis Valley Rural Electric Cooperative (SLVREC) replaced and moved the location of two power poles in the project area in 2012 . The poles needed to be replace due to the high rate of erosion and bank instability at the location of the current McDonald Diversion Dam. Completing this task will meet the objectives of enhancing water quality by reducing erosion and sediment input, improving riparian condition, increasing the capacity of the Rio Grande to transport sediment, improving aquatic and wildlife habitat, and improving local recreation.

Figure 7: The Old McDonald Ditch Diversion Structure, which the McDonald Ditch will remove in 2016. Grade control and streambank stabilization will occur as shown in Figure 2.

TASK 5 : Wetland Reclamation

Description of Task: Reclaim a two acre wetland located within the Project boundary.

Activities: NRCS completed the physical design and the RGHRP completed the vegetation plan for the wetland reclamation. Rio Grande County officials and the US Army Corps of Engineers approved the plans. The RGHRP hired Mike Tezak Construction to implement the design. The Contractor sloped and stabilized eroding banks by reducing the grade, spreading topsoil, seeding, and installing erosion control mats. The Contractor built floodplain benches, increased the amount of waterline by adding sinuosity, and planted appropriate shrubs, grasses, and forbs in different vegetation zones. The NRCS and RGHRP visited the site daily during construction to ensure on the ground activities were consistent with the plans. The completion of the reclamation improved vegetation condition, function of the wetland, and associated riparian areas and aquatic habitat.

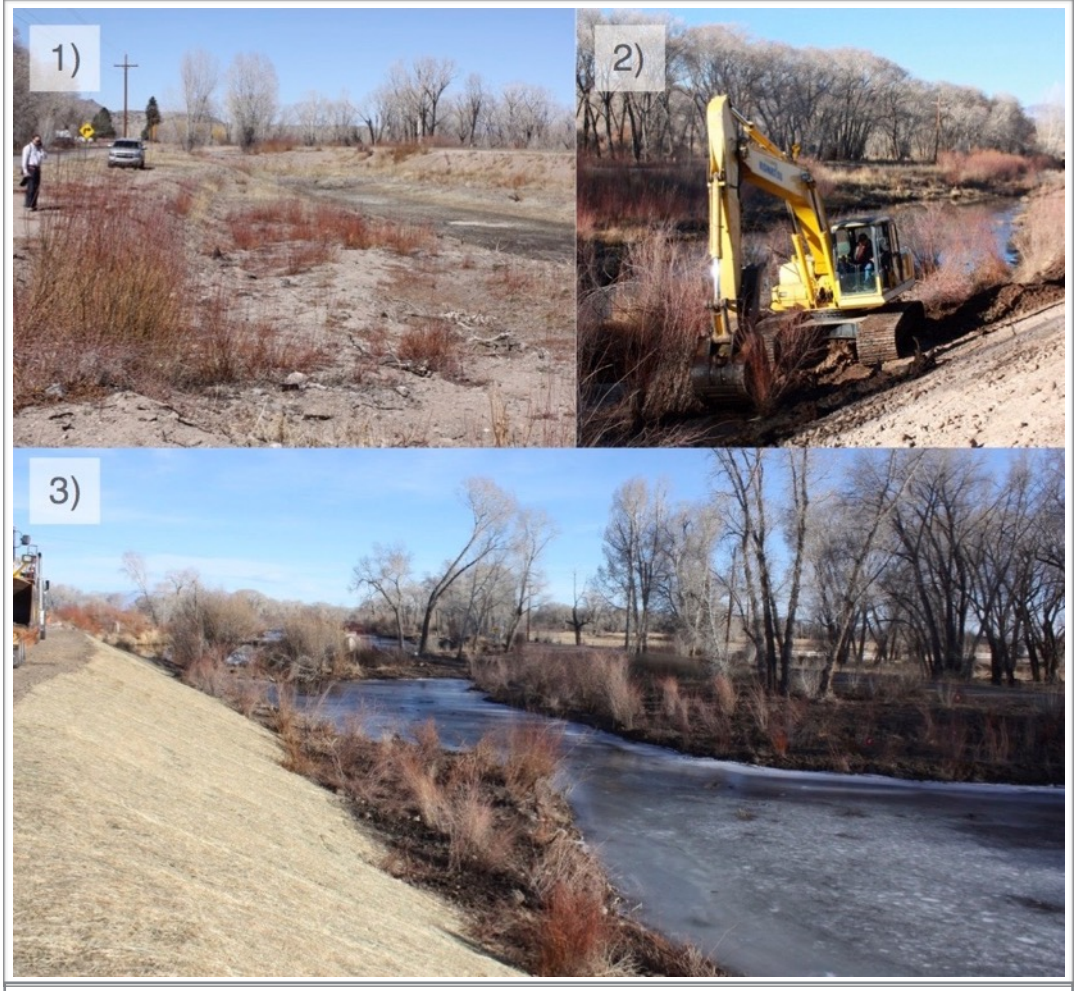

Figure 8: Wetland Reclamation 1) Degraded wetland before reclamation; 2) During construction; 3) Reclaimed wetland after construction.

TASK 6 – Monitoring

Description of Task: Monitor the site for three years using the RGHRP Sampling and Analysis Plan (SAP).

Activities: Project engineers with NRCS and Riverbend Engineering in partnership with the RGHRP completed pre-construction surveys, cross section transects, photographic documentation, and visual stream assessments. Post-construction as-built surveys of the new diversion structure and surrounding area have been completed by NRCS engineers. Post-construction surveys downstream of the Sevenmile bridge will be completed by Riverbend Engineering after the old diversion structure is removed, the rock grade control structure is in place, and all streambank stabilization is complete. These surveys, along with long-term monitoring will map locations and features of the streambanks, diversion and headgate, and wetlands over time. Photo documentation will be used to track conditions of the riparian and shoreline plant communities, bank stabilization, and overall visual condition of the Project area. The United States Department of Agriculture's Stream Visual Assessment Protocol II (SVAP II) has been used to assess the sites pre-construction and will be used for long-term monitoring. Project engineers will complete a biannual inspection that classifies the condition and function of the headgate and diversion structure. The RGHRP will be responsible for the long-term monitoring of Phase 2.

Figure 9: Phase 2 construction monitoring and surveying.

TASK 7 – Outreach and Education

Description of Task: Conduct a public outreach and education program to raise awareness of Phase 2 activities and the RGHRP, and encourage other landowners to participate in future projects.

Activities: The RGHRP developed visual aids, a video, and written materials showing the specific sites and proposed work. These materials were used during tours of the site, which were given on at least ten occasions, before, during and after project construction. Tour groups included state and federal legislatures, the RGWCEI Teacher Workshop, officials from the CO Department of Natural Resources, NRCS, college classes, journalists, and many others. Presentations and project updates were made at meetings of the Rio Grande Water Conservation District, San Luis Valley Water Conservancy District, the Rio Grande Water Users, the Monte Vista Rotary Club, and other public meetings. The RGHRP also shared construction updates in newsletters, social media, radio interviews, and local press. Funding was used to hire Moxiecran Media to complete a video about the RGHRP and the McDonald Ditch Project. The video has been a valuable tool for public outreach, and gives a compelling explanation of the work of the RGHRP and the benefits of the McDonald Ditch Project. The video can be viewed at https://vimeo.com/139287660. These outreach efforts met the objective of promoting public involvement in water improvement activities.

Figure 10: Pictures from site tours and presentations on Phase 2.

TASK 8 – Project Administration

Description of Task: Complete all necessary contracts, status reports, and internal and external documents. Ensure Tasks are completed within approved costs and timelines.

Activities: The RGHRP administered Phase 2. This included completing contracts with the CWCB, project partners, landowners, and contractors; obtaining the necessary environmental permits; soliciting bids and working with the McDonald Ditch Company to hire contractors; managing budgets and reimbursement requests; and completing semi-annual and final reports. Additionally, the RGHRP performed Project oversight, making certain project design and implementation was timely and accurate. The RGHRP organized outreach and education efforts and will complete long-term site monitoring.

PROJECT BUDGET: Tasks 1-3

Plaza Project: Phase 2 - McDonald Ditch Implementation Project Actual Budget by Task and Source of Funds											
Project Tasks	Amount	Sources of Funds									Total
		Cash Contribution					In-Kind Contribution				
		EQIP	CPP	CCPI	WSRA	Landowners	NRCS	Rio Grande County	SLVREC	RGHRP	
Task 1: Finalize Design											
Project design completed by NRCS District, Area, State, and National Engineers (in-kind contribution amount is NRCS estimate)	$ 100,000.00	$ -	$ -	$ -	$ -	$ -	$ 100,000.00	$ -	$ -	$ -	$ 100,000.00
Additional Assessments: bridge analysis, survey, and archeology assessment	$ 10,705.95	$ -	$ -	$ -	$ 10,705.95	$ -	$ -	$ -	$ -	$ -	$ 10,705.95
Check Dam Design: design of check dam completed by Riverbend Engineering	$ 17,003.63	$ -	$ -	$ -	$ 17,003.63	$ -	$ -	$ -	$ -	$ -	$ 17,003.63
Total Task 1	$ 127,709.58	$ -	$ -	$ -	$ 27,709.58	$ -	$ 100,000.00	$ -	$ -	$ -	$ 127,709.58
Task 2: Diversion Replacement											
Site Preparation and General Construction Activities: clearing and grubbing, seeding and mulching, channel clearing and shaping, pollution control, mobilization, and traffic control	$ 36,000.00	$ -	$ -	$ -	$ 36,000.00	$ -	$ -	$ -	$ -	$ -	$ 36,000.00
Water Removal	$ 88,000.00	$ -	$ -	$ 25,000.00	$ 63,000.00	$ -	$ -	$ -	$ -	$ -	$ 88,000.00
Concrete and Reinforcement: earthfill, drainfill, steel reinforcement and concrete for dam, fish passage, and headgate	$ 492,100.00	$ -	$ -	$ 166,669.50	$ 225,430.50	$ 100,000.00	$ -	$ -	$ -	$ -	$ 492,100.00
Riprap and slope protection	$ 136,080.00	$ -	$ -	$ -	$ 136,080.00	$ -	$ -	$ -	$ -	$ -	$ 136,080.00
Water control gate (sluice gates) and structural work (metal fabrication of trash racks and cat walks)	$ 33,000.00	$ -	$ -	$ -	$ 33,000.00	$ -	$ -	$ -	$ -	$ -	$ 33,000.00
Dam construction quality control and construction surveys	$ 11,500.00	$ -	$ -	$ -	$ 11,500.00	$ -	$ -	$ -	$ -	$ -	$ 11,500.00
Total Task 2	$ 796,680.00	$ -	$ -	$ 191,669.50	$ 505,010.50	$ 100,000.00	$ -	$ -	$ -	$ -	$ 796,680.00
Task 3: Headgate Replacement											
Earthwork, additional headgate components, pipe (950 feet of 42" smooth plastic pipe, sluice pipe, and go-back channel), pipeline installation, and road crossing	$ 94,930.00	$ 6,092.93	$ -	$ -	$ 88,837.07	$ -	$ -	$ -	$ -	$ -	$ 94,930.00
Water control gates (slide gates in the headgate) and structural work (metal fabrication of the headgate covers)	$ 22,000.00	$ -	$ -	$ -	$ 22,000.00	$ -	$ -	$ -	$ -	$ -	$ 22,000.00
Automation: installation of solar powered slide gate automation	$ 16,090.00	$ 16,090.00									
Ditch Lining: from the end of the pipe to the flume	$ 40,000.00	$ -	$ 40,000.00	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
Total Task 3	$ 173,020.00	$ 22,182.93	$ 40,000.00	$ -	$ 110,837.07	$ -	$ -	$ -	$ -	$ -	$ 173,020.00

PROJECT BUDGET: Tasks 4-8

Plaza Project: Phase 2 - McDonald Ditch Implementation Project Actual Budget by Task and Source of Funds											
Project Tasks	Amount	Sources of Funds									Total
		Cash Contribution					In-Kind Contribution				
		EQIP	CPP	CCPI	WSRA	Landowners	NRCS	Rio Grande County	SLVREC	RGHRP	
Task 4: Channel Shaping and Streambank Stabilization											
Site Preparation: structure removal and channel shaping	$ 16,000.00	$ 15,000.00	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 15,000.00
Grade control structure and riparian restoration	$ 108,775.00	$ 94,775.00						$ 15,000.00	$ -	$ -	$ 109,775.00
Power Pole Relocation: relocation of two power poles by SLV REC	$ 20,000.00		$ -	$ -	$ -	$ -	$ -	$ -	$ 20,000.00	$ -	$ 20,000.00
Total Task 4	$ 144,775.00	$ 109,775.00	$ -	$ -	$ -	$ -	$ -	$ 15,000.00	$ 20,000.00	$ -	$ 144,775.00
Task 5: Wetland Reclamation											
Earthwork, excavation, sloping, topsoiling, transplanting, erosion control, and seeding	$ 57,647.40	$ -	$ -	$ -	$ 57,647.40	$ -	$ -	$ -	$ -	$ -	$ 57,647.40
Total Task 5	$ 57,647.40	$ -	$ -	$ -	$ 57,647.40	$ -	$ -	$ -	$ -	$ -	$ 57,647.40
Task 6: Monitoring											
Field Personnel: coordination and completion of post-construction monitoring of Project sites by RGHRP personnel	$ 3,800.00	$ 2,600.00	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,200.00	$ 3,800.00
Total Task 6	$ 3,800.00	$ 2,600.00	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,200.00	$ 3,800.00
Task 7: Outreach and Education											
Project Outreach and Education: includes press releases, site tours, production of education materials and a film about the Project, and presentations by the RGHRP	$ 3,895.00	$ -	$ -	$ -	$ 2,895.00	$ -	$ -	$ -	$ -	$ 1,000.00	$ 3,895.00
Total Task 7	$ 3,895.00	$ -	$ -	$ -	$ 2,895.00	$ -	$ -	$ -	$ -	$ 1,000.00	$ 3,895.00
Task 8: Administration											
Project Administration: cost for the RGHRP to administer the Project at the average rate of $32.50/hour	$ 35,153.02	$ 13,252.57	$ -	$ -	$ 21,900.45	$ -	$ -	$ -	$ -	$ -	$ 35,153.02
Project Administration In-Kind Match: time contributed by the CRGRF Board president to assist in Project Administration ($20.85/hour)	$ 3,500.00	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 3,500.00	$ 3,500.00
Bonding: Performance and Payment Bonding Required by CWCB	$ 20,520.00	$ 2,189.50	$ 10,000.00	$ 8,330.50	$ -	$ -	$ -	$ -	$ -	$ -	$ 20,520.00
Total Task 8	$ 59,173.02	$ 15,442.07	$ 10,000.00	$ 8,330.50	$ 21,900.45	$ -	$ -	$ -	$ -	$ 3,500.00	$ 59,173.02
TOTAL	$ 1,366,700.00	$ 150,000.00	$ 50,000.00	$ 200,000.00	$ 726,000.00	$ 100,000.00	$ 100,000.00	$ 15,000.00	$ 20,000.00	$ 5,700.00	$ 1,366,700.00

LESSONS LEARNED & FUTURE PROJECT RECOMMENDATIONS

RGHRP is continuing to implement the recommendations of the 2001 Study, 2007 Watershed Strategic Plan, and the Plaza Plan by administering additional projects in the project area and in other reaches of the Rio Grande. Phase 2 was the first diversion dam and headgate replacement project that the RGHRP has implemented. As such, there were many "lessons learned" throughout all stages of the project. These include:

- There is value in looking beyond the initial project scope to the needs of the broader area. By expanding the Phase 2 project scope to include the wetland reclamation and tying into future projects downstream of the project site, the RGHRP was able to engage more project partners and ultimately design a project with broader community benefits.
- Manage expectations for projects of this size and scope. Large, complex projects take a great deal of time and coordination to complete. After completing the Phase 2, the RGHRP has a better sense of timing and resource needs of fundraising, design, permitting, engineering, and construction of instream infrastructure improvement projects.
- Allow flexibility in both time and funding for contingency plans in the case of unexpected river flows and weather conditions.
- Build robust partnerships and community support. The RGHRP worked hard to build community support and engagement from the very beginning of Phase 2 and this support helped move the project forward when there were road bumps.
- It pays off to hire contractors with experience with instream infrastructure and streambank stabilization projects; ensure contractors understand the techniques included in the design and have engineers supervise the initial technique implementation to provide needed guidance.
- Continue to organize tours and volunteer events to provide opportunities for community involvement and ownership in Projects.
- Track all project timelines and complete needed reports in advance of deadlines.

Phase 2 is the first of several planned projects that will improve the water diversion and management efficiency on the Rio Grande. The RGHRP is currently working with the Prairie Ditch Company to complete Plaza Project - Phase 3: Prairie Ditch Implementation Project, which replaced the Prairie Ditch diversion dam and headgate directly downstream from the McDonald Ditch Project site. Additional ditch companies have been working with the RGHRP to coordinate structural and riparian restoration plans. Lessons learned throughout Phase 2 will be applied to future projects implemented by the RGHRP.

ACKNOWLEDGMENTS

The successful completion of the Plaza Project: Phase 2 is testament to over 5 years of hard work, collaboration, and coordination with landowners, project partners, stakeholders and funders. Project partners include the McDonald Ditch Company, National Resource Conservation Services, Riverbend Engineering, Rio Grande County, Robins Construction, the Plaza Stakeholders, San Luis Valley Rural Electric Cooperative, the Rio Grande Inter-Basin Roundtable, Colorado Water Conservation Board, and others.

Special thanks to the Colorado Water Conservation Board for providing grant and loan funds for the continued efforts to improve the overall condition of the Rio Grande. This great project would not have been possible without your support!

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