Del Norte Riverfront Project

Final Report

Prepared for:

CWCB Colorado Water Plan Grant – Environmental and Recreation Project

Grant Contract Number: POGG1 PDAA 2019-2852

Attn: Chris Sturm

August 31, 2020

Colorado Rio Grande Restoration Foundation

Grant Amount: $140,000

Prepared by: Emma Reesor

Colorado Rio Grande Restoration Foundation

Rio Grande Headwaters Restoration Project

Table of Contents

List of Figures

List of Tables

INTRODUCTION

The Del Norte Riverfront Project (DNRP) is a community-led effort to improve public access, create recreation infrastructure and enhance aquatic and riparian habitat along the Rio Grande in Del Norte, Colorado. Prior to the DNRP, the community of Del Norte was largely disconnected from the Rio Grande due to lack of infrastructure and formal access. The DNRP addressed this need through the construction of a boat ramp, access road, parking area, whitewater playwave, hardened river access points, aquatic habitat structures, and streambank stabilization and riparian enhancements. The overall purpose of the DNRP is to foster connectivity between the communities and visitors of the San Luis Valley and its most important natural resource, the Rio Grande. The complete project has provided a significant positive benefit to the community of Del Norte and the San Luis Valley by creating a welcoming, safe space for community members, boaters, and anglers, while enhancing riparian and aquatic habitat.

Future project phases, including the construction of trails, a parking area, an ADA picnic pavilion, and signage, are currently under construction and are part of the long-term vision for the DNRP.

The DNRP is partnership between the Town of Del Norte, Rio Grande Headwaters Restoration Project (RGHRP), Del Norte Trails Organization (DNTO), San Luis Valley Water Conservancy District (SLVWCD), Trout Unlimited, Riverbend Engineering, and other local stakeholders and community members. The project applicant, the Colorado Rio Grande Restoration Foundation (CRGRF) is the fiscal agent and governing body for the RGHRP. Formed in 2001, the RGHRP works with private entities, other nonprofits, and local, state, and federal government partners to implement the recommendations of The 2001 Study, a restoration master plan for 91 miles of the Rio Grande in Colorado. The RGHRP fulfills its mission through the following programs: Riparian Stabilization, Instream Infrastructure Improvement, Watershed Stewardship, and Outreach and Education.

Since 2001, the RGHRP has improved the condition of the Rio Grande in the San Luis Valley by partnering with over 60 landowners, 7 ditch companies, and community collaboratives like the DNRP.

BACKGROUND

The DNRP is located along the Rio Grande in North Park, one of the few public parks in the small town of Del Norte in Southern Colorado's San Luis Valley (SLV). Project partners, including the RGHRP, DNTO, Trout Unlimited, SLVWCD, and Riverbend Engineering, worked with the Town of Del Norte to develop project plans and designs guided by planning documents and extensive community input.

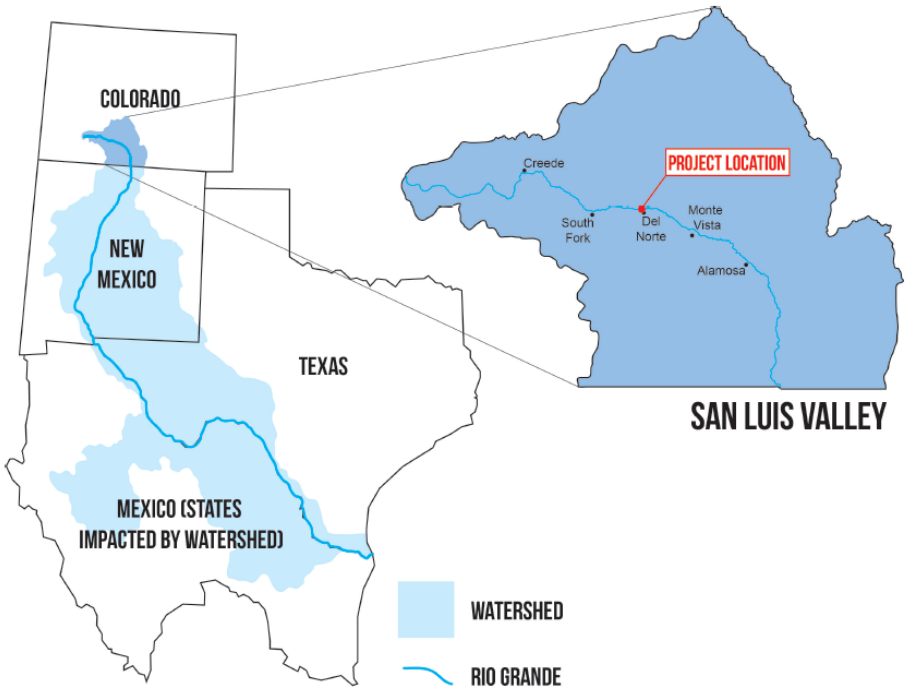

Figure 1. Location of the DNRP within the Rio Grande Watershed.

The DNRP was initially conceived in the 2008 Del Norte Trails Master Plan. This planning document was developed through extensive public outreach and diverse stakeholder engagement to lay out a comprehensive plan to develop trails and improve recreation opportunities in Del Norte. One of the main objectives of the Plan included "providing areas for additional fishing, kayak put-in and take-out, and building a whitewater park." (Del Norte Trails Master Plan, 11).

The DNRP was also supported by the RGHRP's 2001 Study. The 2001 Study analyzed the condition of the riparian area and structures along a 91-mile reach of the Rio Grande from the town of South Fork to the Alamosa – Conejos County line. The 2001 Study found the primary cause of degradation along the Rio Grande to be sedimentation, and identified measures that could be implemented to holistically improve the river's functions. Along the project reach, there were several areas of degraded riparian habitat, and disconnected floodplain due to gravel berms. The DNRP employed riparian restoration and streambank stabilization, to improve wildlife habitat and water quality at the project site.

Finally, the DNRP design and scope was developed and refined with input from state and local agencies and the community. Through the planning process, project partners held community-visioning sessions to engage the public and to give locals an opportunity to share their ideas for the project. This resulted in collaboration on park designs and in-stream elements between the community, project engineer, and partners. Additionally, partners consulted with Colorado Parks and Wildlife, Colorado Division of Water Resources, and Colorado Water Conservation Board during the design process. The responses from community input events and the direction from the planning documents as a whole demonstrate a strong, community-led foundation on which the DNRP is based.

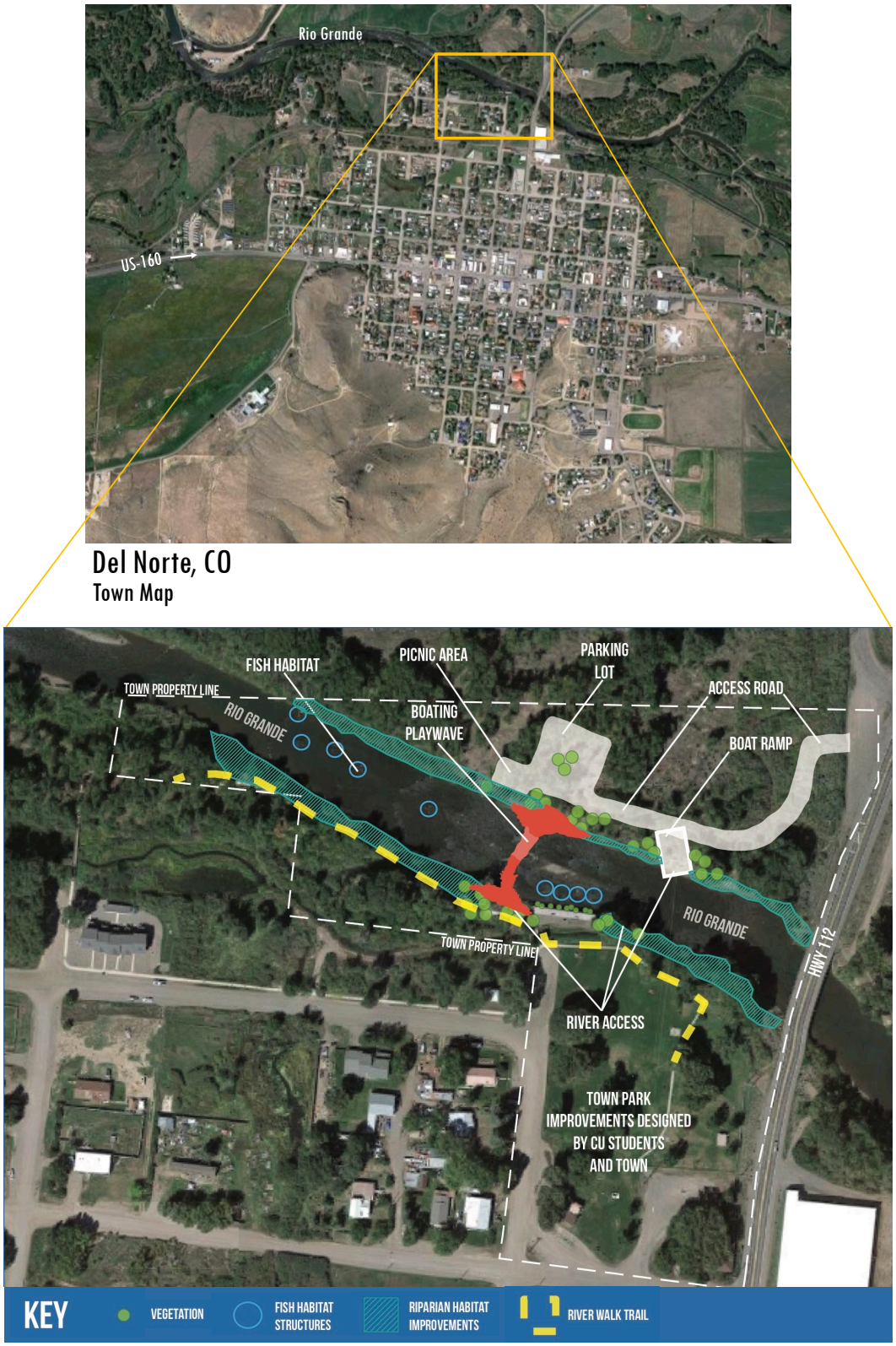

Figure 2. Location of the DNRP within the Town of Del Norte and Overall Project Components.

The long-term goal of the DNRP is to improve recreation opportunities and access and the ecological condition of the riparian areas for fish and wildlife habitat on the Rio Grande near North Park in Del Norte. The objectives of the DNRF were to:

1. Connect the residents of and visitors to the Town of Del Norte to the Rio Grande through the construction of hardened access points, a boat ramp, an access road and parking lot;
2. Improve local recreation opportunities through the construction of a multi-use boating playwave;
3. Improve aquatic habitat through the installation of six aquatic habitat structures;
4. Improve riparian condition by stabilizing 1,600 feet of streambank in the Project area;
5. Improve floodplain function and wetland habitat by reconnecting one acre of floodplain to the river;
6. Enhance water quality by reducing erosion and sediment input;
7. Promote public involvement in river improvement and recreation activities through public education and outreach.

METHODS

The following passages detail how the project objectives listed above were met through the completion of Project Tasks. CWCB funding supported the completion of Tasks 3, 4 and 6.

Task 1 - Project Design and Engineering

Description of Task: Complete designs and permitting for the Project elements, which include a rock boat ramp, a grouted rock boating playwave, aquatic habitat structures, streambank stabilization, and riparian revegetation.

Methods: Riverbend Engineering, LLC was hired as the project engineer to complete the survey, preliminary designs, and final designs for the boat ramp, playwave, habitat structures, and streambank restoration and revegetation. Russell Surveyors was hired to complete a landowner survey of the project area. A wetland delineation and cultural resource survey were completed by Ecosphere Environmental Services for the US Army Corps of Engineers Individual Permit. Riverbend Engineering worked with project partners and the Town of Del Norte to complete all required permits with the US Army Corps of Engineers and town. Project permits were obtained in Fall 2018. Throughout the design and permit process, Riverbend Engineering worked with Colorado Parks and Wildlife (CPW) to determine the appropriate design specifications for the playwave and aquatic habitat features. The playwave design included fish passage for small bodied fish, such as the Rio Grande Chub, as requested by CPW. In addition, project partners completed a design review through the CWCB with the assistance CWCB's Watershed Program Director, Chris Sturm.

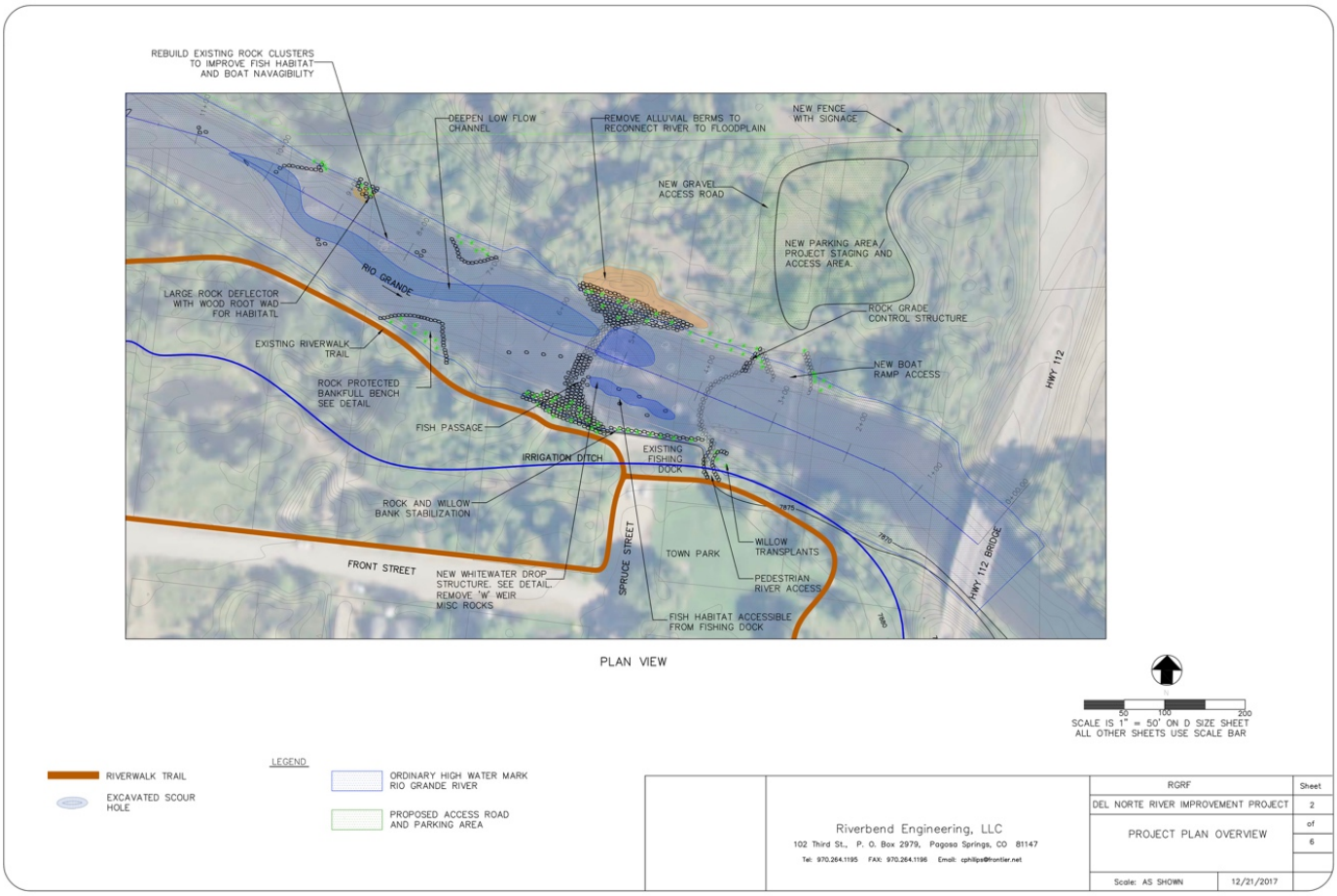

Figure 3: DNRP Project Design Overview.

Task 2 – Construction of Boat Ramp, Parking Lot, and Access Road

Description of Task: Construct the rock boat ramp, parking lot and gravel access road.

Methods: The CRGRF hired Robins Construction in Fall 2018 to build the boat ramp, parking lot, and access road. Robins Construction mobilized November 2018 and constructed the rock boat ramp by grading and shaping the site, placing large rocks with an excavator, and placing smaller rock rip rap for the ramp base. A gravel access road was built to the boat ramp and area cleared for the parking lot. A ribbon cutting for the new boat ramp was held on December 21, 2018 to celebrate the completion of the boat ramp with the community. Additional gravel and road base was added to the parking lot in Summer 2020 to improve new parking area.

Figure 4. Construction of DNRP Boat Ramp.

Task 3 – Construction of Playwave and Habitat Features

Description of Task: Construct a grouted rock playwave, six aquatic habitat structures, and restore 1,600 feet of streambank and one acre of floodplain through streambank stabilization and riparian revegetation.

Methods: The construction of the grouted rock playwave, aquatic habitat structures, streambank stabilization, and riparian revegetation was put out to competitive bid in September 2019. A mandatory pre-bid meeting was held for any interested contractors on September 12, 2019 at the construction site. Robins Construction was awarded the bid on October 1, 2019.

Robins Construction mobilized in November 2019 and began dewatering the north side of the river by building a coffer dam and installing a pump. Going into mid-December 2019, Robins Construction placed stacked large boulders to form the playwave structure. The rocks were grouted in place and the playwave chute was formed and grouted. Once the concrete set, the coffer dam was moved to dewater the south side of the river. In mid-January 2020, once the south side of the river was sufficiently dewatered, rock was stacked and grouted to connect with the rest of the structure and span the entire length of the channel. This section of the structure included a channel for fish passage. During this time, Robins Construction shaped the streambanks surrounding the playwave structure and stacked rocks to create tiered pedestrian river access on both sides of the river. The gravel berm on the north bank was

removed to provide improved floodplain access. On January 29, 2020, the coffer dam was fully removed, allowing water to flow freely across the entire structure.

Construction of the remaining fish habitat structures and riparian revegetation was completed in March 2020. Construction of the aquatic habitat and streambank stabilization structures involved channel shaping both up and downstream of the playwave, as well as the installation of rock habitat clusters, rock deflectors, J-hooks, and native material root wads. Following construction, riparian revegetation included the planting of willow transplants.

Figure 5. Construction of Grouted Rock Playwave.

Figure 6: DNRP Playwave and Aquatic Habitat Features Complete (April 1, 2020).

Task 4 – Monitoring

Description of Task: Monitor the project site before and during construction. Monitor the site for two years following construction using the RGHRP Sampling and Analysis Plan (SAP).

Method: Riverbend Engineering in partnership with the RGHRP completed pre-construction surveys, cross section transects, photographic documentation and visual stream assessments for the project site. Riverbend Engineering, LLC provided construction monitoring, oversight, and management to ensure all Project elements met desired specifications. Riverbend Engineering will complete an annual check to assess the condition and function of the playwave, boat ramp, streambanks, and aquatic habitat structures. The RGHRP completed post construction monitoring, including photographic documentation and visual stream assessments. The RGHRP will continue to monitor the site for two years following construction.

Task 5 – Community Engagement and Education

Description of Task: Conduct public outreach and engagement to raise awareness of Project activities. Encourage public engagement in future park improvements.

Methods: The RGHRP worked with project partners to conduct outreach and education efforts to keep the community informed in the project activities. This included the development of regular project newsletters, press releases, social media posts, and site tours. To help keep the public and park users informed during project construction, signage describing the project and its benefits was installed at the fishing dock, where many park users stopped to observe construction. In addition, information flyers were distributed to local business. Following construction, the project partners had planned to host a celebration and demo day to introduce the community to the new playwave. Due to the COVID-19 pandemic, this type of in person event was not possible. Instead, the RGHRP and Riverbend Engineering hosted an informational webinar open to the public on June 3, 2020. This webinar was recorded and is available on the DNRP page on the RGHRP's website: http://www.riograndeheadwaters.org/del-norte-riverfront-project.html. Partners will continue to work together to organize volunteer activities, youth educational events, and community celebrations at the park in the future.

Figure 7. DNRP Community Engagement and Education Events and Activities.

Task 6 – Project Management and Administration

Description of Task: Complete Project oversight, management, and partner coordination. Complete all necessary contracts, status reports, and internal and external documents. Ensure tasks are completed within approved costs and timelines.

Methods: The RGHRP oversaw project management and administration of the DNRP. This included completing contracts with project funders, the Town of Del Norte, and contractors; managing budgets and reimbursement requests; and completing periodic reports. In addition, the RGHRP performed project oversight, ensuring project design and implementation was timely and accurate. The RGHRP organized outreach and education efforts and completed site monitoring. The RGHRP will continue to organize outreach events and complete long-term monitoring.

RESULTS

The DNRP resulted in the successful implementation of the stated grant objectives through the methods listed above. The following describes in further detail how the DNRP furthered the grant objectives, benefiting the communities of Del Norte and the San Luis Valley and the condition of the Rio Grande in the project area.

Objective 1: *Connect the residents of and visitors to the Town of Del Norte to the Rio Grande through the construction of hardened access points, a boat ramp, an access road and parking lot.*

The DNRP resulted in the construction of a new boat ramp, several hardened river access points, and a new parking lot and access road on the north side of the Rio Grande in Del Norte. Prior to the DNRP, the community of Del Norte was largely disconnected from the Rio Grande through town. The new boat ramp, access road and parking lot created new river access on a recently acquired parcel on the north side of the river. Additionally, hardened rock access points were constructed throughout the project site in conjunction with aquatic habitat features and the boating playwave to allow for pedestrian river access. Through these activities, there has been a substantial increase in river use by community members. The Town of Del Norte estimates that use of the riverfront park site has more than doubled after the construction of these access features.

Figure 8. DNRP Boat Ramp Site Before (left) and After (right) Construction.

Objective 2: *Improve local recreation opportunities through the construction of a multi-use boating playwave.*

The DNRP resulted in the construction of a grouted rock boating playwave. The playwave was designed to create a hydraulic standing wave that functions at a wide range of flows. In addition, the playwave included a fish passage channel designed in consultation with Colorado Parks and Wildlife. The playwave has seen a high amount of use during its first season, including kayakers, surfers, boogie boarders, and tubers. Later in the season at lower flows, it has provided a fun spot for kids and community members to swim and play. Additionally, Adams State Adventure Program was able to use the new wave for their kayaking courses with undergraduate students. This is the first boating playwave constructed in the San

Luis Valley, improving recreation opportunities and drawing diverse users from communities across the Valley as well as visitors traveling through Del Norte.

Figure 9. DNRP Playwave Site Before (left) and After (right) Construction.

Figure 10. DNRP Playwave Users, Summer 2020.

Objective 3: *Improve aquatic habitat through the installation of six aquatic habitat structures.*
The DNRP resulted improved aquatic habitat through the construction aquatic habitat structures throughout the project area. Habitat structures includes a rock cross vane, rock J-hooks, rock deflectors, rock habitat clusters, native material revetment/root wads, and channel shaping. Each structure created different types of habitat to support fish species, including cover and holding water, spawning gravels, shade cover, flow diversity, and macroinvertebrate habitat. In addition, channel shaping created a deeper channel, improving habitat by cooling summer water temperatures and increasing holding capacity. Colorado Parks and Wildlife completed fish population surveys prior to project construction and anticipate completing additional surveys in coming years. This data will be helpful in understanding the project's impact on the fish population.

Figure 11. Aquatic Habitat Structures Complete.

Objective 4: *Improve riparian condition by stabilizing 1,600 feet of streambank in the Project area.*
The DNRP resulted in improved riparian condition through the stabilization of 1,600 feet of streambank and the planting of willow transplants throughout the project area. The rock habitat structures described above were also designed to stabilize streambanks throughout the project area. In addition, the planting of willow transplants throughout the project area improved riparian vegetation. The increased channel and bank stability will protect the existing and newly planted riparian vegetation from erosion in the future.

Objective 5: *Improve floodplain function and wetland habitat by reconnecting one acre of floodplain to the river.*
The DNRP resulted in the reconnection of one acre of floodplain on the north side of the river through channel shaping and the removal of a gravel berm during project construction. These activities improved floodplain function and wetland habitat on the north side of the river in the project area.

Figure 12. Reconnected Floodplain Through Berm Removal and Channel Shaping.

Objective 6: *Enhance water quality by reducing erosion and sediment input.*
DNRP activities, including channel shaping, streambank stabilization, and riparian restoration, will result in enhanced water quality. Streambank stabilization measures have reduced erosion and sediment inputs to the river. In addition, channel shaping created a deeper channel and pools, reducing summer water temperatures.

Objective 7: *Promote public involvement in river improvement and recreation activities through public education and outreach.*
The DNRP resulted in significant public outreach and education efforts, which promoted public involvement in river improvement and recreation activities. Public outreach and education throughout project implementation included press releases in local newspapers, regular DNRP email newsletters sent to interested community members, frequent site visits with community groups, and community events. Because this is a public project to improve community recreation opportunities, it was critical to provide updates to the community throughout the life of the project. These efforts resulted in significant public involvement and interest in the project. Moving forward, the RGHRP will continue to work with the Town of Del Norte, community groups, and local schools to organize educational events and activities to promote public and youth involvement in the DNRP.

Monitoring Results
The RGHRP staff complete site monitoring before, during, and after project construction. Monitoring consisted of photographic documentation and stream visual assessments for the project site. Scores for the visual assessments are shown in Figure 13. Additionally, Riverbend Engineering completed pre-construction surveys and cross section transects. Riverbend Engineering, LLC provided construction monitoring, oversight, and management to ensure all Project elements met desired specifications and will complete an annual check to assess the condition and function of the playwave, boat ramp, streambanks and aquatic habitat structures. The RGHRP will continue to monitor the project site for two years following construction.

Table 1. DNRP Stream Visual Assessment Scores

Assessment Category	Preconstruction October 2019	Postconstruction August 2020
Channel Condition	5	7
Hydrolic Alteration	7	8
Riparian Zone	7	8
Bank Stability	8	9
Water Appearance	8	10
Nutrient Enrichment	7	8
Barriers to Fish Movement	10	10
Instream Fish Cover	4	7
Pools	4	10
Invertebrate Habitat	7	9
Canopy Cover	2	3
Manure Presence	N/A	N/A
Salinity	N/A	N/A
Riffle Embeddedness	8	8
Overall Score	6.42	8.08

< 6.0 Poor
6.1-7.4 Fair
7.5-8.9 Good
> 9.0 Excellent

CONCLUSION AND DISCUSSION

DNRP objectives were completely met through the methods and results described above. Through the creation of formal river access, recreation infrastructure, streambank stabilization, and aquatic habitat improvements, the DNRP has successfully connected the community of Del Norte and visitors of to the San Luis Valley to the Rio Grande. Less than a year after project construction, the site has seen a substantial increase in river use by Del Norte residents, San Luis Valley residents, and visitors.

The RGHRP and Riverbend Engineering will complete long-term monitoring of the project site to ensure project activities continue to meet the grant objectives and needs of the community. The Town of Del Norte Public Works Department will be responsible for maintenance of the new infrastructure created through the DNRP. The RGHRP and Riverbend Engineering will work with the Town to ensure future maintenance is consistent with the original project designs and permit. These efforts will ensure the longevity of the project.

The DNRP is a multi-phased project to improve recreation opportunities along the Rio Grande through Del Norte. Additional park amenities and improvements on the north side of the river are currently

underway as a part of the next phase of the DNRP. Park amenities include an ADA accessible picnic shelter, trail and benches, changing shelter, and educational signage. The Town of Del Norte and stakeholders will continue to work together to plan for and fund additional improvements including a nature play area, amphitheater and stage, restrooms on the north side of the river, and trails to connect to the existing trail system. Future phases will build on the success of the DNRP and will further enhance the recreation experience along the Rio Grande in Del Norte.

Lessons Learned and Future Project Recommendations

The DNRP was the culmination of years of planning, coordination, and fundraising that wouldn't have been possible without the collaboration of each partner and funder. Lessons learned from the planning and implementation of this project include:

- Communication between partners is critical to project success. Maintaining clear communication with the project engineer, contractors, and partners throughout all stages of project implementation allows partners to address any unforeseen challenges or delays before they impact the project objectives, budget, and timelines.
- Public, community-led projects require additional time and coordination to allow for public input throughout project planning, design and implementation. Project partners held multiple public meetings and community nights throughout the planning and design process. Feedback from these meetings informed project designs. This process increased community ownership of and excitement around the project.
- Include Colorado Parks and Wildlife (CPW) early on in the design process and get their feedback on fish passage and aquatic habitat improvements. CPW provided valuable input and ensured the project meet the agency's management objectives for the area.
- Allow for additional time for project design, permitting and fundraising. The permit process took close to a year to complete. Additionally, it took project partners several years to secure the funding necessary to complete the project. Communicate realistic expectations of the project timeline to the public, partners, and funders.
- Allow flexibility in both time and funding for contingency plans in the case of challenges, such as extreme weather conditions or a global pandemic.
- Communication with the public was important throughout the life of the project. Partners developed an email list of interested community members gathered during project outreach efforts and community events. This list was used throughout the life of the project for regular email newsletters and updates to keep the public informed about the project. In addition, partners submitted regular press releases to local papers and put up informational posters about the project in local business.
- Develop and install safety signage before opening up a playwave or river recreation infrastructure to the community. Playwaves are hazardous and include strong currents and eddies. The DNRP playwave is the first in the area and many community members have not experienced one before. When the playwave was initially opened to the community, safety signage and information was not installed. This caused some confusion amongst community members about use of the playwave and park site. Project partners installed temporary safety

signs as soon as this need was identified. Partners will work with the Town of Del Norte to develop permanent signage, which will help address these concerns. In addition to signage, community events and outreach will provide opportunities to communicate river and playwave safety to the public.

- Continue to organize tours and volunteer events to provide opportunities for community involvement and ownership in the project. Project partners plan to organize youth volunteer and education events at the DNRP site to connect local youth to the project and teach them about river ecology and safe river recreation.
- Track all project timelines and complete needed reports in advance of deadlines.

The RGHRP is continuing to implement the recommendations of the 2001 Study, Lower Rio Grande Study, Upper Rio Grande Watershed Assessment, and Rio Grande Basin Stream Management Plans. Lessons learned throughout the DNRP will be applied to future projects implemented by the RGHRP and project partners. These lessons will be especially valuable to future river recreation and public access projects across the San Luis Valley, several of which are identified in the Rio Grande Stream Management Plan.

ACTUAL EXPENSE BUDGET

Table 2. Del Norte Riverfront Project Actual Expense Budget Table by Funding Source and Task

Task	Description	CWCB CWP Funds	Cash Match							TOTAL
			CWCB Severance Tax Grant	SLVCCI (2016 & 2017)	Gates Family Foundation	Laura Jane Musser Fund	Rio Grande County	CRGRF	GOCO LPOR Grant	
1	Project Design and Permitting	$ -	$ -	$ 51,900	$ 13,000	$ -	$ -	$ -	$ -	**$ 64,900**
2	Construction of Boat Ramp, Parking Area, and Access Road	$ -	$ -	$ -	$ -	$ 33,700	$ -	$ -	$ -	**$ 33,700**
3	Construction of Playwave and Habitat Features	$ 125,000	$ 37,000	$ -	$ 45,115	$ 1,300	$ 20,000	$ -	$ 263,535	**$ 491,950**
4	Monitoring	$ 10,000	$ 13,000	$ -	$ 2,100	$ -	$ -	$ 1,750	$ 15,000	**$ 41,850**
5	Community Engagement and Education	$ -	$ -	$ 3,000	$ -	$ -	$ -	$ 650	$ -	**$ 3,650**
6	Project Management and Administration	$ 5,000	$ -	$ 5,000	$ 10,000	$ -	$ -	$ 6,250	$ -	**$ 26,250**
TOTAL		**$ 140,000**	**$ 50,000**	**$ 59,900**	**$ 70,215**	**$ 35,000**	**$ 20,000**	**$ 8,650**	**$ 278,535**	**$ 662,300**

ACKNOWLEDGMENTS

The successful completion of the Del Norte Riverfront Project is a testament to hard work, collaboration, and coordination with the project partners, stakeholders and funders. Project partners and funders include the Town of Del Norte, Riverbend Engineering, Del Norte Trails Organization, Trout Unlimited, San Luis Valley Water Conservancy District, Robins Construction, Colorado Parks and Wildlife, Colorado Division of Water Resources, Great Outdoors Colorado, Colorado Water Conservation Board, Gates Family Foundation, San Luis Valley Conservation and Connection Initiative, Laura Jane Musser Fund, Rio Grande County, local businesses, and countless community members.

Special thanks to the Colorado Water Conservation Board for providing grant 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!

For More Information, Contact

Emma Reesor, Executive Director

Colorado Rio Grande Restoration Foundation

Rio Grande Headwaters Restoration Project

623 Fourth Street

Alamosa, CO 81101

(719) 589-2230

emma@riograndeheadwaters.org