

Section 5 - Implementation Program

5.1 Prioritized Enhancement Projects

The original sub-reach condition scores developed in Section 3 were used to prioritize the 12 high-priority structural projects. Although the individual projects are defined as located in specific sub-reaches, their effects are often realized for several sub-reaches downstream or upstream of the project location. **Table 5-1** presents a summary of the structural high priority projects and their affected sub-reaches. As shown, many of the improvements in Reach D affect channel geomorphology in Reach E. In addition, improvements to the Westside Diversion in sub-reach F2 affect the channel upstream in sub-reach F1.

Table 5-1. Affected Sub-Reaches and Prioritization of High Priority Structural Projects

Alternative	Sub-Reach		Average Score	Project Rank
	Location	Effects		
Del Norte Flood Protection	A6	A6	3.4	1
South Channel Geomorphic / Riparian Improvements	BB1-BB2	BB1-BB2	6.7	10
Reach C Geomorphic Improvements	C1-C3	C1-C3	6.7	11
Consolidated Slough/Pace Headgate Improvements	D1	D1	5.4	3
Other Reach D Headgate Consolidations	D2-D6	D2-D6	4.7	2
Monte Vista Flood Protection	D3	D3	6.9	12
Reach D Channel Stability Improvements	D1-D5	D1-E5	5.7	5
Reach E Channel Stability Improvements	E1-E5	E1-E5	6.6	8
Reach E Floodflow Containment	D3, E4, E5	D3-F2	5.7	6
Reach E Diversion Consolidation	E1-E5	E1-E5	6.6	8
Westside Diversion Consolidation	F2	F1,F2	5.6	4
Alamosa Levee System Improvements	F1	F1	6.1	7

The average scores of those sub-reaches affected by each of the high priority projects were calculated and used to rank each of the projects. As shown, the flood protection improvements in Del Norte rank as the highest priority project in the study area based on the technical scores used to evaluate the sub-reaches. This project is followed by improvements to the Reach D diversions, including the Consolidated Slough/Pace consolidation and improvement.

In considering project priorities, the Technical Advisory Committee felt that all these projects are important, and in general what can be done first should be done first, regardless of the ranking. It was agreed that many other factors such as cost, potential funding partners, construction sequencing, political preferences, etc., could affect the order in which projects are pursued. The TAC did express a general feeling that the Westside Diversion removal project may be the most important structural project on the list. It was also felt that the Consolidated Slough/Pace Headgate consolidation project would make an excellent demonstration project to showcase the benefits of headgate consolidation. The rankings listed above should be considered as simply one more piece of information in making implementation decisions.

Non-structural river enhancement measures were prioritized subjectively based on the opinion of the consultant team. Because of their application throughout the study area, a quantitative prioritization based on sub-reach ranking was not possible. Non-structural measures are listed below in order of priority.

The consultant team and the TAC agreed that the formation of the River Task Force was by far the most important non-structural project.

- 1) River Task Force
- 2) Riparian Buffers
- 3) Grazing Management
- 4) Land Use Planning
- 5) Floodplain Management
- 6) Snag & Drag Program
- 7) Beaver Management
- 8) Guidelines for Ditch/Diversion Maintenance
- 9) Flow Management
- 10) Sediment/Watershed Study

Figure 5-1 depicts the organizations that should be responsible for the various non-structural measures.

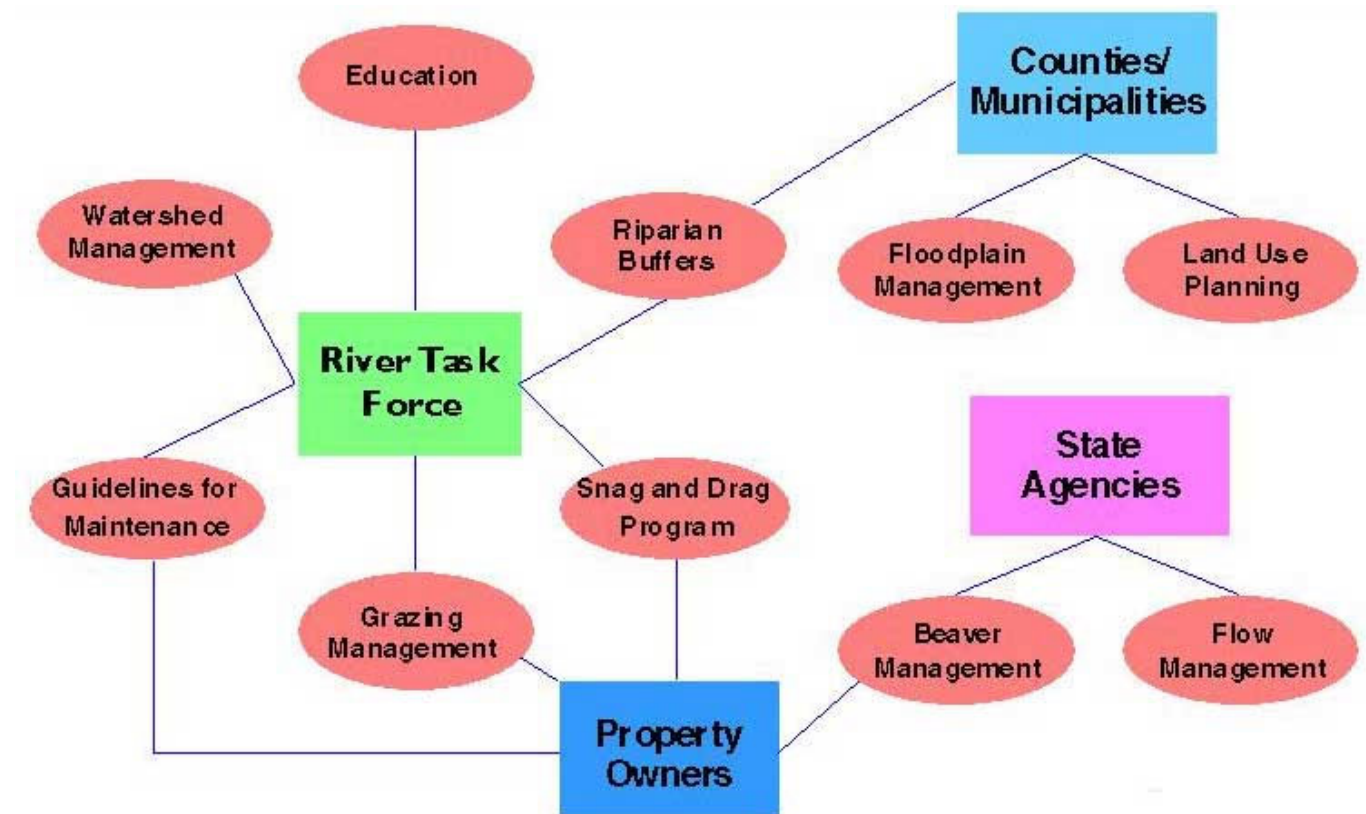


Figure 5-1. Organizations and Their Primary Responsibilities for Implementing Non-Structural Projects

The River Task Force should assist local governments, property owners, and other interested parties in implementing the structural projects which are not included on the high-priority list. The Handbook of Alternatives is one tool available for encouraging such projects.

5.2 Cost Estimates

Planning level cost estimates for the high priority structural projects have been developed to provide the TAC and other decision makers with “ball-park” level information for planning purposes. A summary of these cost estimates is presented in **Table 5-2**. The cost estimates are based upon the feasibility level design discussions presented in Section 4. Unit cost information was taken from experience with similar projects, national cost publications and local vendors. Costs include estimated construction costs, engineering costs, right-of-way costs and project management costs. Out of the 12 projects listed, there are 4 flood protection projects, 4 geomorphic/channel stability projects, and 4 diversion consolidation projects. In each case, a feasibility/design study is recommended. For the flood protection projects, such studies would be Flood Hazard Mitigation Plans. For any of the 12 projects, these feasibility/design studies would provide more detailed cost information.

Costs of implementing the recommended non-structural measures could vary widely and would be different for each community or agency. These costs have not been estimated at this time.

Table 5-2. Planning Level Cost Estimates for High Priority Structural Projects

Project	Alternative ⁽¹⁾	Total Cost
Del Norte Flood Protection	Option 1 - Railroad Levee	\$500,000
	Option 2 - Channel Levee	\$900,000
	Option 3 - Bypass Channel	\$6,600,000
South Channel Geomorphic / Riparian Improvements		⁽³⁾
Reach C Geomorphic Improvements		⁽³⁾
Consolidated Slough/Pace Headgate Improvements	Option 1 - North Route	\$400,000
	Option 2 - South Route	\$350,000
Other Reach D Headgate Consolidations		⁽³⁾
Monte Vista Flood Protection	Item 1 - Levee, Channel and Culvert	\$1,000,000
Reach D Channel Stability Improvements		⁽³⁾
Reach E Channel Stability Improvements		⁽³⁾
Reach E Floodflow Containment	Item 1 - North Farm Road Levee	\$1,500,000
	Item 2 - River Road Levee	\$2,400,000
	Item 3 - Wasteway Structures (each)	\$500,000
Reach E Diversion Consolidation	Option 1 - Without Westside Delivery Alternative	\$1,100,000
	Option 2 - With Westside Delivery Alternative	\$1,500,000
Westside Diversion Consolidation	Option 1 - Pumping Station ⁽²⁾	\$350,000
	Option 2 - Excelsior Extension	\$400,000
	Option 2b - Excelsior with Small Pumps ⁽²⁾	\$500,000
	Option 3 - Empire Extension	\$800,000
	Option 4 - Replace Diversion Structure	- Infeasible -
Alamosa Flood Protection	Option 5 - Excelsior with Wastewater	\$400,000
	Item 1 - Levee	\$3,600,000
	Item 2 - Drains	\$100,000

Notes:

- (1) The label “option” pertains to alternatives which are mutually exclusive (select only one alternative). The label “Item” pertains to those alternatives which are not mutually exclusive (apply all items).
- (2) Cost does not include annual pumping costs. Estimated annual pumping costs: Option 1 - \$6,000; Option 2b - \$2,000.
- (3) Costs could vary widely depending on actual projects to be implemented.

5.3 Implementation Schedule

Implementing projects in the order of the previously presented priority rankings of structural and non-structural river enhancement measures would generally address the most severe problems first. However, several other factors could influence the order in which projects are pursued, including the availability of outside funding, ability to capitalize on other related projects or partnerships, the potential for developing effective demonstration projects, and the willingness of affected private property owners to participate in recommended solutions.

With these factors in mind, it is recommended that the following implementation activities be initiated as soon as feasible.

1. Form the recommended River Task Force immediately. The River Task Force should move quickly to establish partnerships with local governments and possible funding organizations, and to focus the efforts of public and private organizations on making the RGHRP recommendations a reality. One of the first tasks of the River Task Force should be to develop and implement a public outreach program to encourage full community support for the principles of good river corridor stewardship. This program could also provide limited technical assistance to property owners wishing to implement projects based on these stewardship principles.
2. Seek formal adoption of the RGHRP report by local governments, and endorsement of the report by CWCB.
3. Begin the political lobbying process necessary to eventually have all the entities adopt stream buffer, land use, and floodplain management ordinances that will protect the river corridor from future impacts. It is anticipated that gaining approval for these ordinances could be difficult, and work in forming political alliances should begin immediately.
4. Identify any land acquisition requirements for the high-priority structural projects, and develop a property acquisition plan. Because land values in the river corridor will continue to rise, acquiring needed property as early in the implementation process as possible will minimize project costs.
5. Secure funding for specific feasibility studies that will be required to implement the key RGHRP recommendations (see below).
6. Package preferred channel restoration projects in ways that will attract funding from outside sources. Financial assistance is primarily available for wetlands and wildlife protection and enhancement projects, so it is important to identify and quantify benefits in these categories for any proposed projects.
7. Coordinate with the NRCS, which currently has a grant for implementing bank stabilization and grazing management measures with selected willing landowners. The current and proposed NRCS river stabilization projects are generally consistent with the recommendations of the RGHRP.
8. Identify demonstration projects, like those being performed by NRCS, that can be readily implemented and serve as focal points for generating community interest in the RGHRP. Examples include establishing stream buffers on selected parcels, and consolidating selected irrigation headgates.

The River Task Force should set its own implementation priorities based on knowledge of special opportunities for partnering with other organizations and projects, for working with selected landowners, and for capitalizing on advantageous political conditions. It should be expected that priorities will shift over time as different opportunities arise.

Recommendations presented in Section 4 include a number of additional feasibility-level studies that will be necessary to implement the proposed structural and non-structural projects. The most important additional studies are listed below.

- Prepare Flood Hazard Mitigation Plans for the cities of Del Norte, Monte Vista and Alamosa. These will include detailed analyses of potential flood management measures, and will be developed in close cooperation with city and County staffs.
- Prepare more detailed engineering studies of the possible approaches for combining the Reach D headgates, improving the Consolidated Slough/Pace headgates, combining Reach E headgates, and fixing the Westside diversion problem. The RGRHP has identified several options in each case. Engineering feasibility, cost, and stakeholder preferences need to be evaluated for each project in order to select and then design a recommended solution.
- Prepare more detailed engineering/geomorphological studies of specific elements of alternatives for South Channel improvements, Reach C improvements, Reach D improvements, and Reach E improvements. These studies would identify specific locations of various channel treatments such as reconnected oxbows and meanders, rock spills, bank stabilization measures, etc.
- Perform hydrologic and hydraulic modeling studies to determine whether approaches to meeting the Rio Grande Compact deliveries can be developed that provide greater benefits for the river corridor. The Rio Grande Decision Support System model should be used in this analysis, which will have to be coordinated closely with the State Engineers Office.

5.4 Potential Implementation Partners and Funding Sources

This section provides information on organizations that may be potential implementation and funding partners for Rio Grande river enhancement projects.

Natural Resources Conservation Service

The NRCS in San Luis Valley is active in assisting landowners with stream bank stabilization projects and working with ranchers to reduce or eliminate grazing impacts on these fragile stream bank areas. The NRCS has also coordinated a regional Section 404 permit with the Army Corps of Engineers to facilitate future implementation of restoration projects in the Rio Grande Corridor.

The Natural Resources Conservation Service has several cost-share programs available for different types of land conservation practices. Those which may have potential regarding the RGRHP are listed below (www.co.nrcs.usda.gov).

Conservation Reserve Program (CRP) - The Conservation Reserve Program is the largest and one of the most effective USDA environmental improvement programs. The CRP “allows landowners and operators the opportunity to enter into 10-15 year contracts with USDA and convert highly erodible and other environmentally sensitive cropland to vegetative cover such as introduced and native grasses, wildlife habitat and food plot plantings, trees, filter strips, or riparian buffers.” Landowners receive annual rental payments in return, which in Colorado, averages \$30.92 per acre. The latest CRP enrollment includes no acreage in Rio Grande or Alamosa County.

Environmental Quality Incentives Program (EQIP) - The Environmental Quality Incentives Program provides technical, financial and educational assistance to farms and ranchers to address significant natural resources concerns. Conservation practices include grassed waterways, filter strips, manure management facilities, capping abandoned wells, and protecting wildlife habitat. Priority areas and natural resource concerns are identified at the local level and supported by the State Technical Committee. NRCS pays up to 75 percent of conservation practices and are limited to \$10,000 per year and \$50,000 over the life of the contract per person. Although the Central San Luis Valley is no longer identified as a Priority Area, EQIP priority issue money is still available.

Resource Conservation and Development (RC&D) - The USDA has established RC&D areas to promote conservation development and use of natural resources; to improve the general level of economic activities; and to enhance the environmental and standard of living in communities. Six RC&D areas have been established in Colorado, including the San Luis Valley RC&D. The SLV RC&D secured \$52,000 to form the San Luis Valley Environmental Conservation Education Council whose purpose is to provide environmental conservation education to youth. The committee also developed a strategic plan with the intent of hiring a coordinator and developing a volunteer board.

Small Watershed Program (PL-566) - The Small Watershed Program is administered through the Watershed Protection and Flood Prevention Act (PL-566), which authorizes the Secretary of Agriculture to provide technical and financial assistance in planning and development of watershed projects. Thus far, no projects have been implemented in the San Luis Valley through this program. Although this program may not be applicable on the mainstem Rio Grande, there could be applicability to smaller tributary streams.

Wetlands Reserve Program (WRP) - The Wetlands Reserve Program is a land-retirement program aimed at restoring and protecting wetlands to help achieve the national goal of no net loss of wetlands. Cost-shares vary, with a 75 percent share for wetlands restoration with 30-year or perpetual easements that pay 75 percent or 100 percent of the appraised agricultural value of the land. WRP partners in Colorado include Partners for wildlife, Ducks Unlimited and Colorado Division of Wildlife. There is currently a waiting list for funding in Colorado.

Wildlife Habitat Incentives Program (WHIP) - The WHIP program is a wildlife habitat improvement and restoration program which offers landowners up to 75 percent cost-share for wildlife habitat improvement projects. The Colorado WHIP program objectives are to improve habitat for declining or at-risk species; to improve habitat and increase the population of economically important species, and to reduce significant agriculture/wildlife conflicts.

U.S. Army Corps of Engineers

The COE can participate in flood control and environmental restoration projects that meet certain benefit/cost and national economic development criteria. Reconnaissance studies can be completed with federal funds, but major design and construction projects require a significant local cost-share. Staff members of the Albuquerque District of the COE have indicated that many of the stream enhancement projects recommended in the RGHRP could qualify for COE participation.

Partners for Fish and Wildlife

Sponsored by the U.S. Fish and Wildlife Service, the Partners for Fish and Wildlife program is designed to provide funding and technical assistance for habitat improvement projects to private landowners. The San Luis Valley has been and remains the area of greatest emphasis due to its high value for migrating waterbirds and extensive landowner interest.

USEPA Regional Geographic Initiative Program

The purpose of the Regional Geographic Initiative (RGI) program is to provide grants for projects which have been identified as high priority by an EPA region, state or locality. These projects generally pose a high human or ecosystem risk and have significant potential for risk reduction. The problems are defined geographically rather than by pollutant or sector. All of the initiatives support one or more of the seven EPA guiding principles: ecosystem management, environmental justice, partnerships, sound science and data, pollution prevention, reinventing EPA management and environmental accountability (www.epa.gov/regional/rgi.htm).

Funding for regional initiatives is generally considered to be “seed” money. RGI projects generally expect funding for four years, including one year of project development and partnering and three years of project implementation. The general timeline for the process is October through January.

Colorado Water Conservation Board (CWCB)/Department of Natural Resources

CWCB provides funding for flood hazard mitigation plans, and has a new program to fund floodplain mapping projects in the State. Funding for demonstration restoration projects could be provided, similar to support currently being provided for the Alamosa River restoration project. CWCB makes loans available for flood mitigation and erosion control projects through its Construction Fund.

Cooperative Habitat Improvement Program

Administered by the Colorado Division of Wildlife, this plan is a cost-sharing program for landowners interested in improving or developing wildlife habitat. The program is designed to benefit wildlife, with little or no cost or sacrifice to agricultural production.

Habitat Partnership Program

This Colorado Division of Wildlife program is designed to mainly alleviate rangeland forage and fence conflicts with big game animals. However, this plan can also be used to improve habitat where game animals concentrate.

Colorado Waterfowl Stamp Program

Monies from this funding source provide matching funds to private landowners interested in developing projects that provide benefits to waterfowl and wetland habitats.

Colorado’s Wetland Initiative Legacy Project

Administered by the Colorado Division of Wildlife, this program conserves biologically significant wetlands in Colorado. Acceptance into this program is dependent upon the significance of wetlands involved.

Colorado State Trust Lands

State Trust Lands are private properties that contain high wildlife recreational uses such as hunting. The Division of Wildlife sets aside monies for these lands. Some enrolled lands are then selected for specific habitat management projects such as creation of small impoundments, fencing riparian corridors, and vegetative habitat plantings.

Great Outdoors Colorado Trust Fund

The Great Outdoors Colorado Trust Fund program receives a portion of Colorado Lottery proceeds to award grants for recreation, wildlife and open space. The program has awarded \$240.9 million in grants for 1419 projects in the state. Natural resources related projects within Rio Grande and Alamosa Counties include an inventory of Native Species project by the Colorado Division of Wildlife, the Medano/Zapata Ranch project by the Nature Conservancy, the San Luis Valley Community-Based Conservation Project, San Luis Valley GIS Development/Smart Growth, a Wetland Development and Enhancement Project, and many others. Grant amounts ranged from \$10,000 to \$2,000,000. Grants are typically awarded to Colorado State Parks, Division of Wildlife, Local Governments and non-profit land conservation organizations such as the Nature Conservancy (www.goco.org).

Grant cycles vary based on project type. Grant requests by local governments typically take 6 to 9 months from application distribution to grant award.

San Luis Valley Wetland Focus Area Committee

This group represents the local link to national funding organizations interested in supporting wetland preservation and enhancement projects. This group has been successful in attracting money for previous projects in San Luis Valley.

Rio Grande Headwaters Land Trust

The Rio Grande Headwaters Land Trust works with property owners to provide financial incentives to establish conservation easements and preserve lands for agricultural use. The organization could be instrumental in establishing easements along the riparian corridor and providing institutional barriers to further urbanization of the corridor.

River Network

River Network is a national non-profit organization with a mission to “help people understand, protect and restore rivers and their watersheds.” The organization helps to build citizen groups and works with private land owners and public agencies to acquire and conserve critical riverlands (www.rivernetwork.org).

The River Network has teamed with the EPA to institute the Watershed Assistance Grants (WAG) program. This program is a component of the Clean Water Action Plan. The grants range from \$1,500 to \$30,000 and are primarily used as seed money intended to initiate grass-roots watershed protection groups. Recipients include watershed groups, planning commissions, universities, water districts and municipalities. Projects included development of GIS databases, funding for meetings/conferences, hire coordinators, and conduct studies. The grants cannot be used for on-the-ground restoration projects.

Proposals are normally due in mid-August, with final grant recipients announced no later than November. All funds must be used within the River Network’s fiscal year, which ends on September 30.

Private Organizations

Private organizations such as Ducks Unlimited and Trout Unlimited recognize the importance of private property to healthy wildlife populations and will continue to assist willing landowners through consultations and funding projects to enhance habitat.